International Conference
The Human Right to Science:
New Directions for Human Rights in Science

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Abstracts

Keynote

Farida Shaheed, UN Special Rapporteur in the Field of Cultural Rights, Pakistan

The human right to science, recognised in article 27 of the Universal Declaration of Human Rights (UDHR) and article 15(1)(b) of the International Covenant on Economic, Social and Cultural Rights (ICESCR), has yet to be fully elaborated. This right cannot be limited to the ability of science to advance the realisation of other human rights and address "the needs common to all humanity" or the "potentially adverse consequences for the integrity, dignity and human rights of the individual". In exploring what the right to science means as a human right, I have reached some key conclusions: (1) the right to science is not coincidentally juxtaposed to the right to culture; the right to science and culture are interlinked, to be read together and in conjunction with, in particular, the right of all peoples to self-determination and the right of everyone to take part in the conduct of public affairs. (2) The right to science and culture relates to the pursuit of knowledge and understanding, and to creative human responses to a constantly changing world. A prerequisite for achieving these rights is ensuring the conditions necessary for everyone to continuously engage in critical thinking about themselves and the world they inhabit, and to have the opportunity and wherewithal to interrogate, investigate and contribute new knowledge with ideas, expressions and innovative applications, regardless of frontiers. The right to science and culture encompasses the right to benefit from the creativity of others while protecting the moral and material interests emanating from "any scientific, literary or artistic production". (3) The normative content of the right to science (to benefit from scientific progress and its applications) includes (i) access to the benefits of science by everyone, without discrimination; (ii) opportunities for all to contribute to the scientific enterprise including the freedom indispensable for scientific research; (iii) participation of individuals and communities in decision-making; and (iv) an enabling environment fostering the conservation, development and diffusion of science and technology. The past decades have witnessed growing concern that certain aspects of intellectual property laws may undermine the enjoyment of human rights as diverse as the right to development, freedom of expression, and the rights to health, food and education. I concur with scholars who suggest that, at the signing of the Universal Declaration, "the United Nations had come to envision the sharing of scientific and cultural knowledge as something that could unite an international community – a common task that would contribute to cross-cultural understanding and yield a more secure world", a task requiring a public good approach to knowledge innovation and diffusion. I therefore propose a reconsideration of the maximalist approach to intellectual property regime for a more minimalist one that allows more people to participate in decision-making, contribute to and benefit from advances in scientific understanding. A key recommendation of my latest report on copyright is to encourage the establishment of a core list of minimum required exceptions and limitations incorporating those currently recognised by most States, and/or an open norm. Currently I am in the process of writing my report on issues related to patents and looking at how to improve global equitable access to the fruits of scientific advancement.

Comments and discussion

Samantha Besson, Delegate for Human Rights of the Swiss Academies of Arts and Sciences, University of Fribourg, Switzerland

In my comments, I would like to focus on three (related) issues:

(1) Why the human right to science has been neglected for so long?

1. The meaning of science itself remains indeterminate and very difficult to define.
2. Science is inextricably linked to the means of protection of other human rights.
3. Science and innovation are very closely related to State interests and sovereignty.
4. Science and innovation tend to be democracy-shy.

(2) How can we explain this sudden burst of interest in the human right to science?

1. Heightened sensitivity for global justice and equality.

2. Greater technological capacities and new linkages being made between science and technology.
3. Greater sensitivity to the power of private actors including corporate actors and new legal tools to curtail those powers.
4. Greater institutional capacity at the international level, and means to cooperate internationally, as a result.

(3) What are the structural features of the human right to science that make it different from other human rights at play in the scientific context?
1. The dual holdership of the right.
2. The complexity of the object of the right.
3. The collective duty-bearers of the right.
4. The inherent limitations to the right.
5. The basic nature of the right.

Gereon Wolters, Member of the Human Rights Committee of the German National Academy of Sciences Leopoldina, University of Konstanz, Germany

I would like to give four comments on the issue of "freedom of expression" and on epistemological issues:

1) "Freedom of expression" in the report of the UN Special Rapporteur relates not only to science, but also to politics. I think this broad scope is justified because there is no freedom in science without political freedom.
2) The Report is based on the 1948 Universal Declaration of Human Rights and the International Covenant of 1966. It mentions, however, also four regional Charters, of which at least one contradicts clearly the Universal Declaration. This is the Arab Charter, which is based on the Cairo Declaration of Human Rights in Islam of 1990. The Cairo Declaration, in turn, states that the Islamic Shari'ah is the yardstick for human rights, which excludes, among other things, equal rights for women, and the freedom of expression, e.g. in religious affairs.
3) The conception of science in the report expresses the anglophone understanding of the word that includes only the natural sciences. This may lead to disastrous consequences, above all in economics.
4) It is not only sinister political or religious forces and the social conditions they uphold that obstruct access to scientific progress and its benefits. There are also attempts of governments, industries, religious and other ideological groups to actively create ignorance, doubt or disbelief about well-established result of scientific research. This social creation of ignorance is called "agnotology".

Session "The Human Right to Science Contextualized: International Seed Policy"

François Pythoud, Head of Unit for International Sustainable Agriculture at the Federal Office for Agriculture, Berne, Switzerland

In 2011, the FAO Conference adopted the International Treaty on Plant Genetic Resources for Food and Agriculture (International Seed Treaty) as an international framework to reconcile the human right to science and farmers' rights in support of sustainable agriculture and food security. The treaty entered into force in 2004 and has been ratified by 135 countries. The treaty's objectives are the conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA) as well as the fair and equitable sharing of benefits arising from their utilisation. Indeed, the International Seed Treaty is based on the premise that long term food security will rely on ensuring facilitated access for all to the broader genetic basis for research, breeding and sustainable food and agriculture production. This requires measures to ensure conservation both in situ and ex situ and a mechanism to generate the necessary resources to implement those measures in developing countries through the multilateral system of access as well as fair and equitable sharing of the benefits arising from the utilisation of PGRFA. Moreover the International Seed Treaty establishes the farmers' rights in recognition of the enormous contribution of farmers as well as local and indigenous communities of all regions of the world to the conservation and development of plant genetic resources. Farmers' rights include the protection of traditional knowledge relevant to PGRFA, participation of farmers in benefit sharing and in decision making at national level on matters related to management of PGRFA. Ten years after entering into force, the International Seed Treaty stands at the crossroads. Critical steps should be taken by its governing body to make it fully operative. This is illustrated by the two following examples that are also relevant to the implementation of the human right to science:

1. Ensure facilitated access to all PGRFA for the development of new varieties of plants by both public and private research. This will require increased resource mobilisation through extension of the mandatory benefit sharing provisions of the Treaty to all commercial seeds on the one hand, and extension of the scope of the multilateral system (Annex 1 of the International Seed Treaty) to all PGRFA on the other. Negotiations on those issues are currently under way.
2. Measures to support the development of a recognised and an effective informal seed sector at the national level, supported by further research on the improvement of landraces and farmers' varieties, able to provide smallholders in developing countries as well as interested farmers all over the world with seeds adapted to their specific needs and local conditions. This will be a significant contribution to the implementation of the farmers' rights.

Christophe Golay, Research Fellow at the Geneva Academy of International Humanitarian Law and Human Rights, Switzerland

Since the 1970s, it is considered that more than 800 million people in the world are structurally undernourished. Among these, 50 per cent are small farmers. Amartya Sen has long demonstrated that the main causes of hunger among these small farmers – or peasants – and their families are primarily due to lack of sufficient access to productive resources, including land, water and seeds. As human beings, peasants are entitled to all human rights that have been recognised by the UN since the adoption of the Universal Declaration of Human Rights in 1948, including the right to food and the right to enjoy the benefits of scientific progress and its applications (right to science) enshrined in the International Covenant on Economic, Social and Cultural Rights in 1966. In the last decades, the right to food has been considered to encompass peasants' access to seeds. The former UN Special Rapporteur on the Right to Food, Olivier De Schutter, also insisted on the need to broaden the understanding of the right to science so as to protect peasants' rights and interests. In this connection, the UN Special Rapporteur on Cultural Rights, Farida Shaheed, has explained that the human right to science includes access to the benefits of science by everyone, without discrimination, participation of individuals and communities in decision-making, and an enabling environment fostering the conservation, development and diffusion of science and technology. O. De Schutter sees the consecration of these elements in the recognition of genetic resources as a global commons, which should be shared on a multilateral basis. In 2012, the Human Rights Council decided to elaborate a UN Declaration on the rights of peasants and other people working in rural areas. Article 22 in the current draft of this Declaration includes a "Right to Seeds," which recognises key elements of both the right to food and the right to science:

1 Peasants of all regions of the world have made, and will continue to make, enormous contributions to the conservation and development of plant genetic resources, which constitute the basis of food and agricultural production throughout the world.
2 Peasants and other people working in rural areas have the right to conserve, use, maintain and develop their own seeds, crops and genetic resources, or those of their choice. They also have the right to decide which crops to cultivate.
3 Peasants and other people working in rural areas have the right to save, store, transport, exchange, donate, sell, use and re-use farm-saved seeds, crops and propagating material. States should take appropriate measures to respect, protect and fulfil these rights.
4 States should take measures to respect, protect and promote traditional knowledge relevant to plant genetic resources.
5 States should respect, protect and promote peasant seed systems, and recognise the validity of peasants' seed certification systems.
6 States should take steps to ensure that planting material of sufficient quality and quantity are available to peasants that need them at the right time for planting, and for an affordable price.
7 States should ensure that agricultural research and development is directed towards the needs of peasants and other people working in rural areas. To this end (…) and in accordance with peasants' rights to participate in making decisions on matters related to the conservation and sustainable use of plant genetic resources, States should ensure that peasants' experience and needs are effectively reflected when priorities for agricultural research and development are defined.

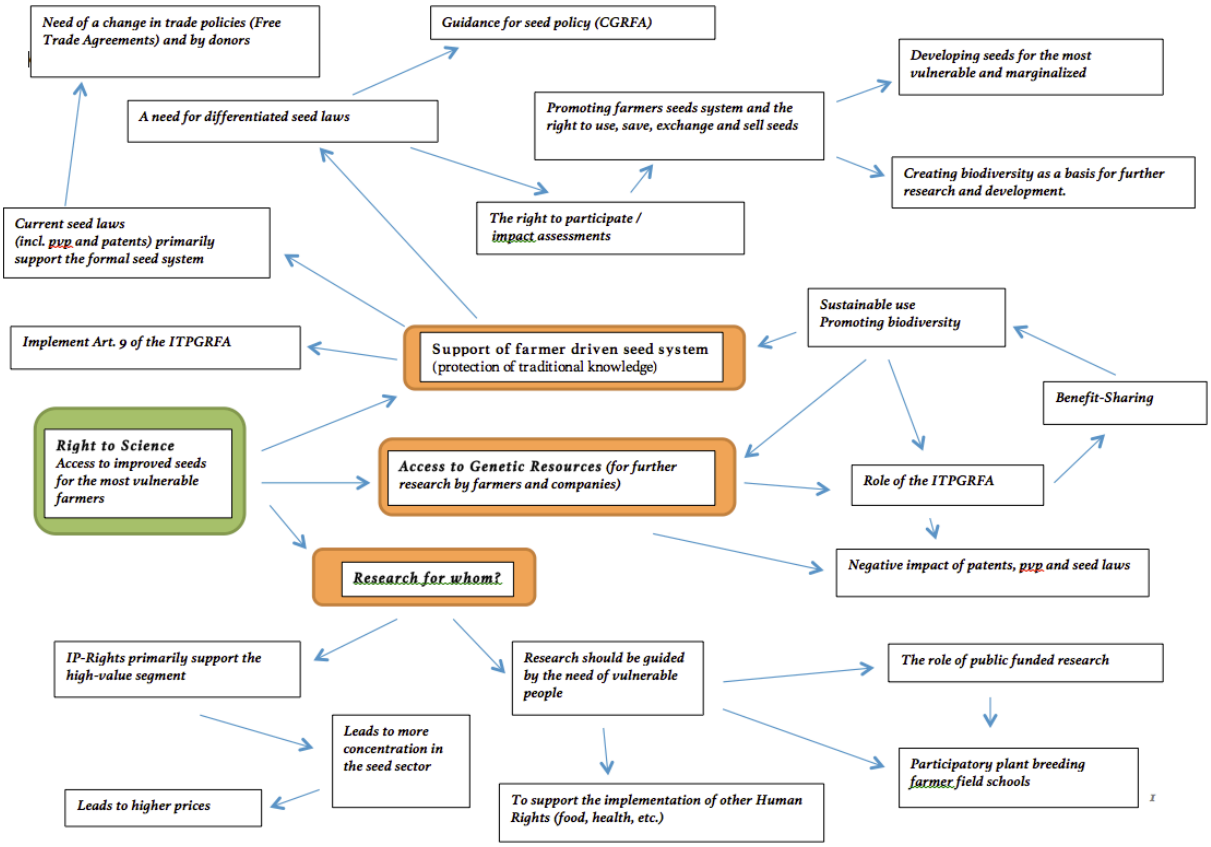
Tomoko Miyamoto, Head of Patent Law Section at the World Intellectual Property Organization, Geneva, Switzerland

The term "science" in Article 27 of the Universal Declaration of Human Rights (UDHR) as well as Article 15 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) is generally understood as science as a whole, including social science and covering inventions. Needless to say, patented inventions are productions of scientific application that meet the requirements under the applicable patent law. Since those Articles provide a high-level principle, the implementation of that high level principle may require a bird's-eye view of understanding of science and more focused view on specific aspects of science in each context. National policy makers have been doing this through establishing national policies (seed policy, patent policy etc.), enacting national legislations and implementing them. Ideally, each piece would fit nicely in a big picture. However, it is more than often that the need to recognise countervailing policy considerations challenges our goal. Throughout its development, patent law has been addressing this challenge, and it will and should do so, seeking to achieve a balanced realisation of various fundamental rights, including but not limited to the right to food, the right to science and the right to obtain protection for the results of scientific productions. Access to improved patented inventions by farmers, particularly small-scale farmers has been a concern for decades. However, access and innovation are inevitably intertwined. Recent studies show that contributions to innovation are made at all levels of the value chain. Therefore, an enabling environment for recognising and fostering the innovation at all levels would truly meet the purposes and principles laid down in the UDHR and ICESCR.

Garlich von Essen, Secretary General of the European Seed Association, Brussels, Belgium

The scientific approach to professional plant breeding, with very high levels of investment in R&D and underpinned by an effective intellectual property system, has triggered an unprecedented acceleration of what would have taken farmers selecting from their own harvest centuries to achieve. It has also allowed new crops to be adapted to local growing conditions. And it has enabled a better, quicker and more efficient use of genetic resources, supported by collaborative efforts to conserve and maintain seed collections, ensuring their qualities endure and are passed on to future generations. Seed innovation is at the heart of the food chain, driving growth in rural areas, fostering sustainable nutrition, and improving the quality of life in a greener economy. The combined pressures of global population growth, scarcer land resources and climate change will place increased demands on the productive potential of existing farmland. Land-use efficiency will become one of the main drivers for sustainable agricultural and food production systems. New, higher-yielding plant varieties will be required, alongside new seed innovations such as drought or salt tolerant crops, to help keep the existing and bring new land currently considered unfit for farming in productive agricultural use. Urbanisation will continue at an accelerated pace and by 2050, about 70% of the world's population will be urban. Urban lifestyles will generate a faster pace of change and greater consumer expectations on the availability and choice of products, services and activities. People will want access to a diverse choice of healthy food products and leisure activities and the 'do-it-yourself' culture will encourage end-consumers to grow some of their own food in urban areas. Although this will remain marginal in the context of the global food security challenge, such activities will require specific plant varieties capable of growing in these unique environments. As cities grow bigger, agricultural land will be lost to urban and industrial development, transport infrastructure, residential housing and suburban centres. These losses are inevitable given the lower economic returns to farm capital and labour compared to non-agricultural land uses. A competitive, innovative and diverse seed sector will be a decisive partner to support rural competitiveness and employment. Plant breeding stations and seed factories, as well as all connected services are important wealth creators in rural areas, attracting highly skilled workers, investments and economic growth and offering international exposure to rural areas. Further seed innovation will provide the base for the continued development, production and use of more bio-based products and processes for greener economies. The future bio-economy can provide a major socioeconomic contribution and its benefits will improve public health, environmental sustainability and the productivity of industrial processes. The bio-economy's success will, however, strongly depend on continued and targeted plant science research and the development of new seed innovations that provide the genetic foundation for new business models. To simultaneously deliver on economically and environmentally sustainable growth, food security and healthier lifestyles, the sector requires consistent, forward looking policy support and a regulatory framework fit for purpose and geared towards promoting innovation. Respective policy decisions will have a decisive impact. Facilitated access to genetic variability as well as effective intellectual property protection and enforcement are important elements of such a framework to successfully promote science and innovation in plant breeding and agricultural biotechnology to the benefit of inventors and society at large.

François Meienberg, Head of Agriculture, Biodiversity and Patents at the Berne Declaration, Zurich, Switzerland



Evert Jacobsen, Chair for Plant Breeding at Wageningen University, Netherlands

Plant breeding creates domestication of crops in society. Initially, this was realised by selection among natural genetic variation available in the crop species itself. Later, induced mutations and genetic variation in crossable species were needed to solve all kind of problems like susceptibility to important diseases. So traits, instead of plants, were domesticated coming from other species. Nowadays, gene editing and genetic modification are new possibilities to domesticate traits in plants even coming from non-crossable species and viruses or bacteria. This development is directly connected with Intellectual Property Rights (IPR) of (edited) genes, varieties or new biotechnological methods. If we look to breeders' protection, in Europe the UPOV convention was adopted in 1961 in Paris. Plant Breeders Rights did not follow IPR rules, arguing that a new variety was not the result of an invention as in the industry but a discovery, which needs another way of protection. A very important outcome was that protected varieties could be used as breeding parent without allowance of the owner. This makes that classical PBR is stimulating open science and innovation. The economic result of this protection was so spectacular that many breeding companies were incorporated in multinational companies bearing another history of owner protection. What is the situation today? Plant biotechnology was the starting point of the introduction of IPR in plant breeding worldwide, stimulated by the Bayh-Dole Act in 1980 in the USA. Today, most patents are connected to genetic modification of traits, but protection of (edited) natural traits and (breeding) methodologies is the next boost. It is stimulating the application of IPR and PBR at the same time without solving the problem whether PBR should dominate IPR or vice versa. Access to knowledge and germplasm is very important. In the past, IPR was not used in Europe to protect varieties, resulting in important traits being quickly used in new varieties and new traits, while less important were ignored. Such a process is also needed for new traits under IPR protection, but this is obstructed by IPR problems and GMO regulations. Ownership of knowledge is a complex matter. Nowadays, a lot of projects are with private sector involvement. There must be clear rules about publication of the knowledge obtained and how long the advantage has to be exclusive for the involved companies. This way of protection has stimulated all kind of NGO activities against multinationals and new techniques. A modern way of competition is stimulation of all kind of (safety) regulations before release to the market. This phenomenon is also

observed in other fields. Complex regulations, such as applied with GMO, are against SMEs and are reducing the very important variation of companies needed in the field of plant breeding. PBR has helped the green revolution worldwide by stimulating open innovation with, e.g., short straw cereal mutants. Is the industrial patent protection system, fighting PBR, the right (open) science and innovation system for sustainable food production during the gene revolution?

Eva Maria Belser, Chair for Constitutional and Administrative Law at the University of Fribourg, Switzerland

Human rights, such as the right to food, oblige states to abstain from legislative and other measures that negatively affect the right of individuals to have sustainable access to adequate food and to take all necessary measures to protect individuals from harmful behaviour of third persons, such as private corporations. As all fundamental rights, the right to food must be upheld throughout the legal system, including in the field of research, agriculture, intellectual property, and international relations. Unfortunately, the internal and external duties to do no harm and to take active internal and external measures to promote the right to food have remained vague and not justiciable. In general and in spite of progress, the protection and the promotion of the right to food are still not seen as binding duties of states, but as political or moral aspirations. This finding sharply contrasts with the right to property, including intellectual property, and trade where we are confronted with binding rules effectively enforced by states and international organisations. While the violation of international human rights has no or little legal consequences, violations of WTO law, multilateral or bilateral trade rules are or can be economically sanctioned. The imbalance between human rights cooperation and trade-related rules enforcement is strongly felt in legal fields affected by both pillars of international rule. Such is the case for international seed policy. From a human rights perspective, seed policies have to be designed and implemented in a way that promotes the right to food, especially of vulnerable persons and marginalised groups. Breeder's rights providing exclusive rights on plant innovation and restricting access to seeds are only justified if they are necessary in a democratic society to protect an overriding legitimate aim. From a trade or trade-related perspective, the focus is on breeders and their ability to recoup money and labour invested in the creation of new varieties. The TRIPS agreement, the International Convention for the Protection of New Varieties of Plants, and TRIPS+ agreements are made and enforced to protect these interests. Patent and sui generis protection of plant varieties can, however, have negative or ambivalent effects on the right to food, especially if they restrict seeds saving or seeds exchange or advantage cash crop farming at the expense of subsistence agriculture. Privileges and exemptions are one of the means to bring trade and human rights obligations into coherence. In the field of international seed policy, it is the breeder's privilege and the farmer's privilege that are meant to avoid conflicts between the right to food and intellectual property. However, this way of overcoming conflicts of rules and interests in international law disfavours human rights in two ways. First, the extent of human rights protection is defined by intellectual property agreements and applied by intellectual property experts. From this point of view, legislative and other measures adapted to protect and to promote the right to food appear as exceptions to the duty to protect breeder's rights and can or should be narrowly defined or further restricted, not as a fulfilment of international human rights duties. Second, all ambiguity and lack of empirical data proving causal links between seed policies and hunger or malnutrition are generally being used against human rights approaches. The imbalance affecting human rights and trade thereby has the effect of establishing a presumption in favour of trade and trade-related rules and putting the burden of proof on human rights perspectives. It is doubtful whether this "exemption-approach" to human rights provides for an adequate harmonisation of fragmented rules.