

**WEBOMETRIC ANALYSIS OF NATIONAL LIBRARIES' WEBSITES  
IN ASIA: AN EVALUATIVE STUDY**

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WEBOMETRIC ANALYSIS OF NATIONAL LIBRARIES' WEBSITES  
IN ASIA: AN EVALUATIVE STUDY

BY

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Submitted in partial fulfillment of the requirement of the Degree of Doctor of  
Philosophy in Library and Information Science of Mizoram University, Aizawl.



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### **CERTIFICATE**

This is to certify that **Krishna Brahma**, Ph.D. Scholar of the Department of Library and Information Science, Mizoram University has written her thesis titled “**Webometric Analysis of National Libraries’ Websites in Asia: An Evaluative Study**” under my supervision. To the best of my knowledge and belief, the work embodies her original investigation and findings and has not published anywhere. I consider it worthy for the Degree of Doctor of Philosophy (Ph.D.) in Library and Information Science of the Mizoram University.

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## **DECLARATION**

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August 2019

I, **Krishna Brahma**, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to do the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

This is being submitted to the Mizoram University for the degree of **Doctor of Philosophy in Library and Information Science**.

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Aizawl, Mizoram

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Dated:

## PREFACE

The development of internet technology, especially TCP/IP, WWW, accelerated the popularity and services of internet and one can easily access linked throughout the globe with the help of WWW. The continuous research and development in the field of information communication technology (ICT) and their applications to the library were always been posing new challenges for the library professionals. In the changing context of information, the job of library professionals has become more challenging and it requires a multiskilled personnels to manage the library. In 1990, Tim Berners-Lee invented the World Wide Web and was released by CERN. The internet eases and increases access to a large amount of data.

In the present era, websites have become the important source of information. Library websites are the gateway to institution's resources as it gives potential for reaching wider users. The website developer should maintain the website regularly to give updated information to the visitors. This will encourage more visitors to the website resulting to great exposure of the library and its contents. Libraries need to stay updated with latest technologies for better services and satisfying diverse users' needs. As libraries have transformed into digital and virtual libraries. Therefore, the present study "**Webometric Analysis of National Libraries' Websites in Asia: An Evaluative Study**" was brought out to analyse the highly rated national library website in Asia. The complete thesis is arranged under the following six chapters to look into the problem:

**Chapter-I** presents a brief introduction of the research problem, objectives, scope of the study and research methodology.

**Chapter-II** gives a review of the literatures related to the present study. An attempt has been made to embrace only those studies which are directly related to the present study.

**Chapter-III** gives an overview of role of national libraries, library professionals and library website. Further, it gives an overview of the national libraries' website/homepage in Asia.

**Chapter-IV** discusses the conceptual approach of webometrics and discusses about the relationship of the five metrics, i.e., bibliometrics, scientometrics, informetrics, cybermetrics and webometrics. It also discusses about the detailed information of web link structure analysis, web impact factors, content analysis and its types, web usability analysis, link analysis, website navigation, and also gives brief on webometric terminologies.

**Chapter-V** provides a comprehensive discussion on the collected data from the national library website/webpage of Asia and analysed the data to answer the objectives formulated for the study. It further gives the findings of the study.

**Chapter-VI** provides the findings of the study according to the objectives formulated and further gives the overall conclusion of the study and suggestions based on the study.



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## LIST OF ABBREVIATIONS

TERM	DESCRIPTION
AIT	Akshaya Institute of Technology
BHU	Banaras Hindu University
BRICS	Brazil Russia India China South Africa
CD-ROM	Compact Disc Read-Only Memory
CD/DVD-s	Compact Disc/Digital Versatile Disc
CIFA	Central Institute of Freshwater Aquaculture
ccTLDs	Country Code Top-Level Domains
CIFRI	Central Inland Fisheries Research Institute
CIFT	Central Institute of Fisheries Technology
CIS	Commonwealth of Independent States
ELWIF	External Link Web Impact Factor
EWIF	External Web Impact Factor
FAQs	Frequently Asked Questions
FLDs	Followed Linking Domains
GIF	Graphics Interchange Format
gTLD	generic Top Level Domain
HEIs	Higher Educational Institutes
HMSIT	H.M.S Institute of Technology
HSL	Health Science Library
HTML	Hyper Text Markup Language
ICMR	Indian Council of Medical Research
ICT	Information and Communication Technology
ICTL	Information and Communication Technology Literacy
IFLA	International Federation of Library Associations and Institutions
IIIT	International Institute of Information Technology
ILL	Inter Library Loan
IIM	Indian Institute of Management
IISC	Indian Institute of Science

IIT	Indian Institute of Technology
IP	Internet Protocol
IRCDO	Islamic Revolution Cultural Documentation Organization
ISI	Institute for Scientific Information
ISICAL	Indian Statistical Institute
IWIF	Internal Web Impact Factor
JIF	Journal Impact Factor
JPG/JPEG	Joint Photographic Experts Group
KIT	Kalpathru Institute of Technology
LD	Linking Domain
MSN	Microsoft Network
MS-Word	Microsoft-Word
MZU	Mizoram University
NDL	National Diet Library
NE	North East
NEHU	North Eastern Hill University
NGOs	Non-Governmental Organizations
NIC	National Informative Centre
NL	National Library
NLC	National Library of China
NLR	National Library of Russia
NLS	National Library of Singapore
NLW	National Library Websites
OPAC	Online Public Access Catalog
PDF	Portable Document Format
PNG	Portable Network Graphics
PNT	Persistent Navigation Tool
RK	Republic of Kazakhstan
RRRLF	Raja Rammohun Roy Library Foundation
RSS	Rich Site Syndication
RWIF	Revised Web Impact Factor

SAARC	South Asian Association for Regional Cooperation
SLA	Special Libraries Association
SLWIF	Self-Link Web Impact Factor
SPSS	Statistical Package for the Social Sciences
SSIT	Sri Siddhartha Institute of Technology
SSSIHL	Sri Sathya Sai Institute of Higher Learning
SWIF	Simple Web Impact Factor
TEBROC	Tehran Book Processing Centre
TLD	Top Level Domain
UGC	University Grants Commission
UK	United Kingdom
ULA	University Librarian Association of Sri Lanka
UPE	University with Potential for Excellence
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
USA	United States of America
WIF	Web Impact Factor
WISER	Web Indicators for Science, Technology and Innovative Research
WMV	Windows Media Video
WWW	World Wide Web

**CHAPTER- 1**  
**INTRODUCTION**

## **OBJECTIVE OF THE CHAPTER**

The objectives of this chapter is to give a brief introduction about the research work, conceptual framework about Webometrics and its different aspects, an overview of National Libraries in Asia, highlight the significance and scope of the study, research design, objectives and methodology of the study.

### **1.1. INTRODUCTION**

A library website is a virtual public face of the library- the quasi equivalent of the front door, signage, pathfinders, surrogates to the collections, services, and, to an extent, its people. Because library websites compete with a host of other internet services and organizations for clientele, they must capture and motivate the user, provide useful, innovative, and interactive services and products, give the library some form of identity, and encourage repeat visitation while holding the interest of users and simplifying their tasks (McGillis & Toms, 2001; Walia & Gupta, 2013).

A National Library is a library specifically established by the government of a country to serve as the preeminent repository of information for that country. Unlike public libraries, these rarely allow citizens to borrow books. Often, they include numerous rare, valuable, or significant works.

The first national libraries had their origins in the royal collections of the sovereign or some other supreme body of the state. National libraries are usually notable for their size, compared to that of other libraries in the same country. Some states are not independent but wish to preserve their particular culture have established a national library with all the attributes of such institutions, such as a legal deposit. (Source: [http://www.newworldencyclopedia.org/entry/National\\_library](http://www.newworldencyclopedia.org/entry/National_library)).

A National library acts as the central library of the state and one of the most important cultural institutions in many countries. Its mission is to protect national heritage preserved in the form of handwritten, printed, electronic, recorded sound and audio-visual documents.

The first national library was founded in 1753 as part of the British Museum. This new institution was the first of a new kind museum- national belonging to neither church nor king, freely open to the public and aiming to collect everything.

One of the key objectives of a national library is to collect, preserve, cultivate the culture of reading among its citizens it also seeks to endow the treasures of knowledge, heritage, and culture in general, with an emphasis on the rules and laws of the land in that particular country. Culture and heritage can be preserved depending on what are the beliefs of the people of that nation (Source: <https://www.bibliotechzw.com/blog/types-of-libraries-national-libraries/>).

A website is a collection of related web pages, images, videos or other digital assets that are addressed relative to a common Uniform Resource Locator (URL), often consisting of only the domain name or the IP address, and the root path ('/') in an Internet Protocol-based network.

National libraries around the world maintain their websites which are used to offer a wide range of information, consistent with their wide range of activities, as compared to other types of libraries (Haneefa & Venogopal, 2010).

## **1.2. WORLD WIDE WEB**

Websites and the Internet have now become an integral part of library service across the world in general and Asian countries in particular. Nowadays, via ICT-assisted dynamic environment, national libraries facilitate their users in many ways to provide their services in fingertips. ICT and the World Wide Web (WWW) has become the most important communication tool for accessing and sharing information on the internet.

A website is a collection of the webpage and the entry page of the website is called the homepage of the website. The homepage is the index page of the whole website, so it should be designed wisely so that each and every piece of information should be connected from it without any repetitions (Walia & Gupta, 2013).

The World Wide Web (WWW or Web) is the most remarkable and magnificent service of the internet and regarded as one of the most innovative services of the 21<sup>st</sup> century. If the National Library website is more attractive and informative, it can easily capture the attention of library users and web surfers.

Library website/web pages are the primary source of information of an institution/organization where they disseminate and provide access to information to the users. Today, the web is one of the main sources of information and the major showcase for everyone (institutions, business enterprises, individuals, etc.) who want to be recognized on in the 'real world' (Aguillo, Ortega and Fernandez, 2008).

The World Wide Web (WWW) is a network of online content that is formatted in HTML and accessed via HTTP. The term refers to all the interlinked HTML pages that can be accessed over the Internet. The World Wide Web was originally designed in 1991 by Tim Berners-Lee while he was a contractor at CERN. The World Wide Web is what most people think of as the Internet. It is all the Web pages, pictures, videos and other online content that can be accessed via a Web browser. It is most often referred to simply as "*the Web*". The Internet, in contrast, is the underlying network connection that allows us to send an email and access the World Wide Web. The early Web was a collection of text-based sites hosted by organizations that were technically gifted enough to set up a Web server and learn HTML. It has continued to evolve since the original design, and it now includes interactive (social) media and user-generated content that requires little to no technical skills (Source: <https://www.techopedia.com/definition/5217/world-wide-web-www>).

### **1.3. WEBOMETRICS**

The term webometrics is a coinage from two modern English words, "web" and "metric". The word web is short of WWW. The Dictionary of Science defines web as a hypermedia system... that allows users to view and retrieve information from documents containing links". On the other hand, metrics have to do with counting or measurement. Webster's

Comprehensive Dictionary of English Language defines metrics as: “the mathematical theory of measurement.” (Babu, Jeyshankar & Rao, 2010).

Webometrics subsequently rose to become a large coherent field within information science, at least from bibliometric perspective, encompassing link analysis, web citation analysis and a range of other web-based quantitative techniques. In addition, webometrics, became useful in various applied contexts, such as to construct the world webometrics ranking of universities and for scientometric evaluations or investigations of bodies of research or research areas (Source: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/bult.2012.1720380606>).

Webometrics was one of the methodologies developed during mid-1990s concerning the quantitative aspects of information and met with confusion about its scope and relation to the other emerging fields namely Netometrics, Webometry, Internetometrics, Cybermetrics and Webometrics among others. This was due to the fact these methods were developed drawing on ideas from bibliometrics (Arunachalam, Koumpis & Handschuh, 2018). Bjerneborn and Ingwersen in redefined webometrics as a subfield of Cybermetrics and sharing ideas with Bibliometrics and Scientometrics (Bjerneborn & Ingwersen, 2004).

Webometrics research has been conducted by both information scientists and computer scientists, with different motivations. Within information science, webometrics has expanded from its initial focus on bibliometric-style investigations to more descriptive and social science-oriented research. It seems likely that webometric techniques will continue to evolve in response to new web developments, seeking to provide valuable descriptive results and perhaps also commercially applicable data mining techniques (Thelwall, (2007). Webometrics includes link analysis, web citation analysis, search engine evaluation and purely descriptive studies of the web. (Source: [http://shodhganga.inflibnet.ac.in/bitstream/10603/21326/12/12\\_chapter%204.pdf](http://shodhganga.inflibnet.ac.in/bitstream/10603/21326/12/12_chapter%204.pdf)).

Webometric displays several similarities to informetric and scientometric studies as well as the application of common bibliometric and informetric methods. For instance, simplistic counts and content analysis of webpages can indeed be seen as analogous to traditional



publication analysis; counts and analyses of outgoing links from webpages, here named outlinks, and of links pointing to webpages, called inlinks, can be seen as somehow similar to citation analyses. Outlinks and inlinks are then regarded like references and citations, respectively, in scientific articles. Since the Web consists of contributions from anyone who wishes to contribute, its quality of information and knowledge is opaque owing to the lack of peer-reviewing. Hence the Web most frequently demonstrates web pages of non-scientific nature or contents (Ingwersen & Bjorneborn, 2004).

### **1.3.1. WEB IMPACT FACTOR ANALYSIS**

Ingwersen demonstrated (1998) the difference between counts of inlinks and counts of inlinking pages in his attempt to calculate the Web Impact Factor (WIF) for national domains and individual sites. The underlying idea was that the WIF could say something about the awareness, authority or recognition of national sites (on average) or individual sites - but not necessarily quality. The study found three interesting results relevant from a methodological perspective. 1) Since the Alta Vista search engine cannot count the actual number of inlinks to particular sites, but only the number of pages that are sources of an inlink at least once, selflinking will not influence the overall WIF. The external node inlinks, for instance, site inlinks, or TLD inlinks, hence becomes the important score to observe. This is because for each new webpage within a given site providing one or more links to its own site, both the numerator and the denominator increase with the score 'one', given that the analysis unit is webpages. 2) The WIFs for individual websites was more unreliable than that of top-level domains, such as countries. This was, however, owing to the instability of the 'old' AltaVista at that time found late (Rousseau, 1999). 3) The variance in the WIF calculations, also between engines, could be applied as a Web engine evaluation measure, i.e., as an indicator of engine performance. However, the instability and variance was probably fortunate, since it already, in the case of Ingwersen (1998), gave cause to prudence in applying the methodology and the interpretation of results (Ingwersen & Bjorneborn, 2004).

### **1.3.2. LINK ANALYSIS**

Link analysis is the quantitative study of hyperlinks between web pages. The use of links in bibliometrics was triggered by Ingwersen's Web Impact Factor (WIF), created through analogy to the JIF, and the potential that hyperlinks might be useful by bibliometricians in ways analogous to citations, e.g. The standard WIF measures the average number of links per page to a web space (e.g. a website or a whole country) from external pages. (Source: [http://shodhganga.inflibnet.ac.in/bitstream/10603/21326/12/12\\_chapter%204.pdf](http://shodhganga.inflibnet.ac.in/bitstream/10603/21326/12/12_chapter%204.pdf)).

### **1.3.3. WEB CITATION ANALYSIS**

A number of webometric investigations have focused not on websites but on academic publications; using the web to count how often journal articles are cited. The rationale behind this is partly to give a second opinion for the traditional ISI data, and partly to see if the web can produce evidence of wider use of research, including informal scholarly communication and for commercial applications. A number of studies have shown that the results of web-based citation counting correlates significantly with ISI citation counts across a range of disciplines, with web citations being typically more numerous. Nevertheless, many of the online citations are relatively trivial, for example appearing in journal contents lists rather than in the reference sections of academic articles. If this can be automated then it would give an interesting alternative to the ISI citation indexes (Source: [http://shodhganga.inflibnet.ac.in/bitstream/10603/21326/12/12\\_chapter%204.pdf](http://shodhganga.inflibnet.ac.in/bitstream/10603/21326/12/12_chapter%204.pdf)).

### **1.3.4. CONTENT**

The *Encyclopedia Dictionary of Library and Information Science* defines "content" as the essential matter or substance of a written work or discourse, as opposed to its form or style. In a more general sense, all the ideas, topics, facts, or statements contained in a book or other written work. The *Dictionary of Library and Information Systems* (2005) elaborates the meaning of content as a "table of contents" but seldom used in this form. 1. A list of the 'preliminaries' and chapter headings of a book in their correct order, or of articles in a periodical, with the number of the pages on which they begin. 2. A list of the musical works

contained in a printed collection of music or in an album of recordings or of those recorded on a single record or cassette. 3. A list of items recorded on videotape.

The *Harrod's Librarians' Glossary and Reference Book* (2005) explains the meaning of content as “the intrinsic information and data stored in and communicated by any document – printed or electronic- that make it useful and usable to End users. It is distinguished from the printed format, distribution channel or network that carries it. Content can include all forms of textual material and manuscripts, sound, moving and still images, bibliographic datasets, statistical and other forms of data. (Devi, 2017).

#### **1.3.4.1. CONTENT ANALYSIS**

Content analysis is a research technique used to make replicable and valid inferences by interpreting and coding textual material. By systematically evaluating texts (e.g., documents, oral communication, and graphics), qualitative data can be converted into quantitative data. Although the method has been used frequently in the social sciences, only recently it has become more prevalent among organizational scholars.

Content analysis is valuable in organizational research because it allows researchers to recover and examine the nuances of organizational behaviors, stakeholder perceptions, and societal trends. It is also an important bridge between purely quantitative and purely qualitative research methods. In one regard, content analysis allows researchers to analyze socio-cognitive and perceptual constructs that are difficult to study via traditional quantitative archival methods. At the same time, it allows researchers to gather large samples that may be difficult to employ in purely qualitative studies (Source: <https://www.terry.uga.edu/management/contentanalysis/research/>).

#### **1.4. SEARCH ENGINE EVALUATION**

Evaluation involves assessing the performance of search engines to improve their effectiveness. It is a continuous process of investigating the new approaches of study, appraisal, and improvement of search engine.

The term “search engine” was originally used to refer to specialized hardware for text search. From the mid-1980s onwards, however, it gradually came to be used in preference to “information retrieval system” as the name for the software system that compares queries to documents and produces ranked result lists of documents. Web search engines, such as Google and Yahoo, must be able to capture or crawl, many terabytes of data, and then provide subsecond response times to millions of queries submitted every day from around the world (Croft, Metzler & Strohman, 2015).

### **1.5. NATIONAL LIBRARIES IN ASIA**

The growth and advancement of national libraries have been a conspicuous feature of the intellectual and cultural development of a country. Not only they have grown in size, particularly in the last half a century, they have also expanded in multifold dimensions, tending to develop into a network of national libraries (Source: <http://egyankosh.ac.in/bitstream/123456789/33048/1/Unit-5.pdf>).

National Libraries preserve the cultural heritage of a country for the future generation. During the last few decades, National Libraries have undergone very big changes. These changes come out because of the changing information seeking behavior of users and also due to various information resources in different formats. For meeting this changing environment, libraries are using recent information technology to reach out to their users. One such application of information technology is library website.

### **1.6. SIGNIFICANCE AND SCOPE OF THE STUDY**

In the present digital era, web became the master source of information and plays an important role in its dissemination. Library websites became the primary source of information of an institution/organization. The webometric analysis is an emerging area research in the field of library and information science to analyze and evaluate library websites. Many studies have been conducted to analyze many libraries’ websites but no detailed study has been conducted on Asian countries’ national libraries as a whole so far. So, the present study is an attempt to fill up the research gap. The study will help to

understand the present status of national libraries' websites in Asia. The findings of the study will be helpful to librarians and webmasters in redesigning their library websites to a more interactive and informative way. The ranking of the National Libraries' websites of Asia on the basis of their WIF will help to list the best National Libraries' websites of Asia and these libraries' websites may be used as a model website for other libraries. The evaluation criteria articulated for webometric analysis will help to undertake further such studies for other organisations'/institutions' websites in the future.

The scope of the present study is limited to the National libraries' websites in Asia. Being the biggest continent in the world, Asia includes 50 independent countries (Source: <https://www.countries-ofthe-world.com/countries-of-asia.html>) (Listed in Table-1) but only 41 countries are having National Library with their website. It is also noted that seven countries (Cambodia, Oman, Tajikistan, East Timor, Turkmenistan, United Arab Emirates, and Yemen) have National Library but these national libraries don't have website and the rest two countries (North Korea and Palestine) have no National Library. Thus, the present study is further limited to the National Libraries' websites of 41 countries in Asia.

**Table-1: List of Asian Countries' National Libraries having Websites**

Sl. No.	Asian Countries	National Library	Website	Year of Establishment	Location/ Place
1	Afghanistan	National Library of Afghanistan (Kabul University)	www.ku.edu.af	1932	Kabul, Afghanistan
2	Armenia	National Library of Armenia	www.nla.am	1832	Yerevan, Armenia
3	Azerbaijan	National Library of Azerbaijan	www.anl.az	1923	Baku
4	Bahrain	Shaikh Isa bin Salman Al Khalifa National Library	www.icc.gov.bh		Juffair
5	Bangladesh	National Archives and Libraries of Bangladesh	www.nanl.gov.bd	1972	Dhaka

6	Bhutan	National Library of Bhutan	<a href="http://www.library.gov.bt">www.library.gov.bt</a>	1967	Thimphu,
7	Brunei	Dewan Bahasa dan Pustaka Library	<a href="https://www.librarybrunei.gov.bn/">https://www.librarybrunei.gov.bn/</a>	1963	Brunei
8	China	National Library of China	<a href="http://www.nlc.gov.cn">www.nlc.gov.cn</a>	1909	Beijing, China
9	Cyprus	Cyprus National Library	<a href="http://www.cypruslibrary.gov.cy">www.cypruslibrary.gov.cy</a>	1927	Nicosia
10	Georgia	National Parliamentary Library of Georgia	<a href="http://www.nplg.gov.ge">www.nplg.gov.ge</a>	1846	Tbilisi, Georgia
11	India	National Library of India	<a href="http://www.nationallibrary.gov.in">www.nationallibrary.gov.in</a>	1953	Alipore
12	Indonesia	National Library of Indonesia	<a href="http://www.perpusnas.go.id">www.perpusnas.go.id</a>	1980	Jakarta, Indonesia
13	Iran	National Library of Iran	<a href="http://www.nlai.ir">www.nlai.ir</a>	1937	Tehran
14	Iraq	Iraq National Library and Archives	<a href="http://www.iraqnlai.com">www.iraqnlai.com</a>	1920	Baghdad
15	Israel	National Library of Israel	<a href="http://web.nli.org.il">web.nli.org.il</a>	1892	Jerusalem, Israel
16	Japan	National Diet Library	<a href="http://www.ndl.go.jp">http://www.ndl.go.jp</a>	1948	Tokyo
17	Jordan	National Library of Jordan	<a href="http://www.nlj.gov.jo">http://www.nlj.gov.jo</a>	1977	Amman, Jordan
18	Kazakhstan	National Library of the Republic of Kazakhstan	<a href="http://www.nlrk.kz">www.nlrk.kz</a>	1931	Almaty, Kazakhstan
19	Kuwait	National Library of Kuwait	<a href="http://www.nlk.gov.kw">www.nlk.gov.kw</a>	1923	Kuwait city
20	Kyrgyzstan	National Library of Kyrgyzstan	<a href="http://nlkr.gov.kg">http://nlkr.gov.kg</a>	1934	Bishkek, Kyrgyzstan
21	Laos	National Library of Laos	<a href="http://www.nationallibraryoflaos.net">www.nationallibraryoflaos.net</a>	1956	Vientiane, Laos
22	Lebanon	Lebanese National Library	<a href="http://www.bnl.gov.lb">www.bnl.gov.lb</a>	1921	Beirut

23	Malaysia	National Library of Malaysia	www.pnm.gov.my	1966	Kuala Lumpur, Malaysia
24	Maldives	Gaume Kuthubaanaa	www.nlm.gov.mv	1945	Male
25	Mongolia	National Library of Mongolia	www.nationallibrary.mn	1921	Ulaanbaatar, Mongolia
26	Myanmar	National Library of Myanmar	http://www.nlm-npt.gov.mm	1952	Yankin, Yangon
27	Nepal	Nepal National Library	www.nnl.gov.np	1957	Nepal
28	South Korea	National Library of Korea	www.nl.go.kr	1945	Seoul, South Korea
29	Pakistan	National Library of Pakistan	www.nlp.gov.pk	1951	Islamabad, Pakistan
30	Philippines	National Library of Philippines	www.nlp.gov.ph	1901	Ermita, Manila
31	Qatar	Qatar National Library	www.qnl.qa	2012	Doha, Qatar
32	Russia	National Library of Russia	www.nlr.ru/	1795	Sankt-Peterburg, Russia
33	Saudi Arabia	King Fahad National Library	www.kfnl.gov.sa	1990	Riyadh, Saudi Arabia
34	Singapore	National Library of Singapore	www.nlb.gov.sg	1923	Victoria street, Singapore
35	Sri Lanka	National Library of Sri Lanka	www.natlib.lk	1990	Colombo, Sri Lanka
36	Syria	Al-Assad National Library	www.lassad-library.gov.sy	1984	Damascus, Syria
37	Taiwan	National Library of Taiwan	www.ncl.edu.tw	1933	Taipei, Taiwan
38	Thailand	National Library of	www.nlt.go.th	1905	Krung Thep

		Thailand			Maha Nakhon, Thailand
39	Turkey	National Library of Turkey	www.mkutup.gov.tr	1946	Ankara, Turkey
40	Uzbekistan	National Library of Uzbekistan	www.natlib.uz	2002	Tashkent, Uzbekistan
41	Vietnam	National Library of Vietnam	www.nlv.gov.vn	1917	Hanoi, Vietnam
42	Cambodia*	National library of Cambodia	www.khmerica.com	1924	Phnom Penh, Cambodia
43	North Korea**	—	—	—	—
44	Oman*	National Library of Oman	—	—	Oman
45	Palestine**	—	—	—	—
46	Tajikistan*	National library of Tajikistan	—	1934	Dushanbe, Tajikistan
47	Timor-Leste*	National library of East Timor	—	2009	Dili
48	Turkmenistan*	National library of Turkmenistan	—	1895	Ashgabat
49	United Arab Emirates*	National library of United Arab Emirates	—	1981	Abu Dhabi
50	Yemen*	National library of Yemen	—	—	Sana'a, Yemen

(Source: <https://www.countries-of-the-world.com/countries-of-asia.html>)

Note: \* indicates- No library website (7), \*\* indicates-No national library (2)

### 1.6.1. LIMITATIONS OF THE STUDY

1. All countries' library websites are selected for the study by using census techniques and found that there are only 41 countries which are having national library with their websites. It is found that some of the countries have national library but no website and some do not have national library at present. So, these Asian countries' data cannot be collected finally.



2. During the time of data collection, some of the national library websites become non-functional and researcher had to wait till it functions.
3. At the time of analysis, it was found that some of the national library's website designs were changed and this causes variation in data and ranking.
4. The software- Link Explorer is a new version of Open Site Explorer and new terminologies were also updated. Thus, the researcher had to refresh data according to new version.

## **1.7. RESEARCH DESIGN**

### **1.7.1. STATEMENT OF THE PROBLEM**

Libraries are using recent information technology to reach out to their users to meet the changing environment. Websites and the Internet have become an integral part of library service across Asian countries. The changing information seeking behavior of users have led the libraries to use advanced information technology i.e., a library website. A website is a collection of a webpage and the entry page of the website is called homepage of the website. So, the websites are the most important part of any organization. The library website/web pages are the primary source of information of an institution/organization where they disseminate and provide access to information to the users. The library websites need to be updated with the latest information with proper hyperlinks to keep the users abreast of new information about the institute/organization. Therefore, the national libraries' websites should be attractive and informative so that it can easily capture the attention of library users and web surfers. There are number of studies on webometric analysis which have been conducted in the field of library and information science to evaluate the websites of different institutions/organizations in India and abroad but such studies to evaluate the websites of national libraries in Asia are found to be inadequate as discussed in review of literature of chapter-2. The present study is an attempt to fulfill the research gap and analyze the websites on the basis of webometric indicators like- URLs analysis, domain authority, number of webpages, search engine performance, internal link

analysis, external link analysis etc. and find the best National Libraries' websites and to rank these websites on the basis of Web Impact Factor.

### **1.7.2. OBJECTIVES OF THE STUDY**

The present study aimed to analytically analyze the websites/webpages of National Libraries in Asia. The specific objectives of the study are to:

1. Evaluate the structure, content aesthetic value, and currency of National Libraries' websites of Asia
2. Analyze the URLs, size and download speed of National Libraries' websites of Asia.
3. Calculate the number of webpages and domain authority of National Libraries' websites.
4. Evaluate the search engine performance of National Libraries' websites.
5. Examine the number of internal link and external link of National Libraries' websites.
6. Calculate the web impact factor of National Libraries' websites and rank them as per WIF.

### **1.7.3. RESEARCH METHODOLOGY**

The term 'research' refers to the systematic method consisting of enunciating the problem, formulating a hypothesis, collecting the facts or data, analyzing the facts and reaching certain conclusions either in the form of solutions towards the concerned problem or in certain generalizations for some theoretical formulation (Kothari, 2004))

The present study is about the webometric analysis of National Libraries' Websites in Asia by evaluating the web content, performance of the search engine and calculating web impact factor of respective National Libraries' websites. Thus a survey and observation methods of research are used in the present study. At present, there are total of 50 independent countries in Asia (Source: <https://www.countries-ofthe-world.com/countries->

of-asia.html). All countries' library websites are selected for the study by using census techniques and found that there are only 41 countries which are having National Library with their website as listed in Table-1 and all these 41 National libraries' websites of Asia are selected for the study.

The primary data was collected from selected National Libraries' websites by survey and observation method from their respective institute's website. Data was collected in more than one round (2-5 rounds) in a definite interval to verify the research data. To develop the conceptual framework, literature review and writing the chapters, many secondary sources like journals articles, books, conference proceedings and dissertational work have been consulted and used.

#### **1.7.3.1. DATA COLLECTION METHOD**

For this study, survey and observation method was used to collect data from the websites of national libraries' under taken for a study.

##### **(I) Survey Method**

Survey research is a method of gathering empirical data regarding certain phenomenon, process or object in a systematic way so as to interpret them in a broader perspective for generalizations. It deals mainly with collection, analysis and presentation of data relating to the present time reflecting the present activities. For the present study, the researcher has surveyed a total 41 websites/webpages of national libraries' of Asia.

##### **(II) Observation Method**

The observation method enabled the researcher to find out the present scenario of the services, as well as the information provided by the respective national libraries' website/webpage to collect the primary data and a checklist was designed and developed to collect the data from 41 national library websites by using observation method.

### 1.7.3.2. DATA COLLECTION TOOLS

The following tools have been used to collect the primary research data:

- (i) A checklist was designed and developed with 34 parameters on the basis of previous studies (Devi and Verma, 2018; Madhusudhan, 2012 and Michalec, 2006) by the researcher (Appendix—II). Based on these 34 parameters mentioned in the checklist, 41 selected national libraries' websites were checked and evaluated to collect primary data from the respective website during 15<sup>th</sup> February to 15 March 2019.
- (ii) An online web optimization search engine tool i.e., Link Explorer (<https://moz.com/link-explorer>), formerly known as Open site explorer was used for link analysis. It is developed by Moz.com which helps to track the links leading to a particular website. This tool was used to analyze the domain & page authority, internal & external followed links, just-discovered linking domains, web impact factor, etc. This is a common tool used in many webometric studies (Shukla & Tripathi, 2014, Ruhela, Kumar & Kumar, 2017; Jhamb & Ruhela, 2017).
- (iii) A Website Optimization tool i.e., Web Page Analyzer (<http://www.websiteoptimization.com/services/analyze/>) was used for analyzing the web page size and the download speed of the selected national libraries' website/webpage.
- (iv) An online tool- Alexa Traffic Rank ([www.alexa.com/siteinfo/](http://www.alexa.com/siteinfo/)) was also used for knowing the world ranking of the selected national libraries' websites at global level.
- (v) Google search engine was also used for evaluating the search expression performance of national libraries' website.

## **1.8. CHAPTERIZATION**

The present study comprises of the following six chapters:

Chapter I	:	Introduction
Chapter II	:	Review of Literature
Chapter III	:	National Libraries' Website: An Overview
Chapter IV	:	Conceptual Approach of Webometrics
Chapter V	:	Data Analysis and Interpretation
Chapter VI	:	Findings, Conclusion and Suggestions
		Appendix I & II
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**CHAPTER- 2**  
**REVIEW OF LITERATURE**



## **OBJECTIVE OF THE CHAPTER**

The objective of this chapter is to give an overview of the research works done on the various facets of webometric study in India and abroad and this chapter helps the researcher to develop her conceptual understanding on the topic and it also helped in research design of this study.

### **2.1. INTRODUCTION**

A literature review discusses published information in a particular subject area, and sometimes information in a particular subject area within a certain time period. A literature review can be just a simple summary of the sources, but it usually has an organizational pattern and combines both summary and synthesis. A summary is a recap of the important information of the source, but a synthesis is a re-organization, or a reshuffling, of that information. It might give a new interpretation of old material or combine new with old interpretations. It also might trace the intellectual progression of the field, including major debates and depending on the situation, the literature review may evaluate the sources and advice the reader on the most pertinent or relevant.

A formal literature review is an evidence-based, in-depth analysis of a subject. A literature review should be an informative, personal but unbiased synopsis of the information, providing a balanced view that includes conflicting findings and inconsistencies, as well as established and current thinking. A formal literature review is also an extension of the information gathering we might do to get a personal insight to the background of a topic and requires more than a quick scan of the literature and a few summary bullet points.

Conducting a literature review is essential for developing a research idea, to consolidate what is already known about a subject and to enable us to identify any knowledge gaps and how our research could contribute to further understanding.

Once we have carried out a piece of research, a literature review is also crucial for evaluating the data and determining their relevance and clinical utility. Research data without context can be meaningless. A literature review will enable us to identify other research that supports or corroborates our findings as well as results that differ, enabling us to position our research in the field (Winchester & Salji, 2016).

In a research paper, we use literature as a foundation and as a support for a new insight that we contribute. The focus of a literature review, however, is to summarize and synthesize the arguments and ideas of others without adding new contributions (Source: <https://writingcenter.unc.edu/tips-and-tools/literature-reviews/>).

This chapter gives an overview of the research works done on the various facets of webometric study. In this chapter, total of 59 reviews are shown, out of which 29 reviews are studied under webometric analysis, 18 reviews are studied on web content analysis, 4 reviews are related to web usability analysis, 2 reviews on web links and collaboration analysis, 4 reviews on web impact factor, 1 review on link analysis, and lastly on library website navigation.

### **2.1.1. WEBOMETRIC STUDIES**

Dastani, Panahi and Sattari (2019) conducted a webometric analysis of 41 Iranian Medical Sciences universities' websites between September 2016 and March 2017. The study found that the universities' websites in Shiraz, Tehran and Bandar Abbas obtained highest percentage of Webometrics in September 2017, it also observed that websites of Shiraz, Shahid Beheshti and Tehran had the highest score in March 2017. The growth rate of Kerman University of Medical Sciences was the highest with 204.24%, followed by Shiraz University of Medical Sciences with 150.68% and the Bandar Abbas Medical Sciences universities with 89.21%. The study indicates that a limited number of universities possesses high-quality website while others have weak effect.

Brahma and Verma (2018) evaluated the websites of National libraries' of BRICS countries. The authors have used survey and observation methods for collection of data.

The websites were analyzed by using search engines like Open Site Explorer and Google. The study observed that the National Library of China leads with highest domain and page authority, National library of Russia secured first position with highest Internal, External and Simple Web Impact Factor. The authors recommended national libraries to be careful when library resources are provided worldwide in their website in order to maintain the image of the library website. Further, this study suggested to have good interconnection among national libraries for the reason to share resources online and to make productive use by the concerned users.

Jhamb and Ruhela (2017) investigated the websites of seven public libraries and reported that out of seven libraries, the website of Central Secretariat library recorded with the highest simple and external web impact factor, RRRLF is the only website having internal and external links, the website of National library leads with the highest number of external and total links and Thanjavur Maharaja Serfoji's Sarasvati Mahal library secured highest number of internal links and Internal WIF.

Ruhela, Kumar and Kumar (2017) investigated the eight fisheries institutions websites of Indian Council of Agricultural Research. The authors have used open site explorer online analysis tool. The study investigates Web Impact Factor i.e., Simple WIF, Internal WIF and External WIF of selected fisheries institutions websites and ranks as per the WIF. The result visualized that Central Inland Fisheries Research Institute (CIFRI) secured first position with highest Domain and Page Authority, the Central Institute of Fisheries Technology (CIFT) leads with highest Internal Equity-Passing links and Total Equity-Passing Links, Central Institute of Freshwater Aquaculture (CIFA) recorded to have highest External Equity-Passing links and Total External Links. The Central Institute of Fisheries Technology (CIFT) leads with highest Total Internal links and Total links. Thus, it is reported that CIFT occupied first rank with highest WIF and CIFA at second rank. Whereas, the last rank was obtained by Central Inland Fisheries Research Institute (CIFRI). So among the users of fisheries research

institutions, the Central Institute of Fisheries Technology (CIFT) and Cochin (Kerala) are popular.

Verma and Brahma (2017) conducted a study on webometric analysis of National Libraries' websites in South Asia. The authors evaluated the websites of eight national libraries in South Asian countries and used search engine optimization tool i.e., Open site explorer for links. The study found that National Library of India occupies at top position with highest domain authority, Page Authority, highest External Equity-Passing Links and Total Equity-Passing Links. Also based on to SWIF and EWIF, India stands at the first position with 152.42, It can be concluded that the Web Impact Factor of National Library of India gained the top profile with the highest SWIF and EWIF, followed by National Library of Sri Lanka and National Library of Bhutan among the other national libraries websites.

Verma and Brahma (2017) further evaluated the websites of selected Non-Profit Organizations (NGOs) of Assam. The authors have selected 25 NGOs websites and calculated the page authority, domain authority, link equity, root domains, internal and external links and rank the websites according to Web impact factor (WIF). The study revealed that out of 25 selected NGOs, Centre for North East Studies & Policy Research and AARANYAK was found to be popular.

Verma and Brahma (2017) also examined the websites of National Institutes of Technology (NITs) of the northeast region of India and rank them on the basis of web impact factor. The authors investigated and found that NIT Silchar from Assam tops with the highest number of web pages and highest number of Internal and External Links and according to the Simple Web Impact Factor (SWIF), External Web Impact Factor (EWIF) and Internal Web Impact Factor (IWIF), NIT Silchar again secured top position, while NIT Sikkim occupies second position and NIT Mizoram becomes third position.

Verma and Brahma (2017) have investigated the websites of 10 central universities in North East India and calculates the link pages, the number of webpages and analysis the

Web Impact Factor and the result depicts that Tezpur University occupies first place with highest Domain & Page Authority, External Equity-Passing Links and Total External links. While, Mizoram University leads with the highest Internal Equity-Passing Links, Total Equity-Passing Links, Total Internal links and Total links. It concluded that Web Impact Factor of Mizoram University (MZU) occupies at top position with 83.54 SWIF, 52.73 IWIF and 30.80 EWIF among the other Central Universities Websites in North East India. The authors also suggested that some of the universities websites need to be improved for better visibility and accessibility.

Verma and Brahma (2017) have also analyzed the websites of 15 Indian Universities' with status of Potential for Excellence (UPE) by UGC on the basis of established webometric criteria i.e. a number of webpages, link pages, domain authority, equity passing links, individual domain authority and web impact factor. The study visualized that Jawaharlal Nehru University website has the highest number of SWIF and EWIF, whereas, the University of Hyderabad has highest number of IWIF. It also found that some universities website have less domain authority, root domain, individual domain and internal & external links, thus, it is suggested to improve their websites to make more dynamic and useful.

Verma and Brahma (2017) have undertaken a webometric study of nine selected library consortium websites of India and provides information about the present status of the websites. The study explored that E-Shodhsindhu and DeLCon are the most popular consortiums among selected consortiums. The authors have suggested to interlink the websites of the consortium to enabled good collaborations with various benefits. They have also mentioned about the poor Web Impact Factor of rest of the selected consortiums and recommended to improve to make it more useful by the users.

Jalal, Sutradhar and Mukhopadhyay (2016) studied the websites of top ten Asian and Indian universities and tries to find out the reasons of low ranking of Indian universities with respect to the world university ranking. The study found that Indian universities backlinks are only 2% and 3% of referring pages as compared to Asian universities,

whereas, Asian universities are having 65% of webpages more than Indian universities. It also found that there is a 73% difference in publications between top ten Indian and Asian universities during 2010-2014. The authors found significant difference of values of webpages, backlinks, rich files, Google Scholar and research publications between both the top ten universities of Asia and India. The study suggested to publish more research results or projects to the website of the universities or institutes and also to update the website frequently to enhance the website.

Thanuskodi and Naseehath (2016) studied the websites of Medical Tourism in Kerala. The authors have used six search engines to collect information namely Bing, Google, Lycos, Dogpile, Ixquick and WebCrawler. Based on retrieval efficiency of search engines on Medical tourism in Kerala, the study found a total of 589872603 hits retrieved by all six search engines, in which search engine Lycos shows high retrieval efficiency with 59.66% sites; based on retrieval efficiency of search engines on Ayurveda tourism in Kerala, it found total of 44473380 sites retrieved by search engines in which Lycos again showed high retrieval efficiency with 85.49% sites; in regard to Dental tourism in Kerala, search engine Google retrieved 5269200 sites out of total of 11403330 sites; on analysis of Fertility tourism in Kerala, total of 25727150 sites Bing retrieved 15485400 sites; based on Ayush in Kerala, Lycos retrieved 33285000 sites from a total of 65941370 sites; based on Medical Tourism Hospitals in Kerala, Lycos 46.90% and Bing 46.26% retrieved same amount of hits; based on IVF hospitals in Kerala, a total of 2764280 hits were retrieved in which Lycos stood first with 1408500 hits; based on Ayurveda Centers in Kerala, a total of 1591900 sites were retrieved in which Google stood first with 963000 sites; based on Dental Tourism clinics in Kerala, Lycos showed high retrieval of 1724000 from a total of 2667440. Based on Medical Tourism Treatments in Kerala, Lycos collected 4997900 sites from a total of 8451410 sites.

Varadharajalu and Dhanavandan (2016) studied the websites of 20 state universities in Andhra Pradesh. The authors provide information about number of webpages, link pages, global ranking, rank in India, bounce rate, daily page views per visit, daily time in site and also with different domain names of their websites and have used Alexa web ranking tool. The study found that Sri Venkateswara Institute of Medical Sciences and Dr. N.T.R. University of Health Sciences occupied first place in global rank 36069 as well as in India with rank 2501 out of 20 and also occupied top positions in web link pages with 2712, majority of state universities in India are having .ac.in domain for their websites. It also found that Adikavi Nannaya University bounce rate is less in number but the daily page view per visit and daily time on site is high.

Baka and Nur Leyni (2015) examined the websites of World Class Universities and their objective is to find out whether there are differences in terms of visibility and accessibility of the top rank and the bottom rank universities websites. The authors have selected 30 samples from the top rank and the bottom rank universities based on the Times Higher Education World University Ranking 2013. The software *Alexa* was used to measure the volume of web traffic to study the visibility of the universities websites and software *EvalAccess* was also used for checking such irregularities. The study found that the top rank universities websites are more visible and accessible as compared to other cluster and suggested that those universities which are not vastly visible and accessible to take necessary steps to improve the development of their websites.

Chakravarty and Wasan (2015) studied the top 10 library websites of Higher Educational Institutes (HEIs) of India through Google search engine and found that WIF and R-WIF are correlated and associated which indicated very less difference between two ranking methods. Also revealed that ranking of half library websites of HEIs of India is same while evaluating through both the formulas and the half secured different ranks.

Khan and Shehzad (2015) investigated the websites of National libraries of Bangladesh, India, Iran, Pakistan and Sri Lanka. The authors used 35 web analysis parameters for evaluating the websites and have designed different parameters to assess the National

libraries websites of selected countries. The study explored that National Library Board Singapore secured first place, while National Archives and National Library of Bangladesh attained at last.

Shukla and Tripathi (2014) investigated the backlinks of Institutes of National Importance and Premier Management Institutions library websites. The study focused on the extent of backlinks to different category of webpages of 19 library websites of Institutes of National Importance and Premier Management Institutions. The authors have used Internet Explorer and four search engines such as Google, AlltheWeb, Alta Vista and Yahoo Site Explorer as a tool and the study found that search engine Yahoo Site Explorer was more suitable for backlinks study than Google, AlltheWeb, Alta Vista, index/homepage of library websites attracts highest number of backlinks than any other category of library webpages, where seven number of library webpages have been recognized. It also found a good number of backlinks available for digital libraries web pages but the hyperlink for index pages/home pages of library websites are not found in the index pages/home pages of their hosting institutions. The study also visualized that few of the backlinks are attracted at journals, e-resources and Web OPAC pages of library websites, backlinks to “Other webpages” are also observed. The analysis points towards library websites to provide useful information on pages, so to have or attract more backlinks.

Shukla and Vanlalfele (2014) evaluated the library websites of Indian Institute of Technology (IITs) through webometric indicators which included URL analysis, Web Impact Factor (WIF) calculation, link pattern analysis and file format analysis. For this study, the search engine ‘Google’ was used and the survey method was conducted for all IITs library websites for three rounds taking the gap of 15 days in each round. The study depicts that TLDs of IITs library websites are .ac.in and .ernet.in., IITs library websites are mostly using HTML under document file formats, IITs are using JPG/JPEG, PNG and GIF image file format. It is observed that only IIT Kharagpur is using audio/visual file format, IIT Roorkee leads with maximum file formats and the least was used by IIT



BHU and IIT Mandi. IIT Guwahati and IIT Patna occupied first place with highest average RWIF. It concluded that very low WIF was found and the linking pattern was also low.

Madhusudhan and Prakash (2013) examined the websites of 16 Indian Institute of Technology (IIT) and aimed to rank the websites by measuring their Web Impact Factor (inlink) and WISER. The study explored very low correlation of +0.0558824 between WISER Rank and WIF (inlink) regarding IITs websites, IIT Bombay occupied first place and IIT Madras at second in WIF and in world rank, while IIT Rajasthan's WIF indicated one position better rank than the world ranking with 15<sup>th</sup> position, in general, the study found that the IITs websites have good web presence with a total of 108514 webpages. It is been observed that earlier established IITs websites (up to 8 ranks) tops in the list of 16 IITs for the reason of older existence of webpages but the newer IITs websites are not able to perform well in a ranking list for the reason of newer existence of the web presence. The authors also state that this study will help the newly established IITs to improve world rank with other reputed and older IITs.

Ratha, Joshi and Naidu (2012) analyzed the websites of 15 IIT libraries and the study is fully observational taking care about the structure, design, size, graphical presentation, library services and products of the IIT libraries websites. The study found major differences such as user supporting services, number of hyperlinks on home page and whole websites, number of images, location of images, In-active links and web pages, etc. The result visualized that IIT Delhi leads with the highest number of 4070 total links, IIT Bombay websites tops with 75 never active links (those are not able to perform) and found out to be more informative for the reason of having 468 total webpages, highest numbers of pdf files are linked with library website of IIT Gandhinagar, IIT Bombay, IIT Madras and IIT Delhi library websites provides user supporting services like Web OPAC, search bar, site map and interlibrary loan, IIT Bombay and IIT Delhi library websites are also available in Hindi languages. It is also to be noted that only IIT Madras, IIT Delhi and IIT Bombay are updating their websites

constantly. The authors also gave suggestions regarding improvement of the library websites.

Vijayakumar, Kannappanavar and Kumar (2012) examined the web presence and links of SAARC countries. The authors have used an advanced search facility i.e., AltaVista for data collection and the study explored that India recorded with maximum number of 14,10,00,000 webpages, 58,20,000 external links, 1,18,00,000 internal links and 9,83,00,000 overall links, followed by Pakistan and Sri Lanka over all links, countries which are maximum linked to Indian domain is Pakistan (3610), Sri Lanka (2070) and Nepal (728), Pakistan also occupied first place to get maximum of 18,300 links from India comparatively from other SAARC countries. Based on Web Impact Factor of external links, Sri Lanka occupied first place with 0.06495, followed by Pakistan and Bhutan, the highest Web Impact Factor for overall links was occupied by India with 0.6971 and also as per the WISER rank for SAARC countries.

Vijayakumar (2012) analysed nineteen university websites in Sri Lanka. The author have collected the list of Srilankan universities provided by the University Librarian Association of Sri Lanka (ULA) and was analyzed by using Alta Vista search engine. It found that universities of Sri Lanka possessed varied domains for their home pages, 89.47% prefer sub-level domain like .ac, the University of Colombo have highest webpages, the University of Sri Jayewardenepura have highest inlinks and University of Peradeniya with highest selflinks. It also recorded that University of the Visual & Performing Arts of Sri Lanka occupied top position for highest WIF Inlinks, the Open University of Sri Lanka for maximum WIF selflinks and the South Eastern University of Sri Lanka for highest WIF total links. It concluded that the University of Colombo ranked at top in WISER Ranking.

Jeyshankar, Sujitha and Valarmathi (2012) analyzed the webpages of ICMR Institutes websites. The authors studied 22 Indian Council for Medical Research Institutes' websites to identify the website link network and the study revealed that the National Institute of Nutrition, Hyderabad was the first ICMR institute established in 1918 and

National Centre of Laboratory Sciences, Hyderabad was second, 14 Indian states have established ICMR institutes, Maharashtra leads with 6 ICMR institutes, Andhra Pradesh, Delhi, Tamil Nadu and Uttar Pradesh have three institutes and Madhya Pradesh and West Bengal with 2 institutes, Tuberculosis Research center recorded to be on top with the highest number of webpages and external link webpages i.e., 825 pages and 271, the Regional Medical Center Belgaum occupied first place with 1500 link webpages, Tuberculosis Research Centre leads with 737 self-link web pages, the National Institute of Malaria Research occupied first place with the highest number of inlink webpages, on the basis of rank distribution of ICMR institutes, the National Institute of Epidemiology was ranked first with seven pages, followed by National Institute of Cholera and Enteric Diseases, National Institute for Research in Reproductive Health and Desert Medical Research Centre.

Shukla and Poluru (2012) conducted a webometric analysis and indicators of Indian state level universities. The authors find out the visibility and performance of selected universities' websites using WIF. The study found that some of the state universities are having more visibility and based on WISER rank, Jawaharlal Nehru Technological, University, Andhra Pradesh occupied first place among 173 state universities and a high degree of correlation between the WISER and NAAC ranking was also found. The authors also gave suggestions on increasing web performance or visibility of universities.

Kothainayaki and Gopalakrishnan (2011) analyzed the websites of 54 agricultural universities in India which includes 44 state agricultural universities, one central university, five deemed universities and four central universities with agricultural faculty and concepts like Google PageRank, Alexa Traffic Rank, rich files were evaluated. The study has taken up Alexa Traffic Rank of each website, PageRank Checker has been used to calculate the Google PageRank for the university websites, and rich files were calculated by using Google Scholar. The study found that according to Alexa traffic ranks of agricultural universities, Tamil Nadu Veterinary and Animal Sciences

University occupied first place, according to Google PageRank of agricultural universities, Banaras Hindu University, Govind Ballabh Pant University of Agriculture & Technology and Visva-Bharati occupied first rank. It also visualized that Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya secured top position with 1482 rich files.

Babu, Jeysankar and Rao (2010) examined the websites of 40 central universities in India. The authors aimed to establish a kind of academic ranking of these websites by calculating their WIF. The study used Alta Vista search engine for collecting data and analyses the number of webpages, link pages and calculated the simple WIF, self-link WIF, external link WIF and revised WIF of central universities websites in India and rank them as per their WIF. The study revealed that one third of university website has '.ac.in' extensions, Mizoram University occupied first place with 262 link pages and 41 webpages with 6.39 SWIF (Simple WIF), Central University of Orissa leads with 14 self-link pages and 18 webpages with 0.78 SLWIF (Self Link WIF), Aligarh Muslim University occupied first place with 826 webpages, 713 link pages and with 0.86 ELWIF (External Link WIF) and Central University of Haryana leads with six webpages, four link pages and 0.67 RWIF (Revised WIF).

Jalal, Biswas and Mukhopadhyay (2010) investigated the web presence of selected Asian countries by using popular search engines like Altavista, Google, Yahoo and MSN. The authors have selected the top 20 countries based on their webpages. Their main focus is to know the volume of webpages, revised Web Impact Factor (WIF) for country code top-level domains (ccTLDs), the variation of webpage growth among Asian countries on the Web space and to compare the web presence of Asian countries. The study resolved that Japan secured the highest number of webpages, followed by China and South Korea, India occupied sixth position in regard to the number of webpages, Turkmenistan also observed highest inlink counts with 554.3 per thousand webpages. Armenia leads with highest overall WIF and revised WIF which has got 1,730 webpages only, Uzbekistan secured top position with highest internet users' growth, Taiwan scored highest number of academic webpage with 68,80,000, India attained with

highest growth of internet users (from April 2007 to April 2008) and Japan once again occupied first place with highest number of links to and from .com domain.

Mukherjee (2009) conducted a link analysis of Indian political parties' websites. The author has used Google, Yahoo and Alex as a tool of measurement, the study is about judging the popularity of internet and to measure whether the internet can be used as a tool in Indian political context. The result indicated that political parties in India are using internet as one of the visible tools for campaign and internet can be used as a supplementary tool for measuring popularity. This study has given an indication regarding search engines that it can be used as a tool for knowing popularity.

Jeyshankar and Babu (2009) analyzed the websites of 45 universities in Tamil Nadu which comprises of 27 state and 18 private universities. The authors identified the domain systems of the websites, a number of webpages, link page, and calculated the simple WIF, self-link WIF and external WIF of universities websites and rank them based on their WIF. The study found that some universities in Tamil Nadu recorded with the higher number of webpages but their link pages are very low. The authors also give hope for future webometric research in this study area.

Nwagwu and Agarin (2008) investigated Nigerian university websites. The authors have collected web links randomly from 1000 selected webpages of 30 Nigerian universities by using Alta Vista search engine to study the pattern and frequency of outlinks and inlinks. The study found relatively lower than expected level of inlinks to Nigerian university websites. It also revealed that from the first generation universities, the level of inlinks was high, while the least inlinks was from fifth generation universities. Nigerian universities also generate a low number of links in their webpages and having low interuniversity links for sharing of web resources. It also indicates that the university websites connect more with non-academic websites and shows a general low-level of the utilization of the Web for sharing and disseminating of information produced by Nigerian universities.

### **2.1.2. WEB CONTENT ANALYSIS OF WEBSITES**

Gadhavi (2017) analyzed the contents of library websites of Institute of National Importance. The author evaluated the content of eight library websites in Gujarat and observed that all library websites of Institutes of National Importance do have information about the Institute, 87.5% are having information about library website and library hours, 87% provide information about books, periodicals, and reference collection on their library website, 87.5% libraries are providing information regarding online resources, circulation, reading rooms and reference service on their library website, 75% libraries have provided information of current awareness service and information about online catalog, 12.5% provided information about Facebook, Twitter, Blog and Youtube access. Overall it concluded that content arrangement of websites of institute libraries was found easy to access, clarity in content and websites were informative and user-friendly.

Devi and Verma (2016) Compared the design and content features of North-Eastern University (NEHU) and Mizoram University (MZU) websites. The authors have developed checklist to fulfill the objectives and found that most of the criteria are available in both the university websites, NEHU got more features in comparison to MZU, both the university website used simple text version, all the general information about the university is available on both the websites, both MZU and NEHU websites satisfy the customer's interest of knowing about their university facilities, both the university websites are good in rating scale but NEHU (85.51%) scored highest with in comparison to that of MZU (68.11%).

K.S. and Kenchakaller (2016) have analyzed the contents of engineering college library websites of Mysore. The authors found that the majority of engineering college library websites have provided basic information, among all websites National Institute of Engineering and Sri Jayachamarajendra College of Engineering have provided maximum basic information, all the libraries are automated, links to e-resources open access journals information is available in their website, only four colleges- Academy

for technical and management excellence, the National Institute of Engineering, Sri Jayachamarajendra College of Engineering and Vidya Vardhaka college of Engineering colleges provided social network sites facility. The study concluded by revealing the importance of library websites as a market tool used for educational purpose.

Verma and Devi (2016) have studied the web content and design trends of Indian Institutes of Management (IIMs) libraries website. The authors have prepared a checklist and library webpages were evaluated based on the previous study conducted by different authors. The study visualized that all the IIMs library webpage were different in themselves, the library webpage of IIM Calcutta, IIM Indore and IIM Tiruchirappalli have direct links on the respective home page, while IIM Ahmedabad, IIM Raipur, IIM Rohtak, IIM Ranchi, IIM Kozhikode, IIM Lucknow, IIM Udaipur, IIM Shillong and IIM Kashipur have links under facilities, quick links etc., seven IIMs out of 12 IIMs have their separate library webpage, and remaining five IIMs have a dedicated library webpage in their respective IIM websites, all the IIMs were using Web 2.0 tools, but none of the IIMs have RSS feed in their websites. The authors have suggested on many drawbacks in order to make the library webpages more dynamic such as IIM website must provide separate website, more number of graphics in the website will increase the download time of the website, IIMs must include the copyright maintenance details in their websites, dead links should be removed and time to time needs to be updated to make it more effective and should maintain institutional repositories for sharing scholarly published literature globally.

Verma and Devi (2015) studied the contents of seven central universities library websites of North Eastern States of India. The authors have designed a checklist for data collection and for evaluating the web contents of the library websites. The study revealed that the majority of NE central university has the URL extension .ac.in, majority of the library webpage has provided information about the library except the Assam University, and the majority also provided last update date. It also observed that E-mail facility to librarian/staff is available in the websites of Sikkim and Tezpur

University, Ask the librarian was found only in Tezpur University library webpage, links to eBooks are available in Assam, Nagaland, NEHU and Tezpur University library webpage, links to e-journals are available in all the university library webpage. The study concluded giving recommendations regarding informative library webpage and to stay interlinked to one another in order to provide better information to the users.

Yazdi and Deshpande (2013) evaluated the 71 selected library associations' websites using 15 selected webometric criteria and ranking based on a scaling method & comparative means analysis (One Way ANOVA). The study found that the majority of library association websites have "contact us" links, few have Frequently Answered Questions (FAQ) links. It also found that library association websites are categorized into three groups i.e., high, medium and low with significant differences within the three groups, among 15 criteria only four criteria have no significant differences between three groups and the classified groups are heterogeneous based on 11 criteria. The Special Library Association website was ranked first, providing SLA (Special Libraries Association) TV which is a useful service for members. It concluded that the performance of library associations' websites is satisfactory.

Kothainayaki and Gopalakrishnan (2012) conducted a study on content organization of websites of Agricultural universities in India and the location of the web objects in the homepage are also studied. A total of 53 Indian agricultural universities were chosen for the study and various web objects were identified, 20 web objects were taken for the study, out of 20 web objects, 07 web objects are available in all university websites, which includes About Us/History, Academics, Back to Home, Current Events/News, Logo, Title and Research. So, remaining 13 web objects alone were taken up for the study. The result visualized that there was no much significant difference in the commonly found web objects in the university websites but significant differences in the location of the web objects were found.

Madhusudhan (2012) studied the content features of selected library websites of Indian Institute of Technology (IITs) in India. The author has evaluated content features of 12



IIT libraries and uses both quantitative and qualitative approach with a specially designed checklist. The study found that the IIT Madras scored highest with 78.88%, while least was from IIT Gandhinagar with 33.33%, websites are lagging behind in exploiting full potential of library web 2.0 features, many IIT library websites in India are ranked above average mostly providing general information of the library and their services and resources. The authors also suggested to improve the quality of the content of the websites in collaborative age and active way to use the web 2.0 tools. It also mentioned that this study will enable IIT library web designer to improve their websites and as a model for other IIT library websites development in India.

Thanuskodi (2012) examined the websites of ten selected institutes of national importance in India. It focuses on the evaluation of contents and link structures and found that general information about homepage features are more in IITs and least was in Indian Statistical Institute (ISICAL) and Indian Institute of Science, Bangalore (IISc), only in few institutes websites were up to date, details about faculty members and librarian were given by all the websites. The author gave few specific recommendations on sitemap to be provided to view overall functions easily, the majority of institutes should mention the date of update in their websites and institutes should provide feedback and more services.

Raju and Harinarayana (2011) examined 75 library websites to identify the location of web objects. The authors have taken 75 world universities as a sample from the world university ranking 2008 which is published by the Times Higher Education. During their analysis, the websites which failed to access were excluded and only subsequent university websites were selected and found that “search box” and “link back to home” web objects were located in top left and top right corner of the library websites as similar to author’s previous study on e-commerce websites. Also, the pattern of library web object placement is not different compared to e-commerce web objects and the study enables the library web designer to improve the usability of library websites.

Kannappanavar, Jayaprakash and Bachalapur (2011) analyzed the content of Engineering College library websites in Tumkur district. The authors have selected only private un-aided colleges which are run by different educational societies and covered only engineering colleges of Tumkur district in Karnataka state. It is noted that there are six Indian Institutes of Technology and six Indian Institutes of Management which are ranked top most in Asia and 17 regional engineering colleges are also mentioned. The study revealed that the engineering college libraries are not maintaining separate library website and has provided limited information, links to open access journals, e-books information was not available in the library website, only Sri Siddhartha Institute of Technology (SSIT) and Kalpathru Institute of Technology (KIT) provided Institutional repository service to users, none of the Engineering colleges has established “Discussion forum” for interaction and debate on various issues, also it did not provide information about Back volume section, audio-visual materials, lists of new arrivals, list of current journals, electronic list of students project reports, Contact, FAQ’s, Free open archives, e-resources, library membership, Inter-library loan, services to industries and CD-Rom search. And among the college library websites, Siddaganga Institute of Technology (SIT), Tumkur; H.M.S Institute of Technology (HMSIT), Tumkur, Akshaya Institute of Technology (AIT), Tumkur and Kalpathru Institute of Technology (KIT), Tiptur colleges registered their domain under academic. The authors have recommended to meet the drawback of concerned engineering college library websites.

Ratha, Naidu and Silawat (2011) conducted web analysis of National Libraries of SAARC countries. The study focus on the design and structure of websites of the national library of SAARC countries, seven countries were evaluated i.e., Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Srilanka, excluding Afghanistan (not available). The study revealed that National libraries of SAARC countries are well aware of their website and future benefits, 42.85% libraries have provided OPAC facility, 71.42% provided Search Bar options, only one library provided Feedback and FAQ Facility, staff information is available on all national library websites except National library of Bangladesh. On the basis of total of links available on home page, it

is found to be 241 total links at home pages of national libraries with an average of 34 links per home page, in which National Library of Maldives has got maximum of 67 links and the least was from National Library of Bangladesh with only 12 links. Total 19 images are available at the home pages with an average of two images per home page, in which National Library of Sri Lanka occupied first place with six images. It is also been observed that there are 784 total links at the websites with an average of 112 links per websites, in which National Library of Bhutan tops with 397 total links. There are 711 webpages on national library websites in which National Library of Bhutan leads with 400 webpages, National Library of Pakistan has total 6 In-active links, while, Bhutan, India and Nepal do not have In-active links.

Konnur, Rajani and Madhusudhan (2010) evaluated the contents of academic library websites in Bangalore city, India. The authors have adopted an evaluation methodology and devised evaluation checklist was found to be suitable. It evaluates the websites in five areas i.e., currency, accuracy and relevance; organization and structure; presentation; maintenance and different features of the library website. For gathering more relevant data, few open-ended questions were included to have descriptive data. The study explored that the library websites in Bangalore city have not reached the expectations as virtual expressions of the quality level of academic excellence. It also showed that many of the study websites are yet to exploit full potential of the web-based forms, which are effective tools for library user interaction and communication.

Haneefa and Venugopal (2010) evaluated the contents of 28 national library websites in Asia. The authors have developed a checklist for data collection, out of 37 national library websites, 28 are having English versions and are examined for analysis. The study discovered that the majority of the national library websites in Asia provide informative links to contacts, copyright, news and events, also provide links to OPAC and have search facility and links to other libraries. Most of the library websites were not well-structured and some have dead links, majority of the libraries provide location and sitemap in their homepage. It concluded that the pattern of content and design of

national libraries' websites were common and only six national libraries' have one or more Web 2.0 technologies. The study brings out the drawbacks about the libraries' websites in scope for improvement and gave many valuable suggestions in order to enhance the websites.

Qutab and Mahmood (2009) investigated the content of library websites in Pakistan and analyzed their navigational strengths and weaknesses. The authors have surveyed 52 academic, special, public and national libraries websites in Pakistan based on 77 item checklist. The study found that no library website contained all items on the checklist, websites such as Government College University, Lahore University of Management Sciences, University of Punjab, Air University, University of Management Technology, Agha Khan University, Karachi and Quaid-e-Azam University, Islamabad have good number of items included in checklist and two items in the checklist were not found on any library website. Through this study the authors gave recommendations for developing better websites and quality assessment studies.

Kumar et. al. (2009) analyzed six Indian Institute of Management (IIMs) library websites viz, Kolkatta, Bangalore, Indore, Kozhikode, Lucknow and Ahmedabad. The authors have prepared a detailed checklist to analyze and compare the contents and usability of six Indian Institute Management library websites. The study explored that all the library websites of IIMs have information regarding Web OPAC, database access, digital library, ILL and reference service etc., information on non-book materials and e-resources are also provided. It also indicated that all library websites have facilities on contact address, FAQ's, feedback, about library and site map. The authors have concluded by suggesting few recommendations for improvement of library websites that will enable website designer in facilitating the website into more interactive or attractive and also for the users for evaluation of content and quality of information. The study recommended to provide 'Webmaster' in the homepage of the library website, should mention the date of updation in the website, hit counter facility should also be provided

in the homepage and regarding information on online document delivery and question paper archives, majority of the library websites have not mentioned.

Lee and Teh (2001) conducted a study on the evaluation of academic library websites in Malaysia. The authors have used a mixed-method approach which combines both quantitative and qualitative analyses of academic library websites evaluation. They have selected 12 library websites of public and private institutions of higher learning and revealed that academic libraries websites have set up well-designed and useful websites, very few websites have simple and basic features. The study also found that in most of the websites, there was a lack of information organization, have not come up to expectations as virtual expressions of the quality levels of academic libraries. The authors mentioned that in Malaysia, the stability of the web servers should be of greatest challenge for academic library websites in order to offer their information services around the clock.

Still (2001) analyzed the university library websites of four English speaking countries i.e., Australia, Canada, UK and USA. The investigator has prepared a list of libraries in which 50 libraries each from UK & USA and 25 libraries each from Canada and Australia were studied. It found that all the 150 library websites provide access to their own catalogue and some databases, the visual display of information was recorded to be similar across all countries, some differences were found in the content supplied, it also provides access to other library catalogs, a description of services and an update date, less information was provided on instructional material and remote access and differences were also found in the availability of encyclopedias, request forms and pathfinders.

### **2.1.3. WEBSITE USABILITY ANALYSIS**

Walia and Gupta (2013) evaluated the usability features of selected national libraries' websites of Asia. The authors have designed a checklist based on the guidelines given by Neilson and NIC (National Informative Centre) grouped into eight major criteria. On the basis of mentioned criteria, it was observed that 44 Asian countries do have a national

library and among them, only 35 countries are having a website. The 35 national libraries' websites were investigated for study and out of 35 websites, only 33 are functional and 23 national libraries of Asia have comprehensive English version website. The study revealed that among 23 national libraries, the National Library of Japan recorded to be on top, majority of websites provide only physical address and email address and National Library of Maldives was at bottom rank. The authors also gave suggestions regarding the improvement of the homepage features in websites of National Libraries of Asia.

Mohamadesmaeil and Koohbanani (2012) studied the web usability evaluation of Iran National Library website. For this study, the authors have applied library (attribute) method to develop the checklist of 11 criteria and 160 components and features and also evaluation survey method was too applied to assess the usability of the website. And for further assurances about the content validity, Cronbach's Alpha Coefficient for assessment of internal consistency of measurement instrument was applied to test the reliability. The study aims to identify the elements that are important in the design of National library websites and to help users for using good websites and specialist for designing and implementing high qualified websites. It explored that the lowest amount of the usability was six points for appearance and the highest was 156 points for navigation. The study concluded with recommendation and suggestions for improvement of the present status of the National Library website in Iran.

Islam and Tsuji (2011) evaluated the usage of university websites in Bangladesh from the usability perspectives with the help of two online automated tools, i.e., HTML toolbox and webpage analyzer along with a questionnaire directed towards users of these websites. The study showed that users were not satisfied by overall usability level of these websites and few of them were satisfied with the available features, in general, usability features of university websites in Bangladesh do not have good features, web-based diagnosis tools revealed that internal qualities of these websites are not ideal. The authors have also suggested regarding the improvement of the usability of these

websites, universities webmaster are asked to improve the web design and content to make them more attractive to the user community.

Raju N and Harinarayana (2008) analyzed the 30 library websites usability features of top science universities around the world and found that 50% of the websites have included embedded navigation, 60% of the websites have placed their logo at the top-left corner of the sites, only 27% library websites have made an attempt to distinguish between visited and unvisited link color, 53.33% of library websites have provided frequently asked questions (FAQs), only 39.99% of websites have provision for explicit home link as well as through logos and only 8% of websites use the de facto link color coding. It also observed that almost all library websites have consisted one or the other type of global search features on their websites and only 30% of websites have video contents and zero exclusive audio files.

#### **2.1.4. WEB IMPACT FACTOR ANALYSIS**

Kumar (2017) analyzed the web impact factor of seven Deemed universities websites in Andhra Pradesh and Telengana. The author examines the number of webpages, selflinks, external links, inlinks and web impact factor in order to rank accordingly. The study has used Google search engine for collecting the data and found that IIIT has more websites comprising maximum web impact factor among deemed university websites, Sri Sathya Sai Institute of Higher Learning (SSSIHL) recorded maximum number of pages, International Institute of Information Technology (IIIT) has maximum number of link pages and secured first position with 46.42 WIF. IIIT also occupied first position with maximum number of external link webpages, In-links and In-Link WIF.

Walia and Gupta (2012) studied the web impact factor of selected national libraries' websites. The authors find out the linking on websites of these national libraries, Web Impact Factor and amount of information present on websites in the form of rich files. The study revealed that among the selected national libraries, National Library of America is more visible and has got maximum number of WIF, webpages, inlinks. The second most visible website is National Library of Australia and Britain.

Noruzi (2006) have reviewed on the web impact factor and investigates how the Web Impact Factor (WIF) has been developed and applied, discussed about the WIF's advantages and disadvantages, data collection problems, and validity and reliability of WIF results. The authors also suggested that WIFs can be calculated as a way of comparing the attractiveness of websites or domains on the web and concluded that WIF is arguably useful for quantitative intra-country comparison but beyond inter-country assessment has little value.

Noruzi (2005) evaluated the Web Impact Factors (WIFs) for Iranian universities. The study used Alta Vista search engine and from its output, counts of links to the websites of Iranian universities were calculated. The WIF was calculated by dividing link page counts by the number of pages found in AltaVista for each university at a given point in time and the WIFs were compared to find the impact, visibility and influence of Iranian universities websites. The study found that overall university websites have a low inlink WIF, a significant correlation between the proportion of English-language pages at an institution's site and the institution's backlink counts. It also gave important lessons for the webmasters of Iranian university websites. Firstly, the university websites are becoming a significant body of Persian-language web space literature and secondly, university webmasters need to be aware of different measures of effectiveness and visibility of websites.

#### **2.1.5. WEB LINKS AND COLLABORATION ANALYSIS**

Stuart, Thelwall and Harries (2007) conducted an exploratory study of UK academic web links and collaboration and investigated the potential of web links. The study revealed that a significant number of links that were placed on university websites to other organizations reflected a collaborative relationship between the different web page owners, it also found that there are statistically significant differences in the proportion of links reflected a collaborative relationship, which means much more research is necessary before web links could be used as a reliable indicator of collaboration between organizations.



Zeinolabedinio, Maktabifard and Osareh (2006) conducted a collaboration analysis of world National Library Websites (NLW) using webometric methods. The study focused on the visibility of national libraries on the web and collaboration on National and International level among the websites of national libraries. Data was collected from National Libraries list available in IFLA website with the help of Alta Vista search engine and Microsoft Excel and SPSS (version 11.5 ) were used for data analysis. The study revealed that United States of America, Australia and the United Kingdom was recorded to be most visible national library websites in regard to in-link count, Library of Congress (USA) had the highest in-links and self-links count i.e., 249000 and 89600 respectively, the least in-links was from Slovenian National library site with 249 and least self-links count was from Russian and Switzerland NLs websites with zero, Poland NL website has secured highest rate of revised impact factor of 335.48 and Canadian with least 0.07. It is found that Library of Congress (USA) has the highest rate of links, in-links, self-links and number of webpages indexed by search engine, hence it is said to be most powerful site among the world National Libraries websites but the WIF indicated low status.

#### **2.1.6. LIBRARY WEBSITE NAVIGATION ANALYSIS**

Brower (2004) conducted a study on forty-one academic health sciences library website navigation. The author has evaluated all the forty-one websites in four specific areas i.e., library general information, website aids and tools, library services and electronic resources. Their findings revealed that out of 41 libraries, 85% had some form of Persistent Navigation Tool (PNT), 60% used horizontal toolbar exclusively, 34% used both horizontal and vertical toolbar, several sites used more than one technologies, thirty-eight homepages accounting 93% of the sites linked to the parent organization, 46% of the academic HSL home pages linking out to a general library homepage and 17% of those homepages also linking to the parent library from PNTs.

## **2.2. RESEARCH GAP**

On the basis of the above review of literature, it was found that many studies on webometrics has been conducted in India as well as over the globe by different researchers to measure the functional ability and effectiveness of library website. But no detail study was conducted to evaluate the National Libraries' websites in entire Asia in broad parameters. As Asia is the earth's largest continent located in the Eastern and Northern Hemispheres in which, 50 countries are situated in Asia. Therefore, this study is an attempt to examine the number of national libraries having websites in Asia and to investigate their webometrics (link structure) analysis. This study is attended to fulfill the research gap of the area.

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## **CHAPTER– 3**

### **NATIONAL LIBRARIES' WEBSITES: AN OVERVIEW**



## **OBJECTIVE OF THE CHAPTER**

The objective of this chapter is to give a brief introduction on the national libraries and its role, library websites role, and discuss the overview of websites of national libraries in Asia.

### **3.1. INTRODUCTION**

As mention in Chapter 1, a National Library or National Library Service is a key national institution, an expression of national identity and a repository of national heritage. Therefore, it is stated that it is a matter of principle that National Library Service should be established not by presidential or ministerial decree or by administrative fiat, but in terms of a statute enacted by the country's highest legislative body. (Source: <http://www.abinia.org/foro/ifla.pdf>).

Nowadays people want to explore the services and products of an organization on their desktop and explore its services in order to make up their mind whether or not to deal with that organization. A website not only lends credence to its services but also creates confidence among its users that they are going to be provided with services of very high order. An organization without a website can be said to be lacking a very significant factor in its development.

Many of the national libraries across the globe still don't have their own websites. It is the website which corresponds to a virtual space, it must represent the needs and requirements of the users. The library website must be user-friendly, updated, relevant and easy to understand so that a user may not be confused in searching for his desired information (Kumar & Bansal, 2014).

### **3.2. ROLE OF NATIONAL LIBRARIES**

National libraries perform certain functions and exhibit certain characteristics. Many libraries actually perform these functions and exhibit these characteristics but do not claim to be, and are not, national libraries. On the other hand, many national libraries,

while exhibiting some of the outward characteristics of the genus, perform very few of the functions normally associated with it. In addition to this confusion between status and function, there are considerable differences when the word “national” is used. Particularly in nations with a federal structure the concept of “nation” is differently viewed from without and within.

All national libraries attempt to be the archive of national printed materials although the method of achieving this varies considerably and the philosophy behind such attempts also varies with consequent differences in practice. Although many countries have legal deposit legislation, which requires publishers to deposit a given number of copies with the national library within a specified time, this legislation is by no means universal, neither is its enforcement taken as seriously in some countries as in others. The range of scope of legal deposit requirements is infinitely variable and legislation can be found which requires copies of almost everything printed (including ephemera) to be deposited to a wide range of exclusions. Non-printed publications are also often excluded and may well be collected by a quite separate institution from the national library. Thus a number of countries have national libraries, national film archives and national sound archives. Furthermore, the acquisition of manuscript materials may not be the national library’s function but one carried out by the national archives, a quite separate institution (Cornish, 1991). The various role of national libraries are given below:

- I. National Library is a central collection of materials produced within or about the country of region in which the national library is situated
  - i. Maintain a comprehensive collection of foreign publications
  - ii. Provide national leadership in library and information affairs
  - iii. Be the hub of librarianship and the prime mover in library developments
  - iv. Provide a national information system to facilitate economic and social development at both national and personal levels
  - v. Receive materials through legal deposit legislation
  - vi. Act as the national archive for non-published materials

- vii. Create the national bibliographic record
- viii. Make its collections nationally available
- ix. Provide national referral service
- x. Undertake to conserve the national heritage

### **3.3. ROLE OF LIBRARY WEBSITE**

Library website serves as an archival device for finding databases, e-journals and books in the library catalog. It is a gateway of tremendous information and web acts like an instrument for users to stay in touch. The clients don't have to visit the library location personally. The library website allows internal resources to the public online. It has become very challenging for library professionals to maintain the website with an aim to upgrade the website's visibility and accessibility of the resources by clientele at the desired end.

The current age is an information age where information society creates and makes use of information the development, which essentially requires "information literacy". Information and Communication Technology (ICT) is undergoing revolutionary changes in the dynamic environment. Libraries are playing a crucial role in promoting ICT activities for their day to day transactions since many years. The value of ICT-based resources and services are that it can be easily shared, distributed, updated, manipulated and rapidly searched (Haneefa, 2007).

### **3.4. THE ROLE OF LIBRARY PROFESSIONALS**

The Information and Communication Technology (ICT) has led the library professionals to shift their role from traditional to digital world of library. Nowadays, the library personnels need to be updated with recent technology. They should be trained in a well manner to handle all the managing and retrieving skills of information electronically. Skills are important aspect of human nature when taking responsibility of any job that makes the individual develop with practice. As information is growing very fast, the LIS

professionals are adopting different techniques to maintain and disseminate productive information efficiently. Nowadays, library professionals are known as information providers, specialists, consultants, disseminators, designers, as well as teachers. The technological trends have changed the role of librarians in digital world. So to cope up with the advanced technology, librarians need to give extra effort to deal with different types of competencies.

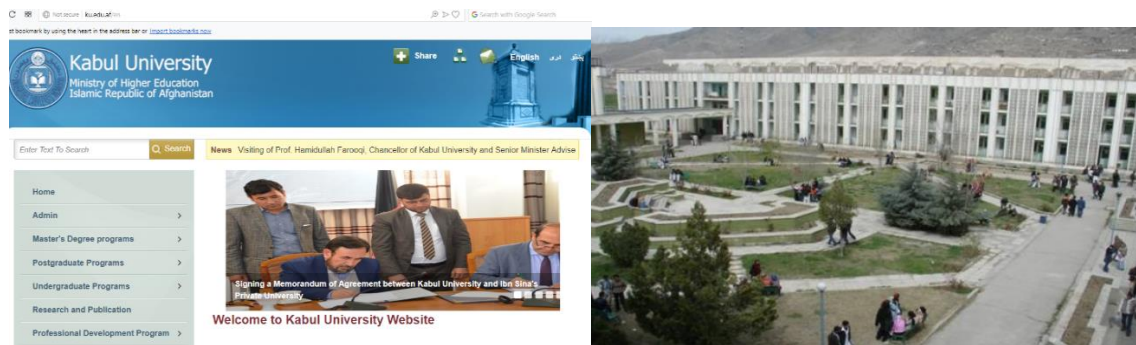
The role of library professionals demands quality information services to different types of information seekers having different kinds of complex information needs. Hence, it is a must for library professionals to recognize, locate, evaluate, manage and retrieve the needed information effectively and efficiently to meet the specific needs of the users. Awareness of Information and Communication Technology Literacy (ICTL) among library professionals helps them groom to develop new skills and gain competencies that are required to cope up with the exponential growth rate of information. The library professionals have a need to possess ample knowledge to handle ICT-oriented library services such as automation, management of electronic resources, searching and analyzing the databases, and internet resources (Kumar & Muruli, 2013).

Library automation, development of digital libraries and application of innovative information and communication technologies (ICT) have tremendously increased because it provides enhanced user satisfaction, cost-effectiveness, rapid responses, and easier operational procedures. Libraries and Information centers have been employing ICT and electronic information resources and services to satisfy the diverse information need of their users. E-journals, CD-ROM databases, online databases, e-books, web-based resources, and a variety of other electronic media are fast replacing the traditional resources of libraries. While libraries automated their library management activities and procure expensive electronic resources, these may not be optimally used. This is the main concern of librarians around the world. There are a lot of reasons for this state of affairs, like lack of sufficient funds, inadequate infrastructure, lack of qualified library professionals, and the like (Haneefa, 2007).

### 3.5. OVERVIEW OF THE NATIONAL LIBRARIES' WEBSITES IN ASIA

#### 3.5.1. National Library of Afghanistan (Kabul University)

National Library of Afghanistan does not have its own library website. Kabul University serves as the National Library of Afghanistan which was established in 1932 at Kabul, Afghanistan. Kabul University has created a library webpage for the library. The library web page gives brief information about the library. The website is accessible in English, Persian and Pashto languages. It is the oldest and largest institution of tertiary education in Afghanistan. Figure-3.1 shows the library website of Kabul University.

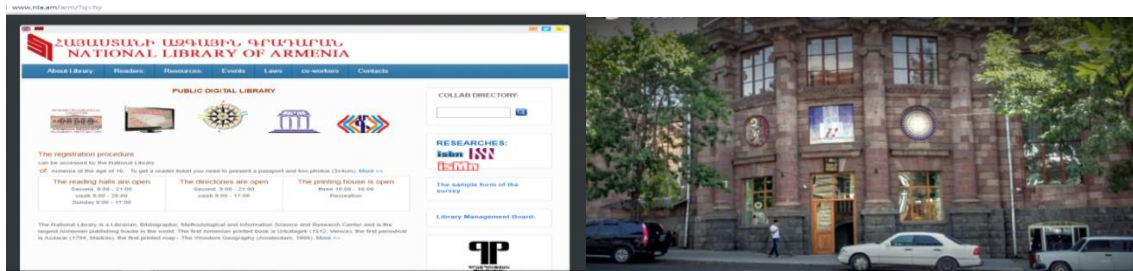


**Figure- 3.1: Kabul University Library Website**

(Source: <http://ku.edu.af>)

#### 3.5.2. National Library of Armenia

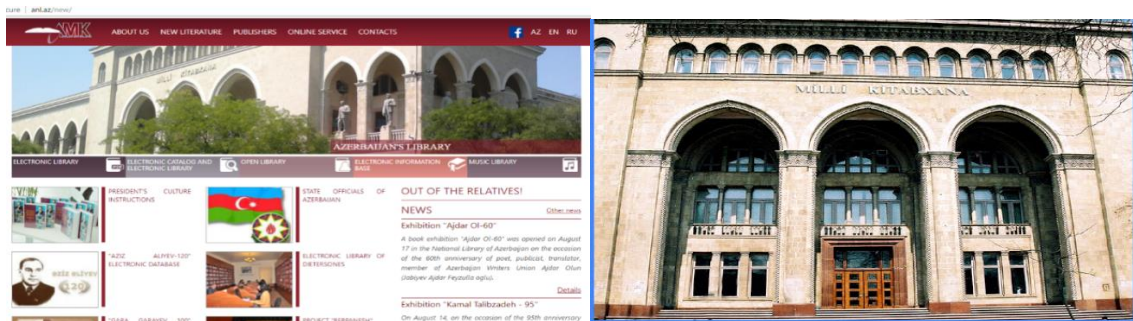
The National Library of Armenia is a national research center for library and information sciences, and bibliographic work. The library has a dedicated website and is accessible in English and Armenian languages. It is the world's largest repository of Armenian printed materials established 186 years ago in 1832 located at Yerevan, Armenia. Library services are also provided individually and services for libraries, organizations and institutions are provided through interlibrary department. Since 01 January 2015, the library's collection are more than 6.3 million registered units. These include books, magazines, newspapers, maps, posters, thesis, music notes, cards, postcards, calendars, blank notes, video clips, CD/DVD-s. Figure-3.2 shows the website of National Library of Armenia.



**Figure- 3.2: National Library of Armenia Website**  
 (Source: <http://www.nla.am>)

### 3.5.3. National Library of Azerbaijan

The National Library of Azerbaijan is one of the largest and well known national libraries all over the world. The library has a dedicated website and is accessible in Azerbaijan, English and Russian languages. It was founded in 1922 and the official opening was on 23 May 1923 which is located in Baku, Azerbaijan. It is a leading institution in the fields of library studies, bibliography studies and bibliology and a scientific methodical center for all libraries in the republic. Figure-3.3 shows the website of National Library of Azerbaijan.

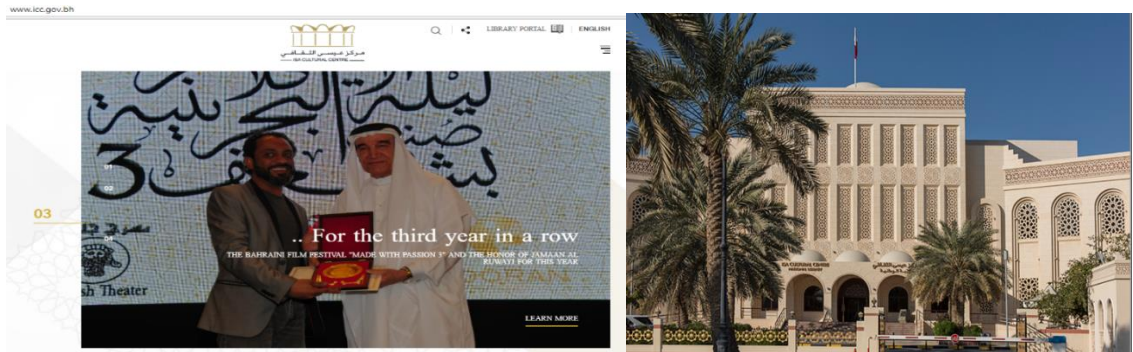


**Figure- 3.3: National Library of Azerbaijan Website**  
 (Source: [www.anl.az](http://www.anl.az))

### 3.5.4. National Library of Bahrain

The National Library at Isa Cultural Centre is an active part of the intellectual and educational system and is one of the most prominent cultural institutions in the Kingdom of Bahrain. The service of Bahrain National Library is provided by this institution to meet the needs of science students and researchers encouraging reading, research,

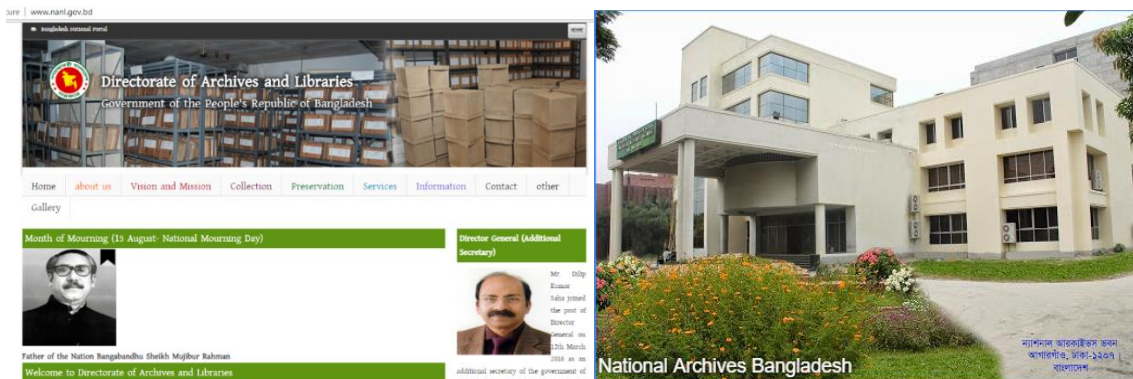
reading and providing advanced library services, and making available various sources of knowledge in all forms of print, audio and video. It is located in Juffair, Bahrain. The library has its own dedicated website and is accessible in Arabic and English languages. Figure- 3.4 shows the website of National Library of Bahrain.



**Figure- 3.4: National Library of Bahrain Website**  
(Source: [www.icc.gov.bh](http://www.icc.gov.bh))

### 3.5.5. National Library of Bangladesh

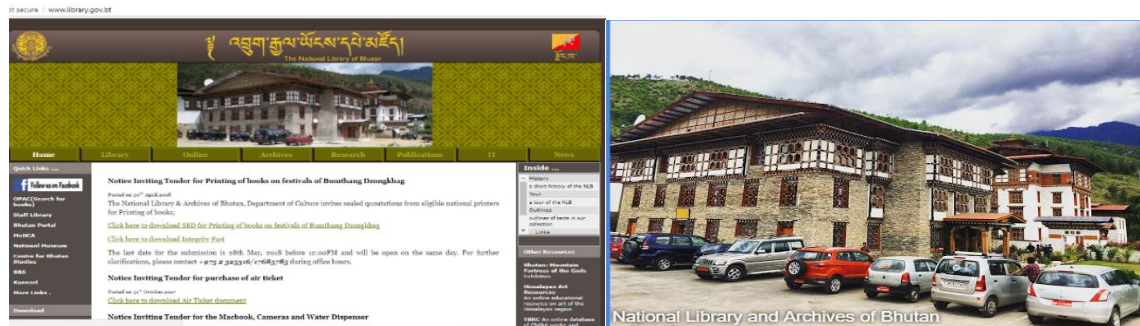
The Directorate of National Archives and Libraries of Bangladesh was established by father of nation Bangabandhu Sheikh Mujibur Rahman (father of People’s Republic of Bangladesh) in November 1972 located at Dhaka. The library has its own dedicated website. The website is accessible only in English and Bangla languages. It is the legal depository of all new books and other printed materials published in Bangladesh under the copyright law of Bangladesh. Figure-3.5 shows the website of National Library of Bangladesh.



**Figure- 3.5: National Library of Bangladesh Website**  
(Source: <http://www.nanl.gov.bd/>)

### 3.5.6. National Library of Bhutan

The National Library of Bhutan was established in 1967 located in Thimphu under the patronage of HM Queen Ashi Phuntso Chode (1911-2003), with a small collection of precious texts. It maintains a national collection of Bhutanese materials with the aim to provide an effective gateway to national and international resources of information in the near future. The library has its own dedicated website. The website is accessible in Bhutanese and English languages. Figure-3.6 shows the website of National Library of Bhutan.



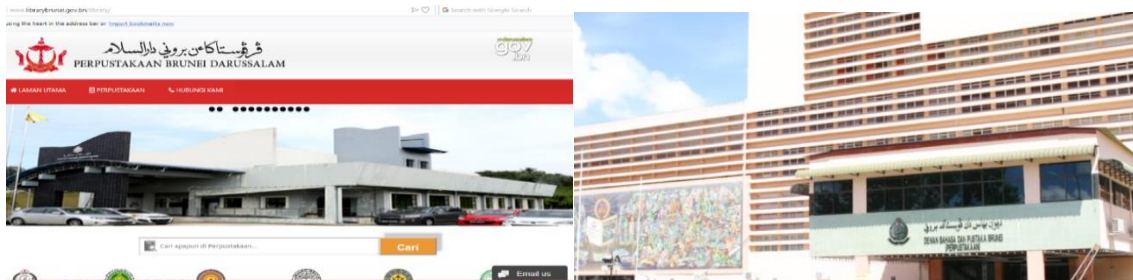
**Figure- 3.6: National Library of Bhutan Website**

(Source: <http://www.library.gov.bt/>)

### 3.5.7. National Library of Brunei

The National Library of Brunei is run by Dewan Bahasa dan Pustaka library which is a group of 9 public libraries (Bandar Seri Begawan Library, Sengkurong Library, Lambak Kanan Library, Muara Library, Tutong District Library, Kuala Belait Library, Kampong Pandan Library, Seria Library, and Temburong Library) operated by Dewan Bahasa dan Pustaka Brunei). Among these 9 public libraries, Bandar Seri Begawan Library is the main branch and acts as a national library of Brunei. It is the legal deposit and copyright of Brunei and was established in 1963. The website has got separate webpage for the library. The website is accessible in English and Malay languages. Figure-3.7 shows the website of National Library of Brunei.





**Figure- 3.7: National Library of Brunei Website**  
 (Source: <https://www.librarybrunei.gov.bn/>)

### 3.5.8. National Library of China

The National Library of China (NLC) is the repository of the nation's publications, a national bibliographic center, a national center for preservation and conservation of ancient books, as well as the national museum of ancient books. It is the largest library in Asia in terms of collection (37 million items) and also one of the largest in the world. It holds the largest collections of Chinese literature and historical documents in the world. It was established in 1909 located in Beijing, China. The library has its own dedicated website. The website is accessible in English and Chinese languages. Figure-3.8 shows the website of National Library of China.

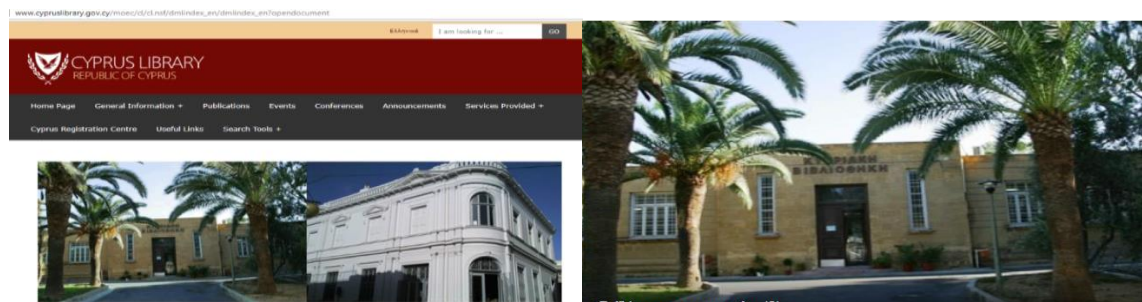


**Figure- 3.8: National Library of China Website**  
 (Source: <http://www.nlc.gov.cn/>)

### 3.5.9. Cyprus National Library

Cyprus Library is the national library of Republic of Cyprus. It was established in 1927 located in Nicosia. The library has its own dedicated website and is accessible in Greek and English languages. The library is an agency under the Ministry of Education and

Culture with a Consultative Committee appointed by the Government to provide advice and assistance in the operation and development of the library. Figure- 3.9 shows the website of Cyprus National Library.



**Figure- 3.9: Cyprus National Library Website**

(Source: [www.cypruslibrary.gov.cy](http://www.cypruslibrary.gov.cy))

### 3.5.10. National Parliamentary Library of Georgia

National Parliamentary Library of Georgia was established in 1846 located at Tbilisi, Georgia. The library has its own dedicated website and is accessible in Georgian and English languages. Since 1991, National Parliamentary Library of Georgia is a member of International Federation of Library Associations (IFLA). It is the main book depository of Georgia, as well as the most important cultural, educational, scientific, informational and methodological centre. Figure-3.10 shows the website of National Parliamentary Library of Georgia.

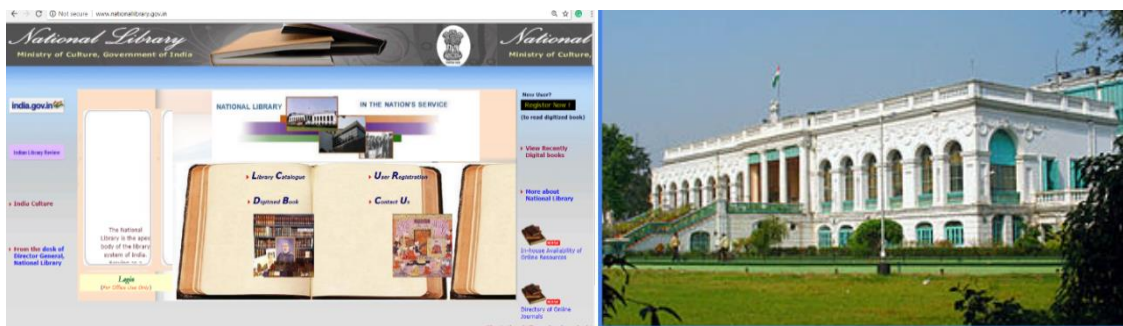


**Figure- 3.10: National Parliamentary Library of Georgia Website**

(Source: <http://www.nplg.gov.ge/>)

### 3.5.11. National Library of India

The National Library of India is the largest library in the country. It is an institution of national importance under the Ministry of Culture, Government of India. It is established in the year 1953 located at Kolkata, West Bengal. The library has its own dedicated website and is available in English and Hindi languages. The library receives books and periodicals in almost all Indian languages and are received under the Delivery of Books and Newspapers (Public Libraries) Act 1954. Figure-3.11 shows the website of National Library of India.

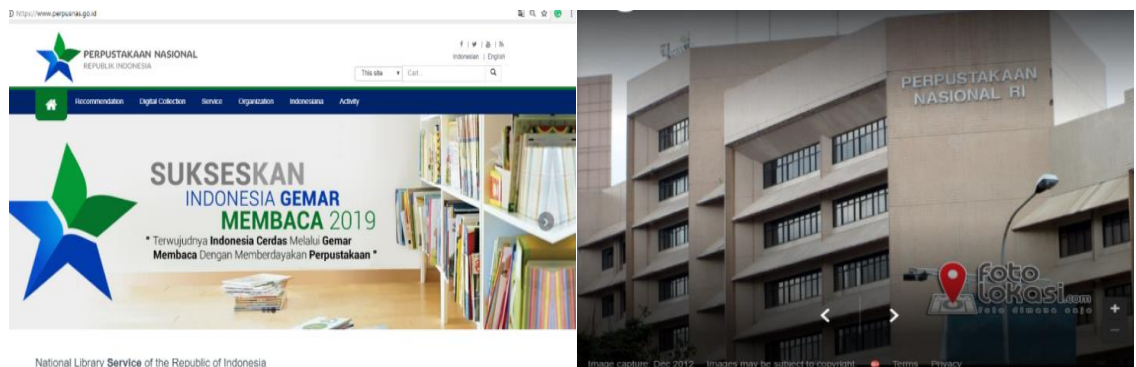


**Figure- 3.11: National Library of India Website**

(Source: <http://www.nationallibrary.gov.in/>)

### 3.5.12. National Library of Indonesia

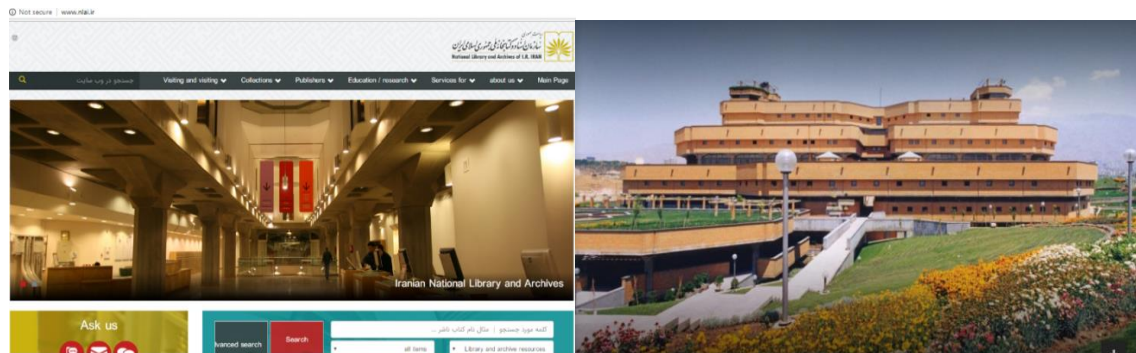
The National Library of Indonesia is the legal deposit library of Indonesia. It is established in 1980 and located at Jakarta, Indonesia. The library has its own dedicated website and is available in Indonesian and English language. It has got more than 4 million books and the tallest library in the world. The National Library of Republic of Indonesia's duties are to develop network among libraries in Indonesia. Figure-3.12 shows the website of National Library of Indonesia.



**Figure- 3.12: National Library of Indonesia Website**  
 (Source: [www.perpusnas.go.id](http://www.perpusnas.go.id))

### 3.5.13. National Library of Iran

The National Library of Iran was established in 1937 located at Tehran. The National Library was eventually merged with both the Tehran Book Processing Centre (TEBROC) and the Islamic Revolution Cultural Documentation Organization (IRCDO) to form the National Library and Documentation Organization. The library has its own dedicated website and is available only in Persian and English languages. Figure-3.13 shows the website of National Library of Iran.



**Figure- 3.13: National Library of Iran Website**  
 (Source: <http://www.nlai.ir/>)

### 3.5.14. Iraq National Library

The Iraq National Library is the national library and national archives of Iraq. It was established in 1920 located at the Iraqi capital of Baghdad. The library has its own

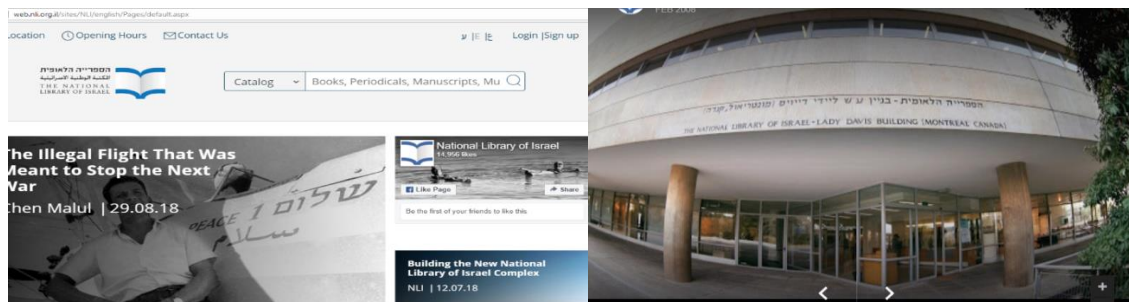
dedicated website and is accessible in Arabic and English languages. Figure-3.14 shows the website of Iraq National Library.



**Figure- 3.14: Iraq National Library Website**  
(Source: [www.iraqnlia-iq.com](http://www.iraqnlia-iq.com))

### 3.5.15. National Library of Israel

The National Library of Israel is established in 1892 located at Jerusalem, Israel. The main objectives of National Library are to collect, preserve, cultivate and endow the treasures of knowledge, heritage and cultural in general, with an emphasis on the land of Israel, the State of Israel and the Jewish people in particular. Figure-3.15 shows the website of National Library of Israel. The library has its own dedicated website and is accessible in Hebrew, Arabic and English languages.

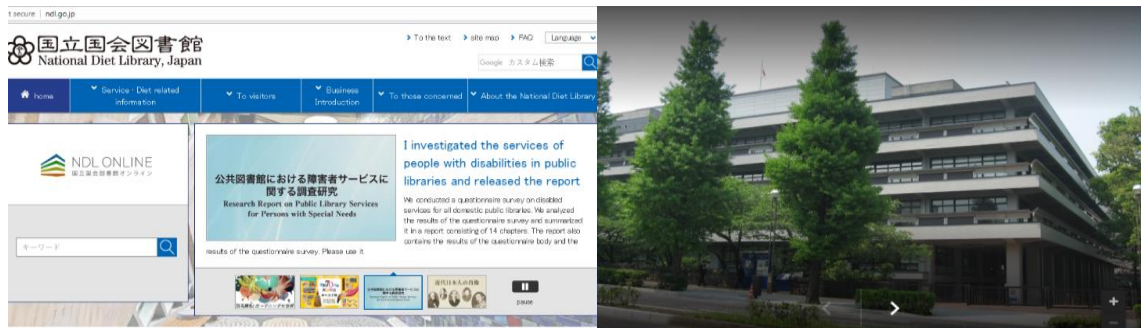


**Figure- 3.15: National Library of Israel Website**  
(Source: [www.nli.org.il](http://www.nli.org.il))

### 3.5.16. National Library of Japan

The National Diet Library (NDL) is the National Library of Japan, founded in 1948 and located at Tokyo. The library has its own dedicated website and is accessible in three languages i.e., English, Chinese and Korean. It is established by the National Diet

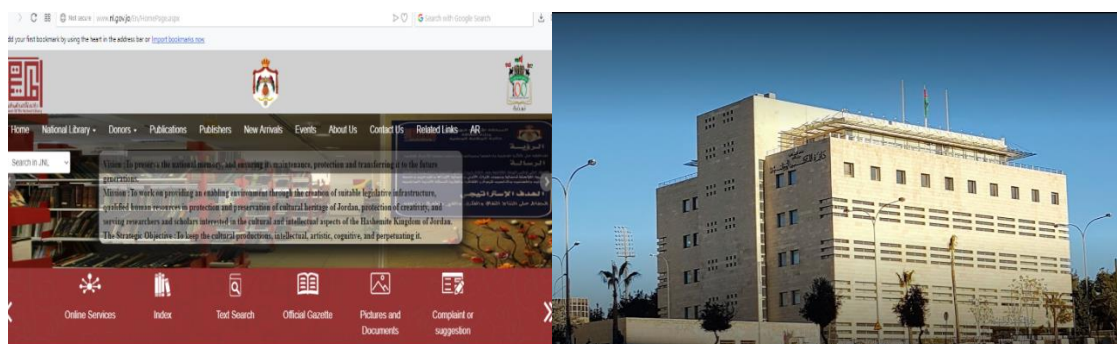
Library Law, based on Article 130 of the Diet Law. It acquires, preserves and provides Japanese publications. The National Library is established as a result of the firm conviction that truth makes free and with the object of contributing to international peace and the democratization of Japan. Figure-3.16 shows the website of National Library of Japan.



**Figure- 3.16: National Library of Japan Website**  
(Source: [www.ndl.go.jp](http://www.ndl.go.jp))

### 3.5.17. National Library of Jordan

The National Library of Jordan was established in 1977 located at Amman, Jordan. It is the copyright and legal deposit of Jordan. The library has its own dedicated website and is accessible in Arabic and English languages. The National library's objective is to keep the cultural productions, intellectual, artistic, cognitive, and perpetuating it. And the vision of the library is to preserve national memory, and ensuring its maintenance, protection and transferring it to the future generations. Figure-3.17 shows the website of National Library of Jordan.



**Figure- 3.17: National Library of Jordan Website**  
(Source: [www.nl.gov.jo](http://www.nl.gov.jo))

### 3.5.18. National Library of the Republic of Kazakhstan

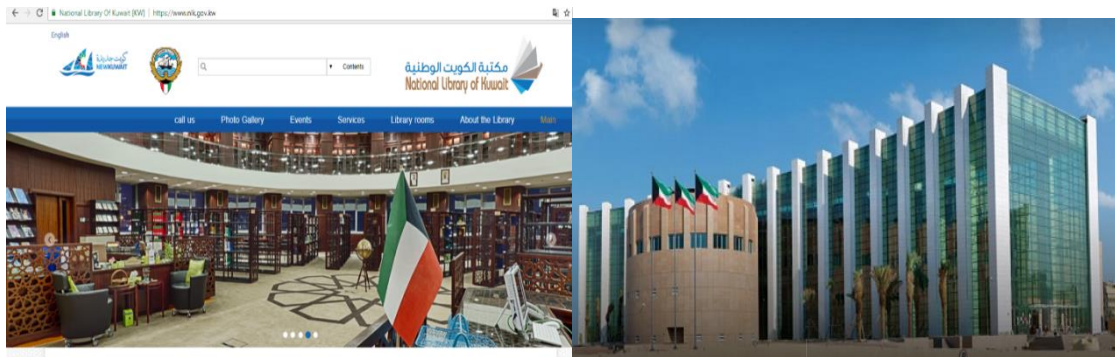
The National Library is the biggest scientific-methodological center for the libraries of Kazakhstan, the legal depository of all printed production of Kazakhstan, the depository of the committee for the control in the sphere of education and science of the Ministry of Education and Science of the RK for candidate and doctoral dissertations in all branches of science defended in Kazakhstan, depository of abstracts of these of the Commonwealth of Independent States (CIS) countries. It was established in 1931 located at Almaty, Kazakhstan. The library has its own dedicated website and is accessible in three languages i.e., Kazak, Russian and English. Figure-3.18. shows the website of National Library of Republic of Kazakhstan.



**Figure- 3.18: National Library of Republic of Kazakhstan Website**  
(Source: [www.nlrk.kz](http://www.nlrk.kz))

### 3.5.19. National Library of Kuwait

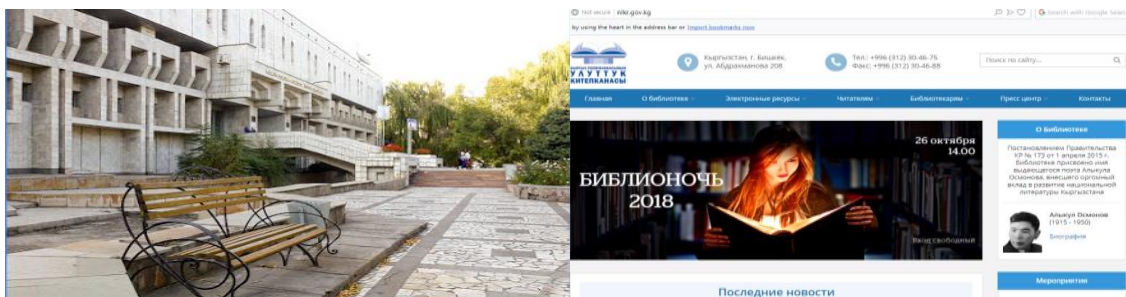
The National Library of Kuwait is the legal deposit and copyright library for Kuwait. It was established in 1923 located at Kuwait city. The library has its own dedicated website and is accessible in Arabic and English languages. The website is accessible in all three languages. The vision of the library is to consolidate the role of the library in preserving the history of Kuwait, illuminating its present and safeguarding national memory. Figure-3.19 shows the website of National Library of Kuwait.



**Figure- 3.19: National Library of Kuwait Website**  
(Source: [www.nlk.gov.kw](http://www.nlk.gov.kw))

### 3.5.20. National Library of Kyrgyzstan

The National Library of Kyrgyzstan is considered to be the center of the entire national intellectual life. It is established by decision of the Council of People’s Commissars of the Kyrgyz Autonomous Soviet Socialist Republic No. 25 in 1934 at Bishkek, Kyrgyzstan. The library has its own dedicated website and is available only in English and Russian languages. The library has a unique collection of scripts and other ancient monuments of the Kyrgyz people. It is an exclusive property of the state and is not subject to expropriation and privatization. Figure-3.20 shows the website of National Library of Kyrgyzstan.



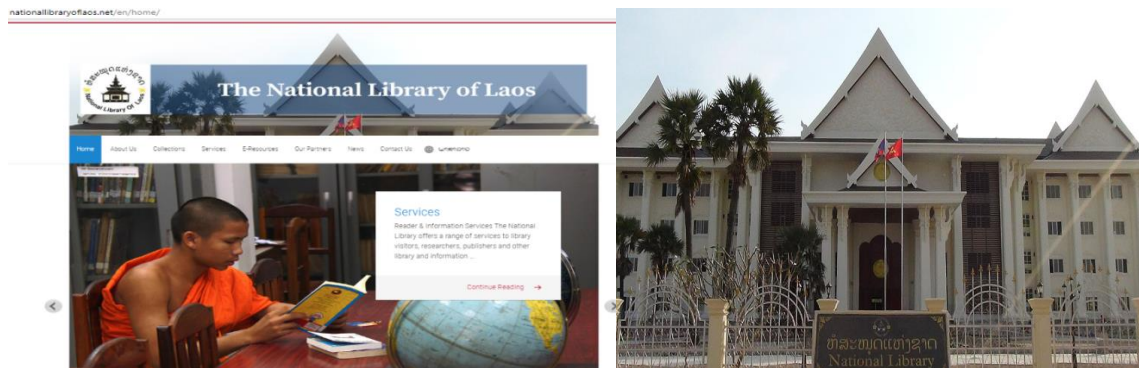
**Figure- 3.20: National Library of Kyrgyzstan Website**  
(Source: [www.nlkr.gov.kg](http://www.nlkr.gov.kg))

### 3.5.21. National Library of Laos

The National Library of Laos has a mission to preserve national cultural heritage, foster reading for development, and to promote organizational excellence in order to build a



knowledge society for Lao people. It was established in 1956 located at Vientiane, Laos. It offers a range of services to library visitors, researchers, publishers and other library and information institutions. The library has its own dedicated website and is available in Lao and English languages. Figure-3.21 shows the website of National Library of Laos.

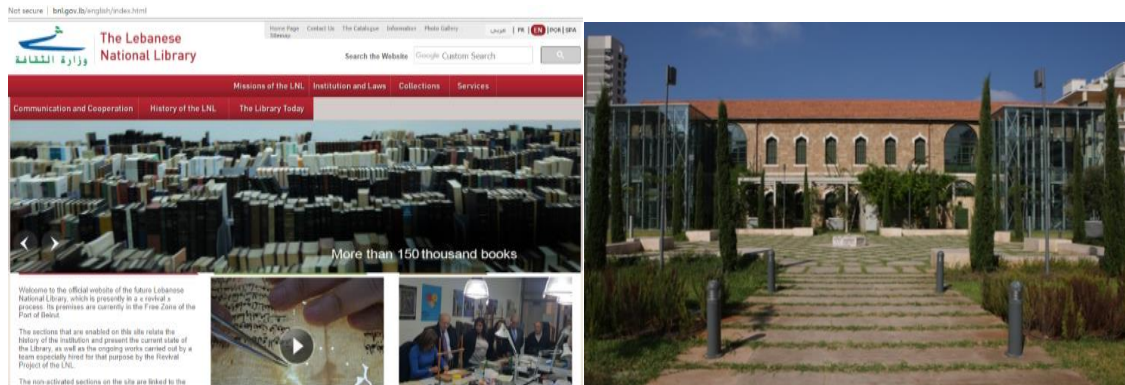


**Figure- 3.21: National Library of Laos Website**

(Source: [www.nationallibraryoflaos.net](http://www.nationallibraryoflaos.net))

### **3.5.22. Lebanese National Library**

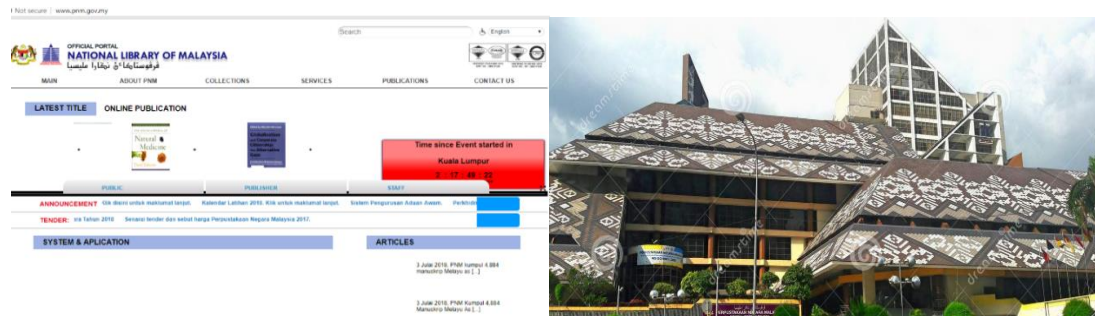
The Lebanese National Library was established in 1921 and located at Beirut. The library has its own dedicated website and is available in five languages i.e., Arabic, French, English, Portuguese and Spanish. Its function is to collect national works and developing the collections of the library in order to become an institution of national memory, to conserve memory and intellectual production, to manage the collections of the library, to provide access to library's collections, to develop libraries and information sector, to support public libraries and to cooperate with regional and global organizations. Figure-3.22 shows the website of Lebanese National Library.



**Figure- 3.22: Lebanese National Library Website**  
(Source: [www.bnl.gov.lb](http://www.bnl.gov.lb))

### 3.5.23. National Library of Malaysia

National Library of Malaysia was established in 1966 located at Kuala Lumpur, Malaysia. The library has its own dedicated website and is available in English and Malaysian languages. The website has also provided an option to select other 64 languages to view the website by web translator. The main objective of national library is to make national collection of library resources available for the use of present and future generation, to facilitate nationwide access to library resources available within the country and abroad and to provide leadership on matters pertaining to libraries. Figure-3.23 shows the website of National Library of Malaysia.

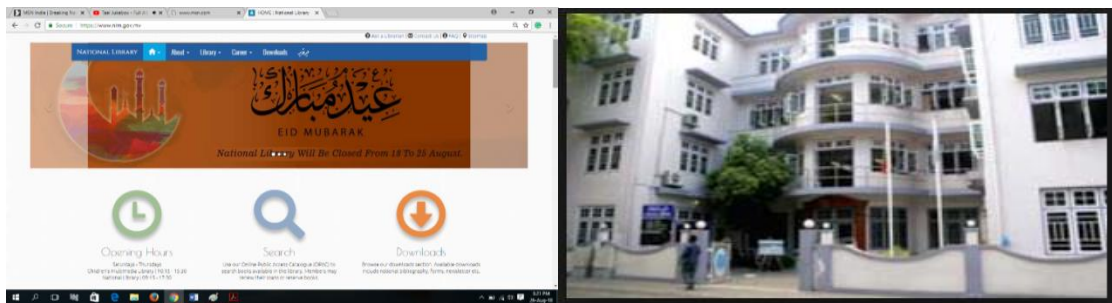


**Figure- 3.23: National Library of Malaysia Website**  
(Source: [www.pnm.gov.my](http://www.pnm.gov.my))

### 3.5.24. National Library of Maldives

The National Library of Maldives was established in 1945 located at Male, Maldives. The library has its own dedicated website and is available in English and Maldivian

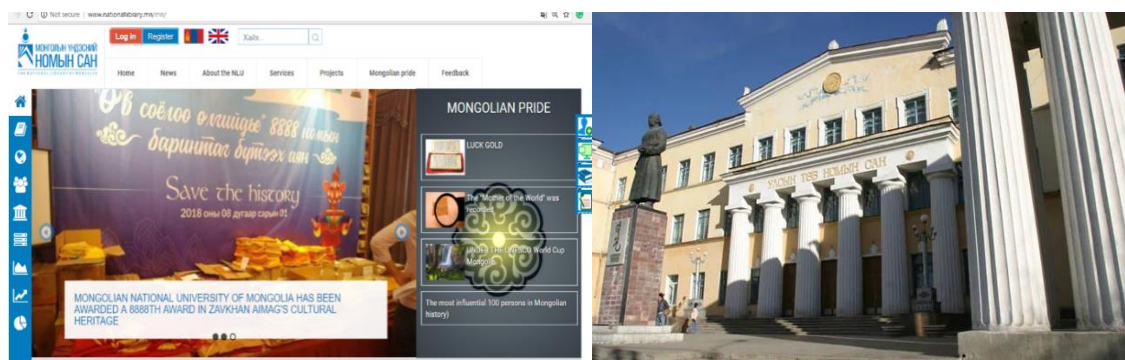
languages. The library mission is to provide trusted and accessible library services to build knowledgeable and productive society. It also provides a diverse collection of all published reading materials and documents within the country. Figure-3.24 shows the website of National Library of Maldives.



**Figure- 3.24: National Library of Maldives Website**  
(Source: [www.nlm.gov.mv](http://www.nlm.gov.mv))

### 3.5.25. National Library of Mongolia

The National Library of Mongolia was founded at the Institute of Scripture in 1921, located at Ulaanbaatar, Mongolia. The library has its own dedicated website and is accessible in both Mongolian and English languages. The library began its foreign exchange activities in 1924 and became a member of the International Librarian Union (1991) in 1991 and currently publishes books and publications with over 100 libraries in more than 70 countries. Figure-3.25 shows the website of National Library of Mongolia.



**Figure- 3.25: National Library of Mongolia Website**  
(Source: [www.nationallibrary.mn](http://www.nationallibrary.mn))

### 3.5.26. National Library of Myanmar

The National Library of Myanmar was established in 1952 and situated in Yangon. It is under the Department of Historical Research and National Library, Ministry of Religious Affairs and Culture. The library has its own dedicated website and is accessible in Myanmar and English languages. The functions of the library are managed by the Director of National Library (Naypyitaw). Figure-3.26 shows the website of National Library of Myanmar.



**Figure- 3.26: National Library of Myanmar Website**  
(Source: <http://www.nlm-npt.gov.mm>)

### 3.5.27. Nepal National Library

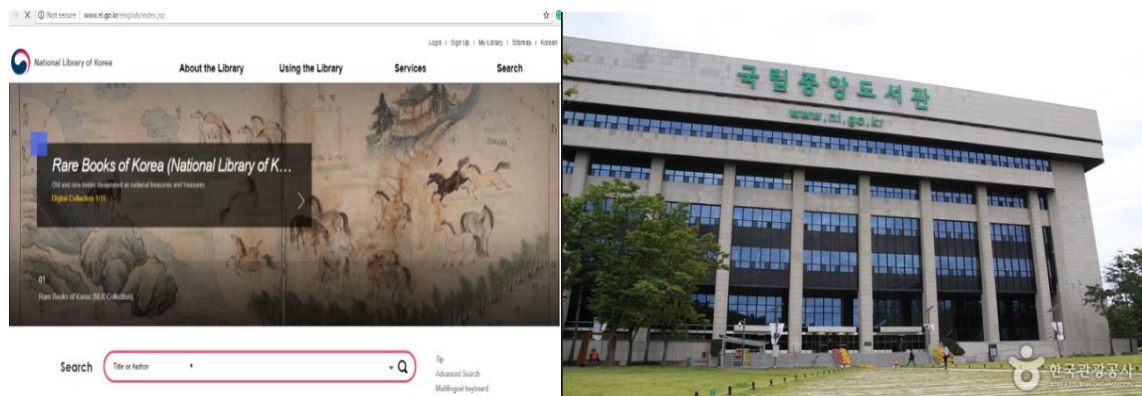
The Nepal National Library is the legal deposit and copyright library of Nepal under Ministry of Education, Science and Technology. It was established in 1957 and located at Patan, Nepal. The library has its own dedicated website and is accessible in English language. Figure-3.27 shows the website of Nepal National Library.



**Figure- 3.27: Nepal National Library Website**  
(Source: [www.nnl.gov.np/](http://www.nnl.gov.np/))

### 3.5.28. National Library of Korea (South Korea)

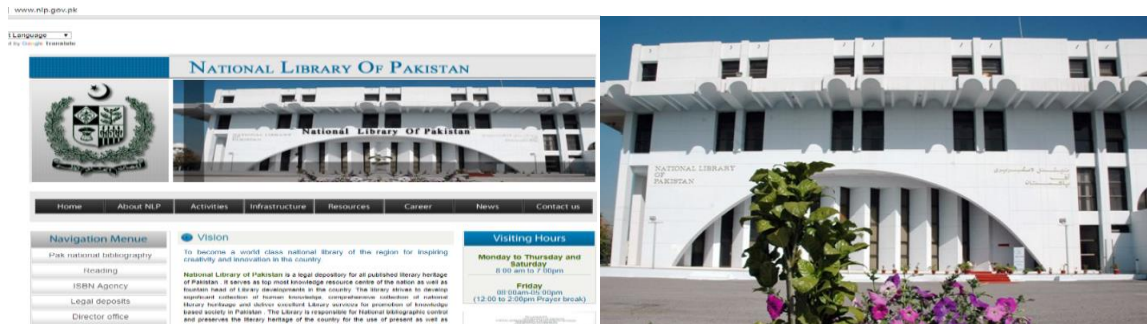
National Library of Korea was established in 1945 and located at Seoul, South Korea. The library has its own dedicated website and is accessible in Korean and English languages. It is a comprehensive and treasured repository of intellectual and informational resources of the Republic of Korea and has implemented advanced technologies to provide a free, easy and open access to the library materials all citizen of republic of Korea. Figure-3.28 shows the website of National Library of Korea (South Korea).



**Figure- 3.28: National Library of Korea Website**  
(Source: [www.nl.go.kr](http://www.nl.go.kr))

### 3.5.29. National Library of Pakistan

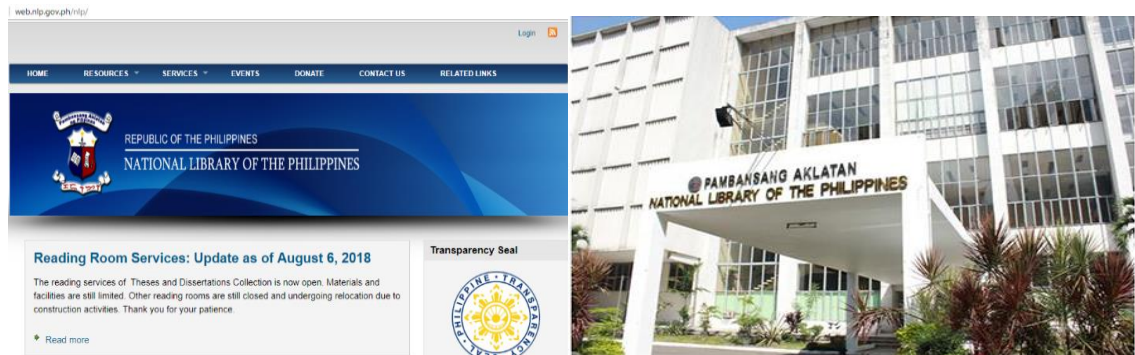
National Library of Pakistan was established in 1951 and located at Islamabad, Pakistan. The library has its own dedicated website and is accessible only in English language. It serves as a national depository under the provisions of copyright ordinance 1962 and their main objectives is to preserve all the published materials produced in the country in order to make it available for the use of present as well as future generations. Figure-3.29 shows the website of National Library of Pakistan.



**Figure- 3.29: National Library of Pakistan Website**  
(Source: [www.nlp.gov.pk](http://www.nlp.gov.pk))

### 3.5.30. National Library of the Philippines

The National Library of the Philippines as established in 1901 and located at Ermita, Manila. The library has its own dedicated website and is accessible in English language. It is the repository of the printed and recorded cultural heritage of the country and other intellectual, literary and information sources. Figure-3.30 shows the website of National Library of the Philippines.

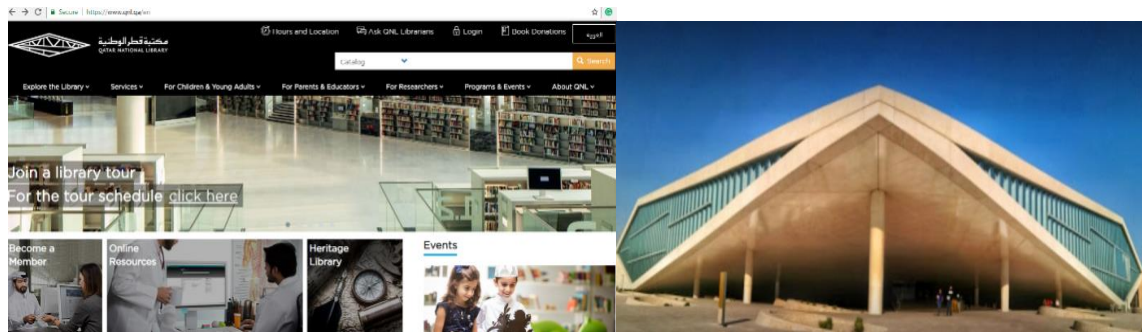


**Figure- 3.30: National Library of the Philippines Website**  
(Source: [www.nlp.gov.ph](http://www.nlp.gov.ph))

### 3.5.31. Qatar National Library

Qatar National Library plays a leading role in the library and cultural heritage sector in the country which was founded in 2012 at Doha, Qatar. The library has its own dedicated website and is accessible in Arabic and English languages. It is one of the world's leading centers of learning, research and culture, preserving the heritage of the

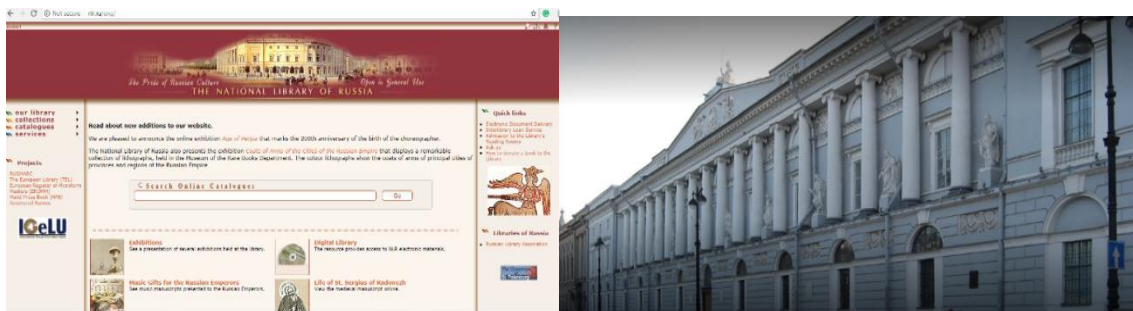
region, encouraging, and refining the spiritual side of man. Figure-3.31 shows the website of Qatar National Library.



**Figure- 3.31: Qatar National Library Website**  
(Source: [www.qnl.qa](http://www.qnl.qa))

### 3.5.32. National Library of Russia

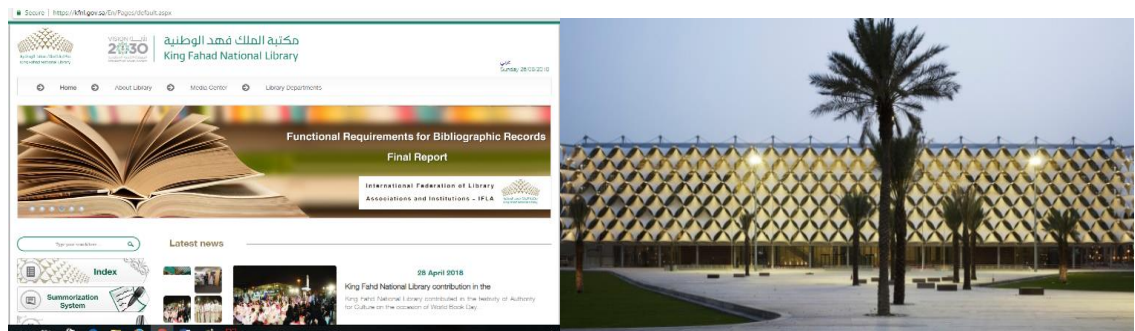
National Library of Russia was founded on 1795 by decree of Empress Catherine the Great and is located at Saint- Peterburg, Russia. The library currently ranked among the world's major libraries. It has the second richest library collection in the Russian Federation known as a treasury of national heritage and All-Russian Information, Research and Cultural Center. It is the oldest public library of Russia founded by decree of Empress Catherine the Great. The library has its own dedicated website and is accessible in Russian and English languages. Also known as the greatest treasury of writing and NLR occupies an exceptional place in the history of Russian and world culture. Figure-3.32 shows the website of National Library of Russia.



**Figure- 3.32: National Library of Russia Website**  
(Source: [www.nlr.ru/](http://www.nlr.ru/))

### 3.5.33. National Library of Saudi Arabia

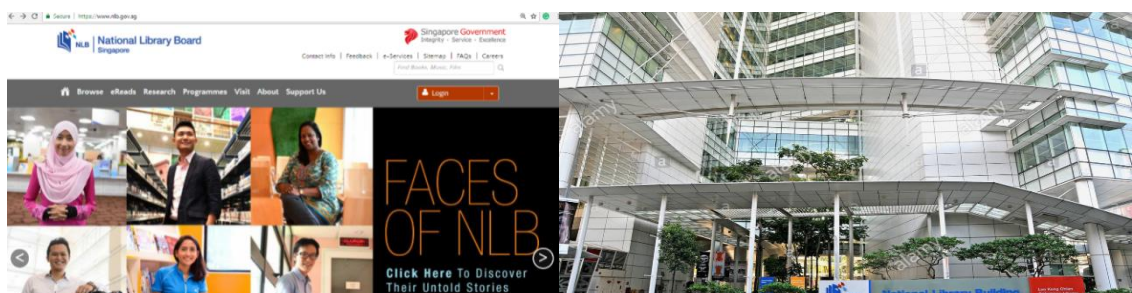
National Library of Saudi Arabia is known as King Fahad National Library which was founded in 1990 at Riyadh, Saudi Arabia. The library has its own dedicated website and is accessible in Arabic and English languages. It plays an active role in the local and Arab exhibitions, takes care for the equipment conservation systems, restoration and maintenance of manuscripts/rare books and building internal information networks that help in organizing the information and circulation. Figure-3.33 shows the website of National Library of Saudi Arabia.



**Figure-3.33: National Library of Saudi Arabia Website**  
(Source: [www.kfnl.gov.sa](http://www.kfnl.gov.sa))

### 3.5.34. National Library of Singapore

The National Library of Singapore (NLS) was founded in 1923 at Victoria Street, Singapore. The library has its own dedicated website and is accessible only in one language i.e., English. The library is responsible for preserving and making accessible the nation's literary and publishing heritage, and intellectual memory. Figure-3.34 shows the website of National Library of Singapore.



**Figure-3.34: National Library of Singapore Website**  
(Source: [www.nlb.gov.sg](http://www.nlb.gov.sg))



### 3.5.35. National Library of Sri Lanka

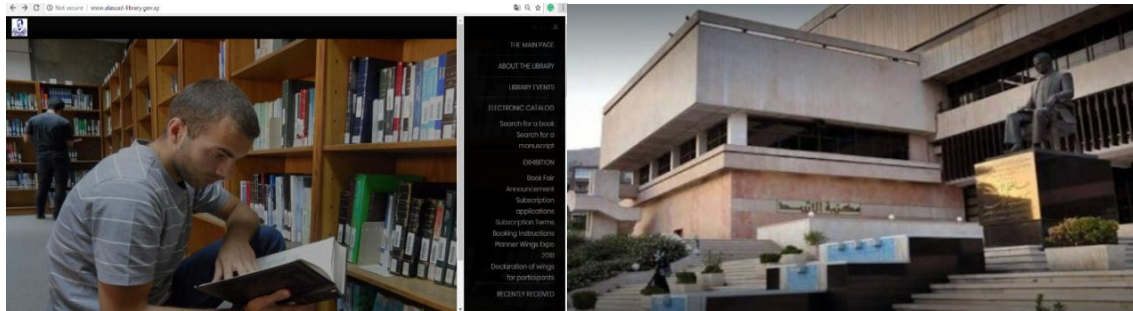
National Library of Sri Lanka was established in 1970 located at Colombo, Sri Lanka. The library was accredited the status of legal deposit by the Printers and Publishers Act in 1976. The library has its own dedicated website and is accessible in English language. It is mainly a research and a reference library providing access to library and information services for all. Figure-3.35 shows the website of National Library of Sri Lanka.



**Figure-3.35: National Library of Sri Lanka Website**  
(Source: [www.natlib.lk](http://www.natlib.lk))

### 3.5.36. National Library of Syria

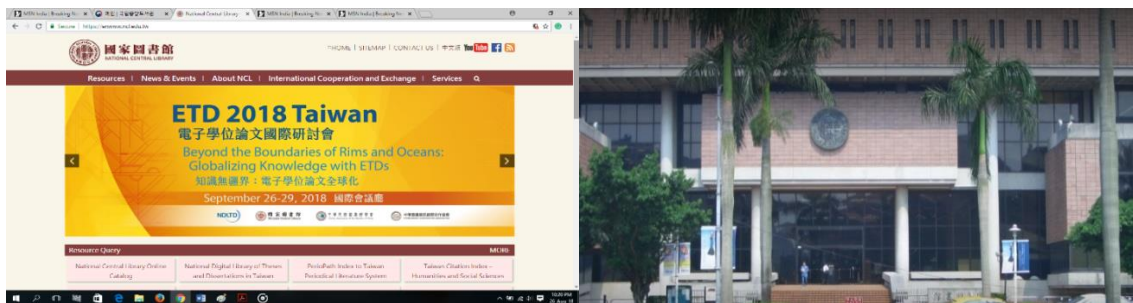
The National Library of Syria is known as AL-Assad National Library which was established in 1984 located at Damascus, Syria. The library has its own dedicated website and is accessible in English and Arabic languages. The library has contributed over three decades for supporting scientific research and graduate studies in Syrian and Arab universities. It has provided all the cultural services and office facilities that are available to serve those seeking knowledge and seeks to develop its capabilities and capabilities to keep pace with global libraries. Figure-3.36 shows the website of National Library of Syria.



**Figure-3.36: National Library of Syria Website**  
 (Source: [www.alassad-library.gov.sy](http://www.alassad-library.gov.sy))

### 3.5.37. National Central Library of Taiwan

National Central Library of Taiwan was established in 1949 located at Taipei, Taiwan. The library has its own dedicated website and is accessible in Chinese and English languages. The library’s mission is to acquire, catalog and preserve national publications for government, research and general public use. It also cooperates with publishers and other libraries to develop its role as a leading center for knowledge and information resources and services in Taiwan. Figure-3.37 shows the website of National Central Library of Taiwan.

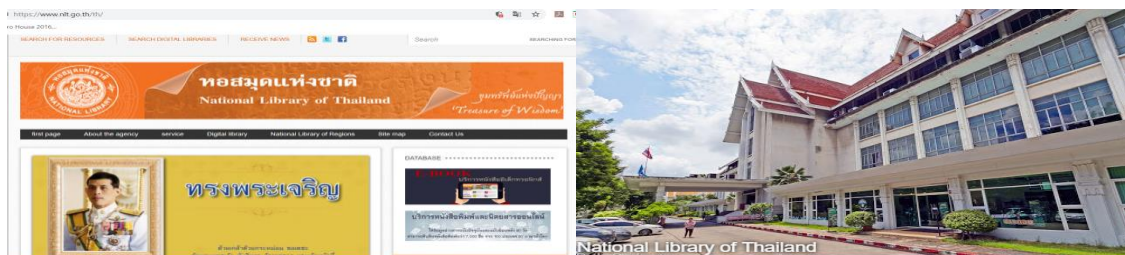


**Figure- 3.37: National Central Library of Taiwan Website**  
 (Source: [www.ncl.edu.tw](http://www.ncl.edu.tw))

### 3.5.38. National Library of Thailand

National Library of Thailand was established in 1905 and located at Bangkok, Thailand. It is one of the oldest national libraries in Asia. The library has its own dedicated website and is available in Thai and English languages. The library is an agency under the fine arts department ministry of culture responsible for collecting and preserving intellectual

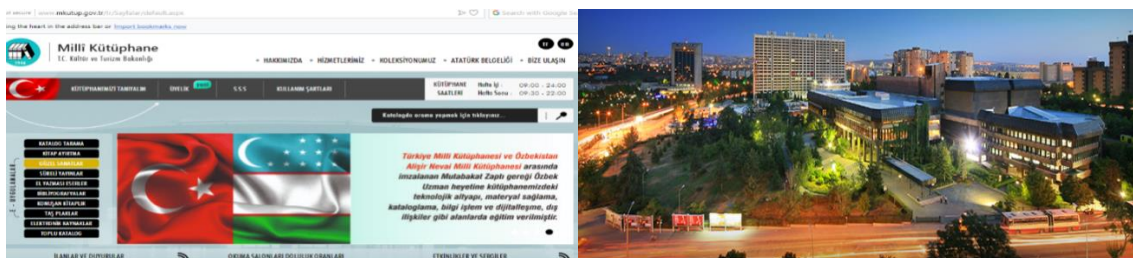
property, national arts and culture in the form of ancient books, including stone inscriptions, bailan, thai books, print media, audiovisual media and electronic media. Figure-3.38 shows the website of National Library of Thailand.



**Figure- 3.38: National Library of Thailand Website**  
(Source: [www.nlt.go.th](http://www.nlt.go.th))

### 3.5.39. National Library of Turkey

The National Library of Turkey was established in 1946 and located at Ankara, Turkey. The library has its own dedicated website and is accessible in Turkish and English languages. The National Library has the richest collections in Turkey and has the collection of all materials published in the country as well as materials about Turkey and the Turkish published abroad. Figure-3.39 shows the website of National Library of Turkey.

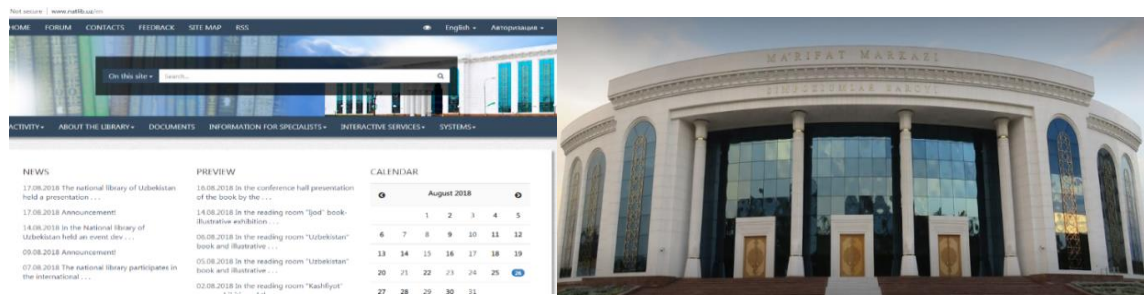


**Figure- 3.39: National Library of Turkey Website**  
(Source: [www.mkutup.gov.tr](http://www.mkutup.gov.tr))

### 3.5.40. National Library of Uzbekistan

The National Library of Uzbekistan was established in 2002 and located at Tashkent, Uzbekistan. The library has its own dedicated website and is accessible in three languages i.e., Russian, Uzbek and English. In April, 2002 the Cabinet of Republic Uzbekistan has accepted the Regulation from April, 12<sup>th</sup>, 2002. The regulation of the

Cabinet of Republic Uzbekistan has defined the status of library- the main state book-depository national and a foreign press, multipurpose library and information and research establishment, the methodological center for all libraries of republic. Figure-3.40 shows the website of National Library of Uzbekistan.



**Figure- 3.40: National Library of Uzbekistan Website**  
(Source: [www.natlib.uz](http://www.natlib.uz))

### 3.5.41. National Library of Vietnam

The National Library of Vietnam was established in 1917 at Hanoi, Vietnam. The library has its own dedicated website and is accessible in three languages i.e., Vietnamese, French and English. National Library of Vietnam belongs to Ministry of Culture, Sports & Tourism and its activities aimed to the country development and community’s needs of research, study and entertainment. Figure-3.41 shows the website of National Library of Vietnam.



**Figure- 3.41: National Library of Vietnam Website**  
(Source: [www.nlv.gov.vn](http://www.nlv.gov.vn))

Thus, the above elaborations discuss 41 national library websites in Asia having functional website during the period of study. Among these 41 libraries, 2 national

libraries website (i.e., National Library of Afghanistan and Brunei) have library webpage and the rest are having their own individual website. Lebanese National Library has recorded to have maximum languages used in their website (i.e., Arabic, French, English, Portuguese and Spanish). English is used as a parallel language in most of the national library websites. Majority of the websites (i.e., 27 national libraries) are bi-lingual, 07 libraries are having three languages and 06 libraries have only one language.

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## **CHAPTER- 4**

### **CONCEPTUAL APPROACH OF WEBOMETRICS**

## **OBJECTIVE OF THE CHAPTER**

The objective of this chapter is to give a brief introduction about Bibliometrics, Scientometrics, Informetrics, Cybermetrics, Webometrics and relationship between these five metrics. It further provides information about web link structure analysis, web impact factor, its definition and method of calculating web impact factor, content analysis, different aspects of web content and types of content analysis, website usability analysis, link analysis, website navigation analysis and terminologies of webometric.

### **4.1. INTRODUCTION**

Web is increasing day by day in terms of webpages, URLs, search engines, domains/subdomains, website traffic, web usage, online tools, social networking etc. The web is measured to check the effectiveness of various services provided over it. Some popular types of measurement of Web are search engine performance, recall and precision, query analysis, indexing of databases, and behavior. Web can also be measured with website usage analysis, content analysis and URL analysis. An interesting measure of Web can be established through measuring depth of the Web and qualitative analysis of Web documents. All these can be categorized into four major groups,

- Link analysis (including web impact factor analysis)
- URL analysis
- Web citation analysis and
- Web content analysis

Libraries are information resource centres which perform preservation, processing, and dissemination of knowledge through Information Communication Technology (ICT) to serve user needs in a better way. The content of the library websites depend on the library collection, services, facilities etc.

Webometric studies the quantitative growth of Web that is measured through application of statistical methods and principles of bibliometrics, scientometrics and informetric studies. The concept of Webometrics was conceived in 1997 and still offers a food scope

for study. Search engines are widely adopted tools for Webometric research. Besides search engines, there are number of online tools and software programs available to conduct Webometric researches (Shukla, & Tripathi, 2015).

## **4.2. BIBLIOMETRICS**

The word 'bibliometrics' is a combination of two words i.e. 'Biblio' and 'Metrics'. Biblio is derived from Latin/Greek word 'biblion' means books, Metrics is derived from Latin/Greek word 'Metricus' or 'Metrikos' which means measurement.

The term 'bibliometrics' was coined by British Scientist Alan Pritchard in 1969. It can be defined as the application of mathematics and statistical methods to books and other media of communication (Pritchard, 1969).

British Standard Institution (1976) described the bibliometrics as the "application of mathematical & statistical methods in the study of documents and publication patterns."

Nicholas and Ritchie defined "bibliometrics...provide information about the structure of knowledge and how it is communicated." They further added that "bibliometrics studies fall mainly into two broad categories-those describing the characteristics or features of a literature (descriptive studies) and those examining the relationship formed between components of a literature (behavioral studies) (Kawatra, 2000).

Bibliometrics studies includes studies of the growth of literature in some subject, how much literature is contributed by various individuals, groups, or countries, how much exists in various language, how the literature on some subject is scattered, & how quickly the literature on some subject become out of date. One very important group of bibliometrics studies related to what sources author cite. Citation analysis is concerned with such phenomenon as: which author are most cited which journals are most cited and what linkages exist through citation & so on. (Tandale, 2017).

The three most commonly used laws in bibliometrics are:

Lotka's Law: This law emphasis the productivity of authors in a discipline or other field;

Bradford's Law: This law emphasis the pattern of scattering of literature in various periodicals;

Zipf's Law: This law emphasis the frequency of occurrence of the word distribution.

### **4.3. SCIENTOMETRICS**

Nalimov and Mulchenko (1971) coined the Russian equivalent of the term "scientometrics" in 1969, and defined it as the quantitative study of various kinds of intelligence process in the development of science. The term has obtained broad acceptance form the journal *Scientometrics*, which was built in 1978. Scientometrics is a discipline that uses mathematical methods to quantify the scientific research personnel and achievements to reveal the process of scientific development, and can provide scientific decision making and management (Qiu, Zhao, Yang & Dong, 2017). Scientometric uses citation analysis and other quantitative methods to evaluate scientific research activities and thus guide the policy of science (Egghe, 2005).

Tague-Sutcliffe (1992) defines Scientometrics as "the study of the quantitative aspects of science as a discipline or economic activity" (Sutcliffe, 1992). It is also used as a generic term for a system of knowledge, which endeavors to science and technology studies. Thus, Scientometrics is a part of the science and has application to science policy making. It involves studies in History Science, growth of science and scientific institutions, behavior of science and scientists and science policy and decision-making (Sangam, 2008).

### **4.4. INFORMETRICS**

By the early 1990s, the term "informetrics" obtained wide recognition." It was first proposed by Otto Nacke of West Germany in 1979. Informetrics deals with measurement of information. Informetrics formal study of information including its structure, properties, uses and functions in society, in particular the technology used to record, organized, store, retrieve and disseminate. (Tandale, 2017).

Ravichandra Rao (1993) stated that “Informetrics connotes the use & development of variety of measures to study and analyze several properties of information in general and document in particular. He further added that the scope of informetrics covers both bibliometrics and scientometrics. (Tandale, 2017 & Rao, 1993).

#### **4.5. CYBERMETRICS**

Bjorneborn and Ingwersen (2004) have defined cybermetrics as “the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the whole internet, drawing on bibliometrics and informetrics approaches.” Cybermetrics encompasses statistical studies of discussion groups, mailing lists and other computer mediated communication on the internet on the web” (Bjorneborn & Ingwersen, 2004).

Cybermetrics includes all aspects of Internet related studies including computer mediated communications and covers quantitative aspects of web including studying web network properties.

#### **4.6. WEBOMETRICS**

The term webometrics was first coined by Almind and Ingwersen (1997). Webometrics is a quantitative study of web-related phenomena. The webometrics study could be applied to web with commercial search engines providing the raw data. Quantitative studies of the web have been named as webometrics by Almind and Ingwersen although the basic issue had been identified simultaneously by Larson who is also a pioneer with his early exploratory link structure analysis with the first pure informetrics analysis of the web. A website is a collection of related web pages, images, videos or other digital assets that are addressed relative to a common Uniform Resource Locator (URL), often consisting of only the domain name, or the IP address, and the root path (‘/’) in an Internet Protocol based network. (Babu, Jeyshankar, & Rao, 2010).

The term webometrics is a coinage from two modern English words, “web” and “metric”. The word web is a short of WWW. The Dictionary of Science define web as: a

hypermedia system... that allows users to view and retrieve information from documents containing links”. On the other hand, metrics has to do with counting or measurement. Webster’s Comprehensive Dictionary of English Language defines metrics as: “the mathematical theory of measurement.” (Babu, Jeysankar, & Rao, 2010).

Webometrics was started by the realization that the web is an enormous document repository with many of these documents being academic-related (Almind & Ingwersen, 1997).

Bojorneborne and Ingwersen defined webometrics as: “the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the web, drawing on bibliometric and informetric approaches”. This definition covers the construction side and usage side of the web, which embrace the following four main areas of webometrics study:

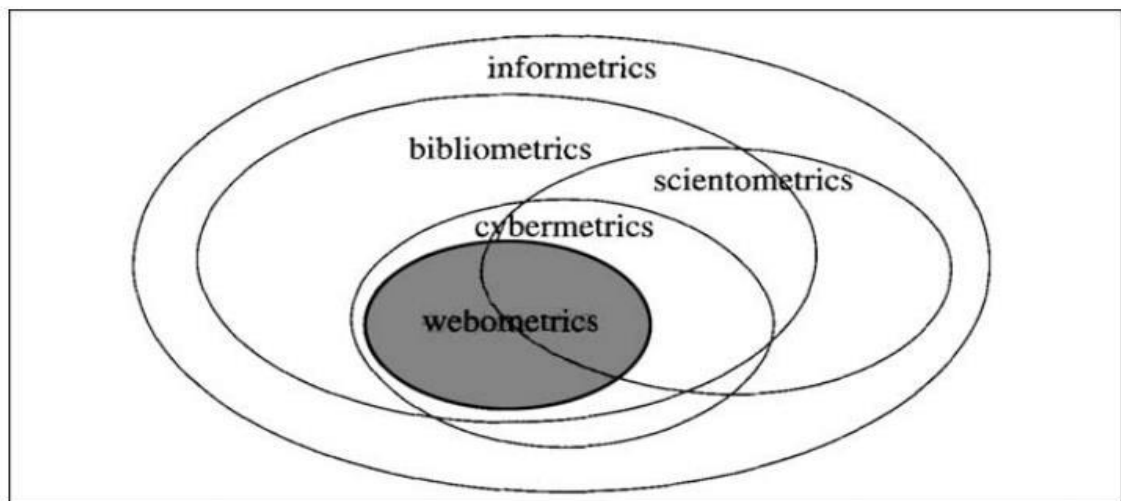
- (i) Web page content analysis.
- (ii) Weblink structure analysis (e.g., hyperlink, self-link and external link).
- (iii) Web usage analysis (e.g., exploiting log files for users searching and browsing behaviour).
- (iv) Web technology analysis (including search engine performance).

According to Thelwall (2009), Webometrics is the study of web-based content with primarily quantitative methods for social science research goals using techniques that are not specific to one field of study, which emphasizes the development of applied methods for use in the wider social sciences.

#### **4.7. RELATIONSHIP BETWEEN FIVE METRICS (BIBLIOMETRICS, SCIENTOMETRICS, INFORMETRICS, CYBERMETRICS AND WEBOMETRICS)**

Bjorneborn and Ingwersen (2004) have proposed a different terminology to distinguish between studies of web and internet applications. They defined that there is a significance difference among concepts of informetrics, bibliometrics, and

scientometrics. Figure- 4.1 shows the relationship between informetrics, bibliometrics, scientometrics, cybermetrics and webometrics. It is observed that Webometrics associates with Bibliometrics and overlaps Scientometrics to an extent. Further it shows that the field of Informetrics embracing the overlapping fields of Bibliometrics and Scientometrics. In this context, the field of Webometrics may be seen as entirely encompassed by Bibliometrics, because web documents, whether text or multimedia, are recorded information stored on the web servers. While cybermetrics exceeds the boundaries of bibliometrics, some activities in cyberspace exceeds the boundaries of bibliometrics, because some activities in cyberspace are normally not recorded but they are communicated synchronously as in chat rooms. Cybermetric studies of such activities still fit in the generic field of informetrics as the study of the quantitative aspects of information “in any form” and “in any social group” as stated by Tague-Sutcliffe (Shukla & Tripathi, 2015).



**Figure- 4.1: Relationship between informetrics, bibliometrics, scientometrics, cybermetrics and webometrics**

(Source: Bjerneborn & Ingwersen, 2004)

#### **4.8. WEB LINK STRUCTURE ANALYSIS**

Link analysis is the quantitative study of hyperlinks between webpages (Thelwall, 2007). The use of links in bibliometrics was triggered by Ingwersen (1998). It has been

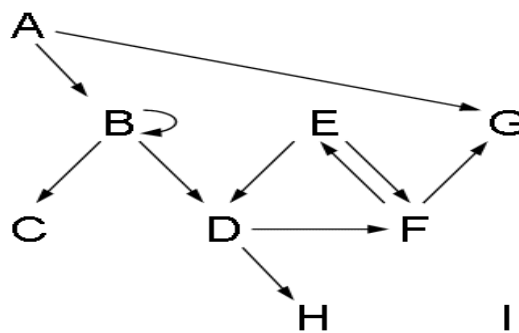


used successfully for deciding which web pages to add to the collection of documents (i.e., which pages to crawl), and how to order the documents matching a user query (i.e., how to rank pages). It has been used to categorize web pages, to find pages that are related to given pages, to find duplicated websites, and various other problems related to web information retrieval (Henzinger, 2000).

- i) The study provides hyperlinks between documents and records of user behavior.
- ii) This study provides counts and analysis of outgoing links from web pages, here named outlinks or external links.
- iii) This study provides links to web pages or links coming from the other websites called inlinks or incoming links. An incoming link is similar to receiving a citation in a document. These links are also known as backward links.
- iv) Reciprocal Link: If two web pages or two websites have a link pointing to each other, we define the link as a reciprocal link (Jeyshankar & Sujithai).

The link relations between the web nodes have been described in the following figure- 4.2 below.

Letters A-H represents different web node levels such as web pages, web directories, websites, or top level domains of countries or generic sectors and, the arrows represent the linking pattern of these nodes among one another. (Thelwall, Vaughan & Bjerneborn, 2005).



**Figure- 4.2: Basic Webometric Link Terminology (Bjerneborn, 2004)**

- B has an *inlink* from A
- B has an *outlink* to C
- B has a *selflink*
- E and F are *reciprocally* linked
- A has a *transversal outlink* to G: functioning as a shortcut
- H is *reachable* from A by a directed link path
- I has neither in- nor *outlinks*; I is isolated
- B and E are *co-linking* to D; B and E have *co-outlinks*
- C and D are *co-linked* from B; C and D have *co-links*

The term *outlink* implies that a directed link and its two adjacent nodes are viewed from the source node providing the link, analogous with the use of the term *reference* in bibliometrics.

A corresponding analogy exists between the terms *inlink* and citation, with the target node as the spectator's viewpoint. On the Web, *selflinks* are used for wider range of purposes than *selfcitations* in scientific literature. Page *selflinks* point from one section to another within the same page. Site *selflinks* (also known as *internal links*) are typically navigational pointers from one page to another within the same site. Most links on the Web connect web pages containing cognate topics. However, some links may break typical linkage pattern in a web node neighborhood and connect dissimilar topical domains. Such (loosely defined) *transversal links* function a cross-topic shortcuts and may affect so-called small-world phenomena on the Web (Thelwall, Vaughan, & Bjerneborn, 2005).

The two *co-linked* web nodes C and D in Figure- 4.2 with *co-inlinks* from the same source node are analogous to the bibliometric concept of *co-citation* pointed out by Small (1973). Correspondingly, the two *co-linking* nodes B and E having *co-outlinks* to the same target node are analogous to a *bibliographic coupling* has been proposed by Kessler (1963). *Co-link* is proposed as a generic term covering both concepts. *Co-inlinking* is based on co-citation analysis (Small, 1973): if a single document cites two

other documents, these documents are likely to have similar content, and the more often they are cited together, the stronger the similarity is assumed to be. Co-inlinking may reveal something about the external view on the relationships between the studied set of websites. Co-outlinking is based on bibliographic coupling where two documents are assumed to be similar if they both cite to a third document (Kessler, 1963; Thelwall, Vaughan, & Bjorneborn, 2005).

#### **4.9. WEB IMPACT FACTOR**

The idea of measuring average link frequencies that is WIF, as one of the quantitative indicators was developed in 1998 by Peter Ingwersen. Previously, Rodriguez i Gairin (1997) had introduced the concept of information impact on the Internet in a Spanish documentation journal. The WIF was based on analogy between hyperlinks and citations was the adaptation of the journal “*Impact Factor*” (originally proposed by Garfield in 1972) for the web. However, the time periods for the WIF and the journal *Impact Factor* (JIF) are different. The JIF measures citations made in journals published during one time period to articles published in another time period while the WIF is a “*snapshot*” of a search engine database at a specific time. Compared with the content of a journal paper, the content of a web resource lacks peer review and thus lacks quality control. The WIF is therefore not exactly the equivalent of the JIF. However, the WIF was inspired by the JIF (Noruzi, 2006).

There has been much recent interest in analyzing links and web pages, especially with commercial search engines, like Alta Vista (Rodriguez i Gairin, 1997; Ingwersen, 1998; Smith, 1999; Snyder & Rosenbaum, 1999; Thelwall, 2000; Thelwall, 2001; Smith & Thelwall, 2002; Thelwall, 2002; Kousha & Horri, 2004; Noruzi, 2005), AlltheWeb and Yahoo, despite the relatively unregulated and problematical nature of this information source.

#### 4.9.1. DEFINITION

The WIF provides quantitative tools for ranking, evaluating, categorizing, and comparing websites, top-level domains and sub-domains. There are three types of links: (1) Outgoing links from webpages are named outlinks, (2) Links coming into a site from other sites inlinks (backlinks), and (3) Links within the same site (from one page to another page) self links. And there are three types of WIF: (1) Overall WIF, (2) inlink (revised) WIF, and (3) Self-link WIF. For the overall WIF of a website, the numerator is the number of inlink pages from outside the site and self-link pages within the site (see Figure-4.1); for the inlink (revised) WIF, the numerator is the number of inlink pages counted from outside the site (see Figure-4.2); and for the self-link WIF, the numerator is the number of self-link pages counted from within the site. The denominators all remain the same, the number of webpages within the web site in question (Noruzi, 2006).

**The calculation of Web Impact Factor is shown below:**

**A**= Total link pages (all inlink and self-link pages)

**D**= Number of webpages published in the website  
which are indexed by the search engine, not all  
webpages available in the website.

**WIF**=  $A/D$  = Web Impact Factor

The WIF is a form of measurement used to determine the relative standing of websites in particular fields, or a country; for instance, academic websites in a country. The higher the impact factor, the higher the perceived reputation of the website. The WIF answers the question “*what impact has this website had?*” A WIF is a measure of the frequency with which the “average webpage” in a website has been linked at a given point in time. In general, a website with a higher impact factor may be considered to be more prestigious or of a higher quality than those websites with a lower impact factor. The WIF gives a measure of average (external or absolute) impact per page, which could be

for a single university website or all websites in an entire country, for example. (Noruzi, 2006).

The WIF is useful in clarifying the significance of inlink (or total link) frequencies. It eliminates some of the bias of such counts which favour large web sites over small ones, or well-known web sites over less-known ones, and of older web sites over newer ones. Particularly in the latter case such web sites have a larger linkable body of literature than smaller or younger web sites. All things being equal, the larger the number of previously published web pages, the more often a web site will be linked. Thus the greater the number of link pages to a web site, the greater the WIF will be. The symbolic role played by the links in representing the content of a web site is an extensive dimension of information retrieval, and can expand the scope of information seeking by retrieving not only those web sites that have linked a primordial web site, but also those that related to the linking web sites (Noruzi, 2006).

#### **4.9.2. REVISED WEB IMPACT FACTORS**

Researchers can establish analogous impact factors, (excluding self-links), for the websites they are evaluating. Self-links often represent an important percentage of the links that the pages of a website receive. Self-links reflect the logical structures used for organizing webpages in the local servers (Ingwersen, 1998). The WIF analysis for self-links is less meaningful than inlinks, because the majority of self-links within a website can be created for navigation purposes rather than for endorsing the content of target pages (Smith, 1999; Thelwall, 2000). The bigger the website the larger the number of self-link pages will tend to be.

Inlinks from outside represent more effort to point to target pages, and thus contain more valuable information. However, it is not always easy to separate self-links form inlinks (Li, 2003).

### **Calculation for WIF revised to exclude self-links**

**A**= total links to a website (all inlink and self-link pages)

**B**= inlinks to the website (this is a subset of A)

**C**= self-links and navigational links within the same website

**D**= number of webpages published in the website which are indexed by the search engine, not all web pages available in the website.

**R-WIF**= revised WIF (B/D)

## **4.10. HYPERLINK ANALYSIS: THE WEBOMETRICS APPROACH**

### **4.10.1. Background**

Information science interest in hyperlinks starts in 1996 and has been mainly driven by analogies with citations in journal articles. The fields of bibliometric and scientometrics make extensive use of citations both to help assess the quality of academic work and to trace patterns of scholarly communication (Borgman & Furner, 2002; Wouters, 1999). The underlying assumptions are that more important, or higher-quality articles, will tend to be cited more, and that citations often indicate that the work in the cited article has been built upon or otherwise used by the citing article (Cronin, 1984). In fact, reasons for citing are extremely diverse (Borgman & Furner, 2002) but citation analysis remains an effective, if controversial, tool that is used for a variety of purposes (Garfield, 1979; Oppenheim, 1997; Moed, 2002).

Two early articles examined the use of hyperlinks to track Web information (Larson, 1996; Rodriguez Gairin, 1997). An extensive theoretical discussion by Almind and Ingwersen (1997) also set the foundations for and gave a name to the new field of Webometrics. The event that triggered Webometrics was the deployment by commercial search engines such as AltaVista of an interface that allowed anybody to count links between large web spaces with a simple command. This made it possible to think about creating techniques to exploit this new facility and to begin to speculate about and

investigate potential new applications. The information scientists who noted this potential naturally turned to their own disciplines to look for applications, and the apparently close analogy between hyperlinks and citations, both being the referencing of one document by another, gave them a ready-made set of research questions and techniques through the adaptation of citation analysis.

Rousseau (1997) popularized the term *sitation* for a Web hyperlink, foregrounding the citation analogy. Aguillo (1998) at the same time started the e-journal *Cybermetrics* and began an extensive investigation into various aspects of Web and Internet use, including hyperlinks. The analogy between hyperlinks and citations has continued to generate interest within information science, including speculations about the kind of information that they could reveal in different contexts (Borgman & Furner, 2002; Bjorneborn & Ingwersen, 2001; Cronin, 2001; Davenport & Cronin, 2000; Thelwall, 2002).

The starting point of Webometrics then, was the attempt to apply citation analysis to the Web context. Since citation analysis tracks (to some extent) scholarly communication, some researchers have sought to use hyperlink counts as a measure of the extent of online communication between the owners of two or more sets of Web pages. Other citation analysis attempts to evaluate bodies of work through their citation counts, which has led to a second type of Webometrics approach: to see whether link counts can be valid measures of online impact. This has led to investigations into whether pages attract hyperlinks primarily for the quality or interest level of their contents, so that hyperlink counts would measure some kind of online impact. The starting points in terms of methods are not just formulae and algorithms for computing useful information, but also a wide range of data validation techniques, partly a legacy of the continued controversy surrounding evaluative citation analysis (Park & Thelwall, 2003).

#### **4.11. CONTENT ANALYSIS**

Content analysis is a technique of research for the systematic, objective and quantitative description of the content of research data procured through interviews, schedules, questionnaires and other methods. It is an attempt to convert symbolic behavior into

scientific data. It is a device of categorizing and classifying research data according to the purpose of the study (Devi, 2017). Content analysis can be done both quantitatively as well as qualitatively. It can be broadly divided in two categories:

Primarily content analysis had been used as a quantitative research method. Now, it's being used as a qualitative research technique or both. The qualitative approach of this technique has been able to address grey areas of the quantitative approach. Now instead being a single-method, content analysis has three different approaches; conventional, directed, or summative. Even though coding schemes are directly derived from the text data in the conventional content analysis are cardinal in the third and the final approach, summative content analysis. Unlike the earlier approach, the qualitative approach enables to provide a detailed and in-depth description of the content. As per Zhang & Wildermuth (2009), "Through careful data preparation, coding, and interpretation, the results of the qualitative content analysis can support the development of new theories and models, as well as validate existing theories and provide thick descriptions of particular settings or phenomena." Zhang & Wildermuth, 2009; Parveen & Showkat, 2017).

Figure-4.3 shows the different aspects of web content. Content is published in the form of texts, images, audio and video. The main purpose of content analysis is to understand organizations objectives and users behavior, prepare a record of existing content holdings, identify gap in quality of content necessary to support the organization and map content with the organization's objectives and user goals. Content analysis is a three-step process to understand, identify, analyze and map web content.

Content Survey- It is a qualitative survey which help to gain understanding on how contents are being used by online users, how content usages are supporting business objectives, who are the users and what promotional activities are being used. It helps to evaluate existing content quality and functionality, identify business objectives, build user's profile, set key performance indicator (KPIS) and develop content marketing strategies.



Content Inventory- It means capturing and cataloging web content. It identifies the different types and sources of web content that are created by content owners of a website. It will help to develop and refine content structure, utilization and dissemination strategies of a website project.

Content Audit- gap analysis and mapping content with business objectives, user goals, key performance indicators and marketing channels. It will review existing content based on business objectives and user goals. It will help in discovering any gaps in quality content necessary to support business objectives and user's expectation. This will enable to understand what content is important and needed, and what is not needed and can be removed. It will map content with business objectives, user goals, key performance indicators and marketing channels.

Content Audience- An audience is a potential clients and patrons. The more great content that website builder produce, the greater number of audiences will follow.

Mobile Content Strategy- It is a strategy for adapting the content to meet the wants and needs of mobile users. As we know that mobile search is little bit different from desktop search. It means to take care about the contents whether it is fitting on a mobile screen or not. It should make look good on variety of screen sizes.



**Figure-4.3: Different aspects of web content**

(Source:<https://alamtariq.wordpress.com/category/content-analysis/>)

#### **4.11.1. TYPES OF CONTENT ANALYSIS**

There are two general types of content analysis: Conceptual analysis and Relational analysis. Conceptual analysis determines the existence and frequency of concepts in a text. Relational analysis develops the conceptual analysis further by examining the relationships among concepts in a text. Each type of analysis may lead to different results, conclusions, interpretations and meanings.

##### **4.11.1.1. CONCEPTUAL ANALYSIS**

In conceptual analysis, a concept is chosen for examination and the analysis involves quantifying and counting its presence. The main goal is to examine the occurrence of selected terms in the data. Terms may be explicit or implicit.

To begin a conceptual content analysis, first identify the research question and choose a sample or samples for analysis. Next, the text must be coded into manageable content categories. This is basically a process of selective reduction. By reducing the text to categories, the researcher can focus on and code for specific words or patterns that inform the research question.

##### **4.11.1.2. RELATIONAL ANALYSIS**

Relational Analysis begins like conceptual analysis, where a concept is chosen for examination. However, the analysis involves exploring the relationships between concepts. Individual concepts are viewed as having no inherent meaning and rather the meaning is a product of the relationships among concepts.

To begin a relational content analysis, first identify a research question and choose a sample or samples for analysis. The research question must be focused so the concept types are not open to interpretation and can be summarized. Next, select text for analysis. Select text for analysis carefully by balancing having enough information for a thorough analysis so results are not limited with having information that is too extensive so that the coding process becomes arduous and heavy to supply meaningful and

worthwhile results (Source: <https://www.mailman.columbia.edu/research/population-health-methods/content-analysis>).

#### **4.12. WEBSITE USABILITY ANALYSIS**

Usability analysis is an important for any website, but it's about any organization's library especially national library then more attention will be required. The first thing that homepage of the website should have is simple and direct window title where title (name of the library) should be given on top with noticeable word. The presentation of the contents of website must be expressed in useful manner for the readers. The usability means the process of finding the user's need and to improve according to user experience. The more user-friendly and quick the website is, the more clientele will like to access the resources and will be wanting to visit the website next time also. A good usable website will always give a satisfactory job to the organization to accomplish at the best.

Sometimes the websites may not give good result when you check the usability features for just small mistakes, thus checking of website contents is must in order to make changes according to usability analysis report to make it better. The usability analysis report gives detailed instructions and recommendations to make the site more usable and informative (Source:<https://www.raybiztech.com/services/accessibility-usability-usability-analysis>).

#### **4.13. LINK ANALYSIS**

Link analysis is a data analysis technique used in network theory that is used to evaluate the relationships or connections between network nodes. Link analysis is about data analysis technique used in network theory that is used to evaluate the relationships or connections between network nodes. These relationships can be between various types of objects (nodes), including people, organizations and even transactions. Link analysis is essentially a kind of knowledge discovery that can be used to visualize data to allow

for better analysis, especially in the context of links. It is often used in search engine optimization (Source: <https://www.techopedia.com/definition/30336/link-analysis>).

#### **4.14. WEBSITE NAVIGATION ANALYSIS**

The website navigation is similar to road map which enables webpage visitors to explore and discover different areas and information contained within the website. Web navigators vary in styles between different website as well as within a certain site. The availability of different navigational styles allows for the information in the website to be delivered easily and directly. Web navigation refers to the process of navigating a network of information resources in the World Wide Web organized as hypertext or hypermedia. Such examples of website navigation are as follows: a) Hierarchical website navigation is built from general to specific, providing a clear, simple path to all the pages from anywhere on the website; b) Global website navigation shows the top level sections/pages of the website which is available on each page and lists the main content sections/pages of the website; c) Local website navigation is the links within the text of a given webpage, linking to other pages within the website (Source: [https://en.wikipedia.org/wiki/Web\\_navigation](https://en.wikipedia.org/wiki/Web_navigation)).

#### **4.15. WEBOMETRIC TERMINOLOGIES**

In webometric study different types of links are analyzed. The conceptual overview on basic link terminologies are as follows:

##### **4.15.1. DOMAIN AUTHORITY –**

Domain authority is a measure of the power of a domain name and is one of many search engine ranking factors. It is a score (on a 100 point scale) developed by Moz that predicts how well a website ranks on the search engines.

#### **4.15.2. PAGE AUTHORITY-**

Page authority is a metric, developed by SEOMoz, to predict the ability for a specific page to rank in search engines. It is developed by Moz (on a 100 point scale). It gives the score and the potentiality of a specific page how well it ranks in search engine results.

#### **4.15.3. JUST-DISCOVERED LINKING DOMAINS-**

The Just-Discovered links report helps to identify recently created URLs and links. These are typically indexed within few hours to a day of being published that shows the newest links.

#### **4.15.4. INTERNAL FOLLOWED LINKS-**

The Internal links are the hyperlinks on a webpage to another web page resource such as an image or document, on the same website or domain.

#### **4.15.5. EXTERNAL FOLLOWED LINKS –**

The External links are hyperlinks that point at any domain other than the domain the link exists on (source).

#### **4.15.6. LINKING ROOT DOMAINS-**

Linking Root Domains are the number of unique domains linking to your domain or page. Multiple backlinks (inbound links) from a single domain will be grouped and counted as one linking root domain.

#### **4.15.7. TOTAL LINKS-**

Total links are the total amount of links to a site. This would be all types of links (internal, external, followed links).

#### **4.15.8. SPAM SCORE-**

Spam score represents the percentage of sites with similar features that found to be penalized or banned by Google. Spam score reduces the risk by discovering potentially damaging links.

#### **4.15.9. FOLLOWED LINKING DOMAINS –**

The number of domains with at least one follow link to any page on the root domain.

#### **4.15.10. TOTAL INBOUND LINKS-**

Inbound links are the number of unique pages linking to a target. It is a hyperlink on a third-party webpage that points to a webpage on your site. Two or more links from the same page on a website are counted as one link. Inbound Links are also known as back-link.

#### **4.15.11. WEB IMPACT FACTOR-**

The WIF is defined as the number of webpages in a website receiving links from other websites, divided by the number of webpages published in the site that are accessible to the crawler.

#### **4.15.12. SIMPLE WEB IMPACT FACTOR-**

Simple WIF means the ratio of links to the number of pages.

#### **4.15.13. INTERNAL WEB IMPACT FACTOR-**

Internal WIF is the ratio of internal links within the site to number of pages.

#### **4.15.14. EXTERNAL WEB IMPACT FACTOR-**

External WIF means the ratio of links made from external sites to the target site, to the number of pages at the site.

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## **CHAPTER– 5**

### **DATA ANALYSIS AND INTERPRETATION**

## **OBJECTIVE OF THE CHAPTER**

This chapter analyzes the websites of 41 national libraries' websites in Asia and the data was collected based on the objectives formulated for the present study and were presented in tables for interpretation.

### **5.1. INTRODUCTION**

Data analysis is a process for obtaining raw data and converting it into information useful for decision-making by users. Data are collected and analyzed to answer questions, test hypotheses or disprove theories. The term analysis refers to the computation of certain measures along with searching for patterns of relationship that exists among data groups (Kothari, 1990). To fulfill the objectives stated in the Introduction (Chapter one) and to have a clear understanding of the collected data, the data have been analyzed and interpreted under the following sub-headings

### **5.2. AVAILABILITY OF NATIONAL LIBRARIES' WEBSITE/ WEBPAGE**

Table- 5.1 provides information about the availability of the website/webpage of national libraries' in Asia. Under the heading of the availability of the libraries' website/webpage, the researcher has made two parameters, viz., Library has a dedicated website and Library has a webpage.

A website is a set of related webpages be made up of text, images, video, audio, etc. and is hosted on at least one web server, accessible through the network with the help of Uniform Resource Locator.

A Webpage is a document commonly written in HTML (Hypertext Markup Language) that is accessible through the Internet or other networks using an Internet browser. It is accessed by entering a URL address and may contain text, graphics, and hyperlinks to other webpages and files.

It is observed from the table that majority (95%) of the national libraries' websites in Asia are having dedicated library website and they are Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, China, Cyprus, Georgia, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia,

Maldives, Mongolia, Myanmar, Nepal, South Korea, Pakistan, Philippines, Qatar, Russia, Saudi Arabia, Singapore, Sri Lanka, Syria, Taiwan, Thailand, Turkey, Uzbekistan and Vietnam. Whereas, only two (5%) countries have a separate library webpage for their national library and are they are Afghanistan and Brunei.

**Table-5.1: Availability of national libraries' website/webpage**

<b>Sl. No.</b>	<b>Country</b>	<b>Library has a dedicated website</b>	<b>Library has a webpage</b>
1	Afghanistan	N	Y
2	Armenia	Y	N
3	Azerbaijan	Y	N
4	Bahrain	Y	N
5	Bangladesh	Y	N
6	Bhutan	Y	N
7	Brunei	N	Y
8	China	Y	N
9	Cyprus	Y	N
10	Georgia	Y	N
11	India	Y	N
12	Indonesia	Y	N
13	Iran	Y	N
14	Iraq	Y	N
15	Israel	Y	N
16	Japan	Y	N
17	Jordan	Y	N
18	Kazakhstan	Y	N
19	Kuwait	Y	N
20	Kyrgyzstan	Y	N
21	Laos	Y	N
22	Lebanon	Y	N
23	Malaysia	Y	N
24	Maldives	Y	N
25	Mongolia	Y	N
26	Myanmar	Y	N
27	Nepal	Y	N
28	South Korea	Y	N
29	Pakistan	Y	N
30	Philippines	Y	N
31	Qatar	Y	N

32	Russia	Y	N
33	Saudi Arabia	Y	N
34	Singapore	Y	N
35	Sri Lanka	Y	N
36	Syria	Y	N
37	Taiwan	Y	N
38	Thailand	Y	N
39	Turkey	Y	N
40	Uzbekistan	Y	N
41	Vietnam	Y	N
<b>Total</b>		<b>39 (95%)</b>	<b>2 (5%)</b>

(Source: Primary data)

### 5.3. SITE DESCRIPTION OF NATIONAL LIBRARIES' WEBSITE/WEBPAGE

Table-5.2 brings out the site description of the national libraries' website/webpage in Asia. Under the heading of the site description of the national libraries' website/webpage, the researcher has made three parameters, viz., graphics used in the site along with the text; to check whether the site is using only the text version and the last criteria is to find out whether the website consists of animation or not to communicate with their clientele.

Graphics in the website are useful to attract visitors because text only version website looks unattractive and users may not like it. If graphics and animation both come together it acts like an 'eye-catcher' on the website. But at the same time if the website is full of graphics then it can make the connection slower and too long to download from the website especially for the user with a poor connection. The animation is one of the effective tools that increase the level of visitors' interest to stay on the site for a longer time. Once the user visits the website, they can't avoid watching the animated graphics.

It is observed that all the 41 (100%) library websites are using graphics in their website and they are Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei, China, Cyprus, Georgia, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, Nepal, South Korea, Pakistan, Philippines, Qatar, Russia, Saudi

Arabia, Singapore, Sri Lanka, Syria, Taiwan, Thailand, Turkey, Uzbekistan and Vietnam, while none of the websites are using only text version.

It is also observed that 17 (43%) countries have used animation in their respective national library websites for highlighting the important information and to attract users while accessing the website. They are Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Georgia, Indonesia, Israel, Japan, Laos, Malaysia, Mongolia, Qatar, Russia, Singapore, Taiwan and Thailand.

**Table-5.2: Site description of national libraries' website/webpage**

Sl. No.	Country	Use of graphics	Text only version	Animation available
1	Afghanistan	Y	N	N
2	Armenia	Y	N	Y
3	Azerbaijan	Y	N	Y
4	Bahrain	Y	N	Y
5	Bangladesh	Y	N	Y
6	Bhutan	Y	N	Y
7	Brunei	Y	N	N
8	China	Y	N	N
9	Cyprus	Y	N	N
10	Georgia	Y	N	Y
11	India	Y	N	N
12	Indonesia	Y	N	Y
13	Iran	Y	N	N
14	Iraq	Y	N	N
15	Israel	Y	N	Y
16	Japan	Y	N	Y
17	Jordan	Y	N	N
18	Kazakhstan	Y	N	N
19	Kuwait	Y	N	N
20	Kyrgyzstan	Y	N	N
21	Laos	Y	N	Y
22	Lebanon	Y	N	N
23	Malaysia	Y	N	Y
24	Maldives	Y	N	N
25	Mongolia	Y	N	Y
26	Myanmar	Y	N	N
27	Nepal	Y	N	N
28	South Korea	Y	N	N
29	Pakistan	Y	N	N
30	Philippines	Y	N	N
31	Qatar	Y	N	Y

32	Russia	Y	N	Y
33	Saudi Arabia	Y	N	N
34	Singapore	Y	N	Y
35	Sri Lanka	Y	N	N
36	Syria	Y	N	N
37	Taiwan	Y	N	Y
38	Thailand	Y	N	Y
39	Turkey	Y	N	N
40	Uzbekistan	Y	N	N
41	Vietnam	Y	N	N
<b>Total</b>		<b>41 (100%)</b>	<b>0</b>	<b>17 (43%)</b>

(Source: Primary data)

#### 5.4. STATEMENT OF RESPONSIBILITY OF NATIONAL LIBRARIES WEBSITE/ WEBPAGE

Table-5.3 depicts the responsibility of national libraries' website/webpage. Under this heading, the researcher has brought out four parameters, i.e., the postal address of the library; phone number of the authority or the concerned library staff, fax numbers of the library and email address of the concerned staffs in the library. All the four criteria mentioned are important for the respective library website/webpage. The postal address is an important part in every organization's website.

It is observed from the study that among the 41 websites, 40 (98%) websites have provided the postal address in their respective website. They are Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei, China, Cyprus, Georgia, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, Nepal, South Korea, Pakistan, Philippines, Russia, Saudi Arabia, Singapore, Sri Lanka, Syria, Taiwan, Thailand, Turkey, Uzbekistan and Vietnam. Only one has not provided the postal address i.e., Qatar.

The phone numbers are useful identity for the respective website and the information about phone number has been given by 38 (93%) countries and they are Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei, China, Cyprus, Georgia, India, Iraq, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, Nepal, South Korea, Pakistan, Philippines, Qatar, Russia, Saudi Arabia, Singapore, Sri Lanka, Syria, Taiwan,



Thailand, Turkey, Uzbekistan and Vietnam. Only three library websites have not provided the phone number in their site and they are- Indonesia, Iran and Laos.

The information about fax numbers has been provided by 29 (71%) countries and they are Armenia, Azerbaijan, Bangladesh, Bhutan, Brunei, Cyprus, Georgia, India, Iraq, Israel, Jordan, Kuwait, Kyrgyzstan, Lebanon, Malaysia, Maldives, Mongolia, South Korea, Pakistan, Russia, Saudi Arabia, Singapore, Sri Lanka, Syria, Taiwan, Thailand, Turkey, Uzbekistan and Vietnam. While, Afghanistan, Bahrain, China, Indonesia, Iran, Japan, Kazakhstan, Laos, Myanmar, Nepal, Philippines and Qatar have not provided the fax numbers in their respective site.

Email is an important and effective means of communication. It the cheapest and fastest tool for communication with the help of the Internet. It is observed form the study that almost 39 (95%) countries have provided the information regarding Email address in their site and they are Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei, China, Cyprus, India, Indonesia, Iran, Iraq, Israel, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, Nepal, South Korea, Pakistan, Philippines, Qatar, Russia, Saudi Arabia, Singapore, Sri Lanka, Syria, Taiwan, Thailand, Turkey, Uzbekistan and Vietnam. Only two countries i.e., Georgia and Japan have not provided the Email address in their respective site.

So, it found that out of the four parameters under the heading responsibility of national libraries' website/webpage, the majority (98%) of the library websites have provided a postal address in their site, followed by the email address (95%), phone number (93%) and fax (71%).

**Table- 5.3: Statement of responsibility of national libraries' website/webpage**

Sl. No.	Country	Postal Address	Phone No.	Fax	Email
1	Afghanistan	Y	Y	N	Y
2	Armenia	Y	Y	Y	Y
3	Azerbaijan	Y	Y	Y	Y
4	Bahrain	Y	Y	N	Y
5	Bangladesh	Y	Y	Y	Y
6	Bhutan	Y	Y	Y	Y
7	Brunei	Y	Y	Y	Y

8	China	Y	Y	N	Y
9	Cyprus	Y	Y	Y	Y
10	Georgia	Y	Y	Y	N
11	India	Y	Y	Y	Y
12	Indonesia	Y	N	N	Y
13	Iran	Y	N	N	Y
14	Iraq	Y	Y	Y	Y
15	Israel	Y	Y	Y	Y
16	Japan	Y	Y	N	N
17	Jordan	Y	Y	Y	Y
18	Kazakhstan	Y	Y	N	Y
19	Kuwait	Y	Y	Y	Y
20	Kyrgyzstan	Y	Y	Y	Y
21	Laos	Y	N	N	Y
22	Lebanon	Y	Y	Y	Y
23	Malaysia	Y	Y	Y	Y
24	Maldives	Y	Y	Y	Y
25	Mongolia	Y	Y	Y	Y
26	Myanmar	Y	Y	N	Y
27	Nepal	Y	Y	N	Y
28	South Korea	Y	Y	Y	Y
29	Pakistan	Y	Y	Y	Y
30	Philippines	Y	Y	N	Y
31	Qatar	0	Y	N	Y
32	Russia	Y	Y	Y	Y
33	Saudi Arabia	Y	Y	Y	Y
34	Singapore	Y	Y	Y	Y
35	Sri Lanka	Y	Y	Y	Y
36	Syria	Y	Y	Y	Y
37	Taiwan	Y	Y	Y	Y
38	Thailand	Y	Y	Y	Y
39	Turkey	Y	Y	Y	Y
40	Uzbekistan	Y	Y	Y	Y
41	Vietnam	Y	Y	Y	Y
<b>Total</b>		<b>40</b> <b>(98%)</b>	<b>38</b> <b>(93%)</b>	<b>29</b> <b>(71%)</b>	<b>39</b> <b>(95%)</b>

(Source: Primary data)

## 5.5. AVAILABILITY OF AIDS AND TOOLS ON NATIONAL LIBRARIES' WEBSITE/WEBPAGE

Table-5.4 shows the aids and tools of national libraries' website/webpage. Under this heading, the researcher has made four criteria i.e., whether the library website has

provided feedback facility or not, search box is provided or not, whether the web designer has provided the site map for finding the list of pages of websites in one place and last criteria is FAQ which is a list frequently asked questions and answers on a particular topic.

In the first criterion, the study observed that 12 (30%) countries have provided feedback facility in their respective website. The feedback option in the website allows users to give comments or opinions about the website and this feedback will help the website developer to improve the condition of the website. To know how users are rating the website is very important. The 12 countries which have provided feedback option are Afghanistan, Bangladesh, Brunei, India, Mongolia, Pakistan, Qatar, Saudi Arabia, Singapore, Taiwan, Uzbekistan and Vietnam. It found out that most of the countries have not provided feedback facility in their respective site. This indicates not so user-friendly website and a big disadvantage for the developer.

In the second criteria, the study found that 29 (71%) countries have provided a search box in their library website/webpage. Search option helps the users in finding content by typing specific words or phrases instead of navigating through the structure of the website. The 29 countries which have provided search facility are Afghanistan, Bahrain, Bangladesh, Brunei, China, Cyprus, Georgia, Indonesia, Iran, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Mongolia, Myanmar, Nepal, South Korea, Pakistan, Qatar, Russia, Saudi Arabia, Singapore, Sri Lanka and Uzbekistan.

In the third criteria, the study observed that only 19 (46%) countries have provided a site map in their respective website/webpage. They are Afghanistan, Bahrain, China, Indonesia, Iran, Japan, Jordan, Lebanon, Malaysia, Maldives, Myanmar, South Korea, Qatar, Russia, Saudi Arabia, Singapore, Taiwan, Thailand, and Uzbekistan. Most of them have not provided site map in their site. Site map helps both the users and search engines to navigate the site.

The last criterion is FAQs i.e., Frequently Asked Questions. It is observed from the study that only 12 (29%) countries have provided FAQs in their respective website/webpage. They are Afghanistan, Brunei, Georgia, Japan, Kyrgyzstan,

Maldives, Myanmar, Saudi Arabia, Singapore, Sri Lanka, Taiwan and Turkey. Most of the countries have not provided FAQs in their site.

It is further observed that out of the four criteria developed under the heading aids and tools, majority of the countries i.e., 71% have provided search box in their respective site, which is followed by site map with 46% and feedback facility with 30%.

**Table-5.4: Availability of aids and tools on national libraries' website/webpage**

Sl. No.	Country	Library website feedback facility	Search box	Site map	FAQs
1	Afghanistan	Y	Y	Y	Y
2	Armenia	N	N	N	N
3	Azerbaijan	N	N	N	N
4	Bahrain	N	Y	Y	N
5	Bangladesh	Y	Y	N	N
6	Bhutan	N	N	N	N
7	Brunei	Y	Y	N	Y
8	China	N	Y	Y	N
9	Cyprus	N	Y	N	N
10	Georgia	N	Y	N	Y
11	India	Y	N	N	N
12	Indonesia	N	Y	Y	N
13	Iran	N	Y	Y	N
14	Iraq	N	N	N	N
15	Israel	N	Y	N	N
16	Japan	N	Y	Y	Y
17	Jordan	N	Y	Y	N
18	Kazakhstan	N	Y	N	N
19	Kuwait	N	Y	N	N
20	Kyrgyzstan	N	Y	N	Y
21	Laos	N	Y	N	N
22	Lebanon	N	Y	Y	N
23	Malaysia	N	Y	Y	N
24	Maldives	N	N	Y	Y
25	Mongolia	Y	Y	N	N
26	Myanmar	N	Y	Y	Y
27	Nepal	N	Y	N	N
28	South Korea	N	Y	Y	N
29	Pakistan	Y	Y	N	N

30	Philippines	N	N	N	N
31	Qatar	Y	Y	Y	N
32	Russia	N	Y	Y	N
33	Saudi Arabia	Y	Y	Y	Y
34	Singapore	Y	Y	Y	Y
35	Sri Lanka	N	Y	N	Y
36	Syria	N	N	N	N
37	Taiwan	Y	N	Y	Y
38	Thailand	N	N	Y	N
39	Turkey	N	N	N	Y
40	Uzbekistan	Y	Y	Y	N
41	Vietnam	Y	N	N	N
<b>Total</b>		<b>12 (30%)</b>	<b>29 (71%)</b>	<b>19 (46%)</b>	<b>12 (29%)</b>

(Source: Primary data)

#### 5.6. AUTHORITY DETAILS OF NATIONAL LIBRARIES' WEBSITE/WEBPAGE

Table-5.5 depicts the authority details of national libraries website/webpage. Under this heading, the researcher has developed only two criteria i.e., the copyright statement and maintenance details of the site. If the developer built a website, it is mandatory to provide copyright details at the bottom of the respective website/webpage. Copyright is all about protecting your own work and the existence of copyright notice will help from infringement. Though websites are available to the public and anybody can visit, so there is a possibility of stealing or copying the content of the respective website. From the study it is observed that 35 (85%) countries have provided copyright statement and they are Afghanistan, Armenia, Azerbaijan, Bhutan, Brunei, China, Cyprus, Georgia, India, Indonesia, Iraq, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, Nepal, South Korea, Pakistan, Philippines, Qatar, Russia, Saudi Arabia, Singapore, Sri Lanka, Syria, Taiwan, Thailand, and Vietnam. It is suggested that the rest six national libraries' websites should also provide the copyright statement to ensure the users that the website is authentic.

The second criterion is the maintenance details of the website. Maintaining the website at its best which includes checking for mistakes and updates regularly for the

smooth run of the website will enhance the authenticity of the website. The study observed that none of the countries have provided maintenance details in their respective website. It is suggested to further work on this area. This is one of the important factor that is lacking in Asian national libraries' websites at present and users are not able to know how old the website and who is maintaining it. Thus, this information should be added in all the national libraries' websites.

**Table-5.5: Authority details of national libraries' website/webpage**

<b>Sl. No.</b>	<b>Country</b>	<b>Copyright statement</b>	<b>Maintenance details</b>
1	Afghanistan	Y	N
2	Armenia	Y	N
3	Azerbaijan	Y	N
4	Bahrain	N	N
5	Bangladesh	N	N
6	Bhutan	Y	N
7	Brunei	Y	N
8	China	Y	N
9	Cyprus	Y	N
10	Georgia	Y	N
11	India	Y	N
12	Indonesia	Y	N
13	Iran	N	N
14	Iraq	Y	N
15	Israel	N	N
16	Japan	Y	N
17	Jordan	Y	N
18	Kazakhstan	Y	N
19	Kuwait	Y	N
20	Kyrgyzstan	Y	N
21	Laos	Y	N
22	Lebanon	Y	N
23	Malaysia	Y	N
24	Maldives	Y	N
25	Mongolia	Y	N
26	Myanmar	Y	N
27	Nepal	Y	N
28	South Korea	Y	N
29	Pakistan	Y	N
30	Philippines	Y	N
31	Qatar	Y	N
32	Russia	Y	N
33	Saudi Arabia	Y	N

34	Singapore	Y	N
35	Sri Lanka	Y	N
36	Syria	Y	N
37	Taiwan	Y	N
38	Thailand	Y	N
39	Turkey	N	N
40	Uzbekistan	N	N
41	Vietnam	Y	N
<b>Total</b>		<b>35 (85%)</b>	<b>0</b>

(Source: Primary data)

### 5.7. CURRENCY OF NATIONAL LIBRARIES' WEBSITE/ WEBPAGE

Table-5.6 brings out the currency of national libraries' website/webpage. Under this heading, the researcher has developed three criteria i.e., whether the date of updation is given or not, the page has been updated since three months or not and whether the present date is displayed or not. Nowadays, anyone can create a website but to maintain its accuracy and currency is quite challenging for the library professionals. If the information of the website gets out-dated, the visitors may not find interesting and will avoid visiting the website for next time. Now, these days' people look only for the latest information. Thus, the currency of information is an essential feature in the digital world.

It is observed from the table that, among 41 countries, only seven (17%) have provided the website's date of updation. The countries which have provided this criterion are Bangladesh, India, Lebanon, Malaysia, Maldives, Singapore and Taiwan. The majority have not provided the date of updation of the website in their sites which indicates poor concerned about the website and the users will not be able to have an idea about the currency of the information available in their sites.

It is also important that the website's page should be updated constantly at least within three months. This will show how frequent the websites have been updated. It is observed from the study that among the seven countries which have provided the date of updation, six (15%) countries have updated the website in past three months and they are Bangladesh, India, Malaysia, Maldives, Singapore and Taiwan.

It is further observed that only three (7%) countries have given the present date in their library website/webpage and they are India, Malaysia and Taiwan.

**Table-5.6: Currency of national libraries' website/webpage**

<b>Sl. No.</b>	<b>Country</b>	<b>Date of updation is given</b>	<b>Page has been updated for past 3 months</b>	<b>Present date is given</b>
1	Afghanistan	N	N	N
2	Armenia	N	N	N
3	Azerbaijan	N	N	N
4	Bahrain	N	N	N
5	Bangladesh	Y	Y	N
6	Bhutan	N	N	N
7	Brunei	N	N	N
8	China	N	N	N
9	Cyprus	N	N	N
10	Georgia	N	N	N
11	India	Y	Y	Y
12	Indonesia	N	N	N
13	Iran	N	N	N
14	Iraq	N	N	N
15	Israel	N	N	N
16	Japan	N	N	N
17	Jordan	N	N	N
18	Kazakhstan	N	N	N
19	Kuwait	N	N	N
20	Kyrgyzstan	N	N	N
21	Laos	N	N	N
22	Lebanon	Y	N	N
23	Malaysia	Y	Y	Y
24	Maldives	Y	Y	N
25	Mongolia	N	N	N
26	Myanmar	N	N	N
27	Nepal	N	N	N
28	South Korea	N	N	N
29	Pakistan	N	N	N
30	Philippines	N	N	N
31	Qatar	N	N	N
32	Russia	N	N	N
33	Saudi Arabia	N	N	N
34	Singapore	Y	Y	N
35	Sri Lanka	N	N	N
36	Syria	N	N	N
37	Taiwan	Y	Y	Y
38	Thailand	N	N	N



39	Turkey	N	N	N
40	Uzbekistan	N	N	N
41	Vietnam	N	N	N
<b>Total</b>		<b>7</b> <b>(17%)</b>	<b>6</b> <b>(15%)</b>	<b>3</b> <b>(7%)</b>

(Source: Primary data)

## 5.8. URL ANALYSIS OF NATIONAL LIBRARIES' WEBSITES IN ASIA

A URL (Uniform Resource Locator) is a unique identifier used to locate a resource on the internet. It is also referred to as a web address. URL consists of multiple parts- including a protocol and domain name- that tell a web browser how and where to retrieve a resource. The first part of the URL consists of the transfer protocol, the second specifies the domain names which is followed by directory and file name. A URL is the most common type of Uniform Resource Identifier (URI). URIs are strings of characters used to identify a resource over a network. Table-5.7 depicts the most frequently used TLDs by the National Libraries' websites in Asia.

**Table: 5.7: TLDs of national libraries' websites**

Sl. No	Country	Uniform Resource Locator (URL)	Top Level Domain	
			Generic Top Level Domain (gTLD)	Country Code Top Level Domain (ccTLD)
1	Afghanistan	www.ku.edu.af	.edu	.af
2	Armenia	www.nla.am	—	.am
3	Azerbaijan	www.anl.az	—	.az
4	Bahrain	www.icc.gov.bh	.gov	.bh
5	Bangladesh	www.nanl.gov.bd	.gov	.bd
6	Bhutan	www.library.gov.bt	.gov	.bt
7	Brunei	https://www.librarybrunei.gov.bn/	.gov	.bn
8	China	www.nlc.gov.cn	.gov	.cn
9	Cyprus	www.cypruslibrary.gov.cy	.gov	.cy
10	Georgia	www.nplg.gov.ge	.gov	.ge
11	India	www.nationallibrary.gov.in	.gov	.in
12	Indonesia	site:www.perpusnas.go.id	.go	.id
13	Iran	www.nlai.ir	—	.ir
14	Iraq	www.iraqnla-iq.com	.com	.iq

15	Israel	web.nli.org.il	.org	.il
16	Japan	http://www.ndl.go.jp	.go	.jp
17	Jordan	http://www.nl.gov.jo	.gov	.jo
18	Kazakhstan	nlrk.kz	—	.kz
19	Kuwait	www.nlk.gov.kw	.gov	.kw
20	Kyrgyzstan	http://nlkr.gov.kg	.gov	.kg
21	Laos	nationallibraryoflaos.net	.net	—
22	Lebanon	bnl.gov.lb	.gov	.lb
23	Malaysia	www.pnm.gov.my	.gov	.my
24	Maldives	www.nlm.gov.mv	.gov	.mv
25	Mongolia	www.nationallibrary.mn	—	.mn
26	Myanmar	www.nlm-npt.gov.mm	.gov	.mm
27	Nepal	www.nnl.gov.np	.gov	.np
28	Korea	www.nl.go.kr	.go	.kr
29	Pakistan	www.nlp.gov.pk	.gov	.pk
30	Philippines	web.nlp.gov.ph	.gov	.ph
31	Qatar	www.qnl.qa	—	.qa
32	Russia	www.nlr.ru/	—	.ru
33	Saudi Arabia	www.kfnl.gov.sa	.gov	.sa
34	Singapore	www.nlb.gov.sg	.gov	.sg
35	Sri Lanka	www.natlib.lk	—	.lk
36	Syria	www.alassad-library.gov.sy	.gov	.sy
37	Taiwan	www.ncl.edu.tw	.edu	.tw
38	Thailand	www.nlt.go.th	.go	.th
39	Turkey	www.mkutup.gov.tr	.gov	.tr
40	Uzbekistan	www.natlib.uz	—	.uz
41	Vietnam	nlv.gov.vn	.gov	.vn

(Source: Primary data)

The analysis shows the number of Top Level Domains (TLDs) of National Libraries' websites in Asia. The TLDs are divided into generic TLD (gTLD) and country code TLD (ccTLD). It discovered that gTLDs of National Libraries' websites are **.edu**, **.gov**, **.com**, **.org**, **.net** and **.go**. The gTLD **.gov** is used by 23 national libraries' websites i.e., 56.09%, four library websites have used **.go** i.e., 9.75%, two library websites i.e., 4.87% have used **.edu**, while other three library websites used **.com**, **.org**, and **.net** i.e., 2.43% each. The other nine libraries (Armenia, Azerbaijan, Iran, Kazakhstan, Mongolia, Qatar,

Russia, Sri Lanka and Uzbekistan) are found with no genetic domain. It also observed that 40 countries have their own country code TLD except for National Library of Laos.

## **5.9. LANGUAGE USED IN NATIONAL LIBRARIES' WEBSITES/WEBPAGE**

Language is an important factor while developing the website. It plays an important role to access the information in users' preferred language. Every country has got its own national and official language to be used in the institution's website. Likewise, the national library also creates its website with the facility to change the language according to the user's convenience. Nowadays websites can be accessible in bilingual or multilingual, where the English language is used as the parallel language. Thus, the visitor of the website should feel free while accessing it. Since this study is related to national libraries' of Asia, out here language 'English' should be mandatory in every country's national library website to enable users to read, view and access the contents of the website.

**Table-5.8: Languages used in national libraries' websites/webpage**

<b>Sl. No.</b>	<b>National Library</b>	<b>Languages offered</b>	<b>No. of Languages</b>
1	Afghanistan	English, Persian and Pashto	3
2	Armenia	English and Armenian	2
3	Azerbaijan	Azerbaijan, English and Russian	3
4	Bahrain	Arabic and English	2
5	Bangladesh	English and Bangla	2
6	Bhutan	Bhutanese and English	2
7	Brunei	English and Malay	2
8	China	English and Chinese	2
9	Cyprus	Greek and English	2
10	Georgia	Georgian and English	2
11	India	English and Hindi	2
12	Indonesia	Indonesian and English	2
13	Iran	Persian and English	2
14	Iraq	Arabic and English	2
15	Israel	Hebrew, Arabic and English	3
16	Japan	English, Chinese and Korean	3
17	Jordan	Arabic and English	2
18	Kazakhstan	Kazak, Russian and English	3
19	Kuwait	Arabic and English	2

20	Kyrgyzstan	Russian and English	2
21	Laos	Lao and English	2
22	Lebanon	Arabic, French, English, Portuguese and Spanish	5
23	Malaysia	English and Malaysian	2
24	Maldives	English and Maldivian	2
25	Mongolia	Mongolian and English	2
26	Myanmar	Myanmar and English	2
27	Nepal	English	1
28	Korea	Korean and English	2
29	Pakistan	English	1
30	Philippines	English	1
31	Qatar	Arabic and English	2
32	Russia	Russian and English	2
33	Saudi Arabia	Arabic and English	2
34	Singapore	English	1
35	Sri Lanka	English	1
36	Syria	Arabic and English	2
37	Taiwan	Chinese and English	2
38	Thailand	Thai and English	2
39	Turkey	Turkish and English	2
40	Uzbekistan	Russian, Uzbek and English	3
41	Vietnam	Vietnamese, French and English	3

(Source: Primary data)

Table-5.8 depicts the languages offered by the national libraries' website in Asia. For getting detailed information about the language offered by National Libraries' website, it observed that a number of national libraries' website provides information in more than one language. It is further observed from the study that Lebanese National Library offers information in five languages (i.e., Arabic, French, English, Portuguese and Spanish). Seven countries are offering information in three languages (Afghanistan: English, Persian & Pashto; Azerbaijan: Azerbaijan, English & Russian; Israel: Hebrew, Arabic & English; Japan: English, Chinese & Korean; Kazakstan: Kazak, Russian & English; Uzbekistan: Russian, Uzbek & English; and Vietnam: Vietnamese, French & English).

While, 28 countries are offering information in 2 languages (Armenia: English & Armenian; Bahrain: Arabic & English; Bangladesh: English & Bangla; Bhutan: Bhutanese & English; Brunei: English & Malay; China: English & Chinese; Cyprus:

Greek & English; Georgia: Georgian & English; India: English & Hindi; Indonesia: Indonesian & English; Iran: Persian & English; Iraq: Arabic & English; Jordan: Arabic & English; Kuwait: Arabic & English; Kyrgyzstan: Russian & English; Laos: Lao & English; Malaysia: English & Malaysian; Maldives: English & Maldivian; Mongolia: Mongolian & English; Myanmar: Myanmar & English; Korea: Korean & English; Qatar: Arabic & English; Russia: Russian & English; Saudi Arabia: Arabic & English; Syria: Arabic & English; Taiwan: Chinese & English; Turkey: Turkish & English and Thailand: Thai & English).

The study observed that the global language 'English' is offered by all the national libraries' websites of 41 countries. It is further observed that 36 countries offered their site in national language along with English and other languages. Five countries viz., Nepal, Pakistan, Philippines, Singapore and Sri Lanka have offered their site in only one language i.e., English. The most common language used in selected national library website is Arabic, used by nine countries viz., Bahrain, Iraq, Israel, Jordan, Kuwait, Lebanon, Qatar, Saudi Arabia & Syria in their site, followed by the Russian language by 5 countries viz., Azerbaijan, Kazakhstan, Kyrgyzstan, Russia and Uzbekistan.

#### **5.10. CLASSIFICATION OF NATIONAL LIBRARIES' WEBSITE/WEBPAGE BY DESIGN FACTOR**

Table-5.9 shows the classification of national libraries website/webpage by design factor. Under this heading, the researcher has made two parameters. The first parameter is view resolution of the site is a suggested and the second parameter is suggestion of the browser compatibility in the site.

Depending on the size and design, the website resolution for viewing the website differs. The webpage looks different in a different browser that why suggestion should be given on best browser compatibility for viewing the website to the clients. It is one of the important features when the developer builds the website and should be given at the bottom of the respective website/webpage. It is clear from the study that, browser compatibility is not provided by majority of the countries. If the web designer mentions the resolution (for example- 1366 x 768 or 1024 x 768px) for viewing the website along with the browser compatibility then it will be best for the

viewers to use the website at great extent. Clear and easy to view the website is what visitors want.

In the first parameter, the study found that only three (7%) countries have provided the suggestion on viewing resolution and they are Malaysia, Taiwan and Vietnam, while most of the countries (38) did not provide the suggestion on viewing resolution. The details about this table is given in appendix — ANX- 8.

On the other hand, the second parameter is the suggestion on browser compatibility. The study found that only two (5%) countries i.e., Malaysia and Vietnam have provided on browser compatibility on the website.

**Table-5.9: Classification of national libraries’ website/webpage by design factor**

<b>Sl. No.</b>	<b>Country</b>	<b>View resolution is suggested</b>	<b>Browser compatibility is suggested</b>
1	Malaysia	1	1
2	Taiwan	1	0
3	Vietnam	1	1
<b>Total</b>		<b>3 (7%)</b>	<b>2 (5%)</b>

(Source: Primary data)

### **5.11. CLASSIFICATION OF NATIONAL LIBRARIES' WEBSITE BY WEBPAGE SIZE AND DOWNLOAD SPEED**

The web page size and download speed is an important feature of a website. The size of the web page and the download speed are inter-related with one another. The larger the size of the page the longer it takes to download the page and the smaller the size of the page the least time it takes to download. It is very much known that one who experiences the slow loading website is less liked. Optimizing the website page size helps in ensuring that the site is running smoothly. The research data has been collected by using a Web Page Analyzer Tool i.e., Website Optimization (<http://www.websiteoptimization.com/services/analyze/>), in collecting the data for the web page size and the download speed of the National libraries’ website/webpage. For the present study, the 56K connection rate (download speed) has been taken to represent the other connection rates. According to the web credibility users’ studies done in the past, the optimal download time for a homepage is 10 seconds (Kannappanavar and

Biradar, 2011). Table-5.10 shows the classification of selected National Libraries' websites on the basis of website size and download speed.

**Table-5.10: Classification of national libraries' website by webpage size and download speed**

(Data collection date: 07-02-2019 & Time: 1 pm-5pm)

Sl. No.	Country	Total Size of the Websites in bytes	Total Size of the Images in bytes	Percentage of Images in total size (%)	Download time at 56K connection/seconds
1	Afghanistan	1252941	1205977	96.25%	273.51 seconds
2	Armenia	85	0	0	0.22 seconds
3	Azerbaijan	612	0	0	0.52 seconds
4	Bahrain	3422383	—	—	—
5	Bangladesh	1949358	1809050	92.80%	400.10 seconds
6	Bhutan	2452861	2421889	98.73%	492.25 seconds
7	Brunei	3018182	—	—	—
8	China	3006894	—	—	—
9	Cyprus	469	0	0	0.29 seconds
10	Georgia	2477719	1877340	75.76%	515.01 seconds
11	India	6126689	—	—	—
12	Indonesia	81703	999	1.22%	24.68 seconds
13	Iran	1893499	1664206	87.89%	397.37 seconds
14	Iraq	2224007	2181823	98.10%	449.64 seconds
15	Israel	603959	66322	10.98%	134.97 seconds
16	Japan	3001448	—	—	—
17	Jordan	1339087	214352	16%	273.08 seconds
18	Kazakhstan	5387049	—	—	—
19	Kuwait	2468423	2186106	88.56%	504.55 seconds
20	Kyrgyzstan	2941796	2632501	89.48%	595.90 seconds
21	Laos	1166044	979469	83.99%	239.59 seconds
22	Lebanon	—	—	—	—
23	Malaysia	3009616	—	—	—
24	Maldives	—	—	—	—
25	Mongolia	3198679	—	—	—
26	Myanmar	3032726	—	—	—
27	Nepal	1662739	840778	50.56%	346.18 seconds
28	South Korea	3015710	—	—	—
29	Pakistan	2445706	2374286	50.56%	494.43 seconds
30	Philippines	1210024	976838	80.72%	257.36 seconds
31	Qatar	—	—	—	—
32	Russia	889473	765496	86.06%	186.67 seconds

33	Saudi Arabia	1091816	971316	88.96%	229.20 seconds
34	Singapore	—	—	—	—
35	Sri Lanka	3204858	—	—	—
36	Syria	328647	42160	12.82%	73.70 seconds
37	Taiwan	—	—	—	—
38	Thailand	3048407	—	—	—
39	Turkey	625	0	0	0.32 seconds
40	Uzbekistan	3539440	—	—	—
41	Vietnam	2805764	2557516	91.15%	595.18 seconds

(Source: Primary data)

The analysis observed that the National Library of Bahrain (3422383 bytes), Brunei (3018182 bytes), China (3006894 bytes), India (6126689 bytes), Japan (3001448 bytes), Kazakhstan (5387049 bytes), Malaysia (3009616 bytes), Mongolia (3198679 bytes), Myanmar (3032726 bytes), Korea (3015710 bytes), Sri Lanka (3204858 bytes), Thailand (3048407 bytes) and Uzbekistan (3539440 bytes) have exceeded the maximum size 3000000 bytes of the bytes so the data cannot be retrieved from the Web Page Analyzer Tool whereas the data of National Library of Maldives, Singapore and Taiwan cannot be retrieved from Web Page Analyzer Tool due to an Error. It also found that the data of National Library Lebanon and Qatar cannot be retrieved due to 404 Not Found and 403 Forbidden respectively.

The table-5.10 also visualized that size of selected libraries' website and found that National Library of Kyrgyzstan (2941796 bytes) occupied the first position in having the maximum size of the website in bytes where the total size of the image is 2632501 bytes which are having 89.48% of images in total size. This is the reason why it takes longer time (595.90 seconds) for downloading the page at the 56K connection in seconds, which is followed by National Library of Vietnam (2805764 bytes) which takes 595.18 seconds for downloading the page at the 56K connection in seconds having 91.15% of images in total size.

It is observed that National Library of Armenia (85 bytes) having the lowest size of the website which took very less time to download the page (0.22 seconds) at 56K connection in seconds, followed by National Library of Cyprus (469 bytes) having second lowest size of the website taking 0.29 seconds time to download the page at 56K connection in seconds.



## **5.12. GENERAL INFORMATION ABOUT THE NATIONAL LIBRARIES' WEBSITE/WEBPAGE**

Table-5.11 shows the availability of general information about the national libraries website/webpage. Under this heading, the researcher has brought out 14 parameters for evaluation of the website. The website must provide general information in their respective website/webpage.

The first parameter in the table is 'About the Library'. This criterion gives detailed information about the library like its history, establishment, its location, etc. It is very important to provide general knowledge about the respective libraries. The study observed that almost 38 (93%) countries have provided information about the library in their respective website/webpage. Only three countries have not provided information on about us i.e., Indonesia, Israel and Pakistan.

The second parameter is 'Mission/Statement/Objectives/Aim'. Setting objectives, mission or aim is essential for any organization to run. This means to have a better plan and to measure the performance of the organization for future progress by having a certain goal. The study observed that total 63% of national libraries (Afghanistan, Armenia, Bahrain, Bangladesh, Bhutan, Brunei, China, Cyprus, Indonesia, Iran, Japan, Jordan, Kuwait, Laos, Lebanon, Malaysia, Maldives, Pakistan, Philippines, Qatar, Singapore, Sri Lanka, Syria, Taiwan, Thailand and Turkey) have provided information about mission/statement/objectives/aims.

In the third parameter 'Library Opening hours', majority 80% of national libraries (Afghanistan, Armenia, Azerbaijan, Bahrain, Brunei, China, Cyprus, Georgia, India, Indonesia, Israel, Japan, Kuwait, Kyrgyzstan, Laos, Malaysia, Maldives, Mongolia, Myanmar, South Korea, Pakistan, Philippines, Qatar, Russia, Saudi Arabia, Singapore, Sri Lanka, Syria, Taiwan, Thailand, Turkey, Uzbekistan and Vietnam) have provided information about library opening hours in their respective library website/webpage.

The library staff/member team plays an important role in building the library by cooperation with each other. No any library can run its organization without the help

of team members. The sole purpose of the library staff/members is to give help in providing information and services to the clientele. Under this criterion, total 46% national libraries (Armenia, Bangladesh, Bhutan, China, Georgia, India, Indonesia, Iran, Japan, Kazakhstan, Laos, Malaysia, Mongolia, Pakistan, Philippines, Saudi Arabia, Singapore, Sri Lanka and Turkey) have given information on library members/staffs in their respective website. Most of the countries have not provided details on this criterion and are listed in the table.

Likewise, the next criterion is information on 'Library Brochure'. It provides information about the library (collection, services, etc.) in pdf format in the respective library website/webpage. It is easy to get information from one place and read. The study observed that only three (7%) National Libraries (India, Japan and Qatar) have provided library brochure in their site and the majority (93%) did not provide.

Next is 'Library Rules' of the respective library website/webpage. Rules and regulations of the library is important for users. Without the rules, no library can be systematic and discipline should be well maintained. It is found that 22% of the national libraries (Azerbaijan, Bangladesh, Brunei, China, India, Kyrgyzstan, Maldives, Sri Lanka and Taiwan) have provided information on library rules.

General information like library news/updates/events should be displayed in the respective library website/webpage so that the visitors get information about the current/latest happenings. The study observed that 90% of the national libraries (Afghanistan, Armenia, Bahrain, Bangladesh, Bhutan, China, Cyprus, Georgia, India, Indonesia, Iran, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, Nepal, South Korea, Pakistan, Philippines, Qatar, Saudi Arabia, Singapore, Sri Lanka, Syria, Taiwan, Thailand, Turkey, Uzbekistan and Vietnam) have provided information regarding news/updates/events in their site.

OPAC (Online Public Access Catalogue) or library catalog is an online bibliography of a library collection available to the public. Providing links to OPAC in the respective website enable the clienteles to access information instantly and is easy to

use. The users don't have to visit the library personally to find information resources because OPAC has changed the traditional card catalogue system. The study observed that total 78% of the national libraries (Armenia, Azerbaijan, Bahrain, Bhutan, China, Cyprus, Georgia, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kazakhstan, Malaysia, Maldives, Mongolia, Myanmar, Nepal, South Korea, Pakistan, Philippines, Qatar, Russia, Saudi Arabia, Sri Lanka, Syria, Thailand, Turkey and Uzbekistan) have provided links to OPAC in their sites.

Union catalogue is a combined catalogue of two or more libraries. The study observed that only 7% of the national libraries (Armenia, Singapore and Uzbekistan) are having Union catalogue in their respective sites.

Location map/guide is an important feature when building the website. Because the clientele before visiting the library building personally, he/she will check the location of the library building on the website. It is a guide to the users to locate the exact place of the main library building. The study found that 68% of the national libraries (Afghanistan, Azerbaijan, Bahrain, Bangladesh, China, Georgia, India, Israel, Jordan, Kuwait, Kyrgyzstan, Laos, Malaysia, Maldives, Mongolia, Myanmar, Nepal, South Korea, Philippines, Qatar, Saudi Arabia, Singapore, Sri Lanka, Syria, Thailand, Turkey, Uzbekistan and Vietnam) have given the location map/guide in the respective website/webpage.

Membership/Registration details are also an important feature in the respective library website/webpage. If anybody wants to become a member of the library can fill up the form online if there is a facility of online registration and can submit according to the instructions given in the website. The study observed that 56% of the national libraries (Armenia, Azerbaijan, Bangladesh, Bhutan, Brunei, China, Georgia, India, India, Israel, Japan, Laos, Maldives, Mongolia, Myanmar, Pakistan, Qatar, Russia, Sri Lanka, Taiwan, Turkey, Uzbekistan and Vietnam) have provided information regarding library membership/registration in the website.

Likewise, information about library infrastructure in the website helps in knowing the library in more details. It is further observed that 27% of the national libraries (Afghanistan, Armenia, Azerbaijan, Bahrain, Bhutan, Japan, Kuwait, Pakistan, Qatar,

Saudi Arabia and Syria) have provided information on library infrastructure. The majority have not provided details on this criterion.

The photo gallery is provided by 49% of the national libraries (Afghanistan, Bahrain, Bangladesh, Bhutan, Georgia, India, Iran, Israel, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Mongolia, Myanmar, Saudi Arabia, Singapore, Sri Lanka, Uzbekistan and Vietnam). And the last criterion is 'Ask a Librarian'. The library website/webpage should provide 'Ask a Librarian' facility so that users can ask their doubts, share opinions and stay in touch with the librarian/library professional directly. Accordingly, the librarian will try to reply based on the users query. The study found that only 17% of the national libraries (Bahrain, Georgia, Israel, Maldives, Qatar, Russia and Sri Lanka) have provided this facility.

It is clear from the study that some criterions under the general information like library brochure, library rules, union catalogue, library infrastructure and Ask a librarian are not given on the websites of some national libraries. It is better to provide all the basic information about the library on their website.

**Table-5.11: General information about the national libraries' website/webpage**

Sl. No.	Country	About the library/History	Mission/Statement/Objectives/Aim	Library Opening hours	Library member/staffs	Library Brochure	Library Rules	Library news/updates/events	Links to OPAC	Union Catalogue	Location map/guide	Library Registration/Membership details	Library infrastructure	Photo gallery	Ask a Librarian
1	Afghanistan	Y	Y	Y	N	N	N	Y	N	N	Y	N	Y	Y	N
2	Armenia	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y	N	N
3	Azerbaijan	Y	N	Y	N	N	Y	N	Y	N	Y	Y	Y	N	N
4	Bahrain	Y	Y	Y	N	N	N	Y	Y	N	Y	N	Y	Y	Y
5	Bangladesh	Y	Y	N	Y	N	Y	Y	N	N	Y	Y	N	Y	N
6	Bhutan	Y	Y	N	Y	N	N	Y	Y	N	N	Y	Y	Y	N
7	Brunei	Y	Y	Y	N	N	Y	N	N	N	N	Y	N	N	N
8	China	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	N	N	N
9	Cyprus	Y	Y	Y	N	N	N	Y	Y	N	N	N	N	N	N
10	Georgia	Y	N	Y	Y	N	N	Y	Y	N	Y	Y	N	Y	Y
11	India	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y	N
12	Indonesia	N	Y	Y	Y	N	N	Y	Y	N	N	N	N	N	N
13	Iran	Y	Y	N	Y	N	N	Y	Y	N	N	Y	N	Y	N
14	Iraq	Y	N	N	N	N	N	N	Y	N	N	N	N	N	N
15	Israel	N	N	Y	N	N	N	Y	Y	N	Y	Y	N	Y	Y
16	Japan	Y	Y	Y	Y	Y	N	Y	Y	N	N	Y	Y	N	N
17	Jordan	Y	Y	N	N	N	N	Y	Y	N	Y	N	N	Y	N
18	Kazakhstan	Y	N	N	Y	N	N	Y	Y	N	N	N	N	Y	N
19	Kuwait	Y	Y	Y	N	N	N	Y	N	N	Y	N	Y	Y	N
20	Kyrgyzstan	Y	N	Y	N	N	Y	Y	N	N	Y	N	N	Y	N

21	Laos	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	N	N	N
22	Lebanon	Y	Y	N	N	N	N	Y	N	N	N	N	N	Y	N
23	Malaysia	Y	Y	Y	Y	N	N	Y	Y	N	Y	N	N	N	N
24	Maldives	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y	N	N	Y
25	Mongolia	Y	N	Y	Y	N	N	Y	Y	N	Y	Y	N	N	N
26	Myanmar	Y	N	Y	N	N	N	Y	Y	N	Y	Y	N	Y	N
27	Nepal	Y	N	N	N	N	N	Y	Y	N	Y	N	N	Y	N
28	South Korea	Y	N	Y	N	N	N	Y	Y	N	Y	N	N	N	N
29	Pakistan	N	Y	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N
30	Philippines	Y	Y	Y	Y	N	N	Y	Y	N	Y	N	N	N	N
31	Qatar	Y	Y	Y	N	Y	N	Y	Y	N	Y	Y	Y	N	Y
32	Russia	Y	N	Y	N	N	N	N	Y	N	N	Y	N	N	Y
33	Saudi Arabia	Y	N	Y	Y	N	N	Y	Y	N	Y	N	Y	Y	N
34	Singapore	Y	Y	Y	Y	N	N	Y	N	Y	Y	N	N	Y	N
35	Sri Lanka	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	N	Y	Y
36	Syria	Y	Y	Y	N	N	N	Y	Y	N	Y	N	N	N	N
37	Taiwan	Y	Y	Y	N	N	Y	Y	N	N	N	Y	Y	N	N
38	Thailand	Y	Y	Y	N	N	N	Y	Y	N	Y	N	N	N	N
39	Turkey	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y	N	N	N
40	Uzbekistan	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	N	Y	N
41	Vietnam	Y	N	Y	N	N	N	Y	N	N	Y	Y	N	Y	N
<b>Total</b>		<b>38</b> <b>(93%)</b>	<b>26</b> <b>(63%)</b>	<b>33</b> <b>(80%)</b>	<b>19</b> <b>(46%)</b>	<b>3</b> <b>(7%)</b>	<b>9</b> <b>(22%)</b>	<b>37</b> <b>(90%)</b>	<b>31</b> <b>(78%)</b>	<b>3</b> <b>(7%)</b>	<b>28</b> <b>(68%)</b>	<b>23</b> <b>(56%)</b>	<b>11</b> <b>(27%)</b>	<b>20</b> <b>(49%)</b>	<b>7</b> <b>(17%)</b>

(Source: Primary data)

### 5.13. NUMBER OF VISITORS IN THE NATIONAL LIBRARIES' WEBSITE/ WEBPAGE

Table-5.12 shows the number of visitors record in the National libraries website/webpage. The website which provides the total number of visitor's record will enable the library professionals/developers to track whether the clientele are interested to browse the respective website or not. It will help the web designer in setting a goal and other necessary improvements for the effectiveness of the website. The analysis found that only nine (22%) National libraries have given the number of visitors in their library website/webpage. They are Armenia, Indonesia, Japan, Jordan, Kazakhstan, Kyrgyzstan, Laos, Malaysia and Uzbekistan and rest 32 National libraries' website/webpage did not provide information under this criterion.

**Table- 5.12: Number of visitors in the national libraries' website/webpage**

Sl. No.	Country	No. of visitors are given
1	Afghanistan	N
2	Armenia	Y
3	Azerbaijan	N
4	Bahrain	N
5	Bangladesh	N
6	Bhutan	N
7	Brunei	N
8	China	N
9	Cyprus	N
10	Georgia	N
11	India	N
12	Indonesia	Y
13	Iran	N
14	Iraq	N
15	Israel	N
16	Japan	Y
17	Jordan	Y
18	Kazakhstan	Y
19	Kuwait	N
20	Kyrgyzstan	Y
21	Laos	Y
22	Lebanon	N
23	Malaysia	Y
24	Maldives	N
25	Mongolia	N
26	Myanmar	N

27	Nepal	N
28	South Korea	N
29	Pakistan	N
30	Philippines	N
31	Qatar	N
32	Russia	N
33	Saudi Arabia	N
34	Singapore	N
35	Sri Lanka	N
36	Syria	N
37	Taiwan	N
38	Thailand	N
39	Turkey	N
40	Uzbekistan	Y
41	Vietnam	N
<b>Total</b>		<b>9 (22%)</b>

(Source: Primary data)

#### 5.14. FILE FORMAT SUPPORTED BY WEBSITES OF NATIONAL LIBRARIES

A file format is a standard way that information is encoded for storage in a computer file. A file format describes the way of data stored in a file. It describes the way how data is stored in a file. It defines how the data is organized in the file as well as the type of data that file contains. The format of a file is based on the end of its name i.e., the last letters of the file name. For example, file extension for images are .jpg, .png, gif, tif ; for video file type- .wmv, mp4; for text document- .doc, docx, .txt etc. Table-5.13 shows the file format supported by websites of national libraries in Asia.

**Table-5.13: File format supported by websites of national libraries of Asia**

Sl. No.	Country	HTML	PDF	MS-Word	MS-PowerPoint	JPG/JPEG	PNG	GIF	WMV (Windows Media Video)	Total File Format
1	Afghanistan	Y	Y	N	N	Y	Y	N	Y	5
2	Armenia	Y	Y	Y	N	Y	Y	N	N	5
3	Azerbaijan	Y	Y	N	N	Y	Y	N	N	4
4	Bahrain	Y	N	N	N	Y	Y	N	N	3



5	Bangladesh	Y	Y	N	N	Y	Y	N	N	4
6	Bhutan	Y	Y	Y	N	Y	Y	Y	N	6
7	Brunei	Y	Y	Y	N	Y	Y	N	N	5
8	China	Y	Y	N	N	Y	N	Y	N	4
9	Cyprus	Y	Y	N	N	Y	N	Y	N	4
10	Georgia	Y	Y	N	N	Y	Y	Y	Y	6
11	India	Y	Y	N	N	Y	Y	Y	Y	6
12	Indonesia	Y	Y	N	N	Y	Y	Y	Y	6
13	Iran	Y	Y	Y	N	Y	Y	N	N	5
14	Iraq	Y	Y	N	N	Y	N	Y	Y	5
15	Israel	Y	Y	N	N	Y	Y	Y	Y	6
16	Japan	Y	Y	N	N	Y	Y	Y	N	5
17	Jordan	Y	Y	N	N	Y	Y	Y	Y	6
18	Kazakhstan	Y	Y	Y	Y	Y	Y	Y	N	7
19	Kuwait	Y	Y	N	N	Y	Y	N	Y	5
20	Kyrgyzstan	Y	N	Y	N	Y	Y	Y	N	5
21	Laos	Y	Y	N	N	Y	Y	N	N	4
22	Lebanon	Y	Y	N	N	Y	N	Y	N	4
23	Malaysia	Y	Y	N	N	Y	Y	Y	Y	6
24	Maldives	Y	Y	Y	N	Y	Y	N	N	5
25	Mongolia	Y	N	N	N	Y	Y	N	N	3
26	Myanmar	Y	N	N	N	Y	Y	N	N	3
27	Nepal	Y	Y	N	N	Y	Y	N	Y	5
28	South Korea	Y	Y	N	N	Y	Y	Y	Y	6
29	Pakistan	Y	Y	N	N	Y	Y	Y	N	5
30	Philippines	Y	Y	N	N	Y	Y	N	N	4
31	Qatar	Y	Y	N	N	Y	Y	Y	Y	6
32	Russia	Y	Y	N	N	Y	Y	Y	Y	6
33	Saudi Arabia	Y	N	N	N	Y	Y	N	N	3
34	Singapore	Y	Y	N	N	Y	Y	N	Y	5
35	Sri Lanka	Y	Y	N	N	Y	Y	N	N	4
36	Syria	Y	Y	N	N	Y	N	N	Y	4
37	Taiwan	Y	Y	Y	N	Y	Y	Y	Y	7
38	Thailand	Y	Y	N	N	Y	Y	Y	Y	6
39	Turkey	Y	Y	Y	N	Y	Y	Y	N	5
40	Uzbekistan	Y	Y	N	N	Y	Y	Y	Y	6
41	Vietnam	Y	Y	N	N	Y	Y	Y	N	5
	<b>Total</b>	<b>41</b> <b>(100%)</b>	<b>36</b> <b>(87.80%)</b>	<b>9</b> <b>(21.95%)</b>	<b>1</b> <b>(2.43%)</b>	<b>41</b> <b>(100%)</b>	<b>36</b> <b>(87.80%)</b>	<b>22</b> <b>(53.65%)</b>	<b>18</b> <b>(43.90%)</b>	<b>204</b>

(Source: Primary data)

The table depicts that file formats like HTML and JPEG are used by all the 41 websites of national libraries in Asia, which is followed by PNG & PDF (87.80%), GIF (53.65%), WMV (43.90%) and MS-Word (21.95%). The least file format is MS-PowerPoint used by only one country (Kazakhstan).

It is further observed that the National Library of Kazakhstan has used a maximum number of file formats (seven) to represent the information contents of the website. Most of the national libraries have used five or six file formats in their website. Total 13 countries (Bhutan, Georgia, India, Indonesia, Israel, Jordan, Malaysia, South Korea, Qatar, Russia, Taiwan, Thailand and Uzbekistan) have used six file formats. Likewise, another 13 countries (Afghanistan, Armenia, Brunei, Iran, Iraq, Japan, Kuwait, Kyrgyzstan, Maldives, Nepal, Singapore, Turkey and Vietnam) have used five file formats in their site while four types of file formats are used by nine countries (Azerbaijan, Bangladesh, China, Cyprus, Laos, Pakistan, Philippines, Sri Lanka and Syria). The least file format (three) has been used by five countries (Bahrain, Lebanon, Mongolia, Myanmar and Saudi Arabia).

#### **5.15. AVAILABILITY OF WEB 2.0 TOOLS IN NATIONAL LIBRARIES' WEBSITE/WEBPAGE**

Web 2.0 tools act as a medium to connect with people in a larger way. There are lots of web services provided by web 2.0 such as RSS, social networking sites, blogging sites, wikis, etc. Web 2.0 play an important role and many libraries have successfully implemented these tools to disseminate information to their users. These tools are linked with the library website for easy access of the information resources.

Table-5.14 depicts information about the presence of web 2.0 services in National Libraries and after analysis, it is observed that Facebook (78.04%) is a common tool used by most of the national libraries of Asia. They are 32 countries, viz., Afghanistan, Armenia, Azerbaijan, Bangladesh, Bhutan, Brunei, Georgia, India, Indonesia, Iraq, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, South Korea, Philippines, Qatar, Russia, Saudi Arabia, Singapore, Sri Lanka, Syria, Taiwan and Thailand).

The second highest tool is Twitter (53.65%) provided by 22 countries (Afghanistan, Armenia, Bahrain, Bangladesh, Brunei, Georgia, India, Indonesia, Israel, Japan, Kazakhstan, Kuwait, Lebanon, Maldives, Mongolia, South Korea, Qatar, Russia, Saudi Arabia, Singapore, Sri Lanka and Thailand). Which is followed by RSS and You Tube provided by 14 countries constituting 34.14%. It also recorded that least tool i.e., Blog is provided by only one country.

It is further observed that Israel has provided link to maximum tools (6) i.e., Facebook, YouTube, Twitter, Instagram, Pinterest and Flickr. Whereas, South Korea, Qatar and Russia have provided a link to five web 2.0 tools.

The study also investigated that the National Library of Afghanistan, Kazakhstan, Lebanon, Malaysia, Russia and Saudi Arabia has also provided links to multiple uncommon tools in their site which is not so familiar for rest of the countries. So the countries which are providing those uncommon tools or local tools which are used only in specific countries are considered under the heading 'others'. It is to be noted that the National Library of Cyprus, Nepal, Pakistan and Vietnam has not provided links to any single web 2.0 tool. For website's better visibility and linking, it is necessary to hyperlink the website with web 2.0 tools.

**Table-5.14: Availability of web 2.0 tools in national libraries' website/webpage**

Sl. No.	Asian Countries	RSS	Facebook	You Tube	Twitter	Blog	LinkedIn	Insta-gram	Pinterest	Flickr	Others
1	Afghanistan	Y	Y	N	Y	N	N	N	N	N	Y
2	Armenia	Y	Y	N	Y	N	N	N	N	N	N
3	Azerbaijan	N	Y	N	N	N	N	N	N	N	N
4	Bahrain	N	N	Y	Y	N	N	Y	N	N	N
5	Bangladesh	N	Y	N	Y	N	N	N	N	N	N
6	Bhutan	N	Y	N	N	N	N	N	N	N	N
7	Brunei	N	Y	N	Y	N	N	Y	N	N	N
8	China	Y	N	N	N	N	N	N	N	N	N
9	Cyprus	N	N	N	N	N	N	N	N	N	N
10	Georgia	N	Y	Y	Y	N	N	N	N	N	N
11	India	N	Y	Y	Y	N	N	N	N	N	N
12	Indonesia	Y	Y	Y	Y	N	N	N	N	N	N

13	Iran	N	N	N	N	N	N	Y	N	N	N
14	Iraq	N	Y	N	N	N	N	N	N	N	N
15	Israel	N	Y	Y	Y	N	N	Y	Y	Y	N
16	Japan	Y	Y	Y	Y	N	N	N	N	N	N
17	Jordan	N	Y	Y	N	N	N	N	N	N	N
18	Kazakhstan	N	Y	N	Y	N	N	Y	N	N	Y
19	Kuwait	N	Y	N	Y	N	N	Y	N	N	N
20	Kyrgyzstan	N	Y	N	N	N	N	Y	N	N	N
21	Laos	N	Y	N	N	N	N	N	N	N	N
22	Lebanon	N	Y	N	Y	N	Y	N	Y	N	Y
23	Malaysia	Y	Y	N	N	N	N	N	N	Y	Y
24	Maldives	N	Y	N	Y	N	N	N	N	N	N
25	Mongolia	Y	Y	N	Y	N	N	N	N	N	N
26	Myanmar	N	Y	N	N	N	N	N	N	N	N
27	Nepal	N	N	N	N	N	N	N	N	N	N
28	South Korea	N	Y	Y	Y	Y	N	Y	N	N	N
29	Pakistan	N	N	N	N	N	N	N	N	N	N
30	Philippines	Y	Y	N	N	N	N	N	N	N	N
31	Qatar	N	Y	Y	Y	N	Y	Y	N	N	N
32	Russia	Y	Y	Y	Y	N	N	Y	N	N	Y
33	Saudi Arabia	N	Y	Y	Y	N	N	Y	N	N	Y
34	Singapore	Y	Y	Y	Y	N	N	N	N	N	N
35	Sri Lanka	N	Y	Y	Y	N	N	N	N	N	N
36	Syria	N	Y	N	N	N	N	N	N	N	N
37	Taiwan	Y	Y	Y	N	N	N	N	N	N	N
38	Thailand	Y	Y	N	Y	N	N	Y	N	N	N
39	Turkey	Y	N	N	N	N	N	N	N	N	N
40	Uzbekistan	Y	N	N	N	N	N	N	N	N	N
41	Vietnam	N	N	N	N	N	N	N	N	N	N
<b>Total</b>		<b>14 (34.14%)</b>	<b>32 (78.04%)</b>	<b>14 (34.14%)</b>	<b>22 (53.65%)</b>	<b>1 (2.43%)</b>	<b>2 (4.87%)</b>	<b>12 (29.26%)</b>	<b>2 (4.87%)</b>	<b>2 (4.87%)</b>	<b>6 (14.63%)</b>

(Source: Primary data)

## 5.16. GLOBAL RANK OF NATIONAL LIBRARIES' WEBSITES

There are many agencies which are providing the world ranking of the website by using online software and this help to know the performance and standard of the website at the global level. Table depicts the ranking of national libraries' websites globally by using an online tool- **Alexa Traffic Rank** ([www.alexa.com/siteinfo/](http://www.alexa.com/siteinfo/)) which is a ranking system and is calculated by using a combination of average of daily unique visitors to the selected websites and number of page views on the selected sites over the past three months globally. Table-5.15 shows the global ranking of selected national libraries' websites. The data for this table was collected on 7th June, 2019 between 6pm-11pm.

From the analysis, it is very clear that National library of Japan secured the top position with 8,662 ranks, which is followed by Azerbaijan with 13,507 ranks at second and Taiwan with 17,673 ranks occupied third places globally. While, National Library of Iran, Singapore, South Korea, Indonesia, Russia, Qatar and Georgia obtained 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup>, and 10<sup>th</sup> rank respectively. The study further observed that National Library of Cyprus secured the last rank among the 41 national libraries' websites, followed by Laos at 40<sup>th</sup> rank, Maldives at 39<sup>th</sup> rank, Myanmar at 38<sup>th</sup> rank, Nepal at 37<sup>th</sup> rank, Lebanon at 36<sup>th</sup> rank and Bahrain at 35<sup>th</sup> rank etc. It is to be noted that the National Library of India occupied 22<sup>nd</sup> rank among the 41 countries.

**Table-5.15: Global rank of national libraries' websites**

Country	Global Rank	Ranking of Asian National Libraries' Websites
Japan	8,662	1
Azerbaijan	13,507	2
Taiwan	17,673	3
Iran	26,618	4
Singapore	39,049	5
South Korea	45,922	6
Indonesia	54,743	7
Russia	63,892	8
Qatar	67,489	9
Georgia	70,386	10

Israel	90,471	11
Saudi Arabia	1,12,466	12
Afghanistan	1,69,462	13
Uzbekistan	2,03,781	14
Malaysia	2,68,957	15
Vietnam	2,98,117	16
Turkey	3,11,442	17
Armenia	3,54,788	18
Iraq	4,04,574	19
Philippines	4,95,450	20
Kazakhstan	5,34,650	21
India	6,55,954	22
Thailand	8,08,958	23
China	9,92,208	24
Sri Lanka	15,25,073	25
Kuwait	17,09,854	26
Jordan	17,24,957	27
Pakistan	17,27,129	28
Kyrgyzstan	22,37,027	29
Bangladesh	22,39,769	30
Syria	22,62,540	32
Brunei	24,39,512	31
Bhutan	24,50,602	33
Mongolia	25,39,096	34
Bahrain	50,70,331	35
Lebanon	80,84,059	36
Nepal	1,12,35,278	37
Myanmar	1,53,39,142	38
Maldives	1,66,92,918	39
Laos	1,67,65,944	40
Cyprus	1,72,82,820	41

(Source: Primary data)

#### **5.17. SEARCH ENGINE PERFORMANCES IN WEBOMETRIC RESEARCH OF NATIONAL LIBRARIES' WEBSITES**

Search engine plays a vital role in the process of retrieving information from the web. Search engines are widely used as information retrieval tools. These are extensively used in the webometric research for retrieving data from the web.

A web search engine is an information retrieval system (Salton & McGill, 1983), which is used to locate the web pages relevant to user queries. When the user gives a

query, as a response, a search engine returns a list of relevant results ranked in order. It is the tendency of the user to use a top-down approach of the list displayed by the search engine and examines one result at a time until the required information is found. (Olajide & Matthew, 2014). The search expression performance can be evaluated in two ways as given below:

**1) Search expression (without gap)**

Example- site:www.nlc.gov.cn/ and link:www.nlc.gov.cn/

**2) Search expression (with gap)**

Example- site: www.nlc.gov.cn/ and link: www.nlc.gov.cn/

**5.17- A. SEARCH ENGINE PERFORMANCE OF NATIONAL LIBRARIES WITH SITE COMMAND (SITE:URL AND SITE: URL)**

To analyse the search engine performance of selected national libraries' websites, five rounds data was collected (**from date: 17.10.2018 to 19.02.2019**) from National Libraries' websites with 15 days interval (The details about collected data is given in appendix- ANX-1A to 1E) to see the consistency of research data and an average of five rounds data was analyzed in Table- 5.16 to show the average result of search engine performance of 41 national library websites in Asia with a site command **site:URL** and **site: URL** (With gap and without gap) and the study observed substantial differences in performance of search result by using the same search expression without gap after command and with gap after command.

Under this table, it can be clearly seen that the average result of 41 national libraries' search expression with gap is having more number of hits in comparison to search expression without a gap in all the rounds which is logically incorrect. It is observed that only one national library (National Library of Georgia) have more number of hits in search expression without a gap in all the rounds which is logically correct.

**Table- 5.16-A: Average of national libraries' websites with site command  
site:url and site: url**

Sl. no.	Search Expression (Without gap)	No. of Hits	Search Expression (With gap)	No. of Hits
1	site:www.ku.edu.af/	7.6	site: www.ku.edu.af/	59,54,00,000
2	site:www.nla.am/	147.4	site: www.nla.am/	28,92,000
3	site:www.anl.az/	168400	site: www.anl.az/	1,33,40,000
4	site:www.icc.gov.bh/	811	site: www.icc.gov.bh/	9,14,40,000
5	site:www.nanl.gov.bd /	3046	site: www.nanl.gov.bd/	1,38,000
6	site:www.library.gov. bt/	287.6	site: www.library.gov.bt/	7,38,40,000
7	site:www.librarybrune i.gov.bn/	9,304	site: www.librarybrunei.go v.bn/	36,320
8	site:www.nlc.gov.cn/	19780	site: www.nlc.gov.cn/	88,48,000
9	site:www.cypruslibrar y.gov.cy/	1070	site: www.cypruslibrary.go v.cy/	14,690
10	site:www.nplg.gov.ge /	154400 0	site: www.nplg.gov.ge/	44,580
11	site:www.nationallibr ary.gov.in/	862.4	site: www.nationallibrary.g ov.in/	5,52,80,000
12	site:www.perpusnas.g o.id/	2908.4	site: www.perpusnas.go.id/	3,52,000
13	site:www.nlai.ir/	35120	site: www.nlai.ir/	69,080
14	site:www.iraqnla- iq.com/	675400	site: www.iraqnla- iq.com/	10,58,000
15	site.web.nli.org.il/	256800	site: web.nli.org.il/	8,79,400
16	site:www.ndl.go.jp/	55540	site: www.ndl.go.jp/	88,32,000
17	site:www.nl.gov.jo/	679	site: www.nl.gov.jo/	5,31,20,000
18	site:www.nlrk.kz/	325.2	site: www.nlrk.kz/	4,17,600
19	site:www.nlk.gov.kw/	344.2	site: www.nlk.gov.kw/	7,13,000
20	site:www.nlkr.gov.kg/	32360	site: www.nlkr.gov.kg/	72,900
21	site:www.nationallibr aryoflaos.net/	56.2	site: www.nationallibraryof laos.net/	15,300
22	site:www.bnl.gov.lb/	332.2	site: www.bnl.gov.lb/	3,48,24,000
23	site:www.pnm.gov.m y/	7012	site: www.pnm.gov.my/	39,72,000
24	site:www.nlm.gov.mv /	12.4	site: www.nlm.gov.mv/	6,92,60,002



25	site:www.nationallibrary.mn/	214.6	site:www.nationallibrary.mn/	5,52,80,000
26	site:www.nlm-npt.gov.mm	102.6	site: www.nlm-npt.gov.mm	2,26,000
27	site:www.nnl.gov.np/	89	site: www.nnl.gov.np/	2,21,00,000
28	site:www.nl.go.kr/	259800	site: www.nl.go.kr/	4,42,60,000
29	site:www.nlp.gov.pk/	190.8	site: www.nlp.gov.pk/	3,18,40,000
30	site:web.nlp.gov.ph/	9002	site: web.nlp.gov.ph/	1,71,80,000
31	site:www.qnl.qa	2328	site: www.qnl.qa	3,87,400
32	site:www.nlr.ru/	2068	site: www.nlr.ru/	35,58,000
33	site:www.kfnl.gov.sa/	5564	site: www.kfnl.gov.sa/	60,500
34	site:www.nlb.gov.sg/	627600	site: www.nlb.gov.sg/	51,52,000
35	site:www.natlib.lk/	254.6	site: www.natlib.lk/	5,81,200
36	site:www.alassad-library.gov.sy/	281.2	site: www.alassad-library.gov.sy/	7,46,200
37	site:www.ncl.edu.tw/	9272	site: www.ncl.edu.tw/	1,95,00,000
38	site:www.nlt.go.th/	635	site: www.nlt.go.th/	1,55,80,000
39	site:www.mkutup.gov.tr/	3980	site:www.mkutup.gov.tr/	14,696
40	site:www.natlib.uz/	7672	site: www.natlib.uz/	5,93,000
41	site:www.nlv.gov.vn/	4.2	site: www.nlv.gov.vn/	45,04,000

(Source: Primary data)

#### 5.17- B. SEARCH ENGINE PERFORMANCE OF NATIONAL LIBRARIES WITH LINK COMMAND (LINK:URL AND LINK: URL)

Table-5.16-B shows the average result of search engine performance of 41 national library websites in Asia with a link command **link:URL** and **link: URL**. (without gap and with gap) and it observed that similarly as the above table there are significant differences in performance of search result by using the same search expression without gap after the command and with gap after the command. To analyse the search engine performance, 5 rounds data was collected (between **17.10.2018 to 19.02.2019**) with 15 days interval to see the consistency of research data (The details about collected data is given in appendix- ANX-2A to 2E) and an average of five rounds data was analyzed.

After analysis, the study witnessed that the average result of majority of the national libraries (36), search expression with gap are having more number of hits in

comparison to search expression without gap in all the rounds which are logically incorrect and very few national libraries (National Library of Bangladesh (Round 1,2,3 & 4), Brunei (Round 4), India (Round 1 & 2), Iraq (Round 4 & 5) and Nepal (Round 2,3,4 & 5) have more number of hits in search expression without gap in some of the rounds which is logically correct.

**Table-5.16-B: Average of national libraries' websites with link command link:url and link: url**

Sl. no.	Search Expression	No. of Hits (In Average)	Search Expression	No. of Hits (In Average)
1	link:www.ku.edu.af/	2,45,00,000	link: www.ku.edu.af/	44,50,00,000
2	link:www.nla.am/	22,04,000	link: www.nla.am/	1,21,34,000
3	link:www.anl.az/	5,65,800	link: www.anl.az/	89,94,000
4	link:www.icc.gov.bh/	2,69,000	link: www.icc.gov.bh/	9,10,40,000
5	link:www.nanl.gov.bd/	86,94,04,660	link: www.nanl.gov.bd/	89,060
6	link:www.library.gov.bt/	1,54,40,000	link: www.library.gov.bt/	5,63,60,000
7	link:www.librarybrunei.gov.bn/	67,660	link: www.librarybrunei.gov.bn/	59,380
8	link:www.nlc.gov.cn/	1,07,740	link: www.nlc.gov.cn/	84,30,000
9	link:www.cypruslibrary.gov.cy/	3,660	link: www.cypruslibrary.gov.cy/	13,114
10	link:www.nplg.gov.ge/	50,700	link: www.nplg.gov.ge/	60,000
11	link:www.nationallibrary.gov.in/	5,50,80,000	link: www.nationallibrary.gov.in/	5,42,40,000
12	link:www.perpusnas.go.id/	96,440	link: www.perpusnas.go.id/	3,05,400
13	link:www.nlai.ir/	39,160	link: www.nlai.ir/	57,680
14	link:www.iraqnla-iq.com/	2,420.8	link: www.iraqnla-iq.com/	2,295
15	link:web.nli.org.il/	1,37,000	link: web.nli.org.il/	3,39,400
16	link:www.ndl.go.jp/	2,62,400	link: www.ndl.go.jp/	76,14,000
17	link:www.nl.gov.jo/	60,84,000	link: www.nl.gov.jo/	3,25,60,000

18	link:www.nlrk.kz/	82,820	link: www.nlrk.kz/	2,96,000
19	link:www.nlk.gov.kw/	25,820	link: www.nlk.gov.kw/	5,34,400
20	link:www.nlkr.gov.kg/	68,900	link: www.nlkr.gov.kg/	74,480
21	link:www.nationallibraryoflaos.net/	6,600	link: www.nationallibraryoflaos.net/	11,180
22	link:www.bnl.gov.lb/	1,16,200	link: www.bnl.gov.lb/	60,44,000
23	link:www.pnm.gov.my/	1,32,200	link: www.pnm.gov.my/	36,96,000
24	link:www.nlm.gov.mv/	1,60,60,000	link: www.nlm.gov.mv/	7,05,60,000
25	link:www.nationallibrary.mn/	3,98,80,000	link: www.nationallibrary.mn/	5,29,40,000
26	link:www.nlm-npt.gov.mm	31,000	link: www.nlm-npt.gov.mm	76,640
27	link:www.nnl.gov.np/	1,88,00,000	link: www.nnl.gov.np/	1,52,00,000
28	link:www.nl.go.kr/	1,82,80,000	link: www.nl.go.kr/	1,66,60,00,000
29	link:www.nlp.gov.pk/	98,980	link: www.nlp.gov.pk/	3,23,40,000
30	link:web.nlp.gov.ph/	1,51,800	link: web.nlp.gov.ph/	1,10,94,000
31	link:www.qnl.qa	1,70,400	link: www.qnl.qa	3,76,200
32	link:www.nlr.ru/	3,50,600	link: www.nlr.ru/	30,24,000
33	link:www.kfnl.gov.sa/	1,45,600	link: www.kfnl.gov.sa/	1,61,000
34	link:www.nlb.gov.sg/	1,49,200	link: www.nlb.gov.sg/	72,36,000
35	link:www.natlib.lk/	23,740	link: www.natlib.lk/	2,90,800
36	link:www.alassad-library.gov.sy/	26,820	link: www.alassad-library.gov.sy/	4,12,000
37	link:www.ncl.edu.tw/	3,68,400	link: www.ncl.edu.tw/	1,19,40,000
38	link:www.nlt.go.th/	5,26,200	link: www.nlt.go.th/	57,68,000
39	link:www.mkutup.gov.tr/	15,316	link: www.mkutup.gov.tr/	15,708
40	link:www.natlib.uz/	16,340	link: www.natlib.uz/	2,83,200
41	link:www.nlv.gov.vn/	66,920	link: www.nlv.gov.vn/	42,94,000

(Source: Primary data)

## **DATA COLLECTED BY USING “LINK EXPLORER”**

For accessing the data for these below tables, “Link Explorer” an online tool have been used for collecting the data. Link Explorer replaces Open Site Explorer with a new set of link analysis and competitive research tools, powered by a brand new and robust live link index. It is the new version of Open Site Explorer developed by Moz.com that helps to track the links leading to our website.

### **5.18. DOMAIN AUTHORITY AND PAGE AUTHORITY OF NATIONAL LIBRARIES’ WEBSITES**

Domain Authority is a quality score (on a 100-point scale) developed by Moz that predicts how well a website will rank on search engines. It predicts a root domain’s ranking potential in search engines based on an algorithm of link metrics. Page Authority is a score developed by Moz (on a 100-point scale) that predicts how well a specific page will rank on search engines. It predicts a page’s ranking potential in search engines based on an algorithm of link metrics. To analyze the domain authority and page authority of selected National Libraries’ website, an online tool ‘*Link Explorer software*’ (<https://moz.com/link-explorer>) has been used and two rounds data was collected (from date: **05.02.2019 to 07.03.2019**) with one month interval to see the consistency of research data. The details about collected data is given in appendix — ANX-3A to 3B.

Domain Authority shows the measure/score (on a 100 point scale) of the power of a domain name. If the website’s domain authority is high means it has the potential of ranking well in search engine results. The study observed that the average value of National Library of Japan secured 1<sup>st</sup> place with 75.5, which is followed by Singapore with 63.5 at second place and Russia and Taiwan with 61 each at third place. While, China, South Korea, Iran, Georgia, Indonesia, Turkey, Malaysia etc., occupied fourth, fifth, sixth, seventh, eighth, ninth and tenth. The lowest was attained by National Library of Myanmar with 5.

On the other hand, Page Authority measures the predictive ranking strength of a single page. It implies that higher the score (on a 100 point scale) of the specific page, more likely the webpage will rank well in search engine. The study further

observed that the National Library of China secured first place with an average value of 64.5. The second and third place was occupied by Japan and Iran with an average value of 64 and 59 respectively. The rest are Russia, Taiwan, Singapore, Turkey, South Korea, Georgia, etc. The lowest was attained by National Library of Brunei with an average value of 13.

The domain and page authority of majority of the national libraries' websites undertaken for the study are not so high in value which directly indicates low rank on search engine.

**Table-5.17: Domain authority and page authority**

Sl. No.	Country	Domain Authority	Page Authority
1	Afghanistan	38	40
2	Armenia	36.5	41
3	Azerbaijan	42.5	48
4	Bahrain	20	27
5	Bangladesh	31.5	41
6	Bhutan	38.5	42
7	Brunei	15.2	13
8	China	60.5	64.5
9	Cyprus	34.5	45
10	Georgia	50	50
11	India	42	44
12	Indonesia	49.5	45
13	Iran	52	59
14	Iraq	28.5	31
15	Israel	24	42
16	Japan	75.5	64
17	Jordan	31	36
18	Kazakhstan	42.5	37
19	Kuwait	27	37
20	Kyrgyzstan	29	33
21	Laos	29	15.5
22	Lebanon	19	20
23	Malaysia	43.5	44
24	Maldives	23.5	30
25	Mongolia	31	40
26	Myanmar	5	16.5
27	Nepal	27.5	38
28	South Korea	52.5	53
29	Pakistan	34	41

30	Philippines	42	38
31	Qatar	43.5	42
32	Russia	61	58
33	Saudi Arabia	38	40
34	Singapore	63.5	57
35	Sri Lanka	34	43
36	Syria	32.5	40
37	Taiwan	61	58
38	Thailand	37	43
39	Turkey	48	53
40	Uzbekistan	37.5	41
41	Vietnam	42	42

(Source: Primary data)

#### 5.19. INTERNAL FOLLOWED LINKS, EXTERNAL FOLLOWED LINKS AND TOTAL LINKS

Table-5.18 depicts the average result of Internal Followed Links, External Followed Links and Total Links. For this analysis, two rounds of data was collected from respective National Libraries' websites from 05.02.2019 to 07.03.2019 by using 'Link Explorer' an online tool with one month interval to see the consistency of research data. The details about collected data is given in appendix — ANX-4A to 4B.

The Internal followed links are the hyperlinks on the webpage to another webpage resource such as an image or document, on the same website or domain. It is mainly used for navigational purposes. Internal Links are also referred to as a navigational link, self-link or inside the link. It is observed from the study that the National Library of South Korea obtained highest internal followed links with an average value of 241870666, which is followed by Japan with an average value of 222896496 and Sri Lanka with 73965167 at third. The rest are Georgia with 47756749.5, Azerbaijan with 34050193.5, Malaysia with 32734525.5, Russia with 31590168.5, Taiwan with 23199419.5, Indonesia with 17935190 and Singapore with 11927644 at fourth, fifth, sixth, seventh, eighth, ninth and tenth rank respectively. The lowest was occupied by National Library of Myanmar with an average value of 85 which indicates of having less internal hyperlinks due to poor visibility.

The External followed links are the hyperlinks that point at any domain other than the domain the link exists on the source. It is referred to as a link pointing out from a website, also known as outlink. The study further observed that the average value of the National Library of Israel was the highest i.e., 1,95,16,570.50, which is followed by South Korea with 1,57,24,883 and Japan with 1,33,99,601. While, others are National Library of Taiwan with an average value of 53,88,260.50, Russia with an average value of 43,69,094.50, Indonesia with 26,24,789.50, Iran with 23,67,286.50, Kazakhstan with 7,97,986.5, Qatar with 6,95,257 and Singapore with 5,32,577 occupied fourth, fifth, sixth, seventh, eighth, ninth and tenth rank respectively. The lowest average was obtained by the National Library of Laos with 35 only. It is also noted that the National Library of Myanmar has got zero external followed links.

Total links are the total amount of links to a site. This would be all types of links (internal, external, followed links). After analyzing the study found that the highest total links was occupied by South Korea with an average value of 25,77,34,120.5, while second place was occupied by Japan with 23,94,77,213 average and Sri Lanka with 7,40,97,538 average at third. Which is followed by National Library of Georgia with 4,80,83,239.50, Russia with 3,63,02,934.50, Malaysia with 3,32,04,912.50, Taiwan with 2,86,71,908.5, Iran with 2,44,09,887, Israel with 2,04,56,620.50 and Singapore with 1,25,69,754 occupied fourth, fifth, sixth, seventh, eighth, ninth and tenth rank respectively. The lowest was obtained by National Library of Myanmar with 100.5 Average.

**Table-5.18: Internal followed links, external followed links and total links**

Sl. No.	Country	Internal Followed Links (In Average)	External Followed Links (In Average)	Total Links (In Average)
1	Afghanistan	659468.5	1,67,665	8,30,048.5
2	Armenia	9602196	1,14,023.5	97,22,379
3	Azerbaijan	34050193.5	1,49,000	3,42,13,815
4	Bahrain	34262	2,350.5	36,704.50
5	Bangladesh	203456	2,03,456	2,18,917
6	Bhutan	6611	2,918.50	13,271.50
7	Brunei	14929	1,196	16,165.5
8	China	4373717	17,52,655	61,73,711
9	Cyprus	96205	8,548	1,04,980.5
10	Georgia	47756749.5	2,97,692	4,80,83,239.50

11	India	3852549	75,277	39,31,886.50
12	Indonesia	17935190	26,24,789.50	2,05,62,180
13	Iran	593600.5	23,67,286.50	2,44,09,887
14	Iraq	593600.5	5,508	5,99,634.50
15	Israel	731727	1,95,16,570.50	2,04,56,620.50
16	Japan	222896496	1,33,99,601	23,94,77,213
17	Jordan	51632.5	30,017	81,843
18	Kazakhstan	571064	7,97,986.5	13,71,569.50
19	Kuwait	601195	2,442	6,03,813
20	Kyrgyzstan	2675797	7,132.50	26,83,925
21	Laos	1304	35	1,352
22	Lebanon	33326	401	33,738
23	Malaysia	32734525.5	4,68,651	3,32,04,912.50
24	Maldives	1013	291	1,379
25	Mongolia	416328.5	13,028	4,30,618
26	Myanmar	85	0	100.5
27	Nepal	44341.5	681	89,365
28	South Korea	241870666	1,57,24,883	25,77,34,120.5
29	Pakistan	1696	1,200	5,755
30	Philippines	2063854	92,579.50	21,59,803.5
31	Qatar	4958360	6,95,257	67,77,766
32	Russia	31590168.5	43,69,094.50	3,63,02,934.50
33	Saudi Arabia	7186791.5	85,984.50	72,76,611.5
34	Singapore	11927644	5,32,577	1,25,69,754
35	Sri Lanka	73965167	1,32,081	7,40,97,538
36	Syria	8300.5	56,721	67,772
37	Taiwan	23199419.5	53,88,260.50	2,86,71,908.5
38	Thailand	71590.5	5,08,539	5,93,889.50
39	Turkey	837943.5	1,78,749	13,30,695
40	Uzbekistan	1069633	1,76,733.50	12,47,245.50
41	Vietnam	704555	1,84,812	8,95,310

(Source: Primary data)

## 5.20. VALUE OF SPAM SCORE OF NATIONAL LIBRARIES' WEBSITES

The spam score represents the percentage of sites with similar features which was found to be penalized or banned by Google. The spam score is based on a machine learning model which identified 27 common features (As listed in the appendix — ANX-5) among millions of banned or penalized sites in the data. The percentage of such scores are as follows- 1-30% indicates low, 31-60% indicates medium and 61-100% indicates high. The spam score will help the web developer or library professionals to discover the potentially damaged links. So the website needs to be upgraded which will reduce the risks of getting penalized by Google. To analyze the



spam score of National libraries' websites, the raw data was collected in two rounds (from date: *05.02.2019 to 07.03.2019*) by using 'Link Explorer' an online tool with one month interval to see the consistency of research data. The details about two round collected data is given in appendix — ANX-5A to 5B).

Table-5.19 shows the average value of spam score of national libraries' websites and the analysis observed that the National Library of Azerbaijan has got maximum spam score i.e., 60% which indicates medium level of risk and should continue its maintenance, followed by National Library of Pakistan with 49% showing medium level of risk and Turkey with 46% which is also showing medium level of risk. If the web designer/library professionals want to stay out of this danger then frequent checking of the website is necessary as well while creating the website, the developer needs to be very careful to not have similar features with other website. Because the spam score indicates the status of the website, i.e., higher the score of spam, higher the chance of being spammy, indicating website has some trouble.

It is further observed that 28 national libraries viz., Afghanistan, Armenia, Bangladesh, Bhutan, Brunei, China, Georgia, India, Indonesia, Iran, Iraq, Israel, Japan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Maldives, Mongolia, Myanmar, South Korea, Qatar, Russia, Saudi Arabia, Singapore, Syria and Vietnam comes under the category 1-30% indicating low spam. While only three national libraries viz., Azerbaijan, Pakistan and Turkey come under the category 31-60%.

It is very clear from the table that none of the national library websites are in high risk which is very good. It also observed that the National Library of Bahrain, Cyprus, Jordan, Malaysia, Nepal, Philippines, Sri Lanka, Taiwan, Thailand and Uzbekistan have no spam score.

Thus, this percentage figure helps in finding the potential signals ranging from content concerns to low authority metrics.

**Table-5.19: Spam score of national libraries' websites**

Sl. No.	Country	Spam score
1	Afghanistan	25%

2	Armenia	24.50%
3	Azerbaijan	60%
4	Bahrain	—
5	Bangladesh	18.50%
6	Bhutan	12%
7	Brunei	1%
8	China	18.50%
9	Cyprus	—
10	Georgia	13%
11	India	1.50%
12	Indonesia	3%
13	Iran	5%
14	Iraq	0.50%
15	Israel	4%
16	Japan	14.50%
17	Jordan	—
18	Kazakhstan	5.50%
19	Kuwait	5%
20	Kyrgyzstan	22%
21	Laos	1%
22	Lebanon	1%
23	Malaysia	—
24	Maldives	2%
25	Mongolia	3%
26	Myanmar	27.50%
27	Nepal	—
28	South Korea	6%
29	Pakistan	49%
30	Philippines	—
31	Qatar	2%
32	Russia	24.50%
33	Saudi Arabia	8.50%
34	Singapore	1%
35	Sri Lanka	—
36	Syria	3%
37	Taiwan	—
38	Thailand	—
39	Turkey	46%
40	Uzbekistan	—
41	Vietnam	6.50%

(Source: Primary data)

## 5.21. TOTAL NUMBERS OF JUST-DISCOVERED LINKING DOMAINS

If a new domain is found with a link to a specific site, then this will be reported as a discovered linking domain. It keeps track of the latest visits on the specific site. To analyze the total discovered linking domains of National Libraries' websites, two rounds of data were collected from respective library website (from date: **05.02.2019 to 07.03.2019**) by using 'Link Explorer' an online tool with one month interval to see the consistency of research data. Link explorer identifies the site's recently discovered linking domains within the last two months (60 days) from the date of analysis. The details about two round collected data is given in appendix – ANX-6A to 6B.

Table-5.20 shows the average value of the total discovered linking domains of national libraries' websites. After analysis from both the rounds, the study observed that the average value of National Library of Japan has the maximum number of newly discovered linking domains i.e., 1499, which is followed by China with 1349.5 and Singapore with 421.5 newly discovered links. While, National Library of Taiwan with 375, Russia with 235, Israel with 188.5, Indonesia with 175, Iraq with 174.5, South Korea with 142 and Iran with 108.5 newly discovered links occupied fourth, fifth, sixth, seventh, eighth, ninth and tenth. The lowest was attained by National Library of Brunei and Maldives with only 1 discovered link each, followed by Laos with 2, Myanmar with 3.5, Kuwait with 4, Bahrain with 5.5.

**Table-5.20: Just-discovered linking domains of national libraries' website**

Sl. No.	Country	Total Discovered Linking Domains (In Average)
1	Afghanistan	79
2	Armenia	30
3	Azerbaijan	51.5
4	Bahrain	5.5
5	Bangladesh	24.5
6	Bhutan	19.5
7	Brunei	1
8	China	1349.5
9	Cyprus	15.5
10	Georgia	67.5

11	India	27.5
12	Indonesia	175
13	Iran	108.5
14	Iraq	174.5
15	Israel	188.5
16	Japan	1499
17	Jordan	9
18	Kazakhstan	26
19	Kuwait	4
20	Kyrgyzstan	9
21	Laos	2
22	Lebanon	6
23	Malaysia	43.5
24	Maldives	1
25	Mongolia	72.5
26	Myanmar	3.5
27	Nepal	6
28	South Korea	142
29	Pakistan	14
30	Philippines	31
31	Qatar	68
32	Russia	235
33	Saudi Arabia	35.5
34	Singapore	421.5
35	Sri Lanka	21
36	Syria	10.5
37	Taiwan	375
38	Thailand	31.5
39	Turkey	80.5
40	Uzbekistan	31
41	Vietnam	37

(Source: Primary data)

## 5.22. LINKING DOMAINS, FOLLOWED LINKING DOMAINS AND INBOUND LINKS ANALYSIS

Linking domains are the number of unique root domains linking to a target. Two links from the same website will only be counted as one linking root domain. Followed linking domains are the number of domains with at least one follow link to any page on the root domain. Inbound links are the incoming link from a page on another website back to your own site. A number of unique pages linking to a

target. Two or more links from the same page on a website are counted as one link. Inbound Links are also known as back-link. It is a hyperlink on a third-party webpage that points to a webpage on your site. To analysis the linking domains, followed linking domains & inbound links of National Libraries' websites, two rounds data was collected from respective library website (from date: *05.02.2019 to 07.03.2019*) by using 'Link Explorer' an online tool with 1 month interval to see the consistency of research data. The details about two round collected data is given in appendix — ANX-7A to 7B.

Table-5.21 shows the linking domains, followed linking domains and total inbound links of national libraries' website. It observed from analysis that National Library of Japan secured first place with maximum linking domains with an average of 30,600, which is followed by China with 17,550 average at second and Taiwan with an average of 10,950 at third. Whereas, National Library of Singapore with an average 10,100, Iran with 9,100, Russia with 8,900, Israel with 4,150, South Korea with 3,900, Indonesia with 3,550 and Turkey with 3,100 occupied fourth, fifth, sixth, seventh, eighth, ninth and tenth rank respectively. The lowest was obtained by National Library of Myanmar with an average of 10.5.

On the basis of followed linking domains, the study observed that National Library of Japan obtained maximum followed linking domains with an average of 24,917, followed by China with an average of 15,875 and Taiwan with 9370.5. The lowest was occupied by the National Library of Laos with an average of 7.5. It is further observed that the National Library of Myanmar has zero followed linking domain. While National Library of Singapore with an average of 8407.5, Iran with 8,306, Russia with 6980.5, Israel with 4,206.50, South Korea with 3536.5, Indonesia with 3,328.5, Turkey with 2798.5 occupied fourth, fifth, sixth, seventh, eighth, ninth and tenth rank respectively.

While, the highest average value of inbound links was occupied by the National Library of South Korea 1,58,50,000, followed by Japan with 85,57,900 and Taiwan with 55,00,000. The rest are as follows- National Library of Indonesia with an average of 13,01,350, Iran with 12,01,250, Kazakhstan with 8,00,500, Qatar with

6,96,400, Singapore with 6,41,200, Malaysia with 4,70,400, Georgia with 2,90,900 occupied fourth, fifth, sixth, seventh, eighth, ninth and tenth rank respectively. The lowest was occupied by National Library Myanmar with an average of 15.5.

**Table-5.21: Linking domains, followed linking domains and total inbound links**

Sl. No.	Country	Linking Domains (In Average)	Followed Linking Domains (In Average)	Total Inbound Links (In Average)
1	Afghanistan	648	433	1,70,550
2	Armenia	689.5	469	1,20,150
3	Azerbaijan	1,800	1,381.50	1,63,600
4	Bahrain	70	40.5	2,400
5	Bangladesh	476	404	15,400
6	Bhutan	636.5	415.5	6,600
7	Brunei	22	11.5	1,200
8	China	17,550	15,875	1,500
9	Cyprus	892	832.5	8,800
10	Georgia	2,500	2,190	2,90,900
11	India	909	659.5	1,85,650
12	Indonesia	3,550	3,328.5	13,01,350
13	Iran	9,100	8,306	12,01,250
14	Iraq	197.5	117	6,050
15	Israel	4,150	4,206.50	2,79,950
16	Japan	30,600	24,917	85,57,900
17	Jordan	339	269.5	30,200
18	Kazakhstan	1,100	746.5	8,00,500
19	Kuwait	245.5	182	2,600
20	Kyrgyzstan	301	180	6,700
21	Laos	17.5	7.5	24.5
22	Lebanon	38	31	244
23	Malaysia	1,200	927.5	4,70,400
24	Maldives	107.5	65.5	366
25	Mongolia	864	708	14,300
26	Myanmar	10.5	0	15.5
27	Nepal	306	230.5	854
28	South Korea	3,900	3536.5	1,58,50,000
29	Pakistan	506	358	4,050
30	Philippines	474	581.5	93,000
31	Qatar	867	709	6,96,400

32	Russia	8,900	6980.5	4,700
33	Saudi Arabia	1,700	2648.5	89,800
34	Singapore	10,100	8407.5	6,41,200
35	Sri Lanka	827	716.5	1,32,400
36	Syria	409	1510	59,500
37	Taiwan	10,950	9370.5	55,00,000
38	Thailand	869	705.5	2,58,884.5
39	Turkey	3,100	2798.5	2798.5
40	Uzbekistan	723	558.5	1,77,600
41	Vietnam	1,100	930.5	1,86,300

(Source: Primary data)

### 5.23. TOP PAGES ON THE WEBSITES OF NATIONAL LIBRARIES

Table-5.22 gives the top five web pages on the sites of national libraries' websites. It analyzes the site's most valuable pages on key metrics which indicates the key performance of specific web pages measuring its performance value. Many clientele visit the website, but there are few top pages which are more likely to be viewed by the users giving the website developer/library professionals viewer's top priority pages. To analyze the top pages of national libraries' websites, data was collected directly from the national libraries' website by using an online tool 'Link Explorer'. The data was collected from respective library website (date: **05.02.2019**) by using 'Link Explorer' an online tool.

**Table-5.22: Top five pages on the websites of national libraries**

Sl. No.	Country	URL
1	Afghanistan	www.ku.edu.af/
		ku.edu.af/
		ku.edu.af/en
		www.ku.edu.af/index.php?module=cms&action=showfulltext&id=gen9Srv40Nme31_6314_1220327784&sectionid=init_1
		ku.edu.af/en/page/887
2	Armenia	www.nla.am/
		www.nla.am/eng/
		nla.am/arm/meghapart/Arm/1906.htm
		www.nla.am/arm/index.php
		www.nla.am/arm/
3	Azerbaijan	www.anl.az/

		<a href="http://www.anl.az/index_e.php">www.anl.az/index_e.php</a>
		<a href="http://anl.az/">anl.az/</a>
		<a href="http://www.anl.az/el/m/ks.htm">www.anl.az/el/m/ks.htm</a>
		<a href="http://www.anl.az/down/he_serencamlar.pdf">www.anl.az/down/he_serencamlar.pdf</a>
4	<b>Bahrain</b>	<a href="http://www.icc.gov.bh/">www.icc.gov.bh/</a>
		<a href="http://www.icc.gov.bh/national_library.asp">www.icc.gov.bh/national_library.asp</a>
		<a href="http://www.icc.gov.bh/english/index.php">www.icc.gov.bh/english/index.php</a>
		<a href="http://www.icc.gov.bh/en/about">www.icc.gov.bh/en/about</a>
		<a href="http://icc.gov.bh/">icc.gov.bh/</a>
5	<b>Bangladesh</b>	<a href="http://www.nanl.gov.bd">www.nanl.gov.bd</a>
		<a href="http://www.nanl.gov.bd/index.php?option=com_content&amp;view=article&amp;id=45&amp;Itemid=152">www.nanl.gov.bd/index.php?option=com_content&amp;view=article&amp;id=45&amp;Itemid=152</a>
		<a href="http://www.nanl.gov.bd/index.php?option=com_content&amp;view=article&amp;id=62&amp;Itemid=187">www.nanl.gov.bd/index.php?option=com_content&amp;view=article&amp;id=62&amp;Itemid=187</a>
		<a href="http://www.nanl.gov.bd/index.php?option=com_content&amp;view=article&amp;id=66%3Anational-archive&amp;catid=34&amp;Itemid=54">www.nanl.gov.bd/index.php?option=com_content&amp;view=article&amp;id=66%3Anational-archive&amp;catid=34&amp;Itemid=54</a>
		<a href="http://www.nanl.gov.bd/index.php?option=com_content&amp;view=article&amp;id=58&amp;Itemid=184">www.nanl.gov.bd/index.php?option=com_content&amp;view=article&amp;id=58&amp;Itemid=184</a>
6	<b>Bhutan</b>	<a href="http://www.library.gov.bt">www.library.gov.bt</a>
		<a href="http://www.library.gov.bt/misc/bhutan-links.html">www.library.gov.bt/misc/bhutan-links.html</a>
		<a href="http://www.library.gov.bt/index.html">www.library.gov.bt/index.html</a>
		<a href="http://www.library.gov.bt/IT/wylie.html">www.library.gov.bt/IT/wylie.html</a>
		<a href="http://www.library.gov.bt/IT/wylie-DZ.html">www.library.gov.bt/IT/wylie-DZ.html</a>
7	<b>Brunei</b>	<a href="http://www.librarybrunei.gov.bn/library/dbp/pandan/">www.librarybrunei.gov.bn/library/dbp/pandan/</a>
		<a href="http://www.librarybrunei.gov.bn/library/dbp/">www.librarybrunei.gov.bn/library/dbp/</a>
		<a href="http://www.librarybrunei.gov.bn/library/">www.librarybrunei.gov.bn/library/</a>
		<a href="http://www.librarybrunei.gov.bn/library/pusat-dakwah-islamiah-4/">www.librarybrunei.gov.bn/library/pusat-dakwah-islamiah-4/</a>
		<a href="http://www.librarybrunei.gov.bn/client/en_US/search/asset/42434">www.librarybrunei.gov.bn/client/en_US/search/asset/42434</a>
8	<b>China</b>	<a href="http://www.nlc.gov.cn">www.nlc.gov.cn</a>
		<a href="http://ouroots.nlc.gov.cn">ouroots.nlc.gov.cn</a>
		<a href="http://www.nlc.gov.cn/GB/channel1/index.html">www.nlc.gov.cn/GB/channel1/index.html</a>
		<a href="http://govinfo.nlc.gov.cn">govinfo.nlc.gov.cn</a>
		<a href="http://www.nlc.gov.cn/index.htm">www.nlc.gov.cn/index.htm</a>
9	<b>Cyprus</b>	<a href="http://www.cypruslibrary.gov.cy">www.cypruslibrary.gov.cy</a>
		<a href="http://www.cypruslibrary.gov.cy/moec/cl/cl.nsf/DMLindex_en/DMLindex_en?OpenDocument">www.cypruslibrary.gov.cy/moec/cl/cl.nsf/DMLindex_en/DMLindex_en?OpenDocument</a>
		<a href="http://www.cypruslibrary.gov.cy/moec/cl/cl.nsf/DMLindex_en/DMLindex_en?opendocument">www.cypruslibrary.gov.cy/moec/cl/cl.nsf/DMLindex_en/DMLindex_en?opendocument</a>
		<a href="http://www.cypruslibrary.gov.cy/moec/cl/cl.nsf/DMLindex_gr/DMLindex_gr?OpenDocument">www.cypruslibrary.gov.cy/moec/cl/cl.nsf/DMLindex_gr/DMLindex_gr?OpenDocument</a>
		<a href="http://www.cypruslibrary.gov.cy/moec/cl/cl.nsf/dmlindex_en/dmlindex_en?opendocument">www.cypruslibrary.gov.cy/moec/cl/cl.nsf/dmlindex_en/dmlindex_en?opendocument</a>
10	<b>Georgia</b>	<a href="http://www.nplg.gov.ge">www.nplg.gov.ge</a>
		<a href="http://www.nplg.gov.ge/index.php?sec_id=1&amp;lang_id=ENG">www.nplg.gov.ge/index.php?sec_id=1&amp;lang_id=ENG</a>



		<a href="http://www.nplg.gov.ge/ic/library_e/gabeskiria/20.htm">www.nplg.gov.ge/ic/library_e/gabeskiria/20.htm</a>
		<a href="http://www.nplg.gov.ge/ic/DGL/work/Ocherki_istorii_gruzii/Ocherki_istorii_gruzii_II/0.htm">www.nplg.gov.ge/ic/DGL/work/Ocherki_istorii_gruzii/Ocherki_istorii_gruzii_II/0.htm</a>
		<a href="http://www.nplg.gov.ge/eng/home">www.nplg.gov.ge/eng/home</a>
11	<b>India</b>	<a href="http://www.nationallibrary.gov.in">www.nationallibrary.gov.in</a>
		<a href="http://nationallibrary.gov.in">nationallibrary.gov.in</a>
		<a href="http://www.nationallibrary.gov.in/nat_lib_stat/history.html">www.nationallibrary.gov.in/nat_lib_stat/history.html</a>
		<a href="http://nationallibrary.gov.in/ResultKeyword.php?start=325&amp;p_f=325&amp;id=gir&amp;id1=personal">nationallibrary.gov.in/ResultKeyword.php?start=325&amp;p_f=325&amp;id=gir&amp;id1=personal</a>
		<a href="http://nationallibrary.gov.in/showdetails.php?id=192968">nationallibrary.gov.in/showdetails.php?id=192968</a>
12	<b>Indonesia</b>	<a href="http://e-resources.perpusnas.go.id">e-resources.perpusnas.go.id</a>
		<a href="http://perpusnas.go.id">perpusnas.go.id</a>
		<a href="http://www.perpusnas.go.id">www.perpusnas.go.id</a>
		<a href="http://www.perpusnas.go.id/beranda/">www.perpusnas.go.id/beranda/</a>
		<a href="http://isbn.perpusnas.go.id">isbn.perpusnas.go.id</a>
13	<b>Iran</b>	<a href="http://www.nlai.ir">www.nlai.ir</a>
		<a href="http://nlai.ir">nlai.ir</a>
		<a href="http://icnl.nlai.ir">icnl.nlai.ir</a>
		<a href="http://icnl.nlai.ir/default.aspx">icnl.nlai.ir/default.aspx</a>
		<a href="http://portal.nlai.ir/daka/default.aspx">portal.nlai.ir/daka/default.aspx</a>
14	<b>Iraq</b>	<a href="http://www.iraqnla-iq.com">www.iraqnla-iq.com</a>
		<a href="http://www.iraqnla-iq.com/opac/fullrecr.php?nid=26280&amp;hl=ara">www.iraqnla-iq.com/opac/fullrecr.php?nid=26280&amp;hl=ara</a>
		<a href="http://iraqnla-iq.com">iraqnla-iq.com</a>
		<a href="http://www.iraqnla-iq.com/baghdad%20memory/fanon10.htm">www.iraqnla-iq.com/baghdad%20memory/fanon10.htm</a>
		<a href="http://www.iraqnla-iq.com/baghdad%20memory/baghdad%20sharan%20&amp;nt_hren1.htm">www.iraqnla-iq.com/baghdad%20memory/baghdad%20sharan%20&amp;nt_hren1.htm</a>
15	<b>Israel</b>	<a href="http://web.nli.org.il/sites/NLI/English/Pages/default.aspx">web.nli.org.il/sites/NLI/English/Pages/default.aspx</a>
		<a href="http://web.nli.org.il/sites/nli/english/Pages/default.aspx">web.nli.org.il/sites/nli/english/Pages/default.aspx</a>
		<a href="http://web.nli.org.il/sites/NLI/English/collections/Humanities/Pages/newton.aspx">web.nli.org.il/sites/NLI/English/collections/Humanities/Pages/newton.aspx</a>
		<a href="http://web.nli.org.il/sites/JPress/English/Pages/default.aspx">web.nli.org.il/sites/JPress/English/Pages/default.aspx</a>
		<a href="http://web.nli.org.il">web.nli.org.il</a>
16	<b>Japan</b>	<a href="http://www.ndl.go.jp">www.ndl.go.jp</a>
		<a href="http://dl.ndl.go.jp">dl.ndl.go.jp</a>
		<a href="http://iss.ndl.go.jp">iss.ndl.go.jp</a>
		<a href="http://kokkai.ndl.go.jp">kokkai.ndl.go.jp</a>
		<a href="http://kindai.ndl.go.jp">kindai.ndl.go.jp</a>
17	<b>Jordan</b>	<a href="http://www.nl.gov.jo">www.nl.gov.jo</a>
		<a href="http://www.nl.gov.jo/EN/Pages/default.aspx">www.nl.gov.jo/EN/Pages/default.aspx</a>
		<a href="http://www.nl.gov.jo/ar/Pages/default.aspx">www.nl.gov.jo/ar/Pages/default.aspx</a>
		<a href="http://www.nl.gov.jo/images/king%5B%5D/king3%5B%5D.jpg">www.nl.gov.jo/images/king%5B%5D/king3%5B%5D.jpg</a>
		<a href="http://www.nl.gov.jo/images/king%5B%5D/king2%5B%5D.jpg">www.nl.gov.jo/images/king%5B%5D/king2%5B%5D.jpg</a>

18	<b>Kazakhstan</b>	<a href="http://www.nlrk.kz">www.nlrk.kz</a>
		<a href="http://www.nlrk.kz/page.php">www.nlrk.kz/page.php</a>
		<a href="http://musicheritage.nlrk.kz/index.php/ru/page/show/102">musicheritage.nlrk.kz/index.php/ru/page/show/102</a>
		<a href="http://nlrk.kz">nlrk.kz</a>
		<a href="http://www.nlrk.kz/page.php?lang=3">www.nlrk.kz/page.php?lang=3</a>
19	<b>Kuwait</b>	<a href="http://www.nlk.gov.kw">www.nlk.gov.kw</a>
		<a href="http://www.nlk.gov.kw/a-nlk_history.htm">www.nlk.gov.kw/a-nlk_history.htm</a>
		<a href="http://www.nlk.gov.kw/a-nlk_tasks.htm">www.nlk.gov.kw/a-nlk_tasks.htm</a>
		<a href="http://www.nlk.gov.kw/a-main.html">www.nlk.gov.kw/a-main.html</a>
		<a href="http://www.nlk.gov.kw/e-main.htm">www.nlk.gov.kw/e-main.htm</a>
20	<b>Kyrgyzstan</b>	<a href="http://nlkr.gov.kg">nlkr.gov.kg</a>
		<a href="http://nlkr.gov.kg/index.php?option=com_content&amp;task=view&amp;id=260&amp;Itemid=31">nlkr.gov.kg/index.php?option=com_content&amp;task=view&amp;id=260&amp;Itemid=31</a>
		<a href="http://nlkr.gov.kg/index.php?option=com_content&amp;task=view&amp;id=329&amp;Itemid=31">nlkr.gov.kg/index.php?option=com_content&amp;task=view&amp;id=329&amp;Itemid=31</a>
		<a href="http://nlkr.gov.kg/index.php?option=com_datso_gallery&amp;Itemid=1661&amp;func=detail&amp;catid=3&amp;id=8&amp;mosmsg=Your+comment+has+been+saved.">nlkr.gov.kg/index.php?option=com_datso_gallery&amp;Itemid=1661&amp;func=detail&amp;catid=3&amp;id=8&amp;mosmsg=Your+comment+has+been+saved.</a>
		<a href="http://nlkr.gov.kg/index.php?option=com_content&amp;task=view&amp;id=704&amp;Itemid=1">nlkr.gov.kg/index.php?option=com_content&amp;task=view&amp;id=704&amp;Itemid=1</a>
21	<b>Laos</b>	<a href="http://nationallibraryoflaos.net/en/home/">nationallibraryoflaos.net/en/home/</a>
		<a href="http://nationallibraryoflaos.net">nationallibraryoflaos.net</a>
		<a href="http://nationallibraryoflaos.net/en/contact-us/">nationallibraryoflaos.net/en/contact-us/</a>
		<a href="http://nationallibraryoflaos.net/en/about-us/">nationallibraryoflaos.net/en/about-us/</a>
		<a href="http://www.nationallibraryoflaos.net">www.nationallibraryoflaos.net</a>
22	<b>Lebanese</b>	<a href="http://bnl.gov.lb">bnl.gov.lb</a>
		<a href="http://bnl.gov.lb/English/index.html">bnl.gov.lb/English/index.html</a>
		<a href="http://bnl.gov.lb/arabic/index.html">bnl.gov.lb/arabic/index.html</a>
		<a href="http://bnl.gov.lb/english/index.html">bnl.gov.lb/english/index.html</a>
		<a href="http://bnl.gov.lb/french/index.html">bnl.gov.lb/french/index.html</a>
23	<b>Malaysia</b>	<a href="http://www.pnm.gov.my">www.pnm.gov.my</a>
		<a href="http://www.pnm.gov.my/en/main.php">www.pnm.gov.my/en/main.php</a>
		<a href="http://myrepositori.pnm.gov.my/bitstream/123456789/2265/1/JB1865_MBRA.pdf">myrepositori.pnm.gov.my/bitstream/123456789/2265/1/JB1865_MBRA.pdf</a>
		<a href="http://www.pnm.gov.my/pnmv3/index.php?id=50">www.pnm.gov.my/pnmv3/index.php?id=50</a>
		<a href="http://myrepositori.pnm.gov.my/bitstream/123456789/752/3/Majlis%20Bandaraya%20Johor%20Bahru%20%5BSumber%20Internet%5D.pdf">myrepositori.pnm.gov.my/bitstream/123456789/752/3/Majlis%20Bandaraya%20Johor%20Bahru%20%5BSumber%20Internet%5D.pdf</a>
24	<b>Maldives</b>	<a href="http://www.nlm.gov.mv">www.nlm.gov.mv</a>
		<a href="http://www.nlm.gov.mv/main/">www.nlm.gov.mv/main/</a>
		<a href="http://nlm.gov.mv">nlm.gov.mv</a>
		<a href="http://nlm.gov.mv/en/index.php">nlm.gov.mv/en/index.php</a>
		<a href="http://nlm.gov.mv/en/about/history/">nlm.gov.mv/en/about/history/</a>
25	<b>Mongolia</b>	<a href="http://www.nationallibrary.mn">www.nationallibrary.mn</a>
		<a href="http://nationallibrary.mn/mn/user/nzbzvcstrpu/">nationallibrary.mn/mn/user/nzbzvcstrpu/</a>
		<a href="http://nationallibrary.mn/mn/user/gwtxxbocoub/">nationallibrary.mn/mn/user/gwtxxbocoub/</a>

		<a href="http://nationallibrary.mn/mn/user/Booxopeta/">nationallibrary.mn/mn/user/Booxopeta/</a>
		<a href="http://nationallibrary.mn/mn/user/bymzxcyrhjr/">nationallibrary.mn/mn/user/bymzxcyrhjr/</a>
26	<b>Myanmar</b>	<a href="http://www.nlm-npt.gov.mm">www.nlm-npt.gov.mm</a>
		<a href="http://www.nlm-npt.gov.mm/en/about-us/background-history/">www.nlm-npt.gov.mm/en/about-us/background-history/</a>
		<a href="http://www.nlm-npt.gov.mm/en/about-us/organizational-structure/">www.nlm-npt.gov.mm/en/about-us/organizational-structure/</a>
		<a href="http://www.nlm-npt.gov.mm/en/register">www.nlm-npt.gov.mm/en/register</a>
		<a href="http://www.nlm-npt.gov.mm/en/news-and-activities/news">www.nlm-npt.gov.mm/en/news-and-activities/news</a>
27	<b>Nepal</b>	<a href="http://www.nnl.gov.np">www.nnl.gov.np</a>
		<a href="http://www.nnl.gov.np/about.php">www.nnl.gov.np/about.php</a>
		<a href="http://nnl.gov.np">nnl.gov.np</a>
		<a href="http://www.nnl.gov.np/nnl/">www.nnl.gov.np/nnl/</a>
		<a href="http://www.nnl.gov.np/content.php?id=1">www.nnl.gov.np/content.php?id=1</a>
28	<b>Korea</b>	<a href="http://www.nl.go.kr">www.nl.go.kr</a>
		<a href="http://www.nl.go.kr/nl/index.jsp">www.nl.go.kr/nl/index.jsp</a>
		<a href="http://www.nl.go.kr/iflapac/front/">www.nl.go.kr/iflapac/front/</a>
		<a href="http://www.nl.go.kr/english/index.jsp">www.nl.go.kr/english/index.jsp</a>
		<a href="http://book.nl.go.kr">book.nl.go.kr</a>
29	<b>Pakistan</b>	<a href="http://www.nlp.gov.pk">www.nlp.gov.pk</a>
		<a href="http://www.nlp.gov.pk/upload/English/PNB_English_2012.pdf">www.nlp.gov.pk/upload/English/PNB_English_2012.pdf</a>
		<a href="http://www.nlp.gov.pk/about_nlp.html">www.nlp.gov.pk/about_nlp.html</a>
		<a href="http://www.nlp.gov.pk/Director_general.html">www.nlp.gov.pk/Director_general.html</a>
		<a href="http://www.nlp.gov.pk/index.html">www.nlp.gov.pk/index.html</a>
30	<b>Philippines</b>	<a href="http://web.nlp.gov.ph/nlp/">web.nlp.gov.ph/nlp/</a>
		<a href="http://web.nlp.gov.ph">web.nlp.gov.ph</a>
		<a href="http://web.nlp.gov.ph/nlp/?q=node/645">web.nlp.gov.ph/nlp/?q=node/645</a>
		<a href="http://web.nlp.gov.ph/nlp/?q=node/755">web.nlp.gov.ph/nlp/?q=node/755</a>
		<a href="http://web.nlp.gov.ph/nlp/?q=node/3434">web.nlp.gov.ph/nlp/?q=node/3434</a>
31	<b>Qatar</b>	<a href="http://www.qnl.qa">www.qnl.qa</a>
		<a href="http://www.qnl.qa/en">www.qnl.qa/en</a>
		<a href="http://www.qnl.qa/collections/aihl/maps">www.qnl.qa/collections/aihl/maps</a>
		<a href="http://link.qnl.qa/resource/gXocU1CJeNs">link.qnl.qa/resource/gXocU1CJeNs</a>
		<a href="http://qnl.qa">qnl.qa</a>
32	<b>Russia</b>	<a href="http://www.nlr.ru">www.nlr.ru</a>
		<a href="http://www.nlr.ru/eng/">www.nlr.ru/eng/</a>
		<a href="http://nlr.ru">nlr.ru</a>
		<a href="http://www.nlr.ru/poisk/">www.nlr.ru/poisk/</a>
		<a href="http://leb.nlr.ru">leb.nlr.ru</a>
33	<b>Saudi Arabia</b>	<a href="http://www.kfnl.gov.sa">www.kfnl.gov.sa</a>
		<a href="http://kfnl.gov.sa">kfnl.gov.sa</a>
		<a href="http://careers.kfnl.gov.sa">careers.kfnl.gov.sa</a>
		<a href="http://www.kfnl.gov.sa/flash_default.asp">www.kfnl.gov.sa/flash_default.asp</a>
		<a href="http://kfnl.gov.sa/Ar/Pages/default.aspx">kfnl.gov.sa/Ar/Pages/default.aspx</a>
34	<b>Singapore</b>	<a href="http://www.nlb.gov.sg">www.nlb.gov.sg</a>
		<a href="http://www.nlb.gov.sg/sure/wp-content/uploads/2015/11/waste-">www.nlb.gov.sg/sure/wp-content/uploads/2015/11/waste-</a>

		1050x700.png
		<a href="http://www.nlb.gov.sg/Portals/0/library/gallery/ChoaChuKang/Children's%20Reading%20Corner%20%20-%20CCKPL.jpg">www.nlb.gov.sg/Portals/0/library/gallery/ChoaChuKang/Children's%20Reading%20Corner%20%20-%20CCKPL.jpg</a>
		<a href="http://www.nlb.gov.sg/sure/wp-content/uploads/2014/06/factsvsopinion-infoheader-e1450166907611-1050x700.png">www.nlb.gov.sg/sure/wp-content/uploads/2014/06/factsvsopinion-infoheader-e1450166907611-1050x700.png</a>
		<a href="http://www.nlb.gov.sg/discovereads/wp-content/uploads/2016/06/allbugs.jpg">www.nlb.gov.sg/discovereads/wp-content/uploads/2016/06/allbugs.jpg</a>
35	<b>Sri Lanka</b>	<a href="http://www.natlib.lk">www.natlib.lk</a>
		<a href="http://www.natlib.lk/VH6.php?OTKH/o5e2dg.html">www.natlib.lk/VH6.php?OTKH/o5e2dg.html</a>
		<a href="http://www.natlib.lk/VH6.php?f43a/9x3vs2.html">www.natlib.lk/VH6.php?f43a/9x3vs2.html</a>
		<a href="http://www.natlib.lk/VH6.php?AHM2/qbQcvk.html">www.natlib.lk/VH6.php?AHM2/qbQcvk.html</a>
		<a href="http://www.natlib.lk/VH6.php?a0Rz/wfht5o.html">www.natlib.lk/VH6.php?a0Rz/wfht5o.html</a>
36	<b>Syria</b>	<a href="http://www.lassad-library.gov.sy">www.lassad-library.gov.sy</a>
		<a href="http://www.lassad-library.gov.sy/eindex.html">www.lassad-library.gov.sy/eindex.html</a>
		<a href="http://lassad-library.gov.sy">lassad-library.gov.sy</a>
		<a href="http://www.lassad-library.gov.sy/eovrview.htm">www.lassad-library.gov.sy/eovrview.htm</a>
		<a href="http://www.lassad-library.gov.sy/about-us.php">www.lassad-library.gov.sy/about-us.php</a>
37	<b>Taiwan</b>	<a href="http://www.ncl.edu.tw">www.ncl.edu.tw</a>
		<a href="http://www.ncl.edu.tw/mp.asp?mp=2">www.ncl.edu.tw/mp.asp?mp=2</a>
		<a href="http://etds.ncl.edu.tw/theabs/index.jsp">etds.ncl.edu.tw/theabs/index.jsp</a>
		<a href="http://datas.ncl.edu.tw/theabs/00/">datas.ncl.edu.tw/theabs/00/</a>
		<a href="http://ndltd.ncl.edu.tw">ndltd.ncl.edu.tw</a>
38	<b>Thailand</b>	<a href="http://www.nlt.go.th">www.nlt.go.th</a>
		<a href="http://www.nlt.go.th/th_index.htm">www.nlt.go.th/th_index.htm</a>
		<a href="http://www.nlt.go.th/en_index.htm">www.nlt.go.th/en_index.htm</a>
		<a href="http://www.nlt.go.th/th/">www.nlt.go.th/th/</a>
		<a href="http://nlt.go.th">nlt.go.th</a>
39	<b>Turkey</b>	<a href="http://www.mkutup.gov.tr">www.mkutup.gov.tr</a>
		<a href="http://www.mkutup.gov.tr/tr/Sayfalar/default.aspx">www.mkutup.gov.tr/tr/Sayfalar/default.aspx</a>
		<a href="http://konusankitaplik.mkutup.gov.tr">konusankitaplik.mkutup.gov.tr</a>
		<a href="http://www.mkutup.gov.tr/scan-tur.html">www.mkutup.gov.tr/scan-tur.html</a>
		<a href="http://mkutup.gov.tr">mkutup.gov.tr</a>
40	<b>Uzbekistan</b>	<a href="http://www.natlib.uz">www.natlib.uz</a>
		<a href="http://natlib.uz">natlib.uz</a>
		<a href="http://www.natlib.uz/eng/">www.natlib.uz/eng/</a>
		<a href="http://www.natlib.uz/eng/articles/16/">www.natlib.uz/eng/articles/16/</a>
		<a href="http://www.natlib.uz/rus/sana_12008.htm">www.natlib.uz/rus/sana_12008.htm</a>
41	<b>Vietnam</b>	<a href="http://www.nlv.gov.vn">www.nlv.gov.vn</a>
		<a href="http://nlv.gov.vn">nlv.gov.vn</a>
		<a href="http://www.nlv.gov.vn/ef/en/">www.nlv.gov.vn/ef/en/</a>
		<a href="http://nlv.gov.vn/ef/">nlv.gov.vn/ef/</a>
		<a href="http://www.nlv.gov.vn/nlv/">www.nlv.gov.vn/nlv/</a>

## 5.24. TOP FOLLOWED LINKS TO THE WEBSITES OF NATIONAL LIBRARIES

Table-5.23 gives the top five followed links to the sites of national libraries. It shows the links which is followed by each other's website indicating number of domains with at least one follow link to any page on the root domain. To analyze the top five followed links to the sites of national libraries, data was collected from respective library website (date: **05.02.2019**) by using 'Link Explorer' an online tool.

**Table-5.23: Top five followed links to the websites of national libraries**

Sl. No.	Country	URL
1	<b>Afghanistan</b>	<a href="http://link.springer.com/article/10.1245/s10434-016-5238-8">link.springer.com/article/10.1245/s10434-016-5238-8</a>
		<a href="http://gest.unu.edu">gest.unu.edu</a>
		<a href="http://search.aol.com/aol/search?q=kabul+university&amp;v_t=comsearch&amp;ei=UTF-8&amp;fr2=p%3As%2Cv%3Aw%2Cm%3Aate&amp;sit=rs-rhr2">search.aol.com/aol/search?q=kabul+university&amp;v_t=comsearch&amp;ei=UTF-8&amp;fr2=p%3As%2Cv%3Aw%2Cm%3Aate&amp;sit=rs-rhr2</a>
		<a href="http://www2.le.ac.uk/news/blog/2011-archive/october/in-memory-of-a-great-woman">www2.le.ac.uk/news/blog/2011-archive/october/in-memory-of-a-great-woman</a>
		<a href="http://krc.orient.ox.ac.uk/balkhheritage/index.php/en/about-us/78-about/230-the-bach-project">krc.orient.ox.ac.uk/balkhheritage/index.php/en/about-us/78-about/230-the-bach-project</a>
2	<b>Armenia</b>	<a href="http://www.loc.gov/law/help/guide/nations/armenia.php">www.loc.gov/law/help/guide/nations/armenia.php</a>
		<a href="http://groups.drupal.org/government-sites">groups.drupal.org/government-sites</a>
		<a href="http://goo.gl/2awuog">goo.gl/2awuog</a>
		<a href="http://groups.drupal.org/node/19885">groups.drupal.org/node/19885</a>
		<a href="http://loc.gov/law/help/guide/nations/armenia.php">loc.gov/law/help/guide/nations/armenia.php</a>
3	<b>Azerbaijan</b>	<a href="http://www.loc.gov/law/help/guide/nations/azerbaijan.php">www.loc.gov/law/help/guide/nations/azerbaijan.php</a>
		<a href="http://www.phys-for-you.narod.ru">www.phys-for-you.narod.ru</a>
		<a href="http://udilang.narod.ru/news.html">udilang.narod.ru/news.html</a>
		<a href="http://10rank.blog.fc2.com/blog-entry-228.html">10rank.blog.fc2.com/blog-entry-228.html</a>
		<a href="http://alizadeh.narod.ru/chixishlar.html">alizadeh.narod.ru/chixishlar.html</a>
4	<b>Bahrain</b>	<a href="http://www.loc.gov/law/help/guide/nations/bahrain.php">www.loc.gov/law/help/guide/nations/bahrain.php</a>
		<a href="http://library.un.org/fr/content/depository-libraries-directory?page=21">library.un.org/fr/content/depository-libraries-directory?page=21</a>
		<a href="http://library.un.org/content/depository-libraries-directory?field_region_value=All&amp;field_country_list_value=All&amp;field_city_value_1=&amp;combine=&amp;title=&amp;field_names_value=&amp;page=21">library.un.org/content/depository-libraries-directory?field_region_value=All&amp;field_country_list_value=All&amp;field_city_value_1=&amp;combine=&amp;title=&amp;field_names_value=&amp;page=21</a>
		<a href="http://library.un.org/content/depository-libraries-directory?field_region_value=All&amp;field_country_list_value=All&amp;field_city_value_1=&amp;combine=&amp;title=&amp;page=21&amp;field_names_value=">library.un.org/content/depository-libraries-directory?field_region_value=All&amp;field_country_list_value=All&amp;field_city_value_1=&amp;combine=&amp;title=&amp;page=21&amp;field_names_value=</a>
		<a href="http://library.un.org/content/depository-libraries-">library.un.org/content/depository-libraries-</a>

		directory?field_region_value=All&field_country_list_value=All&field_city_value_1=&combine=&title=&page=21
5	<b>Bangladesh</b>	www.loc.gov/law/help/guide/nations/bangladesh.php 10rank.blog.fc2.com/blog-entry-228.html www.dmoz.org/Reference/Libraries/National/ www.library.ca.gov/collections/genealogy/links/ www.loc.gov/law/help/guide/nations/bangladesh.php?loclr=bloglaw
6	<b>Bhutan</b>	mentalfloss.com/article/51788/62-worlds-most-beautiful-libraries www.loc.gov/law/help/guide/nations/bhutan.php news.bbc.co.uk/2/hi/technology/2164186.stm www.dmoz.org/Reference/Libraries/National/ d.hatena.ne.jp/yashimaru/20100915
7	<b>Brunei</b>	wheelmap.org/nodes/-509385020 alt.kufs.ac.jp/toshokan/rink/tosho.htm www.kufs.ac.jp/toshokan/rink/tosho.htm www.unissa.edu.bn/current-student/library/ www.kheu.gov.bn/Theme/Home.aspx
8	<b>China</b>	culture.people.com.cn culture.china.com book.people.com.cn culture.people.com.cn/GB/index.html blog.sina.com.cn/lijingze
9	<b>Cyprus</b>	www.loc.gov/law/help/guide/nations/cyprus.php catalogue.bnf.fr/ark:/12148/cb11901708s catalogue.bnf.fr/ark:/12148/cb119565539 catalogue.bnf.fr/ark:/12148/cb12031003b catalogue.bnf.fr/ark:/12148/cb13892080s
10	<b>Georgia</b>	udilang.narod.ru goo.gl/wl7Jgv udilang.narod.ru/field.html bit.ly/1sCbH2K 10rank.blog.fc2.com/blog-entry-228.html
11	<b>India</b>	india.blogs.nytimes.com/2012/03/20/in-india-history-literally-rots-away/ www.bbc.co.uk/news/world-asia-india-37687562 www.loc.gov/law/help/guide/nations/india.php 10rank.blog.fc2.com/blog-entry-228.html www.indiaculture.nic.in
12	<b>Indonesia</b>	library.gunadarma.ac.id www.library.gunadarma.ac.id www.pnri.go.id goo.gl/vZ4fhP www.unja.ac.id
13	<b>Iran</b>	khedmaty.persianblog.ir

		<a href="http://sokhandownload.blogspot.com">sokhandownload.blogspot.com</a>
		<a href="http://bit.ly/1zzXAKx">bit.ly/1zzXAKx</a>
		<a href="http://www.drshahinsepanta.blogspot.com">www.drshahinsepanta.blogspot.com</a>
		<a href="http://irani-websites.blogspot.com">irani-websites.blogspot.com</a>
14	<b>Iraq</b>	<a href="http://colarts.uodiyala.edu.iq">colarts.uodiyala.edu.iq</a>
		<a href="http://www.loc.gov/law/help/guide/nations/iraq.php">www.loc.gov/law/help/guide/nations/iraq.php</a>
		<a href="http://goo.gl/f35Cpx">goo.gl/f35Cpx</a>
		<a href="http://www.colarts.uodiyala.edu.iq">www.colarts.uodiyala.edu.iq</a>
		<a href="http://www.uobasrah.edu.iq">www.uobasrah.edu.iq</a>
15	<b>Israel</b>	<a href="http://onlinebooks.library.upenn.edu/archives.html">onlinebooks.library.upenn.edu/archives.html</a>
		<a href="http://www.nytimes.com/2013/01/15/world/middleeast/documents-illuminate-jewish-life-in-ancient-muslim-empire.html">www.nytimes.com/2013/01/15/world/middleeast/documents-illuminate-jewish-life-in-ancient-muslim-empire.html</a>
		<a href="http://www.dailymail.co.uk/sciencetech/article-2101960/Revealed-esoteric-interests-Britains-greatest-scientist-Sir-Isaac-Newtons-occult-theological-writings-posted-online.html">www.dailymail.co.uk/sciencetech/article-2101960/Revealed-esoteric-interests-Britains-greatest-scientist-Sir-Isaac-Newtons-occult-theological-writings-posted-online.html</a>
		<a href="http://www.reddit.com/user/leanrum">www.reddit.com/user/leanrum</a>
		<a href="http://www.reddit.com/user/first_five_eighth">www.reddit.com/user/first_five_eighth</a>
16	<b>Japan</b>	<a href="http://d.hatena.ne.jp/keyword/%C5%C5%BB%D2%BD%F1%C0%D2">d.hatena.ne.jp/keyword/%C5%C5%BB%D2%BD%F1%C0%D2</a>
		<a href="http://d.hatena.ne.jp/keyword/%C6%FC%CB%DC%B9%F1%B7%FB%CB%A1">d.hatena.ne.jp/keyword/%C6%FC%CB%DC%B9%F1%B7%FB%CB%A1</a>
		<a href="http://d.hatena.ne.jp/keyword/%A5%B9%A5%AF%A1%BC%A5%EB%A5%AB%A1%BC%A5%B9%A5%C8">d.hatena.ne.jp/keyword/%A5%B9%A5%AF%A1%BC%A5%EB%A5%AB%A1%BC%A5%B9%A5%C8</a>
		<a href="http://d.hatena.ne.jp/keyword/%B9%F1%B2%F1%BF%DE%BD%F1%B4%DB">d.hatena.ne.jp/keyword/%B9%F1%B2%F1%BF%DE%BD%F1%B4%DB</a>
		<a href="http://d.hatena.ne.jp/keyword/%A5%D6%A5%EA%A5%C6%A5%F3">d.hatena.ne.jp/keyword/%A5%D6%A5%EA%A5%C6%A5%F3</a>
17	<b>Jordan</b>	<a href="http://www.culture.gov.jo">www.culture.gov.jo</a>
		<a href="http://www.privacyshield.gov/article?id=Jordan-selling-resources">www.privacyshield.gov/article?id=Jordan-selling-resources</a>
		<a href="http://shahidashrafilib92.persianblog.ir/1394/3/">shahidashrafilib92.persianblog.ir/1394/3/</a>
		<a href="http://portal.unesco.org/culture/en/ev.php-URL_ID=39684&amp;URL_DO=DO_PRINTPAGE&amp;URL_SECTION=201.html">portal.unesco.org/culture/en/ev.php-URL_ID=39684&amp;URL_DO=DO_PRINTPAGE&amp;URL_SECTION=201.html</a>
		<a href="http://urheberrecht.cocolog-nifty.com/blog/cat12712699/index.html">urheberrecht.cocolog-nifty.com/blog/cat12712699/index.html</a>
18	<b>Kazakhstan</b>	<a href="http://www.loc.gov/law/help/guide/nations/kazakhstan.php">www.loc.gov/law/help/guide/nations/kazakhstan.php</a>
		<a href="http://10rank.blog.fc2.com/blog-entry-228.html">10rank.blog.fc2.com/blog-entry-228.html</a>
		<a href="http://www.liveinternet.ru/users/luna-olcha/post46845510">www.liveinternet.ru/users/luna-olcha/post46845510</a>
		<a href="http://www.liveinternet.ru/users/sekmes/">www.liveinternet.ru/users/sekmes/</a>
		<a href="http://catalogue.bnf.fr/ark:/12148/cb13597236j">catalogue.bnf.fr/ark:/12148/cb13597236j</a>
19	<b>Kuwait</b>	<a href="http://10rank.blog.fc2.com/blog-entry-228.html">10rank.blog.fc2.com/blog-entry-228.html</a>
		<a href="http://10rank.blog.fc2.com/category42-6.html">10rank.blog.fc2.com/category42-6.html</a>
		<a href="http://library.un.org/content/depository-libraries-directory?page=18">library.un.org/content/depository-libraries-directory?page=18</a>
		<a href="http://library.un.org/fr/content/depository-libraries-">library.un.org/fr/content/depository-libraries-</a>

		<a href="http://directory?field_region_value=All&amp;field_country_list_value=All&amp;field_city_value_1=&amp;combine=&amp;title=&amp;page=18">directory?field_region_value=All&amp;field_country_list_value=All&amp;field_city_value_1=&amp;combine=&amp;title=&amp;page=18</a> <a href="http://shahidashrafilib92.persianblog.ir/1394/3/">shahidashrafilib92.persianblog.ir/1394/3/</a>
20	<b>Kyrgyzstan</b>	<a href="http://10rank.blog.fc2.com/blog-entry-228.html">10rank.blog.fc2.com/blog-entry-228.html</a> <a href="http://www.wdl.org/en/partners/">www.wdl.org/en/partners/</a> <a href="http://10rank.blog.fc2.com/category42-6.html">10rank.blog.fc2.com/category42-6.html</a> <a href="http://www.library.illinois.edu/ias/spx/slavicresearchguides/nationalalbib/natbibkyrgyz/">www.library.illinois.edu/ias/spx/slavicresearchguides/nationalalbib/natbibkyrgyz/</a> <a href="http://libraries.indiana.edu/libraries-archives-central-urasian-studies">libraries.indiana.edu/libraries-archives-central-urasian-studies</a>
21	<b>Laos</b>	<a href="http://www.loc.gov/programs/national-film-preservation-board/resources/public-research-centers-and-archives/">www.loc.gov/programs/national-film-preservation-board/resources/public-research-centers-and-archives/</a> <a href="http://www.seasite.niu.edu/lao/outinlink.htm">www.seasite.niu.edu/lao/outinlink.htm</a> <a href="http://laotiantimes.com/2017/01/04/new-national-library-laos/">laotiantimes.com/2017/01/04/new-national-library-laos/</a> <a href="http://laotiantimes.com/tag/national-library-of-laos/">laotiantimes.com/tag/national-library-of-laos/</a> <a href="http://laotiantimes.com/tag/library/">laotiantimes.com/tag/library/</a>
22	<b>Lebanese</b>	<a href="http://catalogue.bnf.fr/ark:/12148/cb12056054v">catalogue.bnf.fr/ark:/12148/cb12056054v</a> <a href="http://catalogue.bnf.fr/ark:/12148/cb119984582">catalogue.bnf.fr/ark:/12148/cb119984582</a> <a href="http://catalogue.bnf.fr/ark:/12148/cb13541888z">catalogue.bnf.fr/ark:/12148/cb13541888z</a> <a href="http://catalogue.bnf.fr/ark:/12148/cb122754205">catalogue.bnf.fr/ark:/12148/cb122754205</a> <a href="http://www.oclc.org/en/worldcat/foundation.html">www.oclc.org/en/worldcat/foundation.html</a>
23	<b>Malaysia</b>	<a href="http://tinyurl.com/nkr37rf">tinyurl.com/nkr37rf</a> <a href="http://10rank.blog.fc2.com/blog-entry-228.html">10rank.blog.fc2.com/blog-entry-228.html</a> <a href="http://www.arkib.gov.my/en/web/guest/berita/-/asset_publisher/Lw38/content/program-semarak-rukun-negara-kelab-rukun-negara-daerah-petaling-2013">www.arkib.gov.my/en/web/guest/berita/-/asset_publisher/Lw38/content/program-semarak-rukun-negara-kelab-rukun-negara-daerah-petaling-2013</a> <a href="http://tinyurl.com/h5sdxka">tinyurl.com/h5sdxka</a> <a href="http://tinyurl.com/zczbh4d">tinyurl.com/zczbh4d</a>
24	<b>Maldives</b>	<a href="http://tinyurl.com/pzynt4d">tinyurl.com/pzynt4d</a> <a href="http://shahidashrafilib92.persianblog.ir/1394/3/">shahidashrafilib92.persianblog.ir/1394/3/</a> <a href="http://www.library.illinois.edu/ias/sacollection/sa_countries/sa_libraries/">www.library.illinois.edu/ias/sacollection/sa_countries/sa_libraries/</a> <a href="http://www.interq.or.jp/tokyo/ystation/mm.html">www.interq.or.jp/tokyo/ystation/mm.html</a> <a href="http://www.ndl.go.jp/en/cdnlao/newsletter/corresponding.html">www.ndl.go.jp/en/cdnlao/newsletter/corresponding.html</a>
25	<b>Mongolia</b>	<a href="http://lovepeacepray.sakura.ne.jp/sb/log/eid2.html">lovepeacepray.sakura.ne.jp/sb/log/eid2.html</a> <a href="http://www.loc.gov/law/help/guide/nations/mongolia.php">www.loc.gov/law/help/guide/nations/mongolia.php</a> <a href="http://10rank.blog.fc2.com/blog-entry-228.html">10rank.blog.fc2.com/blog-entry-228.html</a> <a href="http://lovepeacepray.sakura.ne.jp/sb/log/eid3.html">lovepeacepray.sakura.ne.jp/sb/log/eid3.html</a> <a href="http://fsfg.esy.es/showthread.php?tid=19729&amp;pid=112048">fsfg.esy.es/showthread.php?tid=19729&amp;pid=112048</a>
26	<b>Myanmar</b>	—
27	<b>Nepal</b>	<a href="http://www.loc.gov/law/help/guide/nations/nepal.php">www.loc.gov/law/help/guide/nations/nepal.php</a> <a href="http://www.dmoz.org/Reference/Libraries/National/">www.dmoz.org/Reference/Libraries/National/</a>



		<a href="http://www.dmoz.org/Top/Reference/Libraries/National">www.dmoz.org/Top/Reference/Libraries/National</a>
		<a href="http://www.dmoz.org/Reference/Libraries/National">www.dmoz.org/Reference/Libraries/National</a>
		<a href="http://www.dmoz.org/Top/Reference/Libraries/National/">www.dmoz.org/Top/Reference/Libraries/National/</a>
28	<b>Korea</b>	<a href="http://onlinebooks.library.upenn.edu/archives.html">onlinebooks.library.upenn.edu/archives.html</a>
		<a href="http://yeoksa.blog.fc2.com/page-0.html">yeoksa.blog.fc2.com/page-0.html</a>
		<a href="http://dublincore.org">dublincore.org</a>
		<a href="http://www.npr.org/sections/parallels/2016/02/04/465126976/in-the-heart-of-seoul-a-trove-of-north-korean-propaganda">www.npr.org/sections/parallels/2016/02/04/465126976/in-the-heart-of-seoul-a-trove-of-north-korean-propaganda</a>
		<a href="http://yeoksa.blog.fc2.com">yeoksa.blog.fc2.com</a>
29	<b>Pakistan</b>	<a href="http://www.loc.gov/law/help/guide/nations/pakistan.php">www.loc.gov/law/help/guide/nations/pakistan.php</a>
		<a href="http://www.nytimes.com/2013/12/25/world/asia/musharraf-trial-postponed-after-discovery-of-unassembled-bomb.html">www.nytimes.com/2013/12/25/world/asia/musharraf-trial-postponed-after-discovery-of-unassembled-bomb.html</a>
		<a href="http://www.dmoz.org/Reference/Libraries/National/">www.dmoz.org/Reference/Libraries/National/</a>
		<a href="http://www.zum.de/whkmla/region/india/xwpunjab.html">www.zum.de/whkmla/region/india/xwpunjab.html</a>
		<a href="http://www.loc.gov/law/help/guide/nations/pakistan.php?loclr=bloglaw">www.loc.gov/law/help/guide/nations/pakistan.php?loclr=bloglaw</a>
30	<b>Philippines</b>	<a href="http://www.loc.gov/law/help/guide/nations/philippines.php">www.loc.gov/law/help/guide/nations/philippines.php</a>
		<a href="http://groups.drupal.org/government-sites">groups.drupal.org/government-sites</a>
		<a href="http://groups.drupal.org/node/19885">groups.drupal.org/node/19885</a>
		<a href="http://catalogue.bnf.fr/ark:/12148/cb135131072">catalogue.bnf.fr/ark:/12148/cb135131072</a>
		<a href="http://blog.wikimedia.org/2011/12/06/wikimedia-foundation-report-november-2011/">blog.wikimedia.org/2011/12/06/wikimedia-foundation-report-november-2011/</a>
31	<b>Qatar</b>	<a href="http://www.ncbi.nlm.nih.gov/projects/linkout/journals/htmllists.cgi?type_id=6">www.ncbi.nlm.nih.gov/projects/linkout/journals/htmllists.cgi?type_id=6</a>
		<a href="http://feeds.feedburner.com/InformationIsBeautiful">feeds.feedburner.com/InformationIsBeautiful</a>
		<a href="http://www.nytimes.com/2018/10/26/arts/exhibitions-in-qatar-celebrate-syria-before-the-war.html">www.nytimes.com/2018/10/26/arts/exhibitions-in-qatar-celebrate-syria-before-the-war.html</a>
		<a href="http://www.loc.gov/law/help/guide/nations/qatar.php">www.loc.gov/law/help/guide/nations/qatar.php</a>
		<a href="http://goo.gl/Ogu2Pt">goo.gl/Ogu2Pt</a>
32	<b>Russia</b>	<a href="http://www.nytimes.com/2018/07/13/world/europe/what-is-russian-gru.html">www.nytimes.com/2018/07/13/world/europe/what-is-russian-gru.html</a>
		<a href="http://philologos.narod.ru">philologos.narod.ru</a>
		<a href="http://philologos.narod.ru/index.html">philologos.narod.ru/index.html</a>
		<a href="http://iwh.cssn.cn">iwh.cssn.cn</a>
		<a href="http://whis.cssn.cn/sjs/">whis.cssn.cn/sjs/</a>
33	<b>Saudi Arabia</b>	<a href="http://goo.gl/XQnV7m">goo.gl/XQnV7m</a>
		<a href="http://www.loc.gov/marc/translations.html">www.loc.gov/marc/translations.html</a>
		<a href="http://10rank.blog.fc2.com/blog-entry-228.html">10rank.blog.fc2.com/blog-entry-228.html</a>
		<a href="http://bit.ly/2qMWtHi">bit.ly/2qMWtHi</a>
		<a href="http://www.hejleh.com/countries/saudi.html">www.hejleh.com/countries/saudi.html</a>
34	<b>Singapore</b>	<a href="http://sinosphere.blogs.nytimes.com/2015/03/23/in-lee-kuan-yew-china-saw-a-leader-to-emulate/">sinosphere.blogs.nytimes.com/2015/03/23/in-lee-kuan-yew-china-saw-a-leader-to-emulate/</a>
		<a href="http://www.nytimes.com/2017/08/26/world/asia/singapore-language-hokkien-mandarin.html">www.nytimes.com/2017/08/26/world/asia/singapore-language-hokkien-mandarin.html</a>
		<a href="http://www.nytimes.com/2018/08/21/world/asia/paris-jackson-singapore-gay.html">www.nytimes.com/2018/08/21/world/asia/paris-jackson-singapore-gay.html</a>

		<a href="http://www.bbc.co.uk/news/world-asia-39916201">www.bbc.co.uk/news/world-asia-39916201</a>
		<a href="http://time.com/5307875/singapore-sentosa-history-trump-kim-summit/">time.com/5307875/singapore-sentosa-history-trump-kim-summit/</a>
35	<b>Sri Lanka</b>	<a href="http://www.loc.gov/law/help/guide/nations/srilanka.php">www.loc.gov/law/help/guide/nations/srilanka.php</a>
		<a href="http://portal.unesco.org/ci/en/ev.php-URL_ID=17892&amp;URL_DO=DO_TOPIC&amp;URL_SECTION=201.html">portal.unesco.org/ci/en/ev.php-URL_ID=17892&amp;URL_DO=DO_TOPIC&amp;URL_SECTION=201.html</a>
		<a href="http://jurosodoh.cocolog-nifty.com/lib_disasters/2009/05/post-e3c7.html">jurosodoh.cocolog-nifty.com/lib_disasters/2009/05/post-e3c7.html</a>
		<a href="http://vision.ucsd.edu/%7Ekbranson/stopchocolateslavery/srilanka.html">vision.ucsd.edu/%7Ekbranson/stopchocolateslavery/srilanka.html</a>
		<a href="http://jurosodoh.cocolog-nifty.com/lib_disasters/2009/05/post-09bb.html">jurosodoh.cocolog-nifty.com/lib_disasters/2009/05/post-09bb.html</a>
36	<b>Syria</b>	<a href="http://www.loc.gov/law/help/guide/nations/syria.php">www.loc.gov/law/help/guide/nations/syria.php</a>
		<a href="http://www.newworldencyclopedia.org/entry/Syria">www.newworldencyclopedia.org/entry/Syria</a>
		<a href="http://www.dmoz.org/Reference/Libraries/National/">www.dmoz.org/Reference/Libraries/National/</a>
		<a href="http://www.dmoz.org/Regional/Middle_East/Syria/Arts_and_Entertainment/">www.dmoz.org/Regional/Middle_East/Syria/Arts_and_Entertainment/</a>
		<a href="http://library.un.org/content/depository-libraries-directory?page=9">library.un.org/content/depository-libraries-directory?page=9</a>
37	<b>Taiwan</b>	<a href="http://goo.gl/LTMoHv">goo.gl/LTMoHv</a>
		<a href="http://www.nyu.edu/gsas/dept/fineart/html/chinese/links.html">www.nyu.edu/gsas/dept/fineart/html/chinese/links.html</a>
		<a href="http://bit.ly/asioliu_NBIN2015">bit.ly/asioliu_NBIN2015</a>
		<a href="http://blog.sina.com.cn/u/1652994135">blog.sina.com.cn/u/1652994135</a>
		<a href="http://blog.sina.com.cn/zmzlong">blog.sina.com.cn/zmzlong</a>
38	<b>Thailand</b>	<a href="http://www.loc.gov/law/help/guide/nations/thailand.php">www.loc.gov/law/help/guide/nations/thailand.php</a>
		<a href="http://goo.gl/1aSFKW">goo.gl/1aSFKW</a>
		<a href="http://www.dmoz.org/Reference/Libraries/National/">www.dmoz.org/Reference/Libraries/National/</a>
		<a href="http://www.library.ca.gov/collections/genealogy/links/">www.library.ca.gov/collections/genealogy/links/</a>
		<a href="http://www.loc.gov/law/help/guide/nations/thailand.php?loclr=bloglaw">www.loc.gov/law/help/guide/nations/thailand.php?loclr=bloglaw</a>
39	<b>Turkey</b>	<a href="http://news.bbc.co.uk/2/hi/102803.stm">news.bbc.co.uk/2/hi/102803.stm</a>
		<a href="http://news.bbc.co.uk/2/hi/europe/102803.stm">news.bbc.co.uk/2/hi/europe/102803.stm</a>
		<a href="http://www.loc.gov/law/help/guide/nations/turkey.php">www.loc.gov/law/help/guide/nations/turkey.php</a>
		<a href="http://10rank.blog.fc2.com/blog-entry-228.html">10rank.blog.fc2.com/blog-entry-228.html</a>
		<a href="http://turkije.startpagina.nl">turkije.startpagina.nl</a>
40	<b>Uzbekistan</b>	<a href="http://www.loc.gov/law/help/guide/nations/uzbekistan.php">www.loc.gov/law/help/guide/nations/uzbekistan.php</a>
		<a href="http://10rank.blog.fc2.com/blog-entry-228.html">10rank.blog.fc2.com/blog-entry-228.html</a>
		<a href="http://blogs.loc.gov/law/2014/06/a-visit-to-the-national-library-of-uzbekistan/">blogs.loc.gov/law/2014/06/a-visit-to-the-national-library-of-uzbekistan/</a>
		<a href="http://blogs.loc.gov/law/2011/10/national-library-of-uzbekistan-pic-of-the-week/">blogs.loc.gov/law/2011/10/national-library-of-uzbekistan-pic-of-the-week/</a>
		<a href="http://kkirc.narod.ru/index5.html">kkirc.narod.ru/index5.html</a>
41	<b>Vietnam</b>	<a href="http://www.reddit.com/r/francophonie/">www.reddit.com/r/francophonie/</a>
		<a href="http://www.loc.gov/law/help/guide/nations/vietnam.php">www.loc.gov/law/help/guide/nations/vietnam.php</a>
		<a href="http://www.reddit.com/r/francophonie/comments/1s9hdc/je_cherche_un_texte/">www.reddit.com/r/francophonie/comments/1s9hdc/je_cherche_un_texte/</a>

	<a href="http://www.reddit.com/r/francophonie/comments/20exsb/des_livres_sur_l%C3%A9conomie_le_developpement_et_laide/">www.reddit.com/r/francophonie/comments/20exsb/des_livres_sur_l%C3%A9conomie_le_developpement_et_laide/</a>
	<a href="http://www.reddit.com/r/francophonie/comments/2sp9pn/culture_et_information_du_burkina_faso/">www.reddit.com/r/francophonie/comments/2sp9pn/culture_et_information_du_burkina_faso/</a>

## 5.25. WEB IMPACT FACTOR OF NATIONAL LIBRARIES' WEBSITES

Table-5.24 exhibits the Web Impact Factor of national libraries' websites in Asia. Under this table, three parameters have been analyzed i.e., Internal Web Impact Factor (IWIF), External Web Impact Factor (EWIF) and Simple Web Impact Factor (SWIF).

Web Impact Factor (WIF) is an important parameter to measure the popularity of a website. A popular website is a website which is viewed and used by many (Shukla & Tripathi, 2015). WIF is directly related with the reputation of the website and if the WIF of a specific website is high, it means the reputation of the website is also high.

The WIF is defined as the number of webpages in a website receiving links from other websites, divided by the number of webpages published in the site that are accessible to the crawler. The WIF provides quantitative tools for ranking, evaluating, categorizing, and comparing websites, top-level domains and sub-domains. The formulae for calculating the Web Impact Factor (WIF) is given below:

### Distribution of Data by SWIF

Simple Web Impact Factor has been calculated by the following formulae:

$$\text{SWIF} = \frac{\text{Total No. of Links}}{\text{Total No. of Webpages}}$$

### Distribution of Data by IWIF

Internal Web Impact Factor has been calculated by the following formulae:

$$\text{IWIF} = \frac{\text{Total No. of Internal Links}}{\text{Total No. of Webpages}}$$

## Distribution of Data by EWIF

External Web Impact Factor has been calculated by the following formulae:

$$\text{EWIF} = \frac{\text{Total No. of External Links}}{\text{Total No. of Webpages}}$$

Internal Web Impact Factor which means the ratio of internal links within the site to the number of pages. The study observed that the National Library of Korea secured first place with highest Internal WIF i.e., 45,63,597.47, the second position was secured by National Library of Japan with 34,82,757.75 IWIF and National Library of Sri Lanka occupied third position with 17,20,120.16 IWIF. Whereas, the National Library of Georgia with 9,55,134.99 IWIF, Malaysia with 7,43,96,6.48 IWIF, Azerbaijan with 7,09,379.03 IWIF, Russia with 5,44,658.07 IWIF, Taiwan with 3,99,989.99 IWIF, Indonesia with 3,98,559.77 IWIF and Iran with 3,71,971.97 IWIF occupied 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> rank respectively. The lowest Internal WIF was obtained by National Library of Myanmar with 5.15 IWIF and thus needs to be improved.

External Web Impact Factor which means the ratio of links made from external sites to the target site, to the number of pages at the site. The study observed that the highest External WIF was secured by the National Library of Israel with 4,64,680.25, followed by South Korea with 2,96,695.90 and Japan with 2,09,368.76. Whereas, National Library of Taiwan with 92,901.04 EWIF, Indonesia with 58,328.65 EWIF, Iran with 40,123.50 EWIF, China with 27,172.94 EWIF, Kazakhstan with 21,567.20 EWIF, Qatar with 16,553.73 EWIF and Russia with 11,987.18 EWIF occupied 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> rank respectively. The lowest External WIF was obtained by the National Library of Laos and Maldives with 2.25 EWIF and 9.7 EWIF respectively. It is also to be noted that the National Library of Myanmar has got zero EWIF which shows poor status.

Simple Web Impact Factor which means the ratio of links to the number of pages. The study further observed that the Simple WIF of National Library of South Korea with 48,62,907.93 occupied at top position, followed by Japan with 37,41,831.45 SWIF and Sri Lanka with 17,23,198.55 SWIF. While, National Library of Georgia

with 9,61,664.79, Malaysia with 7,54,657.10, Azerbaijan with 7,12,787.81, Russia with 6,25,912.66, Taiwan with 4,94,343.25, Israel with 4,87,062.39, and Indonesia with 4,56,937.33 occupied 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> rank respectively. The lowest Simple WIF was obtained by National Library of Myanmar with 6.09 SWIF.

Thus it is very important to maintain the status of the respective website. The poor visibility website will always get poor performance. The study found that the Web Impact Factor of few of the national libraries (like National Library of Myanmar, Maldives, Laos and Pakistan) are not up to the mark. It also observed that the External WIF of some of the websites are not in a good position and needs to improve a lot (like National Library of Myanmar, Laos, Maldives, Nepal, Lebanon and Pakistan). It is suggested to recover the drawbacks of respective websites for its better accessibility and visibility. The link structure of respective libraries' websites should be taken care for its best web presence and to fulfil the usage of the website by the users at a great extent.

**Table-5.24: Web impact factor of national libraries' websites**

Sl. No.	Country	IWIF	EWIF	SWIF
1	Afghanistan	16,486.71	4,191.63	20,751.21
2	Armenia	2,34,199.90	2,781.06	2,37,131.19
3	Azerbaijan	7,09,379.03	3,104.16	7,12,787.81
4	Bahrain	1,268.96	87.05	1,359.42
5	Bangladesh	4,962.34	323.51	5,339.43
6	Bhutan	157.4	69.48	315.98
7	Brunei	1,148.38	92	1,243.50
8	China	67,809.56	27,172.94	95,716.44
9	Cyprus	2,137.88	189.95	2,332.9
10	Georgia	9,55,134.99	300.29	9,61,664.79
11	India	87,557.93	1,710.84	89,361.05
12	Indonesia	3,98,559.77	58,328.65	4,56,937.33
13	Iran	3,71,971.97	40,123.50	4,13,726.89
14	Iraq	19,148.40	177.67	19,343.04
15	Israel	17,422.07	4,64,680.25	4,87,062.39
16	Japan	34,82,757.75	2,09,368.76	37,41,831.45
17	Jordan	1,434.23	833.8	2,273.41
18	Kazakhstan	15,434.16	21,567.20	37,069.44
19	Kuwait	16,248.51	66	16,319.27

20	Kyrgyzstan	81,084.75	216.13	81,331.06
21	Laos	84.12	2.25	87.22
22	Lebanon	1,666.30	20.05	1,686.90
23	Malaysia	7,43,966.48	10,651.15	7,54,657.10
24	Maldives	33.76	9.7	45.96
25	Mongolia	10,408.21	325.7	10,765.45
26	Myanmar	5.15	0	6.09
27	Nepal	1,166.88	17.92	2,351.71
28	South Korea	45,63,597.47	2,96,695.90	48,62,907.93
29	Pakistan	41.36	29.26	140.36
30	Philippines	54,311.94	2,436.30	56,836.93
31	Qatar	1,18,056.19	16,553.73	1,61,375.38
32	Russia	5,44,658.07	11,987.18	6,25,912.66
33	Saudi Arabia	1,79,669.78	2,149.61	1,81,915.28
34	Singapore	2,09,256.91	9,343.45	2,20,522.00
35	Sri Lanka	17,20,120.16	3,071.65	17,23,198.55
36	Syria	207.5125	1,418.03	1,694.3
37	Taiwan	3,99,989.99	92,901.04	4,94,343.25
38	Thailand	1,664.89	11,826.48	13,811.38
39	Turkey	15,810.25	3,372.62	25,107.45
40	Uzbekistan	26,088.60	4,310.57	30,420.62
41	Vietnam	16,775.11	4,400.28	21,316.90

(Source: Primary data)

## 5.26. RANKING OF NATIONAL LIBRARIES' WEBSITES BASED ON WEB IMPACT FACTOR

Table-5.25 depicts the ranking of national libraries' websites based on their Web Impact Factor. The table clearly shows that the National Library of South Korea obtained 1<sup>st</sup> rank among the 41 websites. The 2<sup>nd</sup> and 3<sup>rd</sup> rank was secured by Japan and Sri Lanka respectively. While the other countries like Georgia, Malaysia, Azerbaijan, Russia, Taiwan, Israel and Indonesia occupied 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> rank. In the previous study, Walia and Gupta (2013) have also studied the homepage of Asian countries' websites, the study found that National Library of Japan ranked top and the lowest was obtained by National Library of Maldives. But in the present study, South Korea occupied at top position and Myanmar at the bottom. In the study of Verma and Brahma (2017), National Library of India occupied first place when the evaluation was based on South Asian national

libraries' websites. In the present study, it is also to be noted that India obtained 17 rank among the 41 national library websites. It is expected that in the upcoming years, the National Library of India would come up with a better high impact factor.

It is further observed that the last rank was attained by National Library of Myanmar i.e., 41<sup>st</sup> rank, followed by the Maldives at 40<sup>th</sup> rank, Laos 39<sup>th</sup> rank, Pakistan at 38<sup>th</sup> rank, Bhutan at 37<sup>th</sup> rank, Brunei at 36<sup>th</sup> rank and Bahrain at 35<sup>th</sup> rank. It is suggested that these countries need to focus on the enhancement of their website visibility.

**Table-5.25: Ranking of national libraries' websites based on Web impact factor**

<b>Country</b>	<b>Ranking based on WIF</b>
South Korea	1
Japan	2
Sri Lanka	3
Georgia	4
Malaysia	5
Azerbaijan	6
Russia	7
Taiwan	8
Israel	9
Indonesia	10
Iran	11
Armenia	12
Singapore	13
Saudi Arabia	14
Qatar	15
China	16
India	17
Kyrgyzstan	18
Philippines	19
Kazakhstan	20
Uzbekistan	21
Turkey	22
Vietnam	23
Afghanistan	24
Iraq	25

Kuwait	26
Thailand	27
Mongolia	28
Bangladesh	29
Nepal	30
Cyprus	31
Jordan	32
Syria	33
Lebanon	34
Bahrain	35
Brunei	36
Bhutan	37
Pakistan	38
Laos	39
Maldives	40
Myanmar	41



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## **CHAPTER– 6**

### **FINDINGS, CONCLUSION AND SUGGESTIONS**

## **OBJECTIVE OF THE STUDY**

The objective of this chapter is to provide the findings of the study according to the objectives formulated and overall conclusion of the study and further gives the suggestions based on the study.

### **6.1. FINDINGS OF THE STUDY**

The investigation was started with the intention to analyze and evaluate the national library websites of Asian countries accordingly objectives of the study were designed. Based on the data analysis and inferences of the study, the following findings are drawn:

1. About 95% of the national libraries in Asia have dedicated library website (Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, China, Cyprus, Georgia, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, Nepal, South Korea, Pakistan, Philippines, Qatar, Russia, Saudi Arabia, Singapore, Sri Lanka, Syria, Taiwan, Thailand, Turkey, Uzbekistan and Vietnam). While only 5% of countries have separate library webpage for their national library (Afghanistan and Brunei).
2. Along with text, all the national library websites are using graphics in their website, further 43% of the national libraries have also used animation in their respective library website (Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Georgia, Indonesia, Israel, Japan, Laos, Malaysia, Mongolia, Qatar, Russia, Singapore, Taiwan and Thailand).
3. About 98% of the national libraries have provided the postal address in their respective website while only 2% have not provided the postal address in their library website i.e. Qatar national library. About 93% of national libraries have provided the phone number and 7% library websites have not provided the phone number (Indonesia, Iran and Laos), 71% of the national libraries have provided information about fax numbers, while, 29% of the national libraries have not given the fax numbers in their respective website (Afghanistan, Bahrain, China, Indonesia, Iran, Japan, Kazakhstan, Laos,

Myanmar, Nepal, Philippines and Qatar). Furthermore, 95% of the national libraries have provided the Email address in their respective website and only 5% of the national libraries have not provided the Email address (Georgia and Japan).

4. About 30% of the national libraries have provided feedback facility in their respective website (Afghanistan, Bangladesh, Brunei, India, Mongolia, Pakistan, Qatar, Saudi Arabia, Singapore, Taiwan, Uzbekistan and Vietnam). Most of the countries (70%) have not provided feedback facility in their respective site, 71% have provided a search box in their library website/webpage and 29% have not, 46% have provided site map in their respective website/webpage, while 54% have not provided the site map. Furthermore, 29% of countries have provided FAQs in their respective website/webpage, while majority 71% have not provided.
5. About 85% of the national libraries have provided copyright statement, while only 15% have not provided the copyright statement on their respective website. It also found that none of the national libraries' websites have provided maintenance details in their respective website.
6. Only 17% of the national libraries have provided the date of updation in their respective website (Bangladesh, India, Lebanon, Malaysia, Maldives, Singapore and Taiwan) while majority have not provided the date of updation in their sites and among the 17% countries, 15% of countries have updated the website in past three months and they are as follows- Bangladesh, India, Malaysia, Maldives, Singapore and Taiwan. Whereas, 7% of the national libraries have given the present date in their library website (India, Malaysia and Taiwan).
7. The Top Level Domain (TLDs) are divided into generic Top Level Domain (gTLD) and country code Top Level Domain (ccTLD). On the basis of genetic Top Level Domain (ggTLD), 56.09% of national libraries are '.gov', 9.75% are '.go', 4.87% are '.edu' and 2.43% are '.com', '.org', and '.net', while 9 national libraries have no genetic domain (Armenia, Azerbaijan, Iran, Kazakhstan, Mongolia, Qatar, Russia, Sri Lanka and Uzbekistan). Based on

country code TLD (ccTLD), 98% of the national libraries has its own country code TLD except for National Library of Laos.

8. All the countries have used English as a common language in their respective library website, while the Arabic language is used as the second common language used by 9 countries (Bahrain, Iraq, Israel, Jordan, Kuwait, Lebanon, Qatar, Saudi Arabia & Syria) in their site.
9. Lebanese national library is the only nation which offers information in maximum languages (i.e., Arabic, French, English, Portuguese and Spanish) in their website, 17% countries are offering information in 3 languages and 19.5% countries are offering information in 2 languages. Furthermore, 12% of countries (Nepal, Pakistan, Philippines, Singapore, & Sri Lanka) have offered their site in only 1 language.
10. Only 7% of the national libraries have provided a suggestion on viewing resolution (Malaysia, Taiwan and Vietnam), while most of the countries (93%) have not provided such information to users. There are only 5% national libraries (Malaysia and Vietnam) have provided on browser compatibility on the website for the best view of the website.
11. About 93% of the national libraries have provided information about the library in their respective website and only 7% have not provided information (Indonesia, Israel and Pakistan), 63% of national libraries have provided information about mission/statement/objectives/aims, 80% of national libraries have provided information about library opening hours, 46% of national libraries have given information on library members/staffs. Likewise, 7% of the national libraries have provided the library brochure in their site and majority (93%) have not provided, 22% of the national libraries have provided information on library rules, 90% of the national libraries have provided information on news/updates/events, 78% have provided links to OPAC, 7% of the national libraries have Union catalog, 68% of the national libraries have given the location map/guide, 56% of the national libraries have provided information on library membership/registration, 27% of the national libraries have provided information on library infrastructure, photo

gallery is provided by 49% of the national libraries and only 17% have provided the 'Ask a Librarian' facility.

12. Only 22% of the national libraries have given the number of visitors in their library website/webpage (Armenia, Indonesia, Japan, Jordan, Kazakhstan, Kyrgyzstan, Laos, Malaysia and Uzbekistan).
13. About 100% of the national libraries have used HTML and JPEG, followed by PNG & PDF (87.80%), GIF (53.65%), WMV (43.90%) and MS-Word (21.95%). While the least file format is MS-PowerPoint used by only 1 country (Kazakhstan). Further, the National Library of Kazakhstan has used a maximum number of file formats (7) to represent the information contents of the website.
14. About 78.04% of the national libraries are using Facebook in their website, followed by Twitter (53.65%) RSS and YouTube constituting 34.14% and the least was Blog provided by only 1 country.
15. The larger the size of the page, the longer it takes to download the page and the smaller the size of the page the least time it takes to download. National Library of Kyrgyzstan occupied first position with the maximum size of the website in bytes (2941796 bytes) with 89.48% of total size images and 595.90 seconds time for downloading the page at a 56K connection in seconds, followed by National Library of Vietnam (2805764 bytes) with 91.15% total size images and 595.18 seconds time for downloading the page. While, National Library of Armenia (85 bytes) have the lowest size of the website which took very less time to download the page (0.22 seconds) at 56K connection in seconds, followed by National Library of Cyprus (469 bytes) taking 0.29 seconds time to download the page.
16. The National Library of Japan secured at the top position based on global ranks with 8,662, followed by Azerbaijan with 13,507 ranks and Taiwan with 17,673 ranks. While, National library of Cyprus secured the last rank among the 41 national libraries' websites, followed by Laos at 40<sup>th</sup> rank, Maldives at 39<sup>th</sup> rank, Myanmar at 38<sup>th</sup> rank, Nepal at 37<sup>th</sup> rank, Lebanon at 36<sup>th</sup> rank and Bahrain at 35<sup>th</sup> rank, etc.

17. On the basis of command site:URL and site: URL (without gap and with gap), the average result of 100% of the national libraries' search expression with gap are having more number of hits in comparison to search expression without a gap in all the rounds which is logically incorrect. While only 1 national library (National Library of Georgia) has more number of hits in search expression without a gap in all the rounds which is logically correct. On the basis of command link:URL and link: URL (With gap and without gap), the average value of 88% of the national libraries' search expression with gap are having more number of hits in comparison to search expression without gap in all the rounds and very few national libraries (National Library of Bangladesh (Round 1,2,3 & 4), Brunei (Round 4), India (Round 1 & 2), Iraq (Round 4 & 5) and Nepal (Round 2,3,4 & 5) have more number of hits in search expression without gap in some of the rounds.
18. Based on Domain Authority, the average value of the National Library of Japan secured 1<sup>st</sup> place with 75.5, followed by Singapore with 63.5 at second place and Russia and Taiwan with 61 each at third place. The lowest was attained by National Library of Myanmar with 5. Based on Page Authority, the average value of National Library of China was the highest with 64.5, followed by Japan and Iran with an average value of 64 and 59 respectively. The lowest was attained by National Library of Brunei with an average value of 13.
19. In case of internal followed links, the National Library of South Korea obtained highest internal followed links with an average value of 241870666, followed by Japan with an average value of 222896496 and Sri Lanka with 73965167. In the case of External followed links, the average value of the National Library of Israel was the highest with 1,95,16,570.50, followed by South Korea with 1,57,24,883 and Japan with 1,33,99,601. The lowest average was obtained by the National Library of Laos with 35 only. It is also noted that the National Library of Myanmar has got zero external followed links. On the basis of Total links, the highest total links was occupied by South Korea with an average value of 25,77,34,120.5, followed by Japan with



23,94,77,213 average and Sri Lanka with 7,40,97,538 average. The lowest was obtained by National Library of Myanmar with 100.5 average.

20. Azerbaijan has got maximum spam score i.e., 60% followed by National Library of Pakistan with 49% and Turkey with 46%. It is further observed that majority 68% of the national libraries are under the category 1-30% indicating low spam score and safe for the website.
21. The average value of National Library of Japan has the maximum number of newly discovered linking domains i.e., 1499, followed by China with 1349.5 and Singapore with 421.5 newly discovered links. The lowest was attained by National Library of Brunei and Maldives with only 1 discovered link each, followed by Laos with 2, Myanmar with 3.5, Kuwait with 4, Bahrain with 5.5.
22. National Library of Japan secured first place with maximum linking domains with an average of 30,600, followed by China with 17,550 average and Taiwan with an average of 10,950 and the lowest was obtained by the National Library of Myanmar with an average of 10.5. On the basis of followed linking domains, the National Library of Japan obtained maximum followed linking domains with an average of 24,917, followed by China with an average of 15,875 and Taiwan with 9370.5. The lowest was occupied by the National Library of Laos with an average of 7.5. While, the highest average value of inbound links was occupied by National Library of South Korea with 1,58,50,000, followed by Japan with 85,57,900 and Taiwan with 55,00,000. The lowest was occupied by National Library Myanmar with an average of 15.5.
23. The National Library of Korea secured first place with highest Internal WIF with 45,63,597.47, the second position was secured by National Library of Japan with 34,82,757.75 IWIF and National Library of Sri Lanka occupied the third position with 17,20,120.16 IWIF. The lowest Internal WIF was obtained by the National Library of Myanmar with 5.15 IWIF and thus needs to be improved.
24. The highest External WIF was secured by National Library of Israel with 4,64,680.25, followed by South Korea with 2,96,695.90 and Japan with

2,09,368.76. The lowest External WIF was obtained by National Library of Laos and Maldives with 2.25 EWIF and 9.7 EWIF respectively. It is also to be noted that the National Library of Myanmar has got zero EWIF which shows poor status.

25. The Simple WIF of National Library of South Korea with 48,62,907.93 occupied at the top position, followed by Japan with 37,41,831.45 SWIF and Sri Lanka with 17,23,198.55 SWIF. The lowest Simple WIF was obtained by National Library of Myanmar with 6.09 SWIF.

26. On the basis of the ranking of national libraries' websites based on their Web Impact Factor, the National Library of South Korea obtained 1<sup>st</sup> rank among the 41 websites. The 2<sup>nd</sup> and 3<sup>rd</sup> rank was secured by Japan and Sri Lanka respectively. While, other countries like Georgia, Malaysia, Azerbaijan, Russia, Taiwan, Israel and Indonesia occupied 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> rank. Furthermore, the last rank was attained by National Library of Myanmar i.e., 41<sup>st</sup> rank, followed by Maldives at 40<sup>th</sup> rank, Laos 39<sup>th</sup> rank, Pakistan at 38<sup>th</sup> rank, Bhutan at 37<sup>th</sup> rank, Brunei at 36<sup>th</sup> rank and Bahrain at 35<sup>th</sup> rank.

## **6.2. CONCLUSION**

In the present era, the web has become an important source of information. The readers and the library professionals have also transformed their style from the traditional storehouse of books to e-readers/librarians. With the help of the internet, it is very easy to communicate and share tremendous information among the people. World Wide Web (WWW) acts as a communication tool in every organization, institutions, business, etc. The rapid development of information and communication technology (ICT) has increased the labour of library professionals because in the world of digital, maintaining the website at its best has become more challenging for them and have to play a dynamic role to provide information according to user's demand. Readers are more likely to access digital resources directly from the institution's website instead of visiting the library physically. From WWW, the concept of Web 2.0 came out and has provided more facilities for people to access the information in new ways. On the web, information can be provided in a wide

variety of formats like multimedia. It allows to view pictures, listen to audio, watch videos and animations, etc. on the web.

The national libraries are the national depository library for all kinds of literary work published in a specific country. It keeps all the documents of the nation under the legal provision. So to publicize the library and its resources, the website is the best platform to transfer the information in any corner of the world with the help of internet. The library catalog available in the website enables users for unlimited access to information. The library websites help clientele to stay in touch with the librarians/library professionals with the help of 'Ask a Librarian' option and the feedback facility is also beneficial for website developer. The national library which does not have a website is missing the chance of publicizing its existence on the web. Many readers from various part of the world will not be able to find any information about that specific national library. Because the presence of web services gives awareness and extends its services globally.

The webometric study is all about studying the webpages, its information resources, structures and technologies. It is an important segment in the field of library and information science, where many studies have already been conducted on various aspects of webometrics by many information professionals. The bibliometrics, scientometrics, informetrics and webometrics studies are inter-related to each other. The content analysis which is a study of web documents in the website is also a part of webometrics.

The study is about analyzing the websites of 41 national libraries' in Asia. For this, the researcher has evaluated all the 41 websites to meet the objectives developed for the study. At the time of data collection, it is discovered that there are 50 countries in Asia, out of which 48 countries have national library and among the 48 countries, only 41 countries are having national library with their respective website, while the rest 07 countries (Cambodia, Oman, Tajikistan, East Timor, Turkmenistan, United Arab Emirates, and Yemen) have national library but no library website. It is also to be noted that 02 (North Korea and Palestine) countries have no national library. After analyzing it is found that 02 (Afghanistan and Brunei) libraries have a webpage for

providing information to readers. National Library of Afghanistan is served by Kabul University and National Library of Brunei is run by Bandar Seri Begawan Library operated by Dewan Bahasa dan Pustaka. It is observed that 39 national libraries have own dedicated library website. It is always better to have own dedicated website, this will give a better impression and exposure of the organization. Further observed that all the national libraries have used graphics in their website, while few have used animations also. This gives a better presentation of the website in order to attract the users by giving an eye-appealing view. Most of the library websites have provided the statement of responsibilities like postal address, email address, phone numbers and hardly few have given the fax numbers. Only a few have given the currency of their national library websites like date of updation which is an essential part of the website's visibility.

It is further observed that the majority of the national library websites have more number of hits when search with gap in both link and site command, while the number of hits is very less when searching without the gap. Based on site command (without gap), the National Library of Afghanistan, Armenia, Bahrain, Bhutan, India, Jordan, Kazakhstan, Kuwait, Laos, Lebanon, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Sri Lanka, Syria, Thailand and Vietnam are found to have less number of hits. There is a need to improve the search engine performance of many national library websites. The score of domain and page authority is measured on 100 point scale, the majority of the national libraries are having a poor score. It is found that page authority of National Library of Japan, Singapore, Russia and Taiwan's score was on the good record, likewise, the page authority of National Library of China, Japan and Iran are also doing well. The National library of Myanmar, Laos, Maldives and Pakistan especially needs to focus in enhancing its internal and external followed links for its better web visibility. It is observed that none of the spam scores of national libraries' websites are in high risk which gives an indication of the smooth running of the website and should continue its maintenance. In case of linking domains, followed linking domains and total inbound links, the majority of national libraries should try to increase its links, so to get better Web Impact Factor. Based on Overall Web impact factor, the first rank was occupied by National Library of South

Korea, followed by Japan and Sri Lanka which was expected since the Internal, External and Total links was also high. On the other hand, the lowest WIF was also expected from these three national libraries, they are- Myanmar, Maldives and Laos. Because due to a poor result in various factors, the web impact factor was also effected leading to poor efficiency/quality of the website.

Hence, for the reason websites of national libraries are globally available to the public, the library professionals need to be more conscious, meticulous, effective and dynamic in every way. National libraries are not like other general libraries, it is a prestigious legal deposit and special copyright library. It has a collection of rare valuable significant literary works, musical, dramatic works, etc. Unlike other libraries, it rarely allows citizens to borrow books. It is the duty of the librarians/library professionals to make the library a full-fledged institution of information resources. The website builder needs to be skilled enough to maintain the website with the latest technology in order to give a tremendous amount of information to the readers.

### **6.3. SUGGESTIONS**

On the basis of data analysis and findings, the following suggestions were recommended for the future development of websites of national libraries in Asia:

1. Very few national libraries have provided information on library infrastructure on the website. Many visitors might like to know about the details of the library very intensely. Therefore, it is recommended to provide entire details about the library infrastructure. Further observed that the facility on 'Ask a Librarian' has been provided by a few national libraries. The libraries must provide this facility so to stay in contact with the librarian or library professionals/staffs for communication on various subjects.
2. The number of visitors in their library websites must be available in order to keep track of visitors. This will help the web developer to keep a record on the website crawlers because the higher the number of visitors, the more website's impression will be achieved.

3. Availability of the feedback option allows users to share their views and opinions regarding the website. This will help the website designer to enhance it in a way better than before. As the study found that the majority of the national libraries have not provided. Thus, providing of feedback facility in the respective website is suggested.
4. Date of updation must be present in the respective national library website, in order to give the visitors the latest information and to assure that the website is dynamic. The currency of the website needs to be maintained to avoid obsolete contents.
5. As the study is based on national libraries of Asia, the factor language is very important when the website developer builds the website. It is always mandatory to provide parallel language i.e., English along with other languages. It is suggested to provide online software i.e., web translator to enable users to read the website in multilingual options.
6. The internal and external followed links of national libraries needs improvement so to get better Web Impact Factor. The link structure of some of the websites should increase its web presence for better accessibility of the websites by the users. The Followed Linking Domains also needs development.
7. In case of linking domains, followed linking domains and total inbound links, the majority of national libraries should try to increase its links, so to get better Web Impact Factor.
8. The websites of national libraries are suggested to interlink with each other in order to share information and enhance website performance. Availability of interlinking pattern between all the national libraries of Asia will help to share the resources and information among the libraries of Asian countries.

## **APPENDICES**

## APPENDIX- I

### DETAIL ANALYSIS OF TABLES

**ANX-1A: Search engine performance in webometrics data collection (round 1)**  
**(Collected on 17.12.2018 between 05:30 pm to 07:00 pm)**

Sl. No.	Search Expression (Without gap)	No. of Hits	Search Expression (With gap)	No. of Hits
1	site:www.ku.edu.af/	7	site: www.ku.edu.af/	66,80,00,000
2	site:www.nla.am/	139	site: www.nla.am/	31,00,000
3	site:www.anl.az/	2,07,000	site: www.anl.az/	1,51,00,000
4	site:www.icc.gov.bh/	749	site: www.icc.gov.bh/	9,57,00,000
5	site:www.nanl.gov.bd /	1,940	site: www.nanl.gov.bd/	1,53,000
6	site:www.library.gov.bt/	320	site: www.library.gov.bt/	7,11,00,000
7	site:www.librarybrunei.gov.bn/	8,140	site: www.librarybrunei.gov.bn/	29,400
8	site:www.nlc.gov.cn/	23,000	site: www.nlc.gov.cn/	83,60,000
9	site:www.cypruslibrary.gov.cy/	1,010	site: www.cypruslibrary.gov.cy/	12,300
10	site:www.nplg.gov.ge /	18,70,000	site: www.nplg.gov.ge/	46,400
11	site:www.nationallibrary.gov.in/	914	site: www.nationallibrary.gov.in/	6,15,00,000
12	site:www.perpusnas.go.id/	2,060	site: www.perpusnas.go.id/	1,43,000
13	site:www.nlai.ir/	29,400	site: www.nlai.ir/	73,200
14	site:www.iraqnla-iq.com/	9,14,000	site: www.iraqnla-iq.com/	10,40,000
15	site:web.nli.org.il/	2,06,000	site: web.nli.org.il/	9,84,000
16	site:www.ndl.go.jp/	62,600	site: www.ndl.go.jp/	92,80,000
17	site:www.nl.gov.jo/	614	site: www.nl.gov.jo/	4,88,00,000
18	site:www.nlrk.kz/	402	site: www.nlrk.kz/	4,91,000
19	site:www.nlk.gov.kw/	287	site: www.nlk.gov.kw/	14,10,000
20	site:www.nlkr.gov.kg /	26,200	site: www.nlkr.gov.kg/	39,200
21	site:www.nationallibraryoflaos.net/	51	site: www.nationallibraryoflaos.net/	18,500
22	site:www.bnl.gov.lb/	418	site: www.bnl.gov.lb/	67,10,000



23	site:www.pnm.gov.my/	6,270	site: www.pnm.gov.my/	43,80,000
24	site:www.nlm.gov.mv/	17	site: www.nlm.gov.mv/	8,96,00,000
25	site:www.nationallibrary.mn/	238	site: www.nationallibrary.mn/	6,38,00,000
26	site:www.nlm-npt.gov.mm	80	site: www.nlm-npt.gov.mm	2,39,000
27	site:www.nnl.gov.np/	75	site: www.nnl.gov.np/	2,08,00,000
28	site:www.nl.go.kr/	3,03,000	site: www.nl.go.kr/	5,02,00,000
29	site:www.nlp.gov.pk/	186	site: www.nlp.gov.pk/	3,94,00,000
30	site:web.nlp.gov.ph/	9,560	site: web.nlp.gov.ph/	2,00,00,000
31	site:www.qnl.qa	2,190	site: www.qnl.qa	4,20,000
32	site:www.nlr.ru/	2,220	site: www.nlr.ru/	33,40,000
33	site:www.kfnl.gov.sa/	4,580	site: www.kfnl.gov.sa/	40,200
34	site:www.nlb.gov.sg/	7,70,000	site: www.nlb.gov.sg/	61,40,000
35	site:www.natlib.lk/	232	site: www.natlib.lk/	7,44,000
36	site:www.alassad-library.gov.sy/	324	site: www.alassad-library.gov.sy/	7,72,000
37	site:www.ncl.edu.tw/	11,100	site: www.ncl.edu.tw/	2,29,00,000
38	site:www.nlt.go.th/	591	site: www.nlt.go.th/	1,68,00,000
39	site:www.mkutup.gov.tr/	6,300	site: www.mkutup.gov.tr/	9,190
40	site:www.natlib.uz/	7,940	site: www.natlib.uz/	5,84,000
41	site:www.nlv.gov.vn/	4	site: www.nlv.gov.vn/	52,80,000

**ANX-1B: Search engine performance in webometrics data collection (round 2)**  
(Collected on 02.01.2019 between 05:54 pm to 06:55 pm)

Sl. No.	Search Expression (Without gap)	No. of Hits	Search Expression (With gap)	No. of Hits
1	site:www.ku.edu.af/	7	site: www.ku.edu.af/	64,60,00,000
2	site:www.nla.am/	120	site: www.nla.am/	35,40,000
3	site:www.anl.az/	1,90,000	site: www.anl.az/	1,49,00,000
4	site:www.icc.gov.bh/	756	site: www.icc.gov.bh/	10,70,00,000
5	site:www.nanl.gov.bd/	3,260	site: www.nanl.gov.bd/	1,32,000
6	site:www.library.gov.bt/	276	site: www.library.gov.bt/	8,01,00,000
7	site:www.librarybrunei.gov.bn/	10,100	site: www.librarybrunei.gov.bn/	29,400
8	site:www.nlc.gov.cn/	22,600	site: www.nlc.gov.cn/	92,40,000

9	site:www.cypruslibrary.gov.cy/	1,020	site:www.cypruslibrary.gov.cy/	25,100
10	site:www.nplg.gov.ge/	17,60,000	site:www.nplg.gov.ge/	47,200
11	site:www.nationallibrary.gov.in/	895	site:www.nationallibrary.gov.in/	5,66,00,000
12	site:www.perpusnas.go.id/	792	site:www.perpusnas.go.id/	1,54,000
13	site:www.nlai.ir/	33,500	site:www.nlai.ir/	70,000
14	site:www.iraqnla-iq.com/	7,13,000	site:www.iraqnla-iq.com/	11,00,000
15	site:web.nli.org.il/	3,85,000	site:web.nli.org.il/	8,62,000
16	site:www.ndl.go.jp/	52,500	site:www.ndl.go.jp/	1,04,00,000
17	site:www.nl.gov.jo/	704	site:www.nl.gov.jo/	9,63,00,000
18	site:www.nlrk.kz/	302	site:www.nlrk.kz/	4,09,000
19	site:www.nlk.gov.kw/	445	site:www.nlk.gov.kw/	5,17,000
20	site:www.nlkr.gov.kg/	33,900	site:www.nlkr.gov.kg/	85,200
21	site:www.nationallibraryoflaos.net/	49	site:www.nationallibraryoflaos.net/	14,200
22	site:www.bnl.gov.lb/	274	site:www.bnl.gov.lb/	15,20,00,000
23	site:www.pnm.gov.my/	6,650	site:www.pnm.gov.my/	44,50,000
24	site:www.nlm.gov.mv/	19	site:www.nlm.gov.mv/	9,11,00,000
25	site:www.nationallibrary.mn/	222	site:www.nationallibrary.mn/	5,43,00,000
26	site:www.nlm-npt.gov.mm/	85	site:www.nlm-npt.gov.mm	2,43,000
27	site:www.nnl.gov.np/	83	site:www.nnl.gov.np/	2,47,00,000
28	site:www.nl.go.kr/	2,86,000	site:www.nl.go.kr/	5,16,00,000
29	site:www.nlp.gov.pk/	184	site:www.nlp.gov.pk/	2,81,00,000
30	site:web.nlp.gov.ph/	8,920	site:web.nlp.gov.ph/	1,84,00,000
31	site:www.qnl.qa	2,390	site:www.qnl.qa	4,02,000
32	site:www.nlr.ru/	2,040	site:www.nlr.ru/	31,60,000
33	site:www.kfnl.gov.sa/	6,530	site:www.kfnl.gov.sa/	66,300
34	site:www.nlb.gov.sg/	7,85,000	site:www.nlb.gov.sg/	56,60,000
35	site:www.natlib.lk/	263	site:www.natlib.lk/	6,14,000
36	site:www.lassad-	342	site:www.lassad-	8,49,000

	library.gov.sy/		library.gov.sy/	
37	site:www.ncl.edu.tw/	9,500	site: www.ncl.edu.tw/	2,21,00,000
38	site:www.nlt.go.th/	614	site: www.nlt.go.th/	1,73,00,000
39	site:www.mkutup.gov.tr/	3,410	site: www.mkutup.gov.tr/	20,200
40	site:www.natlib.uz/	7,960	site: www.natlib.uz/	6,55,000
41	site:www.nlv.gov.vn/	4	site: www.nlv.gov.vn/	37,70,000

**ANX-1C: Search engine performance in webometrics data collection (round 3)**  
(Collected on 18.01.2019 between 06:30 pm to 07:50 pm)

Sl. No.	Search Expression (Without gap)	No. of Hits	Search Expression (With gap)	No. of Hits
1	site:www.ku.edu.af/	8	site: www.ku.edu.af/	49,90,00,000
2	site:www.nla.am/	124	site: www.nla.am/	22,50,000
3	site:www.anl.az/	1,39,000	site: www.anl.az/	1,14,00,000
4	site:www.icc.gov.bh/	869	site: www.icc.gov.bh/	7,83,00,000
5	site:www.nanl.gov.bd/	3,710	site: www.nanl.gov.bd/	1,20,000
6	site:www.library.gov.bt/	272	site: www.library.gov.bt/	4,79,00,000
7	site:www.librarybrunei.gov.bn/	10,600	site: www.librarybrunei.gov.bn/	65,500
8	site:www.nlc.gov.cn/	17,700	site: www.nlc.gov.cn/	61,80,000
9	site:www.cypruslibrary.gov.cy/	1,280	site: www.cypruslibrary.gov.cy/	9,950
10	site:www.nplg.gov.ge/	12,50,000	site: www.nplg.gov.ge/	37,000
11	site:www.nationallibrary.gov.in/	678	site: www.nationallibrary.gov.in/	4,97,00,000
12	site:www.perpusnas.go.id/	3,950	site: www.perpusnas.go.id/	3,73,000
13	site:www.nlai.ir/	38,200	site: www.nlai.ir/	63,200
14	site:www.iraqnla-iq.com/	4,66,000	site: www.iraqnla-iq.com/	10,10,000
15	site:web.nli.org.il/	2,03,000	site: web.nli.org.il/	8,11,000
16	site:www.ndl.go.jp/	49,700	site: www.ndl.go.jp/	68,40,000
17	site:www.nl.gov.jo/	653	site: www.nl.gov.jo/	3,67,00,000
18	site:www.nlrk.kz/	225	site: www.nlrk.kz/	3,83,000
19	site:www.nlk.gov.kw/	366	site: www.nlk.gov.kw/	4,28,000

20	site:www.nlkr.gov.kg/	33,500	site:www.nlkr.gov.kg/	1,05,000
21	site:www.nationallibraryoflaos.net/	60	site:www.nationallibraryoflaos.net/	12,100
22	site:www.bnl.gov.lb/	273	site: www.bnl.gov.lb/	50,10,000
23	site:www.pnm.gov.my/	6,850	site:www.pnm.gov.my/	32,80,000
24	site:www.nlm.gov.mv/	7	site:www.nlm.gov.mv/	7,68,00,000
25	site:www.nationallibrary.mn/	200	site:www.nationallibrary.mn/	4,78,00,000
26	site:www.nlm-npt.gov.mm	198	site: www.nlm-npt.gov.mm	1,87,000
27	site:www.nnl.gov.np/	83	site: www.nnl.gov.np/	1,81,00,000
28	site:www.nl.go.kr/	2,23,000	site: www.nl.go.kr/	3,48,00,000
29	site:www.nlp.gov.pk/	204	site: www.nlp.gov.pk/	2,97,00,000
30	site:web.nlp.gov.ph/	8,310	site: web.nlp.gov.ph/	1,41,00,000
31	site:www.qnl.qa	2,200	site: www.qnl.qa	3,25,000
32	site:www.nlr.ru/	1,660	site: www.nlr.ru/	29,90,000
33	site:www.kfnl.gov.sa/	4,450	site: www.kfnl.gov.sa/	41,800
34	site:www.nlb.gov.sg/	4,22,000	site: www.nlb.gov.sg/	38,30,000
35	site:www.natlib.lk/	244	site: www.natlib.lk/	4,95,000
36	site:www.alassad-library.gov.sy/	381	site: www.alassad-library.gov.sy/	6,49,000
37	site:www.ncl.edu.tw/	7380	site: www.ncl.edu.tw/	1,65,00,000
38	site:www.nlt.go.th/	617	site: www.nlt.go.th/	1,34,00,000
39	site:www.mkutup.gov.tr/	2610	site:www.mkutup.gov.tr/	18,500
40	site:www.natlib.uz/	7,120	site: www.natlib.uz/	4,75,000
41	site:www.nlv.gov.vn/	4	site: www.nlv.gov.vn/	46,90,000

**ANX-1D: Search engine performance in webometrics data collection (round 4)**  
**(Collected on 03.02.2019 between 06:35 pm to 07:30 pm)**

Sl. No.	Search Expression (Without gap)	No. of Hits	Search Expression (With gap)	No. of Hits
1	site:www.ku.edu.af/	8	site: www.ku.edu.af/	52,30,00,000
2	site:www.nla.am/	230	site: www.nla.am/	24,10,000
3	site:www.anl.az/	1,49,000	site: www.anl.az/	1,20,00,000

4	site:www.icc.gov.bh/	772	site: www.icc.gov.bh/	8,73,00,000
5	site:www.nanl.gov.bd/	3210	site: www.nanl.gov.bd/	1,25,000
6	site:www.library.gov.bt/	272	site: www.library.gov.bt/	8,97,00,000
7	site:www.librarybrunei.gov.bn/	7,870	site: www.librarybrunei.gov.bn/	29,100
8	site:www.nlc.gov.cn/	20,500	site: www.nlc.gov.cn/	99,60,000
9	site:www.cypruslibrary.gov.cy/	1,000	site: www.cypruslibrary.gov.cy/	13400
10	site:www.nplg.gov.ge/	14,30,000	site: www.nplg.gov.ge/	45,800
11	site:www.nationallibrary.gov.in/	834	site: www.nationallibrary.gov.in/	5,76,00,000
12	site:www.perpusnas.go.id/	3,990	site: www.perpusnas.go.id/	5,48,000
13	site:www.nlai.ir/	36,600	site: www.nlai.ir/	57,800
14	site:www.iraqnla-iq.com/	4,85,000	site: www.iraqnla-iq.com/	10,10,000
15	site:web.nli.org.il/	2,35,000	site: web.nli.org.il/	7,61,000
16	site:www.ndl.go.jp/	56,200	site: www.ndl.go.jp/	87,40,000
17	site:www.nl.gov.jo/	626	site: www.nl.gov.jo/	3,83,00,000
18	site:www.nlrk.kz/	198	site: www.nlrk.kz/	3,67,000
19	site:www.nlk.gov.kw/	309	site: www.nlk.gov.kw/	5,00,000
20	site:www.nlkr.gov.kg/	38,100	site: www.nlkr.gov.kg/	98,500
21	site:www.nationallibraryoflaos.net/	62	site: www.nationallibraryoflaos.net/	13,100
22	site:www.bnl.gov.lb/	346	site: www.bnl.gov.lb/	50,10,000
23	site:www.pnm.gov.my/	6,750	site: www.pnm.gov.my/	32,90,000
24	site:www.nlm.gov.mv/	6	site: www.nlm.gov.mv/	10
25	site:www.nationallibrary.mn/	202	site: www.nationallibrary.mn/	5,00,00,000

26	site:www.nlm-npt.gov.mm	75	site: www.nlm-npt.gov.mm	2,07,000
27	site:www.nnl.gov.np /	86	site: www.nnl.gov.np/	1,85,00,000
28	site:www.nl.go.kr/	2,28,000	site: www.nl.go.kr/	3,67,00,000
29	site:www.nlp.gov.pk /	205	site: www.nlp.gov.pk/	2,46,00,000
30	site:web.nlp.gov.ph/	8990	site: web.nlp.gov.ph/	1,49,00,000
31	site:www.qnl.qa	2,440	site: www.qnl.qa	3,60,000
32	site:www.nlr.ru/	1870	site: www.nlr.ru/	39,40,000
33	site:www.kfnl.gov.sa /	5,660	site: www.kfnl.gov.sa/	80,700
34	site:www.nlb.gov.sg/	4,57,000	site: www.nlb.gov.sg/	46,80,000
35	site:www.natlib.lk/	305	site: www.natlib.lk/	4,74,000
36	site:www.alassad-library.gov.sy/	442	site: www.alassad-library.gov.sy/	7,01,000
37	site:www.ncl.edu.tw/	7480	site: www.ncl.edu.tw/	1,68,00,000
38	site:www.nlt.go.th/	622	site: www.nlt.go.th/	1,45,00,000
39	site:www.mkutup.gov.tr/	3100	site: www.mkutup.gov.tr/	16,100
40	site:www.natlib.uz/	7,800	site: www.natlib.uz/	6,18,000
41	site:www.nlv.gov.vn /	5	site: www.nlv.gov.vn/	43,40,000

**ANX-1E: Search engine performance in webometrics data collection (round 5)**  
(Collected on 19.02.2019 between 01:30 pm to 02:50 pm)

Sl. No.	Search Expression (Without gap)	No. of Hits	Search Expression (With gap)	No. of Hits
1	site:www.ku.edu.af/	8	site: www.ku.edu.af/	64,10,00,000
2	site:www.nla.am/	124	site: www.nla.am/	31,60,000
3	site:www.anl.az/	1,57,000	site: www.anl.az/	1,33,00,000
4	site:www.icc.gov.bh/	909	site: www.icc.gov.bh/	8,89,00,000
5	site:www.nanl.gov.bd/	3110	site: www.nanl.gov.bd/	1,60,000
6	site:www.library.gov.bt/	298	site: www.library.gov.bt/	8,04,00,000
7	site:www.librarybrunei.gov.bn/	9,810	site: www.librarybrunei.gov.bn/	28,200
8	site:www.nlc.gov.cn/	15,100	site: www.nlc.gov.cn/	1,05,00,000

9	site:www.cypruslibrary.gov.cy/	1,040	site: www.cypruslibrary.gov.cy/	12,700
10	site:www.nplg.gov.ge/	14,10,000	site: www.nplg.gov.ge/	46,500
11	site:www.nationallibrary.gov.in/	991	site: www.nationallibrary.gov.in/	5,10,00,000
12	site:www.perpusnas.go.id/	3,750	site: www.perpusnas.go.id/	5,42,000
13	site:www.nlai.ir/	37,900	site: www.nlai.ir/	81,200
14	site:www.iraqnla-iq.com/	7,99,000	site: www.iraqnla-iq.com/	11,30,000
15	site:web.nli.org.il/	2,55,000	site: web.nli.org.il/	9,79,000
16	site:www.ndl.go.jp/	56,700	site: www.ndl.go.jp/	89,00,000
17	site:www.nl.gov.jo/	798	site: www.nl.gov.jo/	4,55,00,000
18	site:www.nlrk.kz/	499	site: www.nlrk.kz/	4,38,000
19	site:www.nlk.gov.kw/	314	site: www.nlk.gov.kw/	7,10,000
20	site:www.nlkr.gov.kg/	30,100	site: www.nlkr.gov.kg/	36,600
21	site:www.nationallibraryoflaos.net/	59	site: www.nationallibraryoflaos.net/	18,600
22	site:www.bnl.gov.lb/	350	site: www.bnl.gov.lb/	53,90,000
23	site:www.pnm.gov.my/	8,540	site: www.pnm.gov.my/	44,60,000
24	site:www.nlm.gov.mv/	13	site: www.nlm.gov.mv/	8,88,00,000
25	site:www.nationallibrary.mn/	211	site: www.nationallibrary.mn/	6,05,00,000
26	site:www.nlm-npt.gov.mm	75	site: www.nlm-npt.gov.mm	2,54,000
27	site:www.nnl.gov.np/	118	site: www.nnl.gov.np/	2,84,00,000
28	site:www.nl.go.kr/	2,59,000	site: www.nl.go.kr/	4,80,00,000
29	site:www.nlp.gov.pk/	175	site: www.nlp.gov.pk/	3,74,00,000
30	site:web.nlp.gov.ph/	9,230	site: web.nlp.gov.ph/	1,85,00,000
31	site:www.qnl.qa	2,420	site: www.qnl.qa	4,30,000
32	site:www.nlr.ru/	2,550	site: www.nlr.ru/	43,60,000
33	site:www.kfnl.gov.sa	6,600	site:	73,500

	/		www.kfnl.gov.sa/	
34	site:www.nlb.gov.sg/	7,04,000	site: www.nlb.gov.sg/	54,50,000
35	site:www.natlib.lk/	229	site: www.natlib.lk/	5,79,000
36	site:www.lassad-library.gov.sy/	417	site: www.lassad-library.gov.sy/	7,60,000
37	site:www.ncl.edu.tw/	10,900	site: www.ncl.edu.tw/	1,92,00,000
38	site:www.nlt.go.th/	731	site: www.nlt.go.th/	1,59,00,000
39	site:www.mkutup.gov.tr/	4,480	site: www.mkutup.gov.tr/	9,490
40	site:www.natlib.uz/	7,540	site: www.natlib.uz/	6,33,000
41	site:www.nlv.gov.vn /	4	site: www.nlv.gov.vn/	44,40,000

**ANX-2A: Search engine performance in webometrics data collection (round 1)**  
**(Data collected on 17.12.2018 between 05:30 pm to 07:00 pm)**

Sl. No.	Search Expression (Without gap)	No. of Hits	Search Expression (With gap)	No. of Hits
1	link:www.ku.edu.af/	1,96,00,000	link: www.ku.edu.af/	39,00,00,000
2	link:www.nla.am/	20,80,000	link: www.nla.am/	90,70,000
3	link:www.anl.az/	4,98,000	link: www.anl.az/	74,70,000
4	link:www.icc.gov.bh /	2,39,000	link: www.icc.gov.bh/	6,82,00,000
5	link:www.nanl.gov.bd/	98,00,00,000	link: www.nanl.gov.bd/	90,100
6	link:www.library.gov.bt/	1,23,00,000	link: www.library.gov.bt/	4,43,00,000
7	link:www.librarybrunei.gov.bn/	61,600	link: www.librarybrunei.gov.bn/	63,300
8	link:www.nlc.gov.cn /	91,700	link: www.nlc.gov.cn/	73,40,000
9	link:www.cypruslibrary.gov.cy/	3,550	link: www.cypruslibrary.gov.cy/	14,700
10	link:www.nplg.gov.ge/	52,500	link: www.nplg.gov.ge/	60,400
11	link:www.nationallibrary.gov.in/	5,71,00,000	link: www.nationallibrary.gov.in/	5,29,00,000
12	link:www.perpusnas.go.id/	69,200	link: www.perpusnas.go.id/	1,56,000
13	link:www.nlai.ir/	41,600	link: www.nlai.ir/	56,400



14	link:www.iraqnla- iq.com/	514	link: www.iraqnla- iq.com/	515
15	link:web.nli.org.il/	1,33,000	link: web.nli.org.il/	3,26,000
16	link:www.ndl.go.jp/	2,80,000	link: www.ndl.go.jp/	80,30,000
17	link:www.nl.gov.jo/	51,30,000	link: www.nl.gov.jo/	2,82,00,000
18	link:www.nlrk.kz/	86,500	link: www.nlrk.kz/	2,78,000
19	link:www.nlk.gov.k w/	26,600	link: www.nlk.gov.kw/	4,72,000
20	link:www.nlkr.gov.k g/	79,500	link: www.nlkr.gov.kg/	85,200
21	link:www.nationallib raryoflaos.net/	5,780	link: www.nationallibrary oflaos.net/	9,830
22	link:www.bnl.gov.lb /	1,14,000	link: www.bnl.gov.lb/	52,00,000
23	link:www.pnm.gov. my/	1,24,000	link: www.pnm.gov.my/	38,70,000
24	link:www.nlm.gov. mv/	1,36,00,000	link: www.nlm.gov.mv/	7,60,00,000
25	link:www.nationallib rary.mn/	3,61,00,000	link: www.nationallibrary .mn/	5,06,00,000
26	link:www.nlm- npt.gov.mm	31,300	link: www.nlm- npt.gov.mm	84,900
27	link:www.nnl.gov.np /	1,23,00,000	link: www.nnl.gov.np/	1,24,00,000
28	link:www.nl.go.kr/	1,53,00,000	link: www.nl.go.kr/	1,40,00,00,000
29	link:www.nlp.gov.pk /	95,100	link: www.nlp.gov.pk/	3,15,00,000
30	link:web.nlp.gov.ph/	1,36,000	link: web.nlp.gov.ph/	1,14,00,000
31	link:www.qnl.qa	1,73,000	link: www.qnl.qa	3,38,000
32	link:www.nlr.ru/	3,13,000	link: www.nlr.ru/	25,60,000
33	link:www.kfnl.gov.s a/	1,69,000	link: www.kfnl.gov.sa/	1,82,000
34	link:www.nlb.gov.sg /	1,54,000	link: www.nlb.gov.sg/	67,00,000
35	link:www.natlib.lk/	24,000	link: www.natlib.lk/	3,56,000
36	link:www.alassad- library.gov.sy/	22,900	link: www.alassad- library.gov.sy/	3,74,000
37	link:www.ncl.edu.tw /	3,30,000	link: www.ncl.edu.tw/	1,09,00,000
38	link:www.nlt.go.th/	5,42,000	link: www.nlt.go.th/	58,90,000
39	link:www.mkutup.g	18,900	link:	19,000

	ov.tr/		www.mkutup.gov.tr/	
40	link:www.natlib.uz/	19,100	link: www.natlib.uz/	3,63,000
41	link:www.nlv.gov.vn /	68,000	link: www.nlv.gov.vn/	38,00,000

**ANX-2B: Search engine performance in webometrics data collection (round 2)**  
**(Data collected on 02.01.2019 between 05:54 pm to 06:55 pm)**

Sl. No.	Search Expression (Without gap)	No. of Hits	Search Expression (With gap)	No. of Hits
1	link:www.ku.edu.af/	2,35,00,000	link: www.ku.edu.af/	45,20,00,000
2	link:www.nla.am/	23,00,000	link: www.nla.am/	1,41,00,000
3	link:www.anl.az/	6,09,000	link: www.anl.az/	1,07,00,000
4	link:www.icc.gov.bh/	2,84,000	link: www.icc.gov.bh/	10,70,00,000
5	link:www.nanl.gov.bd /	1,25,00,00,000	link: www.nanl.gov.bd/	90,300
6	link:www.library.gov.bt/	1,51,00,000	link: www.library.gov.bt/	6,27,00,000
7	link:www.librarybrunei.gov.bn/	59,400	link: www.librarybrunei.gov.bn/	61,300
8	link:www.nlc.gov.cn/	1,06,000	link: www.nlc.gov.cn/	1,01,00,000
9	link:www.cypruslibrary.gov.cy/	3,810	link: www.cypruslibrary.gov.cy/	15,900
10	link:www.nplg.gov.ge /	53,900	link: www.nplg.gov.ge/	64,800
11	link:www.nationallibrary.gov.in/	5,47,00,000	link: www.nationallibrary.gov.in/	5,18,00,000
12	link:www.perpusnas.go.id/	76,100	link: www.perpusnas.go.id/	2,04,000
13	link:www.nlai.ir/	36,900	link: www.nlai.ir/	53,800
14	link:www.iraqnla-iq.com/	3130	link: www.iraqnla-iq.com/	3340
15	link:web.nli.org.il/	1,28,000	link: web.nli.org.il/	3,33,000
16	link:www.ndl.go.jp/	2,71,000	link: www.ndl.go.jp/	91,20,000
17	link:www.nl.gov.jo/	74,50,000	link: www.nl.gov.jo/	4,06,00,000
18	link:www.nlrk.kz/	89,600	link: www.nlrk.kz/	3,41,000
19	link:www.nlk.gov.kw/	27,200	link: www.nlk.gov.kw/	5,98,000
20	link:www.nlkr.gov.kg/	79,500	link:	86,000

			www.nlkr.gov.kg/	
21	link:www.nationallibraryoflaos.net/	6,610	link:www.nationallibraryoflaos.net/	12,400
22	link:www.bnl.gov.lb/	1,14,000	link:www.bnl.gov.lb/	79,00,000
23	link:www.pnm.gov.my/	1,32,000	link:www.pnm.gov.my/	41,10,000
24	link:www.nlm.gov.mv/	1,77,00,000	link:www.nlm.gov.mv/	9,97,00,000
25	link:www.nationallibrary.mn/	4,04,00,000	link:www.nationallibrary.mn/	5,46,00,000
26	link:www.nlm-npt.gov.mm	33,000	link:www.nlm-npt.gov.mm	76,200
27	link:www.nnl.gov.np/	1,81,00,000	link:www.nnl.gov.np/	1,55,00,000
28	link:www.nl.go.kr/	2,04,00,000	link:www.nl.go.kr/	1,61,00,00,000
29	link:www.nlp.gov.pk/	99,800	link:www.nlp.gov.pk/	4,07,00,000
30	link:web.nlp.gov.ph/	1,69,000	link:web.nlp.gov.ph/	1,30,00,000
31	link:www.qnl.qa	1,70,000	link:www.qnl.qa	3,95,000
32	link:www.nlr.ru/	3,91,000	link:www.nlr.ru/	34,20,000
33	link:www.kfnl.gov.sa/	1,36,000	link:www.kfnl.gov.sa/	1,57,000
34	link:www.nlb.gov.sg/	1,52,000	link:www.nlb.gov.sg/	87,40,000
35	link:www.natlib.lk/	23,900	link:www.natlib.lk/	2,77,000
36	link:www.alassad-library.gov.sy/	31,800	link:www.alassad-library.gov.sy/	4,36,000
37	link:www.ncl.edu.tw/	4,09,000	link:www.ncl.edu.tw/	1,44,00,000
38	link:www.nlt.go.th/	5,80,000	link:www.nlt.go.th/	73,60,000
39	link:www.mkutup.gov.tr/	18,300	link:www.mkutup.gov.tr/	19,200
40	link:www.natlib.uz/	17,900	link:www.natlib.uz/	2,83,000
41	link:www.nlv.gov.vn/	73,000	link:www.nlv.gov.vn/	45,40,000

**ANX-2C: Search engine performance in webometrics data collection (round 3)**  
**(Data collected on 18.01.2019 between 06:30 pm to 07: 50 pm))**

<b>Sl. No.</b>	<b>Search Expression (Without gap)</b>	<b>No. of Hits</b>	<b>Search Expression (With gap)</b>	<b>No. of Hits</b>
1	link:www.ku.edu.af/	1,91,00,000	link: www.ku.edu.af/	38,20,00,000
2	link:www.nla.am/	17,70,000	link: www.nla.am/	1,04,00,000
3	link:www.anl.az/	4,56,000	link: www.anl.az/	73,20,000
4	link:www.icc.gov.bh /	2,14,000	link: www.icc.gov.bh/	7,39,00,000
5	link:www.nanl.gov.b d/	83,70,00,000	link: www.nanl.gov.bd/	78,700
6	link:www.library.go v.bt/	1,24,00,000	link: www.library.gov.bt /	4,09,00,000
7	link:www.librarybru nei.gov.bn/	63,700	link: www.librarybrunei. gov.bn/	65,400
8	link:www.nlc.gov.cn /	84,000	link: www.nlc.gov.cn/	64,40,000
9	link:www.cypruslibr ary.gov.cy/	3,820	link: www.cypruslibrary .gov.cy/	16,600
10	link:www.nplg.gov.g e/	44,400	link: www.nplg.gov.ge/	51,900
11	link:www.nationallib rary.gov.in/	4,92,00,000	link: www.nationallibrar y.gov.in/	4,94,00,000
12	link:www.perpusnas. go.id/	71,900	link: www.perpusnas.go. id/	2,78,000
13	link:www.nlai.ir/	32,300	link: www.nlai.ir/	46,800
14	link:www.iraqnla- iq.com/	2,680	link: www.iraqnla- iq.com/	2,720
15	link:web.nli.org.il/	1,14,000	link: web.nli.org.il/	2,94,000
16	link:www.ndl.go.jp/	2,21,000	link: www.ndl.go.jp/	60,40,000
17	link:www.nl.gov.jo/	49,30,000	link: www.nl.gov.jo/	2,27,00,000
18	link:www.nlrk.kz/	89,000	link: www.nlrk.kz/	2,82,000
19	link:www.nlk.gov.k w/	21,200	link: www.nlk.gov.kw/	4,43,000
20	link:www.nlkr.gov.k g/	79,500	link: www.nlkr.gov.kg/	83,800
21	link:www.nationallib	5,860	link:	9270

	raryoflaos.net/		www.nationallibrar yoflaos.net/	
22	link:www.bnl.gov.lb /	1,01,000	link: www.bnl.gov.lb/	63,80,000
23	link:www.pnm.gov. my/	1,07,000	link: www.pnm.gov.my/	29,10,000
24	link:www.nlm.gov. mv/	1,38,00,000	link: www.nlm.gov.mv/	8,22,00,000
25	link:www.nationallib rary.mn/	3,36,00,000	link: www.nationallibrar y.mn/	4,89,00,000
26	link:www.nlm- npt.gov.mm	27,500	link: www.nlm- npt.gov.mm	65,500
27	link:www.nnl.gov.np /	1,59,00,000	link: www.nnl.gov.np/	1,04,00,000
28	link:www.nl.go.kr/	1,41,00,000	link: www.nl.go.kr/	1,23,00,00,000
29	link:www.nlp.gov.pk /	88,000	link: www.nlp.gov.pk/	2,53,00,000
30	link:web.nlp.gov.ph/	1,32,000	link: web.nlp.gov.ph/	92,70,000
31	link:www.qnl.qa	1,72,000	link: www.qnl.qa	3,27,000
32	link:www.nlr.ru/	3,28,000	link: www.nlr.ru/	24,60,000
33	link:www.kfnl.gov.s a/	1,12,000	link: www.kfnl.gov.sa/	1,28,000
34	link:www.nlb.gov.sg /	1,49,000	link: www.nlb.gov.sg/	58,60,000
35	link:www.natlib.lk/	23,200	link: www.natlib.lk/	2,64,000
36	link:www.alassad- library.gov.sy/	23,700	link: www.alassad- library.gov.sy/	3,54,000
37	link:www.ncl.edu.tw /	3,52,000	link: www.ncl.edu.tw/	1,14,00,000
38	link:www.nlt.go.th/	4,14,000	link: www.nlt.go.th/	50,60,000
39	link:www.mkutup.g ov.tr/	16,800	link: www.mkutup.gov.t r/	17,000
40	link:www.natlib.uz/	17,000	link: www.natlib.uz/	2,52,000
41	link:www.nlv.gov.vn /	57,700	link: www.nlv.gov.vn/	39,60,000

**ANX-2D: Search engine performance in webometrics data collection (round 4)**  
**(Data collected on 03.02.2019 between 06:35 pm to 07:30 pm)**

<b>Sl. No.</b>	<b>Search Expression (Without gap)</b>	<b>No. of Hits</b>	<b>Search Expression (With gap)</b>	<b>No. of Hits</b>
1	link:www.ku.edu.af/	3,35,00,000	link: www.ku.edu.af/	48,30,00,000
2	link:www.nla.am/	26,50,000	link: www.nla.am/	1,58,00,000
3	link:www.anl.az/	6,01,000	link: www.anl.az/	1,01,00,000
4	link:www.icc.gov.bh /	3,20,000	link: www.icc.gov.bh/	10,70,00,000
5	link:www.nanl.gov.b d/	1,28,00,00,00 0	link: www.nanl.gov.bd/	95,000
6	link:www.library.go v.bt/	1,77,00,000	link: www.library.gov.bt /	6,64,00,000
7	link:www.librarybru nei.gov.bn/	76,800	link: www.librarybrunei. gov.bn/	28,800
8	link:www.nlc.gov.cn /	1,54,000	link: www.nlc.gov.cn/	1,02,00,000
9	link:www.cypruslibr ary.gov.cy/	3,710	link: www.cypruslibrary .gov.cy/	9330
10	link:www.nplg.gov.g e/	51,000	link: www.nplg.gov.ge/	60,300
11	link:www.nationallib rary.gov.in/	5,81,00,000	link: www.nationallibrar y.gov.in/	5,95,00,000
12	link:www.perpusnas. go.id/	1,14,000	link: www.perpusnas.go. id/	4,16,000
13	link:www.nlai.ir/	44,400	link: www.nlai.ir/	64,000
14	link:www.iraqnla- iq.com/	2,990	link: www.iraqnla- iq.com/	2,980
15	link:web.nli.org.il/	1,58,000	link: web.nli.org.il/	3,69,000
16	link:www.ndl.go.jp/	2,40,000	link: www.ndl.go.jp/	78,60,000
17	link:www.nl.gov.jo/	66,90,000	link: www.nl.gov.jo/	3,84,00,000
18	link:www.nlrk.kz/	1,12,000	link: www.nlrk.kz/	2,93,000
19	link:www.nlk.gov.k w/	23,400	link: www.nlk.gov.kw/	4,70,000
20	link:www.nlkr.gov.k g/	77,600	link: www.nlkr.gov.kg/	82,600
21	link:www.nationallib	7,500	link:	12,400

	raryoflaos.net/		www.nationallibrar yoflaos.net/	
22	link:www.bnl.gov.lb /	1,21,000	link: www.bnl.gov.lb/	57,90,000
23	link:www.pnm.gov. my/	1,41,000	link: www.pnm.gov.my/	38,20,000
24	link:www.nlm.gov. mv/	1,76,00,000	link: www.nlm.gov.mv/	8,22,00,000
25	link:www.nationallib rary.mn/	4,00,00,000	link: www.nationallibrar y.mn/	5,03,00,000
26	link:www.nlm- npt.gov.mm	32,500	link: www.nlm- npt.gov.mm	71,000
27	link:www.nnl.gov.np /	2,43,00,000	link: www.nnl.gov.np/	1,65,00,000
28	link:www.nl.go.kr/	2,38,00,000	link: www.nl.go.kr/	2,18,00,00,000
29	link:www.nlp.gov.pk /	1,11,000	link: www.nlp.gov.pk/	3,31,00,000
30	link:web.nlp.gov.ph/	1,65,000	link: web.nlp.gov.ph/	1,16,00,000
31	link:www.qnl.qa	1,70,000	link: www.qnl.qa	4,05,000
32	link:www.nlr.ru/	3,96,000	link: www.nlr.ru/	40,30,000
33	link:www.kfnl.gov.s a/	1,31,000	link: www.kfnl.gov.sa/	1,42,000
34	link:www.nlb.gov.sg /	1,47,000	link: www.nlb.gov.sg/	63,30,000
35	link:www.natlib.lk/	23,500	link: www.natlib.lk/	2,65,000
36	link:www.alassad- library.gov.sy/	23,700	link: www.alassad- library.gov.sy/	3,66,000
37	link:www.ncl.edu.tw /	3,48,000	link: www.ncl.edu.tw/	1,18,00,000
38	link:www.nlt.go.th/	4,71,000	link: www.nlt.go.th/	45,30,000
39	link:www.mkutup.g ov.tr/	14,200	link: www.mkutup.gov.t r/	14,600
40	link:www.natlib.uz/	15,200	link: www.natlib.uz/	2,65,000
41	link:www.nlv.gov.vn /	62,500	link: www.nlv.gov.vn/	45,60,000

**ANX-2E: Search engine performance in webometrics data collection (round 5)**  
**(Data collected on 19.02.2019 between 01:30 pm to 02:50 pm)**

<b>Sl. No.</b>	<b>Search Expression (Without gap)</b>	<b>No. of Hits</b>	<b>Search Expression (With gap)</b>	<b>No. of Hits</b>
1	link:www.ku.edu.af/	2,68,00,000	link: www.ku.edu.af/	51,80,00,000
2	link:www.nla.am/	22,20,000	link: www.nla.am/	1,13,00,000
3	link:www.anl.az/	6,65,000	link: www.anl.az/	93,80,000
4	link:www.icc.gov.bh /	2,88,000	link: www.icc.gov.bh/	9,91,00,000
5	link:www.nanl.gov.bd/	23,300	link: www.nanl.gov.bd/	91,200
6	link:www.library.gov.bt/	1,97,00,000	link: www.library.gov.bt/	6,75,00,000
7	link:www.librarybrunei.gov.bn/	76,800	link: www.librarybrunei.gov.bn/	78,100
8	link:www.nlc.gov.cn /	1,03,000	link: www.nlc.gov.cn/	80,70,000
9	link:www.cypruslibrary.gov.cy/	3,410	link: www.cypruslibrary.gov.cy/	9,040
10	link:www.nplg.gov.ge/	51,700	link: www.nplg.gov.ge/	62,600
11	link:www.nationallibrary.gov.in/	5,63,00,000	link: www.nationallibrary.gov.in/	5,76,00,000
12	link:www.perpusnas.go.id/	1,51,000	link: www.perpusnas.go.id/	4,73,000
13	link:www.nlai.ir/	40,600	link: www.nlai.ir/	67,400
14	link:www.iraqnla-iq.com/	2,790	link: www.iraqnla-iq.com/	1,920
15	link:web.nli.org.il/	1,52,000	link: web.nli.org.il/	3,75,000
16	link:www.ndl.go.jp/	3,00,000	link: www.ndl.go.jp/	70,20,000
17	link:www.nl.gov.jo/	62,20,000	link: www.nl.gov.jo/	3,29,00,000
18	link:www.nlrk.kz/	37,000	link: www.nlrk.kz/	2,86,000
19	link:www.nlk.gov.kw/	30,700	link: www.nlk.gov.kw/	6,89,000
20	link:www.nlkr.gov.kg/	28,400	link: www.nlkr.gov.kg/	34,800
21	link:www.nationallibraryoflaos.net/	7,250	link: www.nationallibraryoflaos.net/	12,000
22	link:www.bnl.gov.lb	1,31,000	link:	49,50,000



	/		www.bnl.gov.lb/	
23	link:www.pnm.gov.my/	1,57,000	link:www.pnm.gov.my/	37,70,000
24	link:www.nlm.gov.mv/	1,76,00,000	link:www.nlm.gov.mv/	9,49,00,000
25	link:www.nationallibrary.mn/	4,93,00,000	link:www.nationallibrary.mn/	6,03,00,000
26	link:www.nlm-npt.gov.mm	30,700	link:www.nlm-npt.gov.mm	85,600
27	link:www.nnl.gov.np/	2,34,00,000	link:www.nnl.gov.np/	2,12,00,000
28	link:www.nl.go.kr/	1,78,00,000	link:www.nl.go.kr/	1,91,00,00,000
29	link:www.nlp.gov.pk/	1,01,000	link:www.nlp.gov.pk/	3,11,00,000
30	link:web.nlp.gov.ph/	1,57,000	link:web.nlp.gov.ph/	1,02,00,000
31	link:www.qnl.qa	1,67,000	link:www.qnl.qa	4,16,000
32	link:www.nlr.ru/	3,25,000	link:www.nlr.ru/	26,50,000
33	link:www.kfnl.gov.sa/	1,80,000	link:www.kfnl.gov.sa/	1,96,000
34	link:www.nlb.gov.sg/	1,44,000	link:www.nlb.gov.sg/	85,50,000
35	link:www.natlib.lk/	24,100	link:www.natlib.lk/	2,92,000
36	link:www.alassad-library.gov.sy/	32,000	link:www.alassad-library.gov.sy/	5,30,000
37	link:www.ncl.edu.tw/	4,03,000	link:www.ncl.edu.tw/	1,12,00,000
38	link:www.nlt.go.th/	6,24,000	link:www.nlt.go.th/	60,00,000
39	link:www.mkutup.gov.tr/	8,380	link:www.mkutup.gov.tr/	8,740
40	link:www.natlib.uz/	12,500	link:www.natlib.uz/	2,53,000
41	link:www.nlv.gov.vn/	73,400	link:www.nlv.gov.vn/	46,10,000

**ANX-3A: Domain authority & page authority (Round 1)**  
**(Data collected on 05.02.2019 between 02 pm to 09 pm)**

Sl. No.	Country	Domain Authority	Page Authority
1	Afghanistan	39	40
2	Armenia	40	41
3	Azerbaijan	48	48

4	Bahrain	21	27
5	Bangladesh	35	41
6	Bhutan	36	42
7	Brunei	17	13
8	China	70	64
9	Cyprus	38	45
10	Georgia	52	50
11	India	42	44
12	Indonesia	56	45
13	Iran	64	59
14	Iraq	28	31
15	Israel	60	40
16	Japan	79	64
17	Jordan	34	36
18	Kazakhstan	46	37
19	Kuwait	29	37
20	Kyrgyzstan	31	33
21	Laos	12	15
22	Lebanon	17	20
23	Malaysia	45	44
24	Maldives	22	30
25	Mongolia	39	40
26	Myanmar	9	16
27	Nepal	29	38
28	South Korea	59	53
29	Pakistan	34	41
30	Philippines	41	38
31	Qatar	43	42
32	Russia	65	58
33	Saudi Arabia	37	40
34	Singapore	64	57
35	Sri Lanka	41	43
36	Syria	36	40
37	Taiwan	67	58
38	Thailand	43	43
39	Turkey	52	53
40	Uzbekistan	41	41
41	Vietnam	44	42

**ANX-3B: Domain authority & page authority (round 2)**  
**(Data collected on 07.03.2019 between 11.30 am to 11 pm)**

Sl. No.	Country	Domain Authority	Page Authority
1	Afghanistan	37	40
2	Armenia	33	41
3	Azerbaijan	37	48
4	Bahrain	19	27
5	Bangladesh	28	41
6	Bhutan	41	42
7	Brunei	14	13
8	China	51	65
9	Cyprus	31	45
10	Georgia	48	50
11	India	42	44
12	Indonesia	43	45
13	Iran	40	59
14	Iraq	29	31
15	Israel	60	44
16	Japan	72	64
17	Jordan	28	36
18	Kazakhstan	39	37
19	Kuwait	25	37
20	Kyrgyzstan	27	33
21	Laos	11	16
22	Lebanon	21	20
23	Malaysia	42	44
24	Maldives	25	30
25	Mongolia	23	40
26	Myanmar	1	17
27	Nepal	26	38
28	South Korea	46	53
29	Pakistan	34	41
30	Philippines	43	38
31	Qatar	44	42
32	Russia	57	58
33	Saudi Arabia	39	40
34	Singapore	63	57
35	Sri Lanka	27	43

36	Syria	29	40
37	Taiwan	55	58
38	Thailand	31	43
39	Turkey	44	53
40	Uzbekistan	34	41
41	Vietnam	40	42

**ANX-4A: Internal followed links, external followed links & total links (round 1)**  
**(Data collected on 05.02.2019 between 02 pm to 09 pm)**

Sl. No.	Country	Internal Followed Links	External Followed Links	Total Links
1	Afghanistan	5,89,518	1,60,933	753342
2	Armenia	96,03,229	1,14,221	97,23,547
3	Azerbaijan	3,40,49,474	1,60,290	3,42,24,285
4	Bahrain	34,262	2,354	36,706
5	Bangladesh	1,91,273	12,769	2,06,235
6	Bhutan	6,611	2,910	13,262
7	Brunei	14,759	1,190	15,990
8	China	43,73,717	17,35,916	61,52,720
9	Cyprus	96,827	8434	1,05,486
10	Georgia	4,77,54,068	2,96,396	4,80,79,058
11	India	38,37,655	72,861	39,14,567
12	Indonesia	1,79,07,332	25,95,407	2,05,04,808
13	Iran	2,19,40,430	23,53,688	2,43,89,585
14	Iraq	6,02,407	5,632	6,08,460
15	Israel	7,47,341	1,95,52,178	2,05,05,742
16	Japan	22,28,00,900	1,40,56,650	24,00,12,427
17	Jordan	51,622	30,005	81,821
18	Kazakhstan	6,98,257	7,84,193	14,84,570
19	Kuwait	6,01,195	2,441	6,03,812
20	Kyrgyzstan	26,80,532	7,117	26,88,646
21	Laos	1,304	34	1,351
22	Lebanon	33,326	326	33,662
23	Malaysia	3,29,59,766	4,69,388	3,34,30,847
24	Maldives	1013	292	1,380
25	Mongolia	4,20,910	13,148	4,35,319
26	Myanmar	85	0	99
27	Nepal	88,511	681	89,366
28	South Korea	24,17,92,085	1,57,09,364	25,76,34,273
29	Pakistan	1696	1,168	5,685

30	Philippines	20,64,571	93183	21,60,970
31	Qatar	49,26,584	7,04,080	67,59,240
32	Russia	3,15,63,754	43,63,554	3,62,70,675
33	Saudi Arabia	71,86,792	86,388	72,77,008
34	Singapore	1,19,09,550	5,27,341	1,25,46,271
35	Sri Lanka	7,39,68,621	1,32,392	7,41,01,301
36	Syria	8,199	53,925	64,865
37	Taiwan	2,31,81,909	53,79,435	2,86,45,127
38	Thailand	66,302	5,03,183	5,83,177
39	Turkey	8,39,619	1,77,669	13,30,290
40	Uzbekistan	10,62,204	1,58,058	12,21,134
41	Vietnam	7,01,113	1,83,850	8,90,891

**ANX-4B: Internal followed links, external followed links & total links (Round 2)**  
**(Data collected on 07.03.2019 between 11.30 am to 11 pm)**

Sl. No.	Country	Internal Followed Links	External Followed Links	Total Links
1	Afghanistan	7,29,419	1,74,397	9,06,755
2	Armenia	96,01,163	1,13,826	97,21,211
3	Azerbaijan	3,40,50,913	1,37,710	34203345
4	Bahrain	34,262	2,347	36,703
5	Bangladesh	2,15,639	13,759	2,31,599
6	Bhutan	6,611	2,927	13,281
7	Brunei	15,099	1,202	16,341
8	China	43,73,717	17,69,394	61,94,702
9	Cyprus	95,583	8,662	1,04,475
10	Georgia	4,77,59,431	2,98,988	4,80,87,421
11	India	38,67,443	77,693	39,49,206
12	Indonesia	1,79,63,048	26,54,172	2,06,19,552
13	Iran	2,19,52,263	23,80,885	2,44,30,189
14	Iraq	5,84,794	5,384	5,90,809
15	Israel	7,16,113	1,94,80,963	2,04,07,499
16	Japan	22,29,92,092	1,27,42,552	23,89,41,999
17	Jordan	51,643	30,029	81,865
18	Kazakhstan	4,43,871	8,11,780	12,58,569
19	Kuwait	6,01,195	2,443	6,03,814
20	Kyrgyzstan	26,71,062	7,148	26,79,204
21	Laos	1,304	36	1,353
22	Lebanon	33,326	476	33,814

23	Malaysia	3,25,09,285	4,67,914	3,29,78,978
24	Maldives	1,013	290	1,378
25	Mongolia	4,11,747	12,908	4,25,917
26	Myanmar	85	0	102
27	Nepal	172	681	89,364
28	South Korea	24,19,49,247	1,57,40,402	25,78,33,968
29	Pakistan	1,696	1,232	5,825
30	Philippines	20,63,137	91,976	21,58,637
31	Qatar	49,90,136	6,86,434	67,96,292
32	Russia	3,16,16,583	43,74,635	3,63,35,194
33	Saudi Arabia	71,86,791	85,581	72,76,215
34	Singapore	1,19,45,738	5,37,813	1,25,93,237
35	Sri Lanka	7,39,61,713	1,31,770	7,40,93,775
36	Syria	8,402	59,517	70,679
37	Taiwan	2,32,16,930	53,97,086	2,86,98,690
38	Thailand	76,879	5,13,895	6,04,602
39	Turkey	8,36,268	1,79,829	13,31,100
40	Uzbekistan	10,77,062	1,95,409	12,73,357
41	Vietnam	7,07,997	1,85,774	8,99,729

#### **ANX-5: Details about 27 common features of Spam score**

1. **Low number of pages found:** Our crawlers discovered only a small number of pages on this domain. This is not an inherent problem, but many spam sites have small numbers of pages, hence the correlation.
2. **TLD correlated with spam domains:** This domain's top-level domain extension (e.g. .info, .cc, .pl, etc) is one that many spam domains use.
3. **Domain name length:** The length of the subdomain and root domain is similar to those used by spam sites.
4. **Domain name contains numerals:** Like many spam sites, this domain name contains numeric characters.
5. **Google Font API present:** This domain does not use special fonts (e.g. Google Font API). Lacking this feature was common among spam sites we found.
6. **Google Tag Manager:** Google Tag Manager is almost never present on spam sites.

7. **Double click present:** The Doubleclick ad tag is almost never present on spam sites.
8. **Phone number present:** Spam sites rarely have real phone numbers present on their pages.
9. **Links to LinkedIn:** Almost no spam sites have an associated LinkedIn page, hence lacking this feature is correlated with spam.
10. **Email Address present:** Email addresses are almost never present on spam sites.
11. **Defaults to HTTPS:** Few spam sites invest in SSL certificates; HTTPS is often a good trust signal.
12. **Use of Meta keywords:** Pages that use the meta keywords tag are more likely to be spam than those that don't.
13. **Jumpshot visit rank:** Websites with very few visits in Jumpshot's clickstream panel were more often spam than those with high numbers of visits.
14. **Rel Canonical:** Utilizing a non-local rel=canonical tag is often associated with spam.
15. **Length of title element:** Pages with very long or very short titles are correlated with spam sites.
16. **Length of title element:** Pages with very long or very short meta description tags are correlated with spam sites.
17. **Length of meta description:** Pages with very long meta keywords tags are often found on spam sites.
18. **Browser Icon:** Spam sites rarely use a favicon; non-spam sites often do.
19. **Facebook Pixel:** The Facebook tracking pixel is almost never present on spam sites.
20. **Number of external outlinks:** Spam sites are more likely to have abnormally high or low external outlinks.
21. **Number of domains linked:** Spam sites are more likely to have abnormally high or low unique domains to which they link.
22. **Ratio of external links to content:** Spam sites are more likely to have abnormal ratios of links to content.

23. **Vowels/Consonants in Domain name:** Spam sites often have many sequential vowels or consonants in their domain name.
24. **Hyphens in domain name:** Spam sites are more likely to use multiple hyphens in their domain name.
25. **URL length:** Spam pages often have abnormally short or long URL path lengths.
26. **Presence of poison words:** Spam sites often employ specific words that are associated with webspam topics like pharmaceuticals, adult content, gaming, and others.
27. **Uses high CPC Anchor text:** Spam sites often employ specific words in the anchor text of outlinks that are associated with webspam topics like pharmaceuticals, adult content, gaming, and others.

**ANX-5A: Spam score (Round 1)**  
**(Data collected on 05.02.2019 between 02 pm to 09 pm)**

Sl. No.	Country	Spam score
1	Afghanistan	28%
2	Armenia	28%
3	Azerbaijan	60%
4	Bahrain	—
5	Bangladesh	9%
6	Bhutan	12%
7	Brunei	1%
8	China	—
9	Cyprus	—
10	Georgia	1%
11	India	2%
12	Indonesia	3%
13	Iran	—
14	Iraq	1%
15	Israel	1%
16	Japan	1%
17	Jordan	—
18	Kazakhstan	6%
19	Kuwait	5%
20	Kyrgyzstan	13%



21	Laos	1%
22	Lebanon	1%
23	Malaysia	—
24	Maldives	2%
25	Mongolia	3%
26	Myanmar	—
27	Nepal	—
28	South Korea	6%
29	Pakistan	49%
30	Philippines	—
31	Qatar	2%
32	Russia	28%
33	Saudi Arabia	7%
34	Singapore	1%
35	Sri Lanka	—
36	Syria	3%
37	Taiwan	—
38	Thailand	—
39	Turkey	46%
40	Uzbekistan	—
41	Vietnam	6%

**ANX-5B: Spam score (Round 2)**

**(Data collected on 07.03.2019 between 11.30 am to 11 pm)**

Sl. No.	Country	Spam score
1	Afghanistan	22%
2	Armenia	21%
3	Azerbaijan	60%
4	Bahrain	0%
5	Bangladesh	28%
6	Bhutan	12%
7	Brunei	1%
8	China	37%
9	Cyprus	0%
10	Georgia	25%
11	India	1%
12	Indonesia	3%
13	Iran	10%
14	Iraq	0%

15	Israel	7%
16	Japan	28%
17	Jordan	0%
18	Kazakhstan	5%
19	Kuwait	5%
20	Kyrgyzstan	31%
21	Laos	1%
22	Lebanon	1%
23	Malaysia	0%
24	Maldives	2%
25	Mongolia	3%
26	Myanmar	55%
27	Nepal	0%
28	South Korea	6%
29	Pakistan	49%
30	Philippines	0%
31	Qatar	2%
32	Russia	21%
33	Saudi Arabia	10%
34	Singapore	1%
35	Sri Lanka	0%
36	Syria	3%
37	Taiwan	0%
38	Thailand	0%
39	Turkey	46%
40	Uzbekistan	0%
41	Vietnam	7%

**ANX-6A: Total discovered linking domains (round 1)**  
**(Data collected on 05.02.2019 between 02 pm to 09 pm)**

Sl. No.	Country	Total Discovered Linking Domains
1	Afghanistan	65
2	Armenia	23
3	Azerbaijan	46
4	Bahrain	6
5	Bangladesh	40
6	Bhutan	16
7	Brunei	1

8	China	1,072
9	Cyprus	16
10	Georgia	59
11	India	27
12	Indonesia	189
13	Iran	11
14	Iraq	334
15	Israel	171
16	Japan	1,445
17	Jordan	7
18	Kazakhstan	28
19	Kuwait	6
20	Kyrgyzstan	11
21	Laos	3
22	Lebanon	8
23	Malaysia	36
24	Maldives	1
25	Mongolia	49
26	Myanmar	6
27	Nepal	5
28	South Korea	114
29	Pakistan	14
30	Philippines	27
31	Qatar	48
32	Russia	236
33	Saudi Arabia	41
34	Singapore	382
35	Sri Lanka	19
36	Syria	11
37	Taiwan	359
38	Thailand	33
39	Turkey	89
40	Uzbekistan	32
41	Vietnam	34

**ANX-6B: Total discovered linking domains (Round 2)**  
**(Data collected on 07.03.2019 between 11.30 am to 11 pm)**

Sl. No.	Country	Total Discovered Linking Domains
1	Afghanistan	93
2	Armenia	37

3	Azerbaijan	57
4	Bahrain	5
5	Bangladesh	9
6	Bhutan	23
7	Brunei	1
8	China	1,627
9	Cyprus	15
10	Georgia	76
11	India	28
12	Indonesia	161
13	Iran	206
14	Iraq	15
15	Israel	206
16	Japan	1,553
17	Jordan	11
18	Kazakhstan	24
19	Kuwait	2
20	Kyrgyzstan	7
21	Laos	1
22	Lebanon	4
23	Malaysia	51
24	Maldives	1
25	Mongolia	96
26	Myanmar	1
27	Nepal	7
28	South Korea	170
29	Pakistan	14
30	Philippines	35
31	Qatar	88
32	Russia	234
33	Saudi Arabia	30
34	Singapore	461
35	Sri Lanka	23
36	Syria	10
37	Taiwan	391
38	Thailand	30
39	Turkey	72
40	Uzbekistan	30
41	Vietnam	40

**ANX-7A: Linking domains, followed linking domains & total inbound links  
(Round 1)**

**(Data collected on 05.02.2019 between 02 pm to 09 pm)**

Sl. No.	Country	Linking Domains	Followed Linking Domains	Total Inbound Links
1	Afghanistan	620	409	163800
2	Armenia	678	465	120300
3	Azerbaijan	1800	1,375	174800
4	Bahrain	69	40	2400
5	Bangladesh	473	402	14900
6	Bhutan	632	411	6600
7	Brunei	22	11	1200
8	China	17100	15,671	1200
9	Cyprus	891	831	8700
10	Georgia	2500	2178	289500
11	India	907	657	289500
12	Indonesia	3600	3,386	2600000
13	Iran	9100	8286	2400000
14	Iraq	193	115	6100
15	Israel	4100	4,168	278200
16	Japan	30300	24,720	17100000
17	Jordan	337	268	30200
18	Kazakhstan	1100	765	786300
19	Kuwait	246	188	2600
20	Kyrgyzstan	301	180	6700
21	Laos	17	7	47 (0)
22	Lebanon	37	30	336 (0)
23	Malaysia	1200	916	471100
24	Maldives	108	66	367
25	Mongolia	843	691	14400
26	Myanmar	10	0	14
27	Nepal	306	231	855
28	South Korea	3900	3499	15800000
29	Pakistan	504	355	4000
30	Philippines	464	573	93500
31	Qatar	839	685	705200
32	Russia	8900	6,966	4700
33	Saudi Arabia	1700	1454	90200
34	Singapore	10000	8344	635800
35	Sri Lanka	824	715	132700

36	Syria	409	2,741	56700
37	Taiwan	10900	9,320	5500000
38	Thailand	866	704	516900
39	Turkey	3100	2797	490700
40	Uzbekistan	718	560	158900
41	Vietnam	1100	926	185300

**ANX-7B: Linking domains, followed linking domains & total inbound links**

**(Round 2)**

**(Data collected on 07.03.2019 between 11.30 am to 11 pm)**

Sl. No.	Country	Linking Domains	Followed Linking Domains	Total Inbound Links
1	Afghanistan	676	457	177300
2	Armenia	701	473	120000
3	Azerbaijan	1800	1,388	152400
4	Bahrain	71	41	2400
5	Bangladesh	479	406	15900
6	Bhutan	641	420	6600
7	Brunei	22	12	1200
8	China	18000	16,079	1800
9	Cyprus	893	834	8900
10	Georgia	2500	2,202	292300
11	India	911	662	81800
12	Indonesia	3500	3,271	2700
13	Iran	9100	8,326	2500
14	Iraq	202	119	6000
15	Israel	4200	4,245	281700
16	Japan	30900	25,114	15800
17	Jordan	341	271	30200
18	Kazakhstan	1100	764	814700
19	Kuwait	245	176	2600
20	Kyrgyzstan	301	180	6700
21	Laos	18	8	49
22	Lebanon	39	32	488
23	Malaysia	1200	939	469700
24	Maldives	107	65	365
25	Mongolia	885	725	14200
26	Myanmar	11	0	17
27	Nepal	306	230	853
28	South	3900	3,574	15900000

	Korea			
29	Pakistan	508	361	4100
30	Philippines	484	590	92500
31	Qatar	895	733	687600
32	Russia	8900	6,995	4700
33	Saudi Arabia	1700	3,843	89400
34	Singapore	10200	8471	646600
35	Sri Lanka	830	718	132100
36	Syria	409	279	62300
37	Taiwan	11000	9,421	5500000
38	Thailand	872	707	869
39	Turkey	3100	2800	494800
40	Uzbekistan	728	557	196300
41	Vietnam	1100	935	187300

**ANX 8: Classification of national libraries' website/webpage by design factor**

<b>Sl. No.</b>	<b>Country</b>	<b>View resolution is suggested</b>	<b>Browser compatibility is suggested</b>
1	Afghanistan	0	0
2	Armenia	0	0
3	Azerbaijan	0	0
4	Bahrain	0	0
5	Bangladesh	0	0
6	Bhutan	0	0
7	Brunei	0	0
8	China	0	0
9	Cyprus	0	0
10	Georgia	0	0
11	India	0	0
12	Indonesia	0	0
13	Iran	0	0
14	Iraq	0	0
15	Israel	0	0
16	Japan	0	0
17	Jordan	0	0
18	Kazakhstan	0	0
19	Kuwait	0	0
20	Kyrgyzstan	0	0
21	Laos	0	0
22	Lebanon	0	0

23	Malaysia	1	1
24	Maldives	0	0
25	Mongolia	0	0
26	Myanmar	0	0
27	Nepal	0	0
28	South Korea	0	0
29	Pakistan	0	0
30	Philippines	0	0
31	Qatar	0	0
32	Russia	0	0
33	Saudi Arabia	0	0
34	Singapore	0	0
35	Sri Lanka	0	0
36	Syria	0	0
37	Taiwan	1	0
38	Thailand	0	0
39	Turkey	0	0
40	Uzbekistan	0	0
41	Vietnam	1	1
<b>Total</b>		<b>3 (7%)</b>	<b>2 (5%)</b>



## APPENDIX- II

### WEBOMETRIC ANALYSIS EVALUATION CRITERIA OF LIBRARY WEBSITE/WEBPAGE OF NATIONAL LIBRARIES IN ASIA

1. Does library have dedicated website for itself?

- a) Yes ( )
- b) No ( )

\*If no then,

Does the library have a separate webpage?

- a) Yes ( )
- b) No ( )

2. Whether the view resolution is suggested in the respective library website/webpage?

- a) Yes ( )
- b) No ( )

3. Does the library website/webpage provide information about the browser compatibility respectively?

- a) Yes ( )
- b) No ( )

4. Whether the library website/webpage gives information about the number of visitors of the page?

- a) Yes ( )
- b) No ( )

5. Does the library website/webpage use any graphics along with the text for communication with the users?

- a) Yes ( )
- b) No ( )

\*If yes then,

Whether the graphics used in the library website/webpage are animated?

- a) Yes ( )
- b) No ( )

\*If no then,

Does the library website/webpage use only text and not graphics for communicating with the users?

- a) Yes ( )
- b) No ( )

6. Does the library website/webpage offer information only in their national language?

- a) Yes ( )
- b) No ( )

\*If no then,

Whether the library website/webpage offers information in English and other local languages?

- a) Yes ( )
- b) No ( )

\*If no then,

Whether the library website/webpage offers information only in English language?

- a) Yes ( )
- b) No ( )

7. Does the library website/webpage provide web translator for changing the language into multilingual option?

- a) Yes ( )
- b) No ( )

If yes then please mention the country.....

8. Does the library website/webpage provide postal address of the library?

- a) Yes ( )
- b) No ( )

9. Does the library website/webpage provide phone number of the library or a library staff?

- a) Yes ( )
- b) No ( )

10. Does the library website/webpage provide fax number of the library?

- a) Yes ( )
- b) No ( )

11. Whether the library website/webpage provides the email address of the library/librarian?

- a) Yes ( )
- b) No ( )

12. Does the library website/webpage provide feedback form or email link?

- a) Yes ( )
- b) No ( )

13. Does the library website/webpage provide search option in the website/webpage?

- a) Yes ( )
- b) No ( )

14. Whether the library website/webpage provides the sitemap of the library?

- a) Yes ( )
- b) No ( )

15. Does the library website/webpage provide FAQs in the website/webpage?

- a) Yes ( )
- b) No ( )

16. Whether the library website/webpage provides copyright details on the site?

- a) Yes ( )
- b) No ( )

\*If yes then,

17. Whether the library website/webpage provides any information about the maintenance details of the site?

- a) Yes ( )
- b) No ( )

18. Does the library website/webpage provide date of updation?

- a) Yes ( )
- b) No ( )

\*If yes then,

Whether the website/webpage has been updated in the past three months?

- a) Yes ( )
- b) No ( )

19. Does the library website/webpage have given the present date on the site?

- a) Yes ( )
- b) No ( )

20. Does the library website/web page provide information on introduction/history about the library?

- a) Yes ( )
- b) No ( )

21. Does the library website/web page provide information regarding the aims/objective/ mission/statement of the library?

- a) Yes ( )
- b) No ( )

22. Does the library web page/website provide information on opening/closing time of the library?

- a) Yes ( )
- b) No ( )

23. Does the library web page/website provide information about staffs/members of the library?

- a) Yes ( )
- b) No ( )

24. Whether the website/webpage has provided the library brochure?
- a) Yes ( )  
b) No ( )
25. Does the library web page/website provide information regarding library use?
- a) Yes ( )  
b) No ( )
26. Does the library web page/website provide any information on library news/updates and events in their respective site?
- a) Yes ( )  
b) No ( )
27. Whether the website/webpage has provided links to OPAC on the site?
- a) Yes ( )  
b) No ( )
28. Whether the website/webpage has provided links to Union catalogue?
- a) Yes ( )  
b) No ( )
29. Whether the website/webpage has provided the location map/guide on the site?
- a) Yes ( )  
b) No ( )
30. Does the library website/web page provide information regarding user membership details?
- a) Yes ( )  
b) No ( )
31. Does the library website/web page provide information about the infrastructure facilities of the library?
- a) Yes ( )  
b) No ( )
32. Does the library website/web page provide photo gallery in their respective site?
- a) Yes ( )  
b) No ( )

33. Does the library website/web page provide any information regarding 'Ask a librarian' respectively?

- a) Yes
- b) No

34. Does the library website/web page provide link for the web 2.0 tools?

- a) Yes
- b) No

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### **PARTICULARS OF THE CANDIDATE**

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Websites in Asia: An Evaluative Study

DATE OF ADMISSION : 05.08.2016

APPROVAL OF RESEARCH PROPOSAL :

1. BOARD OF STUDIES : 01.05.2017  
2. SCHOOL BOARD : 22.05.2017

REGISTRATION NO. & DATE : MZU/Ph.D./968 of 22.05.2017  
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### Symposium/Conferences

#### Participation:

1. Presented paper on "Evaluation of National Libraries' Websites of BRICS Countries: A Webometric Analysis" at the 14<sup>th</sup> International Conference on Webometrics, Informetrics and Scientometrics (WIS) & 19<sup>th</sup> COLLNET Meeting (COLLNET 2018) held at the University of Macau, Macau on 05<sup>th</sup> – 08<sup>th</sup> December, 2018.
2. Presented paper on "An Assessment of Information Literacy skills Among PG students of Mizoram University: A Survey" at IASLIC 31<sup>st</sup> All India Conference 2017 held at Banaras Hindu University, Varanasi during 07<sup>th</sup>-09<sup>th</sup> November, 2017.
3. Presented paper on "Web Citation Behavior in SRELS journal of Information Management and DESIDOC Journal of Library and Information Technology" at 1<sup>st</sup> International Conference on Transforming Library 2017 held at CIT, Kokrajhar, Assam during 08<sup>th</sup>-10<sup>th</sup> July, 2017.
4. Presented paper on "Use of Web 2.0 Tools and Services by National Libraries of Asia: An Evaluative Study" at International Conference Proceedings of

Library and Information Services in Knowledge Society: Innovative, Value Added Services and Best Practices held at Mizoram University during 01<sup>th</sup>-03<sup>rd</sup> March, 2017.

#### **Journal Paper Publications:**

1. Verma, M.K., & **Brahma, K.** (2017). A Webometric Analysis of National Libraries' websites in South Asia. *Annals of Library and Information Studies*, 64, 116-124.
2. Verma, M.K., & **Brahma, K.** (2017). Ranking of National Institutes of Technology (NITs) of northeast region of India on the basis of web impact factor. *COLLNET Journal of Scientometrics and Information Management*, 01-14. ISSN: 0973-7766 (Print) & 2168-930X (Online).
3. Verma, M.K., & **Brahma, K.** (2017). Websites of Central Universities in North East India: A Webometric Analysis. *DESIDOC Journal of Library & Information Technology*, 37 (3), 2017, 390-395.
4. **Brahma, K.**, & Verma, M.K. (2018). Evaluation of Selected Universities Library Websites Listed by National Institutional Ranking Framework (NIRF) during the Year 2017: A Webometric Analysis. *Journal of Scientometric Research*, 7 (3), 173-180.
5. **Brahma, K.**, & Verma, M.K. (2018). Bibliometric Studies of Malaysian Journal of Library and Information Science (MJLIS) during 2007-2016. *Journal of Indian Library Association*, 54 (1), 55-65.
6. **Brahma, K.**, & Verma, M.K. (2018). Students' Attitude towards Social Networking Sites (SNSs): A Case study of Central Institute of Technology (CIT) Kokrajhar, Assam. *Library Philosophy & Practice (e-journal)*.1878.
7. Verma, M.K., & **Brahma, K.** (2018). Bibliometric Analysis of SRELS Journal of Library and Information Management and DESIDOC Journal of Library and Information Technology (DJLIT): A Comparative study. *Library Progress (International)*, 38 (1), 59-71.
8. Verma, M.K., & **Brahma, K.** (2018). Users Attitude towards Use of Smart Phones to Access Information: A Case Study of PG Students' of Bodoland

University in Kokrajhar, Assam. *Asian Journal of Information Science and Technology*, 8 (2), 4-8.

9. Verma, M.K., & **Brahma, K.** (2018). A Bibliometric Study of Chinese Librarianship: An International Electronic Journal, 1997-2016. *Chinese Librarianship: An International Electronic Journal*, 45, 43-56.
10. Verma, M.K., & **Brahma, K.** (2017). Webometric Analysis of Websites of Indian Universities' with Status of Potential for Excellence (UPE). *SRELS Journal of Information Management*, 54 (6), 318-326.