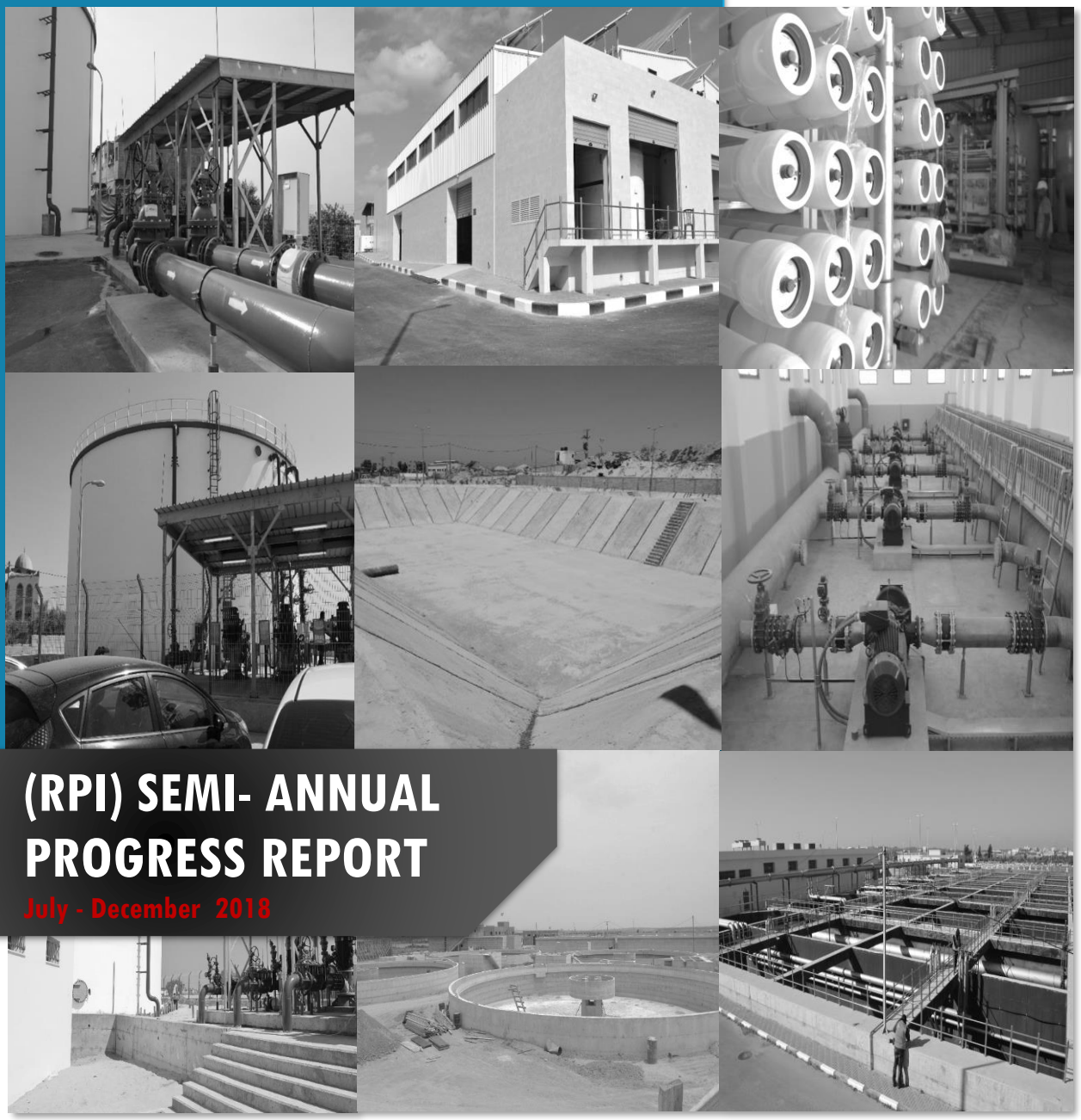


# (RPI) SEMI- ANNUAL PROGRESS REPORT

July - December 2018

**The Rolling Program of Interventions for Additional Supply of Water for Gaza Strip (RPI)**

Programme Coordination Unit (G-PCU)

Web: www.pwa.ps

AUSTRIAN DEVELOPMENT AGENCY

سلطة المياه الفلسطينية
PALESTINIAN WATER AUTHORITY

# TABLE OF CONTENTS


EXECUTIVE SUMMARY ---- 4

INTRODUCTION ---- 7

PROGRESS REVIEW ---- 9

RPI (1): Establishment of the Gaza program coordination unit (G-PCU) ---- 9

RPI (2): Introduction of an integrated water and public health monitoring program ---- 9

RPI (3): Upgrading the water distribution system in the Gaza Strip ---- 11

RPI (4): Enhancing levels of water imports from Israel ---- 13

RPI (5): Introduction of Short Term Low Volume (STLV) sea water desalination plants ---- 15

RPI (6): Construction of Gaza Central Desalination Plant (GCDP) ---- 18

RPI (7): Introduction of wastewater reuse schemes in small and large scale ---- 19

RPI (8): Completion of the Regional Wastewater Treatment Plants (3 WWTPs) ---- 21

RPI (9): Improvement of Water Management in the Agricultural Sector. ---- 24

ANNEXES: ---- 25

Annex (1): Rolling Program of Interventions Map ---- 26

Annex (2): RPI Projects Summary Sheet ---- 27

Annex (3): List of Figures illustrating the physical progress on the RPI projects ---- 31

**Abbreviations:**

| | |
|---|---|
| G-PCU | Gaza Program Coordination Unit |
| RPI | Rolling Program of Interventions for Additional Supply of Water for the Gaza Strip |
| PWA | Palestinian Water Authority |
| ADA | Austrian Development Agency |
| WB | World Bank |
| EU | European Union |
| GCF | Green Climate Fund |
| AFD | French Development Agency |
| NRC | Norwegian Refugee Council |
| ICRC | International Committee of the Red Cross |
| IsDB | Islamic Development Bank |
| USAID | United States Agency for International Development |
| UNDP | United Nations Development Program |
| KFAED | Kuwaiti Fund for Arab Economic Development |
| GIZ | German Society for International Cooperation |
| QRC | Qatari Red Crescent |
| ANERA | American Near East Refugee Aid |
| UNICEF | United Nations International Children's Emergency Fund |
| CMWU | Coastal Municipalities Water Utility |
| CSO-G | Comparative Study of Options for an Additional Supply of Water for the Gaza Strip |
| MCM | Million cubic meters |
| MW | Megawatt |
| PV | Photovoltaic |
| MEKOROT | Israeli National Water Company |
| GCDP | Gaza Central Desalination Plant |
| WWTP | Wastewater Treatment Plant |
| STLV | Short Term Low Volume |
| RO | Reverse Osmosis |
| TDS | Total Dissolved Solids |
| GIS | Geographical Information System |

# EXECUTIVE SUMMARY

Availability of fresh water in the Gaza Strip is amongst the lowest in the world. Currently two million Palestinians in Gaza rely almost exclusively on the coastal aquifer as a source of freshwater, but this is already inadequate to meet demand both from a quantitative and qualitative perspective.

In response to Gaza water crisis, a comparative study of Water Supply options for Gaza strip was carried out, resulting in developing "The Rolling Programme of Interventions" which aims to; improve the water distribution system, improve agricultural water management, develop wastewater treatment and reuse and Increase supply of water resources.

Over the first seven years of the Rolling programme of intervention, Some achievements were accomplished against each programme component; the Import of water has increased to 10 MCM per year, the production capacity of seawater desalination has reached 8,600 cubic meter per day (3.14 MCM per year), the wastewater treatment has increased by 35,600 cubic meter per day (13 MCM per year) which will be used as additional quantities of water for agriculture, currently the capacity of Reuse of treated wastewater has reached 5000 cubic meter per day to irrigate 1100 donums of agricultural lands**.**

The achievements against each intervention were as follows:

| Achievements Highlights | |
|---|---|
| Establishment of a Gaza Programme Coordination Unit (PCU) | It is now established and financed by The ADA. It oversees all water & sanitation interventions. |
| Water and Health Monitoring program | Ongoing program; 6 projects were implemented, while 1 is under preparation and 1 is currently ongoing.<br>the total cost of these projects is EURO 0.14 M, ILS 0.17 M. |
| Water distribution system Improvement | Ongoing process; the construction of 10 new water tanks in the five governorates of Gaza Strip, financed by the USAID, 4 were completed in 2017, 6 were completed in 2018, The overall amount of these projects is USD 37 M<br>The construction of 2 new water tanks in northern Gaza was cancelled by the USAID after the US presidency administration decision in August 2018 to cut funding of west bank & Gaza strip projects.<br>In addition, 2 new water tanks currently under construction in the southern governorates, financed by the EU with a total amount of USD 2.8 M<br><br>The North –South Main Carrier project which consist of the construction of the carrier lines and Reconfiguration of Water Distribution Networks. In which the KFAED contributes to the project financing with an amount of USD 48.99 M to the construction of southern system.<br>The overall cost for these projects is USD 256 M. Only USD 94.92 M secured. |
| Imported water from Israel | A long pipe line connecting Mekorot network to Al Muntar connection financed by the ICRC was completed in 2017.<br>Also, Mekorot improvements works project is under preparation, the project consists of two main Packages that were designed through the consultancy service of the associated works to Gaza central desalination plant (GCDP) in 2018.<br>The overall cost for this projects is USD 17.62 M. Only USD 9.62 M is secured by the (KFAED). Which covers package (1) of the distribution network improvement for Middle area and Khanyounis Governorates, the procurement process for this phase has been launched in 10th September 2018, the project is intended start in the first quarter of the year 2019. |

## Achievements Highlights (Cont.)

| | |
|---|---|
| Short Term Low Volume Desalination Plants | The Construction of Gaza STLV (3.7 MCM/ Year) is funded by the IsDB (USD 12.5) and KFW (USD 0.5 M), project cost is USD 13 M, the works are ongoing, time extension is expected to take place till the second quarter of the year 2019 due to the delay in material entry.<br>The Middle Area - Deir al Balah STLV (0.22 MCM/Year) was constructed in 2003 with the ADA financing, it is currently under rehabilitation were the progress reached 90%. The first expansion (0.73 MCM/Year) was constructed in 2014 with the IsDB financing, project cost USD 2 M. The second expansion is financed by the USAID (1.25 MCM/Year), the construction reached 96% of progress, the project cost is USD 17.33 M.<br>The Southern STLV - (7.3 MCM/Year) consists of Two phases, phase I was completed in 2017 with a production capacity of (2.2 MCM/Year), the procurement process and the contract awarding for phase II, package (1) for the construction of the RO unit has been finalized, the two phases are financed by the EU, the total project cost is around USD 30 M. |
| The Regional – Gaza Central Desalination Plant (GCDP) | Efforts towards converting the amounts pledged to support the construction of the GCDP during Brussel conference into financial commitments are ongoing. |
| Increased Reuse of Treated Wastewater | Two projects were completed and handed over to the ministry of agriculture; in 2013, Al-Sheikh Ejleen wastewater reuse small-scale scheme, designed to serve 500 donums with an irrigation amount of 2,000 m3/day, funded by the ADA with an amount of USD 0.2M. And in 2017, Al-Mawasi/ Khanyounis wastewater reuse small-scale scheme which is designed to target 600 donums with an irrigation amount of 3,000 m3/day, funded by the IsDB and QRC with an amount of USD 0.6 M<br><br>The North Gaza wastewater reuse large-scale scheme is one of the main components of North Gaza Emergency Sewage Treatment (NGEST) project. The scheme is designed to utilize an average daily amount of 39,160 cubic meters of wastewater for irrigating an area of 15,000 donums of agricultural lands. Only Stage (I) was implemented under the NGEST project which includes the construction of recovery wells, monitoring wells, pumping stations, and one tank with a total construction cost of USD10.13 M. Stage(II) which includes the Irrigation network for 10,000 donums of agricultural lands is currently under preparation, expected to start in the first quarter of 2019, the fund was secured by the AFD & The GCF. The overall project cost is EURO 22.63 M.<br><br>Rafah post treatment plant Lot (1) is designed with a production capacity of 3600 m3/d as post-treated wastewater to cover the irrigation of 165 donums of agricultural lands. The project is funded by the Japanese Government, it is currently under construction, expected to be completed in march 2019. The project cost is ILS 4.3 M.<br>Rafah post treatment plant Lot (2) is designed with a production capacity of 3600 m3/d as post-treated wastewater to cover the irrigation of 200 donums of agricultural lands. The project is funded by the EU it is currently under construction, expected to be completed in march 2019. The project cost is Euro 0.79 M |

| | |
|---|---|
| Regional wastewater treatment Plants | The Northern Gaza wastewater Treatment Plant (treatment capacity 35,600 m3/Day) is currently under operation and maintenance period. The project was funded by the WB & AFD, the total construction cost was USD 44.11 M.<br>The Gaza Central Wastewater Treatment Plant - stage(I) with a treatment capacity of 60,000 m3/day is currently under construction, the total cost is EURO 38.95 M., financed by the KFW. It's expected to be completed in mid-2019.<br>The Khanyounis Wastewater Treatment Plant -phase (I) with a total treatment capacity of 26,600 m3/Day is under construction,<br>the total cost is EURO 33.2 M., funded by the IsDB, it is expected to be finalized by 2020. |
| Water management improvement – Agricultural Sector | The study of integrated Nexus strategy for water, energy and agriculture in the Gaza strip is funded by The ADA as one of the main component of TAG-PCU Phase II, is intended to be implemented by 2019, the TOR has been prepared. |

## Financing/ Fundraising Highlights

| | |
|---|---|
| Water distribution system Improvement | Deficit of an amount USD 161.2 M in the North- south carrier project. Which includes the construction of Main Carrier System and the Reconfiguration of Water Distribution Network in Middle area, Gaza, Northern Gaza and Southern Area.<br>The WB has pledged and amount of USD 30 M to support the southern system. |
| Enhancing levels of water imports from Israel | Deficit of an amount USD 8.0 M in the Mekorot improvement works project. The EU has announced their intention to support Mekorot Connection for Gaza. |

## Challenges Highlights

| | |
|---|---|
| Material entry and Coordination | One of the main challenges facing RPI projects is the Israeli coordination measures towards the entry of equipment and material into Gaza strip through Kerem Shalom. delays in projects implementation routinely occur due to the Israeli restrictions, delays or denials on the entry of materials, critical equipment, spare parts,etc. |
| Restriction of Movement | Projects are also affected by the restriction of movement, Technical experts travelling from and to Gaza strip through Erez crossing. |
| Power Supply | The unreliable electric power supply from the grid is affecting the operating projects such as the STLVs and the WWTPs, the plants are not operating within its full capacity, and the equipment are deteriorating due to the operation conditions.<br>This is an ongoing challenge although, there was some improvement in the power supply schedule since October 2018 due to the supply of Qatari Fuel for six months only. |
| Political Situation | In August 2018, The US president administration has decided to cut funding of west bank & Gaza strip projects, accordingly the US has redirect more than USD 200 M originally planned for different programs including the water sector. |

# INTRODUCTION

## Background/Rationales

The availability of fresh water in Palestine is amongst the lowest in the world. In the Gaza Strip, the only available water source is groundwater from the deteriorating Coastal Aquifer underlying the Gaza Strip, as well as Israel and Egypt. The sustainable yield of the aquifer in the Gaza Strip is only 55 million cubic meters (MCM)/year. However, two million Palestinians in Gaza consume in excess of 180MCM/year from the aquifer – thus taking approximately three times as much as the aquifer can sustainably recharge each year.

The over-pumping of groundwater has led to damage of the trans-boundary aquifer due in part to a large increase in groundwater salinity following from seawater intrusion into the aquifer from the Mediterranean. Levels of salinity found in the aquifer under Gaza have risen continuously over the last two decades, and are now far in excess of the World Health Organization standards for drinking water.

According to the World Bank the situation has become so dire that “only 5-10% of the aquifer is now yielding drinking quality water” (World Bank Report, 20 April 2009 Pg. VI). Historical profile shows problems relating to the groundwater in Gaza with indications of the effects of short-term, medium-term and longer-term interventions.

In response to this crisis, the Palestinian Water Authority, with support from Norway and other donors, carried out a comparative study of Water Supply options for Gaza. the study was commissioned in 2011 has led to a Gaza Water Strategy comprising the following key components:

- Establishment of a Gaza Sustainable Water Supply Program Coordination Unit (GPCU) to coordinate the proposed interventions and overall program;
- Introduction of an integrated water and health monitoring project to ensure that comprehensive and reliable data are available to guide future changes in the sector, and also to monitor the success of the entire program of interventions;
- Accelerated upgrading and expansion of the domestic water distribution and supply network in Gaza to improve distribution efficiency and reduce unaccounted for water losses;
- Enhanced levels of water imports from Israel to Gaza, ultimately expanding to about four times the current level of import;
- Immediate introduction or expansion of short-term low-volume (STLV) seawater desalination units at three locations in Gaza, to provide 13 MCM/y; relatively minor volumes of water of acceptable quality for domestic use in the early years of the program, and to ensure that public health may be protected.
- Phasing-in of higher levels of sea water desalination through the construction of a regional seawater desalination facility within four years. The regional desalination facility will be one of two key drivers to reduce the present levels of over-abstraction of the groundwater in Gaza, and are therefore critical to the program as a whole (as well as to the long-term protection of human health in Gaza
- The introduction and/or extension of pilot schemes for the reuse of treated wastewaters in Gaza, with the reused flows replacing pumped groundwater, as soon as possible.
- Accelerated completion of the three major wastewater treatment plants in Gaza, with large volume reuse being introduced as rapidly as possible and becoming the predominant source of water used in the agricultural sector in Gaza which is considered the second key driver in towards reducing over abstraction;
- The completion of a high-quality review of the use of water in the agricultural sector in Gaza, this being focused on reducing the overall demand for water; the introduction of large-scale wastewater reuse; and the optimization of the economic returns from the sector.

## The Rolling Program of Interventions (RPI)

The Palestinian Water Authority (PWA) developed the rolling program of interventions to find alternative sources of potable water, based on the Comparative Study of Options (CSO). Specifically, by 2021, PWA plans to implement the following measures, as identified in the CSO report: improving the water distribution system, improving agricultural water management, developing wastewater treatment, reuse, and increase supply of bulk water resources

**Program Objectives:** The overall objective of the program is to achieve sustainable water supplies for all domestic, industrial, and agricultural uses in the Gaza Strip. The following results are expected to be achieved by the end of this program:

1. Establishment of the Gaza program coordination unit (G-PCU) to drive and coordinate the proposed CSO-G interventions (RPI) as a whole;
2. Introduction of an integrated water and public health monitoring program;
3. Upgrading the water distribution system in the Gaza Strip, the construction of the north-south carrier and the reduction of non-revenue water;
4. Enhancing levels of water imports from Israel to 4 times of the current amount (from 5 to 20 MCM per year);
5. Introduction of Short Term Low Volume (STLV) sea water desalination plants with a total capacity of 13 MCM per year;
6. Construction of Gaza Central Desalination Plant (GCDP) with a total capacity of 55 MCM per year;
7. Introduction of wastewater reuse schemes in small and large scales;
8. Completion of the regional wastewater treatment plants (3 WWTPs);
9. Improvement of water management in the agricultural sector.

This semi-annual report is produced as part of the duties and responsibilities of the Gaza Program Coordination Unit (G-PCU) to present the progress made on the projects of the Rolling Program of Interventions for Additional Supply of Water for the Gaza Strip (RPI projects), planned/ ongoing/ completed.

This report covers the progress up to December 2018, The report sections arranged in the following manner:

- Introduction
- Progress Review
- Annexes:
  - RPI projects Map
  - RPI projects Summary Sheet
  - List of Figures illustrating the physical progress on the RPI projects

# PROGRESS REVIEW

## RPI (1): Establishment of the Gaza program coordination unit (G-PCU)

The G-PCU was established in September 2013 with a fund from the Austrian Government through the Austrian Development Agency (ADA) to provide technical support to the Palestinian Water Authority (PWA) for the implementation of the Rolling Program of Interventions for Additional Supply of Water for the Gaza Strip (RPI). The Fund for the G_PCU was secured till December 2017 with a total amount of Euro 1,036,535.

In March 2018, the PWA has signed a grant agreement with ADA with a total amount of EURO 900,000 to support the G-PCU for a second phase starting from January 2018 up to December 2021. In order to assure the continuation of the technical assistance to the PWA in managing, supervising and monitoring the implementation of RPI, especially in the current political and regulatory context.

## RPI (2): Introduction of an integrated water and public health monitoring program

The following projects fall under this intervention:

### 2.1 The "Baseline Study on Water Quality and Public Health in the Gaza Strip":

This study aimed to establish baseline information for water quality and public health in addition to explore the health impacts attributed to the existing poor quality of water in the Gaza Strip.

**Status:** Completed

This study was implemented by G-PCU/PWA during the period from October 2014 till June 2015, with a total contract value of Euro 48,500. The study report was disseminated through workshop.

### 2.2 The "Survey of Private and Public Brackish Desalination Plants in the Gaza Strip":

The Study aimed at enhancing the capacities of PWA and the Water Regulatory Council (WRC) in regulating and monitoring desalination plants and the water vendors in terms of operation, quality and distribution.

**Status:** Completed

This study was funded by the GIZ and implemented by G-PCU/PWA in cooperation with the GIZ during the period from April to July 2015, with a total contract value of ILS 138,750. The study findings had been disseminated through workshop.

As a result of this study, the Norwegian Refugee Council (NRC) in cooperation with PWA/ G-PCU conducted a complementary qualitative survey on drinking water chain in the Gaza Strip, with the purpose of establishing a framework for related interventions Upon the completion of this study a concept notes for establishing a partnership program between PWA and drinking water private sector (desalination plants) was prepared and Submitted to the AFD who hired a consultant and conducted feasibility study for the proposed program accordingly.

### 2.3 The "Strategy for Establishment of a Cohesive and Integrated Water and Health Monitoring program for the Gaza Strip":

The study aimed at developing a clear strategy and a budgeted action plan for introducing a cohesive and integrated program of monitoring water quality and its relationship to public health in the Gaza Strip.

**Status:** Completed

The study was implemented by G-PCU/PWA during the period from February to September 2016, with a total contract value of Euro 19,800.

### 2.4 Sewage/Wastewater Master Plan for The Northern Governorate:

This Masterplan aimed at providing a technical framework for improvement of the sewage/wastewater situation within the Northern governorate in terms of collection coverage, disposal, and treatment.

**Status:** Completed
The master plan was implemented by G-PCU/PWA during the period from October to December 2017, with a total contract value of Euro 6,726.

### 2.5 Developing the capacity of CMWU laboratory for water quality monitoring Equipping the lab with Kjeldahl Distillation Unit:

This project aimed at protecting public health and environment through enhancing the monitoring capacity of water quality provided by CMWU, through Equipping the lab with Kjeldahl Distillation Unit.

**Status:** Completed
The project was funded by ADA and implemented by G-PCU/PWA during the period from August to October 2017 with a total contract value of ILS 39,000.

### 2.6 Water related health promotion strategy for the RPI:

The overall goal of this study was to develop a clear strategy and budgeted action plan for water related public health promotion/ awareness strategy in full cooperation with key stakeholders, and Unit.

**Status:** Completed
The strategy was implemented by G-PCU/PWA during the period from August to October 2017, with a total contract value of Euro 7,850.

### 2.7 "Gender Analysis for the Water Sector in the Gaza Strip":

The overall goal of this study is to conduct gender analysis for the water sector in the Gaza Strip to ensure that women, men, boys and girls have equitable access to water related services and are not disadvantaged by the RPI development intervention in the water sector. The study is funded by ADA as one of the main activities of G-PCU phase (II).

**Status:** Ongoing
**Progress up to this reporting period:** Up to December 2018, the procurement process has been launched in 15 July,2018, the consultancy service contract has been signed on 02 September 2018 with intended completion period of 4 months. The total contract value is EURO 7,750. Delay in the project implementation has occurred as the local partners were not able to fully cooperate as per the assignment schedule due to their involvement in the "16 days" Campaign for eliminating violence against women, so the consultant was granted an extension up to 15 January 2019. The gender analysis study has been developed and submitted to PWA in December 2018 for review and final approval.

### 2.8 The development of a Water Safety Plan for the Gaza Strip Governorates.

This plan aims to improve the public health status within the governorates of the Gaza Strip. It is one of the project's components of G-PCU, the estimated budget for the consultancy services is Euro 45,000.

**Status:** under preparation
**Progress up to this reporting period:** A road map and a term of reference (TOR) were prepared in December 2016. The plan is expected to be developed 2020.

## RPI (3): Upgrading the water distribution system in the Gaza Strip, the construction of the north-south carrier and the reduction of non-revenue water.

Projects that fall under this intervention are as per the following:

**3.1 The construction of four tanks and all associated supply & distribution pipelines/ pumping facilities (I)**

This project comprised of two main Packages; Package (1) included the construction of Al Atatrah tank in Northern Gaza and Nusairat tank, and package (2) included the construction of Al Berkah tank in Dier Albalah and Ma'am Tanks in Khanyounis, each tank has a capacity of 3800 cubic meter.

The design, tender documents and the Environmental-Social Impact Assessment (ESIA) were conducted in during the year 2015. the project was funded by the USAID, the total contracted value for the two packages is USD 17,667,222.

**Status:** Completed

The project was implemented during the period from October 2015 to October 2017, The project was delayed for 3 months from the intended completion date due to the Israeli measures in material coordination and entry from Kerem shalom to Gaza.

**3.2 The construction of four tanks and all associated supply & distribution pipelines/ pumping facilities (II)**

This project included the construction of Al Bureij and Al Maghazi and Dier Albalah tanks in the Middle area in addition to Rafah Tank. Each tank has a capacity of 4000 cubic meter except for Al Bureij Tank which a has a capacity of 3300 cubic meter.

The design, tendering process and the Environmental-Social Impact Assessment (ESIA) were completed in October 2016, while the construction started in December 2016 with an intended completion date in August 2018. The project is funded by the USAID, the total contracted Value for the construction is USD 17,319,965.

**Status:** Completed

**Progress up to this reporting period**: the works have been completed and the project was handed over in December, 2018.

**3.3 The construction of Al Fukhari & Al Shokah Tanks with all associated supply & distribution pipelines/ pumping facilities**

This project included the construction Al Fukhari & Al Shokah Tanks each tank has a capacity of 3000 cubic meter. The design, tendering process and the Environmental-Social Impact Assessment (ESIA) were completed in October 2016, while the construction started in September 2017 with an intended completion date in September 2018. The project is funded by the USAID, implemented by ANERA the total contracted Value for the construction is USD 1,947,000

**Status:** Completed

**Progress up to this reporting period**: The works have been completed and the project was handed over in December, 2018.

**3.4 The construction of Al Nozha & Jabal Al Kashef Tanks with all associated supply & distribution pipelines/ pumping facilities.**

This project included the construction Al Nozha & Jabal Al Kashef Tanks in northern Gaza, each tank has a capacity of 2000 cubic meter. The project is funded by the USAID the total estimated Value for the construction phase is USD 9,000,000.

**Status:** Cancelled, as a result of US President administration decision in August 2018, to cut more than $200 million of the funding for projects in the West Bank and Gaza Strip.

### 3.5 The North –South Main Carrier project

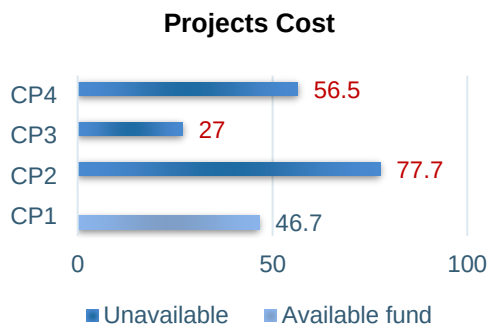
The North- South main carrier project was designed through the consultancy service of the associated works to Gaza central desalination plant (GCDP), the total Cost for the design was USD 2,290,480 funded by the World Bank (WB), The design was initiated in February 2016 with an intended completion in August 2017, but due to land acquisition process between the Palestinian Water Authority (PWA) and the Palestinian lands Authority (PLA), the design period was extended up to March 2018 were the final submission of the tender documents took place.

This project consists of four main Packages ;(1) The South Main Carrier System - Rafah & Khanyounis, (2) North Main Carrier System - Middle area, Gaza and Northern Gaza, (3) Water Distribution Network Reconfiguration – Southern Area and (4) Water Distribution Network Reconfiguration – Middle area, Gaza and Northern Gaza.

***% 77.5 Of The Overall Cost of the North – South Main Carrier Project Is Currently Unavailable***

**Notes:**

- Based on the project design consultant, there is a priority to start contract package (1) and Contract Package (3).
- The WB has pledged an amount of USD 30 M to support the southern Carrier system.




The Overall Project Cost is USD 207.9 M

#### 3.5.1 CP (1): The South Main Carrier System - Rafah &Khanyounis

The South Main Carrier System - Rafah &Khanyounis project consists of five main components which are; Main pumping station, Southern carrier and transmission lines, downstream, Rafah booster station and 4 new reservoirs. This project is funded by the Kuwaiti Fund for Arab Economic Development (KFAED) and implemented by PWA, the total estimated budget for the projects' five components is USD 46.7M.

**Status**: Under preparation

**Progress up to this reporting period:** The procurement process for this project has been launched on 6th August 2018, the prequalification process has been finalized, Invitation to bids were submitted to the short listed bidders in January 2019 the project is intended to start during the second quarter of the year 2019 and intended to be completed during the first quarter of the year 2021.

#### 3.5.2 CP (2): North Main Carrier System - Middle area, Gaza and Northern Gaza

The North Main Carrier System - Middle area, Gaza and Northern Gaza project consists of five main components which are; Electro-mechanical works for Main pumping station, Northern carrier and transmission lines, downstream, 4 booster stations and 2 new reservoirs. This total estimated budget for the projects' five components is USD 77.7 M.

**Status**: Under preparation

**Progress up to this reporting period:** This project will be implemented by PWA after securing fund.

### 3.5.3 CP (3): Water Distribution Network Reconfiguration – Southern Area

The Water Distribution Network Reconfiguration – Southern Area project consists of five main components which are; the reconfiguration of downstream system, the upstream supply lines from wells to reservoirs, upgrading 16 existing reservoirs, construct 2 new reservoirs and upgrading all existing wells. The total estimated budget for the projects' five components is USD 27 M.

**Status**: Under preparation

**Progress up to this reporting period:** This project will be implemented by PWA after securing fund.

### 3.5.4 CP (4): Water Distribution Network Reconfiguration – Middle area, Gaza and Northern Gaza

The Water Distribution Network Reconfiguration – Middle area, Gaza and Northern Gaza project consists of five main components which are; the reconfiguration of downstream system, the upstream supply lines from wells to reservoirs, upgrading 16 existing reservoirs, construct 5 new reservoirs and upgrading all existing wells. the total estimated budget for the projects' five components is USD 56.5 M.

**Status**: Under preparation

**Progress up to this reporting period:** This project will be implemented by PWA after securing fund.

### 3.6 The Construction of AL-Amal & Al-Satter Water Tanks with associated "carrier Lines and pumping stations" in Khanyounis

This project included the construction of two waters tank with a capacity of 5000 cubic meter in addition to the carrier Lines, pumping stations and service building in Al Amal and Al Sater neighborhood in Khanyounis. The construction started in July 2017 with an intended completion date in January 2019. The project is funded by the EU with a total value of USD 2,800,000.

**Status:** Ongoing

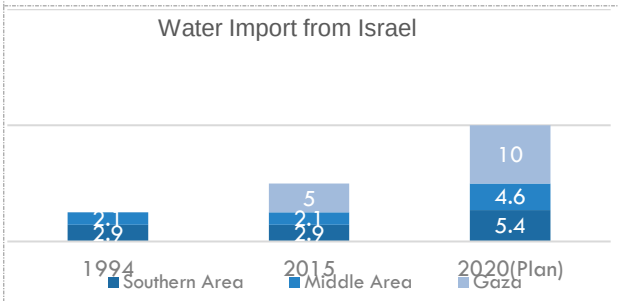
**Progress up to this reporting period**: approximately 75% of the construction works have been completed, delay in the project implementation has occurred due to two main issues; the land acquisition of al Satter water tank, where the tank location has been changed and a redesign was required, in addition to the delay to projects' material entry to Gaza strip following the boarder closure" kerem Shalom crossing". As result, a 3 months' extension to the project has been granted.

## RPI (4): Enhancing levels of water imports from Israel to 4 times of the current amount (from 5 to 20 MCM per year)

The Palestinian Authority has been importing a yearly amount of 5 MCM of water from Mekorot Company since 1994. This amount was distributed at 2 governorates in the Gaza Strip; Khanyounis and the Middle area. In May 2015, the amount water imported from Mekorot Company increased to 10 MCM per year as Gaza started to receive a yearly amount of 5 MCM. The annual cost for Mekorot water supply is around ILS 18 M.

In March 2016, the Israeli side promised to increase the quantity of water supplied to Gaza from 5 MCM per year to 10 MCM per year, so that the total amount of Mekorot water supplied to the Gaza Strip will jump from 10 MCM per year to 15 MCM per year.

***Key Figures for (RPI - 4)***
***2015-2020***




**Details:**

- Mekorot water Annual Import Cost ₪ 42 M.

Accordingly, PWA in cooperation with ICRC conducted a consultancy for Gaza Mekorot water supply line to assess its connections/valves and to rezone the areas receiving Mekorot water based on two scenarios: (1) the current scenario of supplying 5 MCM/year; (2) the future scenario of supplying 10 MCM/yr.

The following projects were implemented under this intervention:

**4.1 The upgrading and maintenance of Gaza - Mekorot water supply line connections.**

**Status:** Completed

The project was implemented during the period from November 2016 and completed in January 2017, it was funded by ICRC with a total amount of USD 64,850.

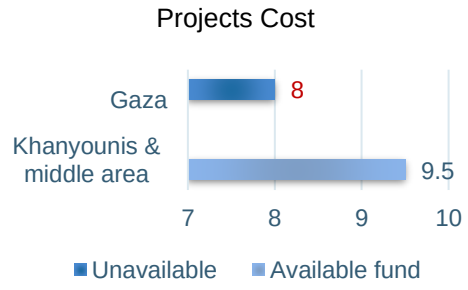
**4.2 Mekorot improvements works project**

This project consists of two main Packages that were designed through the consultancy service of the associated works to Gaza central desalination plant (GCDP) - Amendment (3) as an additional assignment, the total Cost for the design was USD 120,950, The final submission of the tender documents took place in March 2018.

***%45.7 Of The Overall Cost of Mekorot Improvement Works Project Is Currently Unavailable***

**Notes:**

- The EU has announced their intention to support Mekorot Connection for Gaza with an amount of Euro 9.0 M




The Overall Project Cost is USD 17.5M

**4.2.1 Additional Water Supply Network Improvement (AWSNI) – Middle area and Khanyounis Governorates**

The AWSNI- Middle and Khanyounis project consists of three main components which are; Upstream and water distribution reconfiguration, the construction of 4 new reservoirs and the upgrading of the 4 existing reservoirs. This project is funded by the (KFAED) and implemented by PWA, the total estimated budget for the projects' three components is USD 9.5 M.

**Status**: Under preparation

**Progress up to this reporting period:** The procurement process for this project has been launched in 10th September 2018, the bidding documents were submitted to PWA in 8 November 2018, the evaluation report has been sent to donors for no objection, the project is intended start in the first quarter of the year 2019 and intended to be completed in the second quarter of the year 2020.

**4.2.2 Additional Water Supply Network Improvement (AWSNI) – Gaza Governorate**

The AWSNI -Gaza project consists of two main components which are; Upstream and water distribution reconfiguration and the construction of 1 big reservoir (28,000 m2). the total estimated budget for the projects' components is USD 8.0 M.

**Status**: Under preparation

**Progress up to this reporting period:** This project will be implemented by PWA after securing fund.

## RPI (5): Introduction of Short Term Low Volume (STLV) sea water desalination plants with a total capacity of 13 MCM per year

This intervention includes three main STLV Seawater desalination plants; for Gaza, Middle area and Southern Governorates as per the following:

***Key Figures for (RPI - 5)***
***2013-2021***

| | | Gaza | Middle Area | Southern | |
|---|---|---|---|---|---|
| Current Production Capacity 3.14 MCM/YEAR | | 3.7 | 2.2 | 7.3 | MCM/YEAR |
| | | 2.5 | 1.5 | 4 | MWs |
| Planned 13 MCM/YEAR | | 200 | 75 | 250 | Thousand People |

The following Progress has been achieved within this intervention:

**5.1 Gaza STLV Seawater Desalination Plant - (Production capacity 3.7 MCM/ Year)**

The construction of the Gaza STLV seawater desalination plant is comprised of four main components, Reverse Osmosis (RO) plant, Carrier Line, Blending Reservoir and the electrical grid (3.5 MW), In addition, Water Networks Re-routing Installations was required; the plant is located on the shore of the Beit Lahia and will serve some areas in the Gaza city specifically, Beach camp, Western Al Nasser, Sheikh Radwan and Western Tal Al Hawa. The production of this plant will be around 10,000 cubic meters per day, equivalent to a yearly production of 3.7 MCM of desalinated water per year.

**5.1.1 the Construction of Gaza STLV Seawater Desalination Plant - (Production capacity 3.7 MCM/ Year)**

The Gaza STLV seawater desalination plant is funded by the Islamic Development Bank (IsDB) and KFW and implemented by CMWU. The design, tender documents and the Environmental-Social Impact Assessment (ESIA) were conducted in during the year 2014 – 2015.
The construction phase started in May 2015, with an overall contracted value for all projects' components USD 12,580,696.

**Status:** Ongoing

**Progress up to the report period:** The carrier line was completed and handed over to CMWU in May 2017.
98% of the Blending reservoir works have been completed, contract extension was granted up to 31 January 2018. the tender documents of the Electrical grid (3.5 MW) have been prepared and submitted to the donor for no objection, while the construction of the reverse osmosis (RO) plant has started in July 2016, with an intended completion date in January 2018, however the project is behind schedule for the second time, a new time extension will be required due to the Israeli measures in the entry of the projects' equipment. So far, 100% of the civil works were completed, representing 52% of the overall RO plant activities.

***"Material Entry Coordination with the Israeli side has been an ongoing challenge to the Gaza STLV Desalination plant"***

**Details:**

- Original Completion date: Jan 2018
- 1St Amended date: Feb 2019
- 2nd expected Amendment: Aug 2019
- Intended duration :30 Month
- 1st Amended duration: 44 Months
- 2nd expected Amendment: 50 Month

#### 5.1.2 The Water Networks Re-routing Installations - For the Gaza STLV Seawater Desalination Plant

**Status:** Completed
The Gaza STLV seawater desalination plant is funded by the KFW and implemented by CMWU with a total amount of 500,000 USD, the project was completed in July 2016.

### 5.2 Middle Area - Deir al Balah STLV Seawater Desalination Plant- (Production capacity 2.2 MCM/Year)

The existing Middle area STLV seawater desalination plant (production capacity .95 MCM/Year), located in Deir Al Balah was established in the year 2003 with Austrian Financing in 2003 with a production capacity of 600 cubic meters per day. The plant was and equipped in 2011 with a pressure recovery system with Italian financing.

#### 5.2.1 Extension of Existing Deir al Balah Sea Water Desalination Plant – Middle area (0.73 MCM/Year)

**Status:** Completed
The project included the construction of sea water RO desalination unit with a production capacity of 2000 cubic meters per day, it was funded by IsDB and implemented in 2014, with a total amount of USD 2,000,000

#### 5.2.2 The Expansion of the Middle Area STLV Seawater Desalination Plant (1.25 MCM/Year)

This is a complementary project aiming at increasing the plant desalination capacity from 2600 cubic meters per day to 6000 cubic meter per day (0.95 MCM/Year to 2.2 MCM/ Year). The project is comprised of two main components; the Reverse Osmosis (RO) plant; located inside Deir Al Balah STLV, the production of this plant will be around 3,400 cubic meters per day (1.25 MCM of desalinated water per year). And the Photovoltaic (PV) Power generation plant with a production capacity of producing 235 kW to operate part of the plant's equipment.

The project is funded and implemented by the United States Agency for International Development (USAID). The design, the Environmental-Social Impact Assessment (ESIA) and tendering process were conducted in during the year 2016.

The construction contract (O&M included) started in November 2016 with an intended completion date for the construction phase in June 2018, the overall contracted value for the two projects' components is USD 17,335,000.

**Status:** Ongoing
**Progress up to the report period:** 96% of the project activities were completed, due to Material Coordination Issues with the Israeli side the completion date was amended for the second time till December 2018.

#### 5.2.3 The Rehabilitation and Maintenance of the Middle Area STLV Seawater Desalination (0.22MCM/Year).

This project aims at rehabilitating the Middle area STLV plant – unit I established in the year 2003 (600 m3/d), where the equipment has been deteriorating and subjected to wear

and tear as a result to the usage conditions, the plant was not operating within its full capacity, producing 300 m3/Day with is half of its actual capacity due to the power shortage. The project consists of two main activities:

- Repair and Maintenance works of Deir Al Balah desalination plant
- Awareness campaign for Deir Al Balah city residents regarding the importance of water conservation at the household level.

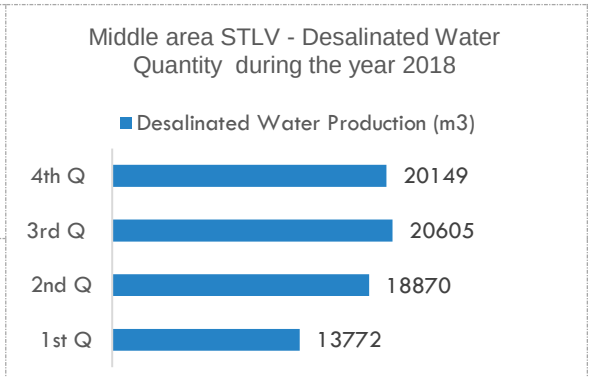
The Rehabilitation and Maintenance of the Middle Area STLV Seawater Desalination (600 m3/d) is funded by the Austrian Development Agency (ADA) with a total amount of EURO 268,926, and implemented by PWA in partnership with CMWU.

The works contract includes; replacement of electrical and mechanical equipment, equipping the plants' laboratory in addition to some minor civil works., this contract started in January 2018 with an intended completion date in May 2018 with a contract Value of EURO 238,500.

**Status:** Ongoing
**Progress up to the report period:** 90% of the project activities were completed. Due to delay in some equipment entry from the Israeli side the project was extended up to 20 January 2019.

***73,000 cubic meter of desalinated water produced by the Middle Area STLV, representing 10% of its current capacity (2000m3/day)***

*January – December 2018*




**Challenges:**

- Power deficiency
- The Israeli measure in Chemicals entry to Gaza strip
- Unavailability of O&M expenses.
- Equipment deterioration due to operation conditions.

Note: the power supply from the grid has improved due to the Qatari Support, yet there was no changes in the quantity of production due to the STLV maintenance activities

### 5.3 Southern STLV Seawater Desalination Plant-(Production capacity 7.3 MCM/Year)

The construction of the Southern Gaza Desalination plant consist of two phases:

#### 5.3.1 The Construction of Southern STLV Seawater Desalination Plant – Phase I

This plant/Unit is located on the shore of Deir Al Balah to serves Tal Al Sultan neighborhood in Rafah and Al Amal neighborhood in Khanyounis. The production capacity of this unit is 6,000 cubic meters of desalinated water per day (2.2 MCM/ year).
Southern STLV Seawater Desalination Plant – Phase I is comprised of four main components, Reverse Osmosis (RO) plant, Carrier Line, Civil & Electrical works.
The project was funded by the European Union (EU) and implemented by UNICEF in cooperation with CMWU and PWA.

**Project Status:** Completed

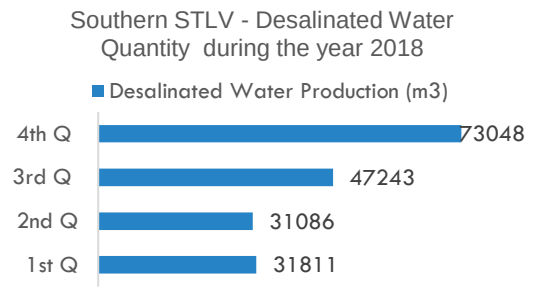
The construction of Southern STLV Seawater Desalination Plant – Phase I including all its components started in February 2014 and completed in March 2017. The overall value for the projects' components is EURO 10,000,000

### 5.3.2 The Expansion of Southern STLV Seawater Desalination Plant – Phase II

The Second Phase of expansion of the Sothern Short-term Low Volume (STLV) Seawater Desalination Plant. The production capacity of this unit is 14,000 cubic meters of desalinated water per day (5.1 MCM/Year). This project is funded by the European Union (EU) and implemented by UNICEF in cooperation with CMWU and PWA. The overall estimated cost for the project is USD 20,000,000

**Status:** Under preparation
**Progress up to the report period:** The procurement process for package 1: Sea Water Reverse Osmosis (SWRO) Process Plant and Associated Works has been finalized, the contract has been signed on 10 December 2018, the site will be handed over to the contractor in January 2019.

***183,188 cubic meter of desalinated water produced by the Southern STLV, 8% of its current operating capacity (6000m3/day)***
*January – December 2018*




**Challenges:**

- Power deficiency
- The Israeli measure in Chemicals entry to Gaza strip
- Unavailability of O&M expenses.

Note: the power supply from the grid has improved due to the Qatari Support, which explains the increase in water production during the 4th quarter .

## RPI (6): Construction of Gaza Central Desalination Plant (GCDP)

"The Gaza Central Desalination Program" consist of two main components; (1) the construction and operation of a seawater reverse osmosis (SWRO) desalination plant with its' power facilities, (2) the associated works including the construction of the north-south water carrier line (42.7 km) and additional water supply network improvement. The estimated cost for the overall program is Euro 562.3 M.

This RPI Intervention, tackles component no. (1) of the Gaza Central desalination program which includes the construction of the GCDP and the associated power facilities.

### 6.1 The Gaza Central Desalination Plant

The Gaza Central Desalination Plant comprises of a number of components; construction and operation of a seawater reverse osmosis (SWRO) desalination plant of 55 MCM/year capacity; Installation of an On-site power plant fossil plant with a total power generation capacity of 25 Mega Watt (MW) which will enable 100% coverage, and a photovoltaic plant installed on the roofs of the SWRO buildings (2 MW)& Construction of an Off-site power plant consisting of a photovoltaic plant on ground structures (12.5 MW) and two wind turbines (4 MW).

***Key Figures for (RPI - 4) 2019-2022***

**Gaza Central Desalination Plant**

| | | |
|---|---|---|
| | 55 | MCM/YEAR |
| | 25 | MWs |
| | 2 | M. People |

**Details**

- GCDP Cost Estimate in Euro 302 M.

The Gaza Central Desalination Plant shall be constructed on a plot with an available area of about 73 donums close to Deir Al-Balah in the middle area of the Gaza Strip. The land plot is located on the seaside connected to the Mediterranean Sea it is directly located at the quayside Al Rasheed street. The estimated cost for the desalination and power facilities is Euro 302 M.

**Project Status:** under preparation (Not Started yet)
**Progress up to the report period:** The Palestinian Water Authority (PWA) and The Palestinian lands Authority (PLA) have finalized the land acquisition process for both the desalination plant and the PV solar plant.
Furthermore, PWA has communicated with the countries who made pledges during Brussel conference in March, 2018 which aimed to support the Gaza Central Desalination Program in order to convert these pledges(80% of the estimated program value) into financial commitment.
In the meanwhile, the program consultant is updating the GCDP's project documents to consider the measures related to material and equipment entry into Gaza strip as well as preparing the feasibility study and tender documents for the power plant.

## RPI (7): Introduction of wastewater reuse schemes in small and large scale

The following schemes were carried out under this intervention:

**7.1 Sheikh Ejleen wastewater reuse small scale scheme**:
Sheikh Ejleen wastewater reuse scheme was established nearby the existing Gaza wastewater treatment plant, to serve a number of 500 donums planted with olives and citrus. This scheme utilizes a daily amount of approximately 2000 cubic meters of wastewater. The technology adopted in this scheme is the sand filtering for the wastewater ahead of reuse. The post treatment unit is designed to reduce the effluent POD from 120mg/l to less than 50 mg/l to meet the Palestinian standards to reuse the treated waste water for irrigation

**Status**: Completed
The project was funded by The ADA, and implemented by PWA, the construction started in July, 2012 and completed in June 2013. The project cost Euro 210,000
The project was handed over to The Gaza municipality, the reuse scheme is currently not operating as the effluent received from the WWTP (Inflow) has high PoD which reached 200 mg/l, this occurred due to overloading Al Sheikh Ejleen WWTP as a result of the power deficit

**7.2 A study, entitled "Feasibility Study for Wastewater Reuse at Southern Part of Gaza Strip"**
The study was implemented by PWA as one of projects' component of the TAG-PCU phase(I). The overall goal was to assess the feasibility of treated wastewater reuse in agricultural in the Southern area.

**Status**: Completed
This study was conducted in 2015 and disseminated to stakeholders in January 2016. The total contracted value was Euro 32,800.

**7.3 Mawasi-Khanyounis wastewater reuse small-scale scheme**:
Mawasy Khanyounis wastewater reuse small-scale scheme is designed to target a number of 600 donums cultivated with Guava, Olive, Citrus and Palms with an irrigation amount of 3,000 cubic meters per day.
This project is funded by the IsDB Qatari Red Crescent (QRC) and implemented by QRC, with an amount of USD 600,000. The project design and EISA were completed in June 2016, while the construction started in November 2016 with an intended completion date in July 2017

**Status:** Completed
**Progress up to this reporting period:** The works have been completed and the project was handed over to the Ministry of Agriculture in July 2018. The operation of this scheme is pending as the temporary WWTP in Khanyounis is currently under rehabilitation

**7.4 North Gaza wastewater Recovery & reuse large-scale scheme**:

The North Gaza wastewater reuse large-scale scheme is one of the main components of North Gaza Emergency Sewage Treatment (NGEST) project.

The scheme includes the construction of a number of infiltration basins, recovery wells, ground tanks, pumping facilities and irrigation networks to utilize an average daily amount of 39,160 cubic meters of wastewater for irrigating an area of 15,000 donums of agricultural lands.

The Soil Aquifer Treatment (SAT) was adopted in the design of this scheme which includes the infiltration of the wastewater to be reused to the aquifer through infiltration basins, then recovering this wastewater through recovery wells.

Due to lack of fund the scheme was divided into stages:

**7.4.1 North Gaza wastewater recovery & reuse large-scale scheme - Stage (I):**

This stage includes two packages as per the following:

**Package (1):** The construction 15 recovery wells, 5 monitoring wells, 5 pumping stations, and one tank with a capacity of 4,000 m3.

**Package (2):** The Irrigation network for 5,000 donums of agricultural lands in Northern Gaza.

**Status:** Completed

Package (1): This package was funded by the WB; the construction had started in October 2016 and completed in December 2017, the completion certificate was issued to the contractor in May 2018, the total contracted value for this stage was USD 10,130,904.

Package (2): Fund unavailable, a redesign was conducted for the irrigation networks, in which the Irrigation network will be conducted in stage(II) for 10,000 donums instead of 5,000 donums.

**7.4.2 North Gaza wastewater recovery & reuse large-scale scheme - Stage (II):**

This stage includes two packages as per the following:

**Package (1):** the construction 14 recovery wells, 2 monitoring wells, 5 pumping stations, and one tank with a capacity of 4,000 m3. The estimated cost for this package is Euro 7,600,000.

**Package (2):** The Irrigation network for 10,000 donums of agricultural lands in Northern Gaza. This package will be divided into two lots each lot covers 5000 donums. The estimated cost for this package is Euro 12,500,000.

**Status:** Under preparation

**Progress up to this reporting period**: This package is funded by the AFD & GCF, the available fund covers the cost for package (1) and one lot of package (2). The design and the Tender documents for these package are under preparation; it is expected to start the procurement process in 2019.

**7.5 Re-use of treated wastewater for agricultural irrigation in Southern Gaza Strip (Rafah)**

**7.5.1 Capacity enhancement of the Rafah WWTP and Construction of Rafah post treatment plant for irrigation scheme – Lot (1)**

This project consists of three main components: the construction of 5 sand filters, 1 storage pond, main pumping station and the service building; in addition to the rehabilitation works of Rafah WWTP; and construction of the carrier line (4090 m) from the post treatment plant to the irrigation area.

The post treatment plant is designed with a production capacity of 3600 m3/d as post-treated wastewater to cover the irrigation of 165 donums of agricultural lands.

The project is funded by the Japanese Government and implemented by the Palestinian Economic Council for Development & Reconstruction (PECDAR). The design was completed in 2017, and the construction contract was awarded in June 2018, with a total amount of ILS 4,347,000

**Status:** Ongoing

**Progress Up to this reporting period:** 90% of the post treatment unit works have been completed, which represents 75% of the overall progress on the project's activities. The completion date of this phase is expected to be in March 2019.

### 7.5.2 Construction of Rafah post treatment plant – Lot (2)

The post treatment plant is designed with a production capacity of 3600 m3/d as post-treated wastewater to cover the irrigation of 200 donums of agricultural lands.

This project consists of following components: the construction of 6 sand filters, 1 storage pond, control electrical room and Pump room and construction of the carrier line (4700 m) from the post treatment plant to the irrigation area.

The project is funded by the EU and implemented by OXFAM. The design was completed in 2017, and the construction has started in October 2018, and intended to be completed in March 2019 with a total amount of EURO 787,529.

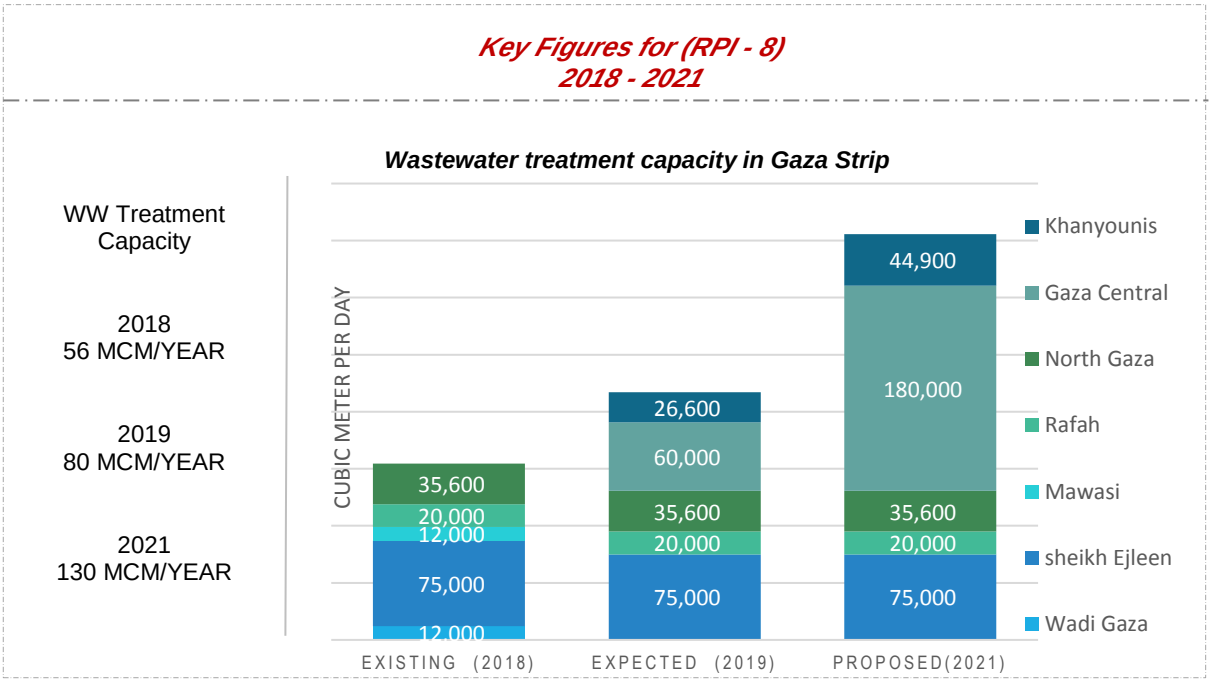
**Status:** Ongoing

**Progress Up to this reporting period:** The progress has reached 70%, 35% and10% in civil, mechanical and electrical works respectively, which represents 50% of the overall progress on the project's activities.

## RPI (8): Completion of the Regional Wastewater Treatment Plants (3 WWTPs)

This intervention includes the construction of three main wastewater treatment plants; for Northern Gaza, Gaza & Middle area and Khanyounis Governorates, the chart below shows the capacity of the existing and proposed treatment plants in Gaza strip:

***Key Figures for (RPI - 8)***
***2018 - 2021***



### 8.1 The North Gaza Wastewater Treatment Plant (NGWWTP)

The NGWWTP is one of the North Gaza Emergency Sewage Treatment Project (NGEST) components, funded by the WB, Located in the north-east of Gaza city, 200 meters away from the eastern boarders of the Gaza Strip. The NGWWTP is designed to receive a daily flow of 35,600 cubic meters of sewage generated from the communities of North Gaza governorate (Jabalia, Beit Lahia, Beit Hanoun and Um Nasser), the Needed power supply to operate the plant is around 2MW.

#### 8.1.1 The Construction of NGWWTP

The construction of the wastewater treatment plant was initiated in September 2010 with intended completion in January 2014. By February 2014 and after 95% of the works were completed, the contractor JV leader declared insolvency, So the construction was stopped and the contract was terminated in September 2014 with a total value of USD 36,374,336.

However, works completion contract has been signed with another joint venture comprised of the same local contractor and a new international contractor in November 2016, to complete the remaining works with a contract value of USD 4,928,656.67 and Euro 2,121,300.95, the works were completed in March 2018. The overall actual cost for the construction of NGWWTP was USD 44,116,283

**Status:** Completed

#### 8.1.2 The Operation & Maintenance of NGWWTP

WB and the AFD have provided support to increase the capacity for sustainable management of the NGWWTP through financing two years of The operation and maintenance.

The WWTP started operating in March 2018, O&M contract was signed in November 2016 with a contract value of USD 6,536,173.17. The contract effectiveness date was 1st March 2018.

**Status:** Ongoing

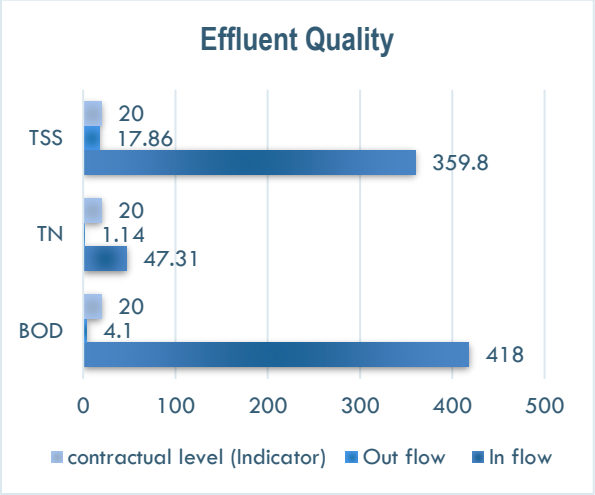
**Progress up to this reporting period**: the overall progress is 42%, in December 2018 the average wastewater received to the NGWWTP reached 34,000 m3/day.

***NGWWTP Operation***

***"The average daily flow received during December 2018 is 34,000 cubic meters"***

**Challenges:**

- The unreliable electric power supply from the grid (blackout of Electricity and Voltage fluctuation).
- Material entry restrictions from the Israeli side. Required materials (spare parts, repairing material, Lab reagents…. etc.) are still pending
- Security issues: The WWTP location is only 200 meters away from the Israeli borders where clashes take place near and inside the boundary of the WWTP.
- The provision of a sustainable management plan




Note: the average results above are based on the latest analysis performed in December 2018

### 8.2 The Gaza Central Wastewater Treatment Plant (GCWWTP)

The GCWWTP (261.3 donums) is located in the east of Al Bureij at the eastern entrance of Wadi Gaza, 240 m far from the eastern boarders of the Gaza Strip. The (GCWWTP)- phase I is designed based on "Activated Sludge" technology and on a daily flow of wastewater of 120,000 cubic meters produced in the whole

governorates of Gaza and Middle Area, while Phase II will cover a treatment capacity of 180,000 cubic meters per day. Due to the unavailability of fund, the first stage of phase I will be constructed.
Phase I is funded by the KFW, consists of six packages including: (1) the construction of Al Buriej WWTP & Wadi Gaza Central Pumping Station (CPS); (2) pressure Pipelines; (3) Gravity Pipelines; (4) Solar PV; (5) finished (access road to treatment plant; (6) existing sheikh Ejleen modification.

#### 8.2.1 The construction of GCWWTP- phase I –Stage I

The first stage can accommodate up to 60,000 cubic meters of the wastewater daily flow generated in Gaza City and the Middle Area. The Needed power supply to operate the plant is around (3-3.5 MW). For the effluent (60,000 cubic meters per day), it will be discharged to the sea.
This phase consists of six contract packages; (1) Design and construction of the central WWTP, (2) construction of the pressure line, (3) construction of the gravity line, (4) PV Plant, (5) the rehabilitation of the access roads, (6) the rehabilitation and upgrading of Al Shiekh Ejlien WWTP

**Status**: Ongoing
**Progress Up to this reporting Period:** The 1st package was awarded in June 2016 with a total contract value 38,958,076.80 €, The site was handed over in October 2016. Approximately 75% of the works have completed, the project is facing delay in some electrical works activities due to the material entry measures by the Israeli side.
The progress has reached 55%, 35%, 100% and 70% for the 2nd, 3rd, 5th and 6th packages respectively, while the 4th package is under tendering process. It is expected that GCWWTP plant will be completed and starts operating by the second half of the year 2019.

### 8.3 Khanyounis Wastewater Treatment Plant (KHWWTP)

KHWWTP (115 donums) is located in the eastern part of Khanyounis Governorate (in Al Fukhari village), 500 m far from the eastern boarders of the Gaza Strip. In addition to the land assigned for the treatment plant itself, there is another plot of land assigned for the effluent infiltration basins with an area of 97 donums in Al Fukhari/ Khuza'a area.
Khanyounis Wastewater Treatment Plant is designed based on "Activated Sludge" technology and on a daily flow of wastewater of 44,900 cubic meters produced in the whole governorate of Khanyounis, but due to the unavailability of fund, phase (I) will be constructed at first.

#### 8.3.1 The construction of KHWWTP (Phase I)

Phase I can accommodate up to a daily flow of wastewater of 26,600 cubic meters produced in Khanyounis city only and will mainly reach the plant through an existing pressure line coming from a pumping station located in Al Manara neighborhood east of Khanyounis city. This phase is funded by the Islamic development bank, comprises of Five Main Packages which are; (1) the wastewater treatment plant, (2) effluent pressure pipelines from WWTP to infiltration basins (3) infiltration basins, (4) the main electrical power supply line and (5) emergency pressure pipelines from infiltration basins to sea outfall.
The construction works of this phase has started in February 2017 with intended completion in October 2019, the total contracted value for the five packages is USD 31,085,154.

**Status:** Ongoing
**Progress Up to this reporting Period:** the completion of the packages has reached approximately 70%, 30%, 90%, 1%, 25% for the 1st, 2nd, 3rd, 4th and 5th packages respectively. Overall, as per the project schedule it is expected that the plant will be completed and starts operating by the second half of the year 2019, although It was found that a part of the inlet pipelines which will transfer the effluent to the WWTP from the existing main pumping station No.(PS8) located in the eastern part of Khanyounis needs to be constructed (1,600 m) in addition to the upgrading needed to the pumping stations No (2), (3) &(8) as PS2, PS3 will transfer the effluent from the Khanyounis to PS (8).

The estimated cost for these works is USD 2,000,000, the procurement process is expected to be launched in January 2019 and intended to be completed by June 2019.

## RPI (9): Improvement of Water Management in the Agricultural Sector.

The improvement of water management in the agricultural sector would have a positive impact on the amounts of irrigation water and would surely reduce the pressure on the aquifer of the Gaza Strip. This intervention would include conducting a strategic review for the agricultural sector within the Gaza Strip to increase the economic return generated per cubic meter of agricultural water.

**9.1 The integrated Nexus strategy for water, energy and agriculture in the Gaza strip.**

The study is will be conducted by PWA, as one of the main component of TAG-PCU (II), funded by the ADA, the estimated cost for the consultancy service is EURO 75,000.

**Status:** Planned/under preparation

**Progress Up to this reporting Period:** PWA has communicated with the Ministry of Agriculture (MoA) & the Palestinian Energy and Natural Resources Authority (PENRA) in Ramallah regarding the water energy agriculture nexus strategy to review the ToR from agricultural & energy perspectives, the TOR is expected to be finalized by February 2019.

# ANNEXES:

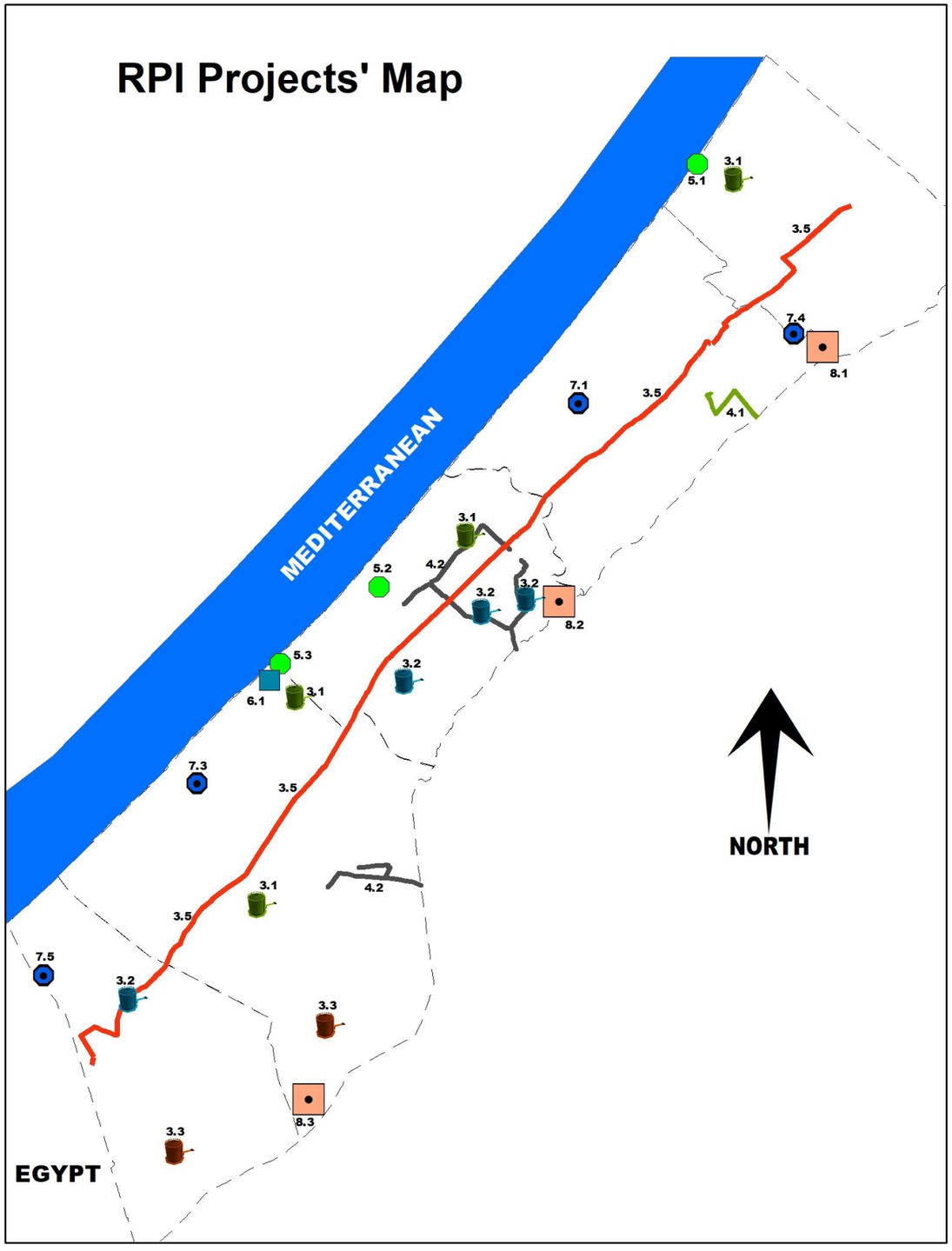
Annex (1): Rolling Program of Interventions Map

Annex (2): RPI Projects Summary Sheet

Annex (3): List of Figures illustrating the physical progress on the RPI projects

## Annex (1)

## Rolling Program of Interventions (RPI) Map




| The Legend | |
|---|---|
| **3** | **Upgrading the water distribution system in the Gaza Strip, the construction of the north-south carrier and the reduction of non-revenue water.** |
| 3.1 | The construction of four tanks and all associated supply & distribution pipelines/ pumping facilities (I) - Atatra, Al Nusairat, AL Berkah & Ma'an Tanks |
| 3.2 | The construction of four tanks and all associated supply & distribution pipelines/ pumping facilities (II) - Al Bureij, AL Maghazi, Deir al Balah and Rafah Tanks |
| 3.3 | 3 The construction of Al Fukhari & Al Shokah Tanks with all associated supply & distribution pipelines/ pumping facilities |
| 3.5 | The North –South Main Carrier project |
| 3.6 | The construction of AL-Amal & Al-Satter Water Tanks with associated “carrier Lines and pumping stations” in Khanyounis |
| **4** | **Enhancing levels of water imports from Israel to 4 times of the current amount (from 5 to 20 MCM per year)** |
| 4.1 | The upgrading and maintenance of Gaza - Mekorot water supply line connections. |
| 4.2 | Mekorot improvements works project |
| **5** | **Introduction of Short Term Low Volume (STLV) sea water desalination plants with a total capacity of 13 MCM per year** |
| 5.1 | Gaza STLV Seawater Desalination Plant |
| 5.2 | Middle Area STLV Seawater Desalination Plant |
| 5.3 | Southern STLV Seawater Desalination Plant |
| **6** | **Construction of Gaza Central Desalination Plant (GCDP)** |
| 6.1 | Construction of Gaza Central Desalination Plant (GCDP) |
| **7** | **Introduction of wastewater reuse schemes in small and large scales** |
| 7.1 | Sheikh Ejleen wastewater reuse small scale scheme |
| 7.3 | Mawasy Khanyounis wastewater reuse small-scale scheme |
| 7.4 | North Gaza wastewater Recovery & reuse large-scale scheme |
| 7.5 | Capacity enhancement of the Rafah WWTP and Construction of Rafah post treatment plant for irrigation scheme |
| **8** | **Completion of the Regional Wastewater Treatment Plants (3 WWTPs)** |
| 8.1 | The North Gaza Wastewater Treatment Plant (NGWWTP) |
| 8.2 | The Gaza Central Wastewater Treatment Plant (GCWWTP) |
| 8.3 | Khanyounis Wastewater Treatment Plant (KHWWTP) |

**Annex (2)**
**Rolling Program of Interventions**
**Projects Summary Sheet**

Date: December, 2018

| No. | Project | Project Type | Implementing Agency | Donor/ Financing Agency | Estimated Cost/ Contract Value | | Planned/ original Contracted | | | Actual | | | Project Status | Progress (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Amount | Currency | Start date | End date | Duration (In months) | Start date | End date | Duration (In months) | | |
| **1** | **Establishment of the Gaza program coordination unit (G-PCU)** | | | | | | | | | | | | | |
| 1.1 | "Technical Assistance to the Program Coordination Unit for Implementation of the Rolling program of Interventions for Additional Supply of Water for the Gaza Strip (TA-G-PCU)-Phase I" | Consultancy Service | PWA | ADA | 1,036,535 | EURO | Jan-13 | Dec-15 | 36 | Sep-13 | Dec-17 | 51 | Completed | 100% |
| 1.2 | "Technical Assistance to the Program Coordination Unit for Implementation of the Rolling program of Interventions for Additional Supply of Water for the Gaza Strip (TA-G-PCU)-Phase II" | Consultancy Service | PWA | ADA | 900,000 | EURO | Jan-18 | Dec-21 | 48 | Jan-18 | Dec-21 | 48 | Ongoing | 20% |
| **2** | **Introduction of an integrated water and public health monitoring program** | | | | | | | | | | | | | |
| 2.1 | The "Baseline Study on Water Quality and Public Health in the Gaza Strip"/ (TA-G-PCU)-Phase I" | Consultancy Service | PWA | ADA | 48,500 | EURO | Oct-14 | Jun-15 | 8 | Oct-14 | Jun-15 | 8 | Completed | 100% |
| 2.2 | The "Survey of Private and Public Brackish Desalination Plants in the Gaza Strip" | Consultancy Service | PWA | GIZ | 138,750 | ILS | Apr-15 | Jul-15 | 3 | Apr-15 | Jul-15 | 3 | Completed | 100% |
| 2.3 | The "Strategy for Establishment of a Cohesive and Integrated Water and Health Monitoring program for the Gaza Strip / (TA-G-PCU)-Phase I" | Consultancy Service | PWA | ADA | 19,800 | EURO | Feb-16 | Sep-16 | 7 | Feb-16 | Sep-16 | 7 | Completed | 100% |
| 2.4 | Sewage/Wastewater Master Plan for The Northern Governorate / (TA-G-PCU)-Phase I" | Consultancy Service | PWA | ADA | 6,726 | EURO | Oct-17 | Dec-17 | 2 | Oct-17 | Dec-17 | 2 | Completed | 100% |
| 2.5 | Developing the capacity of CMWU laboratory for water quality monitoring Equipping the lab with Kjeldahl Distillation Unit | Goods | PWA | ADA | 39,000 | ILS | Aug-17 | Oct-17 | 3 | Aug-17 | Oct-17 | 3 | Completed | 100% |
| 2.6 | Water related health promotion strategy for the RPI / (TA-G-PCU)-Phase I" | Consultancy Service | PWA | ADA | 7,850 | EURO | Aug-17 | Oct-17 | 3 | Aug-17 | Oct-17 | 3 | Completed | 100% |
| 2.7 | Gender Analysis for the Water Sector in the Gaza Strip / (TA-G-PCU)-Phase II" | Consultancy Service | PWA | ADA | 7,750 | EURO | Sep-18 | Dec-18 | 4 | Sep-18 | Jan-19 | 4.5 | ongoing | 90% |
| 2.8 | The development of a Water Safety Plan for the Gaza Strip Governorates/ (TA-G-PCU)-Phase II" | Consultancy Service | PWA | ADA | 45,000 | EURO | 00-20 | 00-20 | 6 | NA | NA | NA | Planned/Under preparation | 0% |
| **3** | **Upgrading the water distribution system in the Gaza Strip, the construction of the north-south carrier and the reduction of non-revenue water.** | | | | | | | | | | | | | |
| 3.1 | The construction of four tanks and all associated supply & distribution pipelines/ pumping facilities (I) - Atatra, Al Nusairat, AL Berkah & Ma'an Tanks | works | USAID | USAID | 17,667,222 | USD | Oct-15 | Aug-17 | 22 | Oct-15 | Oct-17 | 25 | Completed | 100% |
| 3.2 | The construction of four tanks and all associated supply & distribution pipelines/ pumping facilities (II) - Al Bureij, AL Maghazi, Deir al Balah and Rafah Tanks | works | USAID | USAID | 17,319,965 | USD | Dec-16 | Jul-18 | 20 | Dec-16 | Dec-18 | 26 | Completed | 100% |
| 3.3 | The construction of Al Fukhari & Al Shokah Tanks with all associated supply & distribution pipelines/ pumping facilities | works | Anera | USAID | 1,947,000 | USD | Sep-17 | Sep-18 | 13 | Sep-17 | Dec-19 | 16 | Completed | 100% |
| 3.4 | The construction of Al Nozha & Jabal Al Kashef Tanks with all associated supply & distribution pipelines/ pumping facilities. | works | USAID | USAID | 9,000,000 | USD | Sep-18 | Aug-20 | 24 | NA | NA | NA | Cancelled /US Fund | 0% |
| 3.5 | The North –South Main Carrier project | | | | | | | | | | | | | |
| | The consultancy service of the associated works to Gaza central desalination plant (GCDP) | Consultancy Service | PWA | WB | 2,290,480 | USD | Feb-16 | Aug-17 | 18 | Feb-16 | Mar-18 | 24 | Completed | 100% |
| | 3.5.1 CP (1): The South Main Carrier System - Rafah &Khanyounis | works | PWA | KFAED | 46,700,000 | USD | 00-19 | 00-21 | 24 | N/A | N/A | N/A | Under preparation | 0% |

**Annex (2)**
**Rolling Program of Interventions**
**Projects Summary Sheet**

Date: December, 2018

| No. | Project | Project Type | Implementing Agency | Donor/ Financing Agency | Estimated Cost/ Contract Value | | Planned/ original Contracted | | | Actual | | | Project Status | Progress (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Amount | Currency | Start date | End date | Duration (In months) | Start date | End date | Duration (In months) | | |
| | 3.5.2 CP (2): North Main Carrier System - Middle area, Gaza and Northern Gaza | works | PWA | N/A | 77,700,000 | USD | 00-19 | 00-22 | 36 | N/A | N/A | N/A | Under preparation | 0% |
| | 3.5.3 CP (3): Water Distribution Network Reconfiguration – Southern Area | works | PWA | N/A | 27,000,000 | USD | 00-19 | 00-21 | 24 | N/A | N/A | N/A | Under preparation | 0% |
| | 3.5.4 CP (4): Water Distribution Network Reconfiguration – Middle area, Gaza and Northern Gaza | works | PWA | N/A | 56,500,000 | USD | 00-19 | 00-21 | 24 | N/A | N/A | N/A | Under preparation | 0% |
| 3.6 | The Construction of AL-Amal & Al-Satter Water Tanks with associated "carrier Lines and pumping stations" in Khanyounis | works | CMWU | EU | 2,800,000 | USD | Jul-17 | Jan-19 | 18 | Jul-17 | Jan-19 | 18 | ongoing | 75% |
| **4** | **Enhancing levels of water imports from Israel to 4 times of the current amount** | | | | | | | | | | | | | |
| 4.1 | The upgrading and maintenance of Gaza - Mekorot water supply line connections. | works | PWA/MoG/ICRC | ICRC | 64,850 | USD | Nov-16 | Jan-17 | 3 | Nov-16 | Jan-17 | 3 | Completed | 100% |
| 4.2 | Mekorot improvements works project | | | | | | | | | | | | | |
| | 4.2.1 Additional Water Supply Network Improvement (AWSNI) – Middle area and Khanyounis Governorates | works | PWA | KFAED | 9,500,000 | USD | 00-19 | 00-20 | 15 | N/A | N/A | N/A | Under preparation | 0% |
| | 4.2.2 Additional Water Supply Network Improvement (AWSNI) – Gaza Governorate | works | PWA | N/A | 8,000,000 | USD | 00-19 | 00-20 | 15 | N/A | N/A | N/A | Under preparation | 0% |
| **5** | **Introduction of Short Term Low Volume (STLV) sea water desalination plants** | | | | | | | | | | | | | |
| 5.1 | Gaza STLV Seawater Desalination Plant - (Production capacity 3.7 MCM/ Year) | | | | | | | | | | | | | |
| | 5.1.1 The construction of Gaza STLV Seawater Desalination Plant | works | CMWU | IDB | 12,580,696 | USD | May-15 | Jan-18 | 30 | May-16 | Feb-19 | 44 | Ongoing | 52% |
| | 5.1.2 Gaza STLV Seawater Desalination Plant - Water Networks Re-routing Installations | works | CMWU | KFW | 500,000 | USD | Oct-15 | Jul-16 | 9 | Oct-15 | Jul-16 | 9 | completed | 100% |
| 5.2 | Middle Area STLV Seawater Desalination Plant-(Production capacity 2.2 MCM/Year) | | | | | | | | | | | | | |
| | 5.2.1 Extension of Existing Deir al Balah Sea Water Desalination Plant –(Production capacity 0.73 MCM/Year) | works | PWA/CMWU | IDB | 2,000,000 | USD | 00-13 | 00-14 | 12 | 00-13 | 00-14 | 12 | Completed | 100% |
| | 5.2.2 Middle Area STLV Seawater Desalination Plant-(Production capacity 1.25 MCM/Year) | works | USAID | USAID | 17,335,000 | USD | Nov-16 | Jun-18 | 20 | Nov-16 | Dec-18 | 26 | ongoing | 96% |
| | 5.2.3 The Rehabilitation and Maintenance of the Middle Area STLV Seawater Desalination (0.22 MCM/Year). | works | PWA | ADA | 238,500 | EURO | Jan-18 | May-18 | 5 | Jan-18 | Jan-19 | 12 | ongoing | 90% |
| 5.3 | Southern STLV Seawater Desalination Plant - (Production capacity 7.3 MCM/Year) | | | | | | | | | | | | | |
| | 5.3.1 The Construction of Southern STLV Seawater Desalination Plant – Phase I (Production capacity 2.2 MCM/Year) | works | UNICEF | EU | 10,000,000 | EURO | Sep-12 | Sep-15 | 37 | Feb-14 | Mar-17 | 38 | Completed | 100% |
| | 5.3.2 The Expansion of Southern STLV Seawater Desalination Plant – Phase II (Production capacity 5.1 MCM/Year) | works | UNICEF | EU | 20,000,000 | EURO | Dec-18 | Nov-21 | 36 | N/A | N/A | N/A | Under preparation | 0% |
| **6** | **Construction of Gaza Central Desalination Plant (GCDP)** | | | | | | | | | | | | | |

**Annex (2)**
**Rolling Program of Interventions**
**Projects Summary Sheet**

Date: December, 2018

| No. | Project | Project Type | Implementing Agency | Donor/ Financing Agency | Estimated Cost/ Contract Value | | Planned/ original Contracted | | | Actual | | | Project Status | Progress (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Amount | Currency | Start date | End date | Duration (In months) | Start date | End date | Duration (In months) | | |
| 6.1 | Construction of Gaza Central Desalination Plant (GCDP) and associated power plant & facilities | works | PWA | N/A | 302,000,000 | EURO | 00-19 | 00-21 | 36 | N/A | N/A | N/A | Under preparation | 0% |
| **7** | **Introduction of wastewater reuse schemes in small and large scales** | | | | | | | | | | | | | |
| 7.1 | Sheikh Ejleen wastewater reuse small scale scheme | works | PWA | ADA | 210,000 | Euro | Jul-12 | Feb-13 | 8 | Jul-12 | Jun-13 | 12 | Completed | 100% |
| 7.2 | Feasibility Study for Wastewater Reuse at Southern Part of Gaza Strip | Consultancy Service | PWA | ADA | 32,800 | Euro | Sep-15 | Feb-16 | 5 | Sep-15 | Feb-16 | 5 | Completed | 100% |
| 7.3 | Mawasy Khanyounes wastewater reuse small-scale scheme | works | QRC | IDB& QRC | 600,000 | USD | Nov-16 | Jul-17 | 8 | Nov-16 | Jul-18 | 20 | Completed | 100% |
| 7.4 | North Gaza wastewater Recovery & reuse large-scale scheme | | | | | | | | | | | | | |
| | 7.4.1 North Gaza wastewater recovery & reuse large-scale scheme - Stage (I) -Package (1) | works | PWA | WB | 10,130,904 | USD | Oct-16 | Dec-17 | 14 | Oct-16 | May-18 | 19 | completed | 100% |
| | 7.4.2 North Gaza wastewater recovery & reuse large-scale scheme - Stage (II)- Package (1) | works | PWA | AFD & GCF | 7,600,000 | EURO | NA | NA | NA | NA | NA | NA | Under preparation | 0% |
| | 7.4.2 North Gaza wastewater recovery & reuse large-scale scheme - Stage (II)- Package (2) | works | PWA | AFD & GCF | 12,500,000 | EURO | NA | NA | NA | NA | NA | NA | Under preparation | 0% |
| 7.5 | Re-use of treated wastewater for agricultural irrigation in Southern Gaza Strip (Rafah) | | | | | | | | | | | | | |
| | 7.5 .1 Capacity enhancement of the Rafah WWTP and Construction of Rafah post treatment plant for irrigation scheme - Lot (1) | works | PECDAR | Japanese Government | 4,347,000 | ILS | Jun-18 | Mar-19 | 9 | Jun-18 | Mar-19 | 9 | ongoing | 75% |
| | 7.5.2 Construction of Rafah post treatment plant – Lot (2) | works | OXFAM | EU | 787,529 | EURO | Oct-19 | Mar-19 | 6 | Oct-19 | Mar-19 | 6 | ongoing | 50% |
| **8** | **Completion of the Regional Wastewater Treatment Plants (3 WWTPs)** | | | | | | | | | | | | | |
| 8.1 | The North Gaza Wastewater Treatment Plant (NGWWTP) | | | | | | | | | | | | | |
| | 8.1.1 The Construction of NGWWTP (construction contract & works completion Contract ) | Works | PWA | WB /AFD | 44,116,283 | USD | Sep-10 | Jan-14 | 40 | Sep-10 | Mar-18 | 103 | completed | 100% |
| | 8.1.2 The Operation & Maintenance of NGWWTP | Works | PWA | WB /AFD | 6,536,173 | USD | Mar-18 | Feb-20 | 24 | Mar-18 | Feb-20 | 24 | ongoing | 42% |
| 8.2 | The Gaza Central Wastewater Treatment Plant (GCWWTP) | | | | | | | | | | | | | |
| | 8.2.1 The construction of GCWWTP- phase I – Stage I | | | | | | | | | | | | | |
| | Contract 1 Design and construction of the central WWTP (60000 cups daily) | Works | CMWU | KFW | 38,958,077 | EURO | Nov-16 | Jun-19 | 30 | Nov-16 | Jun-19 | 30 | ongoing | 75% |
| | Contract 2 construction of the pressure line | Works | CMWU | KFW | 2,987,654 | EURO | Feb-18 | May-19 | 15 | Feb-18 | May-19 | 15 | Ongoing | 55% |
| | Contract 3 construction of the gravity line | Works | CMWU | KFW | 4,761,611 | EURO | Jan-18 | Jun-19 | 18 | Jan-18 | Jun-19 | 18 | Ongoing | 35% |
| | Contract 4 PV Plant | Works | CMWU | KFW | N/A | N/A | Nov-19 | Jul-19 | 9 | N/A | N/A | N/A | Under preparation | 0% |
| | Contract 5 the rehabilitation of the access roads | Works | CMWU | KFW | 1,087,663 | EURO | Jun-15 | Feb-16 | 8 | Jun-15 | Feb-16 | 8 | Completed | 100% |
| | Contract 6 the rehabilitation and upgrading of Al Shiekh Ejlien WWTP | Works | CMWU | KFW | 922,200 | EURO | Apr-18 | Mar-19 | 12 | Apr-18 | Mar-19 | 12 | Ongoing | 70% |
| 8.3 | Khanyounis Wastewater Treatment Plant (KHWWTP)- treatment capacity: 44,900 CM/day) | Works | CMWU | KFW | | | | | | | | | | |

**Annex (2)**
**Rolling Program of Interventions**
**Projects Summary Sheet**

Date: December, 2018

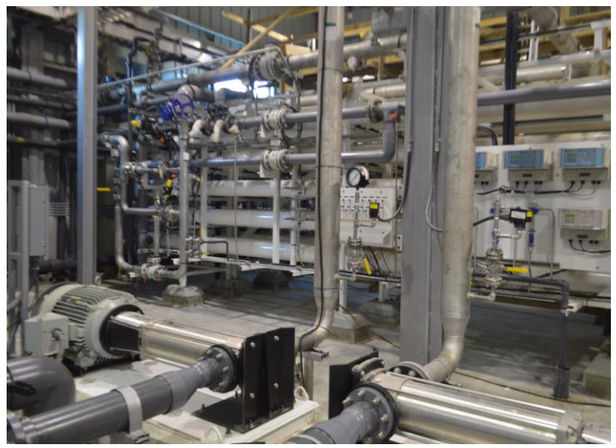
| No. | Project | Project Type | Implementing Agency | Donor/ Financing Agency | Estimated Cost/ Contract Value | | Planned/ original Contracted | | | Actual | | | Project Status | Progress (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Amount | Currency | Start date | End date | Duration (In months) | Start date | End date | Duration (In months) | | |
| | 8.3.1 The construction of KHWWTP (Phase I) 8.2.1 (treatment capacity: 26,600 CM/day) - (Package 1,2,3) | | | | | | | | | | | | | |
| | Contract Package 1 the construction of WWTP with a capacity of 26,600 cubic meters per day | Works | UNDP/CMWU | IDB | 20,000,000 | USD | Feb-17 | Oct-19 | 32 | Feb-17 | Apr-20 | 37 | Ongoing | 70% |
| | Contract Package 2 the carrier line from WWTP to The Infiltration basins | Works | UNDP/CMWU | IDB | 2,100,000 | USD | Feb-17 | Aug-18 | 18 | Feb-17 | Jan-19 | 24 | Ongoing | 30% |
| | Contract Package 3 the construction of the infiltration basins | Works | UNDP/CMWU | IDB | 5,636,000 | USD | Feb-17 | Feb-18 | 12 | Jun-17 | Dec-18 | 18 | Ongoing | 90% |
| | Contract Package 4 Main Electrical Power Supply Line | Works | UNDP/CMWU | IDB | 841,250 | USD | Oct-18 | Apr-19 | 6 | N/A | N/A | N/A | Ongoing | 1% |
| | Contract Package 5 the carrier line from WWTP to The Infiltration basins | Works | UNDP/CMWU | IDB | 4,607,904 | USD | Feb-17 | Jan-19 | 20 | 00-18 | Jul-19 | 20 | Ongoing | 25% |
| **9** | **Improvement of Water Management in the Agricultural Sector.** | | | | | | | | | | | | | |
| 9.1 | The integrated Nexus strategy for water, energy and agriculture in the Gaza strip | Consultancy services | PWA | ADA | 75,000 | EURO | N/A | N/A | N/A | N/A | N/A | N/A | Planned/Under preparation | 0% |

**Annex (3)**

**List of Figures illustrating the physical progress on the RPI projects**

| **RPI (3): Upgrading the water distribution system in the Gaza Strip, the construction of the north-south carrier and the reduction of non-revenue water** | | | |
|---|---|---|---|
| 3.1 The construction of four tanks and all associated supply & distribution pipelines/ pumping facilities (I) - Atatra, Al Nusairat, AL Berkah & Ma'an Tanks |  |  |  |
| | Figure 1: Al Attatra Tank | Figure 2: Al Nussirate Tank | Figure 3: Al Berka Tank |
| 3.2 The construction of four tanks and all associated supply & distribution pipelines/ pumping facilities (II) - Al Bureij, AL Maghazi, Deir al Balah and Rafah Tanks |  |  |  |
| | Figure 4: Al Buriej Tank | Figure 5: Al Maghazi Tank | Figure 6: Dier Al Balah Tank |

| RPI (3): Upgrading the water distribution system in the Gaza Strip, the construction of the north-south carrier and the reduction of non-revenue water – Cont. | | | |
|---|---|---|---|
| 3.2 The construction of four tanks and all associated supply & distribution pipelines/ pumping facilities (II) - Rafah Tanks<br><br>3.3 The construction of Al Fukhari & Al Shokah Tanks with all associated supply & distribution pipelines/ pumping facilities |  |  |  |
| | Figure 7: Rafah Water Tank | Figure 8: Al Fukhari Water Tank | Figure 9: Al Shokah Water Tank |
| 3.6 The construction of AL-Amal & Al-Satter Water Tanks with associated “carrier Lines and pumping stations” in Khanyounis |  |  | |
| | Figure 10: Al Amal Water Tank | Figure 11: Al Sater Water Tank | |

| RPI (5): Introduction of Short Term Low Volume (STLV) seawater desalination plants with a total capacity of 13 MCM per year | | | |
|---|---|---|---|
| 5.1 Gaza STLV Seawater Desalination Plant - (Production capacity 3.7 MCM/ Year) |  |  |  |
| | Figure 12: Gaza Desalination Plant - RO Building | Figure 13: Gaza Desalination Plant - RO unit | Figure 14: Gaza Desalination Plant-Admin Building |
| 5.2 Middle Area STLV Seawater Desalination Plant-(Production capacity 2.2 MCM/Year) |  |  |  |
| | Figure 15: Dier Al Balah Expansion Unit | Figure 16: Dier Al Balah Expansion Unit- RO Units | Figure 17: Dier Al Balah- Rehabilitation & Maintainance |

| RPI (5): Introduction of Short Term Low Volume (STLV) seawater desalination plants with a total capacity of 13 MCM per year | | | |
|---|---|---|---|
| 5.3 Southern STLV Seawater Desalination Plant - (Production capacity 7.3 MCM/Year) |  |  | |
| | Figure 18: Southern Desalination Plant- the Main RO Building | Figure 19: Southern Desalination Plant- RO Units | |

| RPI (6): Construction of Gaza Central Desalination Plant (GCDP) with a total capacity of 55 MCM per year | | | |
|---|---|---|---|
| 6.1 Construction of Gaza Central Desalination Plant (GCDP) with a total capacity of 55 MCM per year: |  |  | |
| | Figure 20: Allocated Site of the GCDP | Figure 1: Allocated Site for the Solar Power Plant of GCDP | |
| **RPI (7): Introduction of wastewater reuse schemes in small and large scales** | | | |
| Wastewater reuse and Recovery schemes in Khanyounis Rafah & northern Gaza |  |  | |
| | Figure 2: Al Mawasi Post Treatment Reuse Scheme | Figure 23: Rafah Post Treatment unit | |

**RPI (8): Completion of the Regional Wastewater Treatment Plants (3 WWTPs):**

8.1 The North Gaza Wastewater Treatment Plant (NGWWTP)



Figure 24 :The NGWWTP - 2018





Figure 25,26 : Beit Lahia basin after the operation of NGWWTP – December 2018

RPI (8): Completion of the Regional Wastewater Treatment Plants (3 WWTPs):

8.2 The Gaza Central Wastewater Treatment Plant (NGWWTP)



Figure 27 :The CGWWTP - 2018

**RPI (8): Completion of the Regional Wastewater Treatment Plants (3 WWTPs):**

8.3 Khanyounis Wastewater Treatment Plant (NGWWTP)









Figures 28:The construction of KHWWTP