

# **Global Access to Science Information: The Changing Dynamics of Access and Practices in India**

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## **Abstract**

Provides an insight into the changing dynamics of access to Science information currently practiced in India. Vividly describes the changing dynamics of publishing , open access journals and their impact and some key science consortiums in India viz.

FORSA, VIC, NISCAIR, INDEST, and IASB.

# INTRODUCTION

Scientific Literature is published in various Journals, Magazines, Proceedings, and Books as well. It is also available on the World Wide Web. Open Access Movement has started to use www to disseminate scholarly publications globally. The Directory of Open Access Journals (DOAJ) was set up through the efforts of Lars Bjorshauge of the University of Lund, Sweden in 2003.

**Elsevier** has reported that it has published 26.8% of all the journal papers published in India across all subject areas. **Basu** reported that there has been an increase in publication in virtually every field with the exception of Agriculture, with significant increase in the overall mean Impact factor.

Various initiatives have been taken in India to facilitate global access to scientific publications.

# Science: The Concept

Science, essentially, is an attempt to establish hypotheses linking cause and effect in observed phenomena. The dictionary meaning of 'Science', therefore, refers to a branch of knowledge conducted on objective principles involving the systematized observation of an experiment with phenomena, especially concerned with the material and functions of the physical universe.

# Taxonomy of Science

Science is broadly sub-divided into the categories of **natural sciences** and the **social sciences**. There are also related disciplines that are grouped into interdisciplinary and applied sciences, such as engineering and health science.

# Aims & Objectives

This study aims to achieve the following objectives:

- (a) To ascertain the current status of global access to Science Information;
- (b) To determine the changing dynamics and nature of such access to science information being practiced in India; and
- (c) To unmask the Indian initiatives for providing access to Science information.

# Changing Dynamics of Publishing Technology

Technology has changed the trend of publishing and the mode of access to information and scientific communication.

**E-Publishing** is a very broad term which includes a variety of different publishing models, including e-books, e-journals, print-on-demand (POD), e-mail publishing, web-publishing etc.

- **Open Access Journals /OAA**
  - **Free Full Text.com** provides direct links to over 7000 scholarly periodicals.
  - **The Abdus Salam International Centre for Theoretical Physics (ICTP)**
  - **Open Course Ware Consortium (OCWC)**



- **Library Consortium**

- I. OARE (Online Access to Research in the Environment)

- II. The Health Inter Network Access to Research Initiative (HINARI)

- III. PERI (Programme for the Enhancement of Research Information), under INASP, is another programme to support capacity building in the research sector in developing and transitional countries by strengthening the production, access and dissemination of information and knowledge.

# Impact of Open Access Publications

Open access speeds up the dissemination and the uptake of scientific findings. The results of the study show that, articles originally published in the journal (Proceedings of the National Academy of Sciences) as *'open access'* articles were twice as likely to be cited 4-10 months after publication as non-open access articles. Articles first published as open access had more impact and were more frequently cited than articles that were *'self-archived'* in open archives later on.

(DOAJ) contained 2044 peer-reviewed OA journals (as of mid-February), about 600 more than this time last year.

## Open Access vs. Open Archives (Self –Archived)

- The Budapest Open Access Initiative (February 2002) was an important landmark in the history of Open Access.
- The Bethesda Statement on Open Access publishing (June 2003) and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (October 2003) are Two other important statements.
- OA self-archiving** (also referred to as “green road”)
- OA publishing** (also referred to as ‘gold road’)

# Open Access Initiatives in India

- i. Indian Institute of Science, Bangalore (IISc) has set up an open access repository of IISc research publications called [e-Prints@IISc](#).
- ii. IIT Bombay (Etd@IIT Bombay)
- iii. Eprint and Etd@IIT Delhi
- iv. [Etd@IIM](#) Kozhikore
- v. DuEprint Archive (of Delhi University)
- vi. [Dspace@nitr](#) (of NIT, Rourkela)
- vii. IIIT, GNU Eprints (OAI) (of IIIT, Allahabad)

# Open Access/ Archives Initiatives in India

Sl. No.	Name of the Institute/ Organisation	Type of Initiative	Name of the Institutional Repositories	Subject, nature and type of Information available
1	IISc, Bangalore	Open Access Repository	e-Prints@IISc.	Research output of the research community Pre-print & Post-print, & other Scholarly Publications
2.	IIT, Bombay	Open Access Archives	Etd@IIT Bombay	--
3.	IIT, Delhi	- do -	Eprint & Etd @ IIT Delhi	--
4.	IIM, Koxhikode	- do -	Etd@IIM Koxhekode	--
5.	Delhi University	-do-	DuEprint Archeive	--
6.	NIT, Rourkella	-do-	Dspace@netr	--
7.	IIIT, Allhabad	-do-	GNU Eprints	--
8.	The INDEST-AICTE Consortium	-do-	<a href="http://eprints.iisc.ernet.in">http://eprints.iisc.ernet.in</a>	--
9.	National Centre for Radio Astrophysics,Pune	do	<a href="http://www.ncra.tifr.res.in/">http://www.ncra.tifr.res.in/</a>	--
10.	Nat. Chem. Laboratory,Pune	Digital Repository	<a href="http://dspace.ncl.res.in/dspace/index.jsp">http://dspace.ncl.res.in/dspace/index.jsp</a>	--

# Initiatives of Science Consortiums in India

Sl. No.	Name of the Consortium	Year of Estd.	Subject area & Purpose	Total Members	Website / Access point	Remarks
1.	FORSA (Forum for Resource sharing in Astronomy & Astrophysics)	1982	Astronomy & Astrophysics	08	<a href="http://www.iiap.res.in/library/forsa.html">http://www.iiap.res.in / library/forsa.html</a> .	--
2.	VIC (Virtual Information center)	--	Electronic Journal Resources	07	<a href="http://www.vic-ikp.info/">http://www.vic-ikp.info/</a>	Facilitates search from a single search interface
3.	NISCAIR (National Institute of Science communication & Info. Resources)	2002	S & T Info. Resources & a consortium of CSIR Labs. Provides access to 4000+ Licensed R & D Jls & 2000 open access STM Jls.	--	<a href="http://www.niscair.res.in/">http://www.niscair.res.in/</a>	0.26 million articles are downloaded every month.
4.	INDEST-AICTE Consortium (Indian National Digital Library in Engineering Science & Technology)	2003 (INDEST) 2005 (INDEST-AICTE)	E-Resources in Science, Technology & Engineering Info.	490 (including 388 member instructions)	<a href="http://incest.iitd.ac.in">http://incest.iitd.ac.in</a>	--

Contd...

5.	IASB (Indian Academy of Sciences, Bangalore)	--	Eleven open Access & Full text Jls. In Pure & Applied Science published by the Academy available on each Jl. website under cooperation with Springer	--	<a href="http://www.webwire.com/">http://www.webwire.com/</a>	--
6.	MHRD, Govt. of India NPTEL (National program on Technology Enhanced learning)	Sept 2006	Provides learning materials, digitally taped class room lectures, supplementary materials & links to state-of-the-art materials in every subject possible, but with priority on Engineering education	07 (IITs + IISc)	<a href="http://nptel.iitm.ac.in">http://nptel.iitm.ac.in</a>	Developed curriculum based video & web-courses
7.	Open Access e-Journals Portal in India	--	Provides online access to millions of Jl. articles through open J-gate, an electronic gateway covering 3000+ academic, research, & industry Jls.	--	www.openj-gate.com	--
8.	UGC-INGONET E-journals consortium	--	Provide online access to e-journals and databases to the universities in India	To all affiliated university	<a href="http://www.uge.ac.in">http://www.uge.ac.in</a>	--
9.	HELINET	--	Provides access to information in Health Science	CCO + Health Science College	<a href="http://jgate-helinet.informindia.co.in">http://jgate-helinet.informindia.co.in</a>	--

# Some Important Science Gateways

Sl. No.	Name of the Gateways	Year of Estd.	Web site / Address	Key subject covered
1.	OpenMED@NIC	--	<a href="http://openmed.nic.in/">http://openmed.nic.in/</a>	Peer-reviewed Documents on Medical & Allied Sc.
2.	JCCC@INDEST	--	<a href="http://www.jccc-indest.informindia.co.in/about/about.asp">http://www.jccc-indest.informindia.co.in/about/about.asp</a>	e-journals access gateway to Sci. & Engg. literature
3.	J-Gate	2001	<a href="http://www.j-gate.informindia.co.in/">http://www.j-gate.informindia.co.in/</a>	Gateway to e-journal literature
4.	SciGate		<a href="http://www.ncsi.iisc.ernet.in/scigate-about.php/">http://www.ncsi.iisc.ernet.in/scigate-about.php/</a>	Sci inf portal and gateway to sci., Engg, Med and Mgnt .inf resources



# Science Consortiums in India

- **FORSA (Forum for Resource Sharing in Astronomy and Astrophysics) established in 1982**

## **No. of Members – 8**

(i) Indian Institute of Astrophysics, Bangalore, (ii) Inter-University Centre for Astronomy and Astrophysics, Pune, (iii) National Centre for Radio Astrophysics, Pune, (iv) Nizamiah Observatory, Osmania University, Hyderabad, (v) Physical Research Laboratory, Ahmedabad, (vi) Raman Research Institute, Bangalore, (vii) Tata Institute of Fundamental Research, Mumbai, and (viii) Aryabhata Research Institute of Observational Sciences (ARIES), Nainital(<http://www.iiap.res.in/library/forsa.html>).

# Virtual Information Centre (VIC)

## No. of Members – 7

(i) Virtual Information Centre (VIC), Hyderabad,  
(ii) National Chemical Laboratory, Pune, (iii)  
Indian Institute of Chemical Technology  
Hyderabad, (iv) Center for Cellular and Molecular  
Biology, Hyderabad, (v) University of Hyderabad,  
Hyderabad, (vi) National Institute of Nutrition,  
Hyderabad and vii) ICRISAT, Hyderabad. It helps  
to access and search all journals from one single  
search interface, irrespective of their publishers  
and subscribing libraries.

## **NISCAIR (National Institute of Science Communication and Information Resources)**

NISCAIR came into existence on 30 September, 2002 with the merger of National Institute of Science Communication (NISCOM) and the Indian National Scientific Documentation Center (INSDOC)

Its' main achievement has been the creation of a Consortium for CSIR (Council of Scientific and Industrial Research) laboratories, so that they can access a greater range of e-journals, the consortium provides on an equitable basis to all its users access to 4000+ licensed R & D journals and about 2000 open access STM journals.

## **INDEST-AICTE Consortium**

“Indian National Digital Library in Engineering Sciences and Technology (INDEST)” Established in 2003.

No. of Members – 581

The consortium was re-named as INDEST-AICTE consortium in December, 2005

## **UGC-INFONET E-Journals Consortium**

University Grants Commission (UGC) has initiated a programme called the UGC-INFONET E-Journals Consortium. All universities which come under the purview of UGC will be beneficiary members of the consortium.

## **HELINET**

HELINET, the Health Science Library and Information Network. It stands for promoting e-journal access and resource sharing.

## **Indian Academy of Sciences, Bangalore**

The Academy's journals are open access and full text is available as PDF files on each journal website. It publishes as many as 11 (eleven) journals.

## **Ministry of Human Resource Development (MHRD), Govt. of India**

National Programme on Technology Enhanced Learning (NPTEL) Launched. Provides learning materials, digitally taped classroom lectures, supplementary materials and links to state of the art research materials in every subject possible (<http://nptel.iitm.ac.in>).

# **New Open Access e-Journals Portal in India**

**Informatics India Ltd** has announced the launch of open access e-journals portal, [www.openj-gate.com](http://www.openj-gate.com)

## Conclusion

Technological changes in publishing and the mode of access to information are leading to changes in relationship and behaviour models to a great deal.

- (i) open archives (OA) are most essential owing to its great impact factor.
- (ii) OA is an enormous 'public good' with the passage of time,
- (iii) OA sources are multiplying considerably.



So far India is concerned, various initiatives have been taken to facilitate global access to Science, Technology and Medical (STM) information and dissemination of scientific knowledgebase to a wide spectrum of audience which is going to be widened and improved in the days ahead.

**Thank you**