Submission on the “Right to Science”

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This submission is intended to contribute to discussion on the “right to science” at the above-referenced meeting, which the author (correspondent) cannot attend.

Two proposals are outlined: 1) Recognition of an inherent “fourth” constituent right to science, which is the right to use scientific knowledge to critically evaluate the effects of technology, policies, and the application of scientific knowledge on individuals, communities, populations, and ecosystems. 2) The application of concepts of “public” and “private” knowledge and application of this construct to seek a balance in protecting interests of indigenous and minority peoples.

**The “right to science” is a natural right that also has utility in justice, development, and advancing the scientific enterprise**

Scientific freedom and human rights are natural rights recognized under the International Covenant on Civil and Political Rights (1966) and the Universal Declaration of Human Rights (1948; Article 27).

The relationship between scientific freedom and human rights is as deep on the side of science as it is on the side of human rights. Issues of who benefits, who is allowed to contribute to science, who has a say in how science is governed, and how science is admitted into society and culture have come to maturity more recently. Taken together, these issues are called “the right to science” and form a new framework for considering a full range of issues in science and technology.

“The right to science” informs analysis of ethics, STEM capacity building (in a global economy that punishes countries that are not engaged in science), support for research, freedom to pursue scientific questions where there is an interest and resources to do so, freedom to pursue science for applications that will benefit a particular community or country, and freedom to use the knowledge and methods of science and technology for personal benefit and gain. With the implications of a right to science come countervailing scientific responsibilities, and with them questions of governance of scientific conduct and institutions and scientce and technology for social benefit. The right to science also promotes diversity in the scientific enterprises, which facilitates insights and conceptualization of problems, applications and proposed solutions to problems, capacity building and recruitment of talent, lower barriers to dissemination and diffusion of scientific knowledge, and more thorough comprehension of science as accumulated knowledge is integrated into national educational system and local culture.

The concept of a “right to science” provides a framework for the elaboration of ethical principles in science and for science policy. Actual change can only be effectively achieved within a country’s own political and economic system. However the legal standing of an internationally-recognized right to science has persuasive force.

**There are three constituent “rights to science”: a fourth should be recognized**

The right to science does not stand alone. It is reciprocal with other rights, such as the right to take part in cultural life, freedom of expression, and of movement. There are three constituent “rights to science” enumerated within the general “right to science”: 1) the right to participate in science, 2) the right to benefit from science, 3) the right to benefit from a person’s own contribution or invention. Later in this paper it will be argued that there is a fourth constituent right, which is the right to access to scientific information to build “critical science” using scientific knowledge to address and resolve societal and ecological problems arising from the application of science and technology.

Under these three overriding rights are a series of subsidiary rights (subsidiary as they apply to science – some of them are inalienable human rights in other contexts), including freedom of access to information, freedom of expression, freedom of movement, as well as enabling rights such as the right to participate in decisions about science and rights to information and the right to an environment that “fosters the conservation, development, and diffusion of knowledge” (from an interpretive document prepared for the UN Human Rights Council).

The notion of a right to *contribute* to science has economic development, individual, and cultural implications. Science is the central way of knowing of the material culture and if the society cannot participate wholly in science is less able to understand and engage with the influence of technology in life, interact with societies in which science plays a dominant role, respond to changes that occur with economic and technological change, and incorporate the ideas of science into its own way of thinking. If a society is not participating in scientific research, then its citizens are not in the network of information sharing, cannot learn by experience, and cannot master the techniques of practice. The result is that the country cannot build capacity and becomes a client of STEM-knowledge generating societies. The individual is denied a role in modern society. Thus the right to contribute is substantial and has to do with maintaining and enriching as well as challenging cultural identity.

The rights (plural here, for society and individual) to *benefit* from science are more obvious. Scientific knowledge is universal and research is a global enterprise. It should be shared and all should benefit. While not everybody has the capacity or education to know, access to education is its own right and the right to know accurately about the material world and the views that science provides is essential to making that right meaningful and connecting it to culture and the right to participate in one’s culture. The tangible benefits of science, such as improved quality of life, improved health, prospects for a continually improving future for coming generations, policy and governance based on fact rather than supposition, economic development, and the invention of particular products and methods are by right available to society and should be accessible to the individual to the maximum extent that resources and social distribution allow. If that were not the case, it would imply legitimacy to exclusion of societies and discrimination against individuals in access to economic development and material improvement. Framed as a right, however, it implies that societies cannot be excluded from access to science as an enterprise. There are obviously limitations that can legitimately be imposed on this (for example, on nuclear proliferation) but the benign use of science (for example, access to the principles of physics) is or should be open to all who have the capacity to engage with it.

*Proposal: A fourth constituent right − “critical science” and the right to science*

This correspondent recommends adding another item to the existing enumeration of rights (as above): the use the methods of science to evaluate and correct harms that may arise from the application of science and technology. (This item refers to the concept of “critical science” as developed by Jerome Ravetz and represents my own view; in practice the right to apply critical science has been subsumed under the right to benefit.) The “benefits” of science are not limited to creating new value and achieving equity in distribution. They also accrue from preventing and solving problems and monitoring science and technology when there is a potential for doing harm. This is only possible using the means of science itself, and the doctrine of “critical science” helps to make science and technology self-correcting in the same way that replication makes science self-correcting. Without scientists studying the effect of science and technology, the rest of the society is denied the benefit of early warning, documentation of emerging problems, and effective solutions. The environmental health sciences are the premiere examples of this.]

**Balancing the right to science, the right to benefit, and the right to privacy of indigenous and minority peoples**

At the same time, there is tension between the free sharing of scientific knowledge and how to achieve this (for example, by Open Access or free use) and how to protect the right of individuals to benefit from their own discoveries or inventions. A skeptical view has it that a universal right of access to scientific information is not a legitimate right but a privilege or a permission to appropriate the benefit of someone else’s intellectual labor; however, this is not logical in the framework because any author’s intellectual labor is grounded on what has gone before and on their education (which is an enumerated right) and the fundamental issue in question is not who controls access to knowledge (a governance question) but providing benefit (not necessarily evaluated compensation or remuneration but *benefit*) to the individual who created it. Settling this issue of control and compensation and achieving a balance between social benefit and protecting intellectual property is a matter of national law and custom. It is usually dealt with by granting a patent or copyright for a limited duration. As a broad principle, individual property rights are temporary and transferable (intellectual property can be sold or assigned) whereas human rights are inalienable and take priority. For example, the need to access inexpensive retroviral drugs during the emerging global HIV/AIDS pandemic over-rode drug patents and restrictions, but was accommodated through negotiation. However there are other situations where access bodies of knowledge are generally protected, for example indigenous traditional knowledge. There is an inherent conflict between this privilege for the minority and an assumed right of access to beneficial knowledge and right to benefit for everyone else.

Balancing free sharing of scientific knowledge with rights of access and cultural protection for indigenous peoples and ethnic minorities presents a possible conflict with rights of benefit. One way of looking at this problem is through the philosophical lens of “private and public knowledge.” Private knowledge (what people believe and know about themselves and within, say, the family) is generally protected under law and custom as confidential. This opens a pathway to treating traditional knowledge as a form of “collective private knowledge” afforded the usual protections of privacy and confidentiality extended to families.

*Proposal: A right to science and collective private knowledge*

 Balancing free sharing of scientific knowledge with rights of access and cultural protection for indigenous peoples and ethnic minorities. One way forward is to consider the issue or traditional knowledge through the framework of “public” and “private knowledge.” Science represents a form of “public knowledge” accessible to all, while traditional knowledge is a form of collective “private knowledge”, shared within a defined group but that does not have the status of public knowledge for the society as a whole and therefore need not be shared with all. In that case, control of access is a broader, cultural issue and governance is usually by traditional means. For example, tribal custom may dictate what information can be shared with outsiders and even within the tribe about such matters as cosmology, genealogy, the location of productive hunting or fishing grounds, medicinal plants, and so forth.

This correspondent proposes the existence of a form of “collective private” knowledge, in which a group maintains a system of knowledge that within the group is treated as public knowledge but is considered to be a collective form of “private knowledge” outside the group. This provides grounds for treating traditional knowledge as a form of “collective private knowledge” and afford this type of knowledge the usual protection under law and custom of privacy and confidentiality that is normally extended to families.

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