Teacher’s Notes

## Module Materials

This module contains a word document and several optional infographics. Students may be unfamiliar with variables related to human demographics or the units by which carbon emissions are reported. Therefore, the infographics may be useful as pre-class resources.

## Module Goals

1. Awareness of online repositories for global datasets related to human demography and carbon emissions.
2. Gain a broad understanding of the varying relationships between human population trends and fossil fuel emissions.
3. Apply quantitative reasoning and critical thinking to explore future relationships between changing climates and populations patterns across political boundaries.

## Learning objectives

Upon completion of the module, students will be able to:

* Explore and learn the contributions of both countries and individuals to global carbon emissions.
* Evaluate and report the demographic factors that drive human population growth.
* Become familiar with navigating and utilizing data-centric online tools to explore global change phenomenon.

## Lesson Plan:

* A brief overview of upward trends in both human populations and fossil fuel emissions. This could include pre-class assignments of exploring the online tools or reading the infographics.
* The format of the module will depend on available time:
  + Lecture time slots: often students can finish the Part 1 of the module and start Part 2 before the class ends. I usually run through an example of how to click through the World Population Prospects before class ends, for students that may need to continue working at home.
  + Lab slots: The module could easily be completed in a laboratory or longer class period.
  + This assignment could also be assigned as homework. I would suggest some posted videos that walk students through how to use World Population Prospects online tool.
* If in class, module will work best in small groups with one computer. However, individuals can easily complete the module. Some amount of problem solving is often needed with the use of World Population Prospects, as there are lots of options to explore.
* Follow-up: Have students read resources about countries that emit less but are more affected by global change. Then students can reflect on how and where we should focus emissions mitigation strategies.

## Modifications

Many modifications are possible with the World Population Prospects. Specifically, exploring and evaluating age structure pyramids (by country) is an important avenue to teach students about population dynamics.