

Access to LIS Literature in Open Access Environment: Critical Appraisal

Amit Kumar Das*, Bairam Khan**

Abstract

This paper highlights the library and information science literature in open access environment across a globe. There are two main routes to provide open access to scholarly literature. One is Open Access (OA) journals and another is through placing articles published in OA archives or repositories. For this purpose, (Directory of Open Access Repositories) OpenDOAR and Directory of Open Access Journal (DOAJ) was studied to find their growth rate, continent, country, language wise distribution as well as total items available and OAI-PMH supported repositories.

Keywords: Open access; Open access (OA) journals; Open access repositories; Open DOAR; DOAJ; OAI-PMH.

Introduction

The Open Access movement traces its history at least back to the 1960s, but became much more prominent in the 1990s with the advent of the digital age. With the spread of the Internet and the ability to copy and distribute electronic data at no cost, the arguments for open access gained new importance.

Probably the earliest book publisher to provide open access was the National Academies Press, publisher for the National Academy of Sciences, Institute of Medicine, and other arms of the National Academies. They have provided free on-line full-text editions of their books alongside priced, printed

editions since 1994, and assert that the on-line editions promote sales of the print editions. As of June 2006 they had more than 3,600 books up on-line for browsing, searching, and reading.

An explosion of interest and activity in open access journals has occurred since the 1990s, largely due to the widespread availability of Internet access. It is now possible to publish a scholarly article and also make it instantly accessible anywhere in the world where there are computers and Internet connections.

These new possibilities emerged at a time when the traditional, print-based scholarly journals system was in a crisis. The number of journals and articles produced has been increasing at a steady rate; however the average cost per journal has been rising at a rate far above inflation for decades, and budgets at academic libraries have remained fairly static. The result was decreased access - ironically, just when technology has made almost unlimited access a very real possibility, for the first time. Libraries and librarians have played an important part in the open access movement, initially by alerting faculty and administrators to the serials crisis. The Association of Research Libraries developed the Scholarly Publishing and Academic

Author's Affiliation: *Librarian, Torkona Jagabandhu High School (H.S.), Torkona, Burdwan, West Bengal, **Assistant Librarian, Gr. II, Central Library, Golapbag, The University of Burdwan, Burdwan - 713104, West Bengal, India.

Reprint's Request: Amit Kumar Das, Librarian, Torkona Jagabandhu High School (H.S.), Torkona, Burdwan, West Bengal, India.

E-mail: dasamitkumar2007@gmail.com

Resources Coalition (SPARC), in 1997, an alliance of academic and research libraries and other organizations, to address the crisis and develop and promote alternatives, such as open access.

The first on-line free-access journals began appearing in the late 1980s. Among them was Bryn Mawr Classical Review, Postmodern Culture and Psycology.

The first free scientific online archive was arXiv.org, started in 1991, initially a preprint service for physicists, initiated by Paul Ginsparg. Self-archiving has become the norm in physics, with some sub-areas of physics, such as high-energy physics, having a 100% self-archiving rate.

Definition

According to Budapest Open Access Initiative "By open access, we mean its immediate, free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself".[1]

Benefits

Open Access benefits researchers, institutions, nations and society as a whole. For researchers, it brings increased visibility, usage and impact for their work. Institutions enjoy the same benefits in aggregated form.[2] There is growing evidence to show that countries also benefit because Open Access increases the impact of the research in which they invest public money (see Houghton and Sheehan's study on the economic impact of enhanced access to research findings) and therefore there is a better return on investment. Society as a whole, benefits because research is more efficient and more effective, delivering better and faster outcomes for us all.[3]

Accelerated Discovery

With open access, researchers can read and build on the findings of others without restriction.

Public Enrichment

Much scientific and medical research is paid for with public funds. Open access allows taxpayers to see the results of their investment.

Improved Education

Open access means that teachers and their students have access to the latest research findings throughout the world.

Methods of Open Access Archiving

OA can be archived in two ways:

1. "Green OA" is provided by authors publishing in any journal and then self-archiving their postprints in their institutional repository or on some other OA website. Green OA journal publishers endorse immediate OA self-archiving by their authors.
2. "Gold OA" is provided by authors publishing in an open access journal that provides immediate OA to all of its articles on the publisher's website. (Hybrid open access journals provide Gold OA only for those individual articles for which their authors (or their author's institution or funder) pay an OA publishing fee.[1])

Methodology and Sample Selection

For this study, Green OA i.e. OpenDOAR and Gold OA i.e. DOAJ have been consulted for this purpose. Data has been taken from the above two sources upto the 13th January, 2013. For OA LIS repositories have been analysed to find the continent, country, language, software wise distribution, their growth and OAI-PMH supported or not. In

case of DOAJ,

For this study we have concentrated on the Green OA that is author can self-archiving their post prints in their institutional repository. OpenDOAR has been consulted for this purpose. And the second is Gold OA where authors publish their article in OA e-journals through peer reviewed process. DOAJ has been considered for this study. We have got data from these two resources on LIS repositories and e-journals across the world till the 11th January, 2013. These repositories have been analysed to find the continent, country, language, software wise distribution, their growth and OAI-PMH supported or not.

OpenDOAR

The OpenDOAR service provides a quality-assured listing of open access repositories around the world. OpenDOAR staff harvest and assign metadata to allow categorisation and analysis to assist the wider use and exploitation of repositories.[4]

It is maintained by SHERPA Services, based at the Centre for Research Communications at the University of Nottingham.

It is primarily a service to enhance and support the academic and research activities of the global community. OpenDOAR maintains a comprehensive and authoritative list of institutional and subject-based repositories. It also encompasses archives set up by funding agencies like the National Institutes for Health in the USA or the Wellcome Trust in the UK and Europe.

DOAJ

In Directory of Open Access Journals (DOAJ) website, lists open access e-journals and is maintained by Infrastructure Services for Open Access (IS4OA). Until January 2013, the DOAJ was maintained by Lund University.[5] The project defines open access journals as scientific and scholarly journals that meet high quality standards by exercising peer review or editorial quality control and use a funding model that does not charge

readers or their institutions for access. The Budapest Open Access Initiative’s definition of open access is used to define required rights given to users, for the journal to be included in the DOAJ, as the rights to “read, download, copy, distribute, print, search, or link to the full texts of these articles”.

As of January 2013, the database contains 8536 journals, with an average of four journals being added each day in 2012. The aim of DOAJ is to “increase the visibility and ease of use of open access scientific and scholarly journals thereby promoting their increased usage and impact.”

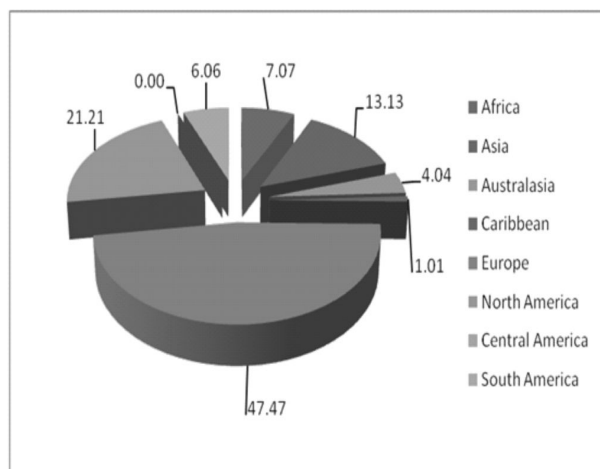
Data Analysis of OpenDOAR

The Table 1 shows that Europe has the maximum no LIS repositories (47) followed by North America (21) and Asia (13).

Table 1: Continent-wise LIS Repositories

Continent	No. of Repositories	Percentage
Africa	7	7.07
Asia	13	13.13
Australasia	4	4.04
Caribbean	1	1.01
Europe	47	47.47
North America	21	21.21
Central America	0	0.00
South America	6	6.06
Total	99	100

Figure 1: Continent-wise LIS Repositories



The Figure 1 shows that Europe has the maximum no LIS repositories that are 47.47%, then North America having the 21.21 % and third position is Asia that is 13.13 %.

The Table 2 shows that country wise LIS repositories in the world. United States has the maximum no LIS repositories that 16 % followed by United Kingdom 12, Germany 8 and India and France showing 4th position jointly i.e. 4.

The Figure 2 shows that country wise LIS repositories in the world. United States has the maximum no LIS repositories that 16.16 % followed by United Kingdom 12.12 %, Germany 8.08 % and India and France showing 4th position jointly i.e. 4.04 %.

The Table 3 shows that 77 of LIS repositories are monolingual type whether 18 is bilingual and 4 is multilingual.

The Figure 3 shows that 77.78 % of LIS repositories are monolingual type whether 18.18 % is bilingual and 4.04 % is multilingual.

The Table 4 indicates that Dspace is most preferred software used in LIS repositories i.e. 41, second is E-Print i.e. 22 and others are used in 28.

The Figure 4 indicates that Dspace is most preferred software used in LIS repositories i.e. 41.41 % , second is E-Print i.e. 22.22 % and others are used in 28.28 %.

Table 5 shows that only 4.4% LIS OA literature available to the academic community across a globe and where as 95.59% OA digital resources belong to rest of the universe of knowledge.

The Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) is a low-barrier mechanism for repository interoperability. *Data Providers* are repositories that expose structured metadata via OAI-PMH. *Service Providers* then make OAI-PMH service requests to harvest that metadata. OAI-PMH is a set of six verbs or services that are invoked within HTTP. So OAI-PMH supported is important to exchange data from one system to another. So, LIS repositories must complaint with OAI-PMH facilities. The Table

Table 2: Country-wise LIS repositories

Name of the country	No. of Repositories	Percentage
United State	16	16.16
United Kingdom	12	12.12
Germany	8	8.08
India	4	4.04
France	4	4.04
Brazil	4	4.04
Tiwan	3	3.03
Australia	3	3.03
Ukraine	3	3.03
Italy	3	3.03
Czech Republic	3	3.03
Canada	3	3.03
Egypt	2	2.02
Malaysia	2	2.02
Croatia	2	2.02
Spain	2	2.02
Netherlands	2	2.02
Mexico	2	2.02
South Africa	1	1.01
Sudan	1	1.01
Nigeria	1	1.01
Tanzania	1	1.01
Zimbabwe	1	1.01
Singapore	1	1.01
China	1	1.01
Bangladesh	1	1.01
Indonesia	1	1.01
New Zealand	1	1.01
Dominican Republic	1	1.01
Norway	1	1.01
Netherlands	1	1.01
Finland	1	1.01
Switzerland	1	1.01
Ireland	1	1.01
Portugal	1	1.01
Serbia	1	1.01
Cyprus	1	1.01
Peru	1	1.01
Ecuador	1	1.01
Total	99	99.99

Figure 2: Country-wise LIS Repositories

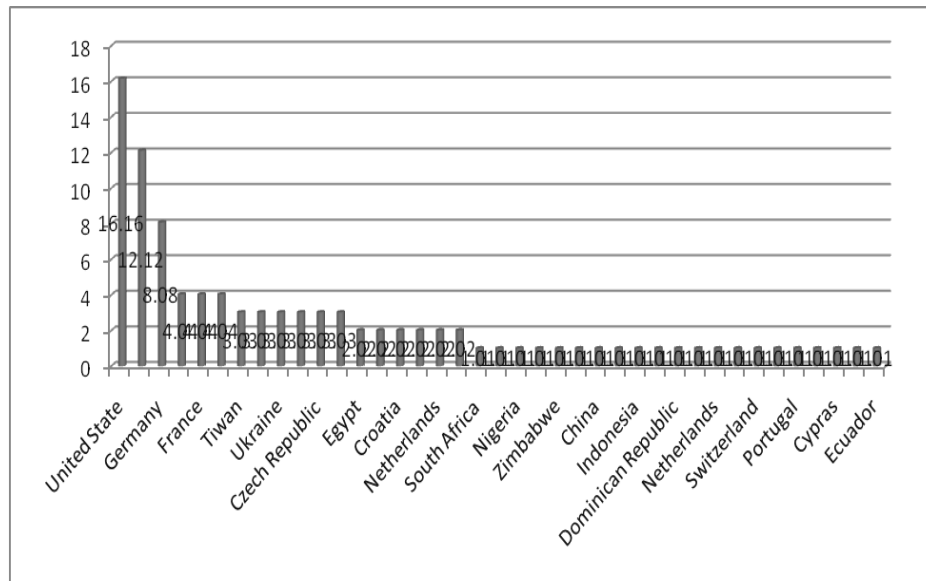


Table 3: Language-wise LIS Repositories

Language supported	No. of LIS Repositories	Percentage
Monolingual	77	77.78
Bilingual	18	18.18
Multilingual	4	4.04

Figure 4: Software Used in LIS Repositories

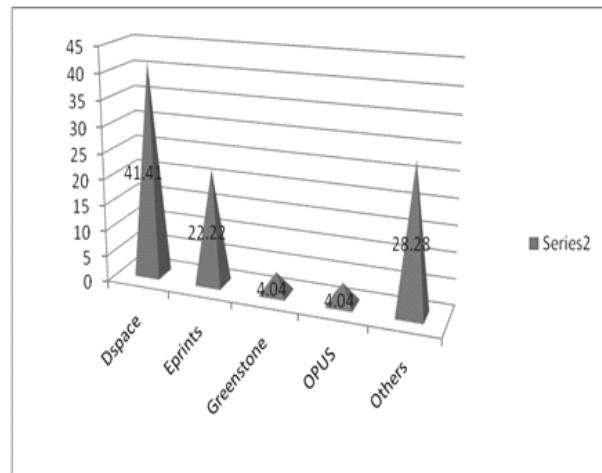


Figure 3: Language-wise LIS Repositories

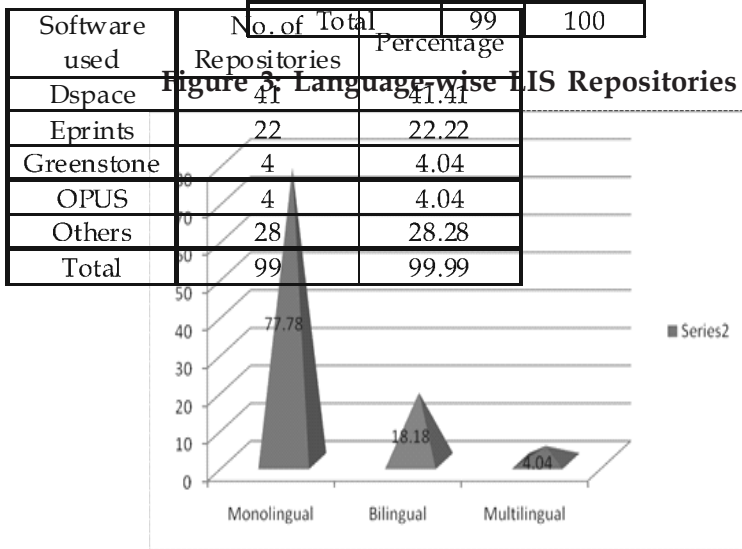


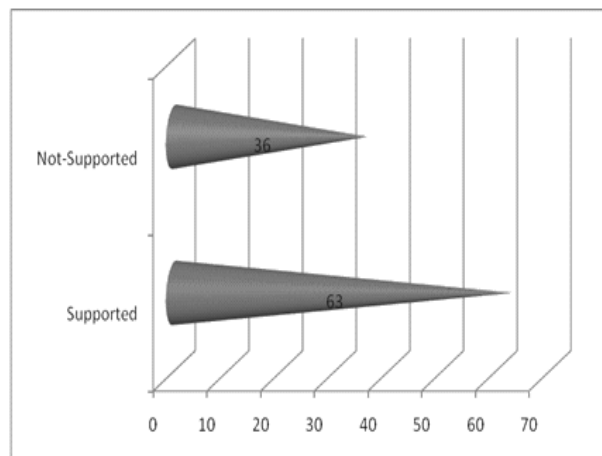
Table 4: Software Used in LIS Repositories

Table 5: Global Existence of LIS Repositories

Subject Domain	No. of Repositories	Percentage
LIS	99	4.4
Others	2149	95.59
Total	2248	99.99

Table 6: OAI-PMH Study on LIS Repositories

OAI-PMH	No. of Repositories	Percentage
Supported	63	63.64
Not-Supported	36	36.36
Total	99	100

Figure 5: OAI-PMH Complaint on LIS Repositories

5 shows that 63 LIS repositories is OAI-PMH supported while 36 is not supported.

The figure-5 shows that 63.64 % LIS repositories is OAI-PMH supported <http://www.openoar.org/about.html> while 36.36 % is not supported. It indicates that major LIS repositories have global data interoperability facility. A chunk of OA LIS repositories have to incorporate this facility.

Data Analysis of DOAJ

The Table 7 shows that country wise OA e-journal distribution. USA publishes maximum no OA e-journal i.e. 35 (28 %), followed by Brazil i.e. 15 (12 %) and then Spain 10 (8 %). It can be also represented by the following graph.

The Table 8 shows that 84 i.e. 67.2% LIS OA e-journal systems are monolingual, followed by bilingual 27 i.e. 21.6 % and then multilingual.

The Table 9 shows that 93 out of which 184 i.e. 50 % e-journal is published in English language, followed by Spanish 25 (i.e. 13.58) and then Portuguese language is 10 i.e. (10.86 %).

Findings

From the above study, Europe is the most productive on OA LIS repositories than North

Table 7: Country-wise OA E-journal Distribution

Name of the country	No. of Title	Percentage
United States	35	28
Brazil	15	12
Spain	10	8
United Kingdom	7	5.6
Canada	7	5.6
Germany	6	4.8
Taiwan	4	3.2
Italy	3	2.4
Netherlands	3	2.4
India	2	1.6
France	2	1.6
Turkey	2	1.6
Australia	2	1.6
Lithuania	2	1.6
Sweden	2	1.6
Argentina	2	1.6
Croatia	2	1.6
Denmark	2	1.6
Cuba	1	0.8
Peru	1	0.8
Bulgeria	1	0.8
Egypt	1	0.8
Poland	1	0.8
Venezuela	1	0.8
Romania	1	0.8
New Zealand	1	0.8
Slovenia	1	0.8
Pakistan	1	0.8
Czech Republic	1	0.8
Indonesia	1	0.8
Colombia	1	0.8
Switzerland	1	0.8
Puerto Rico	1	0.8
South Africa	1	0.8
Iran	1	0.8
Total	125	100

America and Asia. In respect of country, United States developed maximum than United Kingdom and Germany. India belongs in fourth position and has only four OA LIS repositories. Most of the OA LIS repositories are monolingual (77%). Only 4% LIS repositories are multilingual. Maximum OA LIS repositories used DSpace. Other major repositories software is Eprints and

Figure 6: Country-wise OA E-journal Distribution

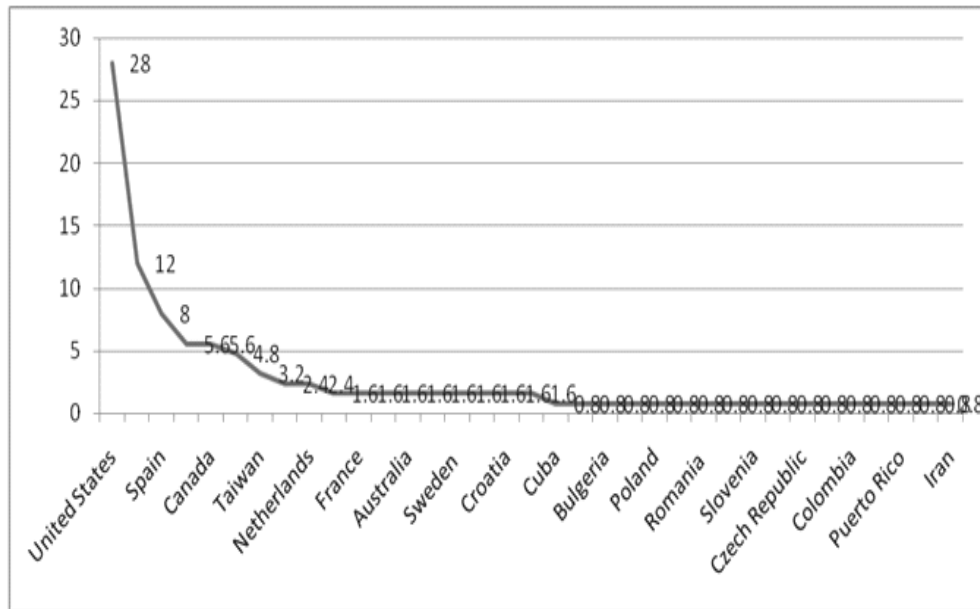


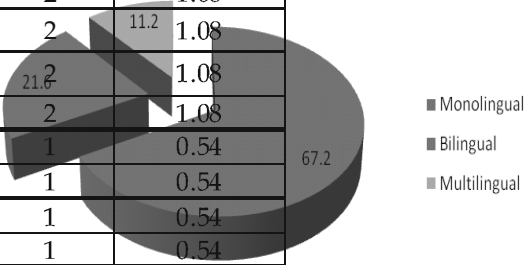
Table 8: Language-wise LIS OA E-journal Distribution across a Globe on DOAJ

Language	No. of Title	Percentage
Monolingual	84	67.2
Bilingual	27	21.6
Multilingual	14	11.2
Total	125	100

Table 9: Language-wise Distribution on OA LIS E-journal System

Language	No. of Title	Percentage
Portuguese	20	10.86
French	10	5.43
German	8	4.34
Chinese	4	2.17
Italian	4	2.17
Swedish	2	1.08
Catalan	2	1.08
Turkish	2	1.08
Lithuanian	2	1.08
Danish	2	1.08
Bulgarian	1	0.54
Arabic	1	0.54
Polish	1	0.54
Romanian	1	0.54
Slovene	1	0.54
Czech	1	0.54
Slovak	1	0.54
Indonesian	1	0.54
Norwegian	1	0.54
Croatian	1	0.54
Total	184	99.89

Figure 7: Language Supported OA LIS E-journal System



Greenstone. There are 63% of OA LIS repositories are OAI-PMH compliant. There are of 4% output OA LIS repositories than rest of universe of Knowledge are visible across a globe through OA systems. The maximum producer of OA LIS e-journals is United States. Though Brazil is developing country, be the second highest producer of OA LIS e-journals. India has only 2 open access LIS e-journals till date and got 10th position. Indian LIS scientists and professionals must think in this area of knowledge. 67.2% of OA LIS e-journals are monolingual.

Conclusions

From the above study, it indicates that India is spearheading open access movement in the developing countries since last decade by establishing a number of open access repositories and mere number of LIS e-journal systems. Present study shows that IR initiatives in the field of LIS as well as OA LIS e-journal systems in American and European countries are moving forward where as India is still lacking behind. Major of LIS repositories are OAI-PMH compliant but a chunk of OA LIS repositories are not supporting as a result data interoperability are impossible from one system to another system. Now a days, multilingual OA LIS repository systems and OA LIS e-journal systems is taking about but in reality major of OA LIS repositories as well as OA LIS e-journal systems are monolingual. In 2013, John Holdren, Barack Obama's director of the Office of Science and Technology Policy issued a memorandum directing United States' Federal Agencies with more than \$100M in annual R&D expenditures to develop plans within six months to make the published results of federally funded research freely available to the public within one year of publication.[6] In Indian context Government, R&D

institutions and other funding agencies are still not interested to host OA LIS repositories and OA e-journal systems. The stakeholders are mostly aware of the implications of open access, but they are awaiting for some concrete policy frameworks by the national accredited and granting agencies. The maintenance of quality and standards of OA LIS repositories and OA e-journal systems are considered as a major hurdle in expansion of higher education system. Open access to theses literature will bring under the purview of critical studies by scholarly forums and public review. A national-level mechanism is essential to promote OA LIS repositories and OA e-journals systems and improve awareness programme to the academic community of the availability of huge no of LIS resources to them. As a result, large number of resources will be available to academic domain of across the globe.

References

1. Open access: http://en.wikipedia.org/wiki/Open_access (Retrieved on 8th February, 2013)
2. Benefits of Open Access: <http://www.plos.org/about/open-access/> and http://www.openoasis.org/index.php?option=com_content&view=article&id=146&Itemid=308 (Retrieved on 8th February, 2013)
3. Open access definition: <http://www.soros.org/openaccess> (Retrieved on 8th February, 2013)
4. OpenDOAR: <http://www.opendoar.org/about.html> (Retrieved on 13th January, 2013)
5. DOAJ: http://en.wikipedia.org/wiki/Directory_of_Open_Access_Journals (Retrieved on 13th January, 2013)
6. White house govt. http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf (Retrieved on 22nd February, 2013)