Chapter 3

Improving the Understanding of Climate Change Factors with Images

Geoff Russell
Curtin University, Australia

ABSTRACT

In Australia, the public got its first mass marketing about climate change and the measures that would be required to avoid it, by TV images of black balloons and Professor Tim Flannery turning off light switches. Journalistic coverage has been similarly dominated by household electricity. More technical literature is generally dominated by the concept of “carbon dioxide equivalence” (CO2eq) as spelled out in the Kyoto protocol. This concept isn’t used in climate models because it makes no physical sense. The use of CO2eq and the focus on household electricity has lead to a profound mismatch between the causal factors as understood by climate scientists and causal factors as perceived by the public. “The public” here isn’t just the general public, but people of many backgrounds with a strong interest in climate change but without the deep knowledge of professional climate scientists. We need images consistent with climate models, which accurately rank the causes of climate change and guide proposed actions. Such images point to meat as a key focal issue.

INTRODUCTION

Nobody needs a poll to accurately rank the annual numbers of car driver, cyclist and skateboarder fatalities on our roads. Similarly, everybody understands that black pepper, vinegar and goji berries are insignificant parts of the global food supply; so yield increases aren’t going to reduce global hunger. We all have passably accurate mental images and metaphors of such matters, which work.

However what about the global output of ocean fisheries? How does that compare to bananas? Or sausages? According to the Food and Agriculture Organisation of the United Nations (FAO, 2014a), the entire output of ocean fisheries supplies little more energy per person per day than a sugar cube (about half a teaspoon; 9 Calories). The entire meat output of the planet’s 1.5 billion cattle is somewhat larger
but still quite small at just 1.4 percent of global food energy; about 4.5 sugar cubes per person per day (40 Calories). And sugar itself? About 22 cubes per person per day (197 Calories). Wheat and rice each come in at about 18 percent of global food energy; 57 sugar cubes (526 and 544 Calories respectively).

These kinds of facts surprise people because our knowledge of the relative importance of different foods is driven by our personal history coupled with our immersion in an ocean of advertising.

Similarly, when it comes to the factors contributing to climate change, few people understand even the rankings, let alone the relative size of causal factors. In Australia, the public got its first mass marketing about climate change and the measures that would be required to avoid it, by TV images of black balloons and Professor Tim Flannery turning off light switches. Journalistic coverage has been similarly dominated by household electricity. The degree to which food choices affect climate is largely unknown. Our mental maps and metaphors rarely bear any resemblance to the facts.

The use of CO2eq and the focus on household electricity has led to a profound mismatch between the causal factors as understood by climate scientists and causal factors as perceived by the public. “The public” here isn’t just the general public, but people of many backgrounds with a strong interest in climate change but without the deep knowledge of professional climate scientists. This chapter begins with a survey of the extent of ignorance of the environmental impacts of food choices and then tackles what we think is a major impediment to clarity. Next we present some figures, which help people rank and quantify the environmental impacts of various activities.

First let’s establish the necessity of global dietary reform in any plan to prevent further climate destabilisation. Figure 1 is adapted from (Pelletier & Tyedmers, 2010). The top quantity, 8.9 giga-tonnes, is measured as “carbon dioxide equivalent” (CO2eq) following the source image. It represents the Copenhagen Diagnosis Review (COP) (Allison et al., 2009) estimate of what global per person greenhouse gas emissions should be by 2050 on the path to climate stabilisation, given a population of 8.9 billion; it represents one tonne per person per year. Note that this emission budget covers all sources: food, electricity, transport, etc.

Figure 1. Diets and our greenhouse gas budget