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vikas singh
Shri Ram College of Commerce

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Mr. Vikas Singh
SRCC, University of Delhi
(E): Vikassinghblis@gmail.com
Ph@.9250217742

Dr. Archana Shukla
DLIS, IGNOU
(E): archana@ignou.ac.in

Abstracts:

The present paper seeks to contribute some insights into the different potential disasters that libraries are vulnerable to. The study is primarily built upon a comprehensive review of the literature. Further, the study is divided into two parts; first part, covers different disasters, policies, insurance, and role of the government in managing such disasters. The second part of the study throw light on the level of preparedness for mitigating different disasters, frequency of inspection of the equipment's, safety guidelines and so on, to lessen the impact of disasters, basic strategies to protect any disaster in the library, frequency of power-backups, technicalities to avoid digital disasters and availability of insurance policy in the libraries. finally, the manuscript also consists of a disaster preparedness model which will be helpful in understanding the librarian "to do/have list" for their respective libraries.

Keywords: Disaster, disaster management, flood, fire, digital, earthquake, planning, preservation, training.

1. Introduction

Disaster management and its active enactment have always been one of the main challenges for related authorities (Jahangiri and others, 2011). Various slants have been introduced for disaster management, however, they can be divided into two main groups: (i) traditional or logistical approach; and (ii) developmental or community-based approach (Cuny, 1998). Disaster management create modern tools that enable organizations to deal with the risks of disaster in work-related places (Collins, 2010). Like any other institution in society, libraries are also prone to different kinds of disasters (Vani and Ganaie, 2017). Every library must become a war/crisis information centre in which currently available are the latest facts, reports, directories, regulations, and instructions for public use (Becker, 2003). The involvement of communities is important in both pre-disaster mitigation and post-disaster response and recovery process (Pandey and Okazaki, 2005). Just because of the capacity of

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people to respond to emergencies increases by providing them with more access and control over resources and basic social services. Using a community-based approach for managing disasters certainly has its advantages. Libraries and archives realize that they need to improve their ability to respond to a disaster. Disaster management

Further, disaster management plan plays a pivotal role in managing disasters. It is surprising that Health Index reported that the majority of cultural institutions had no emergency plan. "Disasters present multi-dimensions of relief efforts and their management needs a multi-institutional approach" (Cariappa and Khanduri, 2003). In 2003, a survey was launched worldwide among national libraries to check the availability of disaster plan, the results were alarming, out of 177 libraries, only 39 (22%) had a disaster plan (IFLA-PAC, 2006). In a similar survey of Croatian libraries by (Hasenay and Kritalic, 2010) found that only 5 (13%) libraries had an official written document that represents a disaster plan, and 3 (8%) had such a plan in an unofficial form. Understanding the essentiality of disaster preparedness the Society of American Archivists began promoting "MayDay" in 2005 to respond to the need to address emergency preparedness. MayDay is an annual event designed to be the one day each year that we reserve time to fully concentrate on emergency preparedness. The simple idea behind MayDay is for archivists, preservationists, and other records professionals to set aside one day a year, May 1, to bring attention to the vulnerability of the historical and legal records and to focus on disaster preparedness. (Hasenay and Kritalic, 2010) asserted that "the first step should be raising the awareness and education about the importance of disaster management issues as a prerequisite for efficient, comprehensive and sustainable preservation of services and collections". (Oboko, 1991) argues to make library staff aware of rescue options available to them in times of emergency. It is not intended as a day for public awareness; promoting public awareness of disaster planning is part of national preparedness month in September (www.ready.gov/america/npm/index.htm).

2. Review of Literature

A disaster is an incidence that causes widespread destruction and distress (Diamond (2006). The current strengths and weaknesses of an organization in risk management refer to the present ability or disability of an organization to handle a disaster situation before or after its occurrence (Sadgrove, 2015). Ellis (2007) opines that disaster occurs on various levels and must be measured by the extent on the levels and by the extent of their influence. (Kahn, 2012) and if this issue is not addressed with the seriousness it deserves, invaluable

information stored in different storage media could be lost. Disaster management is the body of policy and administrative decisions and operational activities which pertain to the various stages of a disaster at all levels (United Nations Development Programme and United Nations Disaster Relief Organization, 1992). Lindell (2013) states that disaster management begins with cost-effective early warning systems that better predict and react to threats. Disaster management, therefore, demands that the staff and the management of an organization should be prepared for disasters. Disaster in the context of library and information services infers any incident that threatens to damage the building, collections, equipment, and systems (Rehman, 2014). The disasters which happen in libraries affect the institution as a whole (Petros, 2011). The author continues to state that disaster management in libraries involves the development of disaster policies, which is described as a set of predetermined actions, which will reduce the possibility of a disaster happening and also reduce the extent of the damage likely to occur should a disaster strike. The risk assessment process includes mitigation or ways to avoid certain risks and ways to lessen the impact of a disaster (Halsted, Clifton & Wilson, 2014).

Libraries define "safety" through policies and procedures to protect employees, patrons, library resources, and the physical building itself from harm (Alliance Library System, n.d.; Graham, 2013; Halsted, Clifton, and Wilson, 2014). Training the library staff from different disasters is very much essential to safeguard the library resources. This includes disaster management training and the installation of vital disaster management equipment (Lindell, 2013). As Ellis (2007) points out that a practical and regular training session is essential for any disaster management program. (Kuuben, 2003), disaster management training should aim to raise the awareness of all staff regarding everyday safety and security issues and the steps they can take to reduce the likelihood of a disastrous occurrence.

Further, it is argued that to manage disasters and the danger thereof, makes it imperative for the library to prepare adequately as an important area of planning for overall library activities (Paul, 2016). Heritage Health Index Executive Summary conducted a study in 2005 and found 80% of institutions did not have staff trained in disaster response or a disaster plan that included collections. The authors confirm that disaster management is a global issue such that all organizations have to develop effective disaster management mechanisms that suit the organization's operations for staff and clients. (Comfort, et. al 2010). (Warnasuriya, 2005) holds that a written plan developed by the disaster management team is key to prepare for disasters and emergencies. (Kaur, 2009) believes that disaster planning is complex as the

written plan is the result of a wide range of preliminary activities. As (Aziagba and Edet, 2008) posit "every library needs a disaster plan and that the plan needs to plan for the worst. It is okay to hope for the best, but you should plan for the worst". (Matthews, 2005) acknowledged that longevity of information materials and the survival of information centers, in general, require a sound disaster management program to be in place. Insurance assessment has to do with the extent to which the organization is insured against disasters and how much compensation the organization is sure to receive in case of a loss due to a disaster (Hsu, Huang, Chang, Chen, Hung and Chiang, 2011). Having a well-constructed, thoughtful disaster manual can minimize the impact of a disaster and reduce recovery time (Holderman, 2012). This, therefore, implies, that every organization that is effective in disaster management must have an effective assessment planning team if they will attain to the international standards of disaster management. Authors point out that vulnerability assessment is as crucial as the response to the disaster occurrence (Fuchs, Birkmann and Glade, 2012). When tried to found out the common risk to collection the studies carried out reveal that the most common risk to collections from all types of disasters is water damage (Moustafa, 2015).

3. Objectives of the Study

The prime objective of the study is to determine the various levels of disaster preparedness. The specific objectives are:

i) To identify the onus of the librarian and staff during any kind of disaster;

ii) To know the awareness and preparedness level of library staff;

iii) To find-out the equipment which is used for different disasters; and

iv) To determine the extent to which technological measures for managing disasters have been applied in select institutions of the study.

4. Scope

As far as the scope of the study is concerned, it is confined to the prominent libraries of Delhi selected for the studies (based on a variety of nature): they are: (i) Indian Institute of Public Administration library; (ii) Institute of Economic Growth library; (iii) Prof. M.S Swaminathan Library; Indian Agricultural Research Institute; (iv) Institute of Chartered Accountants of India.

5.   Research methodology

The present study consists of four libraries, each from the select libraries in Delhi. A survey was done with the help of structured questionnaire, pertaining to the disaster preparedness, response and recovery to obtain information from the libraries in two heads namely: (i) information related to library and (ii) contain the questions related to fire; flood; earthquake; digital disaster; and unquestionably from the policies, and insurance; and role of Govt. in managing disasters. Further, the questionnaires were personally distributed by visiting the libraries of select institutions for the study. Distributed questionnaire were collected along with the opinions of librarian and library staff. Further, descriptive analyses of data are presented in the form of tables and figures.

6.   Result and discussions

In the present study, the details related to libraries are given in table-1 the respondents (libraries) have also provided the strength of the total staff of the select libraries. Respondents in the study have provided all the important information necessary for the study. Table-1 is related to library-related information.

S. No	Name of Library/Institution	Year of Establishment	Website
1.	IIPA library	1955	http://www.iipa.org.in/
2.	IEG library	1958	http://www.iegindia.org/library/Library
3.	IARI library	1936	https://www.iari.res.in/
4.	ICAI library	1949	https://www.icai.org/

Table-1. Library Related Information

Table-1 shows the name of library/institutions of different select libraries along with their establishment such as Indian Institute of Public Administration Library (IIPA-1955); Institute of Economic Growth Library (IEG-1958); Prof. M.S Swaminathan Library; Indian Agricultural Research Institute (IARI-1936), Central Council library, Institute of Chartered Accountants of India library (ICAI-1949) select for the study.

Level of Preparedness

Kirsch says that "Being prepared is huge because it minimizes the impact of a disaster for you and loved ones you can help with planning". Basics of remaining prepared are having a plan, kit and remain informed. The second part, is related to different disasters such as fire; flood; earthquake; digital disaster; and indubitably from the policies, and insurance; and role of Govt. in managing disasters. Figure-1 depicts the 'Preparedness level', in case of disasters.
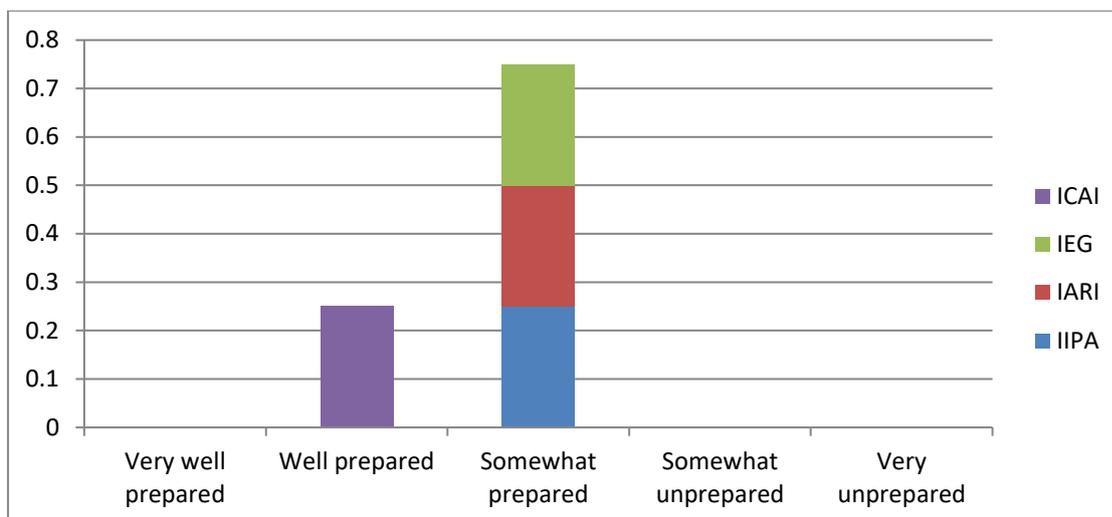
Figure-1 discusses the level of preparedness of the staff to face and mitigate the situation. Surprisingly, libraries such as IIPA, IEG, Prof. M.S Swaminathan Library, IARI claim that they are somewhat prepared from disasters whereas ICAI library claims that they are well prepared from the disaster.

Inspection of equipment

As far as the inspection of equipment is concerned, it is an important preventive way to make sure that the equipment is safe for use and that all systems are working properly. Regular inspection not only ensures the safety of workers but also saves time and money in the long run. In 2007 Scottish Government reviews of scrutiny of public services "periodic, targeted scrutiny of specific services, to check whether they are meeting national and local performance standards, legislative and professional requirements and the need of service users". Table-2 discusses the inspections of equipments.

Table-2. Inspection of the equipments				
Inspections of the Equipment is done	IIPA	IARI	IEG	ICAI
Yearly				
Half-yearly	✓	✓		
Quarterly			✓	
Monthly				✓
Never				

Table-2 shows a very important aspect which is inspection of the equipments. When asked about the inspection, IIPA and IARI said that they are doing it half-yearly whereas IEG go

for the inspection on quarterly basis. Further, ICAI library is much updated in this area and they go for inspection every month.

Fire Disasters

In 2004 IFLA-PAC survey on disaster planning in national libraries depicts that 61 % of respondents cited fire as the disaster they considered most likely to occur, while 41% cited flood. A fire protection system comes in various forms and is designed to deal with fire emergencies in different ways. Sometimes a simple fire extinguisher is not enough. Fires can come in many different forms and can require several different techniques to minimize damage or prevent injury. Figure-2 discusses the equipment used in fire disasters.
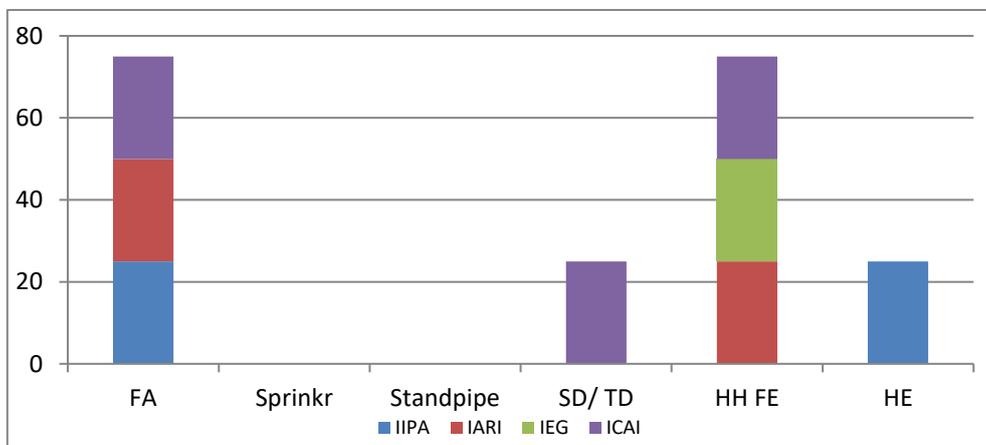
Source: Author's own representation based on questionnaire responses where FA stands for 'Fire Alarm', Sprinkr – 'Sprinker', Standpipe for 'Standpipe', SD/TD for 'Smoke detector/thermal detector', HH FE for 'Hand-held fire extinguisher', He for 'Hose extinguishers'.

Figure-2 discusses the necessary equipments needed to avoid fire disasters. The libraries, IIPA, ICAI, and IARI uses fire alarm to avoid fire disasters whereas IEG is not using the same. Two important equipment i.e. Sprinkler and Standpipe is not being used by any of the libraries. Further, only one library i.e. ICAI Library is using smoke detectors/thermal detectors. Institute of Economic Growth, ICAI Library, and IARI are using hand-held fire extinguishers whereas the same is not being used by IIPA library. Furthermore, only one library is using hose extinguishers from the select institutions of the study.

Fire Safety measures

It is a set of practices intended to reduce the destruction caused by fire. Fire safety measures are those which "planned during the construction of the building". Fire safety is a component of building safety. In the wake of Surat fire tragedy that killed 15 students. After that Delhi

Government has made some amendments in new clauses 7.31 in chapter 7 of the unified building by-laws for Delhi, 2018.

Earlier, it was in April 2016 when the Delhi Government has announced a unified and simplified legal framework for construction by law in the city that includes single-window clearance, sustainable construction, and permits system. The new policy had empowered Architect/Engineers to issue building permits for low-risk residential building and very low risk, warehouses. Figure-3 discusses the availability of fire safety guidelines in the library
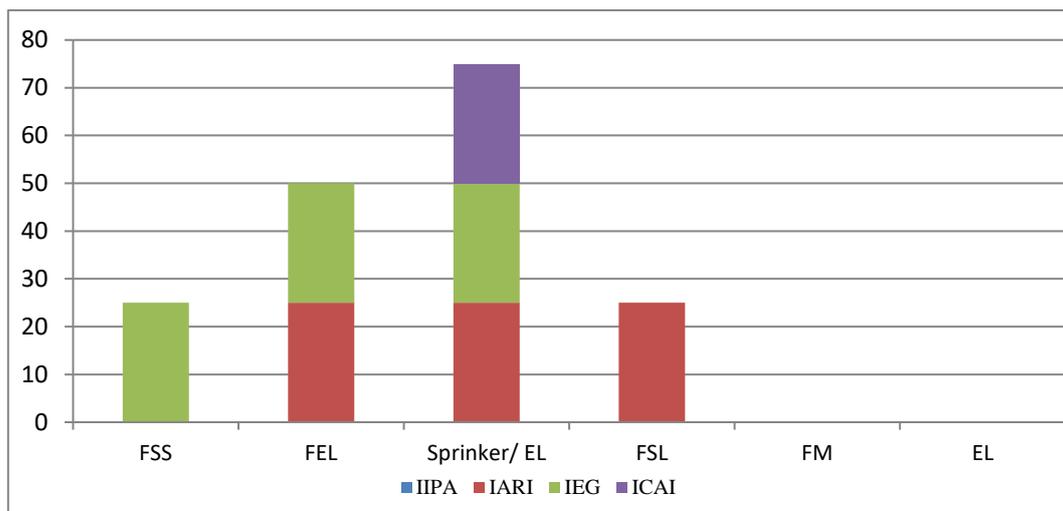
Source: Author's own representation based on questionnaire responses where FSS stands for 'Fire safety signs', FEL – 'Fire exit layouts', Sprinkr/EL for 'Sprinker', FSL for 'Fire safety layouts', FM for 'floor mappings', EL for 'Exit layouts for differently-abled people'.

Figure-3 discusses guidelines necessary to follow for any organizations. Only IEG usage fire safety signs in the select institutions of the study whereas IARI and IEG libraries are using fire exit layouts. Further, three libraries namely; ICAI, IARI, and IEG uses the easy use of sprinkler/ fire extinguisher in the select institutions whereas IIPA is not using the same. There is a single institution in the present study which is using fire safety layouts i.e IARI. Unfortunately, none of the institutions selected for the study are using floor mappings and exit layouts for differently-abled people.
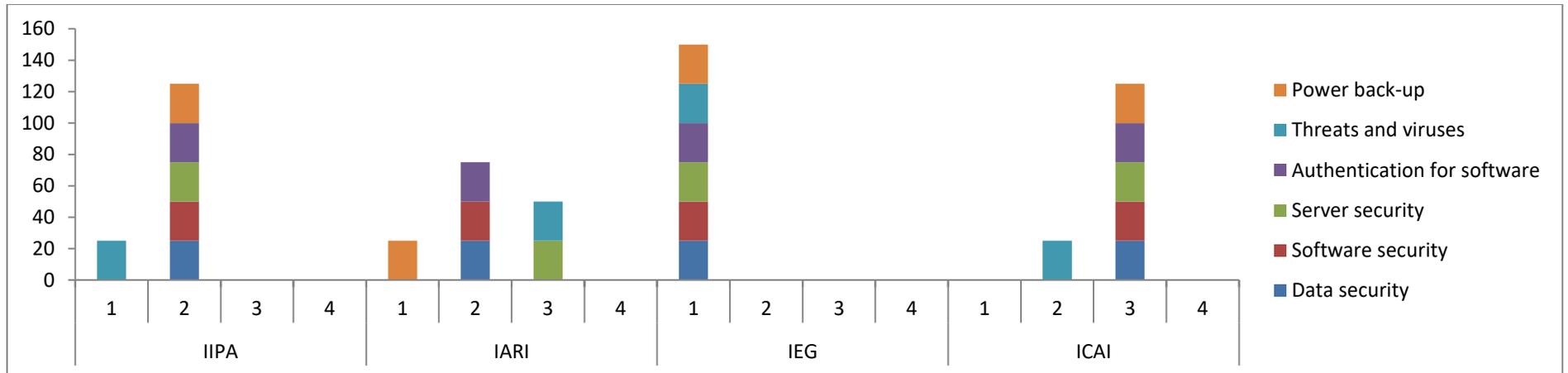
Basic Strategies to protect flood

Some of the strategies could be used for floods such as introducing better flood warning systems; David Rooke says that "warning and pre-planning can significantly reduce the impact of flooding". The same person suggested waterproofing, construction above 1 meter from the ground. Wetlands could significantly reduce the climate change on flooding, according to a conservation charity. Figure-3 talks about Strategies to avoid flood disasters

Table-3. Strategies to avoid flood disasters				
Basic Strategies to protect flood in the library buildings	IIPA	IARI	IEG	ICAI
Flood proof walls/levees				
Dry flood proofing				
Building on higher ground	✓	✓	✓	✓
Building the earthern barrier and levels around the structure				
Any other, please specify..				✓

Table-3 talks about the basic strategies to be implemented to protect flood in the library buildings. None of the libraries selected for study are using flood-proof walls/levees and dry flood proofing for their libraries. All the libraries selected for the study feel that building the library at the higher ground could save us from flood disasters. Also by visiting to one of the experts Dr. Jyotsana Arora, Deputy Director, Indian Council of Historical Research Library. The researcher came to know that the library of ICAI was not built on the higher ground earlier, used to flooded with water but nowadays, it was observed that they have built the library at a little higher from the ground. But when asked from the libraries about the building earthen barrier and levels around the structure, they all responded that they have not done so.

Safeguarding resources from different threats

The primary responsibility of the librarian is not only to provide best reading material but also safeguard them from different threats and disasters for posterity. There is no exaggeration in saying that the "User activity is the number one concern of security professionals". In present digital environment security of digital data is essential. IT security refers to securing digital data, through computer network security. The war between data defenders and data thieves has been described as a cat-and-mouse game. Figure-4 discusses different security measures.

Figure-4 discusses different securities. ICAI and IARI maintain high data securities whereas IEG maintains very high data security but the same is being maintained at the medium level by ICAI Library. In the case of software security, IIPA and IARI maintain high software securities whereas IEG maintains very high software security but the same is being maintained at the medium level by ICAI Library. Further, server security is very essential for avoiding digital disasters; IIPA maintains a high level of server security whereas IARI and ICAI Library

maintains the same at the medium level. Above all, IEG is far ahead of others and maintains a very high level of server security. IIPA and IARI maintain a high level of Authentication for software whereas IEG maintains a very high level of Software Authentication but the same is being maintained at the medium level by ICAI Library.

The IEG is very prepared and found to be very active in maintaining different securities, in the same manner, it is very highly prepared from threats and viruses whereas same is being maintained at a high level in ICAI library further, IARI is prepared in a medium way from Threats and viruses. As far as power back-up is concerned, only IEG maintains very high power back-ups whereas IIPA does it at a high level further, the same is at the medium level by ICAI library and the same is not being maintained by IARI library.

Data safety

The process of backing up data is pivotal to a successful disaster recovery plan (DRP) for any library or archive. It is the process of duplicating the data to allow retrieval of the duplicate set after a data loss event or in case of equipment failure or catastrophe.. There are many an organization involved in data back-up activity to ensure that data is secure and safe from any theft, digital disaster or any kind of emergency. As far as data- backups are concerned it is being taken by 75 per cent libraries on daily basis selected for the study except for IIPA which does it weekly.

Techniques to Avoid Digital Disasters

Preservation of the library's digital asset is the most important issue. Some of the software's such as viruses, rootkits, ransomware, and spyware are very dangerous. But for that antimalware software can be installed on an individual computing device, gateway server or dedicated network appliance. It can also be purchased as a cloud service such as McAfee's CloudAV product. Further, Data encryption is a security method where information is encoded and can only be accessed or decrypted with the correct encryption key. Encrypted data, also known as ciphertext, appears scrambled or unreadable to a person or entity accessing without permission. Figure-5 discusses techniques to avoid digital disasters.
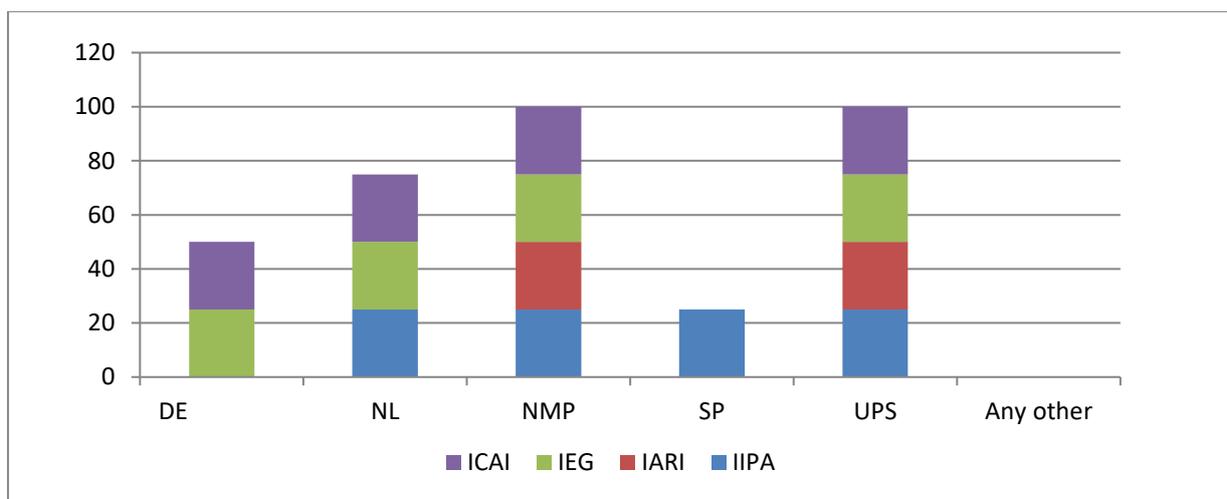
Figure-5 discusses the techniques to avoid digital disasters. IEG and ICAI Library are doing data encryption to save the data from digital disasters. Further, IIPA, IEG and ICAI library is using network locking facilities whereas such is not being used by IARI library. All the 100 percent libraries selected for the study uses Anti-malware protection but the Surge protector is being used by only one library i.e. IIPA. Furthermore, 100 per cent libraries are using uninterruptible power supply (UPS) for power back-up purposes whereas only one institution is using any other medium to avoid digital disasters.

Insurance Policy

Insurance is an arrangement in which our organisation/library pays money to a vendor, and they pay money to you if something unpleasant happens to you. Insurance need of libraries vary according to the size of the library, the design and construction of the library building, the level of protection the library enjoys against various perils, and the nature of its collections. Some of the damages covered by insurer are: fire, smoke damage, theft, storm damage, explosion, riot, water damage from defective plumbing, floods, earthquake, etc. Where a library is part of a large university or government entity, it would not be unusual for it to be 'self-insured'. In the present study, library insurance for equipment were available in IARI and IEG only whereas the rest of the libraries were not having insurance for their library materials.

Findings

Disaster requires fast and flexible decision making under complex settings and to strengthen decision-making skills, professional training is very much essential (Romana Berariu and others, 2016). Disaster management is the result of team effort therefore; lack of planning, coordination, and involvement of personnel at all levels could exacerbate disaster impact. It has been observed that disasters could be managed at some extent by putting the necessary mitigation measures. The study also shows the necessity of having a disaster management plan in place along with the disaster management team. For maintaining the relevancy of the plan, a periodic review of the plan is very important. Several challenges are experienced in disaster management owing to lack of policies, skilled manpower, obsolete tools/equipment, and inadequate financial resources which makes it difficult to adopt a systematic disaster management process.

Suggestion

Library professionals understand the value of resources and invest their effort to safeguard them. In the same direction, IARI library suggests for "Training and awareness campaign" to educate staff regarding disaster management. Further, IEG library has suggested having regular training for library staff from the active players in the area such as from NDMA, NIDM and fire department whereas IIPA library understands the need and shown willingness to introduce disaster management awareness program. On the other hand, ICAI library claims that they are very well prepared from the library disasters and claims to have a separate disaster management plan for the whole ICAI building.

Conclusion

Disaster management and planning should be one of the most important aspects of library management. It has been observed to be found to be a neglected field in librarianship (Morgan and Smith, 1997). In the present study while visiting the libraries for data collection were observed that they are least bothered from different disasters but from this area needs much more attention. If we take an example of the national museum of national history setup in 1978 is preserving national treasure where on 26th April 2016, fire gutted out at the top floor. Thousands of specimens were destroyed. It also destroyed the museum's exhibits and the entire collection. It was also observed that the building's sprinkler system was out of order. Destroyed the rare specimen of flora and fauna. The incident from the example depicts that much more attention needs to be given to lessen the impact of different disasters in the

libraries because the libraries are preserving the cultural heritage from one generation to post rarity.

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