

# Eprints@NML: Digital Repository of National Metallurgical Laboratory (CSIR), India

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The National Metallurgical Laboratory (NML), Jamshedpur, India established in 1950 under the aegis of the Council of Scientific & Industrial Research (CSIR), India has been catering to the needs of Indian industries in the area of minerals, metals and materials ([www.nmlindia.org](http://www.nmlindia.org)) through the pioneering vision of first Indian Prime Minister of Republic India, Pandit Jawahar Lal Nehru. It is the oldest metallurgical research laboratories in India having highly qualified engineers, technologists and researchers. The exceptional research legacy (since 1946) of NML was not well documented for wide spread utility of scientific community both inside as well as outside the laboratory. Therefore, NML Leadership strongly felt that an institutional repository be established to provide open access to the laboratory's Scientific products and research work.

NML-Knowledge Resource Centre took the lead and motivated the scientists and researchers to come forward with their intellectual products / documents to upload on the Eprints platform. Initially, the authors were reluctant to deposit their documents in Open Access repositories. The reasons could be: (i) uncertainty and fear on copyright issues, (ii) reservations regarding who and how the material would be used, (iii) uncertainty about who gets attribution, impact and scholarly credit, (iv) Myth of low quality material in institutional repositories, (v) Unfriendly submission procedures, (vi) Lack of mandatory provisions to deposit, and so on. However, these apprehensions could be overcome and that finally led to a high quality repository at NML.

Eprints – The open source software, developed at Southampton University in the United Kingdom, London and used for creating digital repositories was opted at NML and Eprints 3.1.3 was finally selected. A dedicated server was procured and installed in the NML-Knowledge Resource Centre (KRC). Eprints software was then installed and customized.



The repository was given a name Eprints@NML and launched services on September 19, 2009. Since inception, the repository has been growing steadily in terms of the number of records it holds and users it has attracted. As on date there are around 1570 documents uploaded in the NML repository by the scientists, researchers and library staff.

Open access eprints workshop were held and the participants were informed of the benefits of depositing NML research output in open access mode for (i) better visibility and wider access, (ii) better impact and citations, (iii) helps in establishing priorities for research areas, (iv) value added services like sorting of publications in author-wise, department-wise and year-wise formats, and (v) records of usage reports by others. These efforts are now bearing fruits in the form of Open Self-archiving repository on Minerals, Metals & Materials Science [<http://eprints.nmlindia.org>].

In September, 2009, there were 12,363 hits from 7 countries and 6,333 pages of downloads. Eprints@NML is registered with OALister, Open DOAR, ROAR and indexed by search engines like - Google, Google Scholar, Base, Scirus etc. A list of full-text requests of individual NML paper was directly emailed to the corresponding authors for onward action. NML Scientists received 5,421 enquires till September, 2010 which motivate them further to enrich the repository by uploading their research outputs. As a result, by the end of September 2010 there are above 1570 uploads against 328 documents in 2009. Accordingly, the access to the repository also increased phenomenally as given in Table 1.

Table 1: Monthly statistics of the access of NML Digital Repository

Month	Monthly Totals					
	Sites	Visits	Pages	Files	Hits	Countries
Sept-09	50	146	6333	7241	12363	7
Oct-09	328	1137	19742	23120	31329	21
Nov-09	665	1840	18309	21720	31183	43
Dec-09	727	2343	11086	14106	18907	36
Jan-10	973	4982	10736	15353	19231	51
Feb-10	1118	5262	15458	20718	24692	38
Mar-10	1515	8220	15770	24913	29689	50
Apr-10	1028	7305	13640	18180	21470	37
May-10	1123	8078	34131	37428	49619	50
Jun-10	1150	5997	50457	53505	68954	46
Jul-10	1427	5456	41329	44879	62519	53
Aug-10	1876	5214	43911	53505	72147	58
Sept-10	2244	6774	67393	81222	109381	92

A pictorial representation of the above data is given in Fig. 1, showing a remarkable increase in acceptance in nine months since inception. The total hits received from different countries are recorded as 5,08,013 during the last one year.

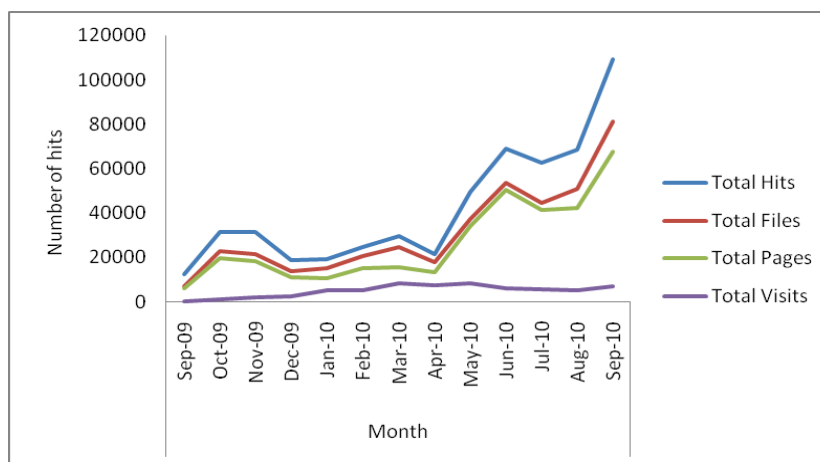


Fig. 1: Monthly Statistics of download hits, files, pages and visits

More than 40% of NML scientists got registered with Eprints@NML for uploading their documents. The type of documents is given in Table 2.

Table 2: Document types as on September 30, 2010

Document Type	Number	Description
Annual Report	51	Record of activities performed by the Institute
Article	1368	An article in a journal, magazine, newspaper
Book Section	85	A chapter or section in a book
Conference Item	35	A paper, poster, speech, lecture or presentation given at a conference, workshop or other event
Patent	9	A published patent
Thesis	8	A thesis or dissertation
Others	1	Something within the scope of the repository

In September 2010, an eight fold increase in hits is recorded over last year from 92 countries. A list of 12 countries is given in Table 3 having highest number of hits.

Table 3: Top 12 Countries accessing NML Eprints repository

Sl.No.	Country	Hits	Files	% of 5,36,125
1	United States	52016	44264	9.70
2	India	26709	26721	4.98
3	Russia	20443	17434	3.81
4	Switzerland	5373	5326	1.00
5	United Kingdom	4338	3810	0.81
6	Germany	2620	1972	0.49
7	Latvia	2250	2229	0.42
8	China	1923	1768	0.35
9	Netherlands	1766	1063	0.33
10	Italy	1379	738	0.26
11	Japan	1252	1153	0.23
12	Brazil	1227	896	0.23

The Online information seeker from different countries accessing the NML repository is shown in Fig. 2. It is observed from the Fig. 2 that foreign countries are accessing eprints@NML more as compared to India. During September, 2010, maximum hits are received from United States i.e. 47%.

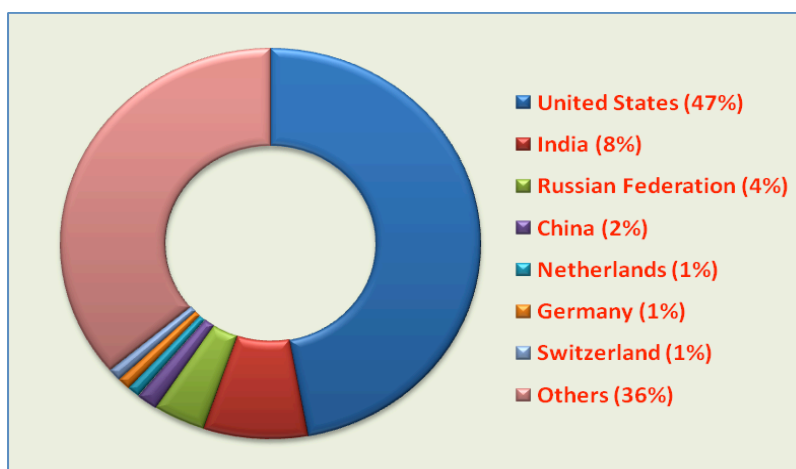


Fig. 2: Usage by Country during September 2010

In this context it is to be noted that NML used to publish one Technical Journal named '**NML Technical Journal**' (ISSN 0027-6839) since 1959 which is also a refereed Journal and abstracted in Metal Abstract, Chemical Abstract, Ceramic Abstract and in other databases. This journal was renamed as '**Journal of Metallurgy and Materials Science**' (ISSN 0972-4257 print ISSN 0974-1267 online) in 2000. Currently, the articles of the journals are uploaded in NML eprints. Interestingly, the maximum requests are being received for the full-text article of this journal.

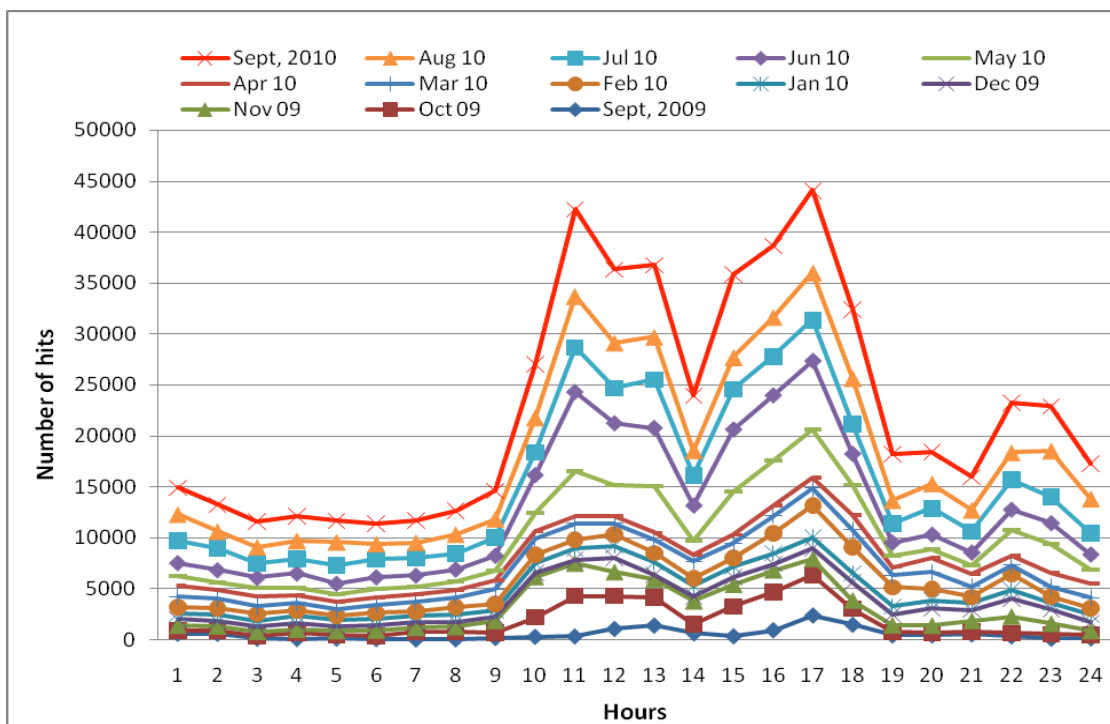


Fig. 3: Hourly Statistics of Hits

Having a mandate of CSIR for an “Open access” resource harvesting, NML India could rise up to the expectation with Eprints gateway. There was articulated interest among several researchers to publish in open source platforms but researchers remained initially reluctant. With the establishment of eprints@NML, it was possible to provide the researchers with substantial and subject-specific information on open access, and with the institutional repository, National Metallurgical Laboratory, India was able to implement a simple and easy solution for open access. Therefore, our researchers could project their intellectual products and other research outputs and draw an attention among their counterparts over the globe.

Finally, it can be concluded that there was an inner desire of Scientists/technologists for projection of a greater visibility of their research findings, as evident from the significant uprise of the data inputs from the Scientists. Further, this will also indirectly give rise to a moral boost to the technical and system administrative personnel for further developments of this platform.