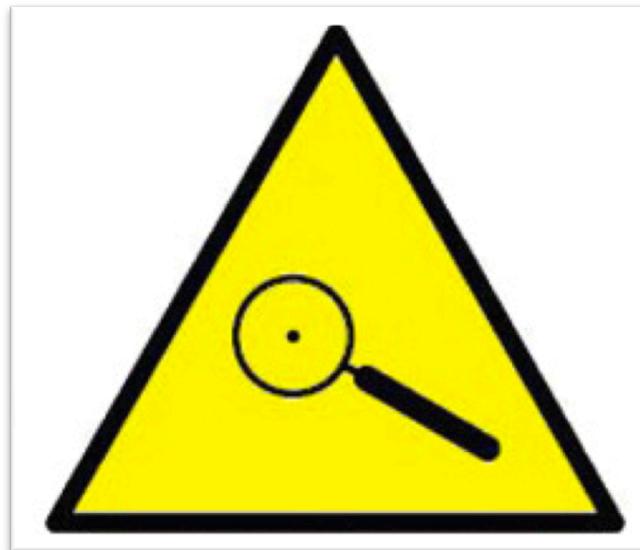


SOUND SCIENCE

“POLITICAL” SCIENCE: Does establishing a UN facility for technology assessment politicize science? Some agencies and treaties have subsidiary scientific bodies and some of these have been accused of allowing governments to interfere in their scientific work. However, one of the biggest changes since the 1992 Earth Summit has been the transformation of publicly-funded science to work in the service of private industry. When some governments – and many companies – express concern about the politicization of science they may be more concerned that the corporate monopolization of science and technology will come under governmental -- and societal -- scrutiny.



THE SOUNDS OF SCIENCE: Science not only comes under pressure from industry but also from the cultural and economic biases that afflict other sectors of society. The mantra that “sound science” must decide an issue assumes a firewall between science and those with a vested interest in the outcomes of science, guaranteeing independent and, in fact, the best possible decision-making. This in itself is a highly speculative notion, perhaps even no more than wishful thinking.

GENDER AND RACE: In the last few years, a series of investigative reports has disclosed that both science research grants and acceptance of peer reviewed studies is habitually biased by gender (where one 2007 study concluded that women had a 7% less chance of receiving grants than men of equal training and experience)¹ and race (where a 2011 study concluded that African-Americans and Asian-Americans were, respectively, 13% and 4% less likely to be awarded grants than Euro-Americans with the same qualifications).²

RIO+20 AND TECHNOLOGY ASSESSMENT

Technology Transfer (“Know-How”) without Technology Assessment (“Know What”) is like buying airplanes and training pilots without building airports and training air-traffic controllers. ETC Group’s series of issue papers and case studies call upon Rio+20 to establish UN-level Technology Assessment either through an Office of Technology Assessment attached to the UN General Assembly or through a specialized unit attached to a new sustainability facility associated with ECOSOC, UNCSD or UNEP.

CONFLICTS OF INTEREST: The political problems of peer-review are most evident in medical research where leading journals have had to lower their standards for “conflict of interest” because they can’t find enough qualified scientists without conflicts.

The practices of “sound science” in peer-review are manifold and complex. In September 2011, Bayer reported that two thirds of the drugs they pursued based upon peer-reviewed studies had to be dropped because the results could not be repeated. A Stanford researcher found that 16 of the 18 peer-reviewed papers accepted by *Nature Genetics* could not be replicated, probably because the published articles didn’t disclose sufficient information. Companies like Bayer and Amgen believe that half or more of all peer-reviewed scientific studies cannot be replicated. One reason for this, many believe, is that the authors won’t make all their raw data available to rivals. Researchers and their corporate bosses are also shy of reporting bad news. In one study of drugs recently submitted for clinical trial, investigators found that the results of one quarter of the trials – mostly unfavorable – were not submitted for publication. Many regard this as unethical since the drug testing involved human subjects. The quality of medical research may be worsening as a result. According to *Nature Reviews* in May 2011, the success rate of Phase 2 human trials has fallen from 28% to 18% in the last four years.³

LATE LEARNING: Classic “basic science” queries, in the early stages of a new technology, can be less insightful than broad historic and socioeconomic overviews. When scientists aren’t able to replicate other researchers’ results, it is often because of extraordinarily minor differences in methodology or context (including geographic location). In a review of the US National Nanotechnology Initiative in 2010, for example, scientists agreed that the same test of presumably identical carbon nanotubes conducted in Boston, Houston or Berkeley could lead to very different results.⁴ “Sound science” should be more open to learning from experience: the advent of the microscope led to major disputes among the researchers looking through them who – depending on the quality of the lenses (and their own eyesight) – often saw different things.⁵ Dependence on scientific results, then, could be misleading whereas a wider public evaluation could offer useful guidance.

Transparency and participatory assessment should give science a welcome additional lens and give society additional confidence. A chorus will be the best “sound of science.”

FOR MORE INFORMATION

ETC Group has published several documents on issues related to Rio+20 and Technology Assessment, including *Who Will Control the Green Economy?* and *Tackling Technology: Three Proposals for Rio (Submission to Zero Draft)*, available on our website: www.etcgroup.org/en/rio

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