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## A study on Pakistan's Digital Library

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Commissioned by INASP

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### Background

The Digital Library Programme was initially introduced as a collaborative project of Pakistan's Higher Education Commission (HEC) and United Kingdom-based INASP in 2003. Today, the Digital Library (DL) is a programme of the HEC and provides private and public sector institutions in Pakistan with access to international scholarly literature, such as academic journals and electronic-books (e-books), through online delivery. To date, INASP has provided a number of discounted subscriptions and this has saved Pakistan's Digital Library and its member institutions up to £ 1.7 million per year.

The accessibility and availability of research information is important for every scientist in order for them to do their research and to publish their results. Moreover, availability of scholarly literature forms a basis for critical and up-to-date teaching and learning in higher-education institutions, thus contributing to the functioning of the higher-education and research environment.

It is an achievement that more than 75,000 e-books and academic articles have been made available through the Digital Library Programme and that, at the same time, publication output by Pakistani researchers has increased by more than 500%. This is despite the facts that the HEC and the Digital Library has had a reduction in funding in recent years and that the HEC is facing calls for decentralization.

These developments bring up important questions about the future of the still-centralized Digital Library and its services:

- 1) What are the achievements and effects of the HEC Digital Library programme, focussing on its goal to make international scholarly literature available?
- 2) What is the HEC Digital Library's contribution to the country's higher-education and research environment?
- 3) What do the achievements of the Digital Library and the HEC's contribution to higher education and the research environment, say about the future development of the HEC Digital Library programme in Pakistan?

### The study

In order to answer these questions, a study was initiated which employed three main methodological steps:

1. In the first exploratory phase, a literature review of past research was carried out and Pakistan country data of subscriptions, full-text downloads and Scimago research outputs were collected. On the basis of the reviewed documents and data, exploratory interviews with HEC digital library officials and two librarians at two universities in Islamabad were conducted. The feedback from these interviews and information from the literature review was used to inform the next step.
2. Six universities were selected for semi-structured interviews with researchers, librarians and policymakers. Universities were selected according to the following criteria for a heterogeneous

sample: public & private, natural & social science, and region (see Table 1). Information gathered from the interviews was analysed regarding recurrent themes and then used to formulate a structured questionnaire for an online survey in order to triangulate findings and make a judgment on generalizability of results.

**Table 1: Universities selected for interviews**

University	City	Ownership	Area of specialization	No. of Interviews
University of Management and Technology	Lahore	Private	Business and Economics	8
University of Central Punjab	Lahore	Private	Business and Economics	4
CECOS University Of IT and Emerging Sciences	Peshawar	Private	Engineering	6
Mohammad Ali Jinnah University	Islamabad	Private	Engineering	1
Department of Political Science, University of Peshawar	Peshawar	Public	Social Sciences	7
H.E.J. Research Institute of Chemistry, University of Karachi	Karachi	Public	Natural Sciences	9

- An online survey was sent out to 548 researchers and librarians of 503 institutions in Pakistan. The researcher survey had a response rate of 26% (n=136, female = 33, male = 103) and the librarian survey 6% (n=30, female = 10, male = 20). Both surveys do not claim to be representative of their respective populations but represent a variety of disciplines and institutions, including private and public universities and research institutes. The surveys targeted the users of the Pakistan Digital Library particularly their perception, awareness, possible problems, and satisfaction.

## Findings

### *Literature and monitoring data*

In theory, all public and private sector universities in Pakistan are part of the DL programme. This means that the basic resources – those for which the Higher Education Commission (HEC) has acquired a country-wide licence without any restrictions – are to be made available for free to them. Other resources, not covered by such a ‘flat-rate’ agreement are made available to individual institutions upon subscription and in such a case half of the fee is contributed by HEC. The subscription fees can vary a lot from publisher to publisher and also from year to year.

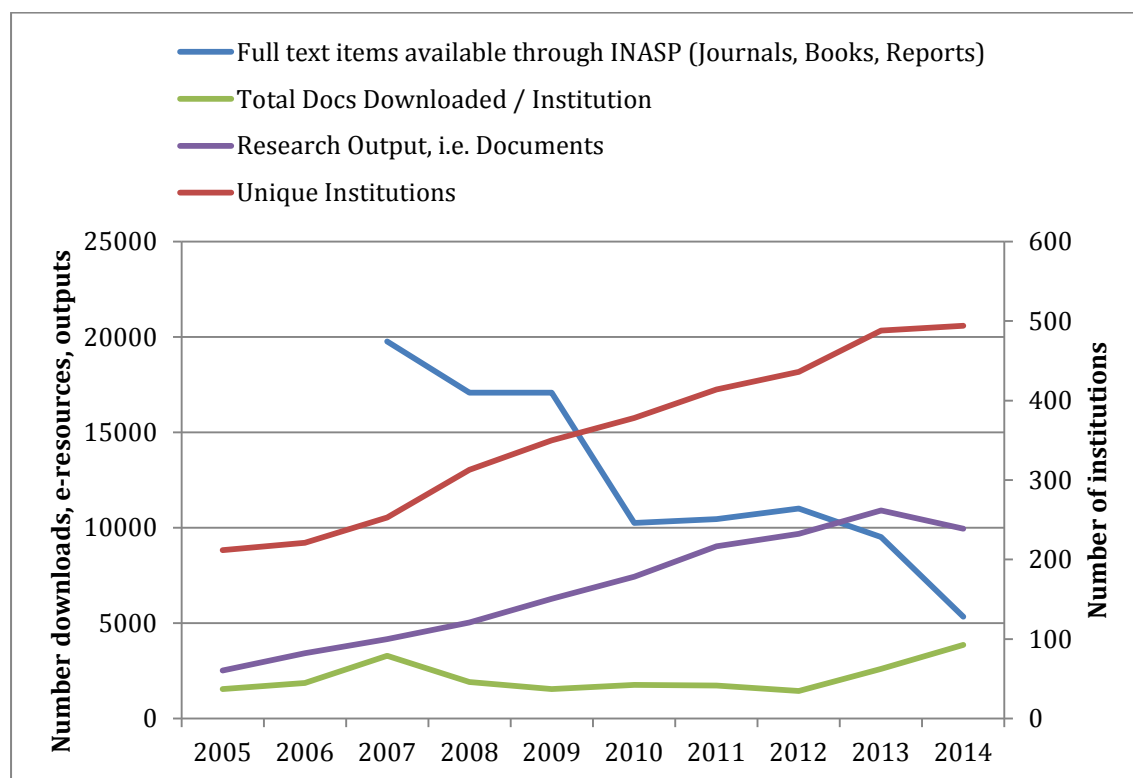
In parallel to the HEC DL, INASP provided and still provides direct access to e-resources. **The number of e-resources subscribed through INASP is decreasing**, from just less than 20,000 in 2007 to just over 5,000 in 2014 (blue line in Figure 1). There might be a variety of reasons for the decreased availability of e-resources, including, amongst other reasons, that INASP has been gradually handing over the negotiation with publishers and subscription to e-resources to the HEC digital library programme. This is reflected in the monitoring data. Subscriptions by the HEC are not fully reflected in the INASP data.

**Research output in Pakistan has been increasing steadily over the last decade** (purple line in Figure 1). One factor for this were the investments made into higher education and universities, jumping from Rs 3.9 billion in 2001-02 to Rs 21.7 billion in 2005-06. A large amount of the money was

spent on human resources, but also research grants, high-speed internet facilities and the digital library programme.<sup>1</sup>

**The number of institutions who are part of the HEC Digital library programme and access e-resources has increased steadily**, from 212 in 2005 to currently 503 (red line in Figure 1). These institutions appear in the graph because they receive INASP-handled subscriptions. They may have individual or other subscriptions as provided by the HEC.

**Per institution, the number of e-resources downloaded is relatively steady over time** and increasing slowly over the last years (green line in Figure 1). This is despite the growing number of institutions. The currently developing peak (in 2015) can be explained partly with the availability of Springer Link e-resources which are widely used.



**Figure 1: INASP data on availability of e-resources, their usage measured through downloads and number of subscribed institutions, Scimago research output over the course of the last decade in Pakistan. Please note that the number of e-resources available exceeds the figures presented here as institutions buy additional e-resources directly rather than through INASP.**

### *Interviews in public and private universities*

**There is a lack of awareness and training on the DL programme in private but not in public universities.** Some interviewees from private universities were not aware of the Digital Library programmes and a few (three of 19) raised the lack of training in the use of DL content as an issue. A senior faculty member at University of Central Punjab) while talking on training activities said, “Stakeholders are mostly unaware as training is lacking.” This stands in contrast to the interviews conducted in public universities, which suggest better awareness as well as capacity-building programmes for the Digital library. At HEJ Research Institute of Chemistry, such capacity-building programmes were mandatory and part of the fresh graduate and students’ orientation programme. Staff and students were kept updated on new resources and their usage. At University of Peshawar,

<sup>1</sup> Osama, A., Najam, A., Kassim-Lakha, S., Zulfiqar Gilani, S., & King, C. (2009). Pakistan’s reform experiment. *Nature*, 460 (7260), 38–39. JOUR. Retrieved from <http://dx.doi.org/10.1038/460038a>

such capacity-building programmes were held from time to time, although it was not mandatory to attend them nor were they part of any orientation programme.

**There was a lack of clarity about availability and costs in private universities.** Some DL users from private universities were unclear about which resources are freely available to them, which require a subscription (six out of 19 interviewees) and how much such subscriptions would cost. Some resources that are actually part of HEC Digital library basic resource (and in theory freely available to all universities) were not accessible.<sup>2</sup> A Ph.D. faculty in a management position at University of Central Punjab complains that, *“We are still unclear which resources are supposed to be freely available through the DL Programme.”* A Ph.D. faculty member at CECOS University notes that, *“We don’t know what it would cost to subscribe to the journals we need”.*

**Some interviewees from private universities said that content availability has worsened over time.** This was mentioned by six out of 19 interviewees. A similar notion could not be found in interviews done in public universities. A senior staff member at University of Management and Technology commented on this situation saying, *“Till 2011 access was fine, but the next three years were terrible.”* Similarly, there is a perception that private universities are discriminated against by the HEC DL. Seven out of 19 interviewees from private university faculties and research students felt very badly about their institutes not being able to access content that, in their opinion, was freely available to public universities. A Ph.D. faculty member at the University of Management and Technology said that, *“Public universities have access for content which is blocked for their private counterparts; this needs to end.”*

**Alternate means to access e-resources.** Anonymously interviewees shared details on the alternate means which they use to access content, even if at times these means were not fully legal or legitimate. The use of various LibGen sites, Facebook groups and other such peer groups is on the rise. An assistant professor noted that, *“It’s a big issue, as acquiring journals (illegally) is easy, but it damages the reputation of our country and university as everyone knows we don’t have access to those journals we cite!”*

**Access of e-resources from home is demanded by interviewees but was not possible in either the public or private universities.** The issue of access to Digital library through virtual logins outside the campus was critical for more than half of all interviewees in public universities and for 4 out of 19 in private ones. An Assistant Professor from University of Central Punjab suggested, *“I think students and faculty should have direct access, through VPN. This is what the research culture is everywhere and should be the case here as well.”*

**Due to the nature of the societies as well as a culture that does not allow females working after sunset, female researchers are disadvantaged.** Two female interviewees lamented that the closing time of their libraries prevented them from accessing e-resources. Their male counterparts did not have this issue, as they could still use other places like the central library or even use their own laptops while at the university to access the digital library. This issue, however, was not highlighted by the five female interviewees in University of Karachi.

**There is a lack of Pakistani journals in the digital library.** Some interviewees raised the issue that there is a lack of Pakistani journals in the digital library. Almost all participants emphasized the need for strengthening local journals. They cited lack of incentives to publish research locally, emphasis on publishing in highly cited foreign journals, poor standards and quality of local journals and weaknesses in their peer-review process, as the main reasons for not supporting local journals more.

### *Survey of Pakistani researchers and librarians*

**Steady and high-quality e-resource provision is key for Pakistan’s higher-education institutions.** Librarians surveyed overwhelmingly agree (20 out of 26) that HEC’s DL has played a vital role in providing digital content to their respective institutions.

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<sup>2</sup> Interestingly, during the interview we tried to access content that should have been part of the basic resource but it showed to be protected and was accessible only after payment.

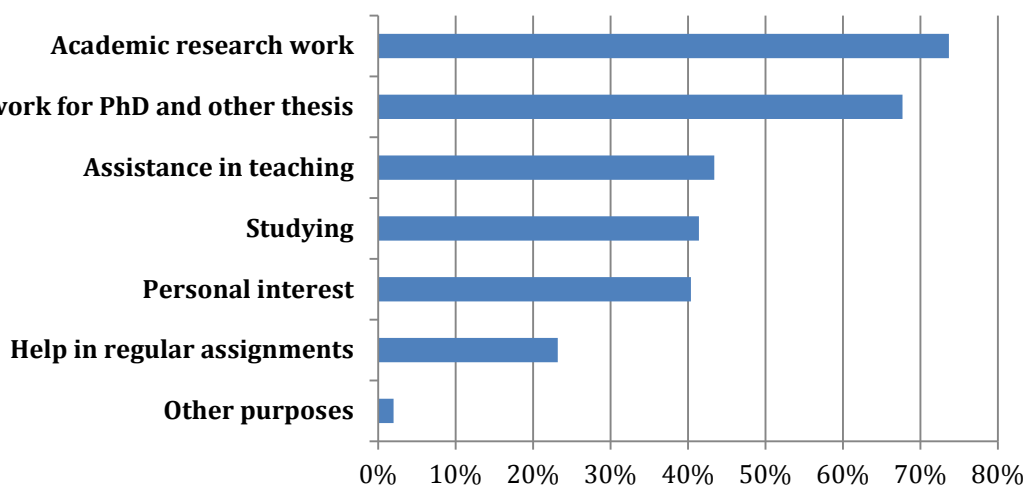
19 out of 22 librarians think that access has improved or stayed the same over time. Regarding the researchers, 80% think that access to e-resources has either stayed the same or improved over time and 50% consider services provided by the HEC DL to their institution at least as 'good'. Differences between public and private universities regarding any of the questions asked were not found.

**There is overall awareness about the Digital Library, but availability and costs are not transparent enough for all librarians.** Close to 100% of the responding librarians, irrespective of their institutional affiliation, are aware of HEC's DL services provided to their institution. The big majority of them are aware of the services provided by the Digital Library (28 out of 30), but a smaller majority has a clear picture about the e-resources available through the Digital Library (20 out of 26) and respective costs of subscriptions (15 out of 26). Likewise, 60% of respondents to the researcher survey are aware of the services by HEC's DL for access to e-resources in their institutions.

**The majority of librarians think that DL content cannot be accessed from home, that there is no regular training for accessing e-resources, that low-bandwidth is a problem and that some institutions have more access than others.** 15 out of 26 librarians don't think their students can access content from the DL from home. However, 70% of the researchers said that they would conduct online literature research from home as well.

50% (13 of 26) of the librarians surveyed said that their institutions do not offer regular training to students. Researchers responded that about 35% have not received training and more than 30% are not aware of any in their institution. 68% (17 of 25) librarians agree that low bandwidth is a problem when accessing e-resources, whereas only 22% of researchers think it is a problem. 70% of librarians (14 of 19) think that some institutions can access content that their own institution cannot, whereas 35% of researchers say the same.

**Survey respondents highly rely on e-resources for their research, studying and teaching** (see Figure 2). Over 70% of the researchers said that they conduct online literature searches frequently or even very frequently; 50% conduct literature searches every day or more than once every day. More than 90% of the researchers responding to the survey think that e-resources played a key role for the work.



**Figure 2: What e-resources are commonly used for by survey respondents**

**Respondents to the researcher survey use alternative sources for accessing e-resources in case it is not available.** The most important sources are public universities, particular Facebook groups, or their peer-networks.

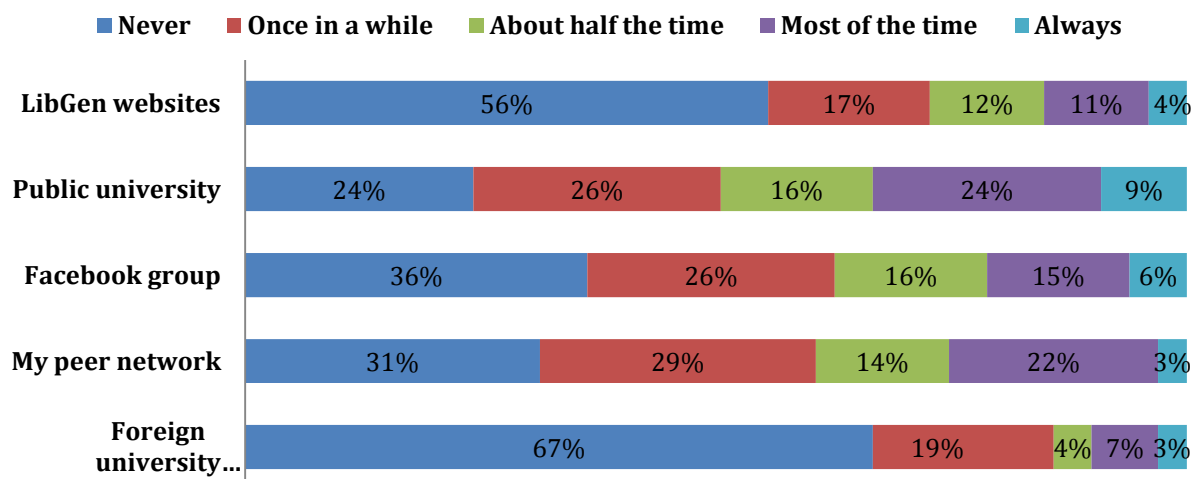


Figure 3: Alternative Sources of e-resources in case they are not available

## Discussion

The goal of this study was to assess the effects of the HEC Digital Library programme for higher education and research in Pakistan. To this end, the study draws on literature and monitoring data review, interviews with key informants in universities and libraries, and two online surveys targeted at researchers and librarians.

The number of institutions in Pakistan who are part of the HEC Digital library programme and who access e-resources has increased steadily over the last decade. This went hand in hand with a growing research output in Pakistan.

Findings from the interviews were not corroborated by the surveys: Differences between private and public institutions (as suggested by the interviews) were not found in the survey regarding any of the questions asked around availability and access of e-resources. There are prevailing perceptions that some institutions have access to more e-resources than others (in survey and also in the interviews). However, these may be explained by additional subscriptions held by those institutions rather than a discrimination against private universities by the HEC DL (as findings from interviews suggested). Similarly, the majority of researchers and librarians surveyed think that quality of access has improved or stayed the same over the last years. This is in contrast to the perception of some interviewees.

### *What are the achievements and effects of the HEC Digital Library programme, focussing on its goal to make international scholarly literature available?*

Researchers, students and staff in over 500 research institutions in Pakistan are able to access e-resources free of charge for which the HEC DL has acquired a country-wide licence. Further institutional subscriptions are subsidized with 50% of the costs paid for by the HEC DL. Despite these great achievements, there are practical challenges that have been found in interviews and the two surveys:

Some interviewees had concerns about the clarity of the e-resources available, additional subscriptions and transparency of costs. These are partly reflected in the survey results as well. Not all librarians are clear about the e-resources available through the DL and only a small majority thinks that costs are transparent. A reason for this might be that not all librarians are also contact persons for the DL programme.

In discussions with HEC digital library officials, it was revealed that librarians should take on the role of DL contact persons, but that they sometimes do not have the IT capacity or do not want an additional duty. Hence the role is often taken over by faculty members and/or IT professionals on a part-time basis.

Results from the survey and the interviews suggest that there are problems with accessing e-resources provided by the Digital Library from home, which is also one of the main places where literature searches are conducted. Interviewees said they would like a virtual, login-based access to

e-resources rather than IP-based. The survey results as well as some interviews suggest that alternative means to access e-resources are used when the desired e-resources are not available through the DL.

Accessing the Digital Library from home, away from university campuses needs to be explored. This has been brought up repeatedly in the interviews as well as in the survey. This is especially true for females in conservative cities, who cannot use their library after sunset and for students and faculty who are officially on leave from university to pursue their degrees but still have to return to university to access material.

### *What is the HEC Digital Library's contribution to the country's higher-education and research environment?*

Much more than in the interviews, the survey results point out that e-resources in general and the services provided by the DL are very important for researchers and their institutions. E-resources are used for research, teaching and studying. This is underlined by the growing number of institutions accessing DL content and the constant (even slightly growing) level of full-text downloads over recent years. For the access that the DL cannot provide, data from the interviews and surveys suggests that alternative means are used in order to gain access to e-resources (Facebook pages, peer network and LibGen websites).

### *What can results of this study say about the future development of the HEC Digital Library programme in Pakistan?*

INASP's long experience has shown us that accessibility and availability of research information is important for every scientist to do research and to publish results. Similarly, availability of scholarly literature forms the basis for critical and up-to-date teaching and learning in higher-education institutions, thus contributing to the functioning of the higher-education and research environment.

This study found that the e-resources and services as provided by Pakistan's Digital Library are important for research, studying and teaching. We can expect demand for these services to expand in the future as the number of higher-education institutions, enrolment ratios and public expenditure on higher education continue to grow.<sup>3</sup> Pakistan's Vision 2025 outlines that to "achieve the objective of developing a knowledge economy, we target a sizeable increase in public expenditure on higher education currently from 0.2% of GDP to 1.4% of GDP and significant expansion in higher education enrolment currently from 1.5 million to 5 million" (Pakistan Vision 2025).

However, certain shortcomings – which have been highlighted in detail by our study – need to be addressed in order to change the perception of users in favour of Pakistan's Digital Library and to ensure the use of e-resources for high-quality teaching and research in Pakistan. Otherwise, users may start relying less on the DL and more on alternate means, which would be a sad development from an academic as well as a legal viewpoint.

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<sup>3</sup> <https://www.timeshighereducation.com/comment/safety-numbers-higher-education-pakistan>;

*Pakistan Vision 2025*;

UNESCO Institute for Statistics, World Development Indicators: [Gross enrolment ratio, tertiary, both sexes \(%\)](#) accessed 15.09.2016