

*In this interview, Sheila Jasanoff, expert of the 'science of looking at science' from Harvard Kennedy School, warns that regulatory bodies alone cannot take decisions on thorny contemporary scientific issues, such as how to regulate the CRISPR gene editing technology, without involving society at large. She explains how the first order of framing research with society's input is crucial for the future of science before even framing the problems to solve in scientific terms. This approach also implies putting oneself in the shoes of the people objecting to the results of scientific research.*



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## **Sheila Jasanoff: framing research with citizens' perspectives**



### **Research without society's input lacks balance**

Sheila Jasanoff is director of the program on science, technology and society at the John F. Kennedy School of Government at Harvard Kennedy School, Cambridge, Massachusetts, USA. She is one of the world-expert on dissecting what's in the mind of scientists when they take decisions about their research.

She often likes to strike a discordant note when speaking with scientists. As she did at [ESOF2016](#) in Manchester, UK, where [Euroscientist](#) met her in July. In this interview, she warns that regulatory bodies alone cannot take decisions on thorny issues, such how to regulate gene editing technology CRISPR-Cas9, without involving society at large. She believes consulting citizens is a priority, even before framing the scientific problem.

## Science of looking at science

Born in India, Jasanoff studied mathematics as an undergraduate at Radcliff College, Cambridge, MA, USA, before turning to a Masters in linguistics, at the University of Bonn, Germany. She then completed a PhD in linguistics in 1973 at Harvard, Cambridge, MA, USA. Subsequently, she studied law at Harvard Law School in 1976 and practised environmental law. Today, she is professor and her academic discipline, which she founded in the nineties, referred to as 'science and technology studies', lies at the frontier of sociology, law, ethics, and epistemology. It is motivated by the idea that "science and technology can be put under the lens and studied for themselves," as she puts it.

Her core idea, reaffirmed in her latest book [The Ethics of Invention: Technology and the Human Future](#), is that technology is never neutral. Indeed, choices – even when scientists themselves are often unaware of it – are always associated with values. And decisions are always inextricably entangled with their social context.

"The idea that scientists ought to know something about society", "the awareness that there could be social implications" in their work "now across the industrial Western world is quite well accepted," she admits. And this is in part a result of her year-long efforts. In the accompanying *Euroscientist* podcast, Jasanoff explains that often "scientists' understanding of what it is that the public doesn't understand is very poor." It's much easier to think that people are just not getting the science.

## Finding the facts about the right things

She draws a parallel between the lack of trust of the public in scientists and the lack of trust in government, exemplified by the recent Brexit debate where UK politician Michael Gove famously commented: "people in this country have had enough of experts." She explains: "the reasons for public distrust are very understandable and don't have much to do with whether they trust the scientist to be finding the fact or not." She believes, instead, that "they do not trust the scientist to be finding the facts about the right things necessarily."

She maintains that people react to how the research is being framed. "Scientists think that the first order of framing is to frame in scientific terms," she contends, "The idea that there is a prior step before you got to say what is the science, namely what is the issue, does not occur to them as a problem worth thinking and reflecting on."

## CRISPR technology in the spotlight

To take a concrete example, Jasanoff [uses](#) a famous novel technology, the gene editing technology CRISPR-Cas9. "Scientists think that now that they have this technique and it's cheap and easier," she says, no obstacle should be put in the way.

"I have no doubt that the enzymatic reactions work as brilliantly well as people think. But that the release of an uncontrolled number of CRISPR animals into the biosphere, I think that is something to worry about," she adds.

There's a tacit agreement with the use of gene editing, that is that there should be no germ line gene altering. Obviously, she says, the dominant discourse in the scientific community is that if this norm exists, it is old-fashioned, and it needs to be set aside. "May be we should set it aside, but surely it will not be that we will tolerate germ line gene editing for every possible purpose." "First of all as a lawyer," she says, "if we have a tacit human-right-kind-of-convention about a matter like that, we shouldn't throw it overboard without thinking just because scientists say we are in a big rush to do it. There are reasons why that norm is in place."

Even the language used by scientists referring to CRISPR-Cas9 gives away what *Weltanschauung*, or world view, they have. Jasanoff said at the ESOF's opening session--attended by Emmanuelle Charpentier, one of the gene editing technique's co-discoverer-- that the editing metaphor "worries" her. The use of this expression, she thinks, implies that scientists have an over-simplified idea of what the genome is like. "The simplicity or accuracy metaphor, the snipping, the cutting with the scissors... these things are dangerous because they breed a kind of self satisfaction about how well we understand something." She believes that the word "editing" implies a correction of something that is wrong, with respect to something "right": "you can't get the text right until you know what the right text is."

## **Epistemic charity**

In a second podcast excerpt of the *EuroScientist* interview, Jasanoff, while rushing on her way to the hotel, reflects on what scientists should do to tackle people who have objection against science, introducing the concept of "epistemic charity."

Instead of just reading extremely critically and figuring out the weakness in an opponent's argument, epistemic charity involves figuring out what this person really means and assessing them critically in terms of what that project is. This implies, Jasanoff suggests, giving them the benefit of the doubt, assuming an inner rationality to what they want and trying understand that. She sums up her view: "Instead of anti-science, the focus of the inquiry would be: what are they for that's making them what looks to me as anti-science? If you say: let me try to understand what they are for, that reopens the door for discussion and debate."

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