

Water Use

EQ #20- How is water used in the U.S. and how much do we use?

Water Fun Facts

- * As you come into class, grab a water fun fact from the bin
- * When directed, interview other students and record FIVE fun facts (including yours) about water in your INB LEFT side.
- * Water's pretty neat!

Water Fun Facts

- * About 70% of an adult body consists of water
- * Healthy adults can consume about 3 gallons of water a day.
- * On average, an adult can live ___ days without food but only ___ days without water????

More Fun Facts...

- * On average, an adult can live 3 weeks without food but only 3 DAYS without water (though some have survived up to 10 days without water...)
- * Over 80% of water in the U.S. is NOT used in our household residences...where is it used?
- * Earth is a closed system...so we don't make more water or lose it...but we can deplete it by

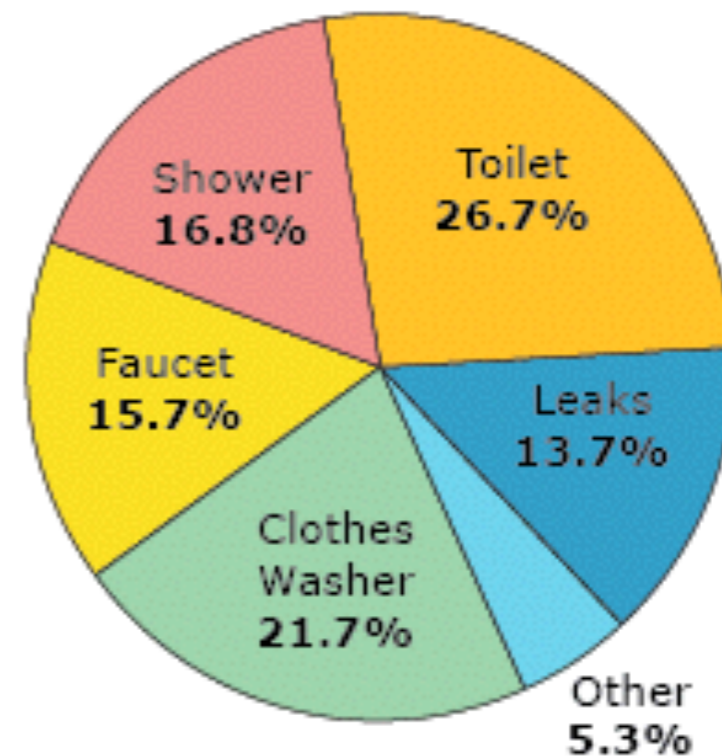
Personal Water Use Activity

- * Use the handout to guide you through the activity.
- * Predict your personal and family's water use in gallons used per day
- * Answer Questions 1-4.
- * Get a computer and run your numbers to find out how much you use. Use this site-
- * <https://water.usgs.gov/edu/activity-percapita.html>

How Much Water do Americans Use ?

- * The average American household uses about 300 gallons of water each day
- * The average American uses about 100 gallons per day.
- * 70% is used indoors; 30% is used outdoors (so more if this is calculated)

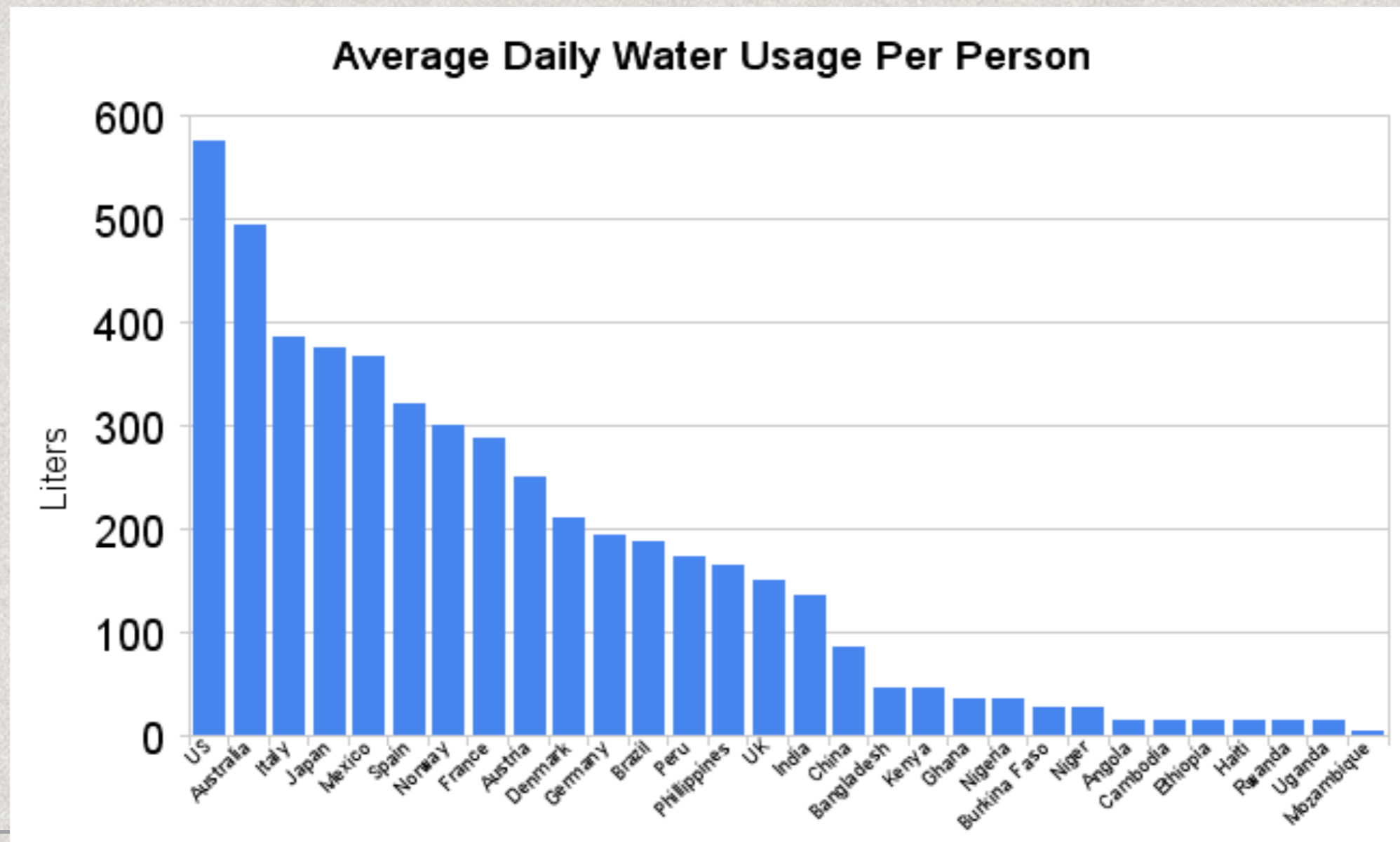
How Much Water Do We Use?



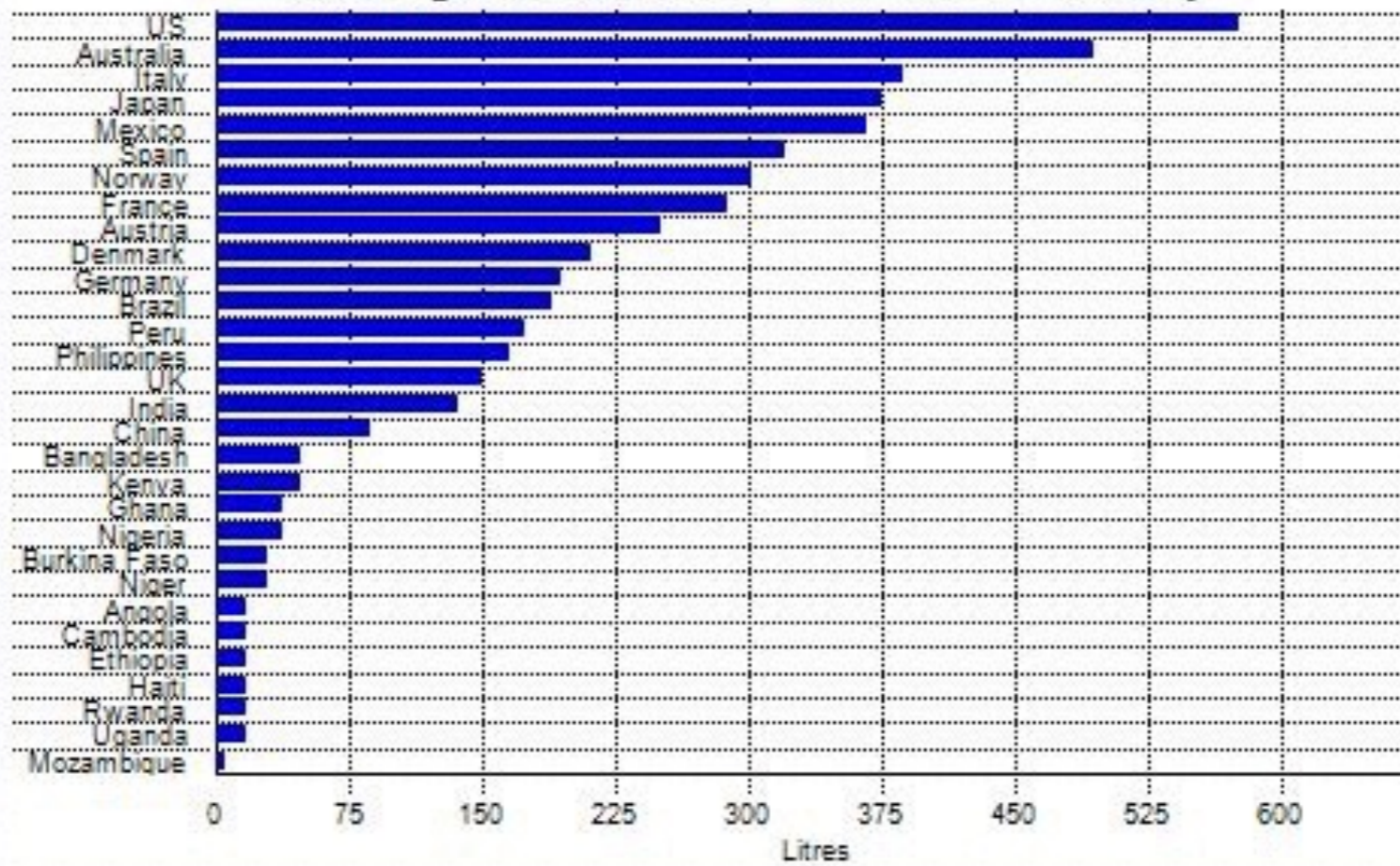
Source: American Water Works Association Research Foundation, "Residential End Uses of Water." 1999

How do we compare?

- * Relative Water Consumption Rates by region

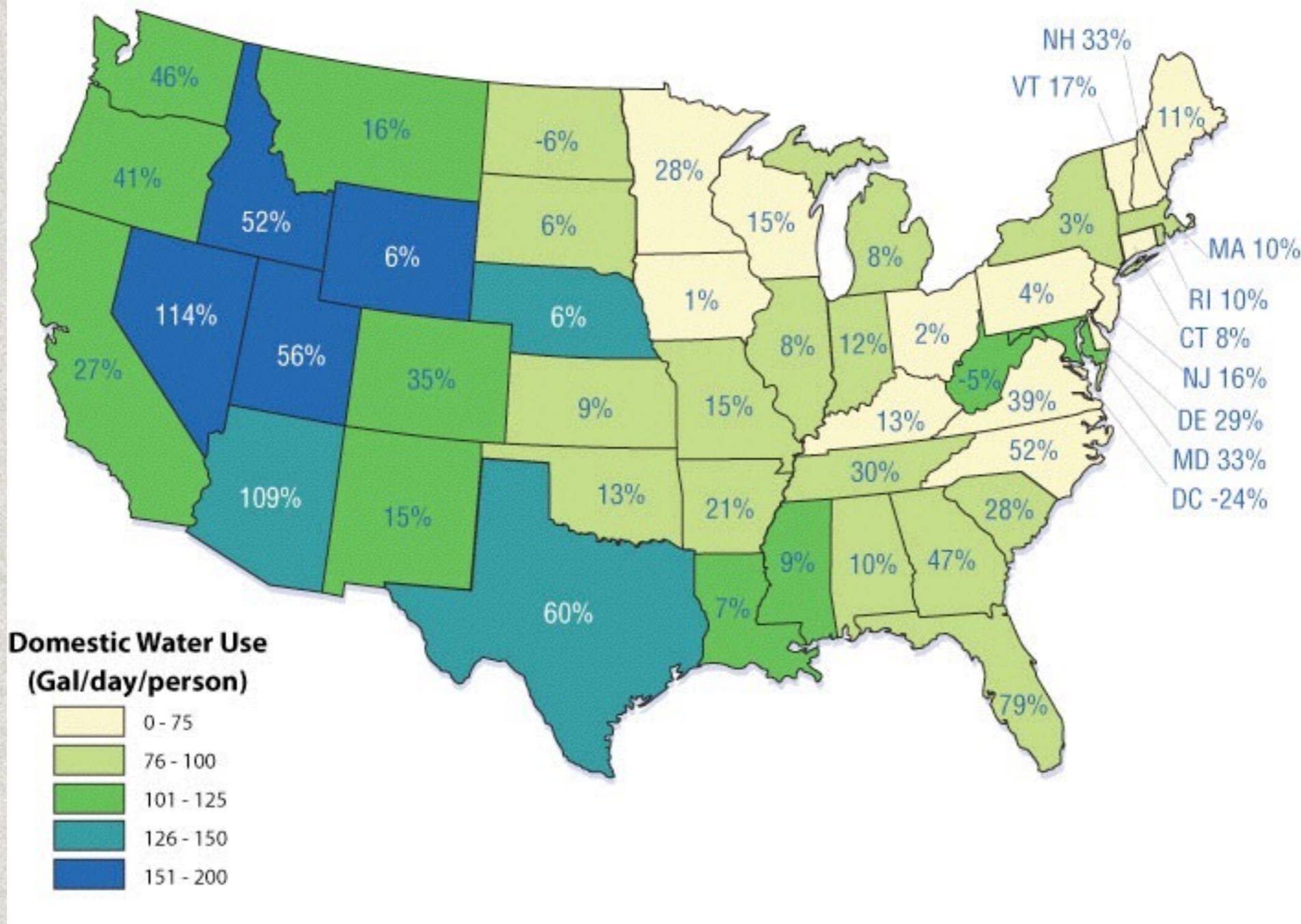


Average Water Use Per Person Per Day

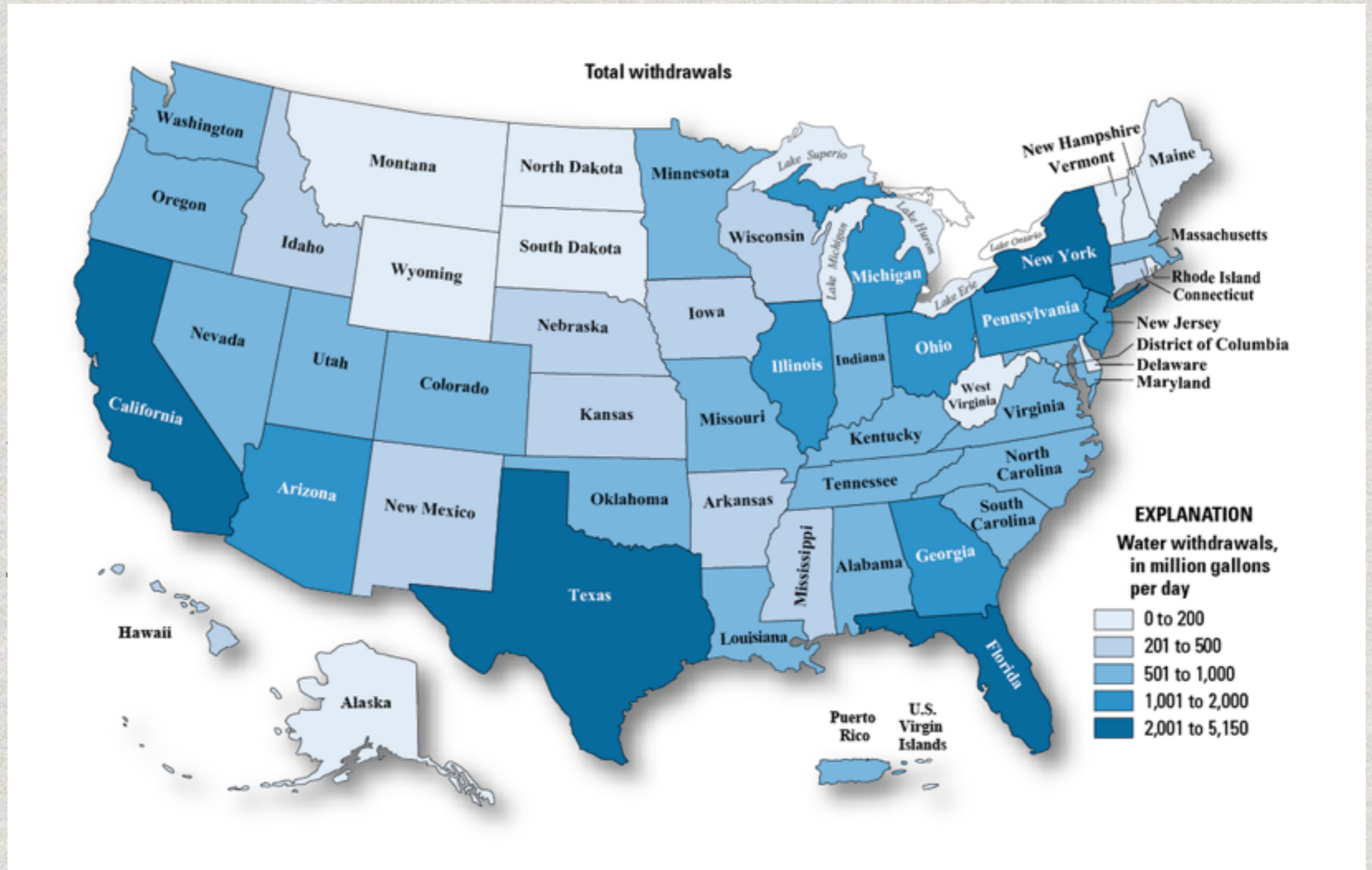


Where you live matters..

Domestic Water Use in Gallons per Day per Person and Projected Percent population Change by 2030



How do states compare today? (data from 2015)

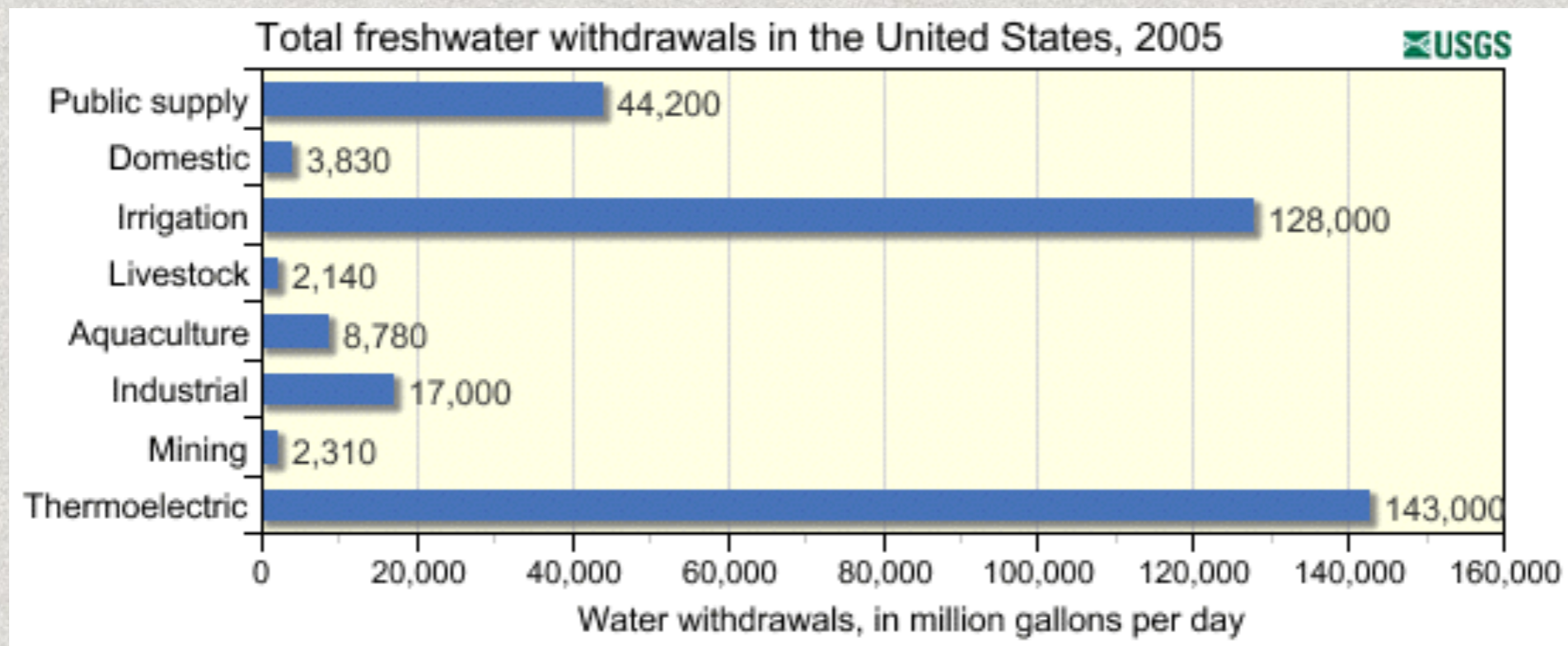


Water Use- Why is it different?

- * Some states have drier and warmer climates and use more water due to this
- * **Agriculture-** Farming and ranching uses HUGE amounts of water
- * **Recreation-** Golf courses, fountains, swimming pools, air conditioning and outside watering all consume domestic water in warm places
- * **Iowa = Best / lowest use; Nevada=worst/**

Relative Water Use

- ✳ Where does most water in U.S. go?



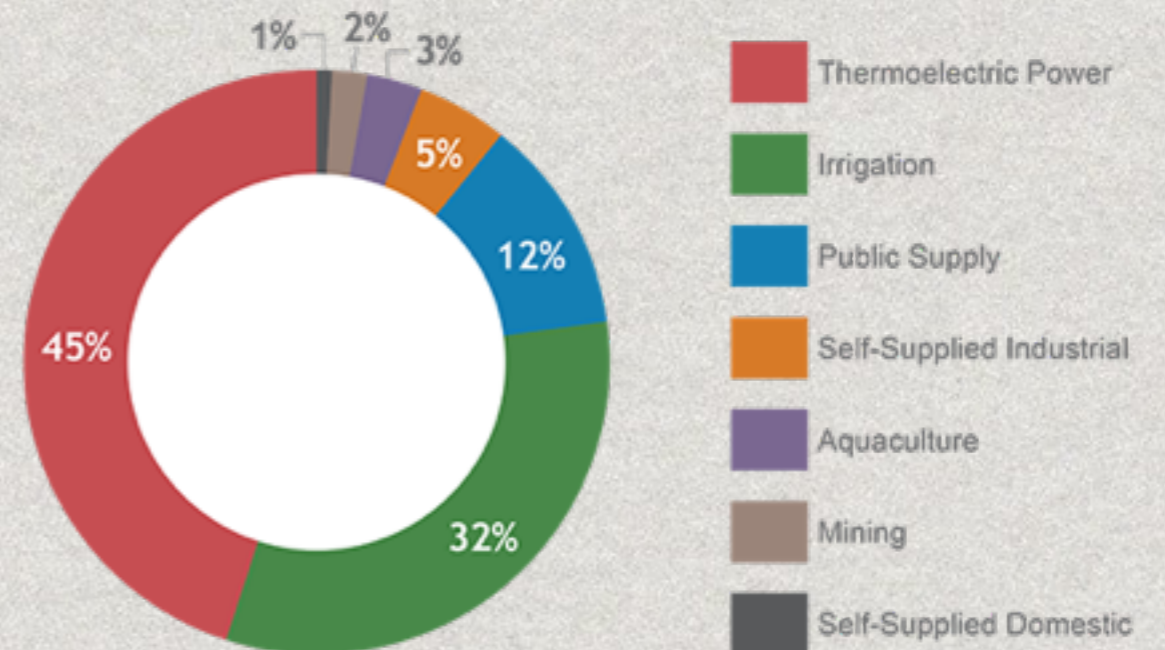
How much is domestic water use?

- * **Domestic water use** is water used by household residences in towns and cities throughout the U.S.
- * Is a small amount compared to industrial uses.
- * **How much water is used by industry** (commercially, for electricity, agriculture, products and in mineral and coal, oil and gas extraction)?

Overall US Freshwater Withdrawals

- * Most water is used to make electricity and for farming/agriculture
- * Thermoelectric Power = 45%
- * Irrigation/Agriculture = 32%
- * Public Supply = 12%
- * Industrial = 5%
- * Other = 6%

U.S. Freshwater Withdrawals (2010)



*Livestock is approximately less than 1% of total use and is not included.

*Data comes from Maupin, M.A., Kenny, J.F., Hutson, S.S., Lovelace, J.K., Barber, N.L., and Linsey, K.S., 2014, Estimated use of water in the United States in 2010: U.S. Geological Survey Circular 1405, 56 p., <http://dx.doi.org/10.3133/cir1405>.

Saving Water Saves Energy

- * The average American family spends \$1100 per year on water
- * Letting your faucet run for 5 minutes uses as much energy as running a 60 watt lightbulb for 22 hours!
- * Heating water uses a lot of energy. Coal, gas, and oil are the main ways we heat in the U.S.
- * Retrofitting faucets and showerheads with flow controls and buying Energy Star appliances can

What is a Water Footprint?

- * There are other ways we consume water besides direct daily use.
- * Everything we use, eat, wear, buy and sell takes water to make—directly and indirectly.
- * **What is a water footprint?**
It is the measure of all the water used to produce goods and services



Water Footprint Examples

- * A 1/3-pound **burger** requires **660 gallons** of water. Most of this water is for producing beef
- * 1 pound of **beef** requires **1,799 gallons** of water, which includes irrigation of the grains and grasses in feed, plus water for drinking and processing.
- * 1 pound of **chicken** requires **468 gallons**
- * 1 **egg** requires 53 gallons of water.
- * **Show Film Clip-** <https://waterfootprint.org/en/water-footprint/what-is-water-footprint/>

Water Footprint Calculator Activity

* Go to the site to calculate your water footprint.
<https://www.watercalculator.org/>

* **Answer these reflection questions in INB LEFT**

1. Record your individual and household **water use results / quantities** you get from the calculator.

2. What were **THREE** surprising things you learned about your water use? (look at results on the page below to get ideas).

3. Write a reflection (**ONE** full paragraph) about what you learned.

Article Debrief

- ✱ What key points did you underline and why? Pair share with a partner.

Water Conservation

Article- Questions

- * **Discuss and answer the questions below in your INB, left of your notes from this EQ.**
- * 1. In what ways does water cost energy? Explain THREE.
- * 2. What industry is the biggest consumer of water in CA? How much do they use?
- * 3. How can conserving water reduce air pollution?
- * 4. Is water too cheap? In what ways yes? Do you agree? Explain.