Water Insecurity in Oregon?

Oregon Public Health Assn Annual Conference
October 15, 2019
WATER SECURITY

Adequate and/or equitable access to clean, safe and affordable water for drinking, food preparation, and sanitation and hygiene.
WATER INSECURITY

Inadequate and/or inequitable access to clean, safe and affordable water for drinking, food preparation, and sanitation and hygiene.
KEY FACTORS AFFECTING WATER INSECURITY

CLIMATE CHANGE
- Droughts

SOCIAL
- Population Distribution
- Socioeconomic Conditions

PHYSICAL
- Housing
- Geographic Location
HEALTH OUTCOMES

- Water-borne Illness
- Exposure to Contaminants
- Dehydration & Malnutrition
- Poor Mental Health
884 million lack access to safe drinking water

2.5 billion use unimproved sanitation
The Human Right to Water and Sanitation (2010)

"WATER IS THE ESSENCE OF LIFE. SAFE DRINKING WATER AND SANITATION ARE INDISPENSABLE TO SUSTAIN LIFE AND HEALTH, AND FUNDAMENTAL TO THE DIGNITY OF ALL."

OFFICE OF THE UNITED NATIONS HIGH COMMISSIONER FOR HUMAN RIGHTS
Drinking Water Disease Outbreaks


The yellow color represents the highest test results, blue the lowest, zero values are not shown.
VULNERABLE COMMUNITIES

- Populations experiencing homelessness
- Tenants or low-income owners in residences with plumbing in poor condition
- Populations situated in vulnerable flood plains
VULNERABLE COMMUNITIES

Counts with multiple consecutive drought declarations

Low-income communities with deteriorating drinking water infrastructure and limited resources to fund improvement

Coastal communities and community assets vulnerable to sea-level rise or saltwater intrusion
OBJECTIVE

To understand the existing evidence base for developing public health policies, programs and surveillance strategies relating to water insecurity in Oregon.
RESULTS - SURVEILLANCE

HOUSEHOLD WATER INSECURITY  
Jepson, 2014  
(Texas/Mexico border)

SES, Race/Ethnicity and SDWA COMPLIANCE  
Switzer & Teodoro, 2014  
(systems across the US)

WATER SERVICE ACCESS  
Gibson et al., 2014  
(Wake County, North Carolina)
RESULTS - SURVEILLANCE

WATER SERVICE RELIABILITY
Pierce & Jimenez, 2015
(American Housing Survey across the US)

WATER SCARCITY VARIABILITY MAPPING
Mekonnen & Hoekstra, 2016
(Global)

EXCEEDANCE / COMPLIANCE MAPPING
CA State Water Resources Control Board, 2019
(California)
RESULTS - INDICATORS

WATER POVERTY INDEX
Pilot
Sullivan, et al., 2003
(South Africa, Tanzania, Sri Lanka)

WATER POVERTY INDEX
Applied
Korc & Ford, 2013
(Texas/Mexico border)

FRAMEWORK TO EVALUATE HUMAN RIGHT TO WATER
CA Office of Environmental Health Hazard Assessment, 2019
(California)
"Every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking and sanitary purposes (State of California, 2012)."

*Affordability: water expenses should not exceed 3-5% of household income
CALIFORNIA

• California’s Human Right to Water Law followed mobilization of multiple communities & NGOs focused on water justice
• Assessing water security needs, setting goals, developing resources, improving water affordability and tracking progress

WASHINGTON

• Pursuing water insecurity interventions through community education events, drought risk assessment, water loss detection and utility rate capping.
• Aim to increase awareness of the value of water & importance of water conservation
• OWRD leads ongoing efforts to:
  • implement an Integrated Water Resources Strategy
  • gain a better understanding of the quantity and quality of water in aquifers to prepare for droughts
  • capture groundwater-level data and climatic and seasonal impacts on aquifers
  • engage local communities in place-based planning approaches of IWRM and
  • Develop a 100-year vision for water in Oregon

• The DEQ conducts groundwater studies
• Partner agencies of Oregon’s Integrated Water Resources Strategy conducted a drought response survey across the state
RECOMMENDATIONS

CHARACTERIZE POPULATIONS EXPERIENCING INEQUITIES IN ACCESS TO WATER

Study census and property tax data to identify, describe, and quantify inequities in access to water.

Map Oregon water systems as done in California’s Exceedance/Compliance mapping tool, and consider inclusion of water system advisories.

IDENTIFY WATER INSECURITY NEEDS

Assess water insecurity experiences and needs (water access, quality, affordability, and water affect) at the household level using HWI surveys/scalograms.

Assess water service reliability in manufactured/mobile home parks using American Housing Survey (AHS) questions integrated into HWI surveys.
RECOMMENDATIONS

TRACK WATER SCARCITY VARIABILITY

Implement strategies to better understand how climate change and seasonal variability impacts water availability and drought risk by applying Mekonnen and Hoekstra’s water scarcity modeling approach.

PURSUE THE HUMAN RIGHT TO WATER

Adopt a state policy, such as the human right to water, that would encourage collaboration between public health agencies, water resources management agencies, academia and policymakers to establish accessible, safe and affordable water as a priority in future policy decisions.
Thank you

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REFERENCES