

Open Access to Knowledge: Initiatives in India

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Study traces major Open Access Initiatives in a digital environment. Major National Open Access initiatives briefly enumerated to give an overview of the movement. Study strives to illustrate initiatives on open access to information and knowledge. Some of the common open access channels found are digital libraries, open access journals, institutional repositories, national-level repositories, open courseware, metadata harvesting services, etc. Most of the open access initiatives are supported by government bodies or public institutions, followed by non-profit making organizations.

Keywords: OAI, Digital Libraries, India

1. INTRODUCTION

In the information society, free flow of information is a fundamental principle for bridging the knowledge gaps between privileged and under-privileged communities. Social inclusion and economic empowerment are also achieved in a society where citizens have universal access to information and knowledge, ranging from public information to specialized or customized information related to ones' profession, vocation or culture. Open access to information and knowledge is a key contributor in provisioning universal access to information and knowledge. Thus, the open access movement is gaining momentum in developed countries which already have necessary information infrastructure.

The emerging economies amongst the developing countries are not far behind in building up necessary information infrastructure, essential for sustainable economic development. These emerging countries, however, have limitations in terms of bridging the digital divide within their societies, due to the co-existence of marginalized and privileged communities. With the availability of advanced information and communication technologies (ICTs) and by building up necessary information infrastructure in India, it becomes an active contributor to global open access literature, a contribution, almost proportionate to its flow of scholarly literature through subscription-based channels.

2. OAI AND TRADITIONAL KNOWLEDGE

Traditional knowledge, presently available amongst indigenous people in folklore or other forms, is now being explored and documented. The digitization of century-old publications and rare documents is being carried out in different institutions across the country to preserve them and make them accessible through networks of digital archives. E-content is are being produced by members of different communities, facilitated by certain development organizations, including the apex higher education agencies (viz., University Grants Commission); apex research councils (e.g., Council of Scientific and

Industrial Research; Indian Council of Medical Research), and grassroots-level civil society organizations. India has spearheaded the open access movement in developing countries since the last decade up scaling print-based scholarly journals into open access electronic journals, and establishing a number of open access repositories, both at national and institutional levels embracing free and open source software (FOSS). Establishment of open courseware and cross-archive search services are new fronts of open access initiatives.

3. OAI AND IRS

Indian information professionals are experimenting with open source software in the establishment of institutional repository (IR) systems in local libraries, using Greenstone, DSpace or EPrints software. Once an IR is successfully implemented in the local library setup, it is then upscaled to institution-wide application through campus networks or intranet. Similarly, it may open up to wider audiences once the authorities of the institution are convinced. With the availability of dedicated information infrastructure combined with 24X7 broadband connectivity and the national educational grid, some institutions and universities created institutional repositories for wide dissemination of their own scholarly literature. Some open access repositories are specially created to diffuse intellectual outputs of the country in the form of electronic theses and dissertations: Vidyandhi, ETD@IISc is example. Other national level open access repositories provide all kinds of scholarly materials such as research papers, conference papers, technical reports, presentations, photographs, news clippings, and e-theses on particular disciplines. The OpenMED@NIC and Librarians' Digital Library are also examples of this kind.

4. GLOBAL OAI DECLARATIONS

In the wake of the open access movement, some policy frameworks have already been established by member communities to foster inclusive, plural and development-oriented knowledge societies. A number of open access declarations/ statements were made during the past decade, where the world's leading research institutions agreed on the open access mandates. The United Nations-backed World Summit on the Information Society (WSIS) strongly supported open access to information and knowledge. This confirms that member countries of the United Nations will take appropriate strategic decisions to bring scholarly literature, produced from public funded research initiatives or state-supported researchers, under the umbrella of open access.

5. INDIAN OAI DECLARATION

The National Knowledge Commission of India (NKC), constituted on 13th June 2005, is a high-level advisory body to the Prime Minister of India, with a mandate to guide policy and direct reforms. NKC's overarching aim is to transform India into a vibrant knowledge-based society. The NKC's *Working Group on Open Access and Open*

Educational Resources and *Working Group on Libraries* have strongly recommended open access to public-funded research literature and supported establishment of open courseware repositories for countrywide dissemination of quality courseware to many cross-sections of people. If implemented, these recommendations will have far-reaching implications in the knowledge creation and dissemination cycle. The scholarly literature and lifelong learning materials produced by state-sponsored institutions would then be made accessible through open access channels such as national and institutional repositories. This way the NKC's recommendation on peer-reviewed research papers resulting from public-funded research would be validated by subject experts when making these resources available through open access channels. NKC also recommended creation of national knowledge portals for basic needs/ key sectors such as water, energy, environment, education, food, health, agriculture, employment and citizen rights.

6. UGC INITIATIVES

In 2005, the University Grants Commission of India (UGC) drafted a national policy framework entitled “UGC (Submission of Metadata and Full-text of Doctoral Theses in Electronic Format) Regulations, 2005”. This Regulation proposed two sets of planned actions, such as:

- Creation of Indian National Theses Database (INTED)
- Submission of PhD Theses in Electronic Form

This set of regulations is still under consideration. They propose to formulate a roadmap to achieve widest dissemination of results of doctoral research conducted in Indian universities and bibliographic control of theses and dissertations of research degrees. So far, a few UGC-supported universities have established open access repositories for scholarly literature produced in the respective universities. Initially the universities were reluctant to change their status quo, as the contents of scholarly literature including the PhD theses will be a matter of critical analysis by the national and international peers, if the universities establish open access repositories. Now, universities will be motivated to produce qualitative doctoral theses and will maintain certain international standards. The UGC also supports development of infrastructure in Indian universities through various planned schemes. The proposed national education grid will also enrich modern ICT infrastructure in Indian universities. The Indian universities then will have necessary infrastructure to host a number of web-based information services. Hosting an ETD repository and providing online interface to INTED will not be a problem in most of the universities. Indian universities should now take a proactive role in the implementation of these regulations at the earliest, ensure qualitative research and make the results of doctoral research widely available. The UGC should also clear all bottlenecks to implement INTED and decentralized ETD repositories across the country.

7. OAI AND CIVIL SOCIETY EFFORTS

On the other hand, development practitioners working in civil society organizations or development agencies are now in the forefront of e-content creation and facilitating e-content generation at the grassroots level. Some of the major challenges faced by them are long-term preservation of e-content, and establishing an efficient storage and retrieval system to render these resources open access in networked environments. Free and open source software for digital archiving such as Greenstone, DSpace, EPrints and GENISIS, are very efficient in handling these issues.

In India, large volumes of cultural heritage resources (documentary) are on the verge of extinction due to lack of preservation, non-availability, rarity and natural decay. The knowledge and wisdom lost from these cultural heritage documentary resources can cause a severe vacuum in the intellectual wealth of humanity, if we cannot preserve them at this critical juncture. With the emergence of successful digital library projects in more developed countries, the public institutions in the Country opted for long-term preservation of this wealth of knowledge through digitization projects and digital library initiatives. Diverse multi-cultural and multilingual contents are now being documented, preserved and made available through the internationally acclaimed digital library initiatives such as Digital Library of India (DLI), Traditional Knowledge Digital Library (TKDL), Kalasampada Digital Library-Resource for Indian Cultural Heritage (DL-RICH), Muktabodha Digital Library, Archives of Indian Labors are the few to name.

8. TYPES OF OAI INITIATIVES IN INDIA

The following are the various attempts made by the Indian systems to bridge the gap between information/knowledge “haves” and “have-nots”.

8.1. Digital Library initiatives

- **Archives of Indian Labour**

Principal Implementing Agency: V.V. Giri National Labour Institute, Noida

Participating Institutions: Association of Indian Labour Historians, Delhi; N. M. Joshi Centre for Labour Research and Education; Workers' Education Trust, Chennai; Roja Muthiah Research Library, Chennai; SARAI- A New Media Initiative, Center for Study of Developing Societies, New Delhi

Supporting Agency: Ministry of Labour, Government of India

Software Used: Greenstone Digital Library

- **CSIR Exploration**

Principal Implementing Agency: CSIR Unit for Research and Development of Information Products (URDIP) at Pune

Supporting Agency: Council of Scientific and Industrial Research (CSIR), Government of India

- **Cultural Heritage Digital Library in Hindi**

Implementing Agency: Cultural Informatics Laboratory, Indira Gandhi National Centre for the Arts (IGNCA), New Delhi, India

Supporting Agency: Ministry of Communications and Information Technology, Government of India

- **Mobile Digital Library**

Implementing Agency: Centre for Development of Advanced Computing, Noida (CDAC Noida)

Supporting Agency: Ministry of Communications and Information Technology, Government of India

Partner Institutions: Shri Shivanand, Sasta Sahitya Mandal

- **Digital Library of India**

Principal Implementing Agency: Indian Institute of Science (IISc), Bangalore

Mega Scanning Centres: Indian Institute of Information Technology Hyderabad (IIIT Hyderabad); Centre for Development of Advanced Computing, Noida (CDAC Noida); Centre for Development of Advanced Computing, Kolkata (CDAC Kolkata)

Participating Institutions: Indian Institute of Information Technology Hyderabad; ERNET (Education and Research Network) India; Centre for Development of Advanced Computing (CDAC)

Supporting Agency (Indian): Ministry of Communications and Information Technology, Government of India

- **India Education Digital Library**

Principal Implementing Agency: Education Development Center (EDC), Bangalore

Participating Institutions (Indian): International School of Information Management (iSIM), University of Mysore; National Informatics Centre, Karnataka

Supporting Agency (Overseas): United States Agency for International Development (USAID) Software Used: Greenstone Digital Library Software

- **Indian National Digital Library in Engineering Science and Technology (INDEST)**

Principal Implementing Agency: Indian Institute of Technology Delhi (IITD), New Delhi
Supporting Agencies: All India Council for Technical Education (AICTE), Ministry of Human Resource Development (MHRD), Government of India

- **Muktabodha: DL and Archiving**

Principal Implementing Agency: Muktabodha Indological Research Institute, New Delhi
Participating Institution (Indian): French Institute of Pondicherry (IFP)

Participating Institution (Overseas): Ecole française d'Extrême-Orient (EFEO)

Supporting Agency (Overseas): SYDA Foundation, USA

- **Traditional Knowledge Digital Library of India (TKDL)**

Principal Implementing Agency: National Institute of Science Communication and Information Resources (NISCAIR), Council of Scientific and Industrial Research (CSIR), New Delhi

Participating Institutions: Council of Scientific and Industrial Research (CSIR), Ministry of Science and Technology, Government of India; Controller General of Patents Designs and Trademarks, Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Government of India; SAARC Documentation Centre, India

Supporting Agency: Department of Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homoeopathy (AYUSH), Ministry of Health and Family Welfare, Government of India

- **Vidyanidhi**

Digital Library / Electronic Theses and Dissertations (ETD)

Principal Implementing Agency: University of Mysore, Mysore

Supporting Agencies: National Information System for Science and Technology (NISSAT), Department of Scientific and Industrial Research (DSIR), Government of India; Ford Foundation; Microsoft India

- **Vigyan Prasar Digital Library**

Principal Implementing Agency: Vigyan Prasar, Noida

Participating Institutions: National Council for Science & Technology Communication (NCSTC), New Delhi; NCSTC Network, Delhi; National Children's Science Congress

Supporting Agency: Department of Science & Technology, Government of India

8.2. Open Access Journals

- **E-Journals @INSA**

Type of Initiative: Open Access Journals

Principal Implementing Agency: Indian National Science Academy (INSA), New Delhi

Supporting Agency: National Information System for Science and Technology (NISSAT), Department of Scientific and Industrial Research (DSIR), Government of India

Web Address: www.insa.ac.in

- **Indian Academy of Science**

Type of Initiative: Open Access Journals

Principal Implementing Agency: Indian Academy of Sciences (IAS), Bangalore

Partner Institutions: Current Science Association, Bangalore; Indian Institute of Sciences, Bangalore; SpringerLink, Germany

Supporting Agency: Ministry of Science and Technology, Government of India

- **MEDIND@nic**

Type of Initiative: Open Access Journals

Principal Implementing Agency: Indian MEDLARS Centre (IMC), Bibliographic Informatics Division, National Informatics Centre (NIC), New Delhi

Supporting Agency: Indian Council of Medical Research (ICMR), Ministry of Health and Family Welfare, Government of India

Web Address: <http://medind.nic.in>

8.3. Open Courseware Initiatives

- **CEC Learning Object Repository**

Type of Initiative: Open Courseware/ Learning Object Repository

Principal Implementing Agency: Consortium for Educational Communication (CEC), New Delhi

Partner Institutions: University Grants Commission (UGC), Educational Multimedia Research Centres (EM²RC), Audio Visual Research Centre (AVRC), Vyas Channel on Gyan Darshan (24 hours Higher Educational Channel)

Supporting Agency: Ministry of Human Resource Development, Government of India

- **e-Gyankosh-National Digital Repository**

Type of Initiative: Open Courseware

Principal Implementing Agency: Indira Gandhi National Open University (IGNOU), New Delhi

Partner Institutions: Distance Education Council; India

Supporting Agency: Ministry of Human Resource Development, Government of India

- **National Programme on Technology Enhanced Learning (NPTEL)**

Type of Initiative: Open Courseware

Principal Implementing Institutions: Indian Institute of Technology Madras (Web Coordinator); Indian Institute of Technology Delhi (Video Coordinator)

Participating Institutions: Indian Institutes of Technology (seven IITs such as IIT Bombay, IIT Delhi, IIT Guwahati, IIT Kanpur, IIT Kharagpur, IIT Madras, and IIT Roorkee) and Indian Institute of Science (IISc), Bangalore

Supporting Agency: Ministry of Human Resource Development (MHRD), Government of India

- **NCERT Online Text Books**

Type of Initiative: Open Courseware

Principal Implementing Agency: National Council of Educational Research and Training (NCERT), New Delhi

Supporting Agency: Ministry of Human Resource Development, Government of India

8.4. Institutional Repositories

- **Digital Archives of NIT Rourkee**

Type of Initiative: Institutional Repository

Principal Implementing Agency: National Institute of Technology- Rourkela (NITR)

Supporting Agency: National Institute of Technology- Rourkela, Ministry of Human Resource Development, Government of India

Software Used: DSpace

- **ETD@IISc**

Type of Initiative: Institutional Repository / Electronic Theses and Dissertations (ETD)

Principal Implementing Agency: National Centre for Science Information (NCSI), Indian Institute of Science (IISc), Bangalore

Supporting Agency: Indian Institute of Science (IISc), Ministry of Human Resource Development, Government of India

Software Used: DSpace

- **DSpace @ National Center for Radio Astrophysics**

Type of Initiative: Institutional Repository

Principal Implementing Agency: National Centre for Radio Astrophysics (NCRA), Pune

Participating Institution: Giant Metrewave Radio Telescope (GMRT), Pune

Supporting Agency: Tata Institute of Fundamental Research (TIFR), Department of Atomic Research (DAE), Government of India

Software Used: DSpace

- **DSpace@NCL**

Type of Initiative: Institutional Repository

Principal Implementing Agency: National Chemical Laboratory, Pune

Supporting Agency: National Chemical Laboratory, Council of Scientific and Industrial

Research (CSIR), Ministry of Science and Technology, Government of India
Software Used: DSpace

- DSpace@INFLIBNET

Type of Initiative: Institutional Repository

Principal Implementing Agency: Information and Library Network (INFLIBNET)
Centre, Ahmedabad

Participating Institutions: UGC-recognized Universities in India

Supporting Agency (Indian): University Grants Commission (UGC), Ministry of
Human Resource Development, Government of India

Software Used: DSpace

8.5. Metadata Harvesting Initiatives

- **Cross Archives Search Service for Indian Repositories (CASSIR)**

Type of Initiative: Metadata Harvesting Service

Principal Implementing Agency: National Centre for Science Information (NCSI),
Indian Institute of Science (IISc), Bangalore

Supporting Agency: Department of Scientific and Industrial Research (DSIR),
Ministry of Science and Technology, Government of India

Software Used: Public Knowledge Project (PKP) Harvester

- **Open Index Initiative**

Type of Initiative: Metadata Harvesting Service

Principal Implementing Agency: Indira Gandhi Institute of Development Research
(IGIDR) Library, Mumbai

Supporting Agency: Indira Gandhi Institute of Development Research (IGIDR),
Reserve Bank of India, Government of India

- **Open J-Gate**

Type of Initiative: Open Access Journal Gateway

Principal Implementing Agency: Informatics India Limited, Bangalore

Partner Institutions: Publishers of Open Access Journals

- **Scientific Journal Publishing in India : Indexing and Online Management (SJPI)**

Type of Initiative: Metadata Harvesting Service

Principal Implementing Agency: National Centre for Science Information (NCSI), Indian Institute of Science (IISc), Bangalore

Supporting Agencies: Pan Asia Networking, IDRC, Canada; Asian Media and Information Centre (AMIC), Singapore; Asia-Pacific Development Information Programme (APDIP.net), UNDP; Internet Society, USA; Asia Pacific Network Information Centre (APNIC), Australia

Software Used: Public Knowledge Project (PKP) Harvester; PKP Open Journals Systems (OJS)

- **Search Digital Libraries (SDL)**

Type of Initiative: Metadata Harvesting Service

Principal Implementing Agency: Documentation Research and Training Centre (DRTC), Indian Statistical Institute, Bangalore

Supporting Agency: Indian Statistical Institute, Government of India

Software Used: Public Knowledge Project (PKP) Harvester

9. CONCLUSION

Open access to knowledge and information is an ambitious initiative, which provides the Social and Economic inclusive growth and brings down the disparity amongst information haves and have not. It is largely achievable in a country where policy frameworks, institutional frameworks, information infrastructure, trained manpower, and financial resources are adequately available. The effect of focused capacity building programmes in the areas of digital preservation, digital libraries and open access to literature is encouraging in a country like India, where significant proliferation of open access and digital library initiatives have been achieved in the last decade. A number of workshops and training events were organized in India during this period, where a few thousand libraries and computer professionals received training in open source software for building open access repositories. Library schools in India have since included open source digital archiving software in their curricula. Several national and international conferences, seminars, and symposia were also organized in India.

The sustainability of open access portals is another issue that requires proper attention. Too often, the open access portal in an institution may remain non-functional due to some internal dynamics, pointing to the need for introduction and maintenance of proper institutional frameworks and manpower development in this field. Coordinators of self-archived institutional repositories may also sensitize community members on the importance of open access to knowledge and provide training in self-archiving methods on a regular basis.

Open access to literature both scholarly communications and development-related literature ensures global visibility and accessibility, resulting in increased global recognition. Open access to information and knowledge not only enables digital inclusion of common citizens, particularly under-privileged communities, but also bridges social divides.

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