

LSN 35 In Class—BOD and Reaeration
CEEG 340—Introduction to Environmental Engineering
Instructor: Deborah Sills—18 November, 2019

Global Burden of Environmental Health Problems

Using an iPad or your laptop, go the following website: <https://vizhub.healthdata.org/gbd-compare/>.

1. Select the “Map” option on the top left.
2. Select “Risk” under “Display”.
3. Select “Unsafe water, sanitation, and handwashing” under “Risk”.
4. Select “Deaths” under “Measure”.
5. Select “Compare” on the top right and select “Air Pollution” (under “Risk”) for the second map.
6. Change the “Detail” from “1” to “2” to see breakdown of air pollution by state in the U.S.
7. You can also change the “Age”, and change the “Measure” to “DALYs”.

Comment on similarities and differences in health effects for *Unsafe water, sanitation, and handwashing* and *air pollution*.

DALYs

What is a DALY?

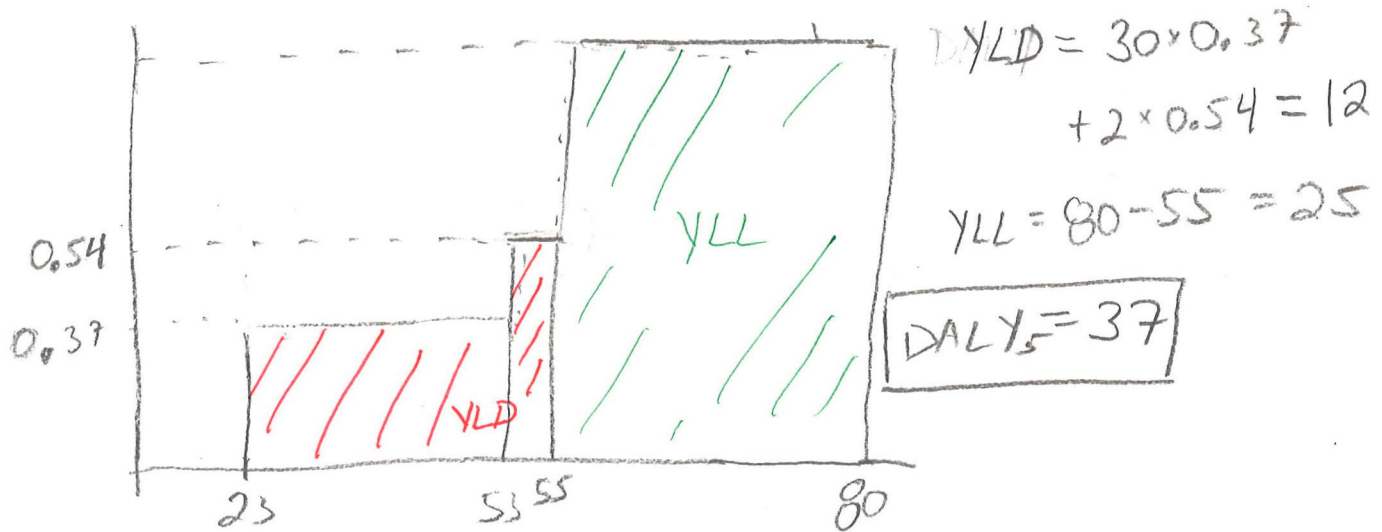
$$DALY = YLL + YLD$$

↑ YEARS LIFE LOST

↑ YEARS LIVED W/ DISABILITY

$$YLD = W_{DISABILITY} \times DURATION$$

Calculate the DALYs associated with the following scenario, assuming a life expectancy of 80 y. All disability weights were obtained from Salomon et al., 2015: A woman suffers from moderate alcohol use disorder for 30 years starting at the age of 23 (disability weight of 0.37), contracts liver cancer (linked to her alcohol consumption) at the age of 53 (disability weight of 0.54), and dies from cancer at the age of 55.



References

Salomon, J. A. et al. (2015). Common values in assessing health outcomes from disease and injury: disability weights measurement study for the Global Burden of Disease Study 2010. The Lancet.