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Open-Access Initiatives in India

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There are two components to this presentation. The first focuses on the relevance of open-access publishing in developing countries; the potential for open-access publishing in India; and a few current open-access initiatives in India. The second component proposes a possible technical model to organize open-access publishing in India.

OPEN-ACCESS PUBLISHING IN DEVELOPING COUNTRIES

Open-access publishing is the provision of free online access to quality scholarly material that can be defined as "open domain," meaning publicly supported research information, and "open access," so that it is copyrighted to be freely available scholarly material. Several enablers have motivated the development of open-access publishing. These include global movement and initiatives for open access like the Open Archives Initiative, the Budapest Open Access Initiative, Scholarly Publishing and Resources Coalition, and Free Online Scholarship, as well as the initiatives undertaken by ICSU, UNESCO, and CODATA.

Other important enablers are availability of free online publishing and digital repository management software and protocols for metadata standards. Using these standard protocols for metadata allows interoperability among the repositories for sharing information and providing centralized services.

Much has been said about the value of open-access publishing in developing countries. Open-access publishing enables researchers in developing countries to establish priority for their research, which they could use later to defend their intellectual property. It removes excess barriers in terms of both price and permission, enhances national research capacity, and improves visibility for developing-country research. Open access thus enables a global platform for this research and collaboration and reciprocates the information flow from South to North among all countries. It is hoped this also leads to improved economy.

OPEN-ACCESS INITIATIVES IN INDIA

In India, there is a large opportunity for open-access publishing. There are many noncommercial research and development institutions, both academic and research laboratories. For example, there are approximately 300 universities that offer both graduate and research programs. There are also many R&D laboratories operating within government science agencies, which cover domains like industrial research, defense research, agricultural research, medicine, ecology, environment, information technology, space, energy, and ocean development. These

institutions, which produce research work, could potentially convert their data into online accessible material. Many of these institutions, and also several professional societies, publish science journals. Tools like the Open Journal Systems[1] could help many of these journals to come online in an open-access environment.

Technical reports produced by many R&D projects, laboratories, and other institutions would also be candidates for providing open access. Theses and dissertations at universities, conferences, research papers—whether preprints or postprints, unpublished research findings, data, or standards are candidates for open-access publishing in India and in other countries.

The following examples of open-access initiatives in India are drawn from scholarly science journals, theses, institutional archives, books, data and open access at the metadata level, and open access at portal and gateway services.

One example is the Indian Academy of Sciences, established in 1934. The Indian Academy of Sciences is one of three science academies in India. Apart from various other activities it publishes 11 science journals reporting research work both in India and outside. These journals, mainly in print, are freely accessible on the Web.[2] The Indian Academy of Sciences is currently digitizing all the archival issues and expects to post them online very soon. The managing editor of these journals noted that offering these journals on the Web has increased subscriptions to the print journals from foreign countries, because more researchers and libraries outside India are learning about them.

The Indian National Science Academy publishes journals, proceedings, and monographs and provides these online.[3] Vidyanidhi, meaning the "treasure of knowledge" in Sanskrit, is another open-access initiative that is trying to digitize and host theses and dissertations. It operates from the University of Mysore and is part of the global electronic thesis and dissertation initiative.[4] The Vidyanidhi project is also developing workflows and definitions and addresses multilingual support issues. Other institutions are putting their theses online as well, including the Indian Institute of Technology in Delhi.

The E-print archives of the Indian Institute of Science[5] is an online digital repository of research papers, both preprints and postprints, technical reports, unpublished findings, and journal articles of the faculty. It was set up using eprint.org open-source software, and is registered in the e-prints registry. Eprints@iisc is now part of the worldwide institutional e-print archives. The E-prints archives allow the faculty and students to submit their publications electronically to the campus network. Although depositing is not allowed from outside the campus, access is allowed from anywhere on the Internet. The eprints@iisc Web site also supports metadata for browsing and searching. It is also integrated with the Greenstone Digital Library software, which enables full-text searching of the e-prints.

The Universal Library is another interesting project. It is funded by the Office of the Principal Scientific Advisor to the Government of India and is hosted by the Indian Institute of Science in collaboration with the Carnegie Mellon University in the United States.[6] The goal of this project is to provide a free, searchable collection of 1 million books that are no longer copyrighted. The collection is also expected to act as a test bed for research in language processing, indexing, and retrieval.

There are some examples of initiatives that provide open access to data as well. The National Chemical Laboratory is a national research lab in India that provides free access to their data, including data from the National Collection of Industrial Micro-organisms and the National Centre for Biodiversity Informatics.[7] There are also open-access initiatives at the metadata level. INDMED, at the National Informatics Centre in Delhi, is a bibliographic database of Indian biomedical literature and indexes 75 Indian journals.[8] There is also a backup

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[1]For more information on the Open Journal Systems, see Chapter 32 of these *Proceedings*, "The Public Knowledge Project's Open Journal Systems," by Florence Muinde.

[2]See http://www.ias.ac.in. This site offers links to the various science journals published by the Indian Academy of Sciences.

[3]See http://insa.ac.in.

[4]See http://www.vidyanidhi.org.in.

[5]See http://eprints.iisc.ernet.in.

[6]See http://www.dli.ernet.in/collections/Books/Books.html?path1=collections%2FBooks.

[7]See http://www.ncl-india.org/ncim and http://www.ncbi.org.in, respectively.

[8]For additional information on INDMED, see http://indmed.nic.in.

document delivery service associated with this. The University Grants Commission is the body that coordinates all Indian university education. It supports an information library network program INFLIBNET that makes meta databases related to R&D projects available on the Web.[9]

There are other major open-access initiatives as well. For example, the World Health Organization and the Indian Council for Medical Research are working together on the National Health Information Collaboration. The project provides a portal for Indian health data and information and free open software, which enables people to use it for other purposes. The Council of Scientific and Industrial Research is responsible for scientific industrial research in India and has a unit for R&D for information that aims to provide open access to Indian patents and medicinal plants information.

There are also interesting gateway services that integrate access to other open-access resources on the Internet. SciGate at the Indian Institute of Science is a science information portal that integrates a variety of science information sources on the Web. Another example is AeroInfo at the National Aerospace Laboratory, which provides an aerospace virtual library.

AN OPEN-ACCESS PUBLISHING MODEL FOR INDIA

How can these examples of open access be replicated and adapted in an organized manner across India? One proposal is a national network of distributed, interoperable, open-access digital repositories of research material, both at the institutional level and across the institutions in open-access science journals and conferences. The motivation for this network is the strong support for open-source software in India and the increasing interest to use digital library software, such as the Greenstone library software developed by the New Zealand Digital Library Group. This software has been used innovatively to publish content, both on the Web and on CD. There is an emerging model provided by the E-print archives, using the Open Archives Initiative interoperability framework, which makes this software compliant with that initiative.

How do we realize this model? Academic institutions can set up institutional repositories of their research output. Science journals can adopt open-access publishing that is compliant with the Open Archives Initiative. New online open-access journals that focus on areas of local strength, such as agriculture and medicine, and graduate student journals could also be established.

A key issue is the incorporation of peer review and quality control in such an open-access publishing environment. Peer review must be employed at the institutional level or across the institutions to ensure that we put quality materials on these repositories. As of now, however, there appears to be no consensus on an effective mechanism for establishing quality control in such systems.

How do we operate this model? These repositories at the institutional levels act as data providers and provide metadata for harvesting. This is possible because of the availability of software that is compliant with the Open Archives Initiative (e.g., eprints.org, DSpace, CERN CDSWare, and Open Journal Systems). Some of these institutions themselves could act as the service providers by harvesting the metadata from different repositories and offering a variety of national level services. One such service could be a central metadata index service, wherein a user could identify papers, and then go to the actual research paper hosted on an institutional repository.

Libraries have a major role to play in this. For example, they could lead the way in establishing and operating an institutional repository and supporting researchers with open-access publishing activities. Libraries are best suited to provide document preparation and content management expertise.

CONCLUSION

A national-level mechanism is essential to promote and coordinate open-access publishing systems and to improve awareness for open access. Training is also very important, in terms of tools, processes, and standards.

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[9]See http://web.inflibnet.ac.in.

There should be wide support for setting up working models and services. National resource centers for open-access publishing in developing countries could lead the way in setting up a working model. Once the system starts evolving, it could run on its own.

It is also very important to have the support of organizations like UNESCO, ICSTI, ICSU, and CODATA to promote and support these initiatives.