

THE ACCESS TO WATER IN THE PALESTINIAN TERRITORIES : A STUDY OF THE YA'BAD AREA

Edito	p. 1
I. QUANTITY OF WATER AVAILABLE	p. 2
a. Low access to water in the Ya'bad area	
b. Consequences on water consumption	
II. WATER QUALITY AND HEALTH ISSUES	p. 3
a. Low water quality	
b. Consequences on health	
III. SOCIO-ECONOMIC CONSEQUENCES	p. 4
a. Agriculture	
b. Income issues	
IV. RECOMMENDATIONS	p. 6



EDITO

A land deprived of its water

Renewable resources monopolized more than 83 % by Israel since the occupation of the territories in 1967, infrastructures suffering from lack of extension and maintenance, the non-respect of quotas set by the Oslo Accords of 1995 ; Palestine faces a lack of water that sanctions its development and threatens its population. With the beginning of the Second Intifada in September 2000, the water resources of one of the world's driest regions have become weapons of combat. Water cuts, pipe-works destroyed, bullet-ridden cisterns, water is the Number1 target of the Israeli army.

Restrictions on the drilling and upkeep of wells, decaying water networks, up to 50 % of the system subject to leaks, the limited capacities are poorly exploited. Without a police, the Palestinian Water Authority (PWA) established by the accords of Oslo 2 is incapable of controlling quantity and quality. Municipalities, confronted on their part by a population whose unemployment rate has increased tenfold since the closing off of the territories in 2000, are unable to manage a network cut off from its resources. The only answer to this situation are cistern-trucks. The majority of this fleet is in the private sector and price is determined by demand and quality is a function of profit. Lacking resource sites and sufficient controls; some are supplied by illegal wells of doubtful quality. Added to this sanitary risk is the absence of evacuation systems and the infiltration of domestic waste waters into the ground water, a major cause of pollution.

Deprived of work, many place their hopes on a return to the land. Lands that in their majority are in the possession of large property-owners ; lacking irrigation systems, they are barely productive. In some cases, contaminated lands. Cut up, confiscated, access forbidden due to extension of the settlements, expansion of security zones, construction of the "Security Wall". Reduced to autarchy for almost four years now, the economy can only support subsistence production. Without water, produce crops are inexistent, flocks become smaller and smaller.

After Hebron, the West Bank region the most severely hit by lack of water is Jenin, which is facing a critical situation. At the southwest corner of a refugee camp devastated by an Israeli incursion in 2002, the rural zone of Ya'bad (population 25 382) survives on one-third of the water consumption level recommended by the World Health Organization.

Liz Sime
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I. QUANTITY OF WATER AVAILABLE

a. Low access to water in the Ya'bad area

The Ya'bad area is composed of five communities: Ya'bad, Kfeiret, Al-Khiljan, Burqin and Barta'a. The total population is estimated at 25,382. Since its occupation of the West Bank and Gaza Strip in June 1967, Israel has imposed a strict set of military orders in the Palestinian Territories that have kept Palestinian water resources under Israeli control and forbidden the unlicensed construction of new Palestinian water infrastructures (wells, canalizations...)

In the West Bank, the only water source available for the Palestinians is the mountain aquifer system, which is divided into three aquifer systems: the Northeastern aquifer, the Eastern aquifer and the Western aquifer. Yet, the Palestinians cannot fully benefit from this aquifer; indeed, according to the Oslo II Accords, the three parts of the mountain aquifer are shared in the following proportions:

Aquifer Systems	Yields (in mmc*)	Palestinian Share	Israeli Share
Western Aquifer	362	6 %	94 %
Northeastern Aquifer	145	29 %	71 %
Eastern Aquifer	172	57,4 %	42,6 %
Total	679	24 %	76 %

This table points out that the Palestinians have only access to 24% of their only water source in the West Bank, which has serious consequences on water distribution and consumption in the Ya'bad area.

* mmc: million cubic meters.

** l/c/d: This figure is obtained by adding the average daily consumption per capita of network water, of water from cisterns and of tanked water in Ya'bad. The figures for Burqin and Kfeiret are obtained through the same way.

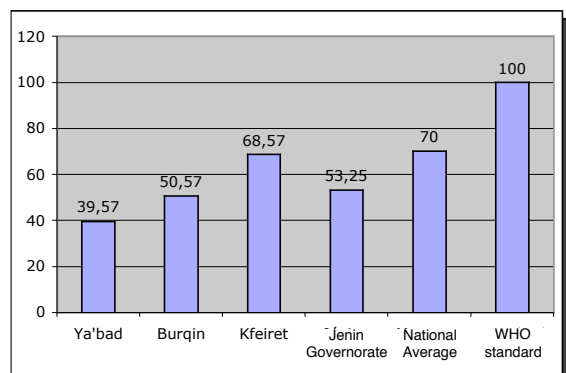
b. Consequences on water consumption

In the Ya'bad area, there are three sources of water supply:

- ✓ Public water network tapping municipal or local wells, or connected to the Israeli Water Company.
- ✓ Harvested rainwater in cisterns.
- ✓ Purchase of tanked water.

Ya'bad, Kfeiret and Barta'a depend on tapping the Western aquifer and Burqin, the Northeastern aquifer; these four villages also rely on cisterns and tanked water. Al-Khiljan is the only village of the area that does not get water through tapping underground aquifers; thus, it depends only on rainwater cisterns and tanked water.

The total daily water consumption per capita of the Ya'bad region is very low:



This table points out a total daily water consumption per capita, in the Ya'bad Cluster, that ranges between 39,57 l/c/d** and 68,57 l/c/d. This level of consumption is lower than the national average water consumption of 70 l/c/d, and far away from the World Health Organization standard of 100 l/c/d (with adjustments to climate). This water shortage drastically affects the health and economic well-being of the inhabitants.

II. WATER QUALITY AND HEALTH ISSUES

a. Low water quality

The Ya'bad Cluster is confronted with a serious water quality problem. Because of air accumulation in the pipes, due to water cutoffs, and the old age of the network, network pipes have turned rusty, leading to a water quality hazard, especially in terms of taste and color. Moreover, the alternative infrastructures' water quality is also questionable. Indeed, concerning cisterns, their low cleanliness and the fact that households often dig them nearby cesspits, favor the appearance of bacteria, especially since 40% of the region's households have not emptied their cesspits in over two years. Regarding tanked water, it is often difficult to verify if the owners of water tanks follow the basic water quality principles: some tanks could very well be used to transport sewage one day and water the next.

The treatment of wastewater has an important impact on the quality of available water in the area: households often dispose their wastewater through cesspits, which are emptied into nearby valleys without any treatment, thus polluting the soils and, above all, the aquifer systems of the region.

b. Consequences on health

All these water quality issues lead to the appearance of water borne diseases within the Cluster's population:

Issue	Percentages (%)	
	yes	no
Suffered from Repeated Diarrhea	25,9	74,1
Suffered from Repeated Vomiting	19,0	81,0
Suffered from Repeated Skin Diseases	9,1	90,9
Suffered from Repeated other Diseases	16,1	83,9

The low water quality probably contributes to the higher incidence of infant mortality: in the Palestinian Territories the rate is 2.57%; in comparison, the infant mortality rate of Israel is 0.72%

*1 dunum = 4201 m²

<http://www.populationdata.net>



III. SOCIO-ECONOMIC CONSEQUENCES

a. Agriculture

The lack of available water, due to water shortages and cut-offs, and its poor quality seriously undermine the development of agriculture in the Ya'bad area:

Mean total Land Area, Irrigated, rain-fed, Gardens and other land per Cluster:

	Ya'bad	Kfeiret	Barta'a	Group Total Mean	Table Total Mean
Total land area per family (dunum ²)	14,4	3,2	3,3	7,7	7,7
Total irrigate area per family	0,1	0,0	0,0	0,0	0,0
Total rain-fed area per family	12	2,6	2,5	6,4	6,4
Land used as gardens per family	0,1	0,1	0,5	0,2	0,2
Other	2,3	0,5	0,3	1,1	1,1

This table shows that irrigated agriculture is non-existent (0.0 dunum) and that inhabitants mainly rely on rain-fed crops (6.4 dunums out of 7.7). Yet, since rainfalls are limited in the region, the agricultural production of the Ya'bad area is noticeably contracting. Because of the lack of water for irrigation and the limited rainfalls, the region's inhabitants sometimes use wastewater in order to irrigate their gardens, thus polluting their soil, with the risk of never being able to use the latter again for agricultural purposes.

This total absence of irrigation in the Ya'bad region can be opposed to the importance of irrigation in Israel: according to the Israeli Ministry of Foreign Affairs, Israel uses 65% of its annual 1.7 billion cubic meters of water for irrigation, while agriculture only represents 2% of Israel's GDP and 1% of its working population. On the other hand, agriculture represents 32% of the Palestinian Territories' GDP, and yet only 11.5% of Palestinian crops are irrigated (according to the Arabic World Institute in Paris).

The lack of water has also consequences on livestock farming: interviewed households indicate that water shortage prevents them from raising sheep or cows, which could significantly improve their economic livelihood.

b. Income issues

Since the Intifada, the Cluster is facing a severe state of recession. The region's unemployment rate (48.6%) is much higher than the national average of 32.3%. In consequence, the income level of the Cluster's population is very modest, which makes it difficult for the households to pay for water consumption. Indeed, the tariff of network water is 0.97 euro per cubic meter in Ya'bad and the price of tanked water ranges between 1.79 and 2.24 euro per cubic meter, which is much too high for the low Palestinian incomes and leads to an extremely low payment rate (20%).

Conversion rate : 1 NIS = 0,17895 euro

Water and Hygiene in the Ya'bad Region

With financing of 500 000 euros from the European Commission Humanitarian department (ECHO*), the international non-governmental organization (NGO) CARE's project "Water and Emergency Hygiene in the Ya'bad Region" aims to increase access to water and improve sanitary conditions at both communal and private levels.



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4 objectives:

1 The installation of a pumping station with a capacity of 120 m3 per hour and a chlorination system in the town of Ya'bad for an investment of \$ 420 000, will mark a triple victory. \$ 182 500 will be saved on rental costs for the municipality, an increase of the network's capacity and a guarantee of quality for consumers.

2 The construction of sanitary installations in the schools will put an end to a situation that threatened the health of students. Decisive progress in a region where amoebas, gastro-enteritis and hepatitis A have increased spectacularly since the start of the Second Intifada.

3 The drilling of wells with 70 m3 capacity and attributed to families selected in collaboration with village councils will liberate the most underprivileged from dependency on cistern-trucks and their varying arrival schedules and prohibitive price.

4 Projects undertaken by local workers to favour the employment of a population of whom 50% have been regularly denied work. Finally, an information program that aims to sensitize the population on usage, conservation, and prevention.

The project of CARE and ECHO thus offers an answer to a land deprived of its water.

* <http://europa.eu.int/comm/echo>

“ ECHO, the European Union's Humanitarian Aid department, supports relief activities for vulnerable people in crisis zones around the world. “



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IV. RECOMMANDATIONS

The Ya'bad Cluster is one of the most vulnerable communities of the Palestinian Territories in terms of water availability and quality. Hence, the necessity for the Palestinian Authority and the donor community to develop the following objectives:

1

Improve the existing water infrastructures: rehabilitation and expansion of the villages' water networks (especially in Al-Khiljan), changing the rusty pipes.

2

Improve the water quality: by developing a water purification and recycling network for wastewaters, by cleaning pipes and cisterns, by the emptying and maintenance of cesspits, by analyzing the quality of water provided by private tanks.

3

Provide a more regular and adequate supply of water for the villages connected to the Israeli Water Company: by lobbying with the Israeli West Bank Water Department, by revising the shares assigned to the Palestinians and Israelis by the Oslo II Accords.

4

Support an employment and income policy in the Cluster: by developing income-generating municipal or individual projects in order to improve the inhabitants' standard of living.

5

Develop an agricultural policy: by providing water and a material aid for irrigation and livestock farming.

6

Raise awareness of the population on the use of wastewater for irrigation.

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