

[This is an in-class activity from the course that is part II of the introductory core series for undergraduate students in the Environmental Studies major. I received TRESTLE funds to work on the development of this course in Spring 2017.]

ENVS-1001: Introduction to Developing Environmental Solutions

Instructor: Eve-Lyn Hinckley

The following exercise refers to the Ted Talk by the late physicist, Dr. David MacKay, on the feasibility and future of renewable energy. We watched this video during our previous class period (YouTube video available online: <https://youtu.be/E0W1ZZYIV8o>)

Weeks 12: Interpreting and Simplifying Complex Figures

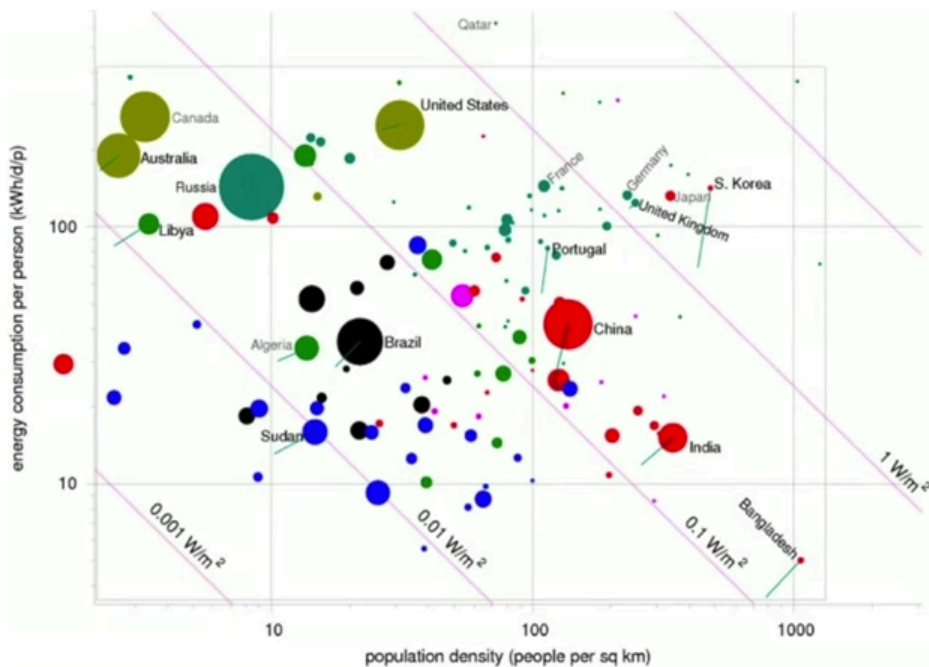
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Learning Objectives:

- 1) Correctly break down the components of a figure and identify the main points the researcher is trying to make. [*Reinforcement of this learning objective*]
- 2) Correctly label your revised figure, and articulate logical reasons for the choices you make in creating your revision. [*Introduction of this learning objective*]

With your partner, evaluate David MacKay's figure of per capita energy use and population density below. We have discussed in class that this is a very complex figure to interpret:



Part 1: Break it down

Define each of the major elements in the figure: axes, symbols, colors, lines, etc. What does each represent and/or what is it meant to convey?

Part 2: Revise and redesign

Create a revised, simplified version of this figure. Retain MacKay's main points that you think are important to communicate to an audience. Remember the steps that we discussed in class:

- 1) Decide on the main point(s) that the figure is supposed to communicate.
- 2) Choose the type of figure (e.g., bar, line, scatterplot) to create based on the data.
- 3) Fill in the necessary information to convey the main message(s).

For the purposes of this particular exercise, address:

- 1) Why did you choose your particular figure format (e.g., bar, line, scatterplot)?
- 2) In simplifying the figure, what information do you give up or lose?

[Completing this exercise took two full class periods after the students had watched the video. We discussed how easy it is to listen to a speaker and let information “fly by” without thinking about it; this can happen in a talk or in the classroom. We talked about how to slow down, look carefully at the presentation of data, and approach determining what the presentation conveys, how rich it can be. In breaking down and then creating their own revisions of this complex figure, and articulating what they chose to show and what they lost in simplifying, students had to demonstrate a thorough understanding of the speaker's work.]