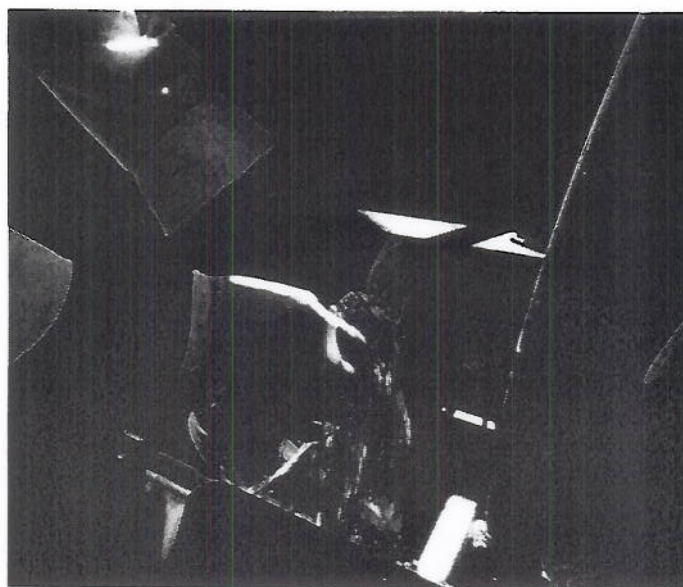


**United Nations Development Programme**  
Programme of Assistance to the Palestinian People  
برنامج الأمم المتحدة الإنمائي / برنامج مساعدة الشعب الفلسطيني



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



**Project Document**  
**July 8<sup>th</sup>, 2010**

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**Project Document Format for non-CPAP Countries or Projects outside a CPAP**

**United Nations Development Programme  
Country: Occupied Palestinian Territories – Gaza Strip  
Project Document**

**Project Title:** Improve the Capacity of CMWU for Monitoring the Quality of Water Supply in the Gaza Strip

**UNDAF Outcome(s):** N/A

**Expected CP Outcome(s):**

The public health of the Gaza population is protected through improvement of monitoring of heavy metals in the water supply.

Responsive Governing institutions strengthened.

**Expected Output(s):**

1. Baseline of heavy metals concentration in Gaza Aquifer is established.
2. CMWU capacity to monitor the quality of water supply is improved.
3. Advocacy and public awareness campaigns are conducted.

**Executing Entity:** UNDP/PAP

**Implementing Agencies:** Coastal Municipal Water Utility (CMWU) and the Palestinian Water Authority.

**Brief Description**

The project aim is to improve the monitoring of water supply quality and mitigate the health risk of heavy metals in municipal water supply. Throughout this project, baseline information for heavy metals concentration in municipal water supply water will be established. Samples will be taken from about 100 water wells from different location in the Gaza Strip. Concentration of heavy metals such as Arsenic, Barium, Boron, Chromium, Fluoride, Manganese, Molybdenum, Selenium, Cadmium, etc. will be measured and compared with WHO pollution control guidelines. The results will be statistically analyzed with respect to location and cause/effect relationship. The potential sources of pollution will be identified. The capacity of CMWU to monitor the water quality will be enhanced through support the establishment of CMWU water quality laboratory and providing training for the CMWU staff. Given that adult women and men and children are differently impacted by heavy metals, risk mitigation measures will be designed to address the specific needs of both sexes throughout their lifecycle.

Programme Period: September 2010 – February 2012

Key Result Area (Strategic Plan): Enhance access to effective social, economic, public services and public utilities.

Atlas Award ID: \_\_\_\_\_

Start date: September 2010

End Date: February 2012.

PAC Meeting Date \_\_\_\_\_

Total resources required: EURO 500,000

Total allocated resources: EURO 500,000

- Regular \_\_\_\_\_
- Other: EURO 500,000
  - Donor Austrian Development Cooperation. \_\_\_\_\_
  - Donor \_\_\_\_\_
  - Donor \_\_\_\_\_
  - Government \_\_\_\_\_

Unfunded budget: \_\_\_\_\_

In-kind Contributions \_\_\_\_\_

Agreed by / Date:



Jens A. Toyberg-Frandzen  
Special Representative of the Administrator, UNDP/PAPP





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## I. SITUATION ANALYSIS

Israel's recent bombardment and invasion of the Gaza Strip have caused severe damage to Palestinian lives and livelihoods. Eighteen months of strict blockade – the harshest sanctions regime currently in force anywhere in the world – had already left Gaza's economy crippled and 80% of its inhabitants dependant on assistance, but the subsequent military offensive caused destruction on an unprecedented scale.

The 22-day assault, which began on December 27<sup>th</sup> 2008, killed at least 1,374 Palestinians and wounded four times as many. More than 100,000 people have been displaced, and over 15,000 homes have been damaged or destroyed. Public infrastructure and utilities, including water, sanitation, electricity and transportation networks, have been severely damaged, and Israeli strikes on numerous government, municipal and United Nations facilities have further handicapped the provision of basic public services. The levelling of businesses, factories and farmland has contributed to the near-total collapse of the local economy, and the vast majority of Palestinians living in Gaza are left unable to meet their basic needs.

Destruction of the built environment has significant and long-term effects not only on the economy but on the social fabric of society, given its importance to so many aspects of a secure, dignified and 'normal' life for individuals, households, and communities. Gaza's essential infrastructure sustained severe and extensive damage from both the aerial onslaught and Israel's ground actions. Affected areas include: (i) water, sanitation and hygiene; (ii) housing and shelter; (iii) energy (fuel, electricity and gas) networks and facilities; (iv) transportation networks such as roads and bridges; and (v) telecommunications networks and structures. The widespread destruction has severely impacted the provision of basic services and assistance to the affected population. Large areas were reduced to rubble in the indiscriminate bombardment, and the Attatrah neighbourhood in Beit Lahia (North Gaza), the Abed Rabbo neighbourhood in Jabalia (North Gaza), and the Philadelphia neighbourhood in Rafah (South Gaza) were totally destroyed. The ongoing health impacts of Operation Cast Lead and the blockade are differently impacting the health of all Gazans, with clear age-and sex specific impacts that require specialised mitigation strategies.

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## II. SECTOR NEEDS ANALYSIS

### A. Water and Sanitation Sector

Prior to December 2008, around 97% of the inhabitants of the Gaza Strip had access to water supply networks, although water consumption was low at 80 litres per capita per day<sup>1</sup>. Services were regularly interrupted, and the potable water is highly saline. Around 64% of the population had access to sewage collection systems<sup>1</sup>, although only around 30% of the sewage was partially treated, raising severe environmental and public health concerns. The latest Israeli military incursion has caused widespread damage to existing infrastructure related to water, sanitation and hygiene, compounding what was already a fragile situation.

A damage and needs assessment conducted by the Coastal Municipalities Water Utility (CMWU), concluded that 11 water wells were partially or completely destroyed, 4 water reservoirs were damaged, around 20 kilometres of pipelines, sewage networks and pumping stations at 4 locations, the North Gaza Emergency Sewage Treatment plant, and related offices and warehouses were all damaged. A survey conducted by the Palestinian Hydrology Group (PHG) indicated that Al Attara and Ezbet Abed Rabbo are the worst affected areas with around 50% of the water networks damaged, while in many other areas up to 35% of the capacity to deliver potable water has been lost. As a result, in many areas water needs to be provided by mobile water trucks. The total damages have seriously reduced the capacity of the public sector to provide quality basic services, while the discharge of untreated sewage is contaminating large areas in the Gaza Strip, which has serious environmental and public health implications. This situation is unlikely to improve in the short term, due to the lack of materials and spare parts, thus creating prolonged and increasing risks to the environment and public health.

At the household level, severe damage was done to water and sanitation infrastructure as well, such as water storage tanks, solar water heaters and sanitary installations, further aggravating the deplorable water, sanitation and health conditions created by the damage to public networks. The displacement of up to 100,000 individuals is causing additional strains on the reduced existing, functional WASH facilities.

The destruction of water and waste water treatment infrastructure, most notably a major wastewater pipeline in the Gaza Waste Water Treatment Plant, has caused over 250,000 cubic meters of untreated sewage to flood significant portions of productive agricultural lands. This flooding of wastewater and its infiltration into the aquifer could have contaminated ground water resources.

The continuous deterioration of the coastal aquifer will increase the prevalence of diseases. Every day, 69 million litres of partially treated or completely untreated sewage – the equivalent of 28 Olympic-size swimming pools – are pumped directly into the Mediterranean Sea because it cannot be treated<sup>2</sup>. The destruction of trees, vegetation

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<sup>1</sup> Water Sector Update, World Bank, 2007

<sup>2</sup> ICRC report: Gaza: 1.5 million people trapped in despair, June 2009.



cover and crops, and the associated erosion as well as reduced capacity of water filtration and retention, will lead to soil erosion and desertification and a related decrease in agricultural production. The insufficient municipal management systems related to solid waste, the pollution caused by the ammunition used by the Israeli army during its latest incursion, as well as increased pollution of the air due to the open and uncontrolled burning of household waste are all factors that are contributing to further environmental degradation of the Gaza Strip.

## B. Water Resources

The Gaza Strip covers an area of 378 square kilometres, which is underlain by unconfined aquifer contained in sandstone. This aquifer, known as the coastal aquifer, it is a continuum from Egypt through the Gaza Strip to Israel. Historically, the aquifer had high quality freshwater and was shallow, which facilitated the development of agriculture and the growth of civilization in the area. The aquifer is overlaid by soil of high permeability, including sand dunes. This means that rain easily enters and recharges the aquifer. The area receives an average rainfall of 300 mm per year and it is estimated that up to 46 percent of the rain that falls on the Gaza Strip goes on to recharge the aquifer. This net positive balance of water inflow used to ensure that the aquifer did not experience salt water intrusion.

However, political changes in the region caused dramatic demographic changes in the region caused dramatic demographic changes in the Gaza Strip as of 1948, and by 1967, the Gaza Strip had become a net consumer of the aquifer. The political developments of 1967 and the situation that followed presented additional challenges to water resources in the Gaza Strip. The Israeli settlements that were established in the area were primarily agriculture-based and by the 1990s, were reported to extract about 3 million cubic meters of water per year (92 percent for agriculture). The steady drop in water levels and increasing salinity has been evident in the Gaza Strip ever since. Even though the water deficit challenge in the Gaza Strip has been well studied for several decades, no solution has yet been implemented and the situation in the Gaza Strip continues to deteriorate<sup>3</sup>.

It is estimated that the annual recharge from rainfall in the Gaza Strip to the coastal aquifer is about 45 million cubic meters. Abstraction has been well in excess of sustainable yield levels: indeed the most recent estimate of abstraction, dating from 2007, is about 163 million cubic metres per year (CMWU, 2008). The consequence is that water levels are declining in areas where abstraction is greatest, while salt water intrusion from the sea causing the aquifer to become more saline. The salinity levels in most parts of the Gaza Strip exceeds threefold the WHO guideline of 250 mg/litre, and often much higher.

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3 UNEP Report –Environmental Assessment of the Gaza Strip following the escalation of hostilities in December 2008 – January 2009



### **C. Water Quality**

While the coastal aquifer has been under pressure from over-abstraction, it has also been subjected to extremely high loads of contamination from percolation of sewage and irrigation water. Before 1990, organized sewage systems were not common in the Gaza Strip and households depended largely on septic tanks for sanitation. Due to the high permeability of the topsoil, the overflow water from the septic tanks infiltrated water contained both bacterial and chemical contamination.

Groundwater is also polluted in another way. As part of the effort to accelerate recharge of the aquifer, large infiltration basins were created. The idea was that storm water and sewage water would be collected separately. Sewage would be sent for treatment to the sewage treatment facilities, and storm water would be recharges from these ponds. The location and design of these ponds was intended to facilitate easy and quick recharge. However, whenever the sewage pumps fail, the infiltration ponds become convenient dumping grounds for raw sewage. The net effect is that raw sewage infiltrated into the groundwater.

The pollution of groundwater is contributing to two main types of water contamination in the Gaza strip. First, and most importantly, it is causing the nitrate levels in the groundwater to increase. In most parts of the Gaza Strip, especially around areas of intensive sewage infiltration, the nitrate level in groundwater is far above the WHO accepted guideline of 50 mg/litre as nitrates. Second, because the water abstracted now is high in salt, the sewage is also very saline and hence infiltrating sewage only adds to the salinity of the aquifer.

In addition to damages to the wastewater networks, the main water-quality damage sustained during Cast Lead was the targeting of the anaerobic pond no. 3 of the Gaza Wastewater Treatment Plant, which resulted in the spilling of over 100,000 m<sup>3</sup> of wastewater and sludge into adjacent agricultural lands, estimated by UNDP to be 55,000 m<sup>2</sup> in area. However, the water quality challenge is one that predates Cast Lead, and is expected to continue to be a challenge to the Gaza Strip in the years to come.

### **D. Heavy Metals**

The level of contamination of Gaza aquifer by heavy metals, that can be extremely harmful to human health if it exceeds permissible levels, remains however unknown, as testing of heavy metals concentration are not included at the Coastal Municipal Water Utility (CMWU) water quality monitoring programme due to lack of equipment and trained technicians.

This is of particular concern in view of the weak capacity of local authorities to manage solid waste and regulate use of fertilizers and pesticides in the Gaza Strip and in view of the wide-scale destruction of private industrial facilities in December 2008. Random dumping of solid waste, including health care waste, overuse of pesticides and fertilizers, accumulation of industrial demolished rubble, incineration of hazardous health care waste and annual infiltration of million cubic meters of raw sewage into the Gaza aquifer and



remnants of war explosives are definite potential sources of infiltration of heavy metals into Gaza aquifer and environment.

#### **E. Coastal Municipal Water Utility**

The CMWU was established with a ministerial decree No.1/1997 as a water and wastewater service provider in the southern governorates of the PA. It is a semi- public institution, financial independent from the PA and the main source of finance is the revenues generated from collecting of the water bill in stepwise.

The CMWU activities include:

- Water abstraction and wastewater collection.
- Water supply distribution.
- Operation and upgrading of all water and wastewater facilities in the Gaza Strip.
- Storm water collection and reuse.
- Planning for water sector.
- Safeguarding the environment and people's health.

Due to the closure conditions, the CMWU was unable to construct its own water testing lab, and therefore, made an MOU with the Ministry of Health to perform all water quality tests using the MOH lab till the CMWU will be able to perform these tests.

On 27/12/08 the Israeli aggression against Gaza started and among other civilian targets, some wells were totally destroyed and water and waste water networks were also bombarded leading to serious contamination and shortage of water supply to more than half of the Gaza strip inhabitants. The chemical and biological tests were conducted but the heavy metals still to be performed.

Throughout this project, baseline information for heavy metals concentration in municipal water supply water will be established. Samples will be undertaken from about 100 water wells from different location in the Gaza Strip. Concentration of heavy metals such as Arsenic, Barium, Boron, Chromium, Fluoride, Manganese, Molybdenum, Selenium, Cadmium, etc. will be measured and compared with WHO pollution control guidelines. The results will be statistically analyzed with respect to location and cause relationship, to identify source of pollution will be established.

UNDP has looked through the water safety guidelines of WHO and most issues are already in place. PWA, Ministry of Health and CMWU have their own guideline and procedures for water testing that will incorporate in the future heavy metals and any other required monitoring procedures. The CMWU has water and wastewater sampling and monitoring program. This program is based mainly on international guidelines from WHO, the International Water Association (IWA) and European Union.

The institutional arrangement of the responsibilities in the Gaza Strip is shown in the figure below. Water quality is regulated by the Ministry of Health, whereas wastewater quality is regulated by the Environmental Authority.



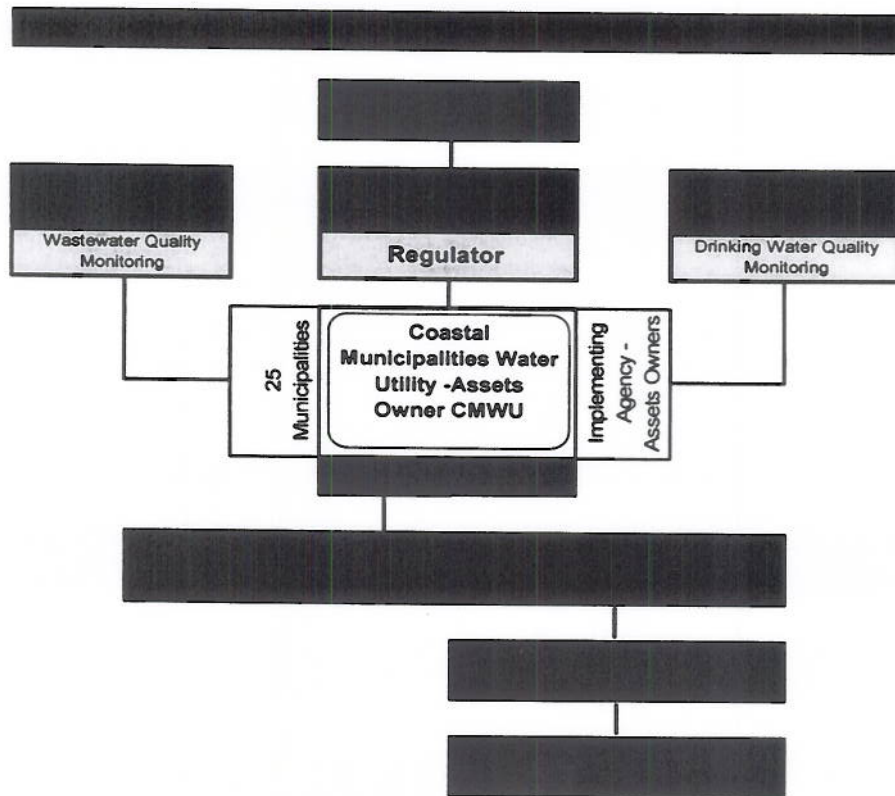


Figure (1): The Responsibilities of Water in Gaza Strip

The quality of drinking water in the distribution networks is determined by physical, chemical, and bacteriological evaluation of the water, from the production points and catchments to the customer's connections. To this effect, three different groups of evaluation and monitoring sites have been introduced:

- a) Outlets from water wells, treatment plants (desalination plants) and bulk water supplies from Mekorot, which may be represented by the feeder mains or storage reservoir;
- b) Components such as distribution reservoirs and tanks, and
- c) The secondary distribution network.

The physical condition of the water supply infrastructure is evaluated by direct inspection of the main system components, to identify defects that affect the conservation of the drinking water quality.

Identification and prioritization of corrective measures regarding water quality are conducted in each of the supply areas, and data on the sanitary condition of the main components of the water supply system is recorded.

Programs are developed for operational monitoring and documented as part of a WSP, detailing the strategies and procedures to follow for monitoring the various aspects of the drinking water system. The monitoring plans are fully documented and should include the following information:

- Parameters to be monitored.
- Sampling location and frequency.
- Sampling methods and equipment;
- Schedules for sampling;
- Methods of quality assurance and validation of results;

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- Requirements for checking and interpreting results;
- Responsibilities and necessary qualifications of staff;
- Requirements for documentation and management of records, including how monitoring results will be recorded and stores; and
- Requirements for reporting and communication of results.

#### **F. Coordination with other stakeholders**

UNDP employees coordinate with the drinking water quality working group. This specific subgroup of Water Sanitation and Hygiene (WASH) was created in Gaza Strip at the end of the year 2009, after clear evidence of pollution of the drinking water used by Palestinian citizens all over the Gaza Strip. The objective of this group is to encourage surveillance and monitoring of drinking water, in cooperation with agencies working on the ground and the Ministry of Health, its lab and WHO. This working group, led by Palestinian a Hydrology Group (PHG), has produced an action plan, developed hygiene messages and recommendations endorsed by the WASH cluster as a whole. The group also feeds into the UNICEF led task Force on drinking water quality, which is organizing a large scope study on drinking water and health in Gaza Strip as a follow up of the recently published UNEP report.

UNDP consulted with WHO, UNICEF, PWA and MoH. All the stakeholders mentioned that there is a gap in testing heavy metal in Gaza Water Aquifer. This project is link to the UNICEF led taskforce on drinking water quality and response to the UNEP report.

The Wash cluster and the DWQWG will be utilized as coordination mechanisms. In addition, a steering committee will be formulated from UNDP, PWA, CMWU, WHO and MoH. The steering committee will meet on monthly basis and upon requested in order to discuss the project's activities and provide advises.

UNDP/PAPP will continue coordinating with the WASH cluster and the Drinking Water Quality Working Group (DWQWG). The role and the responsibility of the DWQWG will be:

- Consulting with all the relevant WASH stakeholders to ensure harmony and coherence in approach.
- Map vulnerable communities and populations with respect to currently existing data.
- Conducting joint, participatory vulnerability, needs and impact assessments and monitoring of projects, using an agreed framework and tools. Prioritise projects that respond to the UNEP report the advises provision of safe water to young children.
- Support future studies on water quality and health, for example a planned UNICEF/CDC study, by facilitating access to necessary data and key personnel from relevant agencies.
- Support the planned Behaviour Change Communication programme, by supporting the work of a lead agency, being available to review and comment on material and by helping to monitor progress or activities.
- Promote enforcement of regulation of the private sector.



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### III. INTERVENTION RATIONALE

Throughout this project, the public health of the people in Gaza will be protected through improvement the monitoring of the heavy metals in the water supply. The impacts of heavy metals differ according to the age and sex of those affected by their intake: there is a high risk to the foetus of a pregnant woman; men's fertility is affected; and children are particularly at risk because of their permeable blood-brain barrier. "Blue baby" syndrome is already well documented in Gaza (UNEP Report-2009) but the longitudinal impacts of heavy metals in children, particularly at the extremely high levels of exposure faced by children in Gaza, are still unknown. There is, however, recent data which suggests that even very low levels of exposure to such toxins (in particular, lead) may lead to greater neurotoxin effects than previously supposed.

In addition, the capacity of the coastal Municipal Water Utility (CMWU) to monitor water quality will be improved and the CMWU will be able to provide the different authorities in the PA with a full picture about the water quality from all aspects which will be reflected in the future for planning the water resources.

#### **Project Outcome:**

**The public health of the Gaza population is protected through improvement of monitoring of heavy metals in the water supply. Responsive governing institutions strengthened.**

#### **Project Outputs:**

- 1. Baseline of heavy metals concentration in Gaza Aquifer is established.**
- 2. CMWU capacity to monitor the quality of water supply is improved.**
- 3. Advocacy and public awareness campaigns are conducted.**

#### **Key Activities:**

- Consultancy services to identify sampling stations and list of heavy metals parameters to be tested in cooperation with CMWU, PWA, and MoH; undertake sampling, results analysis and formulate mitigation measures. The consultant can be local and will make joint venture with an international consultancy firm. The consultant will train 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. The duration of the training is about 2 weeks.
- Water samples analysis: Measure heavy metals concentration along Gaza aquifer and establish baseline information, which will be used later on to monitor pollution and identify pollution sources and possible pollutants. In case the CMWU recognizes any contamination with serious levels according to international standards, it will call for meeting for all concerned parties and present the results to take the necessary actions. At the same time, the CMWU will take the necessary steps to contain the source of pollution and isolate it for

the consumers. Also, it's expect from the consultant who will be hired to advise in case there are known issues. The consultant also will formulate mitigation measures.

- Support 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 will be capable to perform all water and wastewater tests.
- Support Advocacy Programme: International and United Nations organizations such as WHO, OCHA, UNICEF, OXFAM, GVC, and Save the Children and World Bank can play an effective role in advocating and supporting the Palestinian Water Sector through different media channels, publications and participation in international conferences. It is very important that such organizations are aware of the water quality issues in the Gaza Strip and are engaged in advocacy campaigns to support the improvement of the water quality, exert political pressure to open the borders and to support funding of such interventions.
- Raise public awareness regarding water quality issues and its impact on public health including potential sources of pollution, measures to protect water resources and water supply systems. After completing the water quality analysis and identifying the different sources of pollution, it very essential to identify the different segments of the society to be targeted through this project. For example, farmers, small industries, gas stations and maintenance workshops whose activities and ill practices might be leading to heavy metal pollution should be targeted through this project in order to aware them of impacts of their activities on the environment and on public health. Through coordination and cooperation with the Environment Quality Authority, Palestinian Water Authority and Ministry of Agriculture and other relevant organizations, the project will develop different messages for the different target groups (industries, farmers, general public, children) in order to disseminative information on the prevention of water pollution with heavy metals and regarding the health impacts of heavy metals on the public health.





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#### **IV. RESULTS AND RESOURCES FRAMEWORK**

**Intended Outcome as stated in the Country Programme Results and Resource Framework:**  
**Responsive Governing institutions strengthened,**

The public health of the Gaza population is protected through improvement of monitoring of heavy metals in the water supply.

**Outcome indicators as stated in the Country Programme Results and Resources Framework, including baseline and targets:**

**Outcome Indicators and Targets:**

- Baseline information report on heavy metals in water supply in the Gaza Strip is available.
- Guidelines on heavy metals monitoring and testing are incorporated into the CMWU water supply sampling and monitoring Programme;
- Number of people who suffer from water born diseases

**Baseline:**

- Lack of baseline information for heavy metals concentration in the drinking water.
- Very basic lab equipment available at the CMWU

**Project title and ID (ATLAS Award ID):**

INTENDED OUTPUTS	OUTPUT TARGETS FOR (YEARS)	INDICATIVE ACTIVITIES	RESPONSIBLE PARTIES	INPUTS
<p><b>Output1:</b></p> <p><b>Baseline information of heavy metals concentration established</b></p> <p><b>Indicators:</b></p> <p>1.1 Number of collected samples and analyzed parameters</p>		<p>1.1 Meetings with the Implementing Partner (CMWU) and the Palestinian Water Authority.</p> <p>1.1.2 Signing MOU with CMWU.</p> <p>1.2 Action plan submitted by the CMWU reviewed and approved by the UNDP</p> <p>1.3 TOR for hiring consultant prepared.</p> <p>1.3.2 Identify qualified consultant (trainer) and award the contract.</p> <p>1.3.3 Undertaking the training.</p> <p>1.4 Identify qualified contractors (testing labs); solicit bids and award the contracts.</p> <p>1.5 Implement the work under supervision of the UNDP/PAPP.</p>	<p>UNDP, CMWU, PWA</p> <p>UNDP, CMWU,PWA</p> <p>UNDP, CMWU,PWA</p> <p>UNDP, CMWU,PWA</p> <p>UNDP, CMWU,PWA</p>	<p>Discussions and recommendations by participants in the meeting.</p> <p>CMWU to prepare Detailed Action Plan review and approved by UNDP.</p> <p>CMWU to prepare TOR and UNDP to review, finalize and approve the documents in coordination with the PWA.</p> <p>CMWU to prepare TOR and UNDP to review, finalize and approve the documents in coordination with the PWA.</p> <p>Discussion &amp; recommendation about the methodology and the tools. Site visits, qualitative and quantitative measures are</p>



<p>used. CMWU to prepare progress and completion report and submit them to UNDP Day to day supervision by UNDP/PAPP technical staff. UNDP to report to donor.</p>				
<p><b>Output 2:</b> <b>CMWU capacity to monitor drinking water quality improved.</b>  Indicators: 2.1 CMWU water quality laboratory upgraded. 2.2 No of samples tested and analysed; 2.3 Water quality reports are disseminated to the public.</p>	<p>UNDP &amp; CMWU</p>	<p>2.1 Identify qualified contractors (testing labs) and solicit bids and award the contracts.  2.2 Procure the required equipments.</p>		
<p><b>Output 3:</b> <b>Advocacy and public awareness campaigns are conducted.</b>  Indicators: 3.1 No. Of workshops and meetings conducted. 3.2 No. of messages and publications.</p>	<p>UNDP, CMWU, PWA</p>	<p>3.1 Action plan submitted by the CMWU reviewed and approved by the UNDP. 3.2 Conduct different workshops and meetings for different target groups. 3.3 Develop messages for different groups. 3.4 Design and print educational and awareness materials.</p>		<p>Discussion &amp; recommendation about the methodology, the modality of implementation of this component and the tools. Consultation with Wash Cluster and the Water Quality Monitoring Group.</p>

**V. ANNUAL WORK PLAN**

**Years: 2010-2011**

EXPECTED OUTPUTS <i>And baseline, indicators including annual targets</i>	PLANNED ACTIVITIES <i>List activity results and associated actions</i>	TIMEFRAME								RESPONSIBLE PARTY	PLANNED BUDGET		
		Year 2010				Year 2011					Funding Source	Budget Description	Amount (EURO)
		Q3	Q4	Q1	Q2	Q3	Q4						
<b>Output1:</b>  <b>Baseline information of heavy metals concentration established</b>	1. Consultant to be hired. <ul style="list-style-type: none"> <li>- Prepare TOR for the consultant.</li> <li>- Select a qualified consultant.</li> <li>- Design a comprehensive program for heavy metals testing.</li> <li>- Conduct training to the CMWU employees.</li> </ul>		X		X						Austrian Development Cooperation		64,880
<b>Output Indicators:</b> <ul style="list-style-type: none"> <li>• Number of collected samples and analyzed parameters</li> </ul>	2. Samples are collected and analysed from 100 municipal wells <ul style="list-style-type: none"> <li>- Identify qualified contractors (testing labs); solicit bids and award the contracts. Collecting the samples, analysing and reporting.</li> </ul>		X		X						Austrian Development Cooperation		81,100



<p><b>Output 2:</b></p> <p><b>CMWU capacity to monitor drinking water quality improved.</b></p> <p>Indicators:</p> <ul style="list-style-type: none"> <li>• CMWU water quality laboratory established;</li> <li>• No of samples tested and analysed;</li> <li>• Water quality reports is disseminated to the public</li> </ul>	<p>3. Water quality laboratory established.</p> <ul style="list-style-type: none"> <li>- Identify qualified contractors (testing labs) and solicit bids and award the contracts.</li> <li>- Procure the required equipments.</li> </ul>	X	X	X	X	X	X	X	210,331
<p><b>OUTPUT 3: Advocacy and public awareness campaigns</b></p> <ul style="list-style-type: none"> <li>• No. of workshops and meetings conducted;</li> <li>• Messages and publications</li> </ul>	<p>4. Conduct different workshops and meetings for different target groups.</p> <p>5. Develop messages for different groups.</p> <p>6. Design and print educational and awareness materials.</p>								51,440
<p>UNDP, CMWU</p> <p>Austrian Development Cooperation</p>									

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## **VI. MANAGEMENT ARRANGEMENTS**

### **Implementation modalities**

UNDP/PAPP delivers through the Direct Execution (DEX) modality which will be the mechanism for the implementation of this project. The DEX modality, which takes into account the institutional capacities, the legal setting and evolving situational context, UNDP/PAPP works in partnership with national authorities, civil society, the private sector, the international community and UN sister agencies. The capacity of potential implementing partners and sub-contractors will be assessed through standard UNDP procedures. In the project, the implementation will be carried out through the Coastal Municipal Water Utility (CMWU) in the Gaza Strip. The CMWU will carry out the procurement process after the preparation of the bill of quantities and the tender documents for the required equipments. CMWU will prepare the ToR for the consultant who will define the sampling stations and the list of parameters from the heavy metals which will be tested, analyze the result and formulate the mitigation measures. The consultant will also train the lab technicians. The CMWU will implement the project's activities under the supervision of the UNDP/PAPP. MoU will be signed between UNDP, CMWU and PWA which will clarify the role of each party. UNDP/PAPP will deposit the payments in CMWU bank account according to the MoU.

### **Planning and management of activities**

A Project Manager will be appointed who will run the project components on a day-to-day basis within the constraints laid down by the Project Board and under the direct guidance and supervision of an assigned Program Analyst. The Project Manager will be responsible for day-to-day management and decision-making for the project component under his/her management mandate. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document to the required standard of quality and within the specified constraints of time and cost. In order to ensure effective implementation and continuous activities progress monitoring, the Project Manager will be assisted by one Project Assistant.

Project support will be provided by current UNDP/PAPP administrative staff.

### **Project oversight and assurance**

The Project Board is the group responsible for making management decisions on a consensus basis for the project when guidance is required by the Project Manager, including recommendations for approval of project revisions. Project reviews by this group are made at designated decision points during the running of the project, or as necessary when raised by the Project Manager. This group is consulted by the Project Manager for decisions when project tolerances (i.e. constraints normally in terms of time and budget) have been exceeded. The Project Board will convene quarterly, in the Gaza Strip as the situation permits. The Project Board consists of the following:

Executive representing the project ownership to chair the group (Deputy Special Representative, Programme),

Senior Supplier to provide guidance regarding the technical feasibility of the project (Capital Team Leader)

Senior Beneficiary to ensure the realization of project benefits from the perspective of project beneficiaries. The project board makes decisions on a consensus basis.

Final decision making on project activities and accountability however rests with UNDP in accordance with its applicable regulations, rules, policies and procedures.

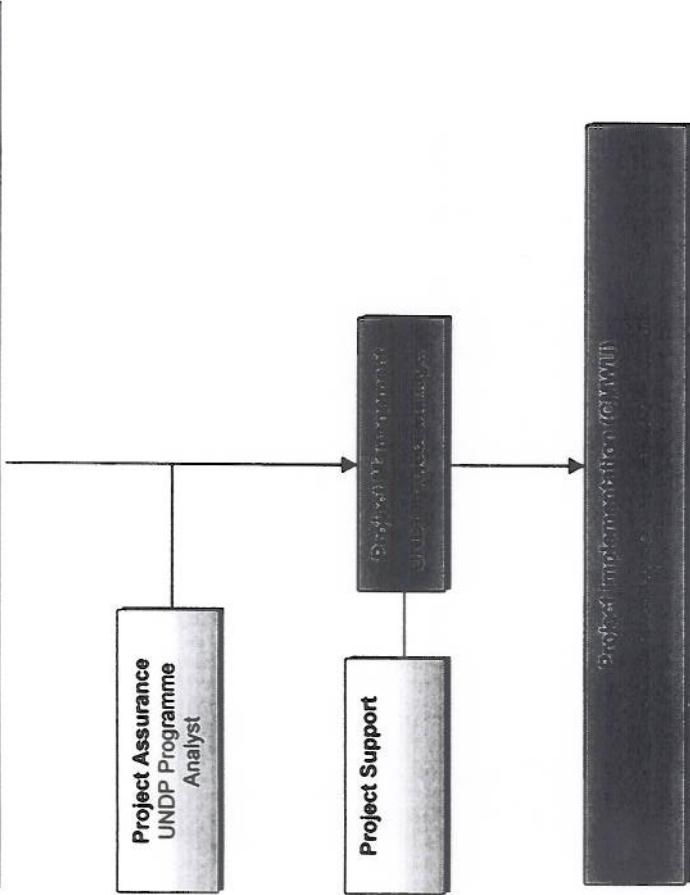
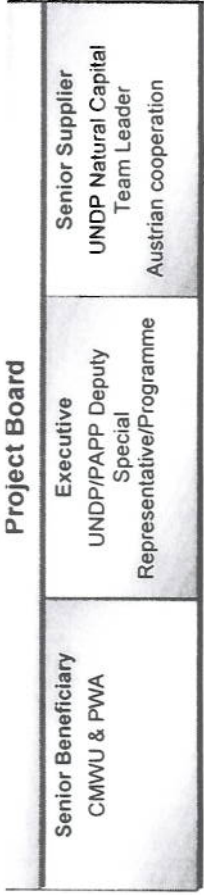
Project Assurance for this project will be the delegated responsibility of UNDP Programme Analyst. The Project Assurance role supports the Project Board by carrying out regular objective and independent project

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oversight and monitoring functions. It ensures that appropriate project management milestones are managed and completed. The following chart explains the project organization structure:







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## VII. MONITORING FRAMEWORK AND EVALUATION

### General provisions

The Project Manager will prepare a Communication and Monitoring plan (C&M plan) in support of project objectives with details on external and internal monitoring and communication activities. The Project Manager will need to ensure adequate monitoring of all project activities and should draw on counterparts' resources for activity monitoring in a bid to strengthen capacities in this regard.

The contribution of achieved project outputs to the intended outcome will be monitored by the Natural Capital Team in close connection with the Gaza Office programming team. Provisions for project evaluation in support of lessons learned in the implementation should be taken into consideration. The Project Board should make recommendations for the application of such an evaluation, building on dialogue with local stakeholders.

### Regular monitoring activities

On a quarterly basis, a quality assessment shall record progress towards the completion of key results, based on quality criteria and methods captured in the Quality Management table below. An Issue Log shall be activated in Atlas and updated by the Project Manager to facilitate tracking and resolution of potential problems or requests for change.

A risk log shall be activated in Atlas and regularly updated by reviewing the external environment that may affect the project implementation.

Based on the above information recorded in Atlas, a Quarterly Progress Report (QPR) shall be submitted by the Project Manager to the Project Board through Project Assurance, using the standard report format available in the Executive Snapshot.

A project Lesson-learned log shall be activated and regularly updated to ensure on-going learning and adaptation within the organization and to facilitate the preparation of the Lessons-learned Report at the end of the project. A Monitoring Schedule Plan shall be activated in Atlas and updated to track key management actions/events.

### Annual Monitoring and Evaluation activities

An annual Progress Report shall be prepared by the Project Manager and shared with the Project Board. As minimum requirement, the annual Progress Report shall consist of the Atlas standard format for the QPR covering the reporting period with updated information for each above element of the QPR as well as a summary of results achieved against pre-defined targets at the output level.

Based on the above report, an annual project review shall be conducted during the last quarter of each year or soon after, to assess the performance of the project and appraise the Work Plan for the next year. In the second year, this review will be a final assessment. This review is driven by the Project Board and may involve other stakeholders, as required. It shall focus on the extent to which progress is being made towards outputs, and that these remain aligned to appropriate outcomes.

### Quality Management for Project Activity Results

Replicate the table for each activity result of the AWP to provide information on monitoring actions based on quality criteria. To be completed during the process "Defining a Project" if the information is available. This table shall be further refined during the process "Initiating a Project".

OUTPUT 1: Baseline information of heavy metals concentration established		
<b>Activity Result 1</b> (Atlas Activity ID)	Consultancy Services	Start Date:1/9/2010 End Date:31/12/2011
<b>Purpose</b>	<ul style="list-style-type: none"> <li>- Design comprehensive program for heavy metals testing.</li> <li>- Training the lab technicians on the concept of the heavy metals.</li> <li>- Recommend on the results of the heavy metals tests and give recommendations.</li> </ul>	
<b>Description</b>	<ul style="list-style-type: none"> <li>- Prepare TOR for the consultant.</li> <li>- Select a qualified consultant.</li> </ul>	
<b>Quality Criteria</b> <i>how/with what indicators the quality of the activity result will be measured?</i>	<b>Quality Method</b> <i>Means of verification. what method will be used to determine if quality criteria has been met?</i>	<b>Date of Assessment</b> <i>When will the assessment of quality be performed?</i>
Data base for heavy metals established.	Reports.	28/2/2012
Training conducted in a proper way.	Training report & evaluation.	28/2/2012

OUTPUT 1: Baseline information of heavy metals concentration established		
<b>Activity Result 2</b> (Atlas Activity ID)	Testing Heavy Metals.	Start Date:1/9/2010 End Date:28/2/2012
<b>Purpose</b>	Establishing of baseline information for heavy metals.	
<b>Description</b>	<ul style="list-style-type: none"> <li>- Identify qualified contractors (testing labs); solicit bids and award the contracts.</li> <li>- Collecting the samples, analysing and reporting.</li> </ul>	
<b>Quality Criteria</b> <i>how/with what indicators the quality of the activity result will be measured?</i>	<b>Quality Method</b> <i>Means of verification. what method will be used to determine if quality criteria has been met?</i>	<b>Date of Assessment</b> <i>When will the assessment of quality be performed?</i>
Baseline information for heavy metals established.	Reports that document the results of water samples tested.	28/2/2012

OUTPUT 2: CMWU capacity to monitor drinking water quality improved.		
<b>Activity Result 3</b> (Atlas Activity ID)	Testing Laboratory.	Start Date: 1/9/2010 End Date: 28/2/2012
<b>Purpose</b>	Improve the capacity of the CMWU to monitor the drinking water quality.	
<b>Description</b>	<ul style="list-style-type: none"> <li>- Identify qualified contractors (testing labs) and solicit bids and award the contracts.</li> <li>- Procure the required equipments</li> </ul>	



<b>Quality Criteria</b> <i>how/with what indicators the quality of the activity result will be measured?</i>	<b>Quality Method</b> <i>Means of verification. what method will be used to determine if quality criteria has been met?</i>	<b>Date of Assessment</b> <i>When will the assessment of quality be performed?</i>
Water Quality Laboratory Establishes.	Reports and site visits.	28/2/2012

<b>OUTPUT 3: Advocacy and public awareness campaigns conducted.</b>		
<b>Activity Result 3 (Atlas Activity ID)</b>	<i>Advocacy and Public Awareness</i>	Start Date: 1/11/2010 End Date: 28/2/2012
<b>Purpose</b>	Advocate and aware all the international community and international organisations as well as the national authorities of the importance of water quality, its effect on the public health, the way to prevent pollution.	
<b>Description</b>	Conduct different workshops and meetings, for the different target groups; Develop messages for different target groups, Design and print educational and awareness materials	
<b>Quality Criteria</b> <i>Quality of discussions and presentation of in workshops ;</i>	<b>Quality Method</b> <i>Means of verification. what method will be used to determine if quality criteria has been met?</i>	<b>Date of Assessment</b> <i>When will the assessment of quality be performed?</i>
Publications and media reports	Quality of messages and publication materials	28/2/2012

### BUDGET SUMMARY:

<b>Financial Summary</b>	
Budget Items:	EURO
PIU (1 Project Manager for 12 months)	38,928
Provision for consultancy services to carry out water sampling, reporting, and formulation of mitigation measures	64,880
Water sampling analysis and measurement of heavy metals parameters	81,100
Laboratory equipment and training	210,331
Advocacy and Public awareness, including publications	51,440
Security & Communication	4,055
Contingencies	16,556
<b>Programmable Amount</b>	<b>467,290</b>
Support Cost Fees (7%):	32,710
<b>Total Project Budget:</b>	<b>EURO 500,000</b>

Note:

The total Project budget is **USD 616,523** which equals **EURO 500,000** according to exchange rate (USD = 0.811 EURO July 2010-07-07).



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## VIII. LEGAL CONTEXT

*If the country has signed the Standard Basic Assistance Agreement (SBAA), the following standard text must be quoted:*

This project document shall be the instrument referred to as such in Article 1 of the SBAA between the Government of (Austria) and UNDP, signed on (date).

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the executing agency and its personnel and property, and of UNDP's property in the executing agency's custody, rests with the executing agency.

The executing agency shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the executing agency's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The executing agency agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

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## IX. ANNEXES

**Risk Analysis.** Use the standard Risk Log template. Please refer to the Deliverable Description of the Risk Log for instructions

**Agreements.** Any additional agreements, such as cost sharing agreements, project cooperation agreements signed with NGOs<sup>3</sup> (where the NGO is designated as the "executing entity") should be attached.

**Terms of Reference:** TOR for key project personnel should be developed and attached

**Capacity Assessment:** Results of capacity assessments of Implementing Partner (including HACT Micro Assessment)

**Special Clauses.** In case of government cost-sharing through the project which is not within the CPAP, the following clauses should be included:

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<sup>3</sup> For GEF projects, the agreement with any NGO pre-selected to be the main contractor should include the rationale for having pre-selected that NGO.

1. The schedule of payments and UNDP bank account details.
2. The value of the payment, if made in a currency other than United States dollars, shall be determined by applying the United Nations operational rate of exchange in effect on the date of payment. Should there be a change in the United Nations operational rate of exchange prior to the full utilization by the UNDP of the payment, the value of the balance of funds still held at that time will be adjusted accordingly. If, in such a case, a loss in the value of the balance of funds is recorded, UNDP shall inform the Government with a view to determining whether any further financing could be provided by the Government. Should such further financing not be available, the assistance to be provided to the project may be reduced, suspended or terminated by UNDP.
3. The above schedule of payments takes into account the requirement that the payments shall be made in advance of the implementation of planned activities. It may be amended to be consistent with the progress of project delivery.
4. UNDP shall receive and administer the payment in accordance with the regulations, rules and directives of UNDP.
5. All financial accounts and statements shall be expressed in United States dollars.
6. If unforeseen increases in expenditures or commitments are expected or realized (whether owing to inflationary factors, fluctuation in exchange rates or unforeseen contingencies), UNDP shall submit to the government on a timely basis a supplementary estimate showing the further financing that will be necessary. The Government shall use its best endeavours to obtain the additional funds required.
7. If the payments referred above are not received in accordance with the payment schedule, or if the additional financing required in accordance with paragraph [above is not forthcoming from the Government or other sources, the assistance to be provided to the project under this Agreement may be reduced, suspended or terminated by UNDP.
8. Any interest income attributable to the contribution shall be credited to UNDP Account and shall be utilized in accordance with established UNDP procedures.

In accordance with the decisions and directives of UNDP's Executive Board:

The contribution shall be charged:

- (a) [...]cost recovery for the provision of general management support (GMS) by UNDP headquarters and country offices
- (b) Direct cost for implementation support services (ISS) provided by UNDP and/or an executing entity/implementing partner.

9. Ownership of equipment, supplies and other properties financed from the contribution shall vest in UNDP. Matters relating to the transfer of ownership by UNDP shall be determined in accordance with the relevant policies and procedures of UNDP.

10. The contribution shall be subject exclusively to the internal and external auditing procedures provided for in the financial regulations, rules and directives of UNDP."



## Annex 1: Risk Analysis

Risk Type	Risk Description	Risk Management
<b>Political</b>	The Israeli may be refused to allow the equipments to enter into Gaza Strip.	Negotiation with the Israeli side will be start at the early stage of the project.
<b>Political</b>	Project could be delayed or ceased if further conflict develops.	Early warning of events through media. Security briefing. Reliable means of communications.
<b>Strategic</b>	Donor may be withdraw the fund or ask for reprogramming if UNDP fails to enter the materials into Gaza Strip.	