

● Science-society dialogue: a prerequisite for sustainability science

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Background

Sustainability science claims to be the science behind finding solutions to the major social, economic, health and environmental challenges of the 21st century. It is therefore confrontation with the “real” world that determines the research problems, rather than questions specific to the scientific disciplines involved. This exogenous approach implies that research must be sensitive to the expectations and needs of citizens, and must therefore maintain a dialogue with them, so that the resulting advances and innovations are appropriate to society and lead to truly sustainable solutions.

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Further reading

<https://www.ird.fr/une-feuille-de-route-pour-une-science-ouverte-et-partagee>

The paradoxical relationship between researchers and citizens

If sustainability science is to become an integral part of society, it must create the conditions needed for dialogue between the various stakeholders in society and the scientific community. UNESCO stresses that “it is critical to develop the necessary interfaces between science, policy and society that can help advance sustainability knowledge and action, enhance adaptive management and societal learning, and provide for scientific bases to policymaking and decisions and actions by civil society”.¹ But where are we today in science-society dialogue? It is taking place in a context whose paradox has been highlighted by the health crisis. Studies and surveys conducted in the United States and Europe,² along with others in India and China, show that most citizens believe that science and technology play an important role in bringing about radical changes in society. The public expects science not only to produce new knowledge, but also to inform public policy and draw on scientific expertise to deal with environmental or health crises, for example. However, at the same time, the links between citizens and scientists are weakened by the mistrust that certain parts of society – which are growing in France³ – have towards science.

Scientists’ objectivity, their independence or their ability to distance themselves from their own particular interests may therefore be called into question. Widespread support for theories – including those of climate sceptics, creationists and flat-Earthers – that challenge research-based knowledge is particularly worrying on the internet and social networks, where scientific knowledge and beliefs coexist on an equal footing. The Covid-19 pandemic seems to have deepened the mistrust of science. It brought doubt, hypothesis-based arguments and disagreements – all inherent in the research process – into full view, while the public, largely unaccustomed to being exposed to such uncertainty and conflict in the media, expected experts to provide firm answers to their questions and reassure them of their legitimate concerns.

Trust and reciprocity as a basis for dialogue

Sustainability science requires trust between scientists and citizens, which must be built on reciprocal exchange. In recent years, the design of mediation activities between the scientific community and the general public has moved in this direction. For many years, the dissemination of scientific culture or science

1 • https://en.unesco.org/sites/default/files/2511_17_f_sustainability_science_flyer_fr_f.pdf

2 • For Europe, see the Eurobarometer studies; for the United States: <https://www.pewresearch.org/fact-tank/2020/02/12/key-findings-about-americans-confidence-in-science-and-their-views-on-scientists-role-in-society/>; for China and India: RERIMASSIE V. *et al.*, 2015 – *Public Perceptions of Science and Technology in Europe, China and India, Science and Technology Governance and Ethics*. Springer: 25-37.

3 • <https://www.ipsos.com/fr-fr/barometre-science-et-societe-les-scientifiques-de-moins-en-moins-epargnes-par-la-defiance-des>

communication was designed to follow the “deficit model”. This model considered that citizens – because they were generally suspected of being scientifically illiterate – were not capable of appreciating the value of science, let alone debating the issues it raised, and that it was therefore necessary, through one-way communication or “instruction”, to plug the gaps in their knowledge before even considering giving them the right to debate. Today, this model is outdated and sustainability science requires it to be so. A shift in the relationship between scientists and citizens is now under way and was promoted recently in the French Ministry of Research’s strategy under the Research Programming Law, which calls for a renewed emphasis on the place of science in society.⁴ This urges scientists to adopt a new approach: rather than imposing their expertise as a “top-down truth”, they are encouraged to engage in a genuine dialogue that is used not only to share their knowledge and practices, but also to discuss their limitations and the doubts and questions raised by their research. This is a far cry from the deficit model based on the paradigm of the divide between researchers and the public, often illustrated with the image of an unbridgeable gap between scientific and “lay” knowledge. Now, the knowledge and experience of communities, especially those benefiting from research, is recognised and may even become an integral part of the scientific process, as is the case with participatory science.

Sustainability science, which is intrinsically democratic, thus focuses on research that is co-constructed with the various stakeholders in society: “Scientists, elected officials and any other members of the public are potentially co-authors of the solutions to be implemented to support sustainability. They are involved at all stages of the process, from the creation of knowledge to its dissemination and use.”⁵

A priority objective at IRD

Science-society dialogue is one of IRD’s priority objectives, as stated in its 2016-2030 strategic plan (priority objective 6) and in its recent roadmap for open and shared science. For several years, mediation mechanisms designed by the Scientific and Technological Culture Mission have helped to strengthen these exchanges between researchers and the public. Particular emphasis is placed on young people, so that through an introduction to the scientific process and meetings with researchers, they can play a leading role in sustainable development, in an informed and critical manner. These mechanisms include IRD’s Youth Clubs and the ePOP project, which encourage high school and university students from the Global South – more than 300 each year – to engage in research and debate with scientists. These are just a few of the initiatives undertaken by IRD that promote dialogue between

4 • Extract from the report appended to the French Research Programming Law https://cache.media.enseignementsup-recherche.gouv.fr/file/culture_scientifique/417/Brochure_science_societe_1404417.pdf

5 • <https://www.cairn.info/revue-natures-sciences-societes-2014-2-page-114.htm>

science and society and are firmly rooted in sustainability science. There are many others, including experiments combining art and science, interactive exhibitions, serious games, multi-stakeholder programmes and participatory science. Although significant progress has been made at IRD and elsewhere to promote science-society dialogue, there is still much to

be done. With this in mind, the roadmap for open and shared science recommends in particular that action in this area be included prior to research planning and throughout its implementation, that researchers' skills in this area be strengthened, and that activities focusing on science-society dialogue be given more weight in scientists' evaluation processes.

KEY POINTS

The health crisis has highlighted the ambiguous nature of the relationship between science and society, which is divided into two extremes: trust and mistrust. This situation makes it more necessary than ever to create the right conditions for dialogue between researchers and citizens, a prerequisite for sustainability science, so that development stakeholders can adopt the latest scientific advances and innovations and offer socially, economically and environmentally sustainable solutions. Accordingly, IRD's roadmap for open and shared science recommends:

- strengthening IRD's capabilities around science-society dialogue;
- including the end-beneficiaries in the research process;
- ensuring that research findings on priority SDG issues can be readily adopted;
- taking activities related to science-society dialogue into account in the evaluation processes of IRD scientists and mechanisms.

SUSTAINABILITY SCIENCE

UNDERSTAND, CO-CONSTRUCT, TRANSFORM

Collective thinking coordinated
by Olivier Dangles and Claire Fréour

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