



جامعة القدس
Al-Quds University



سلطة المياه الفلسطينية
Palestinian Water Authority



PROTECTION ZONE

WADE AL-QILT

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Introduction :

- Limited water resources .
- Ground water is an important source of water for industry , agriculture and drinking water .
- groundwater moves slowly through the ground and so the impact of human activities lasts for a relatively long time .
- Agriculture and other human activities are posing risks to ground water quality .



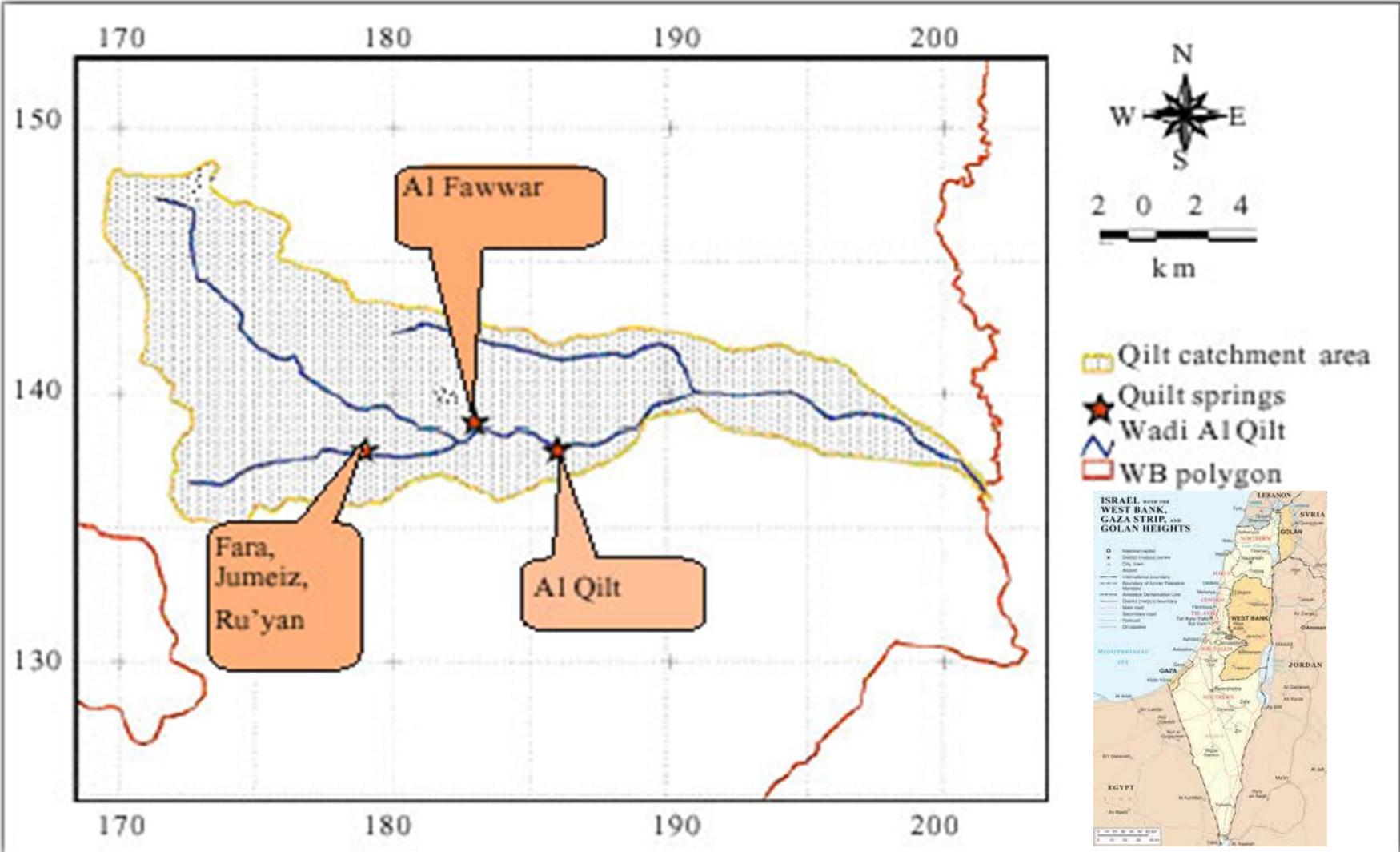
These and other factors that needs to protect groundwater sources

• The scarcity of the water resources:

- due to arid to semi arid climate
- over exploitation
- mismanagement and their pollution
- resources are shared with Israel
- high population growth
- the lack of sewer systems, which results in the infiltration of wastewater into groundwater resources causes water resources pollution.



Study Area :



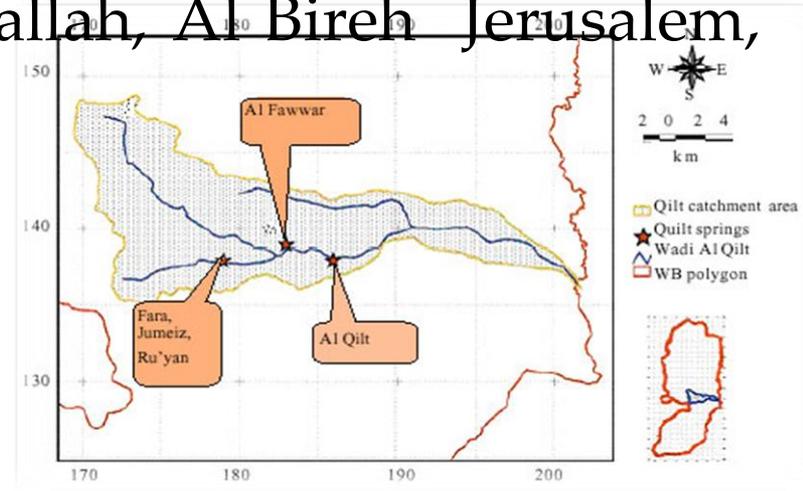
(PWA,2012)

Study Area :

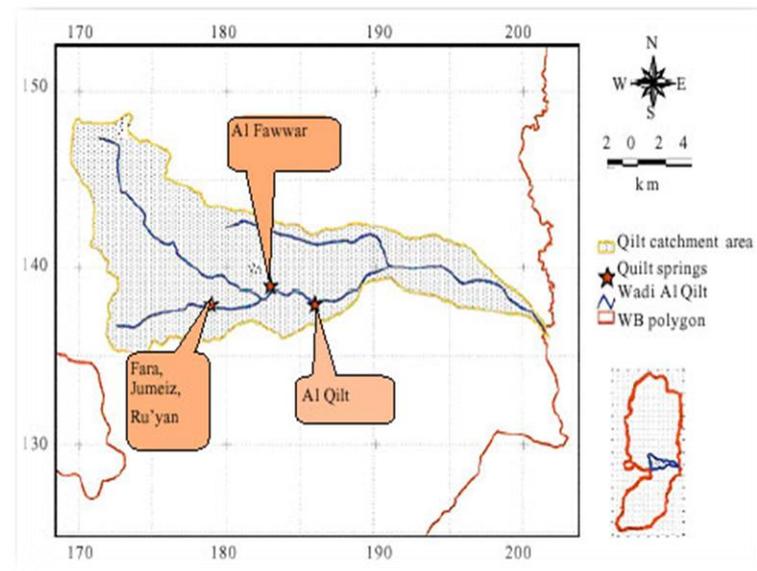
•Wadi Al Qilt is located in the eastern part of the West Bank .
The study area includes part of Ramallah, Al Bireh Jerusalem, and part of Jericho .

•three different landscape units:

1. the Higher Hills
2. the Eastern Slopes
3. the western Jordan Valley east to the Jordan River with an area of 174.7 km² .



The importance of Wadi Al Qilt is that part of its discharge (after the combination of discharge of all springs: Ein Fara, Ein Jumeiz, Ein Ru'yan, Ein Al Fawwar and Ein Al Qilt) is used to fed JWTP.



- So, it was necessary to study the water quality of the springs as their flow ends up for human and other purposes after certain treatment
- Wadi Qilt is fed from three main springs:
 1. Ein Fara
 2. Ein Fawwar
 3. Ras Al-Qilt

Source of pollution :



Wastewater in wade mukhmas .



Possible source of pollution from both
Israeli settlement and Palestinian build
...

The risk of contamination of groundwater depends on three elements:

- ✓ The **hazard** afforded by a potentially polluting activity .
- ✓ The **vulnerability** of groundwater to contamination .
- ✓ The potential **consequences** of a contamination event.

Interim Measures for the protection of groundwater should include:

- ❖ Delineation of source protection areas around significant groundwater supply sources, using the best practicable method .
- ❖ Vulnerability mapping around significant groundwater supply sources, so that source protection zones can be delineated.
- ❖ Delineation of Resource Protection Areas, using the available aquifer maps .
- ❖ Delineation of extremely vulnerable areas.
- ❖ Evaluation of vulnerability for any given site proposed for a potentially polluting activity, based on site investigation data supplied by the developer.
- ❖ Plans to undertake the remaining elements of a comprehensive groundwater protection scheme.

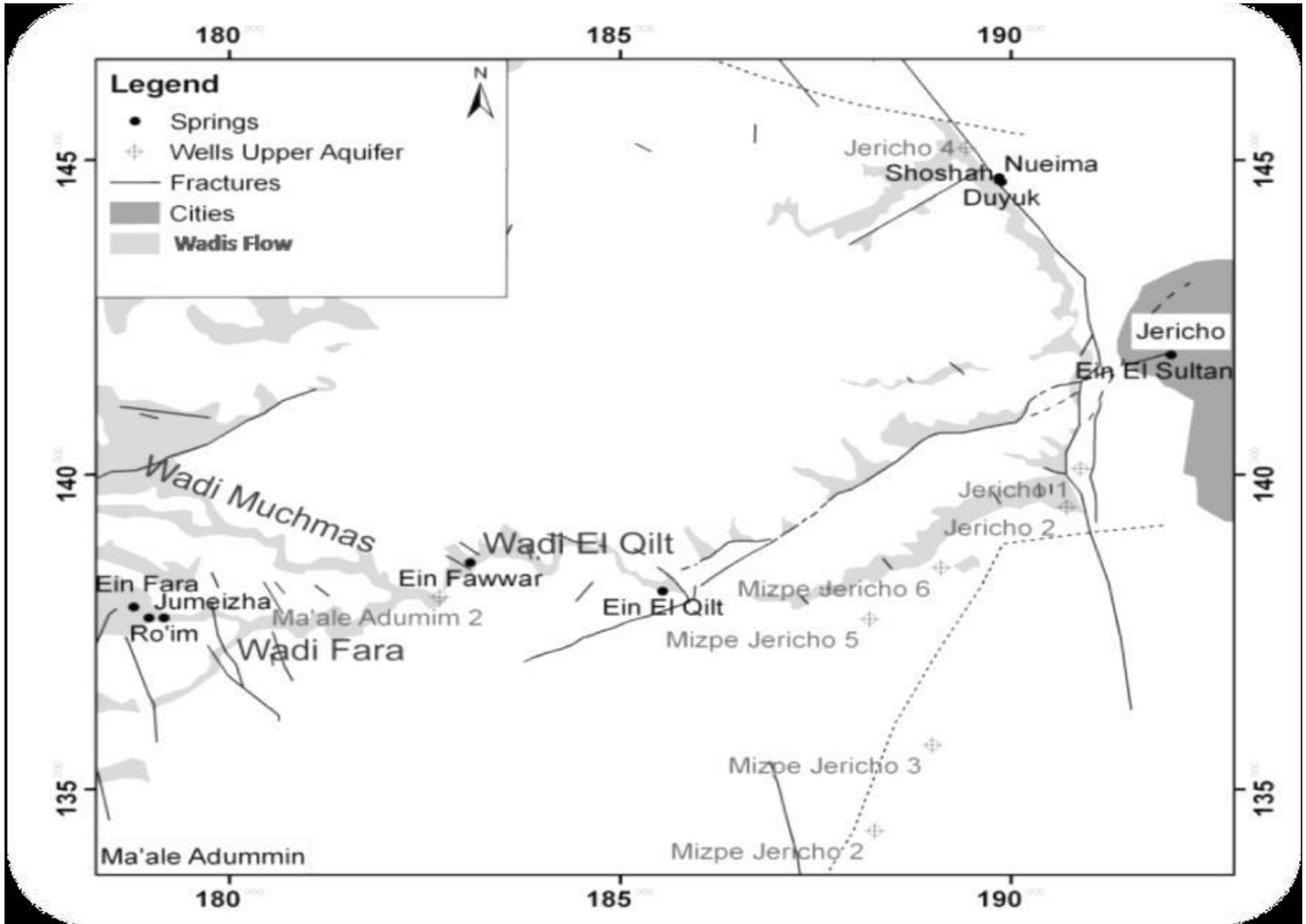
The working mechanism :

- The major scope of the work is to create a protection zone map to the various water sources in the study area. This can be achieved by identifying the water resources and the contamination sources and studying on the hydrogeology of each water resources with a focus on their vulnerability to pollution.
- In the second phase we intend to update the vulnerability map by using some software like protection distance (PD) method, and GIS software.

Summary :

- Protection of the water resources is part of the water supply concept. The human activities on the recharge area increase the vulnerability to contamination of the water resources and the wells and springs that are feeding from these resources.
- Wade ALQuilt very important source of ground water .
- Most of the population lives in the high mountain area on the outcrops of the limestone-dolomite aquifer .

- Agricultural activities occur in the eastern part of the study area in the Jericho city and in the nearby Palestinian and Israeli settlements.
- Delineation of source water protection area is based on the source of water supply .
- The delineation method selection varies based on hydrogeologic setting .
- The implementation of protection zones is effectively supported if the stakeholders involved collaboratively develop management plans that define their delineation and the activities allowed within zones, and that document monitoring procedures, which corrective actions should be taken both during normal and during incident conditions, and responsibilities, lines of communication as well as documentation procedures.



A black and white photograph showing a hand-drawn message. The words "Thank you" are written in a cursive, handwritten style on a white surface. A grey marker is positioned at the end of the word "you", with its tip touching the final stroke. The marker is angled upwards and to the right. The background is plain white.