



# Water Services in Gaza Strip Gaps and area needs



# Water Crises in Gaza Strip

## Quantity.

- The average water consumption is around 90 l/c/d.
- Intermittent water supply.
- Around 10% of the citizens receive water from private or agricultural wells.
- Low system efficiency.
- low working pressure

# Water Crises in Gaza Strip

- Quality
  - **65%** of water wells are contaminated with nitrates.
  - **57%** of water wells are contaminated with chloride.
  - **85%** water wells are contaminated with both nitrates and chlorides
  - Water tests showed some wells with high values of floride.

## Average EC, TDS, NO<sub>3</sub> and Cl in Areas in Gaza Strip in 2008

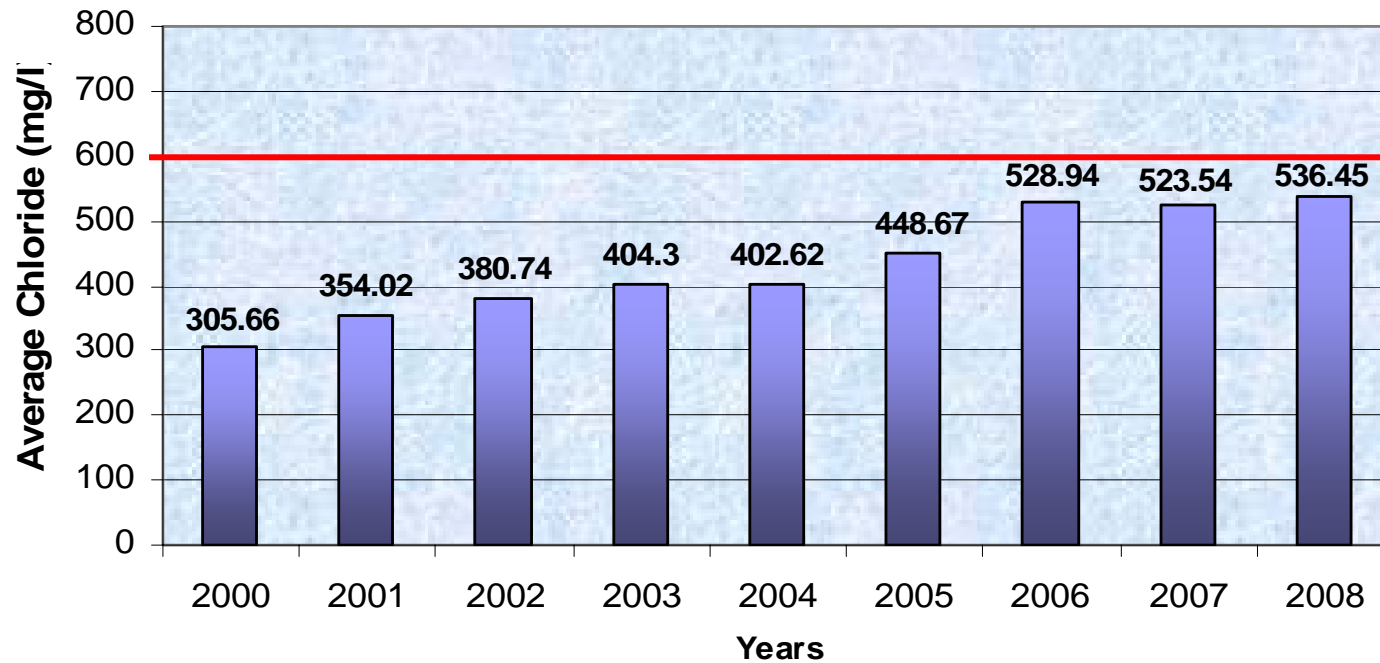
Year	2008					
Areas	No. of wells	Total Flow (m <sup>3</sup> /h)	E.C (mg/l)	TDS (mg/l)	No <sub>3</sub> (mg/l)	Cl (mg/l)
<i>Rafah</i>	17	1505	1932.34	1196.13	113.62	428.59
<i>Khan Younis</i>	32	2470	2570.31	1602.7	168	637.43
<i>Middle</i>	39	2308	2412.98	1494.61	69.17	634.26
<i>Gaza</i>	44	4562	2709.51	1695.5	139.24	772.35
<i>North</i>	32	3904	1136.17	720.37	96.53	180.64
<b>Total</b>	<b>164</b>	<b>14749</b>				

## Average EC, TDS, NO<sub>3</sub> and Cl in water wells in all Gaza Strip in 2008

Average (E.C) in Gaza strip (mg/l)	Average (TDS) in )Gaza strip (mg/l	Average (NO <sub>3</sub> ) in Gaza strip (mg/l)	Average (Cl) in Gaza strip (mg/l)
2144.04	1339.45	119.17	536.45

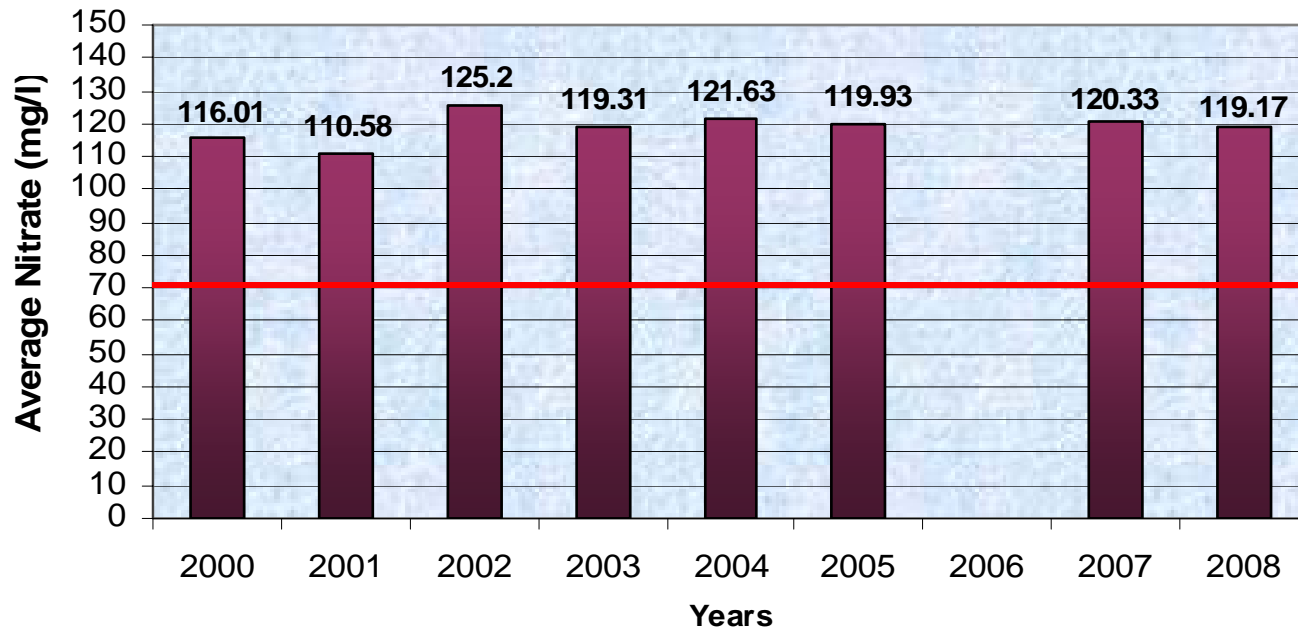
## Chart Show average Chloride in Gaza Strip from 2000 - 2008

Average Chloride in Gaza Strip (2000-2008)



## Chart Show average Nitrate in Gaza Strip from 2000 - 2008

Average Nitrate in Gaza Strip (2000-2008)



## Water sector gaps and restrains

- Financing of developmental projects.
- Closure and political situation instability.
- Public awareness for the recovery cost of water service and water conservation.
- Capacity building and institutional set-up and reforms of the water sector.
- Deterioration of the resources.

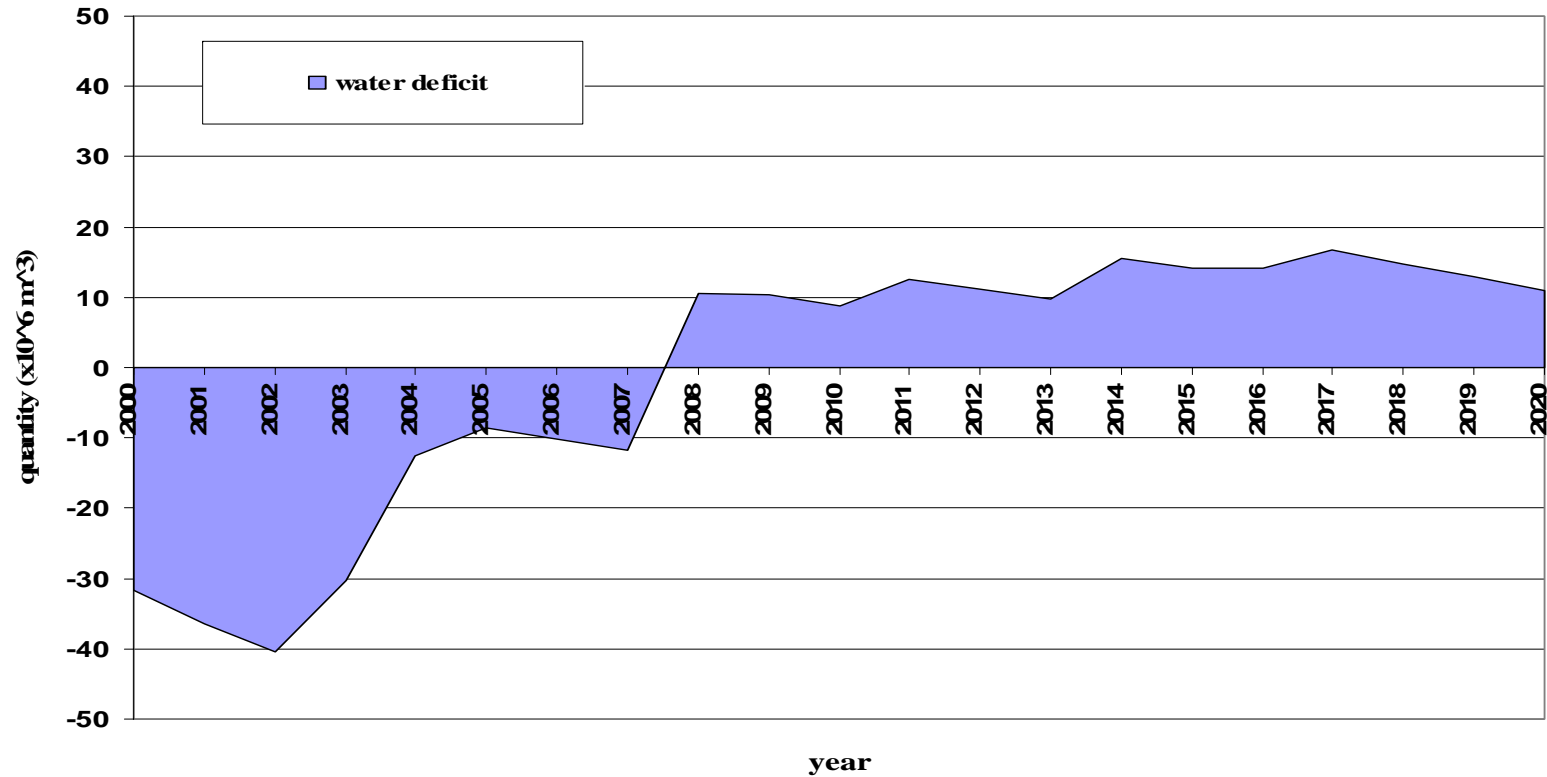
## Water sector Needs

- **Quantity**
- Need to improve overall system efficiency and unaccounted for water.
- Need for more water resources with good quality
- Need for construction of new water and wastewater networks
- Need to improve the distribution system by reservoirs, boosters, system software.

## Water sector Needs

- Quantity
- Need for wastewater treatment and reuse facilities for agriculture use.
- Need for implementation of public awareness program for water conservation
- Need for an accurate hydraulic model with accurate maps for all water and wastewater networks in all regions.

# Water Balance with Reuse & Desalination



## Water sector Needs

- Quality
- Large scale sea water desalination plants.
- Construction of the main wastewater treatment plants with good treatment.
- Construction of the water and wastewater quality assurance labs.
- Denitrification units for wells.
- Disinfection materials and equipments

## Water sector Needs

- Revenue improvement
- Illegal connections fighting (legislative, campaigns).
- Improvement of the collection efficiency.
- Improvement of the Customers services program by software, hardware, training and services centers.
- Replacement of 50,000 water meters of different sizes.

# Areas Needs

- Northern Area
- Waste water networks.
- Denitrification units for water wells
- Water net works
- Public education in the agriculture and reuse aspects.
- Maintenance and rehabilitation of pumping stations, wells, and BLWWTP.

- **Gaza**
- Upgrading of GWWTP to treat up to 75000 cubic meters.
- Sea water desalination unit.
- Waste water networks.
- Waste water pumping station
- Maintenance and rehabilitation of water wells, sewage pumping stations

- Gaza
- Public education campaigns for water conservation.
- Illegal connections campaigns.
- New customers services program.
- Water lab
- Vehicles

- Middle Area
- Sewage collection networks.
- Rehabilitation of Wadi Gaza.
- Vehicles.
- Water networks
- Waste water treatment.
- Public awareness campaigns for water conservation.

- Khan Younes Area
- Sewage collection networks.
- Vehicles.
- Water networks
- Waste water treatment.
- Public awareness campaigns for water conservation.

- Khan Younes Area
- Illegal connections campaigns.
- Water meters.

- **Rafah**
- Sewage collection networks.
- Vehicles.
- Water networks
- Waste water treatment.
- Public awareness campaigns for water conservation.

- Rafah
- Illegal connections campaigns.
- Water meters.