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Workshop on Using Copyright to Promote access to Information and Creative Content

Geneva, November 16, 2011

USING COPYRIGHT TO PROMOTE ACCESS TO INFORMATION AND CREATIVE CONTENT. EDUCATION AND RESEARCH (Part I).

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[1]   The views and opinions expressed in this Study are the sole responsibility of the author. The Study is not intended to reflect the views of the Member States or the WIPO.

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EXECUTIVE SUMMARY

The role of education and research (E&R) in enabling the creation, access and use of information, knowledge and culture for human development and the exercise of freedoms is widely acknowledged as critical. In recent decades, advances in information and communications technologies (ICTs) has been recognized as having vast potential to improve both access to, and the quality of, E&R. This Study, which is part of a broader (three-part report) on *Using Copyright to Enhance Access to Information and Creative Content* focuses on open access (OA) approaches in the management of copyright in the E&R sector. It presents existing examples of normative solutions or public policies, including pilot projects or national strategies, which have proven beneficial for the achievement of targeted E&R objectives. In particular, specific case studies of Open E&R resources from Africa, Asia, Latin America and the Caribbean as well as OA approaches to E&R resources in developed countries are examined and analysed.

The case studies reviewed from Africa are the SABER repository in Mozambique, the Scientific Electronic Library Online (SciELO) in South Africa and the African Virtual University (AVU) Open Educational Resources (OER), which is a regional initiative. In Asia, the case studies are ePrints@IISc in India and Vietnam Journals Online (VJOL). In Latin America and the Caribbean (LAC) the study looks at SciELO Brazil and the Network of Collaboration between Europe and LAC Countries (NECOBELAC). The study also summarises the state of OA for journals, repositories and OpenCourseWare (OCW) in developed countries. The case studies that are covered in the Study were selected on the basis of a flexible but discernible criterion. For an initiative to be considered for the Study it had to meet two main criteria. First, it had to be possible to demonstrate or at least discern a clear national or sub-national government involvement or the involvement of a significant state agency, such as a government-funding agency. Second, it had to be an initiative or project which actually provides OA to E&R resources as opposed to just an initiative or project providing information about these resources elsewhere. Admittedly, a strict interpretation of this criterion could have eliminated some of the case studies and, as such, the criterion was used as broad guidance as opposed to a strict standard.

Overall, it is clear that the OA approach to managing copyright in E&R resources has emerged as an important model to promote access to information and creative content in the recent past. There has been an impressive growth in OA journals and repositories as well as OCW in developing countries and the trend appears to be set to continue. The Directory of Open Access Journals (DOAJ) lists journals from at least 50 developing countries. The Directory of Open Access Repositories (OpenDOAR) lists repositories in at least 53 developing countries while the OCW Consortium has participating institutions from at least 23 developing countries. At governmental level, however, there appears to have been stronger political and public policy responses to promote OA to E&R resources in developed countries as opposed to developing countries. Individual institutions and private actors as opposed to governments and government/public policy drive many initiatives in developing countries.

The review and analysis of the various case studies raises a number of issues that need to be considered or addressed but also points to some tentative conclusions regarding IP, economic sustainability, and incentives for various stakeholders as well as the effectiveness of this model of managing copyright in the E&R sector. With respect to IP, considering that OA operates within, and is supported by, the copyright system, there are, in general, no major unique issues that arise with respect to the use of the model for E&R resources. Nevertheless, there are two issues that emerge from the case studies that require some further consideration. First, it is not entirely clear whether individual researchers and authors in various participating institutions, particularly in the case of OA repositories, are all on

board with this approach. Second, the terms of OA licenses in a number of initiatives are not clear or are contradictory. There are cases where reported OA repositories, for example, have an "all rights reserved" copyright message on their websites.

In terms of economic sustainability, the case studies suggest that broadly speaking OA approaches are financially and economically viable since this approach is not mutually exclusive with revenue and profit. The system of author pays, coupled with other revenue streams such as sale of prints and advertising appears to address the cost question fairly well with respect to OA journals which is the area with most concerns regarding free availability of content. Repositories and OCW raise less financial sustainability questions due to the lower costs involved and the inherent linkage to normal functions of institutional libraries and teaching.

Regarding incentives, it emerges that there is a significant overlap and commonality regarding incentives for individuals and institutions as well as governments promoting OA approaches. The idea of higher visibility, accessibility and impact appear to speak to most players in the E&R sector. Financial considerations, particularly for governments and institutions, also appear to be an important incentive for supporting OA approaches.

Though it may be too early to make any conclusive statements regarding the effectiveness of OA approaches to enhancing access to E&R resources, there is already noticeable impact in developing countries. The numbers regarding participation of developing countries in OA journals and repositories as well as OCW make a good case in this regard. There is one area, however, where there are questions regarding the effectiveness of this model, which is in the area of arts and cultural information and content as opposed to scientific information and content. There appears to be a large focus on OA initiatives in journals and repositories in the sciences.

Taking into account the work that has already began under the Development Agenda Project on IP, ICTs, the Digital Divide and Access to Knowledge (including this Study), there are a number of opportunities for WIPO to do more in the area of OA to E&R resources in future. There are clear opportunities with regard to WIPO:
As a significant provider of E&R resources on IP and related subjects, to adopt or pilot the OA approach with respect to its own E&R resources and to generate best practices;
Providing a forum for continued discussion and learning about OA approaches to the dissemination of E&R information and content to increase awareness; and
Contribute to the gathering and dissemination of evidence to policymakers on the effectiveness of these approaches, particularly in developing countries.

1. INTRODUCTION

Human developments and the exercise of human freedoms heavily depend on the availability and access to information, knowledge and culture.[2] In the last decade or so, advances in information and communications technology (ICTs) have been recognized as having vast potential to improve both access to, and the quality of, education and research (E&R). According to the United Nations Educational and Scientific Organization (UNESCO), ICTs "can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development and more efficient education management, governance and administration."[3] Consequently, these communications tools that are now accessible to millions of citizens with the capacity for reproduction and distribution can, with concerted efforts, vastly improve access to, and the quality of, education and integrate developing country researchers and research into the global knowledge economy.

The potential for ICTs to improve the state of E&R particularly in developing countries has, however, been tempered with the realities of the digital divide.[4] The difference in the availability of opportunities to access ICTs and to use the Internet between and within countries is the result of a wide range of factors including economic, social and cultural factors. Nevertheless, the role of intellectual property (IP) laws and regulations in shaping the socio-economic and cultural environments within which information and knowledge are produced and used has been acknowledged to be a particularly important factor that needs specific consideration. In this regard, the Declaration of Principles of the World Summit on the Information Society (WSIS) recognizes that "facilitating meaningful participation by all in IP issues and knowledge sharing is a fundamental part of an inclusive information society."[5] In other words, facilitating the participation by all in IP issues and knowledge sharing is key to bridging the digital divide. In terms of E&R resources, the copyright system is of particular interest because of its twin function of encouraging creativity (the production of creative and scientific content) and enabling the sharing of knowledge and information.

The digital age has, however, also brought about a paradox for the IP system, particularly for the copyright system. In this era, the copyright system is expanding rapidly, yet it is at a point where its future remains undetermined.[6] Digital technologies have both offered the opportunities for increased production and expanded access to creative works and at same time sophisticated tools for curtailing access and use of informational products, including scientific, educational and academic works.[7] The rapid development of ICTs and a tendency to make E&R material open to the public in recent years has the potential to help deal with this paradox and ensure that the copyright system can be used to facilitate the production of education content as well as access. Open E&R resources could empower users, particularly, in developing countries, to participate in the creation and dissemination of

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[2]   Y. Benkler, *The Wealth of Networks – How social production transforms markets and freedom* (New Haven and London: Yale University Press, 2006), p. 1.

[3]   See UNESCO's ICT in Education webpage at: http://www.unesco.org/new/en/unesco/themes/icts/.

[4]   The term "digital divide" refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard to both their opportunities to access ICTs and to their use of the Internet for a wide variety of activities. The digital divide reflects various differences among and within countries. Definition based on the OECD Glossary of Statistical Terms. Available at: http://stats.oecd.org/glossary/detail.asp?ID=4719.

[5]   See Article 42 of the Declaration, available at: http://www.itu.int/wsis/docs/geneva/official/dop.html.

[6]   P. Yu, "The Global Intellectual Property Order and its Undetermined Future" *The WIPO Journal 1* (2009), pp. 1- 15 at p. 15.

[7]   U. Suthersanen "Some Initial Thoughts on Copyright, Human Rights and Market Freedom" in G. Westkamp (ed.) *Emerging Issues in Intellectual Property – Trade, Technology and Market Freedom: Essays in Honour of Herchel Smith* (Chelteham and Northampton: Edward Elgar, 2007), p.35.

educational and learning materials. This will make the copyright system promote social and economic development in the digital age.

In light of the growth and proliferation of open E&R resources, governments and public institutions are increasingly interested in raising the awareness of the chances and opportunities that can be created in this field. There is also an interest in considering the implementation of public policy strategies to foster and incentivize a wider and easier creation, development, distribution, access and use of open E&R resources. This explains the World Intellectual Property Organization (WIPO) Development Agenda (DA) Project on IP, ICTs, the Digital Divide and Access to Knowledge.[8] The Project's objective, in the area of copyright, is to gather information and explore the potential of the copyright system, its flexibilities and different models for managing copyright for enhanced access to knowledge.

This Study is part of a broader (three-part report) on *Using Copyright to Enhance Access to Information and Creative Content* and focuses on E&R information and content. In this context, the Study aims to present existing examples of normative solutions or public policies, including economic incentives, pilot projects or national strategies, which have proven beneficial for the achievement of targeted E&R objectives. In particular, specific case studies of Open E&R resources from Africa, Asia, Latin America and the Caribbean as well as policies in developed countries are examined and analysed. A geographically balanced approach to case studies is critical to ensure that we have a full picture of the relevant issues which may differ from region to region. On the basis of this analysis, the Study offers recommendations on the possible role that could be played by WIPO in the field of Open E&R resources in the future.

In terms of methodology, the Study was largely undertaken through an online survey of Open E&R initiatives as well as relevant online and other literature on the subject. This was combined, to a limited extent, with discussions and interviews with researchers and practitioners. An online survey methodology is particularly suitable for this Study because open E&R resources refer to digital online resources made available through the deployment of ICTs. It follows that initiatives or projects which are not searchable or easily accessible online are unlikely to lead to the achievement of targeted E&R objectives.

2. USING THE COPYRIGHT FRAMEWORK TO PROMOTE ACCESS TO INFORMATION AND CREATIVE CONTENT FOR E&R RESOURCES – CASE STUDIES

The primary role of the international copyright system, from a normative perspective, is to facilitate the production of creative and scientific works and their dissemination. From a human rights perspective, the copyright system, internationally and nationally, is an important part of the efforts to fulfill socio-economic and cultural rights. In particular, while copyright is not a human right in itself, copyright laws and systems are an important part of governments' efforts to fulfill their human rights obligations under the Universal Declaration of Human Rights (UDHR)[9] and the International Covenant of Economic, Social and Cultural Rights (ICESCR).[10] These two instruments require states to ensure the right of everyone to freely participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits and to the protection of their moral and material interests

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[8]   See WIPO document CDIP/4/5 REV available at: http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=131424. This Project is aimed at implementing WIPO-DA Recommendations 19, 24 and 27. The DA recommendations are available on the WIPO website at: http://www.wipo.int/ip-development/en/agenda/recommendations.html.

[9]   Text of UDHR is available at: http://www.un.org/en/documents/udhr/index.shtml.

[10]   Text available at: http://www2.ohchr.org/english/law/cescr.htm.

resulting from any scientific, literary or artistic production of which they author.[11]

At its very basic the copyright system is therefore concerned with both production and availability of information and creative content in the context of human development and fundamental freedoms. On the production side, the exclusive legal rights over these works are intended to permit and/or encourage authors or creators to invest the time, intellectual effort and money in the production of creative, artistic and scientific information and content (including from a quality perspective) and for the said authors and creators to be identified with and ensure the integrity of their works (attribution). On the dissemination and access side, the first principles rule that copyright only protects expressions but not ideas, procedures, methods of operations or mathematical concepts[12] and an in-built system of limitations and exceptions (L&Es) ensures that ideas, which are the building blocks for creativity, are not constrained by exclusive rights and that certain public interest uses of copyright works are permitted without undue restrictions. The way in which countries, companies and individuals manage copyright has an important bearing on whether both the production side and access side of the copyright bargain are met or not.

The open access (OA) approach to the management of copyright in E&R resources has emerged as an important model for managing copyright to promote both production and access to information and creative content. The OA approach, which as noted above, is a particular approach to the management of copyright, relies primarily on the consent of copyright holders.[13] The OA approach, however, also benefits from the fact that copyright is time-limited and hence rights over works eventually expire. Such works can be made available online free of charge with no copyright related restrictions. Because it operates within the framework of copyright law, and indeed, depends on the ease of obtaining copyright (since copyright generally applies by default and does not require registration), the OA approach to management of E&R resources is compatible with quality (e.g., through peer-review) and revenue or profit motives in copyrighted works.

In general, making E&R materials available on an OA basis means that the copyright holder grants to all users a free license to use works with limited usage restrictions with respect to distribution, transmission and public display in any digital medium for any responsible purpose, subject to proper attribution of authorship. In the last decade or so various initiatives have been undertaken to promote OA in the E&R sector. In the developing country contexts, OA initiatives can be broadly divided into three categories. Those that aim to increase access to E&R resources, those that aim to increase the visibility of the work of the authors from these countries and those that aim to increase knowledge of the available E&R resources. Many initiatives, as we will see in the case studies below, aim to do all the three to varying degrees.

OA for E&R resources has mainly taken the form of OA Journals and OA institutional repositories operating under either creative common (CC) licenses or other open content licenses. These two forms of OA have increasingly proven suitable for closing the information gaps in ways that are beneficial for developing countries in particular.[14]

OA journals range from journals whose articles are immediately available upon publication with no restrictions on use and re-use through to those with delayed release of articles on an OA basis. Journals are important because the results of scientific research are primarily communicated and validated through publication in scientific journals. For developing

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[11]   See Article 27 of the UDHR and Article 15 of the ICESCR.
[12]   See Article 9.2 of the TRIPS Agreement.
[13]   See P. Suber "Open Access Overview" for a detailed explanation of the definitions, origins, operation and other aspects of OA. Available at: http://www.earlham.edu/~peters/fos/overview.htm.
[14]   M. Abukutsa-Onyango "The Problems Faced by Research Communities in Developing Countries". Available at: http://www.openoasis.org/index.php?option=com_content&view=article&id=28&Itemid=412.

countries OA journals are meant to help overcome a range of distribution and dissemination barriers that limits the access and usage of locally generated literature and scientific information. Research institutions and individual researchers are increasingly choosing to publish in freely available OA journals on the Internet rather than the conventional subscription-based journals.

OA institutional repositories are online spaces for the collection, preservation and dissemination of the intellectual output (books, articles, research papers and other materials) of an institution. OA repositories are seen as important for institutions because they create global visibility and accessibility for an institution's research and scholarly outputs, increase the impact of such research and intellectual outputs and because they help to preserve digital assets (such as dissertations and theses) which otherwise are easily lost.

Another important mechanism that has emerged on the open E&R resources arena is OpenCourseWare (OCW). This is a class of material such as syllabi, lessons, reading lists, lecture notes, and other documents that were previously used in an actual classroom but which are now being made available to the public, through the Internet, for free.

In the context of OA journals and repositories as well as OCW, there are today thousands of initiatives in both developed and developing countries. It terms of journals, the Directory of Open Access Journals (DOAJ) lists, at the end of October 2011, more than 7,000 journals from 117 countries.[15] In 2002 there were only 33 journals from seven countries. This means that the number of journals in the DOAJ has jumped more than 21,000% in under 10 years and the number of countries from which the journals come has jumped more than 16-fold in the same period. For OA repositories, by the start of November 2011, the Directory of Open Access Repositories (OpenDOAR) has more than 2100 listings from 97 countries.[16] Figure 1 below shows the distribution of the repositories in different continents.

Figure 1

With OCW,

regard to the OCW
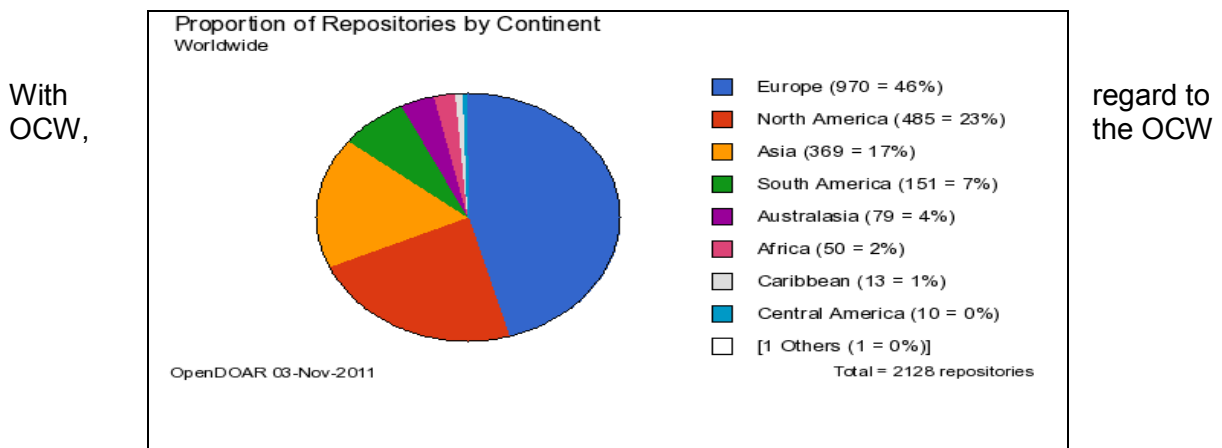
Consortium counts members in 46 countries who make available several hundred courses in a wide range of subjects.[17]

Despite the rising, and in some cases, remarkable uptake of OA approaches in dealing with copyright over E&R resources, many of the initiatives in journals, repositories and OCW remain mainly driven by private actors or individual institutions as opposed to being a

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[15]   See: http://www.doaj.org/.
[16]   See: http://www.opendoar.org/index.html.
[17]   See: http://www.ocwconsortium.org/.

function of government policies at the national, sub-national or agency level. This raises a challenge in finding initiatives driven or based on concrete legislations, public policies and strategies of governments linked to the use of the copyright system in order to enhance access to information and creative content, which is what this Study in concerned with. A criterion for selecting initiatives or projects as the subjects of case studies was therefore necessary to maintain some level of relevance between the purpose of the Study and the initiatives examined as case studies.

In this regard, the case studies that are covered in this Study (the sub-sections which follow below) were selected on the basis of a flexible but discernible criterion. For an initiative to be considered for the Study it had to meet two main criteria. First, it had to be possible to demonstrate or at least discern a clear national or sub-national government involvement or a significant state agency, such as a government-funding agency, in a certain field. Secondly, it had to be an initiative or project which actually provides OA to E&R resources as opposed to just an initiative or project providing information about these resources elsewhere. Admittedly, a strict interpretation of these criteria could have eliminated some of the case studies and, as such, the criterion was used as broad guidance as opposed to a strict standard.

2.1   Case studies on OA to E&R resources in Africa

It has been argued that Africa, particularly, Sub-Saharan Africa, is suffering from a scientific information famine and that the expectation that the Internet would facilitate scientific information flow does not seem to have been realised.[18] In many African countries the dissemination of research findings remain an important concern mainly because of publishing and access restrictions.[19] These restrictions have meant that the visibility of African scholarship is kept at the minimum among other challenges. In recent years, OA has been gaining a foothold in the continent and is seen as an important tool that could change the picture in region. By the beginning of November 2011 OpenDOAR lists 50 OA repositories in 15 countries.[20] On its part, DOAJ lists journals from 16 countries.[21] In terms of OCW, four countries, Burkina Faso, Kenya, Nigeria and South Africa, are listed as having entities participating in the OCW consortium. In this regard, a number of successful or promising initiatives have been implemented in different countries in addition to some regional initiatives. We examine three of these.

2.1.1   Mozambique – SABER

SABER, launched in 2009 with the support of the Mozambican Ministry of Education (through a World Bank funded project), is a shared repository that provides a single entry point for access to research produced in Mozambique and made available, technically, OA principles.[22] It brings together six public higher education institutions. These are the *Universidade Pedagógica; Universidade Eduardo Mondlane; Centro de Formação Jurídica e Judiciária; Universidade Politécnica; Universidade São Tome de Moçambique and the Instituto Superior de Ciências e Tecnologia de Moçambique*. The repository, mainly in Portuguese language, contains journal articles, conference papers as well as thesis and dissertations in a broad range of subjects.

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[18]   W. Nwagwu and A. Ahmed "Building Open Access in Africa", Int. *J. Technology Management, Vol. 45, Nos. 1/2, 2009,* pp. 82-101 at 82.

[19]   H. Van Dam, T. Madzija, A. Martinho and R. Waete "Knowledge, Attitudes and Practices with Respect to Institutional Repositories in Mozambique – a Benchmark Study", *KIT Working Papers Series 12,* Royal Tropical Institute, 2010, p.6.

[20]   See: http://www.opendoar.org/countrylist.php?cContinent=Africa.

[21]   See: the DOAJ country listings at http://www.doaj.org/doaj?func=byCountry&uiLanguage=en.

[22]   See the initiatives website at: http://www.saber.ac.mz/.

SABER currently (November 2011) holds more than 2,600 items. According to Aissa Mitha Issak, its general coordinator, "the idea of also being able to contribute to global knowledge is really a very valuable thing."[23] Consequently, in addition to improving visibility of works and ensuring long-term preservation, it is also seen as an issue about Mozambicans moving away from just being consumers of information and knowledge to being contributors of knowledge as well.

With respect to copyright it is reported that there are no major copyright issues.[24] In the main, each participating institution holds the right to publish the contents of dissertations and theses. Since most of these contents were never published elsewhere it reduces the chance of any copyright related disputes. It is notable, however, that on the SABER website has an "all rights reserved" notation with respect to copyright affixed raising questions whether indeed SABER is actually an OA repository as claimed or whether it is informed by OA principles of making available but not necessarily as a copyright management model.

2.1.2   South Africa - SciELO

SciELO South Africa[25], which is an offshoot of SciELO in Brazil[26], is an initiative under the Scholarly Publishing Programme of the Academy of Science of South Africa (ASSAF) with the support of the South Africa Department of Science and Technology (DST) for OA. It offers a platform that is free to publish and free to access. The Programme's main focus is on enhancing the quality, quantity and worldwide visibility of original, peer-reviewed publications produced by researchers in the public sector, and fostering a new generation of highly competent and productive scientists and scholars. This focus is linked directly to key objectives of South Africa's national system of innovation in the context of DST's Ten Year Plan for Innovation in South Africa, namely, enhancing the national capacity to produce and especially to publish research and increasing the quality and visibility of South African research publications.

In 2006, ASSAF in its Report on a Strategic Approach to Research Publishing in South Africa[27] recommended among others (Recommendation 6) that DST takes responsibility for ensuring that OA initiatives are promoted to enhance the visibility of South African research articles through funding OA journals, establishing a federation of institutional OA repositories and undertaking a national harvesting of OA repositories. To implement this recommendation, ASSAF chose to implement SciELO based on the Brazilian model because it combined the most desirable features such as effective mechanisms for journal selection, free-online open access e-publishing, a variety of features to facilitate contextual understanding and contacts between readers and authors and full mark-up and indexing which permits direct online bibliometric analysis.[28] As at October 2011, SciELO South Africa had at least 20 journals in a number of subject areas. The subjects include animal science, civil engineering, education, medicine, psychology and veterinary.

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[23]   See EIFL "Changing Research in Mozambique with a Shared Institutional Repository", EIFL, September 2010. Available at: http://plip.eifl.net:8080/news/spotlight/2010_09_03_changing-research-in.

[24]   See H. Dam "Case Study Mozambique: SABER: A Unique and Innovative FOSS Open Access Repository" available at: http://www.eifl.net/dspace.

[25]   The website is available at: http://www.scielo.org.za/.

[26]   See: http://www.scielo.org/php/index.php?lang=en.

[27]   The summary of the recommendations is available at: http://www.assaf.co.za/wp-content/uploads/reports/evidence_based/recommendations.pdf.

[28]   ASSAF Report to DST on the Scholarly Publishing Program covering the Period up to June 2010. On file with author.

2.1.3   Regional – African Virtual University (AVU) Open Educational Resources (OER) Initiative

In 2010 AVU[29] began developing the OER repository with funding support from the African Development Bank (AfDB). The repository called OER@AVU[30], developed using open source software platforms and technologies, including Linux, DSpace and PostgreSQL, is intended to serve as a platform where the 73 modules of ICT Integration in Mathematics, Biology, Physics, Chemistry and Education, ICT Basic Skills and professional courses that were developed and released as OERs through the AVU Multinational Teacher Education Programme will be published. It also serves as a platform for educators to use, modify and contribute to AVU collection, make their educational resources available to others, discuss and comment on them, and collaborate in developing them further. The intention is to go beyond the 73 existing modules and the repository will host all of the AVU's upcoming OER in areas such as business studies, computer sciences, agriculture and environmental studies.

The core objectives of the OER@AVU initiative is to: facilitate increased participation by Africa in the creation, organization, dissemination and utilization of OERs; address issues pertaining to relevance of OERs to the African context; reduce technological challenges; and enable institutions to participate actively, by driving and owning the process in terms of form, content, structure and orientation. The materials on the OER@AVU site are licensed under a creative commons license (South Africa 3.0) which means that they can be copied, distributed, transmitted, adapted and used commercially provided that there is attribution and the altered, transformed on new materials based on them are shared alike.

Historically, OER@AVU builds from earlier efforts by AVU and its partners to improve the availability of quality and contextualized academic content so as to improve access to quality education in Africa. In this context, AVU launched in 2005, a multinational project, funded by AfDB and the United Nations Development Programme (UNDP) – Somalia one of whose objective was to develop a continental teacher education program in mathematics, sciences and ICT. Through this project, AVU developed four (4) full Bachelors of Education in Mathematics, Physics, Chemistry and Biology. The programs were developed using a collaborative approach. A total of 12 universities, 146 authors and peer reviewers from 10 countries in Anglophone, Francophone and Lusophone countries were involved. In total, 73 modules made up of 46 Math and Sciences, 4 ICT Basic Skills, 19 Teacher Education professional courses and 4 related to the integration of ICTs in Education and integration in respective subject areas were developed. It is these modules that have been made available through the OER@AVU initiative.

2.2   Case studies on OA to E&R resources in Asia

The developing parts of the Asian region have made important strides in promoting OA to E&R resources with India being considered the leading country in this regard. Many countries have initiatives at different level of development and with varying degrees of impact. The OpenDOAR lists OA repositories in over 20 developing countries in Asia with a

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[29]   AVU is a Pan African Intergovernmental Organization established by charter with the mandate of significantly increasing access to quality higher education and training through the innovative use of information communication technologies. Five African Governments, Kenya, Senegal, Mauritania, Mali and Cote d'Ivoire signed a Charter establishing the AVU as an Intergovernmental Organization. The AVU has its headquarters in Nairobi, Kenya and a Regional office in Dakar Senegal. The AVU has Host Country Agreements with the governments of Kenya and Senegal and the AVU has diplomatic status in these countries.

[30]   Detailed information about OER@AVU is available at: http://oer.avu.org/.

total of individual projects/initiatives running into the 100s.[31] The DOAJ lists OA journals in a similar number of countries. The OCW Consortium lists at least nine countries as having participating entities from the region. In this Study, we look at two initiatives, one in India and the other in Vietnam, which tentatively fulfill our selection criteria.

2.2.1   India – ePrints@IISc

The *Indian Institute of Science* (IISc) was the first to set up an interoperable institutional repository (*ePrints@IISc*) in India.[32] Since its launch, the repository has accumulated more than 30,000 items many having full text. The types of documents that can be found in the repository includes: journal articles; conference papers, proceedings and posters; newspaper and magazine articles; books and book chapters; and technical reports or working papers. In the main, ePrints@IISc repository collects, preserves and disseminates, in digital format, the research output created by the IISc research community. The repository has been built by enabling the Institute community to deposit their pre-prints, post prints and other scholarly publications (as described above) using a web interface, and organizes these publications for easy retrieval. While ePrints@IISc can be accessed by anyone, submission of documents to the repository is limited to the IISc research community. It terms of software, the repository runs on ePrints open archive software, a freely distributable archive system.

The ePrints@IISc is one of the few major OA initiatives in the E&R area to have clearly spelled out guidance on copyright matters, including frequently asked questions (FAQs) section.[33] The guidelines provide detailed advice on how to ensure that publisher's copyright is not infringed.

2.2.2   Vietnam – Vietnam Journals Online (VJOL)

The National Centre for Scientific and Technological Information (NACESTI), which falls under the Ministry of Science and Technology, launched VJOL in 2007.[34] The International Network for the Availability of Scientific Publications (INASP) supported the initiative.[35] VJOL aims to promote awareness and use of Vietnam-published journals in all disciplines by providing access to tables of contents, abstracts and full text on the Internet. It uses open source software, which allows the journal content listed on VJOL to be indexed through Open Archives Initiative search engines dedicated to research.

VJOL provides participating journals the opportunity to take control of the area within the VJOL and they are responsible for loading, editing and updating their own journal information. All the material on VJOL is free to view, search and browse. However, the journals/authors or publishers retain copyright to the materials. This means that each journal or author will need to give permission for any use or re-use of the content that fails outside fair use or other permissible uses. As in the case of SABER in Mozambique, this approach to copyright management raises questions whether this is actually an OA repository or not.

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[31]   See: http://www.opendoar.org/countrylist.php?cContinent=Asia.

[32]   D.K Sahu and R.C. Parmar "Open Access in India", 2006 . Available at: http://openmed.nic.in/1599/01/Open_Access_in_India.pdf. For detailed information on ePrints@IISc, see its website at: http://eprints.iisc.ernet.in/.

[33]   The copyright guidance can be found on the repository's website at: http://eprints.iisc.ernet.in/submission_guideline.html#copyright.

[34]   The description in this sub-section is partly based on the presentation of Dr. Ta Ba Hung, Director of NACESTI, at the second IFLA Presidential Meeting in Berlin in February 2008. The VJOL website is at: http://www.vjol.info/.

[35]   Information on INASP can be found on its website at: http://www.inasp.info/.

2.3   Case studies on OA to E&R resources in Latin America and the Caribbean

Latin America and the Caribbean have already recorded important progress in making E&R resources widely available using OA approaches. Many scholars and scientists both at individual level and system-wide in the region are said to share the ethical and epistemological motivations to increase the 'public presence' of academic research.[36] Overall, many more scholars and scientists have been enabled to access information at affordable prices and participate and collaborate in international networks for knowledge production.[37] Due to a relatively developed ICT infrastructure the region is well positioned to implement OA initiatives to increase the availability and access to E&R resources. In terms of OA, it is estimated, for example, that 13% of Latin American journals are OA. This is a much higher percentage than even North America and Europe. OpenDOAR lists hundreds of OA repositories in at least 19 countries in the region[38] while the DOAJ lists journals from at least 17 countries. OCW Consortium lists entities participating in the Consortium from 11 countries in the region.

The move to OA in the region dates back to the late 1990s and there has been significant progress. This is exemplified by a number of initiatives with Brazil being a leading example. It is significant that key initiatives in the region have taken a regional approach as opposed to a national or sub-national focus. In this regard, for the case study we look at one Brazilian initiative – SciELO- that is in fact an international initiative and a pan-regional Latin America and the Caribbean (LAC) – European initiative.

2.3.1   Brazil – SciELO

SciELO, first piloted in Brazil in 1997, is aimed to be a model for cooperative electronic publishing of scientific journals on the Internet.[39] The initiative was conceived, as a vehicle to meet the scientific communication needs of LAC countries. It provides an efficient way to assure universal visibility and accessibility to the scientific literature from the region. In addition, the SciELO model comprises integrated procedures for the measurement of usage and impact of scientific journals. SciELO was founded through partnership between the State of São Paulo Science Foundation (FAPESP)[40], the Latin America and Caribbean Center on Health Sciences Information (BIREME)[41], and national and international institutions related to scientific communication and editors. It started off as a pilot with 10 Brazilian journals from different subject areas. Since then the initiative has progressively grown incorporating new journal titles and expanding to new countries. In addition to South Africa (already discussed above) SciELO has expanded to or is in development in 13 other countries, primarily in Latin America, including Argentina, Bolivia, Costa Rica, Chile, Cuba, Mexico, Paraguay, Peru, Portugal, Spain, Uruguay and Venezuela.

The model has three main components. First, the model enables the electronic publication of complete editions of scientific journals, the organization of searchable bibliographical and full text databases, the preservation of electronic archives and the production of statistical

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[36]   J.P. Alperin, G.E. Fischamann and J. Willinsky, "Open Access and Scholarly Publishing in Latin America: Ten Flavours and a Few Reflections", Liinc em Revista, Vol.4, No. 2, September 2008, p. 172 – 185 at 173. Available at: http://openarchive.stanford.edu/bitstream/10408/101/1/269-950-2-PB.pdf.

[37]   Alperin *et al, id.,* p.177.

[38]   See: http://www.opendoar.org/countrylist.php?cContinent=Caribbean; http://www.opendoar.org/countrylist.php?cContinent=Central%20America; and http://www.opendoar.org/countrylist.php?cContinent=South%20America.

[39]   SciELO website is at: http://scielo.br/.

[40]   Information on FAPESP is available at: http://www.fapesp.br.

[41]   Information available at: http://www.bireme.br.

indicators of the scientific literature usage and impact. The methodology also includes journal evaluation criteria based on international scientific communication standards. Second, the model envisages the operation of national sites as well as thematic sites. Finally, the model actively encourages building of partnerships among national and international scientific communication players — authors, editors, scientific and technological institutions, funding agencies, universities, libraries, scientific and technological information centers etc., aiming at the dissemination, improvement and sustainability.

The inclusion of journals in the collection is coordinated by an Advisory Committee and it is based on a detailed criteria and policy on inclusion and permanence.[42] To date SciELO boasts more than 230 journals with thousands of issues. These articles are from a broad range of disciplines including agricultural sciences, applied social sciences, biological sciences, chemistry, engineering, earth sciences, geosciences, health sciences, humanities, linguistics and arts, mathematics and social sciences, among others.

2.3.2   Regional/International - NECOBELAC

The Network of Collaboration Between Europe and LAC countries (NECOBELAC) is a network of collaboration between Europe and LAC countries as the name implies. Its aim is to spread knowWhow in scientific writing and provide the best tools to exploit open access information for public health. It is a project funded under the 7th Framework Program of the European Commission (EC), under the Science in Society theme. The project was launched in 2009 with the specific goal of creating a network of institutions collaborating to promote training activities in scientific writing and to strengthen the dissemination of information through an OA approach. This involves all stakeholders in the communication process, fostering a cultural change and using existing technologies.

The project was launched with six institutional partners, namely: *Istituto Superiore di Sanità* (ISS) Italy (project coordinator); *Consejo Superior de Investigaciones Científicas* (CSIC) Spain; The University of Nottingham (UNOTT) United Kingdom; *Centro Latino Americano e do Caribe de Informaçao em Ciencias da Saude*, BIREME, PAHO; *Instituto de Salud Pública* (ISP), *Universidad Nacional de Colombia*, Colombia; and *Universidade do Minho* (UMINHO) Portugal. In addition to providing lots of information on its website, NECOBELAC has delivered a wide range of training and materials on OA publishing in its almost three years of existence.[43]

2.4   Developed countries and OA to E&R

48.   There is a strong and broad OA movement in developed countries (defined, in this paper as WIPO Group B countries) due, in part, to the obvious greater endowments in ICTs but also due to stronger advocacy by the E&R communities in these countries. It is notable though that the proportion of E&R resources available under the OA model as a percentage of all E&R resources in areas such as journals in developed countries remains significantly small compared to some developing countries such as Brazil. This is no surprise because these countries, in general, do not have similar or the same concerns regarding visibility or impact of research and publications especially in the academic publishing sectors. Much less attention is also given to grey literature, such as theses and dissertations, either because there is a tradition of formal publication of these or they count for less in terms of the total knowledge availability in specific subject areas.

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[42]   The policy and criteria can be found at: http://www.scielo.br/avaliacao/criterio/scielo brasil_en.htm.
[43]   Details of various NECOBELAC activities can be found on its website at: http://www.necobelac.eu/en/training.php.

At the government level, however, there appears to have been much stronger political and public policy responses to promote OA for E&R resources in developed countries than in developing countries. Advocacy, particularly in the area of publicly funded research, has played an important role in this regard. The early uptake, and widespread availability of ICT infrastructure in developed countries, may also have helped more easily demonstrate the value of open E&R resources to them than in developing countries where important challenges remain with respect to ICT infrastructure. The situation on OA to E&R resources in developed countries at the government/public policy level could be summarized as below.

2.4.1   *OA journals and repositories in developed countries*

There are a significant number of OA journals in developed countries with at least 55 per cent of those listed in the DOAJ coming from these countries. The United States of America (U.S.A) has, by far, the largest number of OA journals with a listing of 1,342 in DOAJ, as at 3rd November 2011, accounting for over 30 per cent of the developed countries total and almost 20 per cent of the total DOAJ collection. Taken in context, the performance of developed countries in the OA journals field is, however, less than impressive. For example, Brazil leads all developed countries, save for the U.S.A.; contributing almost 100 more journals than the second placed developed country -the United Kingdom (U.K). The performance on repositories is much more stronger. OpenDOAR lists over 1,300 OA repositories in these countries with the U.S.A leading with over 390 repositories followed by the UK with over 190.

The impressive growth of OA repositories in developed countries appears to be directly correlated to the push, particularly, by government scientific funding agencies, for OA availability of the research they fund. Between 2005 and 2010 an upwards of 40 such agencies adopted policies to promote OA availability of research by mandate or requiring their grantees to deposit publications and/or data in OA repositories.[44] Some of these governmental agencies include, among others: the Australian Research Council[45]; the Australian Health and Medical Research Council[46]; the Belgian Research Foundation Flanders[47]; Genome Canada[48]; the National research council of Canada[49]; Canadian Cancer Society[50]; Canadian health Services Research Foundation[51]; Canada Institute of Health Research[52]; the European Research Council[53]; *Agence National de la Recherché* in France[54]; *Frauhofer Gesellschaft* in German[55]; Welcome Trust in the UK[56]; the Irish Council for Science, Engineering and Technology[57]; the Irish Science Foundation[58]; the Norwegian Research Council[59]; the Swiss National Science Foundation[60]; the Arts and Humanities

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[44]   For detailed information on research funders OA policies see SHERPA JULIET at: http://www.sherpa.ac.uk/juliet/index.php.

[45]   See website at: http://www.arc.gov.au/.

[46]   See website at: http://www.nhmrc.gov.au/.

[47]   See website at: http://www.fwo.be/en/index.aspx.

[48]   See website at: http://www.genomecanada.ca/.

[49]   See website at: http://www.nrc-cnrc.gc.ca/eng/index.html.

[50]   Website at: http://www.cancer.ca/.

[51]   Website at: http://www.chsrf.ca/Home.aspx.

[52]   See website at: http://www.cihr-irsc.gc.ca/e/193.html.

[53]   See the report of the European Scientific Advisory Board on OA Policy at: http://ec.europa.eu/research/eurab/pdf/eurab_scipub_report_recomm_dec06_en.pdf and the European Research Council's OA guidelines at: http://erc.europa.eu/pdf/ScC_Guidelines_Open_Access_revised_Dec07_FINAL.pdf.

[54]   See website at: http://www.agence-nationale-recherche.fr/Intl.

[55]   See website at: http://www.fraunhofer.de/en/.

[56]   See website at: http://www.wellcome.ac.uk/.

[57]   See website at: http://www.ircset.ie/.

[58]   See website at: http://www.sfi.ie/.

[59]   See website at: http://www.forskningsradet.no/no/Forsiden/1173185591033.

[60]   See website at: http://www.snf.ch/E/Pages/default.aspx.

research Council in the UK[61]; the UK Engineering and Physical Sciences Research Council[62]; the UK Medical Research Council[63]; the UK Science and Technology Facilities Council[64]; the Natural Environmental Research Council in the UK[65]; and the US National Institutes of Health[66].

In the United States, the Federal Research Public Access Act (SPARC)[67] requires government agencies that fund in excess of 100 million US dollars in annual external research to ensure that manuscripts of peer-reviewed journals articles stemming from such research be made publicly available on the Internet.

In most cases these agencies require mandatory deposit of publications resulting from grants, scholarships and other full or partial support in a central (e.g. PubMed Central) or institutional OA repository. There are a few cases where the policy only requires best endeavor efforts such as in the case of the Swiss Science Foundation. A review of these policies show that making available an electronic version of peer-reviewed publications, is required either immediately upon acceptance for publication, or within six to 12 months. It terms of subject coverage, these policies apply to a wide field including sciences, humanities and arts and in themes such as health, energy, engineering, and environment.

2.4.2 OCW in developed countries

54.   Since 2002 when the Massachusetts Institute of Technology (MIT) launched its OCW there have been a growing number of universities and institutions participating in making digital course and learning materials available for free worldwide. As already noted, the OCW Consortium has recorded impressive growth over the years, growth that is projected to continue in the foreseeable future. Developed countries have dominated the delivery of OCW with most of the participating institutions based in these countries. However, unlike in the case of OA journals and repositories, OCW initiatives have largely been driven by universities and funding agencies such as the William and Flora Hewlett Foundation. It is difficult to discern any clear government or government agency policies in developed countries linked to the promotion of OCW.

3.   USING THE COPYRIGHT FRAMEWORK TO PROMOTE ACCESS TO INFORMATION AND CREATIVE CONTENT FOR E&R RESOURCES – ANALYSIS

There is no doubt that the OA approach to the management of copyright in digital E&R continues to gain ground over the "all rights reserved" approaches. Notwithstanding the challenges of the digital divide, the uptake of OA in E&R (journals, repositories and OCW) is encouraging, including in Sub-Saharan Africa where ICT infrastructure remains limited. In trying to understand the opportunities provided by the OA approach as a model of managing copyright in the area of E&R it is, however, important to look beyond the impressive uptake or aggregate statistics such as those of DOAJ, OpenDOAR and the OCW Consortium. In this regard, we analyze below the case studies and initiatives reviewed above based on four parameters, namely: the IP issues involved; an economic sustainability and cost/benefit assessment; the incentives for the relevant stakeholders involved; and effectiveness. As will become clear this analysis is only tentative but nevertheless it provides some important

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[61]   See website at: http://www.ahrc.ac.uk/Pages/default.aspx.
[62]   See website at: http://www.epsrc.ac.uk/Pages/default.aspx.
[63]   See website at: http://www.mrc.ac.uk/index.htm.
[64]   See website at: http://www.stfc.ac.uk/.
[65]   See website at: http://www.nerc.ac.uk/.
[66]   See website at: http://www.nih.gov/.
[67]   For useful information and explanations about SPARC see: http://www.arl.org/sparc/advocacy/frpaa/index.shtml.

insights to facilitate discussion and further interrogation of how OA approaches can help improve access to E&R resources, especially in developing countries.

3.1 IP issues in OA to E&R resources

The OA approach to improving access to E&R resources is intended to, and indeed, operates within the established copyright framework. The making available of digital E&R materials for free is a particular approach to copyright licensing and relies on the consent of the copyright holder or expiration of the copyright term. In practical terms it is enabled, especially in the case of E&R material, by the ability of institutions and governmental funders to exercise control over their employees or grantees through contract and the copyright system. In other words, the ability of these institutions to enforce contractual requirements for making materials free and widely available is significantly aided by the copyright system's enforcement structure.

There are various way in which works can be licensed under OA principles. This can range from copyright policy statements by individual institutions or journals through to the use of well recognized standard open content licenses such as creative common (CC) licenses. Overall, the review of different case studies discussed above shows that the CC licenses or similar principles predominant in the area of OA for E&R. This seems to be the case because of the flexibility of this licensing approach. With the core principles being to promote OA as the default and to ensure attribution and further sharing, CC licenses accommodate a range of situations and can be applied differently in different jurisdictions or institutions.

From the perspective that the OA models operates within, and is supported by, the copyright system, it follows that as a general rule there are no unique copyright/IP issues that arise with respect to the use of the model to improving access to information and creative content for E&R. Looking at the various initiatives, and in particular the case studies presented in this Study, there are nevertheless a number of IP/copyright issues that require some consideration going forward if this model is to achieve the objective of widespread availability of E&R information and content. Two particular issues deserve attention.

The first issue relates to the consent of individual authors or researchers. While there appears to be clear motives and willingness to license copyright using OA approaches by the institutions or agencies involved, it is much less clear whether individual authors or researchers are fully on board with this approach. To the extent that even in employment or funded situations moral rights remain with the authors and, in some cases, the copyright in the work can not be fully attributed to the funding, the attitudes of individual researchers and authors require to be understood better from a copyright perspective. Broad support from individual authors and researchers will be important if the OA model is to succeed in the long run.

The second issue that arises relates to the clarity of the licenses and whether they are in fact OA licenses. While many initiatives are instinctively characterized as OA initiatives, a closer look at the copyright terms on their websites reveal a contradiction. The example of SABER in Mozambique is a case in point. Although touted as an OA repository, in actual fact the website is marked as an "all rights reserved" site with respect to copyright. It appears that it is assumed that simply making materials digitally available on the internet without technological restrictions qualifies as OA. This type of situation causes confusion and can easily result in unnecessary disputes. OA initiatives will have to do better in providing clear and unambiguous information about copyright to ensure the efficient working of OA journals, repositories and OCW.

3.2   Economic sustainability of OA as a means of improving access to E&R resources

Though Suber traces the OA movement to the launch of the U.S. Department of Education's Educational Resources Information Centre in 1966, as a global phenomenon, OA is a relatively nascent development.[68] Rapid uptake of OA is a phenomenon of the 2000s when ICT and Internet deployment made important progress especially in developing countries. From this standpoint, it may be two early to make conclusive statements regarding the economic sustainability/cost-benefit analysis of OA in the E&R sector.

However, it is possible to make some tentative statements based on the initiatives/projects reviewed in this Study as well as existing literature on this question.[69]
To shed some light on this question, we look at two particular issues – where the funding for OA initiatives is coming from coupled with the fact of lowered costs of ICT/Internet infrastructure and the linkage between OA and the implementing institutions' mandates.

The production of OA E&R resources is not costless. The question with respect to financial viability is therefore not whether you can produce quality scientific and other literature for free but rather whether there are other sustainable ways for paying for these costs.

OA Journals (also referred to as the 'gold OA'), probably raises the most questions about economic sustainability because it is the area which has previously been dominated by commercial publishers who heavily rely on copyright and commercial pricing models. Predominantly, gold OA has been enabled through 'author pays' models where journal article authors through research grants or their institutions pay the publishing costs coupled with other lines of revenue such as sale of prints, advertising and other publishing services. This model seem to have seen quite some success especially because significant focus with respect to OA publishing has been on publicly funded research. To the extent that governments and other public institutions will continue to be the main funders of key research it would seem that this model can be sustained in the long-run. It is notable, however, that this model would probably be less applicable to non-scientific publications such as novels or other artistic literature which are also important E&R resources.

OA repositories (also referred to as 'green OA') primarily rely on self-archiving into an institutional or other open repositories. Considering the levels of development and investments in ICT infrastructure and that archiving and other storage is a primary function of libraries and related services in most educational and research institutions, it follows that the cost of the basic infrastructure will be sunk whether there is OA or not. Strictly speaking, other than these sunk costs, self-archiving implies little, if any, financial cost to the institution or author. As such, it can be said that self-archiving being the preferred method for OA repositories offers a real possibility for sustainability.

OCW probably raises the least question about costs and sustainability. First, basic course and teaching materials have not traditionally been a big ticket item for copyrighting to recover revenue. Second, the preparation of these materials is routine in the teaching environment and hence other than delivery infrastructure, whose costs has become lower and lower, there is no significant other costs associated with making the material available digitally. This probably explains why a significant number of institutions, including from developing

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[68]   See P. Suber "Timeline for the Open Access Movement". Available at:
          http://www.earlham.edu/~peters/fos/timeline.htm.
[69]   Some of the literature on cost benefit analysis of OA includes J. Houghton *et al* "Economic Implications of
          Alternative Scholarly Publishing Models: Exploring the Costs and Benefits", Report to The Joint Information
          Systems Committee (JISC) by Victoria University & Loughborough University. Available at:
          http://www.jisc.ac.uk/media/documents/publications/rpteconomicoapublishing.pdf and M. Piorun and L.
          Palmer "Digitizing Dissertations for an Institutional Repository: A Process and Cost Analysis" available at :
          http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2479051/.

countries, can participate in providing OCW materials and why there has been readiness on the part of donor agencies to support these initiatives.

Sustainability of OA initiatives and projects is also dependent on the linkage between the initiatives and the institutional mandates of the implementing institutions. The correlation between OA and the mandates of the implementing institutions for OA E&R resources is probably the most obvious. Most open E&R resources are produced and are being made available by research and educational institutions and scholars and students who have an inherent interest in visibility and impact of research. This abiding link suggests that financial motives are not necessarily the primary motive and hence the question of financial sustainability less critical.

3.3   Incentives for participating in OA initiatives in the E&R sector

Managing copyright through an OA approach as a means of promoting access to information and creative content in the E&R sector impacts on, and is of interest, to many actors and groups. We have students, authors, publishers, professors and teachers, librarians, the E&R institutions themselves, governments, funding agencies and the general public. Each of these has different interests and may require different incentives to participate in OA. Based on the reasoning and justifications of the various OA initiatives/projects reviewed in this Study it is possible, however, to find significant commonalities of incentives. These revolve around visibility and accessibility, impact and finance. These should be seen as cumulative incentives as opposed to each standing on its own.

There is no doubt that making E&R materials available on OA principles ensures that they are available free worldwide and hence enjoy a higher level of visibility, accessibility and, as corollary, that they are likely to have a higher impact. Increased visibility and accessibility serves the interests of the authors and institutions by allowing them to reach a larger audience. For students, scholars and teachers ease of accessibility makes their lives much easier and rewarding. For governments and funding agencies higher visibility, accessibility and impact means that quality and access to education is improved and that the money spent on producing these resources benefits the largest number of people. Financial efficiency, which is also a consideration for institutions, is important here.

For publishers, who are probably the most sensitive to financial incentives, as already noted, the OA approach is not mutually exclusive with revenue and profit. In the area of OA journals, the author pays system as well as other revenue streams such as sale of prints, advertising etc., has ensured that the operation of the OA model in this area is still paid for. Consequently, revenue and profit still remains an important incentive under the OA model particularly in the case of journals.

3.4   Effectiveness of OA approaches in the E&R sector

It would be presumptuous, as with the issues of sustainability, to attempt to make any conclusive statements regarding the long-term effectiveness of OA approaches in the E&R sector. This is particularly the case in developing countries where we are still observing how the OA growth trajectory goes. Of course, there are some exceptions such as SciELO in Brazil which has been around for almost 15 years. Overall, it is safe to say that in its short period as a significant copyright management model in the E&R sector, OA has had an important impact and has been effective in increasing the availability and access to E&R information and content. The numbers of articles and material on the journals listed on DOAJ, the repositories listed on OpenDOAR and the courses in OCW Consortium speak for themselves.

72.   One area where the effectiveness of OA as a model for enabling access to E&R resources needs to be examined more carefully relates to the limited attention paid to the

arts and culture areas as compared to the sciences particularly in the case of OA journals and repositories. There is an obvious emphasis on scientific literature in most of the initiatives reviewed here and in general. While the interest in science is partly understandable in the context of development, a holistic educational system requires equally enhanced access to the arts and cultural writings as well as other works such fiction. It may be that the OA model is most suited for the sciences but not as well for the arts and cultural information and content, in which case adaptation of the model might be needed.

4.   RECOMMENDATIONS– POSSIBLE FUTURE ROLE OF WIPO IN OA FOR E&R RESOURCES

The implementation of the Development Agenda is today a key part of WIPO's efforts to ensure that the protection of IP leads to economic, social and cultural development particularly in developing countries and least-developed countries (LDCs). Efforts to implement recommendations 19, 24 and 27 of the Development Agenda aimed at exploring ways in which WIPO can further facilitate access to knowledge and technology for creativity and innovation; help in efforts to bridge the digital divide; and assist Member States identify practical IP-related strategies to use ICT for economic, social and cultural development, respectively, have resulted into the Project on IP, ICTs, the Digital Divide and Access to Knowledge.

The work under the project to gather information and explore the potential of the copyright system and different models of managing copyright to enhance access to knowledge offers an important opportunity for WIPO to consider what its role could be in this area in future. The information gathered in this Study, and especially the analysis in section 3 above, with specific focus on OA approaches as a model for managing copyright to enhance access to E&R resources, suggests a number of possible entry points for WIPO in this area going forward.

In addition to its role as a discussion/negotiations forum, WIPO invests significantly and is an important source of E&R resources on IP and related subjects. The relevant E&R resources range from course and training materials through to studies, such as this one, through to a journal and other publications. Taking into account the work that has already began under the Development Agenda Project on IP, ICTs, the Digital Divide and Access to Knowledge, WIPO could, within its mandate, play a more significant role with respect to OA for E&R resources.

To start with, as a significant provider of E&R resources on IP and related subjects, a first question that needs to be asked is what WIPO's copyright management model for these E&R resources is. To the extent that OA approaches can enhance access to E&R information and content WIPO could, as an institution adopt or, at least, pilot this approach to its E&R resources. By adopting or piloting this approach at the institutional level, WIPO could achieve several objectives. In addition to enhancing the availability of the said E&R information and content, the WIPO Secretariat could learn valuable lessons and gain experience that could be used in providing advice or assistance to those developing countries that are interested in using OA approaches. Overtime, WIPO could also develop replicable best practices and generate useful information for assessing sustainability and effectiveness of these approaches.

There is also a clear role for awareness and education in this area. While there is has been a significant rise in the uptake of OA as a copyright management model or practice for E&R resources, OA is still not well understood even by those who may associate with its principles. Leveraging its mandate as a forum for discussion on copyright and related matters, WIPO should ideally continue to provide a space, in the CDIP or elsewhere, for raising awareness regarding this model and what it can and cannot do. In the same context,

WIPO provides an ideal forum and space to examine best practices in this area from different countries.

78.   The greater interest and investment by governments and institutions in OA as a model for managing copyright in E&R resources is an important development. As the uptake of this approach grows, it will be critical that better evidence is made available to policymakers, especially in developing countries, on the sustainability and effectiveness of this model. Taking advantage of WIPO's increased investments in research and evidence gathering coupled with the broader interest in evidence-based IP policies and strategies, another role for WIPO in future could be evidence gathering and dissemination. As this Study reveals, there remains limited data and evidence regarding sustainability and longer-term effectiveness of this model. The body of evidence, particularly in developing countries, could be significantly enriched by WIPO.

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