

# Water and Public Health Policy:

## Opportunities and Challenges in Integrating Ecohealth / One Health Perspectives



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### Polluted Water Leading Cause of Child Mortality in Gaza, Study Finds

With 43 Olympic swimming pools worth of sewage water flowing from Gaza toward Israel and Egypt daily, researchers say local epidemic is only a matter of time

By [Yaniv Kubovich](#) Oct 16, 2018



# Ecohealth – approaches and definitions

- Ecosystem – comprehensive term that refers to a system of interacting biotic and abiotic elements applicable to the study of the human population and planet earth
- Ecohealth vs. environmental health
- Ecosystem vs. ecology vs. environment

# Ecohealth – approaches and definitions (cont.)

- Global perspective
- Multi & trans-disciplinary
- Biological and non-biological influences
- From science to policy
- Integrated assessment

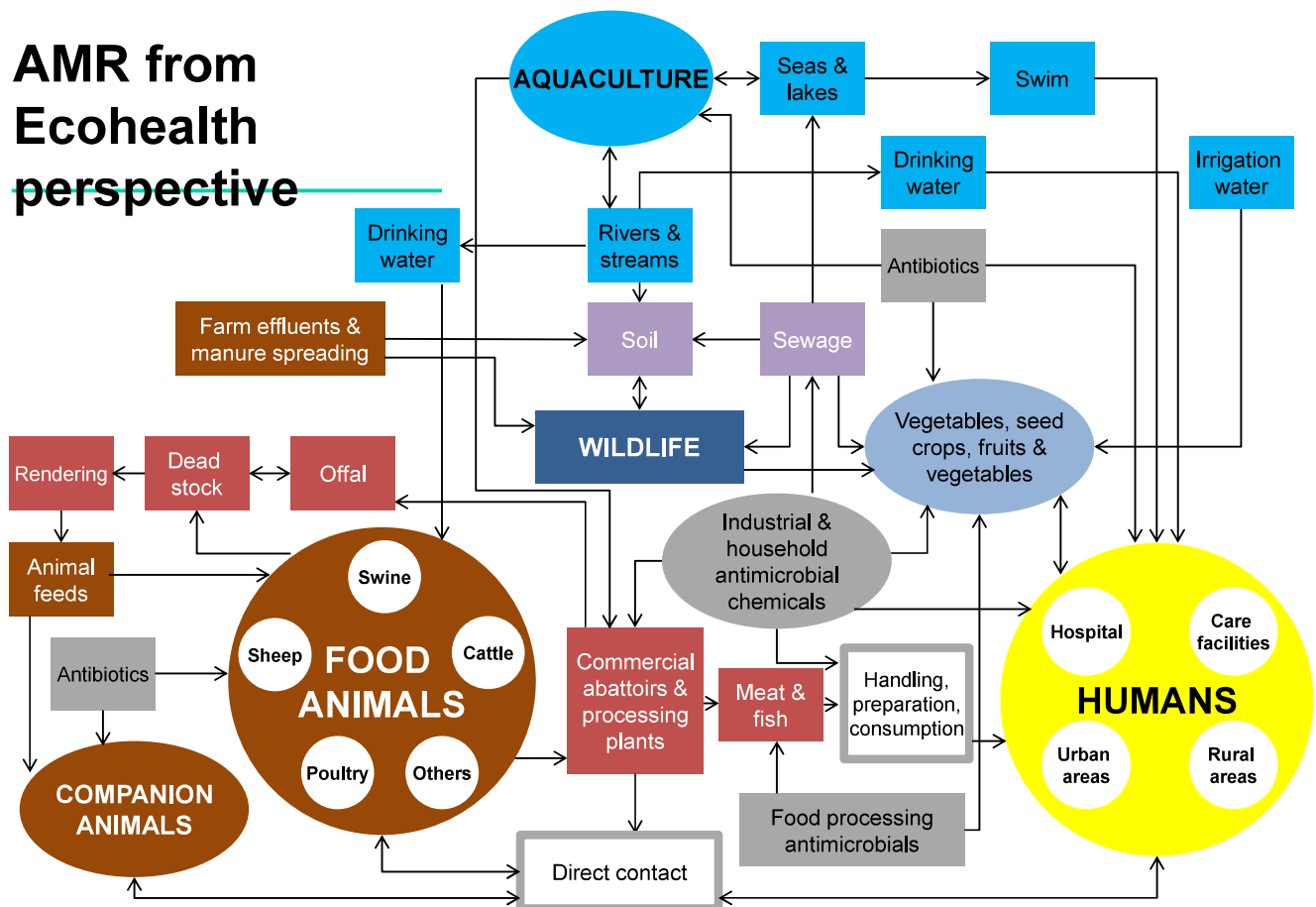
# Antimicrobial resistance: one world, one fight!

## World Healthcare-Associated Infections Resistance Forum

- The lack of new antibiotic classes calls for a cautious use of existing agents. Yet, every 10 min, almost two tons of antibiotics are used around the world, all too often without any prescription or control. The spread of AMR is fueled by growing human and animal populations, uncontrolled contamination of fresh water supplies, and increases in international travel, migration and trade.
- Need for a “One Health” approach requiring research, surveillance, and interventions across human, veterinary, agricultural and environmental sectors.
- Harbarth et al. *Antimicrobial Resistance and Infection Control* 2015 4:49

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### AMR from Ecohealth perspective



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Antimicrobial resistance

Diagram based on Linton (1977), as adapted by Rebecca Irwin, Health Canada (Prescott 2000) and IFT



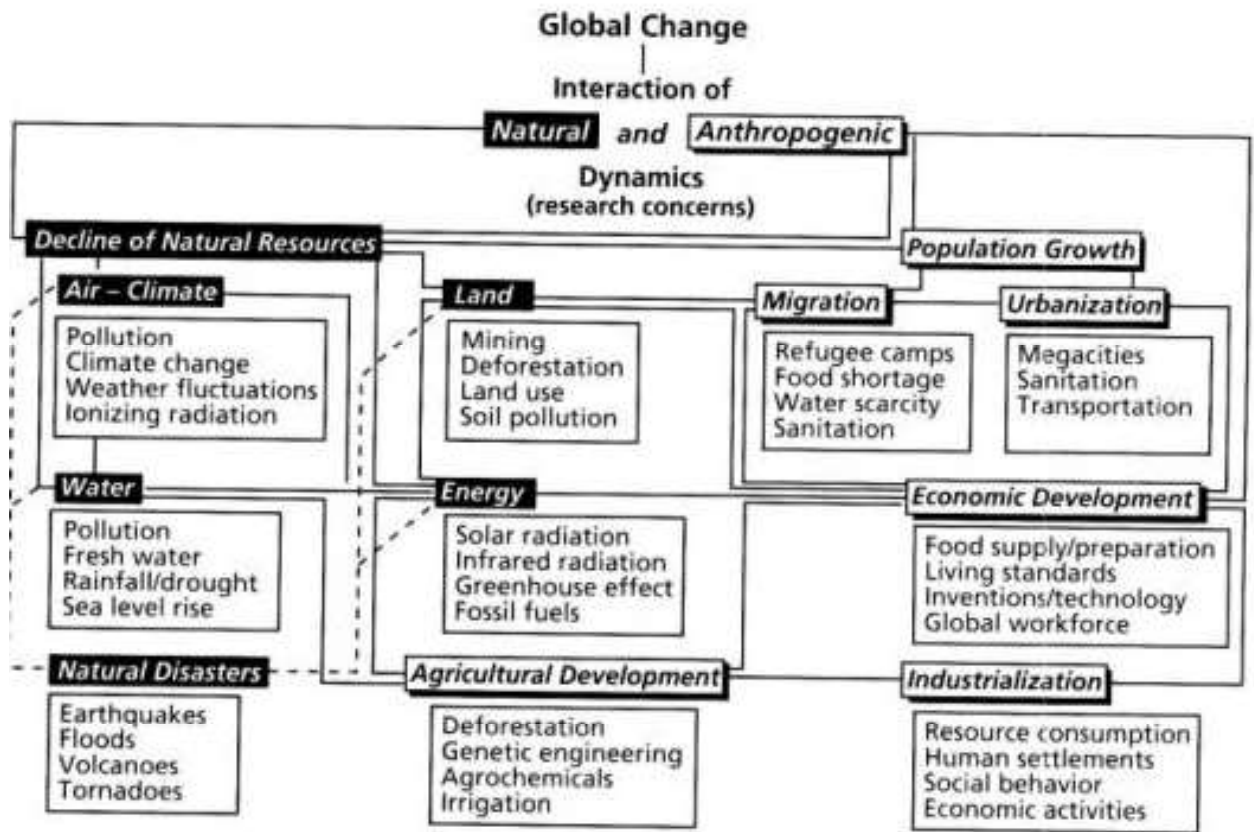
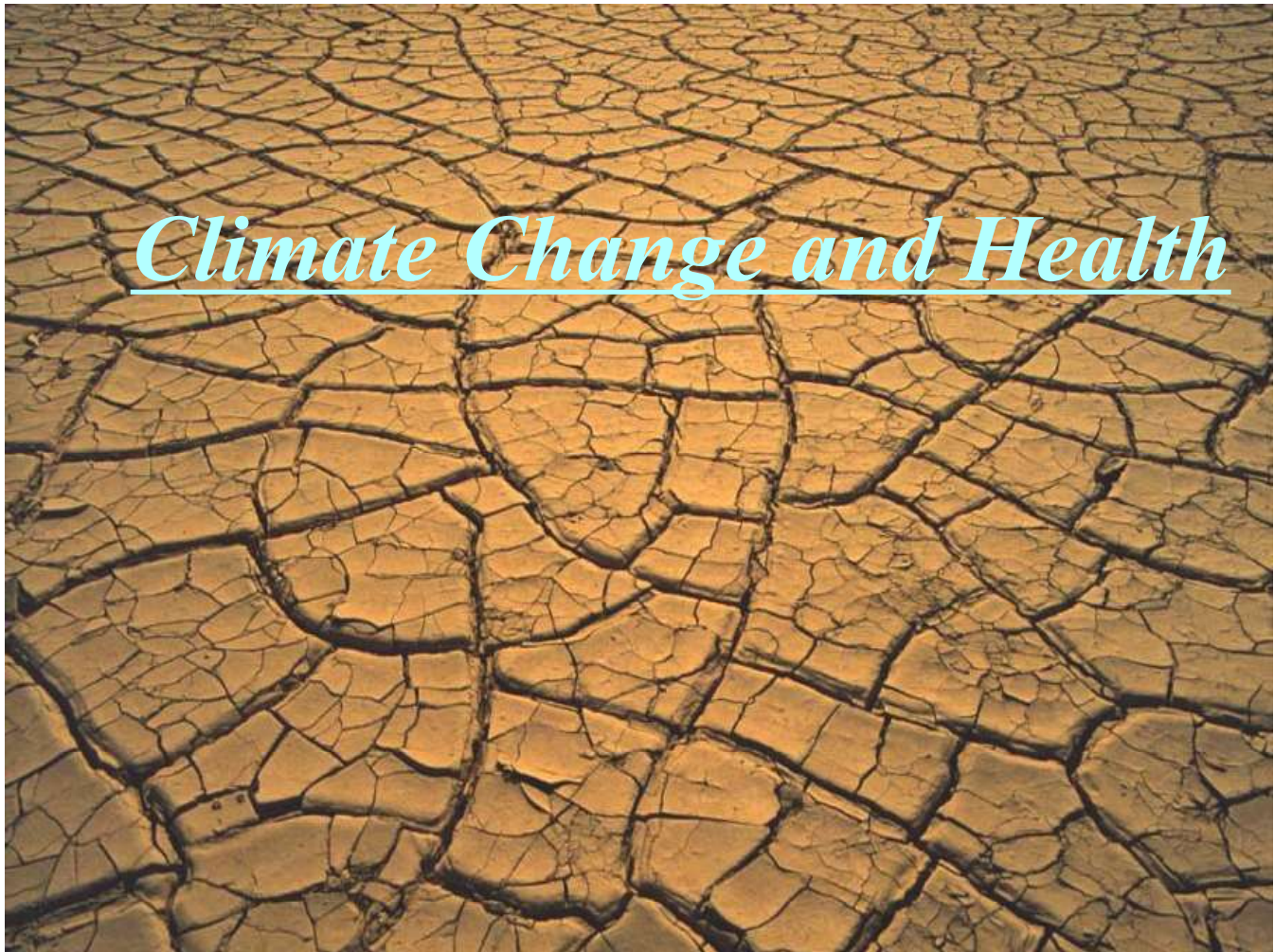
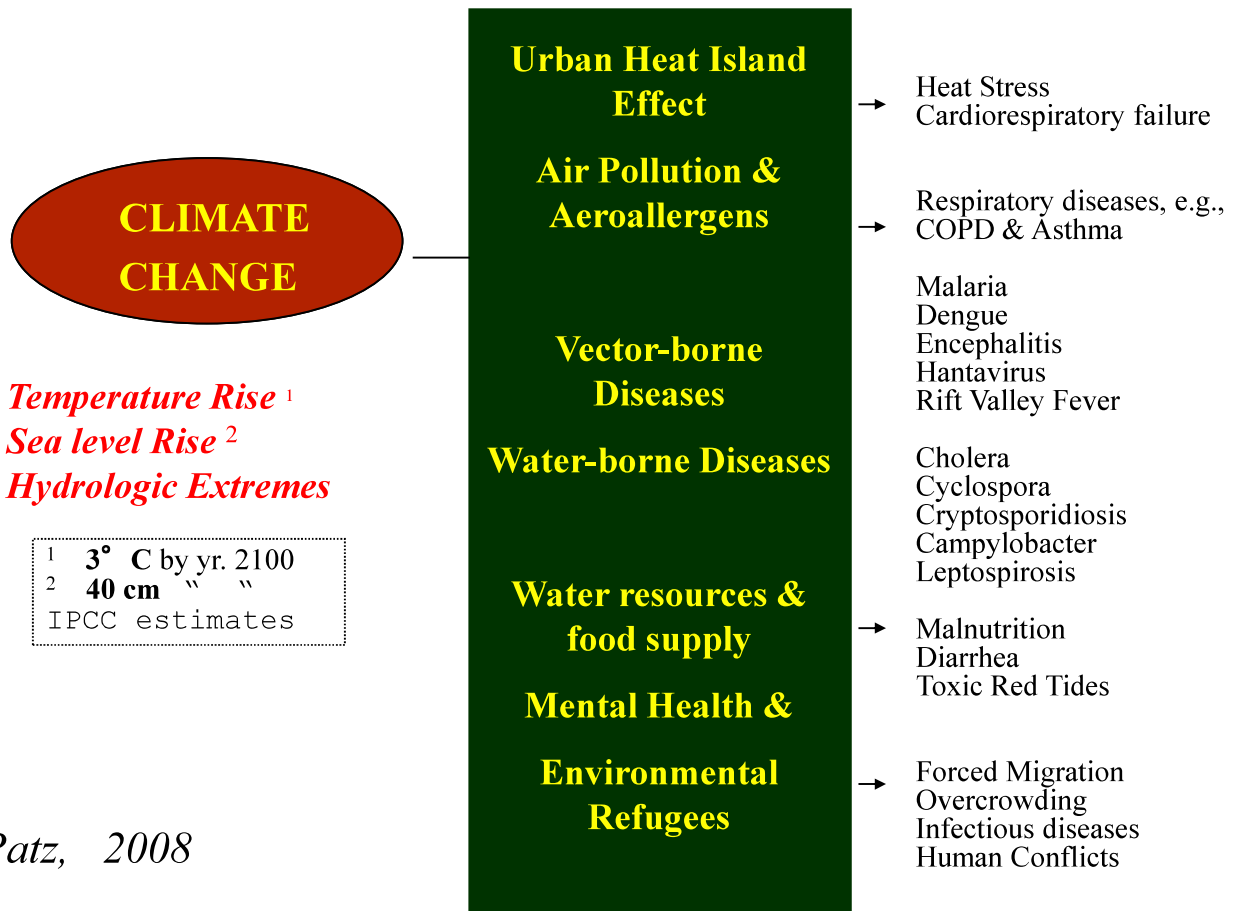


Figure 4.4



# HEALTH EFFECTS OF CLIMATE CHANGE



*Patz, 2008*

## Climate change and SDGs: facts and figures

- Heat waves were the deadliest extreme weather events in 1991–2015 in Europe, particularly in western and southern Europe causing tens of thousands of premature deaths. In 2003, more than 70 000 excess deaths were recorded in 12 European countries as a result of heat waves.
- • If no additional adaptation measures are taken, the number of people affected by coastal flooding in the European Union at the end of the 21st century will range from 775 000 to 5.5 million annually, depending on the emissions scenario

## Climate change and SDGs: facts and figures

- Significant food production losses, while food production in some areas in northern Europe is likely to increase, owing to a prolongation of the growing season with warmer temperatures.
- Climate change can increase food safety hazards throughout the food chain. An increase in global temperature of around 4C compared with that during the late 20th century, compounded with rising global food demand, would increase the likelihood of food insecurity globally and regionally

## Climate change and SDGs: facts and figures

- Decrease in fossil fuels emissions reduces both air pollution and noncommunicable diseases, such as cardiovascular and chronic respiratory diseases. Every year in Europe, outdoor air pollution causes about 500 000 premature deaths, while indoor air pollution is responsible for approximately 120,000 premature deaths
- Reductions in emission of short-lived climate pollutants, such as black carbon and methane, would slow the rate of global warming while also saving nearly 2.5 million lives per year globally

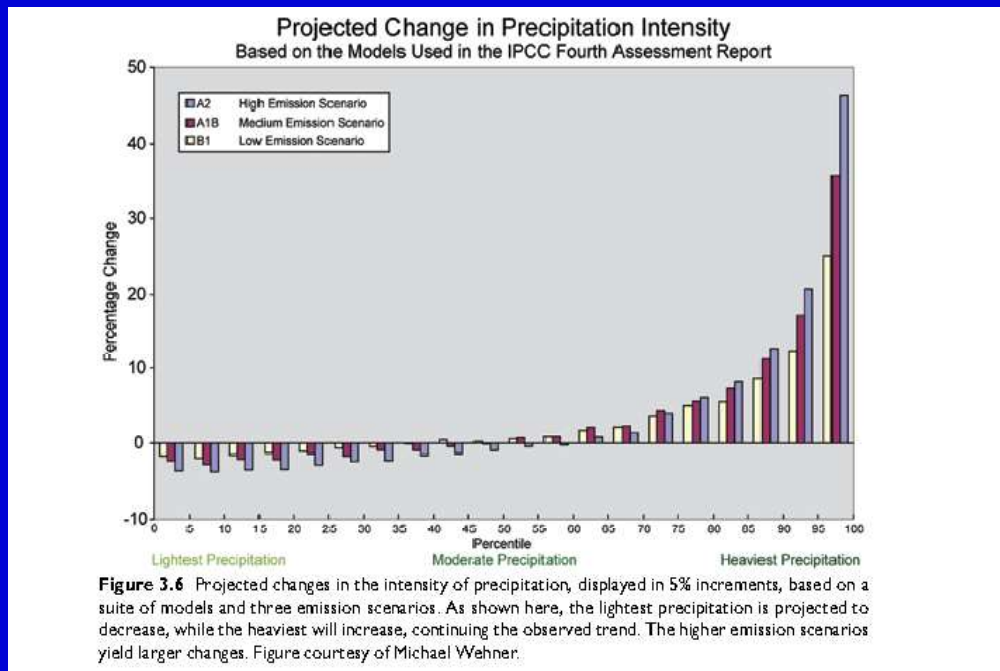


## Climate change and SDGs: facts and figures

- Substantial warming at higher latitudes could lead to the incidence of infectious diseases that are presently limited by low-temperature boundaries, as shown by the northward extensions in Canada and Scandinavia of tick populations
- An increase in overall temperature would increase Salmonella multiplication and consequently its spread in food, water or contaminated environments
- Scarcity of safe water can compromise hygiene and increase the risk of diarrhoeal disease, which kills over 500,000 children under 5 years of age every year globally

**Climate change:  
It's not just about  
warming.**





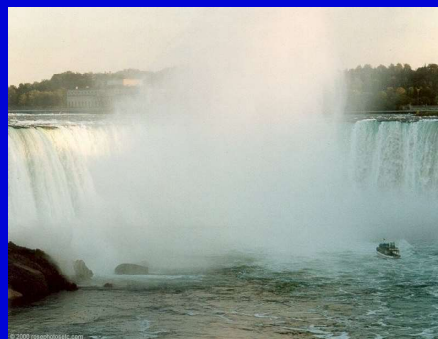
Globally Averaged

U.S. CCSP, 2008

## USA: Combined sewer overflows (CSOs)



*Courtesy: Kellogg Schwab*



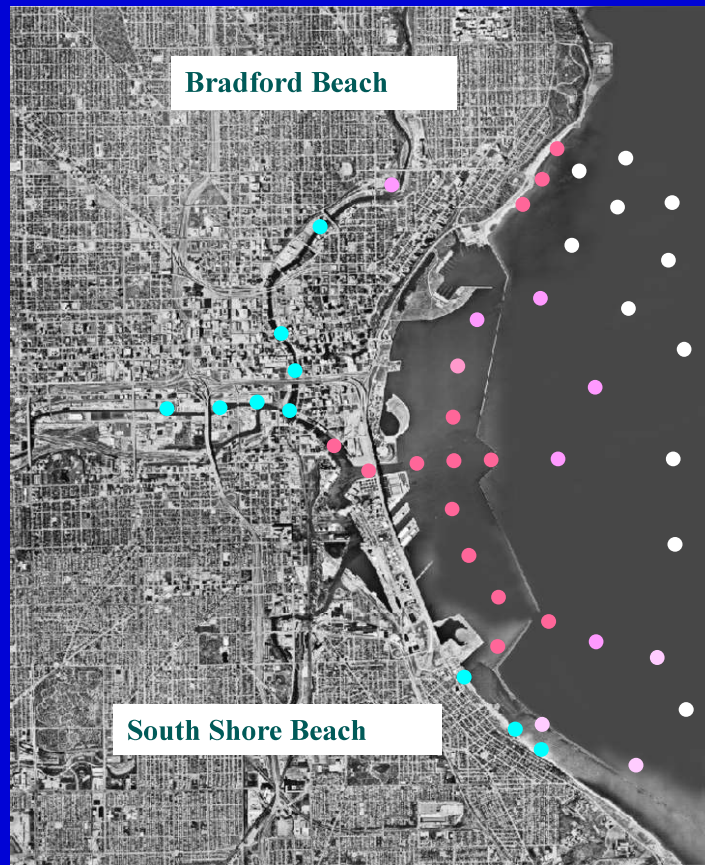
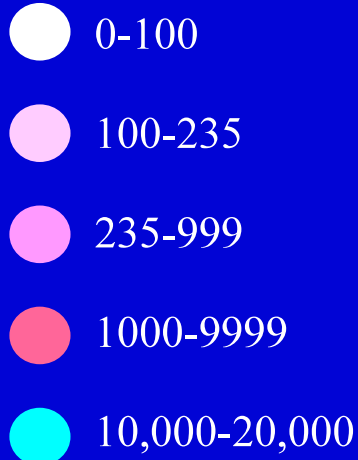
**1.2 trillion gal of sewage & stormwater a year  
discharged during combined sewer overflows  
– would keep Niagara Falls roaring for 18 days**

*Center for Water & Health, JHU Bloomberg School of Public Health*



**Rainfall**  
**Urban stormwater**  
**Sewage overflow**

*E. coli* CFU/100 ml



Courtesy: *Sandra McLellan*  
*UW-Milwaukee*

Bradford and South Shore Beach on Lake Michigan

## Water and Health

- Access – max. 1km/ 30 min distance
- Quantity – 50 l/day standard min.; 100 l/day WHO recommendation
- Quality: e.g. microbial and chemical contamination, taste, smell, temperature, color
- Natural and human-made problems (e.g. industrial pollution, distribution-shortages)

WHO (2008) Progress on Drinking Water and Sanitation.

Barry M, Hughes JM (2008) Talking dirty—The politics of clean water and sanitation.

# Water and Human Rights

- A basic human right, interrelated and necessary conditional to enjoyment of other human rights; e.g. health, adequate living conditions, livelihoods.
  - State responsibility for availability, accessibility incl. affordability and quality.
  - Non-discrimination as a core principle.
- ⇒ State responsibility for a national water strategy and its equitable implementation, giving special attention to marginalized and vulnerable groups.

## Water and Public Health Ethics

Equitable access to water:

- Mitigation of inequalities (health, socio-economic, gender)
- Potential of reducing global burden of disease
- Privatization of water supply does not increase effectiveness but inequalities
- Future scarcity of water resources
- less emphasized aspect:
  - Local political power relations creating current access gaps

# Background

- Non-recognition of villages
- Lack of infrastructure and basic services
- About 85,000 residents
- 61% < 17 years of age
- Lowest SES in Israel
- Crude fertility rate 11  $\implies$  6
- Infant Mortality Rates threefold higher than among the Jewish population



CIA World Factbook 2005

## The Case of the Unrecognized Villages – Water Supply and Consumption

- Only 254 water points, each shared by approx. 250 persons.
- Water consumption: ~100 l/day in unrecognized villages **with** a water connection compared to 170-350 l/day in Jewish towns of the South.
- Many families fetch water also from unchecked sources.
- Population relies on small-scale agriculture and herding to alleviate low SES.
- Up to 40% of monthly family income spent on water.

Almi O, PHR-IL (2006) Water Discipline.

Figures on water consumption from: Regional Council for the Unrecognized Villages in the Negev, Central Bureau of Statistics/ Local Authorities in Israel, and Centre on Housing Rights and Evictions.

# The Case of the Unrecognized Villages – Water and Health

- Under-discussed effects:
  - Sanitation and Hygiene
  - Infectious diseases
  - Infant mortality and morbidity rates
  - Water quality
- Unknown effects:
  - No epidemiological study relating water access and quality to health effects
  - Last MoH report checked water quality in 1995

## The Case of the Unrecognized Villages – Stakeholder and Process Analysis

- Mekorot – responsible only for central connections.
- Ministry of Health – takes responsibility only for water quality at central connections (Last check 1995), no role in water allocation; no statement on the need to fulfill the population's right to water and health
- Other interest groups – agricultural sector in Israel
- Community – representative bodies unregarded, connect the situation to the general problem; divided interests; failure in the legal route created despair and distrust; fear; Left outside decision-making processes
- Human Rights NGO's – demand international interference (ICJ 1992); An early concentration on legal route; slow; a lagging coalition – differences in attitudes and working methods

Almi O (2006) Water Discipline.

Ministry of Health/ Health Office Southern District (1995) Survey of Hygienic Quality of Drinking Water in the Bedouin Dispersion in the Negev.



# Stakeholders, cont'd

- Carrot-and-Stick – water as leverage to move Bedouin-Arab population to townships, and as gesture of “good will” for “cooperative” families.
- Divide-and-Rule – fueling inequalities and conflicts between and within communities.
- Responsibilities – Ministry of Health as “a-political professional” body

## Conclusions and recommendations

- Water policies from ecohealth and public health ethics perspectives
- Need for inter-disciplinary approaches – both in research and policy making (remove of barriers, incentives)
- Communities involvement in policy-making, planning and implementation.
- Need for new survey of conditions and needs in Bedouin-Arab communities (from AMR to cultural aspects)
- Opportunity for cross-border action on drought mitigation, and as a means for enhanced cooperation en-route to peace

Thank you for your attention!

