# "Scientific information for equitable knowledge societies"

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## Scientific information for equitable knowledge societies

Ladies and Gentleman. Dear colleagues and friends

It is a great pleasure for me to be with you this afternoon for the opening of the sixth international conference on electronic theses and dissertations.

It is both an honor and an obligation for UNESCO - the United Nations Educational, Scientific and Cultural Organization - to be associated with your movement, which is exemplary for making scholarly information more easily and more widely accessible.

Indeed, to ensure "free flow of ideas and images" - an informational principle - and to "maintain, increase and diffuse knowledge" - a prerequisite of scientific work - are essential elements of my Organization's mandate.

Let me, therefore, discuss the role that scientific information may have for constructing equitable knowledge societies.

You may wonder why I use the term "knowledge societies" rather than "information society". I would like to devote some minutes to try to explain why UNESCO makes this distinction in a time when the international community prepares a World Summit on the *Information* Society, an event that will be held in December this year in Geneva and in November 2005 in Tunis.

The rapid evolution of ICTs continues to provide new means for achieving progress in all sectors of work and life. However, while ICTs have greatly facilitated the movement and handling of data, the process of generating and validating information and knowledge remains essentially one of human creativity. Access to the information highways themselves is still a real problem in many countries, and questions of *access to scientific and development data and information* in the digital world, including questions of intellectual property rights, are attracting growing debate.

Science and education are at the very centre of debates on the challenges and opportunities of today's societies. We face a paradox, however. On the one hand, the accelerating spread of the Internet and new opportunities for free or low cost publishing are generating real benefits. On the other hand, the new economic and technological environment is raising concerns about the erosion of access to certain information and knowledge whose free sharing facilitated scientific research and education in past decades.

Before proceeding to outline some aspects of UNESCO's approach to addressing these concerns, I would like to stress two fundamentals which govern our action.

Let me first look at the concepts of "information society" and "knowledge societies".

The concept of "Information Society" relates to the pervasive influence of computer based networks and thereby the globalization of information, communication and control technologies. It assumes that collecting, copying, storing, transmitting, incorporating, manipulating, simulating, and managing information about every aspect of collective and individual life penetrate and shape all these aspects.

The concept of "knowledge societies" emphasizes in a complementary way the problems and strategies of making sense of information. The knowledge work of researchers, experts, analysts and users depends much on and contributes to information - but what makes this work important is its use of theories, models, scenarios, evaluation criteria, decision strategies, experimental designs, and implicit experience in order to establish orientation and certainty.

Whereas the concept of "Information Society" is mainly characterized by "technological innovation", the concept of "Knowledge societies" includes a dimension of social, cultural, economical, political and institutional transformation and a more pluralistic and developmental perspective.[1]

In UNESCO's view, the concept of "knowledge societies" is preferable to that of the "information society" because it better captures the complexity and dynamism of the changes taking place. The knowledge in question is important not only for economic growth but also for empowering and developing all parts of society. Thus, the role of ICTs extends to human development more generally - and therefore to such matters as intellectual cooperation, lifelong learning and basic human values and rights.

The second fundamental is that of "techno-apartheid" and the so-called digital divide. Most developing countries have thus far been unable to take full advantage of the advances offered by ICTs in terms of access to scien-

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[1] Wolfgang Krohn. - in : International Encyclopedia of the Social and Behavioral Sciences, 2002

tific and technological information and learning opportunities, at least relative to the situation in the industrialized countries.

If knowledge societies capable of generating new knowledge in a cumulative, cooperative and inclusive process are to be created, they need to be based on a foundation of shared principles, particularly that of equitable access to education and knowledge. National policies, supported by international frameworks, can be a tool to facilitate access for all to essential information. A key component of such frameworks and policies is the work of the United Nations SYSTEM, under the leadership of the World Intellectual Property Organization (WIPO), to develop balanced and consistent international standards for copyright and neighboring rights as exemplified in the WIPO Copyright Treaty (WCT)[2] and the WIPO Performances and Phonograms Treaty (WPPT)[3] adopted in 1996. UNESCO's policy is to encourage and assist Member States to promote access to information and knowledge for the progress of science and the diffusion of education, keeping in mind the necessity of rigorous conformity with international conventions on intellectual property.

It is in this spirit that UNESCO has been working to elaborate an international instrument entitled "Recommendation concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace"[4] to be adopted by the 188 Member States of UNESCO.

Two of the four main sections of the proposed Draft Recommendation - "development of public domain content" and "reaffirming the equitable balance between the interests of rights-holders and the public interest" - bear directly on scholarly information.

Public domain information is publicly accessible information, the use of which does not infringe any legal right, or any obligation of confidentiality. It thus refers to the realm of all works or objects of related rights, which can be exploited by everybody without any authorization. While many people associate the public domain mainly with classical and traditional literature, an equally important store of public domain information for development, and undoubtedly most important for science, is public data and official information produced and voluntarily made available by governments or international organizations.

Another paradox arises here. Public domain information, which is free of copyright, is often not sufficiently well-known to potential contributors and users, and in some countries there are growing restrictions on the availability and use of public information and data. Such restrictions arise, for example, when information and data which are in the public domain become, through a process of repackaging, privatized or commercialized.

In fact, the electronic public domain forms an international virtual public library that is vast and growing. This electronic public domain, furthermore, is both an invaluable support for productive, commercial and creative sector activities in developing and industrialized countries and a world heritage. All would gain if governments and other public service organizations identified and digitized their rich and diverse information stocks and made them available through the Internet.

Thus, the UNESCO Draft Recommendation encourages Member States to "recognize and enact the right of universal online access to public and government held records" and to "identify and promote repositories of information and knowledge in the public domain and make them available to all".

UNESCO is encouraging this process in international forums such as the present one, and also in its advice to Member States, notably through the preparation of "Policy Guidelines for the Development and Promotion of Public Domain Information", which are already available in draft form[5].

Let me now turn to the question of open access and voluntary authorizations. The public domain principle can be conceptually extended by the assimilation of "open access" information made freely available by its rights holders without cost. One well-known example of open access is the open source software license by which computer programmes are distributed free of charge by their authors for exploitation and cooperative development. Another is the vast amount of documentation produced and made available free of charge by the United Nations and its specialized agencies. Yet another is the movement of educational institutions around the world to provide their educational resources on the Internet free of charge for non-commercial usage, typified by the OpenCourseWare project of the Massachusetts Institute of Technology (MIT).

The UNESCO Draft Recommendation urges Member States and international organizations to encourage open access solutions, and UNESCO itself is strongly committed to promoting information-sharing in education, the sciences and culture, and to disseminating information and software for development under open access conditions.

The question of access to commercially published information, which is of great importance to science, is a different one. It is to be noted that many publishers are interested in providing their works electronically under preferential conditions for science and education, particularly to users in developing countries, provided their copyright is strictly respected. Numerous international programmes are now showing that affordable access to commercial publications in developing countries is possi-

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2     http://www.wipo.org/eng/diplconf/distrib/94dc.htm
3     http://www.wipo.org/eng/diplconf/distrib/95dc.htm
4     http://portal.unesco.org/ci/ev.php?URL_ID=4969&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1053237099
5     http://portal.unesco.org/ci/ev.php?URL_ID=8376&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1053237223

ble: notably the Health InterNetwork Access to Research Initiative (HINARI) of WHO; the PERI initiative of the International Network for the Availability of Scientific Publications (INASP), created by ICSU and UNESCO in 1991; the electronic-Journals Delivery System (eJDS) of the Abdus Salam International Centre for Theoretical Physics in Trieste, Italy; and the more recent ambitious initiative of the revived Alexandria Library, from its beginning a UNESCO project, to make virtually all of the world's books available through the Internet.

UNESCO is looking carefully at ways to promote this type of initiative; for example, through model frameworks of voluntary permissions by which publishers and other rights-holders could assign specific rights to users in developing countries, either definitively or on a limited time basis.

Another quite distinct matter concerns provisions for a fair balance of interests in the use of copyrighted works in the digital environment. This refers to the limitations and exceptions to copyright and related rights protection which are authorized in national legislation - as required in the two WIPO treaties mentioned earlier - provided that they are applied only in certain special cases which do not conflict with normal exploitation of the work and do not unreasonably prejudice the legitimate interests of rights-holders. Such provisions for equitable use in the public interest, which vary from country to country, are sometimes called "fair use", "fair dealing" or "limitations and exceptions authorized by the law" in specific legal SYSTEMs. They typically provide for exceptional free reproduction of copyrighted information for such uses as education, research, library services, journalism and access for disabled persons.

These equitable use provisions, which in the pre-digital world made possible the public library, are potentially of even greater importance in the digital world.

However, they also present greater risks to the legitimate interests of rights-holders given the ease with which digital information can be redistributed once released. UNESCO recognizes the importance of equitable use provisions in national policies in education, the sciences and culture, particularly for the developing countries. We also recognize the importance of a fair balance between the interests of rights-holders and those of users when cultural works and performances are exploited in the digital environment in the fields of teaching, scientific research, libraries, dissemination of information and the needs of the visually impaired.

In this regard, UNESCO, in close consultation with the concerned user and rights holder communities, is carrying out an extensive study aimed at comparing the relevant provisions in existing national legislation with actual needs. Later on, a consensus-building process will be proposed regarding how best to address in practice any identified gaps, paying full respect to relevant provisions in WIPO and WTO treaties and without undermining copyright protection.

I would like to refer to yet another aspect, which is important that knowledge societies remain memory-based societies. It is the aspect of the preservation of digital material, including, of course, the preservation of electronic theses and dissertations.

Resources of human knowledge or expression, whether cultural, educational, scientific and administrative, or embracing technical, legal, medical and other kinds of information, are increasingly created digitally, or converted into digital form from existing analogue resources.

Where resources are "born digital", there is no other format but the digital original. Digital materials include texts, databases, still and moving images, audio, graphics, software, and web pages, among a wide and growing range of formats. They are frequently ephemeral, and require purposeful production, maintenance and management to be retained. Many of these resources have lasting value and significance, and therefore constitute a heritage that should be protected and preserved for current and future generations. This heritage may exist in any language, in any part of the world, and in any area of human knowledge or expression.

The purpose of preserving the digital heritage is to ensure that it remains permanently accessible. Accordingly, access to digital heritage materials, especially those in the public domain, should be equitable and free of unreasonable restrictions. At the same time, the security of sensitive and personal information should be protected from any form of intrusion.

It must also be recognized that the digital heritage is part of the wider continuum of digital information. To preserve digital heritage, measures will need to be taken throughout the information's life cycle. Preservation of digital heritage begins with the design of reliable SYSTEMs which will produce authentic and stable digital objects.

The need to safeguard this relatively new support for information and knowledge calls for international consensus on its collection, preservation and dissemination.

Therefore, UNESCO is preparing an international "Charter for the Preservation of Digital Heritage"[6].

While the Charter is a declaration of principles focusing on advocacy and public policy issues, the technical and practical issues are being covered by "Guidelines for the Preservation of Digital Heritage", prepared for UNESCO by the National Library of Australia. The Guidelines are intended as a companion sourcebook to the draft Charter.

The Charter, once adopted by UNESCO Member States, possibly in October this year, is intended to help prepare national policies, inspiring responsible action for preservation of and access to digital heritage.

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6    http://portal.unesco.org/ci/ev.php?URL_ID=1539&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1053237492

Ladies and Gentlemen. Let me, in conclusion, come back to ETDs and to actions that UNESCO is undertaking in order to help assist international initiatives in this area.

UNESCO assistance to ETD initiatives is part of its action to promote access to information in the public domain and the use of the Internet as a tool for disseminating scientific knowledge. We are particularly interested in facilitating the transfer of expertise in establishing sustainable ETD programmes from developed countries to developing countries.

UNESCO has been associated with the ETD initiatives since 1999 when the Organization hosted a first expert meeting to look at the possibilities to foster and support the internationalisation of already existing projects, notably Virginia Tech's NDLTD project, in the Steering Committee of which UNESCO is a member.

The UNESCO Guide to Electronic Theses and Dissertations[7], elaborated by a consortium of ETD experts, was published in 2002. Including guidelines, workflow models and best practices, it is a resource for graduate students, who are writing theses or dissertations, for graduate faculty, who want to mentor ETD authors, for graduate deans, who want to initiate ETD programmes, and for IT administrators at universities. It is now online available in English, Spanish and French.

Presently, UNESCO sponsors the establishment of a model training programme for project managers responsible for ETD programmes and supports to organization of training courses, for example those that are being organized here during ETD 2003.

UNESCO will also sponsor pilot projects, for instance in Africa, were we intend to support an initiative that will help to drive ETD development in Africa at national levels, initially in Ethiopia, Tanzania and South Africa.

The project, building upon existing expertise in digital preservation and digital collection management, will develop guidelines for producing and preserving ETDs in participating institutions, test and promote technical and organizational feasibility of the chosen ETD strategy, and implement pilot projects. It aims at making African theses and dissertations accessible online to scholars and users worldwide, at building capacity at the institutional, national and regional levels on digital libraries, at promoting regional cooperation, and at training scholars in the technique of electronic publishing and electronic access to documents.

Support to other pilot projects, notably in Eastern Europe and in Latin America is also being foreseen.

With these initiatives, Ladies and Gentlemen, UNESCO helps the ETD movement to make its next steps so that it becomes truly worldwide and can contribute to the creation of equitable knowledge societies.

Thank you for your attention.

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7    *http://portal.unesco.org/ci/ev.php?URL_ID=1580&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1053237595*