

Researching Topic #5 -- SOCIETAL IMPACTS – WATER

[last revised 3/11/2021]

This prompt offers two kinds of help:

- A brief overview of the kinds of questions you might wish to explore as you study how climate change is likely to affect the food supply;
- A suggested strategy for how to search the literature as you prepare to write your paper.

OVERVIEW – CLIMATE AND WATER

Studies suggest that climate change will have significant impacts on people's access to adequate supplies of potable water.

Impacts are already observed in some parts of the world. Impacts are predicted to worsen. How much worse will depend on how many degrees average global temperatures will rise. Types of potential impacts: changes in location and amount of snow fall and rainfall (too much or too little); glaciers melting (a rush of water downhill of melting glacier, then water supply dries up when glacier is completely gone); changes in amounts of pollutants in the water.

“Downstream” impacts of decreasing availability of water for households, farming could include: impacts on agriculture (hunger); increased exposure to disease vectors; possibly greater social unrest, conflict and migration.

In this part of the research module, you will explore the impacts of climate change on people's access to adequate supplies of water for household use and for agriculture.

GUIDE to researching core aspects of climate change impacts on water.

The basics: What are the impacts:

Already observed now?

Predicted?

If temperatures increase = 2oC (Paris Accords target)?

If temperatures increase 4oC or more?

More basics: Differences among nations/regions? (evidence or argument that some places on Earth will experience greater impacts than will others, varying from little impact to communities that are no longer viable because availability of water falls below absolute lower limits)

“Downstream” impacts on agriculture (impacts both on food insecurity and the economics of communities that depend on agriculture as their main source of income)

“Downstream” impacts on patterns of illness

“Downstream” impacts – political: unrest, conflict, migration

SUGGESTED STRATEGY FOR SEARCHING THE LITERATURE

I recommend the following sequence for searching the literature:

- 1 Start with a search of the most recent **reports from top scientific bodies and government agencies**;
- 2 Search **academic articles** using Google Scholar (scholar.google.com);
- 3 Do a **more general search** using Google or another search engine;
- 4 Search the **best newspapers** and **reputable climate websites**.
(NOTE that I do not suggest using Wikipedia.)

1 Search the most recent **reports from top scientific bodies and government agencies**

(NOTE: There are many excellent reports one can consult. You will find a lot of repetition, so you do not need to consult every source. Here I start with a handful of the most recent reports, followed by a more complete list.)

These publications should, in most cases, supply you with all you need:

IPCC's most recent full set of reports:

<https://www.ipcc.ch/report/ar5/>

EPA: https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-society_.html

U.S. Global Change Research Program:

<https://science2017.globalchange.gov/> (the science)

<https://nca2018.globalchange.gov/> (the impacts)

American Meteorological Society:

www.ametsoc.net/sotc2017/StateoftheClimate2017_lowres.pdf

A more complete list of best scientific and governmental sources:

International

Intergovernmental Panel on Climate Change
United Nations Environmental Programme (UNEP)
World Meteorological Organization

Agencies of the U.S. federal government

Environmental Protection Agency (EPA)
National Oceanographic and Atmospheric Administration (NOAA)
National Aeronautics and Space Administration (NASA)
U.S. Global Change Research Program

Scientific bodies – U.S.

National Academic of Sciences
Climate Change at the National Academies (climatechange@nas.edu)
National Science Foundation

Other professional bodies – American Meteorological Society

2 Search **academic articles** using Google Scholar (scholar.google.com)

(NOTE: Narrow and focus your search by using several phrases in quotes – such as “climate change”. For example, if you are searching for how climate change will increase the frequency of extreme weather events, don’t just enter “climate change,” search, instead for” “climate change” AND “extreme weather events”)

Search terms to use (you may certainly choose others):

“climate change” AND x, where x can be:

- water
- water quality
- water cycle
- access to water
- water insecurity
- drought
- water-borne illness
- water AND agriculture
- water AND migration

(NOTE: For some citations you find on Google Scholar, you can directly download the PDF. For other citations, you may be able to find and download PDFs if your University library offers on line access to academic journals.)

3 Do a **more general search** using Google or another search engine

Use the same search terms to do a general search on Google or another search engine. This will bring up information more recent than you find on scholar.google.com (it takes several years for research to be published in academic journals).

4 Search the **best newspapers** and **reputable climate websites**

New York Times, Washington Post, The Guardian

On line sources

- Climate Central
- GRIST
- Society of Environmental Journalists
- The Daily Climate
- Climate Nexus
- InsideClimate News
- DeSmogBlog
- Skepticalscience.com
- Yale 350

(NOTE about on line sources: You will run into a lot of denialist disinformation on the internet, on websites, on blogs, on youtube. FYI, skepticalscience.com has a

comprehensive list of denialist talking points (and refutations of those talking points).
See, for example: <https://www.skepticalscience.com/argument.php>)

Finally, here are some good citations to help you get started:

World wide:

“Thirsting for a Future: Water and children in a changing climate,”
https://www.unicef.org/publications/index_95074.html

“World Water Development Report,” <http://www.unwater.org/publications/world-water-development-report-2018/>

In the US

<https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1002/2016WR019638>

<https://www.nature.com/articles/ncomms14996>

Vulnerable cities:

<https://news.nationalgeographic.com/2018/02/cape-town-running-out-of-water-drought-taps-shutoff-other-cities/>

“Mexico City, Parched and Sinking, Faces a Water Crisis,”
<https://www.nytimes.com/interactive/2017/02/17/world/americas/mexico-city-sinking.html>

Some new good sources, added in the 2021 website revision:

New estimate of current water shortages world-wide

<https://www.theguardian.com/environment/2020/nov/26/more-than-3-billion-people-affected-by-water-shortages-data-shows>

“A Quarter of Humanity Faces Looming Water Crises”

<https://www.nytimes.com/interactive/2019/08/06/climate/world-water-stress.html?action=click&module=Top%20Stories&pgtype=Homepage>

Predicted water stress by 2050

<https://www.carbonbrief.org/world-population-facing-water-stress-could-double-by-2050-as-climate-warms>

A study published in *Nature Climate Change*

<https://www.cbsnews.com/news/climate-change-tropical-rain-belt-water-food-supply/>

Nations will fight over water

<https://www.dw.com/en/water-wars-are-india-and-pakistan-heading-for-climate-change-induced-conflict/a-47203933>