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**Promotion and protection of all human rights, civil, political, economic, social and cultural rights, including the right to development**

# Report of the United Nations High Commissioner for Human Rights

## Report on the seminar on the right to enjoy the benefits of scientific progress and its applications

*Summary*

In its resolution 20/11 of 5 July 2012, the Human Rights Council requested the Office of the United Nations High Commissioner to convene a seminar on the right to enjoy the benefits of scientific progress and its applications in order to further clarify the content and scope of that right and its relationship with other human rights and fundamental freedoms. As requested in the resolution, participants included representatives of United Nations and other international organizations, civil society and academia. The seminar was organized around six panel discussions covering the normative content of the right to enjoy the benefits of scientific progress and its applications; scientific freedom; interdependence among rights; intellectual property rights; access to information, technology and knowledge; and the right to participate in the scientific enterprise.

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# I. Introduction

1. At its twentieth session, the Human Rights Council adopted resolution 20/11, in which it requested the Office of the United Nations High Commissioner for Human Rights (OHCHR) to convene in 2013 a seminar of two working days on the right to enjoy the benefits of scientific progress and its applications in order to further clarify the content and scope of that right and its relationship with other human rights and fundamental freedoms, including the right of everyone to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he or she was the author.

2. The Council also requested OHCHR to invite States, the Special Rapporteur in the field of cultural rights and other relevant stakeholders, including academic experts and civil society organizations, as well as relevant United Nations agencies, funds and programmes and other international organizations to participate actively in the seminar.

3. The seminar was held at Palais des Nations, Geneva, on 3 and 4 October 2013, with the Special Rapporteur in the field of cultural rights, Farida Shaheed, giving the keynote address. Experts from academia, civil society organizations, the World Health Organization (WHO), the International Telecommunication Union (ITU), the World Intellectual Property Organization (WIPO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) participated in the seminar as panellists.

4. Pursuant to the request of the Human Rights Council in resolution 20/11, the present report summarizing the key issues raised during the seminar was prepared by OHCHR for submission to the Council at its twenty-sixth session.

# II. Normative framework applicable to the right to enjoy the benefits of scientific progress and its applications

5. The Committee on the Theoretical Bases of Human Rights, convened by UNESCO in 1947 to work on developing the key concepts underpinning the draft Universal Declaration of Human Rights, had considered the normative content of this right. In its statement entitled "The grounds of an international declaration of human rights", the Committee recognized the "right to share in progress", characterized by "the right to full access to the enjoyment of the technical and cultural achievements of civilization."[1] The right to enjoy the benefits of scientific progress is now well established under international human rights law and is recognized in the International Covenant on Economic, Social and Cultural Rights (art. 15, para. 1) and the Universal Declaration of Human Rights (art. 27, para. 1). Both instruments also recognize the right of everyone to the "protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author".[2]

[1] UNESCO, "The grounds of an international declaration of human rights", Report of the UNESCO Committee on the Philosophic Principles of the Rights of Man to the Commission on Human Rights of the United Nations, Paris, 31 July 1947, sect. II, art. 15.

[2] International Covenant on Economic, Social and Cultural Rights, art. 15, para. 1 (c); Universal Declaration of Human Rights, art. 27, para. 2.

# III. Summary of the discussions

## A. Opening statement

6. The seminar was opened by Craig Mokhiber (Chief, Development and Economic and Social Issues Branch, OHCHR). He noted that scientific freedom had allowed those working at the cutting edge of their fields the opportunity to develop, to create and to influence the world through their work. While the idea that the benefits of advances in science should be shared was not new, it was regrettable that the right to enjoy the benefits of scientific progress had, in practice, been so greatly neglected over the years, with access to the benefits of scientific advancement being uneven, and the poor and marginalized being denied those benefits. He emphasized that government policy and action, failure of accountability in the private sector, poverty and poor education were among the factors implicated in that exclusion, and that the negative impact of that entrenched dynamic that set government and business against the poor and vulnerable was undeniable. In that regard, and with particular reference to the intellectual property framework, he recalled the duty of all States to meet their due diligence obligations by ensuring that human rights were not subordinated to other interests and that, when new international legal frameworks and agreements were being elaborated, comprehensive human rights impact assessments were first conducted and measures built in to safeguard human rights.

7. He welcomed the Human Rights Council's initiative in requesting OHCHR to organize the seminar, and acknowledged the work of the Special Rapporteur in the field of cultural rights in that area.

## B. Normative content of the right to enjoy the benefits of scientific progress and its applications: principles and practice

8. The panel discussion on the normative content was moderated by Mpazi Sinjela (University of Lusaka) and focused on the applicable legal framework. The keynote address was given by the Special Rapporteur in the field of cultural rights, Farida Shaheed. It was followed by presentations by Lea Shaver (Robert H. McKinney School of Law, Indiana University) and Jessica Wyndham (American Association for the Advancement of Science).

9. In her presentation, the Special Rapporteur noted that the right to benefit from scientific progress and its applications, "the right to science", tended to be considered in isolation from the right to participate freely in the cultural life of the community, with which it was usually juxtaposed in relevant instruments. She indicated that, in her view, those rights were necessarily interlinked since both related to the pursuit of knowledge and understanding and to human creativity in a constantly changing world. The normative content of the right to science included access to the benefits of science by everyone, without discrimination, opportunities for all to contribute to the scientific enterprise, the freedom indispensable for scientific research, the participation of individuals and communities in decision-making, and an enabling environment fostering the conservation, development and diffusion of science and technology.

10. The Special Rapporteur identified poverty and discrimination as barriers to education and scientific enquiry, and indicated that marginalized groups such as women, children and indigenous populations were often subjected to multiple forms of discrimination in claiming their rights. With regard to research and development, it was clear that funding for private-sector research was significantly higher than public-sector funding and that governments needed to increase their investment and ensure that

government-funded research was made available to the general public, particularly marginalized groups. Governments should also implement ethical standards and codes of conduct in the area of research and development that were based on human rights standards. Finally, the Special Rapporteur underscored the need for a balance between the rights of technology holders and technology users.

11. In her presentation, Ms. Shaver noted that while science was not a basic need essential to human survival in the same manner as health care, housing and food, science and technology had the power to improve human life, raise standards of living and promote other human rights. In practical terms, the right to science implied the prioritization of universal access to essential technologies such as water purification, essential medicines, electricity, telephone and Internet services. It implied also the need to ensure universal access to scientific education and the tools for learning, with the needs of vulnerable populations and the poor taken into account in shaping the direction of scientific research and technological development. She emphasized that the vision of science in service to humanity was threatened by a new competing vision, namely science in the service of profit, where profit had come to be seen as the purpose of science and its primary incentive. In her view, the minimum core content of the right to enjoy the benefits of scientific progress needed to be further elaborated through a process of consensus-building and dialogue, which should not be discontinued prematurely.

12. Ms. Wyndham discussed the core content of the right to science from a number of perspectives. She referred to the guidance issued by the Committee on Economic, Social and Cultural Rights on State reporting, which indicated that the minimum core content included measures to ensure affordable access to the benefits of scientific progress for everyone and to prevent the use of scientific and technical progress for purposes which were contrary to the enjoyment of human rights. Other measures that had been referred to by the Committee were the protection of the freedom indispensable for scientific research, the conservation, development and diffusion of science, and the encouragement and development of international contacts and cooperation. There was broad consensus among commentators on the need to: guarantee non-discrimination and gender equality; prohibit or prevent the violation of human rights; protect the rights and address the needs of marginalized and vulnerable populations; create a participatory environment for the conservation, development and diffusion of science and technology; protect scientific freedom; and eliminate barriers to international cooperation, exchange and technology transfer. In her view, the right to science included measures to integrate scientists and scientific data, analysis and findings into government functions, including law, policy and programme development, monitoring and evaluation, as well as measures to develop and implement adequate funding mechanisms for scientific research and development.

13. During the discussion, participants addressed the importance of technology transfer, particularly transfers from developing countries to developed countries. The Special Rapporteur pointed out that guidelines on the transfer of knowledge already existed but that bilateral agreements often tended to overshadow the human rights framework. Participants discussed the importance of ensuring respect for human rights standards and principles, such as the right to participation, in the creation of an enabling environment for scientific undertakings, as well as ethical conduct. In response to the question whether scientists should be trained in human rights, several participants expressed the view that, irrespective of the technical nomenclature regarding which practitioners could be defined as scientists, the promotion of human rights in all forums was crucial, and that the implementation of the right to participation could bring scientists and human rights experts together for the purpose of mainstreaming human rights into scientific endeavour.

## C. Scientific freedom

14. Presentations by Margaret Vitullo (American Sociological Association) and Irene Villasenor (University of the Philippines) opened the panel discussion on scientific freedom, which was moderated by Jessica Wyndham.

15. Ms. Vitullo stated that scientific freedom included freedom of association, inquiry, opinion and expression. Access was an important component of scientific freedom, encompassing access to the applications of science, to scientific knowledge and information, scientific literature, data, materials, samples and subjects. She referred to the synergetic relationship between the two concepts, noting that scientific freedom both depended on and provided support to access, and that limiting access to data, for example, was a major threat to scientific integrity. She cautioned that scientific freedom was, however, not absolute and must be enjoyed responsibly. Ms. Vitullo noted that the involvement of scientists in the discussion of the meaning of article 15 of the International Covenant on Economic, Social and Cultural Rights was crucial and that freedom of expression, freedom of association and freedom to travel were all key concerns for scientists. Furthermore, rights holders must view scientific information and enquiry as a right and not one exclusively for the enjoyment of scientists.

16. In her presentation, Ms. Villasenor focused on the responsibilities of scientists, drawing on a number of "soft" law instruments, such as the Recommendation on the Status of Scientific Researchers adopted by UNESCO in November 1974, and referred to the commitments made by member States following the 1999 World Conference on Science.[3] An important outcome of the conference was the Declaration on Science and the Use of Scientific Knowledge, which stated that "all scientists should commit themselves to high ethical standards, and a code of ethics based on relevant norms enshrined in international human rights instruments should be established for scientific professions" and referred to the social responsibility of scientists to maintain high standards of scientific integrity and quality control, to share their knowledge and to communicate with the public.[4] UNESCO member States had recognized that political authorities should respect that role and that the building of scientific capacity "should be supported by regional and international cooperation, to ensure both equitable development and the spread and utilization of human creativity without discrimination of any kind against countries, groups or individuals".[5]

17. During the ensuing discussion, one participant noted that scientific information was often disseminated through privately-owned press organizations and enquired whether they should assume a leading role in that respect. One delegation raised the question as to whether the mainstream media had a duty to responsibly disseminate scientific information, while another participant raised the issue of whether scientists had an obligation to convey information in an easily comprehensible form. Ms. Vitullo responded that access to information should be available on as broad a basis as possible, that the information should be of good quality and that governments had a role to play in that area. Furthermore, governments as well as the mass media had a duty to disseminate information responsibly, and scientists should be involved in advocacy, including in the dissemination of high-quality scientific information.

[3] UNESCO, Science Agenda-Framework for Action, adopted by the World Conference on Science, Budapest, 1 July 1999.

[4] UNESCO, Declaration on Science and the Use of Scientific Knowledge, adopted by the World Conference on Science, Budapest, 1 July 1999, para. 41.

[5] Ibid., para. 35.

18. Finally, one delegation expressed the view that States had an obligation to balance scientific freedom with the interests of society when cultural factors were at play. According to the delegation, scientists, likewise, had a duty to both the community and the State.

## D. Interdependence between the right to enjoy the benefits of scientific progress and its applications and other human rights

19. Peter Beyer (WHO), Jose Luis Vivero Pol (Université catholique de Louvain) and Jose Maria Batanero (ITU) discussed the relationship between the right to science and the right to health, the right to food and the rights of persons with disabilities. The panel was moderated by Rio Hada (OHCHR).

20. In his presentation, Mr. Beyer focused on the relationship between articles 12 and 15 of the International Covenant on Economic, Social and Cultural Rights, framing the discussion, in part, around innovation and access to medicines. More specifically, he noted that there was a shifting burden of disease with respect to non-communicable diseases, in that cardiovascular disease, diabetes and cancer were now not only major health challenges in developed countries, but also in the developing world. To address those challenges, new medical technologies were required, existing products must be adapted and access to both guaranteed. The issue of access, however, was extremely complex and raised important questions, including whether the price of medicines should reflect their value to shareholders or to society, whether essential medicines were public assets and whether the price should be set by the inventor or the market. States must balance their respective obligations under the International Covenant on Economic, Social and Cultural Rights so as to ensure that the inventor derived a benefit from his work and that the patient enjoyed access to affordable medicines as part of the right to health. In the current system, the innovator set the price and recovered his investment in research, development and marketing through the price of the product. That required a substantial investment and was not without risk. Consequently, the member States of the World Health Organization had turned their attention to examining new innovation models in areas where intellectual property norms were unworkable, with the debate focused on models which separate research and development costs from the price of the final product in order to ensure the improved affordability of medicines.

21. Mr. Vivero Pol noted that science was a public asset and that the realization of human rights was indispensable for facilitating access to science. In discussing the interdependence between the right to science and other human rights, such as the right to food, a key consideration was the purpose to which science was put. With regard to the right to food, the essential elements of the right were regular, permanent and unrestricted access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the cultural traditions of the people to which the consumer belonged, and which ensured a physical and mental, individual and collective, fulfilling and dignified life, free of fear. Scientific know-how in this domain was drawn from the agricultural expertise developed by national institutions, traditional agricultural knowledge and food safety considerations, among other sources. Mr. Vivero Pol argued for broad-based and inclusive consultation with a view to ensuring that poor and marginalized populations had access to innovation in agriculture as well as its benefits. With the same objective, governments should invest more in and improve the quality of agricultural research, increase access to scientific research and disseminate scientific knowledge relevant to all stages of food production and consumption.

22. Mr. Batanero noted that, although human rights treaties did not recognize a distinct and specific right to communicate, they did guarantee and protect many dimensions of

communication in the framework of provisions on the right to freedom of expression and related rights. He stated that more work was needed to examine the use of information and communication technologies (ICTs) as a means of supporting and enabling the implementation of human rights treaties, as such technologies had a unique ability to expand access to basic public services such as health and education. That issue had been discussed extensively during the negotiations leading to the adoption of the Constitution and Convention of the International Telecommunication Union, which recognized the right of the public to use the international telecommunications service. In the context of the rights of persons with disabilities, the use of ICTs could be useful in reinforcing the implementation of the Convention on the Rights of Persons with Disabilities, particularly articles 9 (accessibility), 24 (education) and 25 (health), and in promoting the development of a society in which persons with disabilities were both beneficiaries and agents of social change. The ITU played an important role in developing the technical standards and recommendations that ensured that ICTs were fully accessible to persons with disabilities and that those technologies would evolve in line with the principle of universal design.

23. During the discussion following the presentations, several participants referred to funding for research and development. One participant noted that investment in medical research was extremely costly, requiring clinical trials over a lengthy period of time. Consequently, investors had an essential role to play and open-access innovations were unlikely to result in the development of new vaccines, for instance. Obliging private entities to share information and data would discourage spending on research, which would have a negative overall impact on innovation. On the other hand, it was important to acknowledge that the end product was often unaffordable for many people.

24. The discussion also covered conflicts of interest, particularly in relation to the promotion of special interests in the dissemination of scientific information and the funding of research institutions by private actors, as well as the implications for the integrity of the research. One delegation expressed a keen interest in the preservation of traditional knowledge, and several participants noted that the protection of traditional knowledge in the area of agriculture was an important building block of the right to food in many communities, as was food sovereignty.

25. The Special Rapporteur in the field of cultural rights cautioned against limiting the ambit of the right to science to recent innovations, as many societies were yet to benefit from earlier advances, such as electricity. Moreover, implementing the right to science also involved the use of knowledge which was already in existence and which should be conserved even as new progress was registered. Similar considerations applied in the case of medicines, as drugs that were already available were frequently as effective as newly-marketed drugs.

26. Mr. Batanero indicated that, following an extensive expert consultation, ITU had recently completed a report on barriers, challenges and opportunities in ICTs, which highlighted that, as of April 2013, 15 per cent of the world's population (one billion people) had a disability that affected their access to modern communications.[6] In addition to being rights holders, that population was also a lucrative source of potential customers for both the public and private sectors, and that was one way of motivating action for the removal of barriers to access. One participant expressed the view that technology should be used to

[6] The ICT Opportunity for a Disability-Inclusive Development Framework, Synthesis report of the ICT Consultation in support of the High-Level Meeting on Disability and Development of the sixty-eighth session of the United Nations General Assembly, September 2013, available from http://www.itu.int/en/action/accessibility/Documents/The%20ICT%20Opportunity%20for%20a%20Disability_Inclusive%20Development%20Framework.pdf.

address barriers to claiming rights more broadly and that, while there was certainly a moral imperative, access to the benefits of scientific progress was also a legal right.

## E. Right to enjoy the benefits of scientific progress and intellectual property rights: conflict or complementarity?

27. Presentations were made by Marco Aleman (WIPO), Mpazi Sinjela (University of Lusaka) and Frederick Abbott (Florida State University College of Law). The panel was moderated by Christian Courtis (OHCHR).

28. Mr. Aleman gave a detailed overview of the patent system, explaining that, as there were stringent criteria for the granting of patents, only exceptional inventions qualified. Article 15 of the International Covenant on Economic, Social and Cultural Rights guaranteed both the right of everyone to enjoy the benefits of scientific progress and the right of persons to benefit from the protection of the moral and material interests resulting from any scientific, literary, or artistic production of which they were the author. He noted the potential tension in the applicability of those provisions and referred to general comment No. 17 of the Committee on Economic, Social and Cultural Rights, which urged State parties to ensure that their laws and systems for the protection of creators' rights did not impede their ability to comply with core human rights obligations.[7] He indicated that it was the responsibility of States to develop intellectual property systems that balanced the rights of inventors with the rights of potential beneficiaries of new technologies, and that the Berne and Paris conventions[8] adopted by WIPO member States allowed significant latitude to States to implement their multilateral commitments. Mr. Aleman stated that flexibilities built into the patent system were an option that States could invoke to balance their obligations to protect intellectual property and human rights. Flexibilities within the multilateral treaties on intellectual property granted States the policy space to implement their multilateral commitments in the way that best responded to their domestic needs.

29. In his presentation, Mr. Sinjela stated that, since intellectual property rights were private rights, they should be granted in balance with the broader interests of society. Since human rights law recognized both private property rights (including intellectual property rights) and the right to enjoy the benefits of scientific progress, the challenge was to balance the interests of inventors with those of society. He noted that, although the Committee on Economic, Social and Cultural Rights was of the view that a balance that upheld both rights was possible, the tension between them was real. That tension was apparent in areas such as access to medicines, access to books and other educational materials and plant patents where, for instance, copyright law might conflict with the right to education and patent law with the rights to food and health. The protection of traditional knowledge and folklore in intellectual property systems was another area of tension. Typically, such knowledge had been treated as public knowledge and, therefore, not included in the patent system. Mr. Sinjela proposed that that knowledge could be recognized as the contribution of developing countries in agreeing terms for more favourable and cost-effective access to life-saving drugs. He underscored the need for a more thorough-going discussion of those issues at the level of the United Nations, taking into account the views of civil society and other stakeholders, in order to build consensus

[7] Committee on Economic, Social and Cultural Rights, general comment No. 17 (2005) on the right of everyone to benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he or she is the author, para. 35.

[8] Berne Convention for the Protection of Literary and Artistic Works, 1886 and Paris Convention for the Protection of Industrial Property, 1883.

towards a new intellectual property regime that was in conformity with human rights norms and standards.

30. Mr. Abbott expressed the view that it was self-evident that governments were under an international human rights legal obligation to make use of intellectual property flexibilities in appropriate circumstances. The source of that obligation might be found in a number of human rights, and more than one such right might apply in a given situation. A generalized norm relating to the obligation to use intellectual property flexibilities might be that there was an obligation to prevent the exercise of an intellectual property-based exclusive right to control a technology or an expression when there was a substantial risk to human life or health, and such risk was not adequately addressed by existing governmental resources. The obligation could also extend to situations where exclusive control of the technology or the expression was substantially impairing human development, including educational development, and the holder of the right had not offered or provided a satisfactory solution. In relation to patents, for instance, a broad range of intellectual property flexibilities was available, including discretion in the framing of the criteria for patenting, the option for parallel importation, limited exceptions to patent rights and compulsory licensing and government use. The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) left substantial room for government discretion. However, such discretion was not unlimited, even though the boundaries were often unclear.

31. Many interventions focused on the use of TRIPS flexibilities, with one participant noting that, in recent years, the debate had centred on the interests of powerful States as opposed to those of less powerful States, the latter being more constrained in their ability to resort to compulsory licensing in appropriate circumstances. Several participants were of the view that the international patent system was fundamentally flawed as it promoted the financial interests of the powerful at the expense of the poor. They asserted that that positioning of trade and commercial interests above human rights and the public welfare should be revisited. One participant posed the question whether, by focusing on TRIPS flexibilities, rather than the underlying conflict between the intellectual property system and human rights norms, a concession was being made to the intellectual property regime by default. Another participant submitted that failing to consistently frame arguments for the revision of the intellectual property regime in human rights terms was possibly hindering efforts to bring human rights into the discussion.

32. Some participants noted that the patent system adversely affected the rights of small-scale farmers to retain and sell seeds, in response to which one participant referred to the flexibility available within the intellectual property regime which could permit exceptions to allow seed retention for replanting purposes. A number of other issues were raised during the discussion, including the extent to which States had positive obligations to protect access to scientific progress, the efficacy of using the patent system as the primary means of technology transfer, the extent to which publicly funded research could and should be privatized, and ownership of publicly funded inventions.

## F. Access to information, technology and knowledge

33. Iryna Kuchma (Electronic Information for Libraries), Roger Pfister (Swiss Academy of Sciences/International Council for Science Committee on Freedom and Responsibility in the Conduct of Science) and Hans Morten Haugen (Diakonhjemmet University College) made presentations. The panel was moderated by Christian Courtis.

34. Ms. Kuchma emphasized that access to information and knowledge was crucial to the realization of “the right to science” and that open access repositories facilitated technology-enabled networking and collaboration, which offered fresh avenues for

scientific exploration. She noted that poor dissemination practices often resulted in far-reaching policy decisions being made without the benefit of available information. Ms. Kuchma provided an overview of the mandate of her organization, whose open access programme worked towards promoting free, immediate online access to the results of research, coupled with the right to use those results in new and innovative ways. Observing that science was increasingly interdisciplinary and that novel communication technologies permitted modes of interaction that exploited the collective intelligence of the scientific community, Ms. Kuchma focused her presentation on good practices in that area, drawing on the experience of her organization. Examples of good practices included building capacity for the establishment of open access journals and repositories, training, supporting knowledge sharing, providing expertise and empowering librarians, scholars, educators and students to be open access advocates. National and international advocacy for the adoption of open access policies and mandates was also beneficial.

35. Mr. Pfister underscored the importance of improving global access to the benefits of scientific progress by improving access to information. In that connection, he noted that the enjoyment of access to the Internet in different regions of the world had been highly variable, with populations in Africa, South America and Asia enjoying the least access. He referred to the recommendation of the International Council for Science that States should support initiatives to promote Internet connectivity at high bandwidth and affordable prices. In addition, access to hardware, software and applications should be provided, and data and information should be open, transparent and accessible. Mr. Pfister highlighted the need to promote information literacy at an early age by facilitating the use of electronic means for the sharing of data and information. Restrictions on access to information should only be permitted where the potential for harm exceeded the anticipated benefits to society.

36. While acknowledging that international human rights law did not recognize a general right to access the Internet, Mr. Haugen submitted that, based on the provisions of articles 4, 9, 21 and 30 of the Convention on the Rights of Persons with Disabilities, that right did exist for persons with disabilities. He indicated that the digital divide related to unequal access to ICTs as well as to unequal ability to make effective use of such technologies, with the latter being particularly significant for persons with disabilities. Mr. Haugen commended the progress, albeit slow, being made in the area of standard-setting. He provided, as recent examples, the Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired, or Otherwise Print Disabled (July 2013) and ongoing negotiations within WIPO on an appropriate international legal instrument on limitations and exceptions for educational, teaching and research institutions and persons with other disabilities, scheduled for adoption in 2015.

37. During the discussion, the Special Rapporteur in the field of cultural rights highlighted the fact that language was a concern when considering access to information, as the vast majority of material available on the Internet was in English, which had the effect of excluding many people. In response, one participant acknowledged that language and the predominance of information emanating from developed countries presented challenges that, moreover, reflected existing limitations to access in developing countries. Another participant proposed that States should promote the teaching of widely spoken languages in order to facilitate improved access to information and educational materials. A number of participants were of the view that, generally, scientific research should be in English as the most widely spoken language in the international peer group of researchers. In relation to open access journals, while there was recognition that many journals provided open access after a grace period, technical information required translation in order for a broader audience to understand it and rigorous peer review of open access material remained necessary. Peer review of open access articles was often conducted on a volunteer basis and, although there were efforts to provide funding for peer review, those efforts were

poorly coordinated. Moreover, quality control applied equally to peer-reviewed limited-access journals.

## G. Right to participation in the scientific enterprise

38. Moderated by Farida Shaheed, Special Rapporteur in the field of cultural rights, this panel focused on the right to participate in the scientific enterprise. Presentations were made by Abdulaziz Almuzaini (UNESCO), Hans Morten Haugen (Diakonhjemmet University College) and Jessica Wyndham (American Association for the Advancement of Science).

39. Mr. Almuzaini noted that UNESCO was created to promote United Nations values through global cooperation in education, science and culture. In 1993, UNESCO had developed a formal programme on bioethics, which was supported by extensive work in standard setting, including the Universal Declaration on the Human Genome and Human Rights (1997), the International Declaration on Human Genetic Data (2003) and the Universal Declaration on Bioethics and Human Rights (2005). After 2005, UNESCO had focused its efforts on the dissemination, promotion and application of the principles of the Universal Declaration on Bioethics and Human Rights.

40. Mr. Haugen reviewed the norms applicable to the right to participation in relation to the right to food. The International Treaty on Plant Genetic Resources for Food and Agriculture (2001), for instance, provided for States to protect and promote farmers' rights, including the right to equitably participate in sharing benefits and to participate in making decisions at the national level on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture. He noted that article 11, paragraph 2, of the International Covenant on Economic, Social and Cultural Rights obliged States to improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge and by disseminating knowledge of the principles of nutrition. He referred to general comment No. 12 of the Committee on Economic, Social and Cultural Rights, which interpreted the right to food as requiring the adoption of a national strategy to ensure food and nutrition security for all.[9] According to the general comment, strategies adopted for that purpose required full compliance with the principles of accountability, transparency and people's participation, among others. Mr. Haugen also discussed the Voluntary guidelines to support the progressive realization of the right to adequate food in the context of national food security, which recommended that States take steps to ensure that members of vulnerable populations had access to opportunities and economic resources in order to participate fully and equally in the economy. Crucially, the guidelines also recommended that particular attention be paid to the specific access problems of women and of vulnerable, marginalized and traditionally disadvantaged groups.[10]

41. In her presentation, Ms. Wyndham stated that participation in science took various forms, namely, participation in political processes based on access to and understanding of scientific information, participation in decision-making on issues of personal relevance and issues pertaining to science policy and funding priorities, and participation in science as a researcher and as a research subject. As an example of good practice in ensuring

[9] Committee on Economic, Social and Cultural Rights, general comment No. 12 (1999) on the right to adequate food, paras. 21–23.

[10] Voluntary guidelines to support the progressive realization of the right to adequate food in the context of national food security, adopted by the Food and Agriculture Organization Council at its 127th session, November 2004, guideline 8.5.

participation, she referred to the consensus conferences convened by the Government of Denmark as a unique mechanism for stimulating public debate and informing science and technology policy. Past conferences had addressed issues ranging from air pollution and sustainable agriculture to genetic engineering and human reproduction. She noted that, according to UNESCO, 27 per cent of researchers were women and 60 per cent of countries had not reached gender parity in primary and secondary education. Barriers implicated in that disparity included poverty, negative stereotypes, education orientation, disabilities and "work-life" balance. ICTs were essential tools for facilitating participation at every level, from primary education to the exchange of ideas and data among scientists. Education was a prerequisite for providing everyone with an opportunity to participate and to make informed personal choices about the use of the applications of science. In conclusion, Ms. Wyndham reiterated that the benefits of science included applications, knowledge and critical thinking, which contributed to the creation of an informed and empowered citizenry. In turn, participation was required for those benefits to be realized and must be supported by education, access to modes of communication and dissemination, and funding.

42. Ms. Shaheed observed that self-determination was a major element of the right to participate in the scientific enterprise and that people should be viewed as creators and not merely consumers. One participant remarked that, in order to ensure real participation, everyone must have both access and the ability to participate, and that the political will to ensure the involvement of all without discrimination, rather than just the privileged members of society, was essential. Ms. Wyndham emphasized that the transfer of knowledge was necessary for the full participation of all members of society in the scientific enterprise and that it should be achieved through education from primary school to university level. That would allow all stakeholders the opportunity to innovate and would ultimately benefit society as a whole rather than one individual. One concern identified by several participants was that policy- and decision-making still excluded individuals and communities to a great extent, particularly where decisions were taken at the intergovernmental level. The lack of participation by women in policy- and decision-making processes was, similarly, a matter of concern.

# IV. Conclusion

43. **The right to enjoy the benefits of scientific progress is a largely neglected right despite its importance for the enjoyment of other human rights and fundamental freedoms in the modern world. The participants in the seminar expressed particular interest in the relationship between the right to enjoy the benefits of scientific progress and intellectual property rights. Much of the discussion concerned the compatibility of the international intellectual property system with human rights norms and standards, and the need for significant adjustments to ensure a balanced system which accords fully with human rights norms and standards. Barriers to access to information, technology and knowledge were also reviewed at some length, with participants identifying poverty and discrimination as two impediments to access. Similarly, the full realization of the right of participation, in its various possible applications and throughout the policy- and decision-making processes, is vital if the right to enjoy the benefits of scientific progress is to come into its own.**