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INDIVIDUAL CONSULTANCY SERVICES FOR PROJECT EVALUATION

"Improve the Capacity of CMWU for Monitoring the Quality of Water Supply in the Gaza Strip"

REF #:IC-2013-132

(May 6 - June 17, 2013)

Funded by

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FINAL EVALUATION REPORT

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EXECUTIVE SUMMARY

This is a final report concerning the ex-post evaluation of *"Improve the Capacity of CMWU for Monitoring the Quality of Water Supply in the Gaza Strip"* project.Based on known competitive procedure, UNDP has selected *Prof. Mohamed Ziara* as an individual consultant for the evaluation assignment.The project duration was from 1st September 2010 to 28th February 2012 extended to 31st December 2012. The evaluation assignment started on May 6, 2013 and the completion date is June 17, 2013.

The project idea was initiated after the 2008-2009 Israeli military operation in Gaza as there was a concern regarding the possible contamination of water supply system as a result of remnant of Israeli military operation; continuous use of intensive pesticides; and dumping of untreated and partially treated wastewater into sand dunes and the sea. The project idea was developed by UNDP/PAPP in collaboration with the CMWU, WASH Cluster and support from other relevant institutions including PWA, MOH, MOA, etc. It was concluded that the quality of domestic water need to be assessed with regards to heavy metals and monitor. In order to achieve this aim there was a need to improve the capacity of monitoring the quality of water supplyof CMWU who is the water service provider.

> *"UNDP/PAPP has supported the Coastal Municipal Water Utility "CMWU" to improve its capacity on monitoring the quality of water supply in the Gaza Strip. The project is funded by the Austrian Development Cooperation with amount of EURO 500,000, executed by UNDP/PAPP and implemented by the Coastal Municipal Water Utility (CMWU).*

The project aimed at achieving the following results:

A. Established baseline of heavy metals concentration in Gaza Aquifer. The baseline map will also enable monitoring the quality of water regularly.
B. Improved the capacity of CMWU to monitor the quality of water supply by providing CMWU lab with proper equipment and carry out training to lab staff.
C. Increased public awareness on the impact of water pollution including the heavy metal pollutant.

A consultant (Joint venture of Almadina, Enfra and DHV B.V.) was hired to achieve part of result "***A***" (heavy metal baseline), carry out water quality training to trainees from CMWU and other relevant institutions (part of result "***B***") and conduct public awareness campaign workshops (part of result "***C***"). Upgrading *CMWU* equipment lab and carrying out public awareness campaigns were conducted directly by CMWU. Tests of heavy metals were originally carried out locally in corporation with an Egyptian lab. Due to unacceptable test results, tests were then carried out abroad in the Netherlands. Three CMWU lab staff members were also trained on heavy metal testing in the Netherlands.

The overall objective of the evaluation is to assess how the project outputs are being achieved. The general principles underpinning the approach to evaluation were: Impartiality and independence, credibility of the evaluation, participation of stakeholders and usefulness of the evaluation findings and recommendations. The purposes of evaluation were:

- To make systematic and objective assessment of the project, its design, implementation and results.
- To determine the ***relevance*** and fulfillment of objectives, developmental ***efficiency***, ***effectiveness, impact*** and ***sustainability.***

- To provide information that is credible and useful, enabling the incorporation of lessons learnt into the decision-making process of both recipients and donors.

In particular, according to TOR the evaluation purposes were:

- *"To assess the performance of the project in relation to achieving the intended results;*
- *To provide information on the status of project implementation to ensure the delivery of the outputs;*
- *To advise CMWU and UNDP/PAPP on the next steps;*
- *Document strengths, weaknesses and lessons learnt."*

The scope of the evaluation according to the TOR will cover the following areas:

- *The extent to which the project has improved the capacity of CMWU for monitoring the quality of water;*
- *Partnership: assess the effectiveness of the partnership that the project has built."*

The consultant used a multi-methodological, dynamic learning-oriented approach based on effective participation of stakeholders. The approach was flexible that combined primary and secondary sources based on 'triangulating' the results. The primary information were obtained from ***interviews*** with CMWU, UNDP, consultant, donor and other project stakeholders, ***focus groups*** with NGOs and steering committees, ***participatory observations*** from field visits, and ***reflection workshop*** to provide feedback from representatives of all project stakeholders. The secondary information included material review including project documents and reports as well as other references in the concerned field.

The evaluation approach used qualitative and quantitative methods based on triangulation, cross checking and validation with the view to conclude objective and evidence based information on the assignment issues. Triangulation refers to the use of different information sources, methods, types of data, or evaluators to study an issue from different perspectives and thereby arrive at findings that are more reliable. Crosschecking, triangulation, and validation of evaluation results with stakeholders was the adopted approach by the evaluator to reach objective and evidence based information. The evaluation procedure included tools design, data collection and analysis, feedback presentation, conclusions, recommendations and learning lessons.

The project evaluation findings included conclusions, recommendations, lessons learnt, successful indicators, successful stories, etc. It should be emphasized that the evaluation will be only successful if it was taken positively into consideration by project stakeholders.

The project three components have been successfully implemented and achieved more benefits than planed and expected by beneficiaries:

Component A: The heavy metal baseline information was obtained for the domestic water across the Gaza Strip by testing large number of wells (exceeding 170 domestic wells) in a reliable lab in the Netherland. The test results showed that the concentration of heavy metals has reached unacceptable levels in a number of locations in Rafah, Khan Younes, etc. The baseline information was sent to concerned institutions for their considerations and to take appropriate measures as necessary. CMUW is planning to monitor periodically the changes in the heavy metal concentrations based on the established baseline information. The testing will be carried out directly by CMWU using its own lab that was upgraded as part of this project.

Component B: The capacity of CMWU in testing heavy metals was significantly improved by acquiring the ICP equipment and by training the lab staff both in Gaza and in the Netherland on

testing heavy metals. It should be mentioned that trainees from other institutions have attended the training in Gaza which added more benefits out of the project. CMWU lab staff members who were trained in testing heavy metals in the Netherland were able to train their colleagues in Gaza using the purchased ICP. They have also the ability to train other lab staff from other intuitions.

Component C: Comprehensive Awareness campaigns concerning water sector and heavy metals have been conducted in form of workshops to public of different socioeconomic backgrounds. The workshops were planned and carried out by the consultant with full involvement from NGOs across the Gaza Strip. In addition, more campaigns were planned and implemented directly by CMWU using a variety of means and techniques that included radios, national and international TVs, ITs, leaflets, etc. These campaigns have reached thousands of people not only in the Gaza Strip but also in State of Palestine and in the Word.

The main lessons learnt from the successful implementation of the project are:

1. There is a heavy metal contamination problem in Gaza Strip which was unknown before the project.
2. Studies should be carried out with full involvement by the Palestinian institutions tomaximize ownership and sustainability of the project results.
3. Local institutions, especially CMWU are capable to conduct similar projects in the future, especially after the capacity building gained in this project.
4. Relevant personnel and institutions become more active if they were given the chance to get involved in all project management cycle.
5. Monitoring and evaluation of project activities and results may change the planned activities and result in improved benefits.

The main recommendations for future programming are:

1. There is a need to develop a comprehensive monitoring plan for water sector with involvement from all concerned institutions. Testing may include drinking water from other sources, agricultural water wells, plants and soil.Testing may also include the effects of pesticides.
2. There is a need to investigate the causes, and develop mitigation and remedial measures of heavy metal pollutions in the contaminated areas.
3. There is a need to evaluate health issues for the people where underground water was found contaminated.
4. There is a need for the concerned Palestinian regularity institutions to develop or adopt specific polices, regulations, standards, guidelines, etc. in the fields of water sector in general.
5. There is a need to continue public awareness campaigns to reach larger audience including schools through curriculum or non-curriculum activities.
6. It is recommended that the sector structure and institution mandates be rechecked to identify responsibilities and boarder lines between involved institutions.Testing of water quality for the purpose of monitoring could be assigned to an independent body to overcome any interest of public institutions.
7. There is a need to support research in the field of heavy metal pollution.
8. There is a need to publish available information on heavy metals including future updated information to be used by concerned institutions. Publication can be posted on CMWU website.

The successful indicators included:

1. More benefits have been achieved regarding each of the three project components.
2. More institutions were trained.
3. A larger number of wells were tested.

4. Public awareness was huge and reached people not only in Gaza and State of Palestine but also regional and international audience.

The success stories included:

1. The project is judged to be a success story. More benefits were achieved than was anticipated by beneficiaries.
2. Conducting additional awareness workshops and activities targeting for example children during which special plays and coloring books were used to raise the children awareness of the concerned issues.
3. Female trainees participated in awareness campaign were able to obtain employment in new projects based on their experience in this project.
4. CMWU staff members were able to operate the ICP despite the impossibility to be trained in Israel.

LIST OF ABBREVIATIONS

CMWU	Coastal Municipality Water Utility
EPA	Environmental Protection Agency
EQA	Environment Quality Authority
HR	Human Resource
ICP	Inductive coupled plasma
MOH	Ministry of Health
MOA	Ministry of Agriculture
NGOs	None Government Organizations
PAPP	Programme of Assistance to the Palestinian People
PWA	Palestinian Water Authority
UNEP	United Nations Environmental Programme
UNDP	United Nations Development Programme
UNRWA	United Nations Relief and Works Agency
WHO	World Health Organization

1. INTRODUCTION

1.1 Project Background

The project idea was initiated after the 2008-2009 Israeli military operation in Gaza as there was a general concern regarding the possible adverse environmental effects of Israeli military operation on many aspects of the human life including water, plants, soil, buildings, roads and other facilities. "United Environmental Unit" has conducted an investigation covering the majority of the facilities and resources that could be affected by the Israeli military operation . UNDP and CMWU were particularly concerned with the quality of the underground water that could be polluted by heavy metals not only from the Israeli military operation but also by other pollution sources.

The project idea was developed by UNDP in collaboration with the CMWU and support from other relevant institutions including PWA, MOH, MOA, etc. It was concluded that the quality of domestic water need to be assessed and monitor. In order to achieve this aim there was a need to improve the capacity of CMWU who is the water service provider,to monitor the quality of water supply.

> *"UNDP/PAPP has supported the Coastal Municipal Water Utility "CMWU" to improve its capacity on monitoring the quality of water supply in the Gaza Strip. The project is funded by the Austrian Development Cooperation with amount of EURO 500,000, executed by UNDP/PAPP and implemented by the Coastal Municipal Water Utility (CMWU).*

The project aimed at achieving the following results:

A. Established baseline of heavy metals concentration in Gaza Aquifer. The baseline map will also enable monitoring the quality of water regularly.

B. Improved the capacity of CMWU to monitor the quality of water supply by providing CMWU lab with proper equipment and carry out training to lab staff.

C. Increased public awareness on the impact of water pollution including the heavy metal pollutant.

The project duration was from 1st September 2010 to 28th February 2012 extended to 31st December 2012.The following major activities were carried out during the project lifetime:

- *A consultant*(Joint venture of Almadina, Enfra and DHV B.V.)*was hired to identify sampling stations and list of heavy metals parameters to be tested in cooperation with CMWU and PWA; undertake sampling, results analysis and formulate mitigation measures. The consultant trained the lab technicians on the concept of heavy metals, effect on human health, source of heavy metal, case study, procedures and equipment for testing the heavy metals.*

Initially, a local lab at Al Azhar University was hired to conduct the testing in collaboration with an Egyptian lab. The results of some tests were questionable. Therefore, the contract with the local lab was ended and testing of heavy metals was conducted by an international lab in the Netherlands.

- *Water samples analysis: heavy metals concentration along Gaza aquifer was measured and baseline information was established, which will be used later on to monitor pollution and identify pollution sources and possible pollutants.*

- *UNDP/PAPP supported the upgrading of CMWU water quality laboratory in Deir Al Balah, which is equipped with simple water kits for testing chlorides. After upgrading the lab, it became capable to perform all water and wastewater tests.*

The capacity improvement included providing the lab with equipment to test heavy metal and training of CMWU staff in the Netherlands on testing of heavy metals. The lab equipment was purchased directly through CMWU without the involvement of the consultant as per the contract.

- *Public awareness regarding water quality issues and its impact on public health including potential sources of pollution was raised."*

Five awareness workshops were conducted across Gaza Strip targeting public with different background and interest including children, youth, housewives, farmers, media, etc. The workshops were conducted under the supervision of the consultantas per their contract assignment. In addition, CMWU has conducted separate awareness campaigns targeting larger populations using various techniques including TVs, radios, booklets, brochures, coloring book, plays, stickers, adds, IT facilities, etc.

1.2 Principles of Evaluation

The general principles underpinning the approach to evaluation are[1]:

- ***Impartiality and independence*** of the evaluation process from the programming and implementation functions.
- ***Credibility of the evaluation***, through use of appropriately skilled and independent expert, and the transparency of the evaluation process, including wide dissemination of results.
- ***Participation of stakeholders*** in the evaluation process, to ensure different perspectives and views are taken into account.
- ***Usefulness*** of the evaluation findings and recommendations, through timely presentation of relevant, clear and concise information to decision makers.

1.3 Evaluation Overall Objective

"The overall objective of this evaluation is to assess how the project outputs are being achieved."

1.4 Evaluation Purpose

Generally, the purposes of evaluation are[1]:

- To make systematic and objective assessment of the project,its design, implementationand results.
- To determine the relevanceand fulfillment of objectives, developmentalefficiency, effectiveness, impact and sustainability.
- To provide information that iscredible and useful, enabling the incorporation oflessons learned into the decision-making process ofboth recipients and donors.

In particular, for this project the evaluation purposes are:

- *"To assess the performance of the project in relation to achieving the intended results;*

[1]Handbook on Planning, Monitoring and Evaluating forDevelopment Results, United Nations Development Programme, 2009.

- *To provide information on the status of project implementation to ensure the delivery of the outputs;*
- *To advise CMWU and UNDP/PAPP on the next steps;*
- *Document strengths, weaknesses and lessons learnt."*

1.5 Scope of the Evaluation

"*The scope of the evaluation according to the TOR will cover the following areas:*

- *The extent to which the project has improved the capacity of CMWU for monitoring the quality of water;*
- *Partnership: assess the effectiveness of the partnership that the project has built."*

1.6 Assignment and Duration

Basedon known competitive procedure, UNDP has selected ***Prof. Mohamed Ziara*** as an individual consultant for the evaluation assignment. The assignment duration is 6 weeks and the level of consultant effort is 14 days. The assignment has started on May 6, 2013 and the completion date is June 17, 2013.

1.7 Point of Departure of the Evaluation

It was easy for the evaluator to recognize the commitments of all involved institutions towards their missions. ***UNDP*** who was the project execuation institution and***CMWU***who was the implementation institution, ***consulatnt*** and other project stakeholders including***PWA, MOH***, etc. were all supportive to this assignment. The openness and patient of UNDP and CMWU in particular,to the evaluation process is the consequence of the importance within their instittions of being aware of the strengths and the weaknesses so as to improve the performance in future projects. These are very well established instituions with good reputation and vast experience. Though, with respect to this project these institutions were eager to improve, change, to be learning culture based organizations, to be a reference model in the field of water quality monitoring for results-based monitoring andevaluation of donor funded projects.

2. EVALUATION CRITERIA, QUESTIONS AND SUB-QUESTIONS

The following table includes the evaluation issues and questions that cover all concerned evaluation criteria and project three components, i.e. A. Established baseline of heavy metals concentration in Gaza Aquifer ***(design of testing program, develop monitoring forms and manuals, and sampling and testing)***, B. Improved the capacity of CMWU to monitor the quality of water supply ***(provide lab equipment, training for CMWU staff and associates)*** and C. Increased public awareness on the impact of water pollution ***(Advocacy and Environment campaign)***.

The evaluation organization and timingare found in ***Annex I***.

Evaluation criteria	**Key Questions**	**Specific Sub-Questions**
Relevance	To what extent the project effectively/appropriately is consistent with national and local polices and the needs of intended beneficiaries:	***To what extent has the project:*** 1. Assessed institution capacity: ***CMWUrelevant to the three project components.*** 2. Accurately identified real problems and assessed needs. 3. Designed appropriately to respond to the problem that it was supposed to address and objectives to fulfill. (***The three***

		project results) 4. Ensured coherence with the physical and policy environment within which it has been operating. ***National polices, if exist.*** 5. Ensured coherence with ongoing initiatives, ***if exist.*** 6. Analyzed lessons learned from past experience and identify where the action design needs adjustments/ reorientations ***(relevant to the three project components)***. 7. Established appropriate and effective monitoring and evaluation systems.
Efficiency	How well the various activities transformed the available resources into the intended outputs (results), in terms of quantity, quality and timeliness.	1. How was the quality of day-to-day management ***(concerning the project three components***)? 2. How far the costs of the action were justified by the benefits. ***(Per each component)***. 3. Were contributions from local institutions provided as planned, could re-allocation of responsibilities have improved performance? ***(CMWU, PWA, MOH, EQA, NGO,s etc.).*** 4. How well did technical assistance help to provide appropriate solutions and develop local capacities to define and produce results? ***(Concerning three project components).*** 5. How was the quality of monitoring and the use made of it? ***(Concerning three project components).*** 6. Did any unplanned outputs arise from the activities? ***(Per each component)***.
Effectiveness	How far the project's outputs were used and the project purpose realized?	1. Whether the planned benefits have been delivered and received, as perceived by beneficiaries. ***(Per each component)***. 2. Which factors and constraints have influenced the action implementation, (including technical, managerial, organizational, socio-economic, and external factors unforeseen during the design phase)? ***(Per each component)***. 3. Whether the balance of responsibilities between the various stakeholders was appropriate, which accompanying measures should have been taken with what consequences? 4. How unplanned results may have affected the benefits received? ***(Per each component)***.
Impact (Outcome)	To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of people in the sector or region or in the country as a whole.	1. To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of population. ***(Relevant to components Nos. B and C).*** 2. Where appropriate, gender-related, environmental and poverty related impacts were achieved. ***(Relevant to the three project components)***.

Sustainability	Whether the positive outcomes of the project at purpose level are likely to continue after external funding ends?	1. Whether the institution is capable of continuing the flow of benefits after the action ends and prepared for taking over, technically, financially and managerially. ***(Concerning CMWU).*** 2. How far the relevant national, sectorial and budgetary policies and affected the project positively or adversely; and the level of support from governmental, public, business and civil society organizations? ***(Relevant to the three project components).*** 3. How far all stakeholders were consulted on the objectives from the outset, and whether they agreed with them and remained in agreement throughout the duration of the project? ***(Concerning project stakeholders).*** 4. The adequacy of the action budget for its purpose. ***(Per each component).*** 5. Whether knowledge provided fits in with existing needs, culture and skills? ***(Per each component).***

3. EVALUATION APPROACH AND METHODS

3.1 General Approach

The consultant used a multi-methodological, dynamic learning-oriented approach based on effective participation of stakeholders. The approach was flexible that combinedprimary and secondary sources based on 'triangulating' the results. The primary information was obtained from ***interviews*** with CMWU, UNDP, consultant, donor and other project stakeholders, ***focus groups*** with NGOs and steering committees, ***participatory observations*** from field visits, and ***reflection workshop*** to provide feedback from representatives of all project stakeholders. The secondary information included material review including project documents and reports aimed at examining project indicators.

The approach used qualitative and quantitative methods based on triangulation, cross checking and validation with the view to conclude objective and evidence based information on the assignment issues. Triangulation refers to the use of different information sources, methods, types of data, or evaluators to study an issue from different perspectives and thereby arrive at findings that are more reliable. Crosschecking, triangulation, and validation of evaluation results with stakeholders was the adopted approach by the evaluator to reach objective and evidence based information. Explanations about the evaluation toolkit are shown in ***Annex II***.

To achieve the assignment objectives, the scope of work has been conducted in a phased and goal-oriented approach. This flexible approach allowed adjusting the scope of a particular task based on updated findings of preceding tasks, in order to accelerate the progress and avoid unnecessary delays. Because of the very fast-track schedule of this assignment, the evaluator maintaineddaily liaison, communication and interaction with UNDP project manager.

3.2 Evaluation Procedure

Thesequential steps during the evaluative process were as follows:

No.	Steps (chronological order)	Objective
1.	Tools design	Systematic and efficient; participation and utility approach
2.	Data collection and analysis	Triangulation / discussion and diagnosis
3.	Feedback presentation	Public discussion, validation and agreement
4.	Conclusions	Clear and ordered by hierarchy
5.	Recommendations	Ideas about how to improve strengths and solve weaknesses
6.	Learning Lessons	Learning about successes and failures

3.3 Conducted Evaluation Tools

The conducted evaluation tools were as follows: se are the number of analyzed elements of each one of the tools:

Tools	Number
Materials Review	13***(Annex III)***
Interviews	9
Focus Groups	1
Reflection workshop	1

4. LIMITATIONS OF THE EVALUATION

Some of the limits of this evaluation may be as follows:

1. From practical point of view, it was not possible to interview everyone participated in the project. Interviews have however, been conducted with adequate number of representatives from each involved organization and project stakeholder.
2. One interview was conducted via phone with UNDP Programme analyst in the West Bank.
3. This has not been a scientific research process. It has been an evaluative research process, with a specific time frame limits. So this evaluation could be considered rapid but the evaluator has obtained enough information to arrive to the conclusions.
4. This evaluation will be successful if UNDP, CMWU and other project stakeholders are willing to take its findings into consideration in future projects. Only in this situation the utility approach will be reached.
5. It was a participatory process with the constraints of the time limitations.

5. CONCLUSIONS OF ANALYSIS AND FINDINGS OF PRINCIPAL EVALUATIVE ASPECTS

In this section, the principal conclusions related to the questions of evaluative aspects were reached. Each evaluative aspect starts with the main conclusions. Afterwards in several tables and boxes, the principal findings and diagnosis were summarised trying to triangulate from different points of view.

The first table develops the principal conclusions as follows:

Principal Conclusions
1. Intervention/Component
Conclusion 1
Conclusion 2
Conclusion N

The second table explains the main statements for the findings and diagnosis from different triangulation tools as follows:

Principal Statements from Different Triangulation Tools	
Interviews	*Principal Statement from Interviews*
Focus Groups	*Principal Statement from Focus Groups*
Materials Review	*Principal Statement from Materials review*

The third table develops, in an extensive way, the triangulation analysis through the different points of view of UNDP, CMWU and other project stakeholders and target beneficiaries. Each one of these statements adds a different and meaningful element to the above conclusion. Respecting the confidentiality remarked within the "Interviews Protocol" in ***Annex IV***.Photos that document the evaluation activities are shown in ***Annex V.***

Triangulation: Analysis
Interviews: - **CMWU** Opinion from inside CMWU staff - **UNDP** Opinion from inside UNDP staff - **Consultant** Opinion from inside consultant staff - **Donor** Opinion from inside Donor staff - **Steering Committee** Opinion from steering committee members
Focus Groups Opinion from target beneficiaries
Materials Review Conclusions from different materials
Reflection workshop Presentation of evaluator findings and feedback from project stakeholders.

5.1 Relevance

Principal Conclusions

- ***The capacity of CMWU to monitor the quality of water supply was generally judged by UNDP and CMWU during the project development phase to need improvement.***The consultant did not assessed CMWU capacity to monitor the quality of water supply. However, the trainers helped in assessing the training needs of the lab staff in various institutions.
- ***The project identified the real problems and needs in the area of monitoring domestic water quality.*** The problem is that there was no previous information on the quality of domestic water supply concerning heavy metals. Public was not adequately aware of this issue. CMWU technical and equipment capabilities were in need for improvement.
- The donor verified the need for the project by consulting the WASH Cluster and UNICEF who recommended the implantation of the project.
- ***The project was designed appropriately to address the problems and needs.*** The project assessed the existing situation of heavy metals in domestic wells along Gaza Strip. The awareness campaign targeted public in general and provided essential information regarding heavy metals, source of contamination, health risks, etc.The awareness materialswere complete, simple and very useful. Awareness training was intensive and covered large topics. Design of training component in Gaza did not emphasize heavy metal testing because it was planned that the training of CMWU technicians on ICP will be carried out by the supplier.
- ***Training carried out in Gaza was general and did not cover practical testing of heavy metals (only theoretical aspects)***.Local testing institutions, lacked experience and knowledge of the proper chain of custody for testing. The training improved technical skills and corrected wrong methodologies used by trainees.
- ***The training carried out by the international lab covered all the needed training regarding the heavy metals.*** Three lab staff members from CMWU attended the training.
- ***National policies, standards, guidelines and regulations regarding heavy metals issues did not exist.*** Thus, relevant international polices and standards were adopted, especially those issued by WHO. In training, Standard Methods for Examination of Water and Wastewater, Environmental Protection Agency methods and other international standards were used.
- There were no ongoing relevant activities or initiativesduring the project.
- ***There was no significant previous experience on the heavy metal in water ground in the Gaza Strip.***The consultant reviewed previous limited academic research carried out in Gaza.
- ***The project includednormal monitoring and evaluation procedures.*** UNDP monitored the project implementation by following UNDP own procedures. The work of consultant was directly monitored by CMWU as implementing partner of the project. The normal monitoring and evaluation procedures included quarterly progress reports, risk log in Atlas for external environment risks, Lesson-learned report, annual monitoring and evaluation activities, etc. As part of test result monitoring, duplication of water samples was made to be tested at different institutions. There was evaluation of awareness campaign and training activities. It should be mentioned that the consultant TOR did not require the consultant to develop special monitoring and evaluation system for the implemented activities.

Principal Statements from Different Triangulation Tools

Interviews	- The project assessed the capacity of CMWU to monitor the quality of water. - The project identified the real problems and needs in the area of

	monitoring domestic water quality. - The project was designed appropriately thatmatched the problems and needs. - Training carried out in Gaza was general and did not cover practical testing of heavy metals. - The training carried out by the international lab covered all the needed training regarding the heavy metals. - National policies, standards, guidelines and regulations regarding heavy metals issues did not exist. - WHO standards were adopted. - There were no ongoing relevant activities or initiatives during the project. - There was no significant previous experience on the heavy metal in water ground in the Gaza Strip. - The project did not include a special monitoring and evaluation system relevant to activities carried out by consultant. - Normal monitoring and evaluation procedures were identified in the project. - The responsibility of consultant in monitoring and approval of the test results from international lab was waived since his contract ended before receiving the test results.
Focus Groups	- Public was not adequately aware of the heavy metal pollution issue. - CMWU capabilities in conducting awareness campaign were in need for improvement. - The project was designed appropriately where the awareness campaign targeted public in general and provided essential information regarding the concerned issues. - The awareness materials were complete, simple and very useful. - Awareness training was intensive and covered large topics. - There was evaluation of awareness campaign and training activities.
Document Review	- The project assessed the CMWU capacity to construct its own lab, monitor the water quality regarding the heavy metals and carry out advocacy and public awareness campaign. - The project identified the problems and needs for the three components. - The project was designed to respond to the problems and needs. - The PWA, MOH and CMWU have their own guidelines and procedures for water testing. - The project was designed to conduct the water safety guidelines of WHO. - There were no ongoing initiatives relevant to the project at the time of the implementation of the project.

	- There were no previous experiences in the field. - The project design included normal monitoring arrangements and procedures.
Triangulation: Analysis	
Interviewwith CMWU Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	***To what extent has the project:*** 1. Assessed institution capacity: ***CMWU.*** - The capacity of CMWU to monitor the quality of water supply was generally judged by UNDP and CMWU during the project development phase to need improvement in the area of testing heavy metals and conducting relevant awareness campaign. The project idea came up by UNDP and CMWU after the Israeli military operation in Gaza (2008-2009) as there was a concern among public, media and institutions regarding the possible adverse effects of Israeli military operation on many aspects of the human life including the underground water that may be contaminated by heavy metals from the Israeli military operation and other contamination sources. - CMWU had previously undergone a general human resource (HR) training needs assessment to all CMWU staff. It was made 3 years before the starting of the project. The training part of the project was to fulfill the needs found through the HR needs assessment. However, the capacity building concerning heavy metals was not specifically identified in that assessment. 2. Accurately identified real problems and assessed needs. - The project identified the real problems and needs in the area of monitoring domestic water quality. The problem is that there is no previous information on the quality of domestic water supply concerning the contamination with heavy metals. CMWU could not carry out testing on domestic water due to lack of proper equipment and skills to carry out heavy metal tests. In addition, the public was not adequately aware of the issue of heavy metal contamination. 3. Designed appropriately to respond to the problem that it was supposed to address and objectives to fulfill. - The project was designed appropriately to assess the existing situation of heavy metals by drawing a baseline map of heavy metal concentrations by testing representative domestic wells along Gaza Strip. The capacity of CMWU was enhanced by providing needed equipment and carrying out relevant training that was also attended by other persons from different institutions, such as MOH, UNRWA, MOA, PWA, EQA, etc. The awareness campaign targeted public in general and provided essential information regarding heavy metals, source of contamination, health risk, etc. 4. Ensured coherence with the physical and policy environment within which it has been operating.***National polices, if exist.***

	- National policies, standards, guidelines and regulations regarding heavy metals issues did not exist. Thus, relevant international polices and standards were adopted, especially those issued by WHO. - During the project period, EQA issued a booklet concerning the quality of drinking water. PWA has also issued limited number of standards regarding the water quality in general. However, these publications did not specifically address heavy metals. 5. Ensured coherence with ongoing initiatives, ***if exist.*** - This project, with its three components is the first of its kind and there were no ongoing initiatives at the time of implementation. 6. Analyzed lessons learned from past experience and identify where the action design needs adjustments/ reorientations There was no significant previous experience on the heavy metal concentration in water ground in the Gaza Strip. There was only a limited academic research on this issue, e.g. study by Dr. Basem Shomer who indicated there is no a significant heavy metal contamination problem in Gaza Strip. On the contrary, the project results indicated that there is a high level of heavy metals concentrations in a number of locations including Rafah, Khan Younes, etc. 7. Established appropriate and effective monitoring and evaluation systems. - Normal monitoring procedures were identified in the project such as progress reports, observations, field visits, participation in the carried activities, etc. There was no a monitoring and evaluation system established as part of the implemented project activities. - There were evaluation of awareness activities through questionnaires, monitoring attendance, and assessment of workshops by attendees. - There was an evaluation of test results.
Interview with CMWU Lab Staff Concerning the Project component: B. Improved the capacity of CMWU to monitor the quality of water supply.	***To what extent has the project:*** 3. Designed appropriately to respond to the problem that it was supposed to address and objectives to fulfill. ✓ The project was designed to identify and address the real needs and problems in Gaza Strip regarding the baseline and capacity building. ✓ The training carried out by the consultant in Gaza was general training for testing of water and wastewater and the theoretical heavy metals testing was around 30% of the training. ✓ The training carried out by the international lab covered all the needed training regarding the heavy metals. 7. Established appropriate and effective monitoring and evaluation systems. ✓ Normal monitoring tools were used such as: o A questionnaire was filled at the end of each training session.

	○ Practical lab sessions and observation. ○ Duplication of water test sample and testing the same samples at different locations. ○ Verifying the accuracy of the test results by testing a standard sample after each 20-30 tests. ○ Special forms were provided to be filled upon sample collection. ○ Physical inspection on sample taking.
Interview with Consultant Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	***To what extent has the project:*** 1. Assessed institution capacity: ***CMWU*** ✓ The project did not assess the CMWU capacity. This was not part of the project implemented by the consultant. It could have been done before the involvement of the consultant. 2. Accurately identified real problems and assessed needs. ✓ The project identifies real problems and needs, for examples: ○ Available information sources on heavy metals were limited. ○ Few academic researches regarding the situation of heavy metals in the underground water did exist ○ There was a need to create baseline and a data base for future works. 3. Designed appropriately to respond to the problem that it was supposed to address and objectives to fulfill. ✓ The project was designed to respond to the real problems and needs. As for the capacity building and training component. A general training was designed in project to cover general the testing topics such as sampling, preservations, protection of samples, etc. with no special focus on testing of heavy metals in water. 4. Ensured coherence with the physical and policy environment within which it has been operating. ***National polices, if exist.*** ✓ No national policies exist regarding heavy metals in water. National standards and parameters, approved by the EQA in 2003, are available to ensure good quality for drinking water. 5. Ensured coherence with ongoing initiatives, ***if exist.*** ✓ No other ongoing initiatives existed during the implementation of the project. This project is the first in the field of heavy metal. 6. Analyzed lessons learned from past experience and identify where the action design needs adjustments/ reorientations. ✓ The consultant reviewed previous researches in the fields and compared the test results with previous results obtained for researches at different locations. Dr. Basem Shomar has few publications regarding the heavy metals in the underground water in Gaza Strip. These publications were reviewed and compared with the project testing results. ✓ For local testing institutions, there was a lack of experience and

	knowledge of the proper chain of custody for testing. Technicians could work on heavy metals testing device after installation but did not have enough knowledge on how to take and protect the samples before testing. ✓ There was no previous training on heavy metals and awareness campaign regarding the heavy metals. 7. Established appropriate and effective monitoring and evaluation systems. ✓ At technical level, before the termination of the local lab (joint venture with the Egyptian lab) duplication of water samples was made to be tested at different institutions, some of the samples were sent to Israel for testing. This monitoring tool was very useful in showing the wrong results of provided by the local testing lab (joint venture with the Egyptian lab). ✓ The consultant scope of work was to evaluate and approve the testing results, but later on, this duty was waived from the consultant's duty to compensate for the delay.
Interview with Consultant Trainers Improved the capacity of CMWU to monitor the quality of water supply.	***To what extent has the project:*** 2. Accurately identified real problems and assessed needs. ✓ Although this project is not the first in Gaza Strip, it is the first in its size that helped identify some of the important problems and needs regarding water quality. ✓ The baseline study focused more on the water resources and wells and did not investigate the bombed area during the Israeli military operation . ✓ The experience of the trainers helped assess the training needs of institutions. ✓ Most of the people working in laboratories are employed without enough experience or do not work under closed supervision. Thus there is a need for qualification and training. 3. Designed appropriately to respond to the problem that it was supposed to address and objectives to fulfill. ✓ The wide experience of the trainers helped identified the problems and needs in institutions and thus they designed the ideal training program that responds to these needs. ✓ Qualified international references were used in designing the training program such as Standard Methods for Examination of Water and Wastewater, Environmental Protection Agency methods (EPA) and WHO standards. The only available Palestinian reference is guidelines for the quality of water. ✓ The training did not only help improving technical skills but also corrected wrong methodologies the trainees used to follow and obtain results that are not accurate. 7. Established appropriate and effective monitoring and evaluation systems.

	✓ Normal monitoring and evaluation tools were used as follows: o Attendance and participation. o Observation and immediate advices for the practical training. o Evaluation questionnaires by the consultant at the end of each session. o Contacting and keeping in touch with trainees after the training to follow up the quality of their work. o Monitoring and evaluation through observation from project management.
Interviews with Project Steering Committee Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	***To what extent has the project:*** 2. Accurately identified real problems and assessed needs. ✓ Identified the real problems and needs regarding the heavy metal baseline map, the capacity development of CMWU lab and the need for a public awareness. ✓ The MOH's opinion regarding the heavy metals baseline is that there is no a problem. Results were not convincing, samples were not taken correctly and contamination in wells is believed to be not dangerous. Its source could be the old age of well hardware which could be rusted. 3. Designed appropriately to respond to the problem that it was supposed to address and objectives to fulfill. ✓ The project was designed to respond to the problem and needs in the three components. ✓ It was designed to provide the resources for the CMWU to monitor the heavy metals in the underground table in Gaza Strip. ✓ MOH opinion is that CMWU should not be the main target for development. MOH is responsible for human health. 4. Ensured coherence with the physical and policy environment within which it has been operating. ***National polices, if exist.*** ✓ There are no national policies. ✓ The guidelines and standards adopted in this project were the WHO standards. 5. Ensured coherence with ongoing initiatives, ***if exist.*** ✓ Since four years, PWA is studying the impact of the north wastewater infiltration basins on the heavy metals in the underground water. ✓ PWA tests for heavy metals at Al Azhar University lab. ✓ The results of this project are coherent with the results of PWA, but the objectives are different. 6. Analyzed lessons learned from past experience and identify where the action design needs adjustments/ reorientations. ✓ Only few research publications were reviewed when the project was designed.

	✓ The project is new in kind and almost started from scratch.
Interviews with UNDP Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer. B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	***To what extent has the project:*** 2. Accurately identified real problems and assessed needs. ✓ The project highlighted real problems and needs in the field of groundwater quality monitoring. The identified needs are as follows: o Developing a baseline for heavy metals to create a start point for any future work (nonexistence of previous tests and records). Before the assessment the concerned quality of water from domestic wells was not. Different specialists and instructions had different perceptions regarding the existence of heavy metals in the ground water. However, it was found that at specific locations, high potential of heavy metals is present. o It was observed that the CMWU lab needs development to be able to monitor the water quality in Gaza Strip. o It was found that there is a need to raise awareness among the public about causes and dangers of heavy metals contamination. ✓ The project idea came after the 2008-2009 Israeli military operation in Gaza. A comprehensive investigation was carried out by the "United Nations Environment Programme (UNEP)" that covered the majority of the facilities and resources that could be affected by the Israeli military operation. The investigation was carried out without the involvement of national institutions. Samples were tested in Geneva, Austria. The investigation results indicated that the water was not affected by the Israeli military operation . None of the Palestinian institutions were involved in the investigation and thus the obtained results could not be adopted by Palestinians. Palestinians had concerns about pollution of plants, soils, etc. UNDP and CMWU were particularly concerned with the quality of the underground water that could be polluted by heavy metals not only from the Israeli military operation but also by other pollution sources such as dump sites. 3. Designed appropriately to respond to the problem that it was supposed to address and objectives to fulfill. ✓ The project was logically designed to respond to the problem and to match with the needs. ✓ In order to achieve the project's objectives and monitor the water quality in Gaza Strip, an implementation agency (CMWU), suitable laboratory equipment and capacity development of the CMWU staff are needed. Finally, awareness campaign was needed in order to raise awareness among the public on how their behavior affect the quality of the underground water. ✓ The management structure of the water sector includes the Palestinian Water Council, PWA (The water sector regulator), EQA (wastewater regulator) and CMWU (a service provider for

	operation and maintenance of water and wastewater systems). MOH is responsible for the human health issues monitoring and regulation. At the time of project initiation, the UNDP could only work directly with CMWU since it was the only institution that could work on ground due to the no-contact policy, even if CMWU is not a regulator. ✓ In normal condition, the implementation agency could be either the PWA or the MOH (the human health regulator). ✓ The project design involved the PWA, EQA and MOH in the steering committee of project to provide technical support, oversight the project activities and to gain results. 4. Ensured coherence with the physical and policy environment within which it has been operating. ***National polices, if exist.*** ✓ The project was designed to adopt the WHO standards. 5. Ensured coherence with ongoing initiatives, ***if exist.*** ✓ No other ongoing initiatives were at the time of the project implementation. 6. Analyzed lessons learned from past experience and identify where the action design needs adjustments/ reorientations ✓ There was no previous similar works in the field of heavy metal pollution. However, studies concerning the water sector in general did exist. ✓ However, during the preparation of the project it was found that the MOH has a heavy metals testing device but the technicians could not operate it due to lack of training. Thus, capacity building of the CMWU along other institutions including MOH was a component of the project. Also, the PWA was monitoring the impact of the north Gaza wastewater infiltration basins on the quality underground water and has made few tests on heavy metals. Therefore, the PWA was consulted in making the cost estimates of the project. ✓ Also, the capabilities of local institution were evaluated. 7. Established appropriate and effective monitoring and evaluation systems. ✓ UNDP has implemented a monitoring and evaluation system that is used by UNDP. CMWU has not similar system. The consultant did not develop a preplanned monitoring and evaluation system since this task was not included in his TOR. ✓ Normal monitoring tools were used according to each task such as; outcomes and deliverables approval process, quarterly progress reports and liquidation financial reports, participation in most of the project activities, setting regular meetings to follow up and facilitate the project activities, observation and field visits at technical level, etc. The consultant was not required to develop a monitoring and evaluation system that is designed specifically for the implemented activities.
Interview with	***To what extent has the project:***

Donor Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	2. Accurately identified real problems and assessed needs. ✓ The project identified real problems and needs. ✓ In addition, the donor verified the need for the project by consulting the World Bank, Water Cluster and UNICEF and they all recommended the implantation of this project. 3. Designed appropriately to respond to the problem that it was supposed to address and objectives to fulfill. ✓ The project was designed to address the base line establishment, the CMWU capacity development and the public awareness. ✓ The project improves the CMWU capacity to monitor the quality of water. 4. Ensured coherence with the physical and policy environment within which it has been operating. ***International polices, if exist.*** ✓ The project was coherent with the operating policies; this was achieved through the involvement of different stakeholders representing the different sectors. Involved stakeholders where PWA, EQA, CMWU and MOH. 5. Ensured coherence with ongoing initiatives, ***if exist.*** ✓ No ongoing initiatives at the time of project implementation.
Focus Group Concerning the project component C. Increased public awareness on the impact of water pollution.	***To what extent has the project:*** 2. Accurately identified real problems and assessed needs. ✓ The awareness campaign addressed real problems and needs as follows: ✓ Before the awareness campaign, people did not have enough information about water availability, contamination and heavy metals. ✓ Before the awareness campaign the majority of the people thought the only water pollutant is salt and water is available without problems. ✓ Most of the people were not aware of the pollutants and its impact on human health. 3. Designed appropriately to respond to the problem that it was supposed to address and objectives to fulfill. ✓ The project was professionally designed to respond to the problems and needs. The awareness campaign included the possible sources of pollutants and contaminants and how to deal with the issue. ✓ The material provided was complete and very useful. ✓ Simplicity of the material (posters, stickers, brochures, etc.) in order to reach all people from different background. ✓ Designed to get feedback from the people. ✓ The training provided through the CMWU was intensive and cover large topics, but the NGOs workshops were short and brief.

Document Review Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	***To what extent has the project:*** 1. Assessed institution capacity: ***CMWU.*** ✓ The project assessed the CMWU capacity to construct its own lab. ✓ The project assessed the CMWU capacity to monitor the water quality in Gaza strip regarding the heavy metals. ✓ The project assessed the CMWU to carry out advocacy and public awareness campaign in cooperation with EQA, PWA, MOH and other relevant institutions. 2. Accurately identified real problems and assessed needs. ✓ The project identified the impact of public awareness on the public health and potential sources of pollutions. ✓ The project assessed the effects of the 2008-2009 Israeli military operation on the infrastructure water wells, water and wastewater networks. Also, assessed the contamination and shortage of water supply, the need to perform heavy metals testing and the need for heavy metals baseline. ✓ The project assessed the need for CMWU testing lab to monitor the water quality in the Gaza aquifer. 3. Designed appropriately to respond to the problem that it was supposed to address and objectives to fulfill. ✓ The project is designed to respond to the problems and needs. o Establishment of heavy metals baseline. o Develop the CMWU capacity to monitor the water quality in Gaza Strip. o Conduct advocacy and public awareness campaign. 4. Ensured coherence with the physical and policy environment within which it has been operating.***National polices, if exist.*** ✓ The PWA, MOH and CMWU have their own guidelines and procedures for water testing that will be incorporated with future heavy metals monitoring procedures. ✓ The project is designed to conduct the water safety guidelines of WHO. *5. Ensured cohe*rence with ongoing initiatives, ***if exist.*** ✓ No other ongoing initiatives at the time of the implementation of the project. 6. Analyzed lessons learned from past experience and identify where the action design needs adjustments/ reorientations ***(relevant to the three project components)***. ✓ No previous experiences in the field. 7. Established appropriate and effective monitoring and evaluation systems. ✓ The project design included formulation of steering committee from the UNDP, CMWU, WHO and MOH. The steering committee would meet monthly and upon request to discuss

	project's activities and provide technical assistance.. ✓ The project monitoring framework and evaluation included: **Regular Monitoring Activities:** o Quarterly progress reports. o Risk log in Atlas for external environment risks. o Lesson-learned report at the end of the project. **Annual monitoring and evaluation Activities:** o Annual progress Report.

5.2 Efficiency

Principal Conclusions	
- The flexible project management was generally satisfactory, especially between CMWU, UNDP and consultant. The other project stakeholders were not adequately involved in daily management. - Under normal conditions if there was no no-contact policy, project stakeholders and relevant institutions would have given more effective role in the project. - The coordination and cooperation between the consultant's team and CMWU project's staff created a team work environment. - The CMWU project manager was changed during the project implementation period, the quality of the day-to-day management was temporarily reduced; but it was overcome after a short period. - The costs spent for the project the components were justified by the benefits received. The public awareness needed more money to ensure continuation and to reach more people. - In future projects no need to conduct training and testing abroad. - Local institutions, particularly PWA, who were mainly technical supports and NGOs, who participated in the awareness campaign workshops adequately carried out their responsibilities and contributions. - The possibility of re-allocation of responsibilities could have improved the project performance. - Testing of water quality by CMWUas a service provider is important for the institution to ensurethe suitability of supplied water. - Technical assistant by the consultant was essential in achieving the results of the project concerning each of the three project components. - The quality of the implemented monitoring arrangements was acceptable despite the absence of a preplanned monitoring system to be developed by the consultant.The monitoring arrangements using known procedure allowed proper evaluation and resulted sometimes in substantial change in the implanted activities such the unaccepted test results conducted by the consultant regionally. - Many unplanned activities arisen form the activities.	
Principal Statements from Different Triangulation Tools	
Interviews	- The project management was flexible. - The joint venture between the consultants (Al Madena, Enfra and the DHV) was organized to distribute the responsibilities among each firms specialization. - Management concerning the steering committee was unsatisfactory. PWA was the only active member. - The coordination and cooperation between the consultant's team and CMWU project's staff created a team work environment. - The cost of the project was one of the most justified projects in comparison with the benefits received. - The level of benefits gained by the trainees is not the same; it

	depended on the trainee's background. - Thousands of people have benefited from the public awareness campaigns. For continuing the public awareness, more money is needed to reach even more people. - Accepted international procurement procedures have been used. - In future projects no need to conduct training and testing abroad. - PWA carried out its responsibilities and contributions. EQA was involved in following up on project activities at low level.The involvement of MOH was inadequate. - NGOs highly contributed to the project during the awareness campaign. - The possibility of re-allocation of responsibilities could have improved the project performance. The responsibility of testing, monitoring and judging the quality of water needs re-assessment. - Technical assistant by the consultant was essential. - There was appropriate integration within the CMWU departments and CMWU project team with consultant. - The quality of the implement monitoring arrangements was acceptable. - Many unplanned activities arisen from the activities: o Testing of water samples in an international lab. o Training of three CMWU lab staff in the Netherlands. o Conducting additional awareness workshops and activities. o Preparing heavy metals information booklet.
Focus Groups	- No questions on this criterion.
Document Review	✓ Output indicators were assigned to each activity. o Number of collected samples and analyzed parameters. o CMWU water quality upgraded. o No of samples tested and analyzed. o Water quality reports are disseminated to the public. o No. of workshops and meetings conducted. o No. of messages and publications. ✓ Activities and outcome indicators were determined for the consultant in the project design. ✓ Al Azhar lab could not fulfill the requirements to finish the work within the time frame assigned and test results were unsatisfactory;which lead to termination of contract. ✓ CMWU, UNDP and ADA agreed to have an international bidfor the analyses of 174 water samples for heavy metals (Al CONTROL lob won the bid).
Triangulation: Analysis	
Interview with CMWU Project Team Concerning the	1. How was the quality of day-to-day management? - The management of project was generally satisfactory, especially between CMWU, UNDP and consultant. The general management included a number of parties, e.g. UNDP, CMWU, steering

Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer. B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	committee representing number relevant institutions such as MOH, PWA, EQA, in addition to CMWU. - The project management was flexible to allow for reorientation of management procedure according to projects tasks. - There was reporting to the different project stakeholders. - Management concerning the steering committee was unsatisfactory. Not all the steering committee members were active through the project components. PWA was the only active. Representation from MOH was lacking and at most at low management level. Lack of interest, low level representation, un-satisfaction of the own role in the project, etc. have contributed to inadequate management and involvement of the steering committee. - The coordination and cooperation between the consultant's team and CMWU project's staff created a team work environment and was satisfactory. 2. How far the costs of the action were justified by the benefits. - The cost of the project was one of the most justified in comparison with the benefits received. - The costs spent for the project components A and B were justified by the benefits. The public awareness needed more money to ensure continuation and to reach more people. - Accepted international procurement procedures have been used in the project. - In future projects no need to conduct training and testing abroad. The gained experience, capacity buildings during the project would enable conducting similar project totally locally. 3. Were contributions from local institutions provided as planned, could re-allocation of responsibilities have improved performance?***(CMWU, PWA, MOH, EQA, NGO,s etc.).*** - PWA carried out its responsibilities and contributions, mainly by providing technical support satisfactory. PWA was highly involved in following up and oversight the project activities. Also, PWA was very interested in reviewing the results of the project and provided adequate technical support. - EQA was involved in following up on project activities at low level. - The involvement of MOH was inadequate. - NGOs highly contributed to the project during the awareness campaign. NGOs nominated the trainees for the project and provided the places for conducting the workshops. - The possibility of re-allocation of responsibilities could have improved the project performance. The responsibility of testing, monitoring and judging the quality of water needs re-assessment. Testing of water quality should be the responsibility of somebody who has no interest.

	- Testing of water quality by CMWU is important for the institution to ensuring that water they supply is suitable. - IC discussed opinion during the interview: Monitoring the water quality should be the responsibility of independent body who is not even attached to the government who could have an interest or affected by the results. In Israel for example, the "Technion, which is a technical University located in Haifa city" is the responsible body for the testing. 4. How well did technical assistance help to provide appropriate solutions and develop local capacities to define and produce results? - Technical assistant by the consultant was essential in achieving the results of the project concerning each of the three project components. - There was appropriate integration within the CMWU departments and CMWU project team with consultant. Consultant staff helped providing appropriate solution and developed local capacities to define and produce results. 5. How was the quality of monitoring and the use made of it? - The quality of the implement monitoring arrangements was acceptable. - The monitoring arrangements using known procedure allowed proper evaluation and resulted sometimes in substantial change in the implanted activities such the unaccepted test results conducted by the consultant regionally. 6. Did any unplanned outputs arise from the activities? - Many unplanned activities arisen form the activities: o Testing of water samples in an international lab in since testing regionally in Egypt proved to be unacceptable. o Training of three CMWU lab staff abroad in the Netherlands. o Conducting additional awareness workshops and activities targeting for example children during which special plays and coloring books were used to raise the children awareness of the concerned issues. o Preparing and producing heavy metals information booklet.
Interview with CMWU Lab Staff Concerning the Project component: B. Improved the capacity of CMWU to monitor the quality of water supply.	1. How was the quality of day-to-day management? ✓ Good quality of day to day management and all the facilities were provides for the trainees. 4. How well did technical assistance help to provide appropriate solutions and develop local capacities to define and produce results? ✓ For the local training, minor knowledge was added to professional staff while much more knowledge was added to others. ✓ International training was very important in order to develop the capacity of the CMWU lab for testing and obtain results.

	5. How was the quality of monitoring and the use made of it? ✓ Good quality monitoring tools that helped in discovering incorrect test results carried out by the local-Egyptian lab. 6. Did any unplanned outputs arise from the activities? ✓ Training of CMWU lab staff at the international lab.
Interview with Consultant Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer. B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. How was the quality of day-to-day management? ✓ The quality of the day-to-day management was good. The consultant had direct contact CMWU project managers. This facilitated the day-to-day management process. However, when the CMWU project manager was changed, the quality of the day-to-day management was reduced but it was overcome after a short period. ✓ The consultant continuously reported to CMWU project manager who reported in turn to UNDP project manager. ✓ ✓ The joint venture between the consultants (Al Madena, Enfra and the DHV) was organized to distribute the responsibilities among each firms specialization. 2. How far the costs of the action were justified by the benefits. ✓ The costs spent to develop a baseline for heavy metals (surveying and testing) were justified under the project's circumstances. ✓ The capacity building is justified because now local capabilities are available for further research and monitoring. Although, 150 hours of training was too much. ✓ The same results of training could have been achieved with less training hours. 4. How well did technical assistance help to provide appropriate solutions and develop local capacities to define and produce results? ✓ The benefits could not have been achieved without the technical support of the consultant in all the project components. ✓ The technical assistance provided by the consultants helped provide appropriate solution for project's obstacles. ✓ The experience of the consultant staff helped develop local capacities to define and produce results. 5. How was the quality of monitoring and the use made of it? ✓ Monitoring and evaluation of lab test results helped indicate the incapability of the local lab (joint venture with the Egyptian lab) to produce correct results. ✓ When the consultant was the one responsible for monitoring and approving the water testing results but this responsibility was reduced from the consultant's scope of work to compensate for time extension. 6. Did any unplanned outputs arise from the activities?

	✓ The wrong test results of the local testing lab (joint venture with the Egyptian lab) indicated its incapability led to terminate the contract between the CMWU and the local lab.
Interview with Consultant Trainers Improved the capacity of CMWU to monitor the quality of water supply.	1. How was the quality of day-to-day management? ✓ The quality of the day-to-day management was good. ✓ The management facilities the work for the trainer and provided all required logistics. ✓ The training sessions were well coordinated, on time and at a high quality. 4. How well did technical assistance help to provide appropriate solutions and develop local capacities to define and produce results? ✓ At the short term, technical assistance provided appropriate solutions and developed local capacity to define and produce results. At long term, further training is needed to follow up with technology and testing methods development. ✓ The level of benefits gained by the trainees is not the same; it depended on the trainee's background. ✓ Only theoretical training on heavy metals was provided locally which is not enough from the trainer point of view. 5. How was the quality of monitoring and the use made of it? ✓ The monitoring and evaluation tools allowed for immediate identification and solution of problems to enhance the quality of training.
Interviews with Project Steering Committee Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	2. How far the costs of the action were justified by the benefits. ✓ Costs spent on the baseline and testing were through tendering process and they are justified. ✓ Costs spent on the capacity development and awareness are justified. 3. Were contributions from local institutions provided as planned, could re-allocation of responsibilities have improved performance? ✓ CMWU insisted that all relevant parties should participate in this project but no committing agreements were made. ✓ PWA provided the technical support through project. MOH and EQA did not show effective participation. ✓ The PWA had a concern about the identity and ownership of the lab, since CMWU is a service provider not a regulatory institution. ✓ The most qualified regulatory institution for this issue is the MOH. ✓ CMWU can carry out tests and assessments for their own monitoring and are not to be used in publications. ✓ The Ministry of health claims that they did not receive any invitation to participate in meetings during the implementation of the project. Although they have participated in the concept and project development. Also, around 4 MOH trainees participated in the local training.

	✓ The Ministry of Health is concerned that the monitoring and regulatory agency should be MOH. CMWU is a service provider not a regulator. 4. How well did technical assistance help to provide appropriate solutions and develop local capacities to define and produce results? ✓ The technical assistance is a very essential part of the project. Without the technical assistance, the project outcomes could have been achieved. 6. Did any unplanned outputs arise from the activities? ✓ Some heavy metals were higher than the standard and considered dangerous. ✓ The Ministry of Health argues that the high level of iron in the samples depends on the piping and pumping system of the well. Also, strontium is not threatening to human health.
Interviews with UNDP Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	2. How far the costs of the action were justified by the benefits. ✓ The costs spent to establish the baseline of heavy metals were justifies because under the conditions of the project it was the best way to obtain this outcome. It was intended to work with local institutions in order to develop their capacities and to get the least costs. ✓ The cost spent on the awareness was well justified as a huge awareness campaign was implemented with a small budget. The awareness campaign covered large areas in Gaza Strip and targeted people at all ages (elderly, youth and children) for both genders. In addition, it used multiple tools considering the different cultures and backgrounds of the audience. ✓ The costs spent on the local lab (joint venture with the Egyptian lab) were below the estimates, because the cost estimate provided by the PWA was based on the costs of an Israeli lab. Although, no correct results were provided by the local lab (joint venture with the Egyptian lab) and their contract was terminated, the costs spent was justified as it was impossible to foresee this outcome. ✓ The costs spent on the CMWU capacity development were justified because it was strongly needed to achieve the goals of the project. ✓ Although the costs spent on the heavy metals device and other equipment are high, these costs are justified because the equipment were needed to achieve the goal of the project. Also, the equipment will be used not only for the project but for future monitoring and for other testing purposes such as soil, plants, etc. 3. Were contributions from local institutions provided as planned, could re-allocation of responsibilities have improved performance? ***(CMWU, PWA, MOH, EQA, NGOs etc.).*** ✓ CMWU is the project counter-partner. CMWU worked according to the agreement and were very cooperative. ✓ UNDP also worked according to the agreement.

	✓ PWA was the most interesting stakeholder to UNDP because it supported the CMWU works. PWA provided technical support throughout the project duration. ✓ Others such as MOH and EQA had no specific role in project but they were supposed to provide technical support through the steering committee EQA participation was not effective and MOH did not participate in the steering committee meetings during the implementation of the project. ✓ NGOs were involved in the awareness campaign in providing the places for workshops and inviting the audience. ✓ Under the same conditions of the project, no possible responsibility re-allocation could have been made to improve the performance. ✓ Under normal conditions if there was no no-contact policy, project stakeholders and relevant institutions would have more effective role in the project. The responsibilities would also be modified to match their mandate. MOH could be a main target in similar projects since they are responsible for the human health. MOA could have also more effective role. 4. How well did technical assistance help to provide appropriate solutions and develop local capacities to define and produce results? ✓ The presence of the consultant facilitated the implementation of the project activities through the five tasks of his work. ✓ It was not possible to implement and achieve the satisfying results of the project in the same way without the consultant's technical assistance. 5. How was the quality of monitoring and the use made of it? ✓ Satisfying monitoring and evaluation system lead to achieve the projects tasks best way possible. ✓ Changes in the project were made based on the findings of monitoring and evaluation process such as, testing of water samples at an international lab after the local lab (joint venture with the Egyptian lab) fail to provide correct results. ✓ Involvement of other institutions such as the steering committee was not satisfactory, except of PWA member. 6. Did any unplanned outputs arise from the activities? ✓ Incorrect test results by local-Egyptian labs which resulted in retesting of water samples at an international lab. ✓ Financial savings in the project allowed for providing more equipment to the lab. ✓ Training of CMWU staff at an international lab.
Interview with Donor Concerning the	2. How far the costs of the action were justified by the benefits. ✓ Costs were justified for sampling and testing by testing a large number of wells to obtain wide information.

Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer. B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	✓ At the beginning, the donor had some concerns about the high cost of the lab devices to be supplies to the CMWU lab through the project, but later on it proved that the devices are essential to develop the lab. ✓ The costs spent on the awareness campaign were justified because CMWU was able to implement a huge awareness campaign with a small amount of money. 3. Were contributions from local institutions provided as planned, could re-allocation of responsibilities have improved performance? ***(CMWU, PWA, MOH, EQA, NGO,s etc.).*** ✓ Technical and managerial contributions from UNDP and CMWU were according to the agreement. ✓ The performance could have been improved if responsibilities that are more important were given to PWA, MOH and EQA. ✓ Contributions from other institutions such NGOs to provide workshops locations and invite the people to those workshops. 6. Did any unplanned outputs arise from the activities? ✓ Training and water testing in the international lab.
Focus Group Concerning the project component C. Increased public awareness on the impact of water pollution.	- No questions on this criterion.
Document Review Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer. B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	2. How far the costs of the action were justified by the benefits. ✓ Output indicators are assigned to each activity. **<u>Baseline information of heavy metals concentration established</u>** o Number of collected samples and analyzed parameters. **<u>CMWU capacity to monitor drinking water quality improved</u>** o CMWU water quality upgraded. o No of samples tested and analyzed. o Water quality reports are disseminated to the public. **<u>Advocacy and public awareness campaigns are conducted</u>** o No. of workshops and meetings conducted. o No. of messages and publications. 4. How well did technical assistance help to provide appropriate solutions and develop local capacities to define and produce results? ✓ Activities and outcome indicators were determined for the consultant in the project design. There was a need for a consultant

	to carry out these activities as CMWU does not have the capacity to carry out these activities. All the deliverables were submitted by the consultant. 5. How was the quality of monitoring and the use made of it? ✓ All the progress, risk analyses, lesson-learned and annual progress reports were submitted and evaluated. 6. Did any unplanned outputs arise from the activities? ✓ Al Azhar lab could not fulfill the requirements to finish the work within the time frame assigned due to interior problem between Al Azhar lab and the Egyptian Lab. Also, when the consultant analyzed and evaluated the test results, it was found that 3 samples did not fit within the expected range. For verification and cross checking, the CMWU sent three samples to an Israeli lab and another three samples to another Egyptian lab. The five samples showed different results than Al Azhar lab results, which lead to termination of contract. The CMWU, UNDP and ADA met and agreed to have an international bit for the analyses of 174 water samples for heavy metals (Al CONTROL lob won the bid).

5.3 Effectiveness

Principal Conclusions

- The planned benefits were delivered and received by the beneficiaries (baseline map of heavy metals, capacity building in terms of equipment and training and public awareness campaign).
- Factors and constrains:
  - Limited technical ability of local and regional labs.
  - Ineffective role of the steering committee, except of PWA.
  - Delay in project and cancelling of the specialized result sharing workshops due delay in test results.
  - Gender factors influenced the implementation of public awareness workshops.
  - Some international trainers, e.g. Basem Shomar could not enter to Gaza due to closure.
  - Local political situation did not generally affect the project activities. However, Municipality of Gaza refused to collaborate in the project.
  - Complicated length process for importing equipment from Israel has added to the delay of the project.
- The balance of responsibilities helped achieving the projects outcomes. It also helped developing CMWU capacity in various ways.
- Technical inability of local testing lab resulted in making new contract for testing and training in the Netherlands.
- Training in international lab was good; however it would be more effective if it was made on same type of ICP device available now in CMWU lab in Gaza.
- It was planned to supply the CMWU lab with the ICP to do the practical training.
- Manufacturer of the heavy metals device could not train the lab technicians on the ICP in Israel. Online training by Skype)was not very efficient.
- All NGOs provided the required logistic assistance to the awareness complain trainers, except of one.

Principal Statements from Different Triangulation Tools

Interviews	✓ The project in its three parts is seen as a success story. More benefits were achieved than was anticipated by beneficiaries. ✓ Many factors and constraints adversely influenced the project implementation such as: inadequate capability of the local-Egyptian labs, border closure, inadequate involvement of project stakeholders, political factors, Israeli military operation in Gaza, etc. ✓ There is a disagreement between involved parties on the balance of responsibilities. ✓ More involvement of PWA, MOH and EQA could enhance the project. ✓ Gender factors were accounted for in awareness campaign workshops. ✓ The unplanned results positively affected the benefits of the project.

	✓ Training provided in Netherlands was on a device made by another manufacturer.
Focus Groups	✓ The planned benefits of the workshops carried out at the NGOs were delivered and received in a better way than planned. ✓ The public awareness campaign made people more interested in obtaining more information. ✓ Some workshops were organized for only female or male audience according the NGO's culture.
Document Review	✓ All the planned benefits were delivered, evaluated and approved. ✓ The fund was received two months behind the project starting date. ✓ Visa entry to Gaza for the international consultant, the trainer Dr. Basem Shomar, was not issued as planned. ✓ The survey of potential source of heavy metals required more time than expected. ✓ The termination of contract with Al Azhar lab, led to more benefits.
Triangulation: Analysis	
Interview with CMWU Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer. B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. Whether the planned benefits have been delivered and received, as perceived by beneficiaries. - The planned benefits were delivered and received by the beneficiaries. This included the preparation of baseline map of heavy metals across Gaza Strip domestic wells, capacity building in terms of equipment and training and awareness campaign. - In each area the benefits extended to larger target groups. This included awareness, training in the Netherlands. 2. Which factors and constraints have influenced the action implementation, (including technical, managerial, organizational, socio-economic, and external factors unforeseen during the design phase)? - Factors and constrains: o Limited technical ability of local and regional lab (AL Azhar) that resulted in changing of testing lab and conducting training to the Netherlands. o Ineffective role of the steering committee including the repeated absence of some steering committee members which made their role ineffective. o Gaza municipality refused to cooperate and did not allow officially for taking samples from their own wells. Despite this constraint, testing of wells in Gaza was achieved. o Postponing the closing ceremony due to Israeli military operation in Gaza 2012. However, it was conducted afterwards. o Due to the delay of the approved test results the project was extended and the specialized results sharing workshops where canceled. The results were included in

	the closing ceremony. o Gender factors were accounted for in workshops according to each community culture. o Some international trainers, e.g. Basem Shomar could not enter to Gaza due to closure. Training. o Local political situation did not generally affect the project activities. However, Municipality of Gaza refused to collaborate in the project. 3. Whether the balance of responsibilities between the various stakeholders was appropriate, which accompanying measures should have been taken with what consequences? - The steering committee should have been more involved and active. This could be achieved by making them more responsible to the project activities. 4. How unplanned results may have affected the benefits received? - Technical inability of local-regional testing lab resulted in ending the contract with the local lab and making new contract for testing and training in the Netherlands. This change although have delayed the project, it enhanced the benefits concerning baseline map and capacity building. - Delay the closing ceremony due to 2012 Israeli military operation in Gaza. - Due to the delay of the approved test results the project was extended and the specialized results sharing workshops where canceled. The results were included in the closing ceremony. - Gender factors were accounted for in workshops according to each community culture.
Interview with CMWU Lab Staff Concerning the Project component: B. Improved the capacity of CMWU to monitor the quality of water supply.	1. Whether the planned benefits have been delivered and received, as perceived by beneficiaries. ✓ A useful baseline for heavy metals in the underground table was achieved. ✓ Although, a large knowledge was added to the trainees at the international lab, but training could have been more useful if the training on heavy metal was made on same type of ICP device that is available now in CMWU lab in Gaza. 2. Which factors and constraints have influenced the action implementation, (including technical, managerial, organizational, socio-economic, and external factors unforeseen during the design phase)? ✓ Due to border closure, the manufacturer of the heavy metals device could not train the lab technicians on the ICP in Israel. However, online training was provided (via Skype) and it was not very efficient. ✓ Training provided in Netherlands was on a device made by another manufacturer. 4. How unplanned results may have affected the benefits received? ✓ The unplanned results have positively affected the benefits by

	using international lab. ✓ The training at the international lab added more to the knowledge of the trainees.
Interview with Consultant Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. Whether the planned benefits have been delivered and received, as perceived by beneficiaries. ✓ The benefits of the project were achieved as planned as follows: o At the end of the project a baseline for heavy metals was developed according to the beneficiaries and needs. o The intended capacity building of CMWU was achieved as planned. o A huge awareness campaign was conducted. 2. Which factors and constraints have influenced the action implementation, (including technical, managerial, organizational, socio-economic, and external factors unforeseen during the design phase)? ✓ The incapability of the local testing lab. ✓ Delay of response from the project stakeholders other than CMWU and UNDP; especially the no response from MOH and EQA. ✓ MOH and EQA did not have an active participation in meetings and absence in meetings most of the times. ✓ The consultant expected a larger number of attendances in workshops. ✓ Due to border issues, the expert trainer Dr. Basem Shomar could not enter Gaza and it was hard to transport the water samples to the international lab. 4. How unplanned results may have affected the benefits received? ✓ The wrong test results of the local testing lab led the CMWU to contract an international lab for testing and training of CMWU lab staff which improved the benefits received by the trainees.
Interview with Consultant Trainers Improved the capacity of CMWU to monitor the quality of water supply.	1. Whether the planned benefits have been delivered and received, as perceived by beneficiaries. ✓ No practical training on heavy metals testing was made in Gaza. three trainees were sent to Netherlands for practical training on heavy metaltesting. Due to the delay of the device entrance from the border and operation and also the trainer could not enter Gaza, the relevant practical training in Gaza was canceled. ✓ Practical training other than heavy metal was carried out as planned. 2. Which factors and constraints have influenced the action implementation, (including technical, managerial, organizational, socio-economic, and external factors unforeseen during the design phase)? ✓ Due to border closure, the heavy metals testing device was not imported on time and the trainer for the practical heavy metals testing could not enter Gaza.
Interviews with	1. Whether the planned benefits have been delivered and received, as

Project Steering Committee Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	perceived by beneficiaries. ✓ The benefits were delivered and received as planned. Also this project provided a reference for future work and regulations. 2. Which factors and constraints have influenced the action implementation, (including technical, managerial, organizational, socio-economic, and external factors unforeseen during the design phase)? ✓ The lack of capabilities led to train lab staff and test the water sample in an international lab. ✓ The delay in importing and supplying the lab devices. ✓ International trainers could not enter to Gaza because of closure. 3. Whether the balance of responsibilities between the various stakeholders was appropriate, which accompanying measures should have been taken with what consequences? ✓ No, better reallocation of responsibilities could have been made. However, the steering committee could be more active and enhanced relevant institutions participation. MOH believes that the responsibilities should have been changed to give MOH and PWA more attention. ✓ CMWU is a service provider can monitor the water quality to make sure that the service it provides is suitable. For strategies and regulations, MOH and PWA are responsible to monitor the quality of water according to their mandate. 4. How unplanned results may have affected the benefits received? (Per each component). ✓ Affected positively as the involvement of international training which was not originally planned by the project team, was at a high quality and provided a link for the trainer in international labs.
Interviews with UNDP Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the	1. Whether the planned benefits have been delivered and received, as perceived by beneficiaries. ✓ The outputs and expected results of the project were achieved according to the plan or better and in a satisfying way. ✓ Most of the benefits were delivered in a higher quality than planned for example, 174 water samples were tested where it was planned to test only 100. In addition, the awareness campaign targeted a much larger population than it was planned. Capacity building was achieved in form of equipment and training. ✓ The project in its three parts is seen as a success story. More benefits were achieved than was anticipated by beneficiary. 2. Which factors and constraints have influenced the action implementation, (including technical, managerial, organizational, socio-economic, and external factors unforeseen during the design phase)? ✓ Inadequate capability of the local-Egyptian labs to test the water quality and heavy metals. ✓ Due to border closure, the trainees could not travel to Israel to be

impact of water pollution.	trained by the manufacturer of the equipment. ✓ One of the international trainers could not enter Gaza due to border closure. ✓ The CMWU project manager left without proper handing over the project to the new manger which has negatively influence the implementation of the project, especially until the new manager made himself aware of project and implementation details. ✓ Complicated length process for importing equipment from Israel has added to the delay of the project. 3. Whether the balance of responsibilities between the various stakeholders was appropriate, which accompanying measures should have been taken with what consequences? ✓ The balance of responsibilities as designed for this project helped achieving the projects outcomes. It also helped developing CMWU capacity in various ways, for example, the capacity of the procurement and awareness and media departments were greatly developed through the project, which ensures sustainability for the project. ✓ More involvement of PWA, MOH and EQA could enhance the project implementation although the project condition did not adequately allow for their involvement. 4. How unplanned results may have affected the benefits received? ✓ The unplanned results positively affected the benefits of the project as follows: o Savings led to buying more equipment. o Testing and training in an international lab was very useful in building the capacity of the CMWU.
Interview with Donor Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water	2. Which factors and constraints have influenced the action implementation, (including technical, managerial, organizational, socio-economic, and external factors unforeseen during the design phase)? ✓ Due to borders issue, the entrance of lab devices was delayed. 3. Whether the balance of responsibilities between the various stakeholders was appropriate, which accompanying measures should have been taken with what consequences? ✓ More important role should've been given to PWA, MOH and EQA. 4. How unplanned results may have affected the benefits received? ✓ Savings in the project led to supply the CMWU with more needed devices. ✓ The training at the international lab gave the trainees a chance to gain information they could not gain in through the local training.

pollution.	
Focus Group Concerning the project component C. Increased public awareness on the impact of water pollution.	1. Whether the planned benefits have been delivered and received, as perceived by beneficiaries. ✓ The planned benefits of the workshops carried out at the NGOs were delivered and received in a better way than planned. A larger number of workshops were carried out than planned. ✓ Before the awareness workshops, people's behavior about the topic was careless and adverse. The awareness campaign made people more interested in even obtaining more information. 2. Which factors and constraints have influenced the action implementation, (including technical, managerial, organizational, socio-economic, and external factors unforeseen during the design phase)? ✓ Some of the NGOs did not provide the required logistic assistance to the trainers. ✓ Fewworkshops were organized for only female or male audience according the NGO's culture. In some workshop (in Khan Younes Camp) men were interested to attend the workshops but the NGO did not let them attend the workshop since the NGO deals with femalesonly.
Document Review Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. Whether the planned benefits have been delivered and received, as perceived by beneficiaries. ✓ All the planned benefits were delivered, evaluated and approved. 2. Which factors and constraints have influenced the action implementation, (including technical, managerial, organizational, socio-economic, and external factors unforeseen during the design phase)? ✓ The fund was received two months behind the project starting date. ✓ Visa entry to Gaza for the international consultant, the trainer Dr. Basem Shomar, was not issued as planned. ✓ The survey of potential source of heavy metals required more time than expected due to the complexity of the assignment. ✓ CMWU action plan for advocacy and awareness is dependent on the results analysis of the heavy metals. ✓ The procurement process at CMWU took longer time than planned. ✓ Delay of collecting samples because of the shortage of fuel that did not allow the wells to operate many times. ✓ Termination of contract between the CMWU and AL Azhar lab. 4. How unplanned results may have affected the benefits received? ✓ The termination of contract with Al Azhar lab, led to testing the water samples at an international lab (AL CONTROL) and increase the number of samples to 174 instead of 100. Also, it included training for the lab technicians.

5.4 Impact

Principal Conclusions

The project has larger impacts than intended targets as follows:

- The trainees were able to convey their knowledge to their colleagues. This procedure opens the horizon for the trainers to carry out further activities.
- A baseline for heavy metals is available to all the related agencies and researchers.
- A larger number of wells were tested than was planned.
- Local training was not only for CMWU staff but also PWA, MOH, MOA, EQA and UNRWA participated.
- Public awareness activities:
  - Distribution of 32,000 brochures.
  - Interviews and awareness advertisements through radios and televisions reached the West Bank and abroad.
  - Variety of people with different backgrounds benefited from the awareness campaign including children, youth, women, etc.
  - Plays and awareness video were covered by different national and international TV channels.
  - Around 9000 views on the awareness video spread on YouTube's.
  - Street board posters where pasted in different locations in Gaza Strip.
  - Trainees participated in awareness campaign were able to obtain employment in new projects based on their experience in this project.
- The project ensured youth and women participation.Women participated in the project, especially in the awareness campaign were able to secure employment.
- The training material was made available to all of the trainees which could be used by others as well.
- This project raised the interest of the other labs to get heavy metals testing device.

Principal Statements from Different Triangulation Tools

Interviews	- A baseline for heavy metals in Gaza Strip was developed and it is available to all the related agencies and researchers. - A larger number of wells ware tests than was planned. - The training carried out in Gaza included personnel from CMWU, PWA, MOH, EQA, and UNRWA. - The training enhanced the trainees performance helped develop their skills to train others. - Public awareness campaigns had huge impact than planned in the project. - Gender was not an issue in the project. - The technicians who gained training through this project were able to train their colleagues and technician from other institutions. - Some awareness campaign trainees were able to get jobs relevant to the project.
Focus Groups	- Most of the trainees voluntarily carried out multiple workshops.

	- The awareness campaign targeted a large population that included women, elderly, youth and children. - Spreading the posters and the booklets for a larger population based on people's demand. - Based on awareness campaign training, three female trainees were able to find a job ina UNICEFwater desalination project.
Document Review	- The baseline was established and the information was published. - More devices were supplied to CMWU lab. - The awareness campaign implemented by the CMWU was huge.
Triangulation: Analysis	
Interview with CMWU Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of population. The project has larger impacts than intended targets as follows: - The project training was implementing according to training of trainers procedures. The training in Gaza included about 20 trainees. The trainees were able to convey their knowledge to his colleges. This procedure opens the horizon for the trainers to carry out further activities. - Public awareness activities: o At local levels: 32,000 brochures were sent with water bill to houses in Rafah, KhanYounes and middle area. o Through local radio and television interviews and awareness advertisements, the awareness campaign reached the West Bank and abroad. o Variety of people with different backgrounds benefited from the awareness campaign including children, youth, women, etc. in different locations in Gaza Strip. o Plays were covered by different TV channels (International TVs "German, Press, etc." and local TVs "Al Ketab, Al Kudus, etc."). Awareness video was broadcasted on Al-Kitab and Al-quds space channels (35 times each o Around 9000 views on the awareness video spread on YouTube's. o Street board posters where pasted in different locations in Gaza Strip. o Trainees participated in awareness campaign were able to obtain employment in new projects based on their experience in this project. 2. Where appropriate, gender-related, environmental and poverty related impacts were achieved. - The project ensured youth and women participation. - Woman participated in the project, especially in the awareness campaign were able to secure employment
Interview with CMWU Lab Staff	1. To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of population.

Concerning the Project component: B. Improved the capacity of CMWU to monitor the quality of water supply.	- Transformation of knowledge and experience between the three trainees who were trained in the international lab and the rest of the local lab staff. 2. Where appropriate, gender-related, environmental and poverty related impacts were achieved. - Appropriate gender-related, environmental and poverty related impacts were achieved for example, both males and females participated in the training in Gaza.
Interview with Consultant Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of population**.** - A baseline for heavy metals in Gaza Strip was developed and it is available to all the related agencies and researchers. The baseline highlighted important issues for research in the field of heavy metals. - The training carried out in Gaza did not only include personnel from the CMWU but also from the PWA, MOH, EQA, and UNRWA. - The training enhanced the trainees performance helped develop their skills to train others. - Brochures and booklets prepared by the consultant reached more than 32,000 houses in Rafah, Khan Younes, and the Middle Area. They were distributed with municipality bills. 2. Where appropriate, gender-related, environmental and poverty related impacts were achieved. - Gender was not an issue in the project. A large number of females participated in the awareness workshops and campaign.
Interview with Consultant Trainers Improved the capacity of CMWU to monitor the quality of water supply.	1. To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of population. - The training material was made available to all of the trainees which could be used by others as well. - This project raised the interest of the other labs to get heavy metals testing device and now, there are two labs in Gaza that have heavy metals testing devices. - Participation of trainees from other institutions such as the UNRWA and technicians from the Islamic University of Gaza. - The training developed the trainees' skills to train others (train the trainers). 2. Where appropriate, gender-related, environmental and poverty related impacts were achieved. - Female participated in the training without any restrictions. However, their participation was not in large proportions, i.e. in some training session only 2 females participated out 15 participants.

	- Poverty related impacts were not an issue in this training because most of the trainees are employed.
Interviews with Project Steering Committee Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of population. - A baseline for heavy metals in the underground water in Gaza Strip is available now for regulating bodies and researchers. - Other institutions were trained than planned. Training included trainees form the CMWU, PWA, MOH, EQA and UNRWA. - Awareness campaign was huge. 2. Where appropriate, gender-related, environmental and poverty related impacts were achieved. - The project involved women.
Interviews with UNDP Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of population. - Larger population than planned have benefited from the project as follows: - A baseline for heavy metals was established and the results were published and sent to all the relevant agencies in Gaza Strip. It is also available and beneficial to academic researchers. - The general training was very wide and involved people not only from the CMWU and UNDP (targeted group) but also from technicians from PWA, MOH, EQA and UNRWA participated. - The technicians who gained training through this project were able to train their colleagues and technician from other institutions. - The awareness campaign was very huge, targeted the population at all ages regardless of the gender and reached to international level. 2. Where appropriate, gender-related, environmental and poverty related impacts were achieved. - Women participated in most the activities of the project in high proportions and according the culture of the NGO and the area in general. - Based on the training provided in the awareness campaign some trainees were able to get jobs relevant to the project. - The targeted group of the awareness campaign was all the

	population of Gaza Strip regardless of their genders. - Most of the training sessions and NGOs included participant from both genders. - The establishment of the baseline is a technical issue in which male and female participation is present by default.
Interview with Donor Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer. B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of population. - A larger number of wells ware tests than was planned. - Local training was not only for CMWU staff but also PWA, MOH, MOA, EQA and UNRWA participated. The training provided developed the trainees' capacity to train others. - The awareness campaign was huge, cover large areas and multi informative methods were used (Posters, stickers, coloring books, video, workshop, etc.) 2. Where appropriate, gender-related, environmental and poverty related impacts were achieved. - Some trainees were able to get jobs because of the training provided in this project.
Focus Group Concerning the project component C. Increased public awareness on the impact of water pollution.	1. To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of population. - Each trainee was required to do only one workshop at the NGO, but most of the trainees voluntarily carried out multiple workshops based on the request of the audience. - The awareness campaign targeted a large population that included women, elderly, youth and children. - Spreading the posters and the booklets for a larger population based on people's demand. 2. Where appropriate, gender-related, environmental and poverty related impacts were achieved. - The training provided for the trainers opened job opportunities for them (three female trainees were able to find a job in the UNICEF's water desalination plants at school in Gaza).
Document Review Concerning the Project three components: A. Established baseline of heavy	1. To what extent the benefits received by the target beneficiaries had a wider overall effect on larger numbers of population. - The baseline was established and the information was published. - The capacity of the CMWU was developed. More devices were supplied to the lab due the savings in costs and technicians were trained in an international lab.

metals concentration in Gaza Aquifer. B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	- The awareness campaign implemented by the CMWU was huge. The activities were as follows: o 5 awareness workshops were carried out by the consultant in Rafah, Nusairat, Gaza City and Northern governorates. The workshops were carried out at NGOs, municipalities and the Palestinian Federation of Industries. o Training of trainers for 27 instructors of which 15 females and 12 males on the heavy metals sources, risks and mitigation measures. The target group was housewives, youth and farmers. o A Play that discussed water and wastewater activities in a funny and interesting way. The play was made 20 times at different locations in Gaza strip and 1500 person attended. o Radio adv. was published on 3 local channels, 500 times during 5 May and 14 June. o 6 street billboards were distributed all over the Gaza Strip. o 24 banners were used in workshops. o Two radio awareness episodes were broadcasted. o TV advertisement was published 35 on 2 channels. o 5000 heavy metals sources and mitigation measures where printed and distributed. o 32,000 public campaign brochures were printed and distributed.

5.5 Sustainability

Principal Conclusions	
- CMWU is capable at managerial, technical and financial levels to continue the flow of benefits concerning the three project components. - CMWU is planning to monitor the concentration of heavy metals in ground water each 6 months in risky locations and one full round each year. - CMWU is capable to conduct further awareness campaigns but to ensure sustainability, fund is needed. - The local culture is accustomed to contribute to public projects by the private sector. - The knowledge provided fit the needs, culture and skills for the three project components. - The training provided makes the CMWU capable of perform water testing in Gaza. - Project stakeholders were consulted throughout the project activities. - The public, business and civil society organizations are supportive to this project. - MOU was supposed to be signed between the CMWU, UNDP and PWA.	
Principal Statements from Different Triangulation Tools	
Interviews	✓ CMWU has the capacity to continue the flow of benefits at technical and managerial levels but might need financial assistance. ✓ Technical support form a consultant is not essential for continuous future water quality monitoring and evaluation. ✓ The public, business and civil society organizations are supportive to this type of projects. ✓ There is no agreement on mandates and responsibilities between the interviewed parties. It is recommended that the sector structure and institution mandates be rechecked. ✓ Testing of water quality for the purpose of monitoring could be assigned to an independent body to overcome any interest of public institutions. ✓ The knowledge provided fits within the needs of water sector and the culture.
Focus Groups	✓ Coordination and cooperation between the different project stakeholders started at the commencement of the project. ✓ The training provided was intensive, complete and fits within the local culture and skills.
Document Review	✓ The PWA was considered as a senior beneficiary together with CMWU ✓ PWA was the most consulted throughout the activities. ✓ The steering committee was designed to include representatives from PWA, MOH, UNDP, CMWU and ADA. MOU was supposed to be signed between the CMWU, UNDP and PWA.

Triangulation: Analysis	
Interview with CMWU Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. Whether the institution is capable of continuing the flow of benefits after the action ends and prepared for taking over, technically, financially and managerially.***(Concerning CMWU)*** - CMWU is capable at managerial, technical and financial levels to continue the flow of benefits concerning the three project components. - The heavy metal baseline map was completed in 12/2012. The plan is to carry out follow up water testing to monitor the change in the heavy metal concentration in the wells with high potential contamination and the ones near the limit. Each year a complete round of samples will be collected from 154 wells to carry out heavy metals follow up testing. - The abilities of the CMWU staff lab technicians were greatly developed through the training and they are capable of training other technicians and conducting the new tests. - CMWU is capable to conduct further awareness campaigns but to ensure sustainability, fund is needed. 2. How far the relevant national, sectorial and budgetary policies affected the project positively or adversely; and the level of support from governmental, public, business and civil society organizations? - CMWU is planning to include awareness campaign as part of future projects concerning water. - The local culture is accustomed to contribute to public projects by the private sector such as Bank of Palestine, Palestinian telecommunication company, etc. Part of these contributions can be directed toward the continuation of the benefit of this project. 3. How far all stakeholders were consulted on the objectives from the outset, and whether they agreed with them and remained in agreement throughout the duration of the project?***(Concerning project stakeholders).*** ✓ At the beginning of the project all project stakeholders where involved. ✓ During the implementation the agreed arrangements were respected by CMWU. As the project activities advanced, some of the steering committee members stopped attended meeting although CMWU continuously invited all the stakeholders for meeting. 4. The adequacy of the action budget for its purpose.***(Per each component).*** - Small scale follow up testing can be covered by CMWU. On large scale, CMWU might need some financial support. - Action budget for capacity building is adequate and can allow continuing of benefits - Awareness campaign needs further funding for continuation.

	5. Whether knowledge provided fits in with existing needs, culture and skills? ***(Per each component).*** - The knowledge provided fit the needs, culture and skills for the three project components. - The knowledge delivered by the project succeeded in targeting people of different ages and from different cultures.
Interview with CMWU Lab Staff Concerning the Project component: B. Improved the capacity of CMWU to monitor the quality of water supply.	5. Whether knowledge provided fits in with existing needs, culture and skills? - Yes, the knowledge provided now enables the CMWU lab to monitor continuously the situation of heavy metals in the underground water in Gaza Strip. - The skills gained by training suitable for continuation of the project.
Interview with Consultant Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. Whether the institution is capable of continuing the flow of benefits after the action ends and prepared for taking over, technically, financially and managerially. ***(Concerning CMWU).*** - After the project, the CMWU became capable of implementing similar project, but might need oversight technical support from a consultant. - The training provided makes the CMWU capable of perform water testing in Gaza, but further training is needed to follow up with new technologies. - Finance is needed to ensure a continuous awareness campaign. 3. How far all stakeholders were consulted on the objectives from the outset, and whether they agreed with them and remained in agreement throughout the duration of the project? ***(Concerning project stakeholders).*** - All the project stakeholders were consulted throughout the project activities. - PWA was more involved and participated strongly in the project. - MOH and EQA participated on in the training and in the steering committee; their participation was at low managerial level. 4. The adequacy of the action budget for its purpose. - More budgets should have been spent on monitoring and evaluation of all activities of the project concerning his tasks. 5. Whether knowledge provided fits in with existing needs, culture and skills? - The knowledge provided through the project fits within the existing needs, culture and skills. - The skills; provided through the capacity development of CMWU was verified by duplication of sample for testing in other

	institutions and comparing results.
Interview with Consultant Trainers Improved the capacity of CMWU to monitor the quality of water supply.	3. How far all stakeholders were consulted on the objectives from the outset, and whether they agreed with them and remained in agreement throughout the duration of the project? - PWA, MOA, CMWU and EQA were consulted and all remained in agreement during the training. 5. Whether knowledge provided fits in with existing needs, culture and skills? - The training provided fits within the needs except still further training on heavy metals testing is needed for trainees from other institutions. - The training fits within the culture of the trainees and the trainees are more interested in further training. - The training provided is to complete the missing skills.
Interviews with Project Steering Committee Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	3. How far all stakeholders were consulted on the objectives from the outset, and whether they agreed with them and remained in agreement throughout the duration of the project? ✓ Coordination and cooperation between the different project stakeholders started at the commencement of the project. 5. Whether knowledge provided fits in with existing needs, culture and skills? ✓ The training provided was intensive and complete and fits within the culture and skills.
Interviews with UNDP Project Team Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.**	1. Whether the institution is capable of continuing the flow of benefits after the action ends and prepared for taking over, technically, financially and managerially. ***(Concerning CMWU).*** ✓ CMWU has the capacity to continue the flow of benefits at technical and managerial levels but might need financial assistance. In addition, the PWA and MOH should contribute in the sustainability of the benefits. ✓ Technical support froma consultant is not essential for continuous future water quality monitoring and evaluation, because the training provided for the CMWU is enough to qualify the CMWU

B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	staff to carry out the monitoring and evaluation in the future. 2. How far the relevant national, sectorial and budgetary policies and affected the project positively or adversely; and the level of support from governmental, public, business and civil society organizations?**.** ✓ Financially, the operation of CMWU depends basically on the funding provided through projects. This may hinder the sustainability of the project in case CMWU faces financial difficulties. ✓ The project fits within the national and sectorial policies, which ensures sustainability of the project. ✓ The public, business and civil society organizations are supportive to this project because it is related to the people's health and it relation to the potential resources of the heavy metals. 3. How far all stakeholders were consulted on the objectives from the outset, and whether they agreed with them and remained in agreement throughout the duration of the project? ***(Concerning project stakeholders).*** ✓ The CMWU was fully consulted through all the project stages, and implementation was according to the agreement. ✓ PWA was to some consulted to provide technical support for the project implementation. ✓ Others were not significantly consulted. ✓ It is recommended that the sector structure and institution mandates be rechecked to identify responsibilities and boarder lines between involved institutions. ✓ Testing of water quality for the purpose of monitoring could be assigned to an independent body to overcome any interest of public institutions. ✓ It is recommended that relevant institutions including the universities should be consulted and involved more effectively in similar future projects during the whole project lifecycle. 4. The adequacy of the action budget for its purpose. ✓ The action budget was adequate for all the three project's components. 5. Whether knowledge provided fits in with existing needs, culture and skills? ✓ The knowledge provided through the establishment of baseline for heavy metals component fits within the needs of water sector and will be periodically tested and included in the monitoring system of the CMWU. ✓ The knowledge provided fits within the cultures of the Gaza communities. ✓ Existing skills. Needed skills were provided through the training sessions and further training will be carried out if needed.

Interview with Donor Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	1. Whether the institution is capable of continuing the flow of benefits after the action ends and prepared for taking over, technically, financially and managerially. ***(Concerning CMWU).*** ✓ The CMWU now has the technical and managerial capacity to continue testing and monitoring the situation of heavy metals in the underground water. Although the CMWU financial capacity to continue as an operating body is questionable. 3. How far all stakeholders were consulted on the objectives from the outset, and whether they agreed with them and remained in agreement throughout the duration of the project? ***(Concerning project stakeholders).*** ✓ Proper consultations where between the CMWU, PWA and the stakeholders in the steering committee. ✓ At some point, the PWA had concern about the location and ownership of the lab that it should be at the PWA and the CMWU. 4. The adequacy of the action budget for its purpose. ✓ The action budget is adequate for each purpose. 5. Whether knowledge provided fits in with existing needs, culture and skills? ✓ The knowledge provided fits within the needs, culture and skills but continuity of the project should be assured. ✓ The awareness campaign should be continued.
Focus Group Concerning the project component C. Increased public awareness on the impact of water pollution.	3. How far all stakeholders were consulted on the objectives from the outset, and whether they agreed with them and remained in agreement throughout the duration of the project? ✓ Coordination and cooperation between the different project stakeholders started at the commencement of the project. 5. Whether knowledge provided fits in with existing needs, culture and skills? ✓ The training provided was intensive and complete and fits within the culture and skills.
Document Review Concerning the Project three components: A. Established baseline of heavy metals concentration in Gaza Aquifer**.** B. Improved the capacity of CMWU to	3. How far all stakeholders were consulted on the objectives from the outset, and whether they agreed with them and remained in agreement throughout the duration of the project?***(Concerning project stakeholders).*** ✓ The PWA was considered as an implantation agency with CMWU and PWA was the most consulted throughout the activities. ✓ The steering committee was designed to include representatives from PWA, MOH, UNDP, CMWU and ADA. Progress report No.1 indicates that the steering committee included representatives from PWA, EQA, UNDP and CMWU. ✓ MOU was supposed to be signed between the CMWU, UNDP and PWA. 4. The adequacy of the action budget for its purpose.

monitor the quality of water supply. **C.** Increased public awareness on the impact of water pollution.	✓ The budget for each action was adequate. ✓ There became available some savings in the project and it was used to supply more testing devices for the CMWU lab.

5.6 Reflection Workshop

Concerned Project Components (Results/Outcomes)	A) Established baseline of heavy metals concentration in Gaza Aquifer B) Improved the capacity of CMWU to monitor the quality of water supply C) Increased public awareness on the impact of water pollution

A PowerPoint presentation was made by the evaluator followed by a general discussion from all involved persons. The workshop was made after the evaluator has finished his evaluation activities. The presentation included all aspects of evaluation such as project background, aims and purposes, methodology and procedures and findings (recommendations, lessons learnt, successful indicators and stories, etc.). The aim of the workshop was to get feedbackconcerning the evaluation report.

The conclusion points from the workshop were as follows:

- During the project design, PWA informed all the project stakeholders of theirresponsibilities.
- After the 2008-2009 Israeli military operation, the only operating institution on the ground was the CMWU. Due to the conditions under which the project was initiated, UNDP could only work with CMWU to implement this important project even though CMWU is a service provider.
- In future projects, it is recommended that all the project stakeholders should be involved and responsibilities are allocated within each institution mandate.
- No-contact policy adversely affected the project performance.
- The UNEP report came as a respond to EQA request to investigate the effects of the Israeli military operation on the environment. Local institutions partially contributed and participated in preparation phase of the study.
- The lab training in Gaza focused on the practical operation of lab tools, sampling, preparing of detergents, perform experiments and obtain results.
- It is recommended to investigate the pollution situation in soil and plants (regarding heavy metals, residual pesticides, etc.) and public health (regarding heavy metals, cancer, etc.).
- According to the TOR, the consultant role was to train personnel determined by the CMWU. The consultant scope of work did not cover all the project activities and limited to the 5 tasks performed by the consultant. Training on the ICP device was not in the consultant's scope of work. The international lab results review by local consultant was not possible since his contract was ended. However, the consultant was committed to review the international lab test results.

6. RECOMMENDATIONS

Recommendations regarding each criterion are clearly related to conclusions as follows:

I- Relevance

Conclusions	Recommendations in future projects or next phase
- The capacity of CMWU to monitor the quality of water supply was generally judged by UNDP and CMWU during the project development phase to need improvement.	- CMWU concerned capabilities may be re-assessment as part of the project implemted activities by consultant.
- The project identified the real problems and needs in the area of monitoring domestic water quality.	- Expand the assessment of problems and needs to cover other relevant areas such as soil, people health, plants, etc.
- The project was designed appropriately to address the problems and needs.	- The design of project may have been improved to adress causes of heavy metal pollutant, and mitigation and remedial measures. After having evidence regarding contamination of water supply be heavy metals this should be addressed in a second phase.
- Training carried out in Gaza was general and did not cover practical testing of heavy metals.	- Training in Gaza maygive more attention of testing of heavy metals.
- The training carried out by the international lab covered all the needed training regarding the heavy metals.	- Gained experience by CMWU trainees may be conveyed to other trainees in Gaza.
- National policies, standards, guidelines and regulations regarding heavy metals issues did not exist.	- Relevant Palestinian institutions should develop/adopt standereds, policies and guidelines in the area of heavy metals.
- There was no significant previous experience on the heavy metals in water ground in the Gaza Strip.	- Releavnt Palestinain institutions should direct and support research on heavy metal issues.
- The project included normal monitoring and evaluation procedures.	- The TOR for consulatnt may include the devlopment of specific monitoring and evaluation systems for the prject activities.

II- Efficiency

Conclusions	Recommendations
- The flexible project management was generally satisfactory, especially between CMWU, UNDP and consultant.	- The project management may have been improved by encouragingthe participation of the beneficiary stakeholders.

- Relevant institutions would have been more effective if there was no no-contact policy.	- No-contact policy should be reassessed.
- The coordination and cooperation between the consultant's team and CMWU project's staff created a team work environment.	- It is beneficial to strengthening the partnership culture between involved project actors.
- Changing the CMWU project manager temporarily reduced the quality of management.	- The change in project management should have allowed adequate transition period.
- The costs spent for the project the components were justified by the benefits received. The public awareness needed more money to ensure continuation and to reach more people.	- Allocate more financial support for awareness campaign.
- In future projects no need to conduct training and testing abroad.	- The gained experience, capacity buildings during the project would enable conducting similar project totally locally.
- Local institutions, particularly PWA and NGOs carried out their responsibilities and contributions.	- Other institutions should have been more responsible in the project, especially MOH and EQA.
- The possibility of re-allocation of responsibilities could have improved the project performance.	- The responsibility of testing, monitoring and judging the quality of water needs re-assessment.
- Testing of water quality by CMWU as a service provider is important for the institution to ensure the suitability of supplied water.	- Monitoring of water quality in general may be the responsibility of somebody who has no interest preferably an institution that is not attached to the government. In Israel for example, the "***Technion***" is the responsible body for the testing.
- Technical assistant by the consultant was essential.	- Strengthen the culture of using specialized consultants to support public institutions.
- The quality of the implemented monitoring arrangements was acceptable.	- TOR for consultant may include the development of well-defined monitoring and evaluation system to be approved by CMWU.
- Many unplanned activities arisen form the activities:	- TOR for consultant may include the development of well-defined monitoring and evaluation system.

III- Effectiveness

Conclusions	Recommendations
- The planned benefits were delivered and received by the beneficiaries (baseline map	- Adopt similar project approach in future

of heavy metals, capacity building in terms of equipment and training and public awareness campaign).	projects.
- Factors and constrains: o Limited technical ability of local and regional labs. o Ineffective role of the steering committee, except of PWA. o Gaza municipality refused to cooperate. o Delay in project and cancelling of the specialized result sharing workshops. o Gender factors. o Boarder closure. o Complicated length process for importing equipment from Israel.	- Project should be flexible to allow for expected and unforeseen constraints.
- The balance of responsibilities helped achieving the projects outcomes.	- More involvement of PWA, MOH and EQA could enhance the project benefits, especially for other institutions.
- Technical inability of local testing lab resulted in making new contract for testing and training in the Netherlands.	- Capabilities of local labs should be enhanced.
- Training in international would be more effective if it was made on same type of ICP device available now in CMWU lab in Gaza.	- It is preferable to make training on same types of equipment available at trainee labs.
- Training in Gaza was general.	- Train lab staff from relevant institutions on testing of heavy metals.
- Manufacturer of the heavy metals device could not train the lab technicians on the ICP in Israel.	- Ensure the ability of manufacture to enter to Gaza, or trainees travel to manufacturer, e.g. in or through Egypt.
- NGOs provided the required logistic assistance to the trainers of public awareness campaigns.	- Select cooperative NGOs.

IV- Impact

Conclusions	Recommendations
- The trainees were able to convey their knowledge to their colleagues.	- Emphasize "train the trainer" concept.
- A baseline for heavy metals is available to all the related agencies and researchers.	- Support research and investigation on heavy metal issues.
- A larger number of wells were tests than	- Get more benefits using the save made in

was planned.	project cost.
- Local training was not only for CMWU staff but also PWA, MOH, MOA, EQA and UNRWA participated.	- Try to get more benefits at no extra cost.
- Public extended awareness activities included: o Distribution of 32,000 brochures. o Interviews and awareness advertisements reached the West Bank and abroad. o Variety of people with different backgrounds benefited from the awareness campaign including children, youth, women, etc. o Plays and awareness video were covered by different national and international TV channels. o Around 9000 views on the awareness video spread on YouTube's. o Street board posters where pasted in different locations in Gaza Strip.	- Adopt the public awareness approach in similar projects.
- The project ensured youth and women participation.	- Strengthen the role of women and youth in the project life cycle.
- The training material was made available to all of the trainees which could be used by others as well.	- Try to get more benefits at no extra cost.
- This project raised the interest of the other labs to get heavy metals testing device.	- Make use of available new equipment in future projects.

V- Sustainability

Conclusions	Recommendations
- CMWU is capable at managerial, technical and financial levels to continue the flow of benefits concerning the three project components.	- (Support CMWU to continue the project benefits).
- CMWU is planning to monitor the concentration of heavy metals in ground water each 6 months in risky locations and one full round each year.	- Concerned institutions should develop a comprehensive monitoringplan.
- CMWU is capable to conduct further awareness campaigns but to ensure sustainability, fund is needed.	- Additional fund for awareness campaign is needed.
- The local culture is accustomed to contribute to public projects by the private sector.	- Direct part of these contributions towards the continuation of the benefit of this project.

- The knowledge provided fit the needs, culture and skills for the three project components.	- Strengthen the adopted project approach in future projects.
- The training provided makes the CMWU capable of perform water testing in Gaza.	- Further training may be needed to follow up with new technologies.
- Project stakeholders were consulted throughout the project activities.	- "*Consultation*" concept should be changed to "*participation"*.
- The public, business and civil society organizations are supportive to this project.	- Strengthen the community participation approach.
- MOU was supposed to be signed between the CMWU, UNDP and PWA.	- MOU must be signed between relevant institutions to follow on project benefits.

7. EVIDENT SUCCESS INDICATORS

- The benefits from the project have been achieved regarding the three components.
- Other institutions were trained than planned.
- A larger number of wells were tests than was planned.
- Public awareness activities:
  - Distribution of 32,000 brochures.
  - Interviews and awareness advertisements through radios and televisions reached the West Bank and abroad.
  - Variety of people with different backgrounds benefited from the awareness campaign including children, youth, women, etc.
  - Plays and awareness video were covered by different national and international TV channels.
  - Around 9000 views on the awareness video spread on YouTube's.
  - Street board posters where pasted in different locations in Gaza Strip.
- Trainees participated in awareness campaign were able to obtain employment in new projects based on their experience in this project.

8. SUCCESS STORIES

5. The project is judged to be success story. More benefits were achieved than was anticipated by beneficiary regarding the project three components.
6. Conducting additional awareness workshops and activities targeting for example children during which special plays and coloring books were used to raise the children awareness of the concerned issues.
7. Female trainees (***Hanan Abu Nimer, EbaaAl-Zureegand RobaYaghi***) participated in awareness campaign were able to obtain employment in new projects based on their experience in this project.
8. CMWU staff members were able to operate the ICP without training by the manufacturer in Israel.

9. LESSONS LEARNT

9.1 Lessons LearnedConcerning Relevance

1. Limited available academic research indicated that there is no a heavy metal contamination problem in Gaza Strip. On the contrary, the project results indicated that there was a problem in many locations including Rajah, Khan Youngest, etc.
2. The no contact policy negatively affects the implementation of project within its relevant institution's mandates.
3. Studies should be carried out with full involvement by the Palestinian institutions to ensure the reliability of the results.
4. The issue of CMWU as a main targeted beneficiary should be readdressed taking into account its mandate as a service provider; not regularity body. MOH and PWA could be main targets in this regards.

9.2 Lessons LearnedConcerning Efficiency

1. Local institutions are capable to conducted similar projects in the future, especially after the capacity building gained in this project.
2. People become more active if they were given the chance to get involved from the start and to be consulted more effectively.
3. The responsibility of consultant in monitoring and approval of the test results from international lab was waived since his contract was ended. This is judged to be unjustified!
4. Monitoring and evaluation of project activities and results may change the planned activities and result in improved benefits as follows:
    - Testing of water samples in an international lab in since testing regionally in Egypt proved to be unacceptable.
    - Training of three CMWU lab staff abroad in the Netherlands.
    - Conducting additional awareness workshops and activities targeting for example children during which special plays and coloring books were used to raise the children awareness of the concerned issues.
    - Preparing and producing heavy metals information booklet.

9.3 Lessons LearnedConcerning Effectiveness

1. The planned benefits could be increased within the project budget.

9.4 Lessons LearnedConcerning Impact

1. Volunteers could get jobs in different projects based on the awareness campaign training and skills they gain from this project.
2. More benefits can be obtained at no extra cost. For example, more trainees were enrolled, more awareness public campaign and activities, etc.

9.5 Lessons LearnedConcerning Sustainability

1. It is feasible to financially support the semi-government institutions such as CMWU to ensure the continuity of the institution and therefore the project benefits. For example, project managerial overhead should be assigned to these institutions to cover their expenses.

10. GENERAL RECOMMENDATIONS

The following general recommendations can be addressed in future similar projects or a second phase of this project.

10.1 General Recommendations Concerning Relevance

1. There is a need to test drinking water from other sources including private water vendors.

2. There is a need to test agricultural water wells, plants and soil.
3. There is a need to investigate the causes of heavy metal pollutions in risky areas.
4. There is a need toadopt common standards for testing and guidelines to ensure creditability and reliability of local labs.
5. There is a need to investigate the bombed area during the Israeli military operation .
6. There is a need to investigate the effects of pesticides.
7. There is a need to evaluate health issues for the people where underground water was found contaminated.
8. There is a need for different institutions to develop heavy metal mitigation and remedial measures for risky locations.

10.2 General Recommendations Concerning Efficiency

1. In future projects, it is advised to maintain same level of efforts by consultant staffing and man month. This is also applied for the project time frame.
2. There is a need to ensure involvement of all project stakeholders, a part of CMWU for better participation.
3. There is a need to develop an evaluation and monitoring system of all project activities.
4. It will be more beneficial to conduct more and longer NGO awareness campaign workshops.
5. Training should have been carried out on the same device by the manufacturer.

10.3 General Recommendations Concerning Effectiveness

1. There is a need for the concerned Palestinian regularity institutions to develop or adopt specific polices, regulations, standards, guidelines, etc. in the fields of water sector in general.
2. It is advisable to traintrainees from other institutions using the available ICP devices.

10.4 General Recommendations Concerning Impact

1. There is a need to continue public awareness campaigns to reach larger audience.
2. There is a need to carry out awareness activities in school through curriculum or non-curriculum activities to ensure the continuity of the awareness campaign benefits.

10.5 General Recommendations Concerning Sustainability

1. In future intervention, There is a need to develop a comprehensive monitoring plan for water sector with involvement from all concerned institutions.
2. It is recommended that the sector structure and institution mandates be rechecked to identify responsibilities and boarder lines between involved institutions.
3. Testing of water quality for the purpose of monitoring could be assigned to an independent body to overcome any interest of public institutions.
4. It is recommended that relevant institutions including the universities should be consulted and involved more effectively in similar future projects during the whole project lifecycle.
5. There is a need to provide finance to implement further awareness activities.
6. There is a need to support research in the field of heavy metal.
7. There is a need to expand the lifespan of the ICP by using a special device to test mercury.

8. There is a need for advanced and specialized training for the CMWU lab staff.
9. There is a need to publish available information on heavy metals to be used by concerned institutions.
10. There is a need to follow the methodology suggested by the consultant to monitor the heavy metal situation in the underground water.

Annex I: Evaluation Organization and Timing

First day: Thursday, 16 May 2013

No. 1	**Time:**8:30-10:45
I- Semi-structured interview with CMWU Project Team *(location: CMWU Office)* **Project Director** - Ashraf Mushtaha (Dir. of Envi. and MIS) **Other project team** - Ibrahim ALejla (Head of media and public awareness unit). - Safa El-Rabii (CMWU procurement manager). - Sohair El Bayoumi (Public awareness coordinator)	

No. 2	**Time:** 11-1
II- Semi-structured interview with Consultant Project Team *(location: CMWUoffice)* - Dr. Said Ghabayen (team leader). **Other staff** - Dr. JehadHamad	

No. 3	**Time:**13:30-3
III- Semi-structured interview with CMWU Trainees *(location: Deir El Balah CMWU Lab)* - FadiabuShanab (trainee\lab technician)	

Second day: Sunday, 19 May 2013

No. 1	**Time:**9-11
I- Semi-structured interview with Client Project Team *(location: UNDP office)* - Hala Othman (Project Manager) **Other staff** - Muhsen El Gazali (Access coordination team)	

No. 2	**Time:** 11-12
II- Semi-structured interview with Donor *location: UNDP* - Sami Abu Sultan (ADA- Donor)	

No.3	**Time:**12-13
III- Focus group interview (target group representatives for awareness campaign) *(location: CMWU)* - Hani Musabeh (جمعية المنال لتطوير المرأة الريفية) - Hanan Abu Nimer (مركز النشاط النسائي -خانيونس) - Mohammed Al Zaaneen (جمعية التغريد للثقافة التنمية) - Ibaa Al-Zureeg(جمعية الوداد للتأهيل المجتمعي) - RaedaSokar(الوداد للتأهيل المجتمعي جمعية) - RubaYaghi (Volunteer)	

- Samar Abu Jarad (جمعية تطوير بيت لاهيا) - Ibtisam AL Talaa (جمعية المنال لتطوير المرأة الريفية)

No. 4	**Time:** 1-2
IV- Semi-structured interview with Stakeholder Steering Committee Member (location: CMWU) - Ahmed Yacoubi (PWA)	

Third day: Monday, 20 May 2013

No. 1	**Time:**9-10
I- Semi-structured interview with StakeholderSteering Committee Member(*location: MOH)* - Sami Lubbad (MOH)	

No. 2	10-12
II- Semi-structured interview with Consultant Trainers *(location: Trainer office)* - Dr. AhmaedMugari (laboratory specialist) - Dr. NizamAlashqar (trainer)	

Forth day: Wednesday, 22 May 2013

No. 1	**Time:** 10-11
I- Semi-structured interview with UNDP Staff (Via: Phone) - HusamTubail	

Reflection Workshop

No. 1	**Time:**11-13
Reflection Workshop*(location: CMWU)* • Prof. Mohamed Ziara (Evaluation Consultant) • HusamTubail (UNDP) • Hala Othman (UNDP) • Ashraf Mushtaha (CMWU) • Sohair El Bayoumi (CMWU) • Ebaa Al-Zureeg (Volunteer at CMWU) • Ahmed Yaqubi (PWA) • Sami Abu Sultan (Austrian Representative Office) • Dr. Said Ghabain (Al Madina Consultants) • Dr. Ahmed Mughari (Al Madina Consultants) • Rima Abumiddain (Team Leader/ Environment Team (UNDP)) • Sami Lubbad (MOH- Public Health Lab, Director)	

Annex II: Methods Toolkit

Explanations about the proposed methods toolkit are shown in Table 1.

Table 1: Explanations about the methods toolkit.

Toolkit	Explanation
Materials Review	Existing data, published papers, reports and documents on the assessment subject.
Interviews	Question-answer sessions to elicit specific information about evaluation items. Interviews will be structured or individual (semi-structured). i. Structured interviews will aim to gather the same information from many people. - Questions will have specific wording and will be asked in a set order. - Data will be quantified. ii. Semi-structured interviews are conducted with a fairly open framework which allow for focused, conversational, two-way communication. They can be used both to give and receive information and start with more general questions or topics. Not all questions are designed and phrased ahead of time. The majority of questions are created during the interview, allowing both the interviewer and the person being interviewed the flexibility to probe for details or discuss issues. Steps to using this technique are: – Preparing the questions. – Determining the interviewees. – Conducting and recording the results. – Analyzing the results. Triangulation of questions will try to avoid problems of confirming what is said, so as to confirm their value as evidence. Interviews generally will be corroborated through information from other independent sources such as documents, observations or structured interviews.
Focus Groups	Focus groups are dynamic discussion groups between 8-12 people that are judgmentally selected as representatives of a larger group of population. A facilitator will be used to direct the group discussion and to focus attention on the specific aims of the session (which may involve developing practical recommendations). The evidence produced through focus groups is qualitative in nature and has the major advantage that it gives depth and understanding to a given topic. A typical focus group session can last from 90 to 180 minutes. Focus groups will provide a means to obtain a broad understanding of the issues with which research study is concerned like attempts to assess the state of construction sector and understanding causes of current difficulties by obtaining the opinion, perception of individuals actually associated with the issues being examined. Evidence obtained from focus groups alone will be used in combination/

	collaboration with other evidences. Steps to using this technique are: - Selecting a facilitator. - Determining the number of focus groups. - Deciding the participants of the focus groups. - A topic guide: The facilitator needs to prepare a detailed agenda of issues, which the focus group is expected to discuss. This acts as a guide for the discussion. - Conducting the focus group: The facilitator needs to keep the discussions in the focus group relevant to the issue/ objective of the discussion. - Recording the results of a focus group: A video or audio recording of a focus group could be used for recording the discussions. Minutes of the meeting could be taken. - Analyzing the results of a focus group: Techniques of qualitative data analysis are used to analyze the results of a focus group.
Participatory Observation	Participatory observation will be a way of looking at the situation or behavior of people so as to compare it with what people report. It will also be a good opportunity to ask questions to beneficiary technicians and staff about how they use the resources of the project and how it helped them to face the current situation. It will be a useful means of obtaining a better picture of the situation, particularly of aspects that are difficult for participants to verbalize. Participatory observation will uncover structural problems in the accessibility to program benefits based on the selection criteria or interpersonal behavior/group dynamics. Stages in Participatory Observation are: • Selection of farmer beneficiary site and definition of problems, concepts, and indicators. • The evaluator chooses a strategy to move into the beneficiary setting. • Selecting people and events to observe. • Develop relationships with the participants. • Analyzing observations. • Final analysis and interpretation.
Reflection workshop	Feedback presentation and lessons learned meeting
Analysis and Evaluation	Diary feedback and iterative feedback process. SWOT analysis may be applied to determine main issues and recommendations for future actions.

Annex III: Materials Review

1. The Project Document;
2. The project progress reports;
3. UNDP progress reports;
4. Surveying Report;
5. Comprehensive plan for heavy metals;
6. Laboratory testing manual for wastewater;
7. Laboratory testing manual for drinking water;
8. Closing ceremony presentations;
9. Results of testing the water samples;
10. Awareness materials include:
    - A play named "NoqtetNazam";
    - Video Clip;
    - Picturized story (coloring books);
    - Heavy metals sources & mitigation measures manual;
    - Brochure;
    - Street bill boards, stickers and banners.
11. Shomar, B., et al, 2005 *"Geochemical features of topsoils in the Gaza Strip:Natural occurrence and anthropogenic inputs"*, Environmental Research 98,pg. 372–382.
12. Shomar, B., et al**,**2005 *"Geochemical Characterization of Soil and Water From a Wastewater Treatment Plant in Gaza"*, *Soil & Sediment Contamination*, 14:309–327,
13. Consultancy Services TOR.

Annex IV: Interview Protocols

Evaluation interviewes have been designed to elicit observations about principal evaluation aspects including relevance, efficiency, effectiveness, impacts and sustainability. The observations of respondents should offer insights into how such issues directly affect and are being handled by UNDP, CMWU and other project stakeholders.

These interviews along with the rest of the tools will lead to recommendations about the capacities of concerned institutions. These reports will not identify the responses of any individuals to either the questionnaire. Nor will any information be released in any form that could identify comments or responses of any respondent involved in the project, unless express permission in writing has been received by the evaluation team.

Each interview have been conducted by evaluator and took about 120 minutes. The questions have been subdivided into five sections. The first is designed to explore the relevance of the project; the second section concerns the efficiency; the third section concerns the effectiveness, the fourth concerns the impact and the fifth tackles sustainability.

The answers were clear as possible. In some cases it was necessary to clarify concepts and statements by re-defining the questions and the answers.

Annex V: Photos of Evaluation Activities

Photo (1): Interview with UNDP

Photo (2): Interview with CMWU

Photo (3): Interview with lab Trainers

Photo (4): Interview with steering committee (PWA)

Photo (5): Interview with steering committee (MOH)

Photo (6): Interview with NGOs

Photo (7): Interview with Consultant

Photo (8): Interview with Donor

Photo (9): Interview with trainee

Photo (10): Field Visit

Photo (11): Meeting with Eng. HusamTubail- UNDP

Photo (12): Reflection Workshop

Annex VI: Evaluation Terms of Reference

Financial Offer

Project title: Improve the Capacity of CMWU for Monitoring the Quality of Water Supply in the Gaza Strip
Duty Station: Gaza City
Estimated level of efforts and duration for the assignment: 14 working days distributed over a period of 6 weeks.
Starting Date: 28 April 2013

1. Background and Context

UNDP/PAPP has supported the Coastal Municipal Water Utility "CMWU" to improve its capacity on monitoring the quality of water supply in the Gaza Strip. The project is funded by the Austrian Development Cooperation with amount of EURO 500,000, executed by UNDP/PAPP and implemented by the Coastal Municipalities Water Utility (CMWU).

The project aimed at achieving the following results:
A) Established baseline of heavy metals concentration in Gaza Aquifer;
B) Improved the capacity of CMWU to monitor the quality of water supply;
C) Increased public awareness on the impact of water pollution.
The major activities were carried out during the project lifetime:

- A consultant was hired to identify sampling stations and list of heavy metals parameters to be tested in cooperation with CMWU and PWA; undertake sampling, results analysis and formulate mitigation measures. The consultant trained the lab technicians on the concept of heavy metals, effect on human health, source of heavy metal, case study, procedures and equipments for testing the heavy metals.

- Water samples analysis: heavy metals concentration along Gaza aquifer was measured and baseline information was established, which will be used later on to monitor pollution and identify pollution sources and possible pollutants.

- UNDP/PAPP supported the upgrading of CMWU water quality laboratory in Deir Al Balah, which is equipped with simple water kits for testing chlorides. After upgrading the lab, it became capable to perform all water and wastewater tests.

- Public awareness regarding water quality issues and its impact on public health including potential sources of pollution was raised.

2. Evaluation Purpose:

- To assess the performance of the project in relation to achieving the intended results;
- To provide information on the status of project implementation to ensure the delivery of the outputs;
- To advise CMWU and UNDP/PAPP on the next steps;
- Document strengths, weaknesses and lessons learnt.

3. Evaluation Scope , Objectives and Criteria

The overall objective of this evaluation is to assess how the project outputs are being achieved.

The scope of the evaluation will cover the following areas:

- The extent to which the project has improved the capacity of CMWU for monitoring the quality of water;
- Partnership: assess the effectiveness of the partnership that the project has built.

Evaluation Criteria:

I. Relevance: concerns the extent to which a development initiative and its intended outputs are consistent with national and local policies and the needs of intended beneficiaries;
II. Effectiveness: is a measure of the extent to which the initiative's intended results have been achieved or the extent to which progress towards outputs has been achieved;
III. Efficiency: measures how economically resources or inputs are converted to results;
IV. Sustainability: .measures the extent to which benefits of initiatives continue after external development assistance has come to an end;
V. Impact: measures changes human development and people's well-being that are brought about by development initiatives, directly or indirectly, intended or unintended.

4. Tasks and responsibilities

Under the overall supervision of the Project Manager and in close cooperation with the Project counterparts, the consultant will review the project outputs and activities in order to implement the followings:

1- Prepare an evaluation inception report and work plan: The consultant shall prepare a work plan that describes how the evaluation will be carried out and the timetable for each activity. The work plan should address the followings:

Overview of the project
Expectations of evaluations
Roles and responsibilities
Evaluation methodology
Evaluation framework
Information collection and analysis
Reporting
Work scheduling.

2- Field visits: the consultant shall include all visits that are needed to the project site, the project counterparts and the stakeholders. All visits and meetings shall be coordinated through the project manager.

3- Evaluation report: the consultant shall prepare an evaluation report that describes the evaluation and puts forward the evaluator's findings, recommendations and lessons learnt. The report should also highlight gaps, strengths and weaknesses of the project. Please see attached annex #1: UNDP evaluation report template and quality standards.

5. Methodology

The exercise will entail a combination of comprehensive desk review and document analysis; consultation with key stakeholders. The evaluation will be participatory in nature and should make use of a mix of other data sources, collected through multiple methods. The data collection methods should include collection of primary and secondary data through using interviews, questionnaires, group interviews, on-site observation and key informant interviews.

6. Evaluation Products (Deliverables)

- ***Evaluation inception report and work plan***: An inception report should be prepared by the evaluators before going into the full-fledged evaluation exercise and to be submitted three days after signing the contract. The inception report should include the evaluation matrix. Please see annex #2: Sample evaluation Matrix.
- ***Draft evaluation report***: A draft evaluation report should be submitted three weeks after signing the contract.
- ***Final evaluation report:*** Final evaluation report will be submitted six weeks after signing the contract (three days after receiving the comments from UNDP and the project partners on the draft evaluation report).

7. Qualifications

- Proven expertise and experience in conducting project evaluations.
- A postgraduate degree in environmental, water, economic, administration, management or engineering.
- Proven experience in management, capacity development and evaluation issues.
- Excellent oral and written communication skills in English and Arabic.

8. Evaluation Ethics

Evaluations in UNDP will be conducted in accordance with the principles outlined in the UNEG "Ethical Guidelines for Evaluation".

9. Cost

Level of efforts to complete this assignment is estimated at 14 working days to accomplish which will be distributed of 6 weeks. It is anticipated that the work will start during the second week of April 2013.

10. Payments

The consultant will receive the first payment, 25% of the total amount upon submission of accepted inception report. A final payment will be issued after the final approval of the outputs by UNDP/PAPP environment team leader. Feedback on the outputs will be made within two weeks after the submission is made by the consultant.

11. Logistics

The consultant will be contracted by the UNDP/PAPP. The project manager will facilitate his /her work. All required information about the project will be provided. (Please see annex # 3: List of references to be reviewed).

Annex # 1: UNDP evaluation report template and quality standards

The evaluation report should be complete and logically organized. It should be written clearly and understandable to the intended audience. In a country context, the report should be translated into local languages whenever possible. The report should also include the following:

Title and opening pages: Should provide the following basic information:

- Name of the evaluation intervention
- Time-frame of the evaluation and date of the report
- Countries of the evaluation intervention
- Names and organizations of evaluators
- Name of the organization commissioning the evaluation
- Acknowledgements

Table of contents: Should always include boxes, figures, tables and annexes with page references.

List of acronyms and abbreviations

Executive summary: A stand-alone section of two to three pages that should:

- Briefly describe the intervention of the evaluation (the project(s), programme(s), policies or other intervention) that was evaluated.
- Explain the purpose and objectives of the evaluation, including the audience for the evaluation and the intended uses.
- Describe key aspect of the evaluation approach and methods.
- Summarize principle findings, conclusions, and recommendations.

Introduction:

Should:

- Explain why the evaluation was conducted (the purpose), why the intervention is being evaluated at this point in time, and why it addressed the questions it did.
- Identify the primary audience or users of the evaluation, what they wanted to learn from the evaluation and why and how they are expected to use the evaluation results.
- Identify the intervention of the evaluation (the project(s) programme(s) policies, or other intervention.
- Acquaint the reader with the structure and contents of the report and how the information contained in the report will meet the purposes of the evaluation and satisfy the information needs of the report's intended users.

Description of the intervention: Provides the basis for report users to understand the logic and asses the merits of the evaluation methodology and understand the applicability of the evaluation results. The description needs to provide sufficient detail for the report user to derive meaning from the evaluation. The description should:

- Describe **what is being evaluated**, **who seeks to benefit**, and the **problem or issue** it seeks to address.
- Explain the **expected results map or results framework**, **implementation strategies**, and the key **assumptions** underlying the strategy.
- Link the intervention to **national priorities**, UNDAF priorities, corporate multi-year funding frameworks or strategic plan goals, or other **programme or country specific plans and goals.**
- Identify the **phase** in the implementation of the intervention and any **significant changes** (e.g., plans, strategies, logical frameworks) that have occurred over time, and explain the implications of those changes for the evaluation.
- Identify and describe the **key partners** involved in the implementation and their roles.
- Describe the **scale of the intervention**, such as the number of components (e.g., phases of a project) and the size of the target population for each component.
- Indicate the **total resources**, including human resources and budgets.
- Describe the context of the **social, political, economic and institutional factors**, and the **geographical landscape** within which the intervention operates and explain the effects (challenges and opportunities) those factors present for its implementation and outcomes.
- Point out **design weaknesses** (e.g., intervention logic) or other **implementation constraints** (e.g., resource limitations).

Evaluation scope and objectives: The report should provide a clear explanation of the evaluation's scope, primary objectives and main questions.

- **Evaluation scope**: The report should define the parameters of the evaluation, for example, the time period, the segments of the target population included, the geographic area included, and which components, outputs or outcomes were and were not assessed.
- **Evaluation objectives**: The report should spell out the types of decisions evaluation users will make, the issues they will need to consider in making those decisions, and what the evaluation will need to achieve to contribute to those decisions.
- **Evaluation criteria:** The report should define the evaluation criteria or performance standards used. The report should explain the rationale for selecting the particular criteria used in the evaluation.
- **Evaluation questions:** Evaluation questions define the information that the evaluation will generate. The report should detail the main evaluation questions addressed by the evaluation and explain how the answers to these questions address the information needs of users.

Evaluation approach and methods: The evaluation report should describe in detail the selected methodological approaches, methods and analysis; the rationale for their selection; and how, within the constraints of time and money, the approaches and methods employed yielded data that helped answer the evaluation questions and achieved the evaluation purposes. The description should help the report users judge the merits of the methods used in the evaluation and the credibility of the findings, conclusions and recommendations. The description on methodology should include discussion of each of the following:

- **Data sources**: The sources of information (documents reviewed and stakeholders), the rationale for their selection and how the information obtained addressed the evaluation questions.
- **Sample and sampling frame**: If a sample was used: the sample size and characteristics; the sample selection criteria (e.g., single women, under 45); the process for selecting the sample (e.g., random, purposive); if applicable, how comparison and treatment groups were assigned; and the extent to which the sample is representative of the entire target population, including discussion of the limitations of sample for generalizing results.
- **Data collection procedures and instruments**: Methods or procedures used to collect data, including discussion of data collection instruments (e.g., interview protocols), their appropriateness for the data source, and evidence of their reliability and validity.
- **Performance standards:** The standard or measure that will be used to evaluate performance relative to the evaluation questions (e.g., national or regional indicators, rating scales).
- **Stakeholder participation**: Stakeholders' participation in the evaluation and how the level of involvement contributed to the credibility of the evaluation and the results.
- **Ethical considerations**: The measures taken to protect the rights and confidentiality of informants (see UNEG 'Ethical Guidelines for Evaluators' for more information).
- **Background information on evaluators**: The composition of the evaluation team, the background and skills of team members, and the appropriateness of the technical skill mix, gender balance and geographical representation for the evaluation.
- **Major limitations of the methodology**: Major limitations of the methodology should be identified and openly discussed as to their implications for evaluation, as well as steps taken to mitigate those limitations.

Data analysis: The report should describe the procedures used to analyze the data collected to answer the evaluation questions. It should detail the various steps and stages of analysis that were carried out, including the steps to confirm the accuracy of data and the results. The report also should discuss the appropriateness of the analyses to the evaluation questions. Potential weaknesses in the data analysis and gaps or limitations of the data should be discussed, including their possible influence on the way findings may be interpreted and conclusions drawn.

Findings and conclusions: The report should present the evaluation findings based on the analysis and conclusions drawn from the findings.

- **Findings**: Should be presented as statements of fact that are based on analysis of the data. They should be structured around the evaluation questions so that report users can readily make the connection between what was asked and what was found. Variances between planned and actual results should be explained, as well as factors affecting the achievement of intended results. Assumptions or risks in the project or programme design that subsequently affected implementation should be discussed.
- **Conclusions**: Should be comprehensive and balanced, and highlight the strengths, weaknesses and outcomes of the intervention. They should be well substantiated by the evidence and logically connected to evaluation findings. They should respond to key evaluation questions and provide insights into the identification of and/or solutions to important problems or issues pertinent to the decision-making of intended users.

Recommendations: The report should provide practical, feasible recommendations directed to the intended users of the report about what actions to take or decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation. They should address sustainability of the initiative and comment on the adequacy of the project exit strategy, if applicable. Recommendations should also provide specific advice for future or similar projects or programming.

Lessonslearnt: As appropriate, the report should include discussion of lessons learnt from the evaluation, that is, new knowledge gained from the particular circumstance (intervention, context outcomes, even about evaluation methods) that are applicable to a similar context. Lessons should be concise and based on specific evidence presented in the report.

Report annexes: Suggested annexesshould include the following to provide the report user with supplemental background and methodological details that enhance the credibility of the report:

- ToR for the evaluation
- Additional methodology-related documentation, such as the evaluation matrix and data collection instruments (questionnaires, interview guides, observation protocols, etc.) as appropriate
- List of individuals or groups interviewed or consulted and sites visited
- List of supporting documents reviewed
- Project or programme results map or results framework
- Summary tables of findings, such as tables displaying progress towards outputs, targets, and goals relative to established indicators
- Short biographies of the evaluators and justification of team composition
- Code of conduct signed by evaluators

Annex #2: Sample Evaluation Matrix.

Evaluation matrix: (suggested as a deliverable to be included in the inception report). The evaluation matrix is a tool that evaluators create as map and reference in planning and conducting an evaluation. It also serves as a useful tool for summarizing and visually presenting the evaluation design and methodology for discussions with stakeholders. It details evaluation questions that the evaluation will answer, data sources, data collection, analysis tools or methods appropriate for each data source, and the standard or measure by which each question will be evaluated.

11. Table A. Sample evaluation matrix

Relevant evaluation criteria	Key Questions	Specific Sub-Questions	Data Sources	Data collection Methods / Tools	Indicators/ Success Standard	Methods for Data Analysis

Annex #3: List of References:

1. The Project Document;
2. The project progress reports;
3. CMWU progress reports;
4. Surveying Report;
5. Comprehensive plan for heavy metals;
6. Laboratory testing manual for wastewater;
7. Laboratory testing manual for drinking water;
8. Closing ceremony presentations;
9. Results of testing the water samples;
10. Awareness materials includes:
    - A play named "NoqtetNazam";
    - Video Clip;
    - Picturized story (coloring books);
    - Heavy metals sources & mitigation measures manual;
    - Brochure;
    - Street bill boards, stickers and banners.

Annex VI: Code of Conduct

Foundation Document

UNEG
United Nations Evaluation Group

UNEG Code of Conduct for Evaluation in the UN System

UNEG, March 2008

The Code of Conduct was formally approved by UNEG members at the UNEG Annual General Meeting 2008.

Further details of the ethical approach to evaluation in the UN system can be found in the *Ethical Guidelines for Evaluation in the UN System* (UNEG/FN/ETH[2008]).

UNEG/FN/CoC(2008)

CODE OF CONDUCT FOR EVALUATION IN THE UNITED NATIONS SYSTEM

1. The conduct of evaluators in the UN system should be beyond reproach at all times. Any deficiency in their professional conduct may undermine the integrity of the evaluation, and more broadly evaluation in the UN or the UN itself, and raise doubts about the quality and validity of their evaluation work.

2. The UNEG[1] Code of Conduct applies to all evaluation staff and consultants in the UN system. The principles behind the Code of Conduct are fully consistent with the Standards of Conduct for the International Civil Service by which all UN staff are bound. UN staff are also subject to any UNEG member specific staff rules and procedures for the procurement of services.

3. The provisions of the UNEG Code of Conduct apply to all stages of the evaluation process from the conception to the completion of an evaluation and the release and use of the evaluation results.

4. To promote trust and confidence in evaluation in the UN, all UN staff engaged in evaluation and evaluation consultants working for the United Nations system are required to commit themselves in writing to the Code of Conduct for Evaluation[2] (see Annexes 1 and 2), specifically to the following obligations:

Independence

5. Evaluators shall ensure that independence of judgement is maintained and that evaluation findings and recommendations are independently presented.

Impartiality

6. Evaluators shall operate in an impartial and unbiased manner and give a balanced presentation of strengths and weaknesses of the policy, program, project or organizational unit being evaluated.

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[1] UNEG is the United Nations Evaluation Group, a professional network that brings together the units responsible for evaluation in the UN system including the specialized agencies, funds, programmes and affiliated organisations. UNEG currently has 43 such members.

[2] While the provisions of the Code of Conduct apply to all UN staff involved in evaluation, only UN staff who spend a substantial proportion of their time working on evaluation are expected to sign the Code of Conduct, including staff of evaluation, oversight or performance management units directly involved in the management or conduct of evaluations. All evaluation consultants are required to sign when first engaged by a UNEG member.

Conflict of Interest

7. Evaluators are required to disclose in writing any past experience, of themselves or their immediate family, which may give rise to a potential conflict of interest, and to deal honestly in resolving any conflict of interest which may arise. Before undertaking evaluation work within the UN system, each evaluator will complete a declaration of interest form (see Annex 3).

Honesty and Integrity

8. Evaluators shall show honesty and integrity in their own behaviour, negotiating honestly the evaluation costs, tasks, limitations, scope of results likely to be obtained, while accurately presenting their procedures, data and findings and highlighting any limitations or uncertainties of interpretation within the evaluation.

Competence

9. Evaluators shall accurately represent their level of skills and knowledge and work only within the limits of their professional training and abilities in evaluation, declining assignments for which they do not have the skills and experience to complete successfully.

Accountability

10. Evaluators are accountable for the completion of the agreed evaluation deliverables within the timeframe and budget agreed, while operating in a cost effective manner.

Obligations to participants

11. Evaluators shall respect and protect the rights and welfare of human subjects and communities, in accordance with the UN Universal Declaration of Human Rights and other human rights conventions. Evaluators shall respect differences in culture, local customs, religious beliefs and practices, personal interaction, gender roles, disability, age and ethnicity, while using evaluation instruments appropriate to the cultural setting. Evaluators shall ensure prospective participants are treated as autonomous agents, free to choose whether to participate in the evaluation, while ensuring that the relatively powerless are represented. Evaluators shall make themselves aware of and comply with legal codes (whether international or national) governing, for example, interviewing children and young people.

Confidentiality

12. Evaluators shall respect people's right to provide information in confidence and make participants aware of the scope and limits of confidentiality, while ensuring that sensitive information cannot be traced to its source.

Avoidance of Harm

13. Evaluators shall act to minimise risks and harms to, and burdens on, those participating in the evaluation, without compromising the integrity of the evaluation findings.

Accuracy, Completeness and Reliability

14. Evaluators have an obligation to ensure that evaluation reports and presentations are accurate, complete and reliable. Evaluators shall explicitly justify judgements, findings and conclusions and show their underlying rationale, so that stakeholders are in a position to assess them.

Transparency

15. Evaluators shall clearly communicate to stakeholders the purpose of the evaluation, the criteria applied and the intended use of findings. Evaluators shall ensure that stakeholders have a say in shaping the evaluation and shall ensure that all documentation is readily available to and understood by stakeholders.

Omissions and wrongdoing

16. Where evaluators find evidence of wrong-doing or unethical conduct, they are obliged to report it to the proper oversight authority.

(Each UNEG member to create its own forms for signature)

Annex 1: United Nations Evaluation Group – Code of Conduct for Evaluation in the UN System

Evaluation Staff Agreement Form

To be signed by all staff engaged full or part time in evaluation at the start of their contract.

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Staff Member: Prof. Mohamed Ziara

I confirm that I have received and understood, and will abide by the United Nations Evaluation Group Code of Conduct for Evaluation.

Signed at (place) on (date)

Signature: 

(Each UNEG member to create its own forms for signature)

Annex 2: United Nations Evaluation Group Code of Conduct for Evaluation in the UN System

Evaluation Consultants Agreement Form

To be signed by all consultants as individuals (not by or on behalf of a consultancy company) before a contract can be issued.

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: prof. Mohamed Ziara

Name of Consultancy Organisation (where relevant): _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at (place) on (date)

Signature: _____

6 UNEG Code of Conduct (2008)

Annex VII: Evaluator Resume

At Academic level: The academic experience includes research, development and teaching at Birzeit and IUG Universities in State of Palestine and Heriot-Watt University in UK. Prof. Mohamed Ziara is a contributor to advances in structural engineering, rehabilitation of structures, construction materials, planning and management of construction and infrastructure projects, wastewater systems suitable for use in State of Palestine, capacity building and decision making techniques. His academic experience at local, regional and international levels includes publications in specialized conferences and journals, organization of engineering conferences and exhibitions, reviewing of research papers and proposals, and accreditation assessment of engineering programs, departments and faculties. He is an editor to international journals.

At Practical Level: Since 1980 Prof. Ziara has gained extensive technical and managerial experiences both locally and internationally. The practical experience covers vast range of subjects such as innovative design, rehabilitation of structures, planning, strategic planning, assessment, construction supervision and management, capacity building, training, assessment and studies. The works include reinforced concrete, steel and stone structures, planning and design of infrastructure, town planning and urban development, housing, water and wastewater systems, storm water drainage, pumping stations, sanitary engineering, wise-use of water, environment protection and hydraulic constructions, strategic planning for public institutions, assessment and development studies. The managerial experience includes the establishment and directing of public and private enterprises, e.g. Center for Architectural Heritage, IUG, Ministry of Housing, Palestinian Housing Council, Center for Engineering and Planning, education department, engineering companies and laboratories.