

# Water in Conflict

**Analyzing Public Health Crises Amid Political Conflicts**

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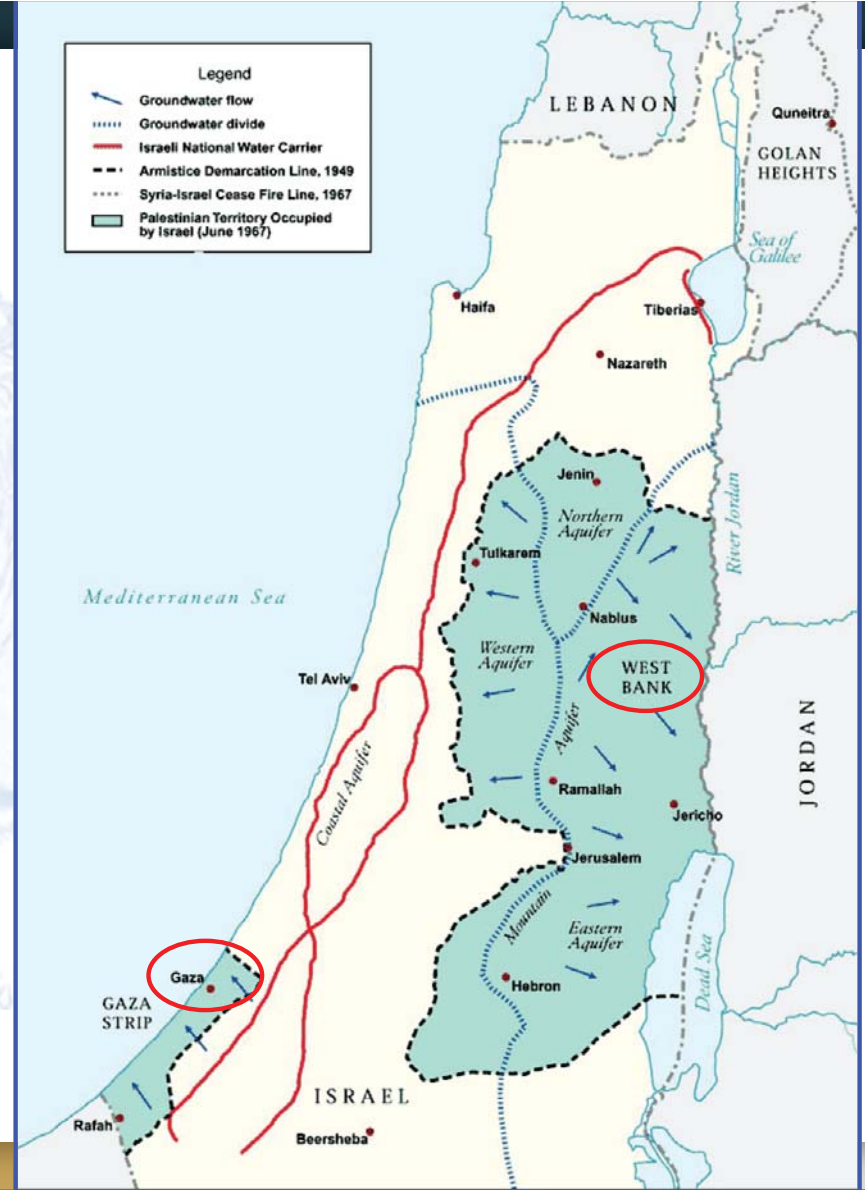
Faculty and Advisors:

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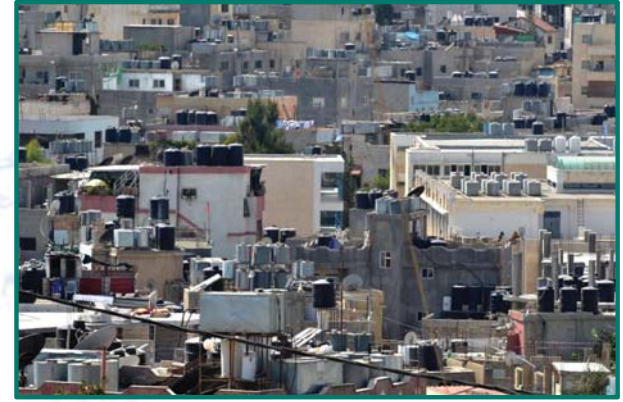
Pauline Lubens

# Why is Water an Issue?

- Terminology
  - OPT<sup>7</sup>: Occupied Palestinian Territories
  - IP: Israel Proper
- 1949 and 1967 War
- Sources of Water
  - Israeli National Water Canal
    - 1.3 B meters<sup>3</sup> → 2%
  - Levels of Groundwater Storage
- State Involvement in Water Allocation
  - OSLO Accords of 1995<sup>1</sup>
    - Division by Areas<sup>6</sup>
    - Joint Water Committee<sup>1</sup>



# Why is Water an Issue?



## Israel's water wars

Every year the water supply to Palestinian towns and villages in the West Bank is cut off for days - if not weeks.

Here is how much water each person in the West Bank has access to per day



In Area C, under Israeli administrative and military control  
**180 Palestinian communities**  
are not connected to the water network

Vulnerable Palestinian households spend up to  
**one fifth**  
of their salary on water



Sources: EWASH | United Nations Office for the Coordination of Humanitarian Affairs (OCHA)



ALJAZEERA

- Quantity Per Day Per Capita
  - WHO SPHERE Standards: 100 Liters <sup>1</sup>
  - World Bank/UNICEF: avg. 73 Liters in West Bank <sup>2</sup>
- Water collection, treatment, and storage:
  - Unhygienic lifestyles foster diseases that are preventable with proper sanitation & water
- “There has been little investment in sanitation since Oslo II, and only 31% of West Bank Palestinians are connected to a sewerage network.” <sup>8</sup>



1. Hebron

2. Hebron



3. Ramallah



# Public Health Significance:

- Issues:
  - Irregular Access to Potable Water (quality and quantity)
  - Contaminated Water Source
    - “Chlorides and nitrates as high as six times the WHO guidelines” <sup>3</sup>
    - Microbial contamination of underground water reservoirs <sup>3</sup>
  - Improper disposal of waste and poor treatment facilities
- Effects:
  - Increased prevalence of waterborne diseases like Cholera, Hepatitis and Typhoid Fever <sup>4</sup>

# Study Aims:

- Explore if the challenges surrounding Israel and Palestine has impacted the disparity of health of populations by comparing waterborne disease rates in the areas of IP and the OPT, which include the West Bank and Gaza.
  - First Aim:
    - Assess how people access water in IP and the OPT.
    - Assess **perceived** water quality of people living in IP and OPT.
  - Second Aim:
    - Assess access to medical care for residents of IP and OPT
    - Assess whether residents have been diagnosed with any waterborne illnesses.

# Hypothesis:

- Hypothesis 1:
  - Perceived water access, quality, and access to medical care for respondents living in the OPT is of lower quantity and lower quality than those living in IP.
- Hypothesis 2:
  - Water borne disease rates differ by area of residence.
- Hypothesis 3:
  - Water borne disease rates differ by ethnic identity.

# Methods:

- **Target Population**
  - Residents of Israel and OPT
  - Ages 18+
- **Recruitment Methods**
  - Survey disseminated by OTI via email
  - Personal dissemination of survey
- **Online Survey**
  - English, Arabic or Hebrew
  - 18 Questions



OLIVE TREE INITIATIVE





## Water in Conflict Study

### Water in Conflict Study

Please answer the following questions about yourself. You may stop participating in this survey at any time by exiting the browser window.

**Please state your city of residence.**

For example: "Bethlehem, West Bank" or "Haifa, Israel"

Your answer

**How do you identify your ethnicity?**

Please check all that apply to you.

Palestinian

Israeli

Arab-Israeli

Israeli-Arab

Other: \_\_\_\_\_

**What religion do you practice, if any?**

Christianity

Islam

Judaism

Druze

Bahai

None / Not Religious

Other: \_\_\_\_\_

## Water in Conflict Study

### Water Access and Water Quality

Please answer the following questions about water access and water quality. You may stop participating in this survey at any time by exiting the browser window. You may also choose to skip any questions if you so choose.

**Do you receive running water to your place of residence?**

Yes

No

I don't know

**Please identify how you regularly access water in your home.**

\* Select all that apply to you and your household.

Well or Underground Source

Communal Water Source or Water Tank

Government Regulated Water Supply

I do not know what my primary water source is.

My home does not directly receive running water.

Other: \_\_\_\_\_

**Please indicate your perceived water quality.**

Very Bad

Bad

OK

Good

Very Good

Please describe your water quality.

\* If you have anything else to add about your water quality, please tell us here!

Long answer text

**Does your drinking water have an unpleasant taste?**

Please select one from the options below.

- Yes, my water has an unpleasant taste.
- No, my water does not have an unpleasant taste.

**Does your drinking water have an unpleasant odor?**

Please select one from the options below.

- Yes, my water has an unpleasant odor.
- No, my water does not have an unpleasant odor.

**Please identify how you treat your water.**

Please select one from the options below.

- I do not treat my water. I drink it from the tap in my place of residence.
- I add Chlorine to my water source before using it.
- I filter my water before using it.
- I boil my water before using it.
- Other...

**On average, how many hours are you able to access water each day?**

\*One day is a 24 hour period

- On average, I am able to access water 18 - 24 hours a day.
- On average, I am able to access water 12 - 18 hours a day.
- On average, I am able to access water 6 - 12 hours a day.
- On average, I am able to access water 0 - 6 hours a day.
- Other...

**Please approximate how much water do you have access to for DRINKING per day per person in your household.**

Please answer this question to the best of your ability.

- Less than 10 liters per day per person
- 10 - 20 liters per day per person
- More than 20 liters per day per person

**Please approximate how much water you have access to for PERSONAL AND DOMESTIC HYGIENE per day in your household.**

Please answer this question to the best of your ability.

- Less than 10 liters per day per person
- 10 - 20 liters per day per person
- More than 20 liters per day per person

**Please approximate how much water do you have access to for LAUNDRY AND DISHWASHING per day in your household?**

# Water in Conflict Study

## Health Care Access and Symptoms

Please answer the following questions about your access to Health Care. You may stop participating in this survey at any time by exiting the browser window. You may also choose to skip any questions if you so choose.

Do you have access to a medical clinic near your place of residence?

- Yes
- No

Please check if you have experienced one or more of the symptoms:

\* Check ALL that apply to you.

- Diarrhea or Constipation
- Vomiting
- Abdominal Pain
- Swollen Abdomen
- Loss of Appetite
- Fever
- Other: \_\_\_\_\_

Please check one or more of the water-borne diseases that you have been diagnosed with by a medical professional:

- Cholera
- Typhoid Fever
- Hepatitis A
- Polio
- Giardia
- Other...

Please check one or more of the water-borne diseases that someone in your household has been diagnosed with by a medical professional:

- Cholera
- Typhoid Fever
- Hepatitis A
- Polio
- Giardia
- Other...

Please tell us if you have anything else to add about your experience with water.

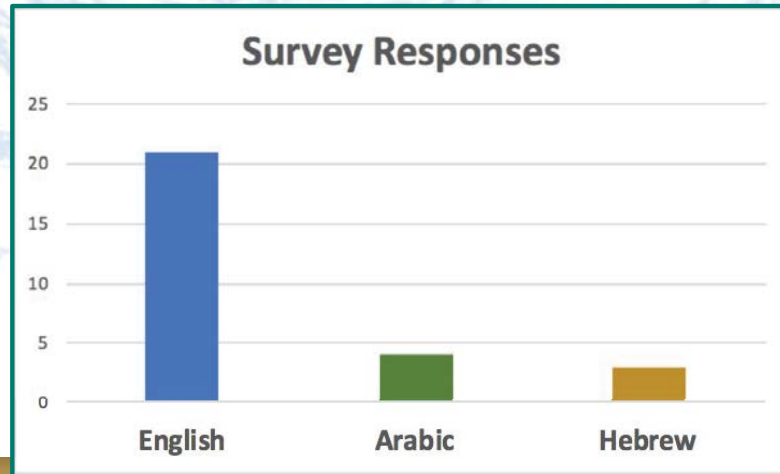
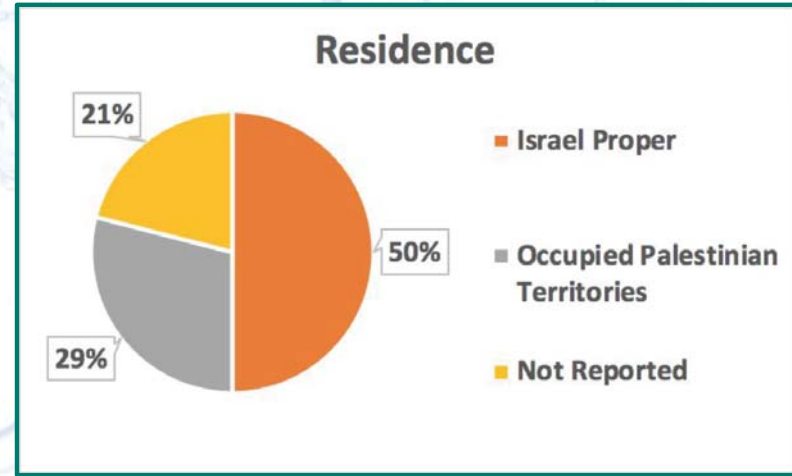
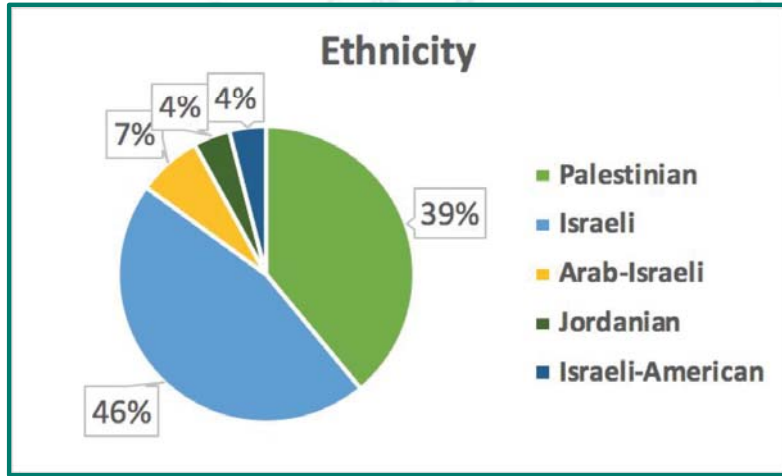
Long answer text .....

# Respondent Locations:

- Geographic Distribution of Responses
  - Israel Proper (blue):
  - Occupied Palestinian Territories (green):

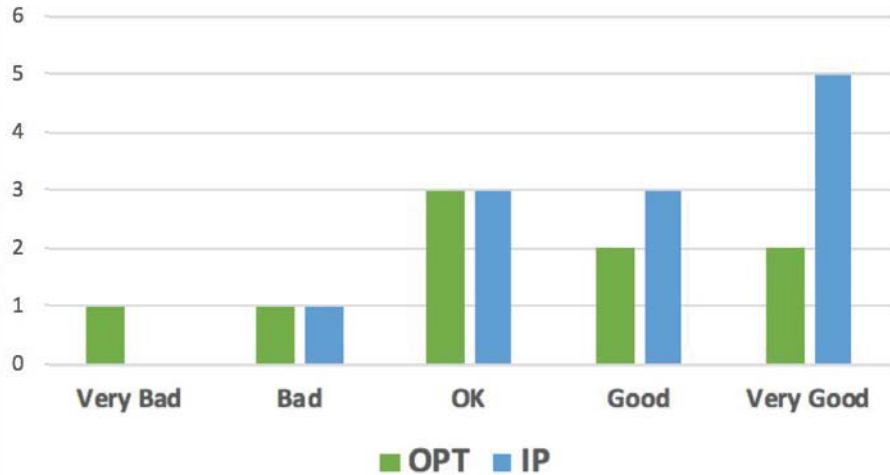


# Data Analysis: Overview (28 responses)

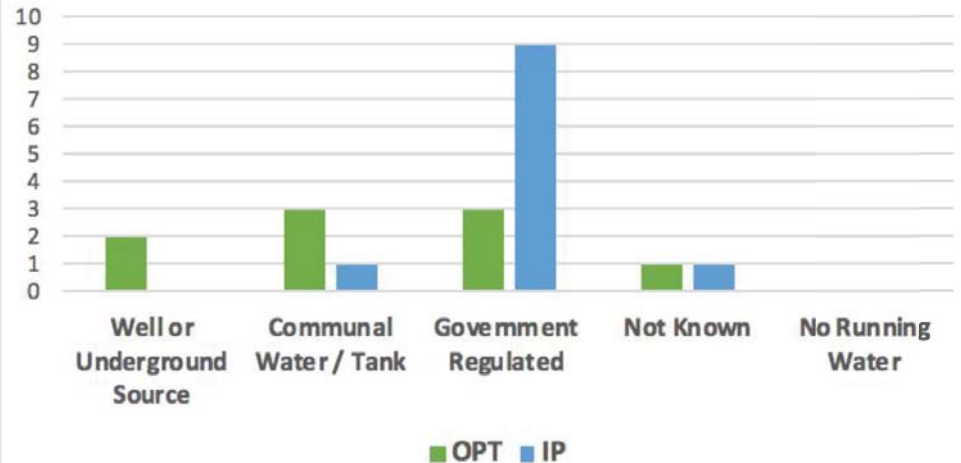


# Responses by Residence: OPT & IP

## Perceived Water Quality by Residence

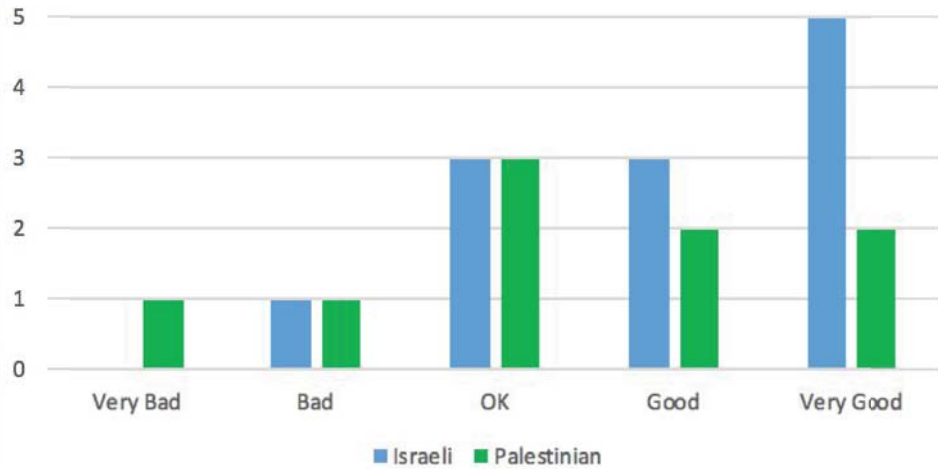


## Daily Water Access by Residence

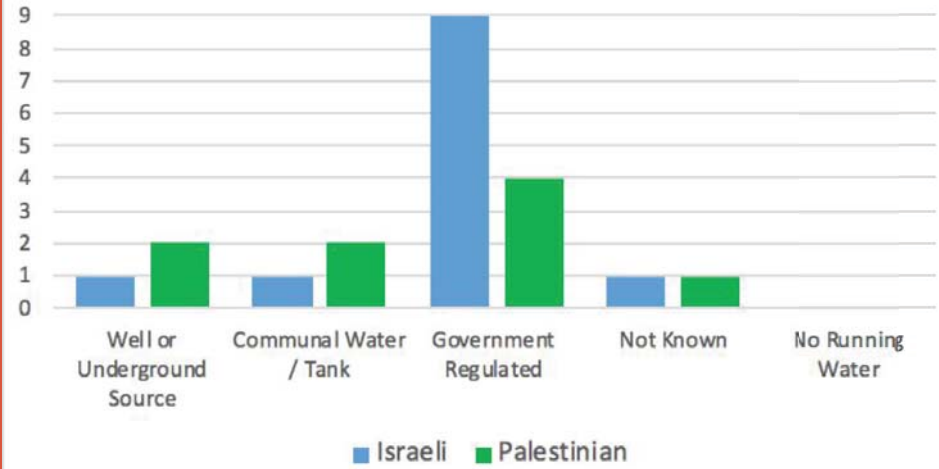


# Responses by Ethnicity: Palestinian & Israeli

## Perceived Water Quality by Ethnicity

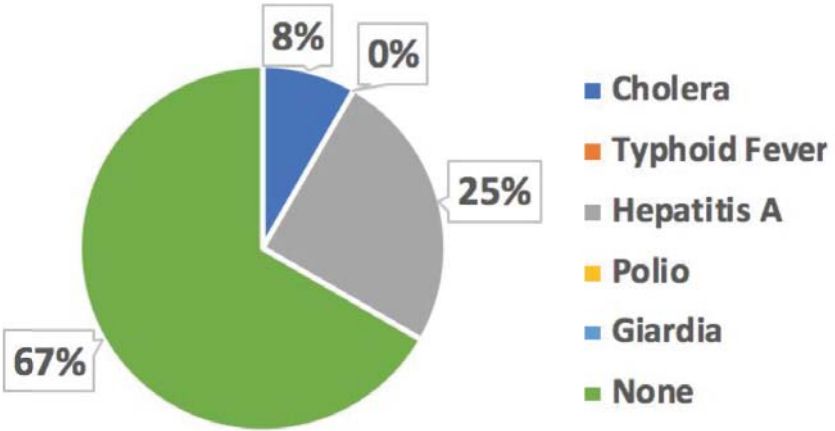


## Daily Water Access by Ethnicity

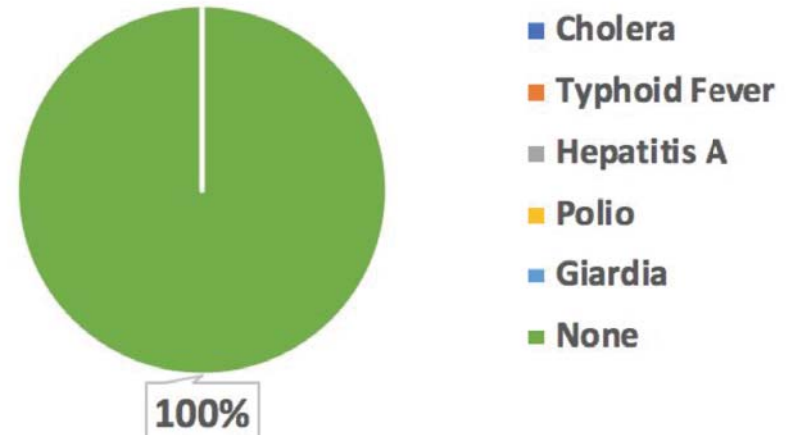


# Waterborne Illnesses

**Waterborne Diseases: Palestinian**



**Waterborne Diseases: Israeli**





## Sample Responses:

“I am pleased with my water supply. I wish the day soon comes where all people of Israel and Palestine have the same access to water as I have.” - Israeli Participant

“We are spoiled and have **basically unlimited access and good health**. The government takes it very seriously.” - Israeli Participant

“In the summer, there is something in the water in the city of Nablus and the the arrival of the water comes late to my home for several days, which harms me and my family. **I live without water for those days or I have to buy water at a really high price.**” - Palestinian Participant

## Limitations & Challenges:

- Selection bias
- Small sample size
- Recall bias

# References:

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# Acknowledgements

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Water UCI  
Susan Seely, Olive Tree Initiative

The background features a central water splash in shades of light blue and white. The splash is surrounded by decorative elements: dark blue diagonal lines in the top-left corner, dark green diagonal lines in the bottom-left corner, and gold diagonal lines in the bottom-right corner. The overall layout is clean and modern.

# Thank you!

Questions?

Contact Natasha Kaushal  
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