

INFORMATION & KNOWLEDGE SHARING THROUGH INSTITUTIONAL REPOSITORY: AN OVERVIEW OF EPRINTS@IISC

Ramesh Kuri

Assistant Professor

Department of Library and Information Science

School of Applied Sciences

Rani Channamma University, Belagavi

Email: rameshkuri@rcub.ac.in

Abstract

This study describes, major objectives of Institutional Repositories and its relevance in the present context and in particular, the study is mainly focused on Indian Institute of Science Institutional Repository specifically in its Objectives, Hardware and Software used for repository, Type of Collection, Age of Collection, Division-wise contribution of collection and Position of eprints@IISc in terms of Collection.

Keywords: IISc@e-prints; Digital Library; Institutional Repository; Knowledge Management

1. Introduction

The development of web technology has brought enormous opportunity to bring the results of research primarily to all through digital communication – anyone, anywhere and anytime. In the recent years a large amount discussions and initiatives are taken in the area of open access. Open Access is a compendium of many scholarly literature are freely accessible now without any hindrance and endeavors to reduce barriers to scholarly communication. Open access literatures are available in open access journals, institutional repositories, subject repositories, digital archives and so on. Open access facilitates availability and distribution of scholarly communication freely, as a means to solve the problem of inaccessibility primarily due to financial constraint specifically in Developing Countries. (S. B. Ghosh and Anup Kumar)

Institutional repository (IR) has emerged as a means of storing digital contents produced by research organizations, universities etc. This new technology offers the Nobel laureates and researchers to deposit their work, which facilitates the target audience to access the research publications via digital form. (Ramesh Kuri-2014) The essence of IR is to make research and

development publications to be freely available on the internet. It is stated that most of the institutes adopt the open source IR software's for creating/developing their own repositories. The type of documents may deposited in Institutional Repository are theses, dissertations, conference papers, journal articles, reports, patents, etc. There is no doubt Institutional Repositories can serve as an engine for institutions of higher education, and more broadly for the scholarly enterprises that supports research activities. (N. Ashok Kumar)

Institutional Repositories are coming up with the so many objectives based on the institution, but majority of the Institutional Repositories are mainly concern with following objectives such as i) global visibility for an institution's scholarship ii) collect content in a single location iii) open access iv) institutional research output by self-archiving and v) store and preserve institutional digital assets, including unpublished or otherwise easily lost ("grey") literature (e.g., theses or technical reports) etc.

The building of an Institutional Repository for any organization is needed in the present scenario of digital world because of the certain changes such as Technology, Increase in the overall volume of research, Increasing need of archival and access to unpublished information bearing objects, Increasing demand to access knowledge objects from anywhere at any time, Increase uncertainty over who will handle the preservation archiving of digital scholarly research materials. (Kanchan Kamila-2009)

In India ePrints@IISc is a very fastest growing Repository compare to other institutional repositories. ePrints@IISc collects, preserves and disseminates in digital format the research output created by the IISc research community. It enables the Institute community to deposit their preprints, postprints and other scholarly publications using a web interface, and organizes these publications for easy retrieval and sharing.

2. Objectives:

The objectives of the study are as follows;

1. To know the growth and development of Institutional Repositories in India;
2. To overview the diverse documentary forms in ePrints@IISc;
3. To know the division-wise contribution of documents;
4. To identify the age of documents deposited;
5. To identify the action oriented divisions in depositing intellectual works; and
6. To ascertain the position of ePrints@IISc by comparing study.

3. Methodology:

The study adopts case study method through which a review of literature of articles on IR published till date is scanned to gain the information of IR in India. The Institutional Repository and ePrints@IISc Institutional Repository website (<http://www.eprints.iisc.ernet.in>) is used as primary source for the case study on certain

parameters, such as number of documents, hardware and software used, growth of collection, domain wise distribution of contents, usage and retrieval pattern etc. to meet the objectives.

4. Development of Institutional Repositories (IR)

A large number of IRs have been established worldwide, more than 3585 repositories have been registered with Registry of Open Access Repository (ROAR) as maintained by Open Archive Initiative's web site. (<http://roar.eprints.org/>) as well as by Open Directory of Open Access Registry Open Directory (OPenDOAR). In India Libraries and information centers have attached to various types of institutions are now taking part in open access movement, by establishing institutional repositories, digital repositories to provide worldwide access to their research documents. Institutional repositories from India as registered with ROAR. Existing IRs in India- there are 89 IRs registered with ROAR, OpenDOAR and also through Internet. (ROAR)

Research and development (R&D) institutions and higher learning institutions in India such as Indian Institute of Science (IISc), Indian Institutes of Technology (IITs), Indian Statistical Institute (ISI), institutions under the Council of Scientific and Industrial Research (CSIR) and Indian Council of Medical Research (ICMR) are engaged in depositing their intellectual work in the institutional repository. Leading Indian scientific research institutions, now Indian Institute of Science is one institute having more than 36794 documents in its repository.

5. ePrints@IISc

The Indian Institute of Science (IISc) was established in 1909 since then, it has grown into a premier institution of research and advanced instruction, with more than 2,000 active researchers working in almost all frontier areas of science and technology. Every year it produces many intellectual works it may be journal articles, reports, thesis and dissertations, patents, standards etc. In 2004, to collect and disseminate all the intellectual work the Indian Institute of Science took step in setting up of Institutional Repository and that has come with the name of "eprints@IISc".

Dr T.B. Rajashekar was the team leader in setting up the ePrints@IISc repository, His immense knowledge in the areas of Library and Information Science, and in the emerging field of digital library, was effectively put to use in some of the innovative and unique features of ePrints@IISc. ePrints@IISc repository collects preserves and disseminates in digital format the research output created by the IISc research community. It enables the Institute community to deposit their preprints, postprints and other scholarly publications using a web interface, and organizes these publications for easy retrieval. While eprints@IISc can be accessed by anybody, submission of documents to this repository is limited to the IISc research community only. (Francis)

ePrints@IISc repository is running on EPrints open archive software, a freely distributable archive system available from eprints.org. ePrints@IISc complies with the [Open Archives Initiative \(OAI\)](#) framework allowing publications to be easily indexed by web search engines and other indexing services. From the researchers' perspective, the Institute is trying to impress on them the advantages that they stand to gain by depositing their research papers in the open-access, interoperable institutional repository by stressing the following points: (<http://eprints.iisc.ernet.in/information.html> -2014)

- ❖ helps in establishing priority for research findings;
- ❖ being interoperable, metadata from the repository are available through cross archive service providers like OAIs;ter;
- ❖ indexed by Google Scholar, Microsoft's Windows Live Academic Search, Scirus;
- ❖ better visibility and wider access;
- ❖ better impact and citations;
- ❖ rapid communication of research;
- ❖ long-term preservation;
- ❖ integrated view of IISc research publications;
- ❖ value-added services like individual and department-wise publication listings; And . graphical view of usage statistics.

- **General Conditions:**

While utmost care has been taken to provide as authentic and accurate information as possible with regards to the eprints in this archive, NCSI and IISc disclaim any responsibility or liability from any incidental errors. Users also assume the sole responsibility for use of any content appearing on ePrints@iisc.

While content from this archive can be freely downloaded for purposes of academic teaching and research, redistribution or hosting of full-text content in any retrieval system for profit is strictly prohibited.

In no event shall NCSI or IISc be liable to the users of ePrints@iisc or to any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting from any use or misuse of information provided on ePrints@iisc.

- **ePrints@IISc Collection analysis:**

An institutional repository stores and makes accessible the educational, research and associated assets of an institution. Most of the currently established institutional repositories are providing open access to the research outputs of a university or research institution. The content potentially includes research data, learning material, image collections and many other different types of content. The Indian Institute of Science Institutional Repository is

very rich in its collection and hence the authors have considered the following criteria's to assess the total collection of its repository.

5.1 Type of Documents

Sl. No	Type of Document	No of Documents	Percentage
1	Book	83	0.23%
2	Book Chapter	83	0.23%
3	Conference Proceedings	324	0.88%
4	Conference Papers	4549	12.36%
5	Conference poster	55	0.15%
6	Departmental Technical Report	58	0.16%
7	Journal Article	30074	81.74%
8	Editorials/Short Communications	1320	3.59%
9	Patents	26	0.07%
10	Preprints	216	0.57%
11	Teaching Resource	4	0.01%
12	Other	1	0.00%
13	Conference/Workshop items	1	0.00%
	Total	36794	100%

Table-1 Document Type in the Collection

Eprints@ IISc Institutional Repository is more popular in collecting various type of documents. The Table –1 reveals various documentary types of publications deposited with ePrints@IISc repository. Among the total of 36794 documents, maximum 30074 (81.74%) number of documents were journal articles. Followed by 4549 (12.36%) Conference Papers, 1320 (3.59%) Editorial/Short Material, 324 (0.88%) Conference proceedings, 83 each (1.7%) Book and Book chapters, 58 (0.16%) Departmental Technical Report, 55 (0.15%) Conference Posters, 26 (0.07%) Patents, 4 (0.01%) Teaching Resource and 1 each (0.01%) Conference and other un identified resources.

5.2 Refereed and Non Refereed documents

Refereed/ Non Referred	No of Documents	Percentage
Refereed documents	35760	97%
Not Refereed documents	371	1%
Un identified	663	2%
Total	36794	100%

Table-2 Refereed and Non Refereed Documents

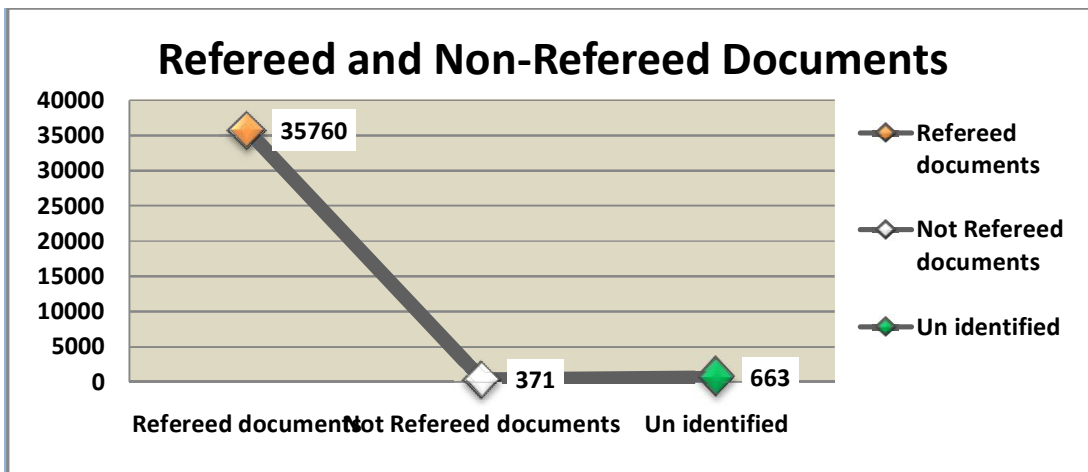


Fig-1 Refereed and Non-Refereed Documents

eprints@IISc covers the both Refereed and Non-Refereed documents. The data in the table-2 shows the availability of refereed and non-referred documents. It is clear that among the total of 36794 documents, majority 35760 of documents are refereed documents and rest of them non-refereed and unidentified.

5.3.Division wise contribution of Resources

Sl. No	Division	No of Resources	Percentage	CM Documents
1	Division of Biological Sciences	6344	16%	6344
2	Division of Chemical Sciences	9589	25%	15933
3	Division of Earth and Environmental Sciences	139	0%	16072
4	Division of Electronic Sciences	5213	13%	21285
5	Division of Information Sciences	957	2%	22242
6	Division of Mechanical Sciences	8641	22%	30882
7	Division of Physical and Mathematical Sciences	6617	17%	37500
8	Other centers/Units	86	0%	37586
9	Others	1087	3%	38673
10	Administration	3	0%	38676
	TOTAL	38676	100%	38676

Table-3 Division wise contribution of Resources

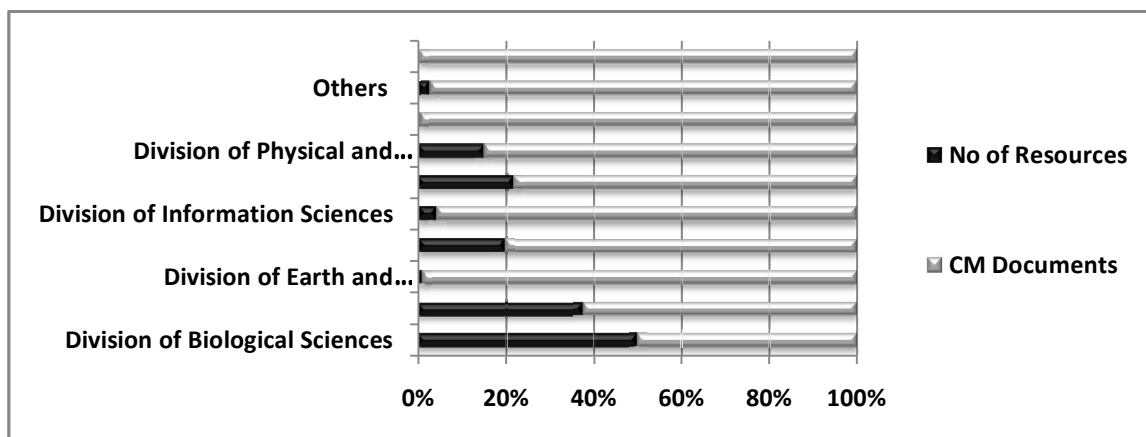


Fig-2 Division wise contribution of Resources

Indian Institute of Science is a bunch of many branches of studies. There are more than ten divisions, keenly involved in teaching, research and development activities. The above table-3 shows the activeness in contributing their intellectual works in to its institutional repository so called eprints@IISc. The majority 9589 (25%) of documents appeared from the division of Chemical Sciences followed by 86411(22%) from the division of Mechanical Sciences, 6617 (17%) from division of Physical and Methemathical Sciences, 6344 (16%) from the division of Biological Sciences, 5213 (13%) from division of Electronic Sciences 1087 (3%) from other unidentified divisions, 957 (2%) from division of Information Sciences, 139 (0.0%) from division of Earth and Environmental Sciences 89 (0.0%) from other administrative units.

5.4 Age of sources available in IR

Sl. No	Decade source type available	No of sources available	Percentage	CM Sources
1	1913-1922	84	0.23%	84
2	1923-1932	97	0.26%	181
3	1933-1942	18	0.05%	199
4	1943-1952	36	0.10%	235
5	1953-1962	213	0.58%	448
6	1963-1972	744	2.02%	1192
7	1973-1982	3390	9.21%	4582
8	1983-1992	5448	14.81%	10030
9	1993-2002	9067	24.64%	19097
10	2003-Till date	17697	48.10%	36794
	TOTAL	36794		36794

Table-4 Age of sources available in IR

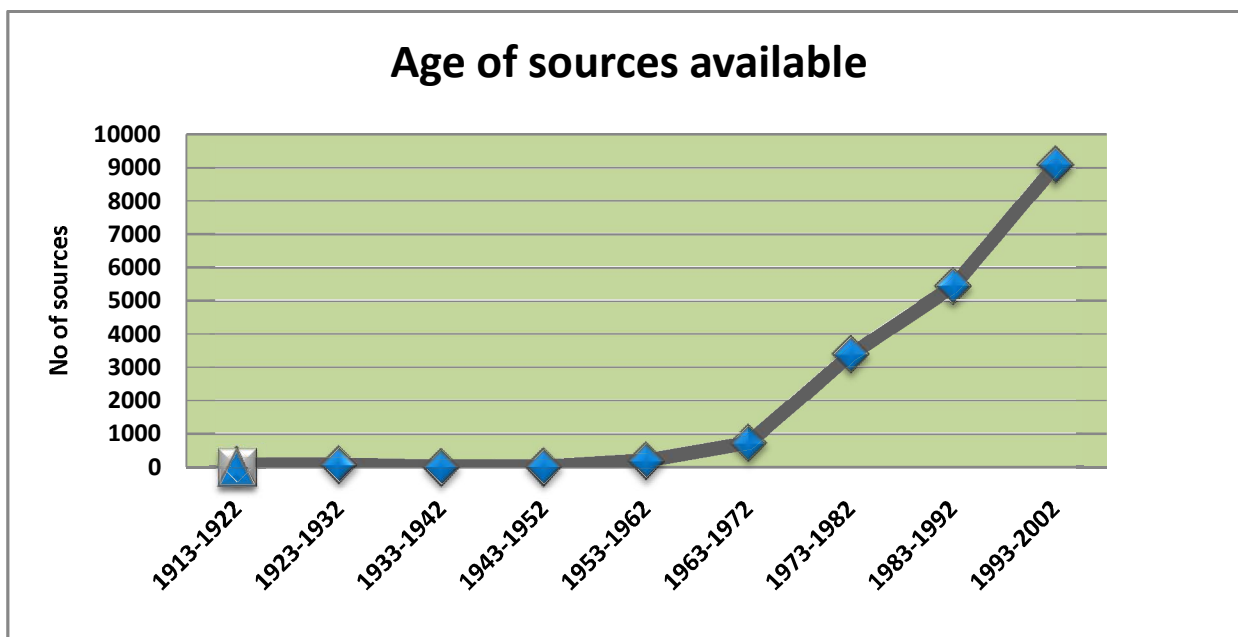


Fig-3 Age of sources available in IR

Age is referred to as length of time material has existed in ePrints@IISc repository. This is done to determine the recency and rare documents deposited. During 1913-1922, there are 84 old documents are found in the repository. Followed by this 97 are between 1923-1932; 18 in 1933-1942; 36 in 1943-1952; 213 in 1953-1962; 744 in 1963-1972; 3390 in 1973-1982; 5448 in 1983-1992; 9067 in 1993-2002 and 17697 from 2003 to till date.

The outcome shows that the tendency towards increasing number of volume of production. This could be due to increasing awareness of digital archives and its benefits for both sides of authors as well as their institutions.

5.5 Document status in ePrints@IISc

Sl. No	Status	No of Documents	Percentage	CM Document Status
1	Published	36471	99.12%	36471
2	In Press	52	0.14%	36523
3	Submitted	24	0.07%	36547
4	Unpublished	45	0.12%	36592
5	Others	202	0.55%	36794
	TOTAL	36794	100%	36794

Table -5 Document Status in ePrints@IISc

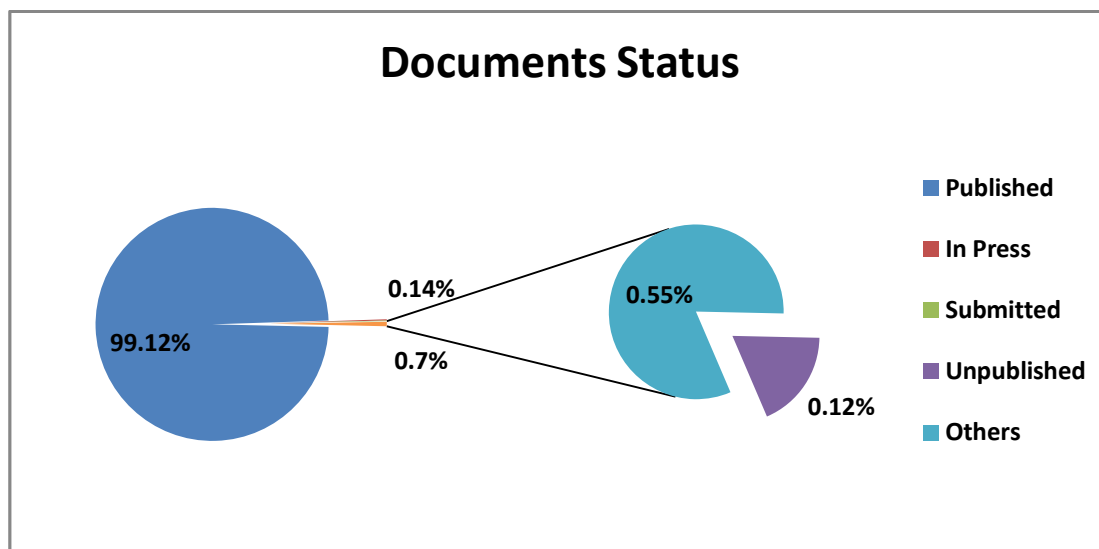


Fig-4 Documents Status

The table- 4 depicts documents status in ePrints@IISc. Among the total of 36794 documents, Majority of 36471 (99.12%) items are published documents, 52 (0.14%) are in Press, 45 (0.07%) are unpublished and 202 (0.12%) others.

This scheme of study reveals that already published documents are in majoriy and at the same time shows the upward trend.

5.6 Publications Formats

SL No	Format	No of Documents	Percentage	CM of Documents
1	HTML	21	0.04%	21
2	PDF	29459	50.67%	29480
3	Postprints	15	0.03%	29495
4	Plain Text	45	0.08%	29540
5	RTF	1	0.00%	29541
6	MicroSoft Power Point	3	0.01%	29544
7	Microsoft Excel	1	0.00%	29545
8	Microsort Word	3	0.01%	29548
9	Images JPEG	7170	12.33%	36718
10	Image PNG	18253	31.40%	54971
11	Archive (Zip)	2	0.00%	54973
12	Other	3161	5.44%	58134

Table-6 Publications Formats

* Documents published in multiple formats

Table-3 reveals the availability publications format in ePrint@IISc repository. Majority 29459 of documents are in PDF Format. Followed to this 18253 documents are in Image PNG, 7170 documents are in Images JPEG, 45 documents in Plain Text, 21 documents are in HTML, 15 documents are in Postprints, 3 each are in Microsoft Power Point and Microsoft Word, 2 documents in Archive(Zip) 1 each in RTF and Microsoft Excel. There are 3161 documents are there in the repository without naming any file format.

5.7 ePrint@IISc (collection) Rank Position in India

Name of the Institution	No of Documents	Percentage of share	Rank
Indian Academy of Science	91690		1
Indian Institute of Science	36794		2
NISCARE	23715		3
IIT Mumbai	14099		4
Central Marine Fisheries; Research Institute	9457		5

Table-7 ePrints@IISc Rank Position in India

The above table reveals the rank position of the ePrints@ IISc Institutional Repository. This ranking has done by considering number of documents available in the Repositories. It is identified that Indian Academy of Science stands top rank with having 91690 documents. Followed to this, Indian Institute of Science stands second rank with having 36794 documents; NISCARE stands third rank with having 23715 documents; IIT Mumbai stands fourth rank with having 14099 documents and Central Marine Fisheries Research Institute stands fifth rank with having 9457 documents.

6. Observations:

1. It is observed that Journal articles have been contributed in substantial numbers rather than, the other form of information.
2. Majority of the available documents in eprints@IISc are refereed documents. This exemplifies the treasure of quality repository.
3. Division of Chemical Sciences and Biological Sciences both contributed maximum number of documents to the repositories. It demonstrates that these two divisions are more active-centric in publishing and contributing variegated information sources to the repository.
4. The already Published sources of information finds its present on vast scale in to the eprints@IISc repository.

5. The study has reviewed that, PDF and Images JPGs formatted documents are more compared to the other formatted documents such as HTML, Plain text, RTF etc.
6. Only IIT, IIM and research and development organizations rank high in depositing maximum number of sources in to the institutional repositories and
7. Though the UGC (University Grants Commission) and NKC (National Knowledge Commission) supporting in establishment of institutional repositories at University and College level to disseminate information at global level, the study deciphered that only central universities, IITs and IIMS are taking keen interest in establishing Institutional Repositories

7. Conclusion

As gone through the overview on ePrints@ IISc Institutional Repository of Indian Institute of Science has successfully created its own remark in the model map of Institutional Repositories in India using the ePrints software. This effort could be replicated in all the Faculties in results of their citations, impact, index and prestige.

Nowadays, as like these research institutions, universities are also producing more digital objects like research articles, reports, thesis, Audio/Video, clippings and datasets in ever increasing number. Hence, there is also a need of setting up of institutional repositories. In this regard the government body called National Knowledge Commission has recommended and University Grants Commission have stated that, all public funded research should be made open access. It has been observed that there is a continuous growth in new IRs being registered and also there is a surge in the number of records over the period. There is need for concerted efforts in this area.

References:

1. S. B. Ghosh and Anup Kumar Das (2006)., Open access and institutional repositories – a developing country perspective: a case study of India world library and information congress: 72nd IFLA general conference and council 20-24 August 2006, Seoul, Korea.
2. Kuri, R. (2014). Foot Marks of LIS Journals in DOAJ: an Analytical Study. *Asian Journal of Multidisciplinary Studies*, 2(5)
3. Francis Jayakanth, Filbert Minj, Usha Silva and Sandhya Jagirdar (2008)., ePrints@IISc: India's first and fastest growing institutional repository, OCLC Systems & Services: *International digital library Perspectives* Vol. 24 No. 1, pp. 59-70 *q* Emerald Group Publishing Limited 1065-075X DOI 10.1108/10650750810847260.
4. Surinder Kumar (2008)., Design and Development of National Digital Repository System for Health Information in India: A Descriptive Study” Thesis pp.4-8

5. Ashok Kumar, N. (2009)., *Institutional Repositories in India*. In National Seminar on Strategic Information Management in the Digital Era, Tamil Nadu (India), 26-27 March 2009
6. Dr. Kanchan Kamila (2009)., Institutional Repository Projects in India 7th International CALIBER 128-132.
7. (<http://eprints.iisc.ernet.in/information.html>)
8. http://roar.eprints.org/cgi/roar_search/advanced?location_country=&software=&type=&order=title.