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The world we live in is complex. People with specialized knowledge, such as scientists, engineers and economists, put a lot of effort into analysing it, but this can be wasted on society if the results aren't communicated effectively and if those using it don't understand it.

One can think of many examples of the need for the effective communication of complex technical information: a decision on a major construction project such as the building of a dam, a mine or a pipeline or, at a more personal level, buying a house or selecting a business investment.

Perhaps one of the clearest is when civil authorities have to decide whether to order the evacuation of an area because of the likelihood of a natural event that can't be predicted with certainty, such as a flood, volcanic eruption or an earthquake. What is the likely magnitude? What are the potential consequences of action or of inaction?

Communicating and understanding complex information is far from straightforward and the information is often simplified in an attempt to make it understandable. This can be done in several ways, such as by using qualifiers (e.g., "… there's a high chance that …"), classifying according to a standard system that a user is expected to understand (i.e., put into "boxes"), summarizing in simple language, putting it in tables and, since they say "a picture is worth a thousand words", in a diagram or graphical form.

Experts who provide information to people who make important decisions have a responsibility to present it clearly and concisely – and to explain it. The persons receiving the information also have a responsibility to fully understand the key elements, particularly if they lack the background to fully understand the actual situation.

Here are some of the things that people presenting and receiving this type of information need to consider:

Is it appropriate for the purpose – e.g., does it measure the right things?
Is it presented in the right way for the audience? The same information may be presented differently, depending on the issue and on the level of understanding of those receiving it.
Is it too simple? Simplified information must often be supplemented by additional explanation.
Is it too complex? Listing everything and explaining it in great detail can obscure the important factors.
Does it use the right words? The same word can mean different things to different people and, as Winston Churchill said, "Know the long words, use the short ones".
Is it being considered in isolation? Often, it's only one small part of a much larger picture.
What is the uncertainty? There's a natural tendency to ignore or underestimate the inherent uncertainty associated with any estimate or measurement. The question to ask is usually not, "is this right?" but rather "how wrong could it be, and what are the consequences?"
What is the worst case, how likely is it, and what are its consequences?

The communication and use of complex and uncertain information is a shared responsibility. Those creating it should communicate it clearly. Those using it should make sure that they understand it.

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