

PERFORMANCE AMONG NIT LIBRARIES IN INDIA WITH RESPECT TO RESOURCE FACILITIES

Dr. Y. Srinivasa Rao

Librarian, School of Planning and Architecture, Vijayawada, Andhra Pradesh, INDIA.

1. INTRODUCTION

Libraries are central, intellectual and integral part of academic life. Primary objective of the academic libraries is to serve patrons (faculties, students, researchers and staff) to meet their current teaching, learning, research and innovation needs. Inherently, academic priorities and affinity to use and access library facilities are increasing irrespective of space and time. Therefore, the role of libraries in the academic set up is redesigned as patron knowledge workspaces for sharing academic and research ideas, information and experiences. Majority of academic libraries today are modernized, equipped, customised and ornamented with resource facilities such as computer and network infrastructure facilities, electronic resources, manpower, automation and service facilities etc. These facilities are interdependent and working together for growth and development of the academic libraries and they enhance the patrons' critical thinking, technical know-how and leadership qualities.

The trend of academic libraries becomes more open today. They are trying hard to make the academic system effectively than ever before in spite of their constrained role within a particular political paradigm (Carrigan, 1988). The way of storage, transmission and retrieval of information are different than traditional methods (Zhen, 1996). The cost and complexity of library automation may be at an all-time high, the opportunities for serving patrons are as never before (Breeding, 2006). Operations of the libraries have long been highly labor-intensive (Rush, 1982). Management of electronic journals cannot yet be considered trouble-free (Patra, 2006). Therefore, the academic libraries invest more on computer, networks and electronic resources to make use, store, and preserve information for the academic community. Infrastructure facilities and collection of resources alone do not make a library successful, need a library staff who are responsible for its use and fulfilling the objectives of the library (Devi and Singh, 2006). Moreover, services provided by the libraries through network are important. Essentially, there are two types of networked services one is local another one is remote. Firstly, the local NS are provided by local hosts (Abdullah & Gay, 1994). Secondly, the remote networked services are provided by remote hosts through Internet (Srinivasa Rao & Choudhury, 2010). Today, majority of academic libraries transpire as service-oriented segments and mostly fueled by their facilities. Transactions of the academic libraries are enhanced from man-assisting to self-service systems. Patrons able to access and use resources stored in the both local and remote places. They can browse and search catalogues, access databases, perform real-time interactions, avail electronic document deliver/inter-library loan etc.

Proportionately, resource facilities are most vital inputs that create conducive environment for meeting the best academic needs. Further, these facilities are not only increase speed and accuracy of the library activities, but also reduce work load of the staff, duplication of work and time. Indeed, multiple libraries facilities can have a strong impact on institutional outcomes. They help the patrons' in writing the lesson plans, grant proposals and research papers for fulfilling their academic achievements. They also help to promote academic and scientific progress and to improve the value and visibility of the institute. Therefore, this study was undertaken to map the resource facilities (CI, NI, ER, MA, LA and NS) available at various NIT libraries in India and their performance. In fact, these are indicating parameters for the NIT libraries growth and development.

2. OBJECTIVES OF THE STUDY

The main objectives of the study are:

- To evaluate performance among NIT libraries zone wise based on the resource facilities.
- To rank the NIT libraries individual
- To rank resource facilities individual and zone wise.

3. NATIONAL INSTITUTES OF TECHNOLOGY (NITS) IN BRIEF

NITs erstwhile Regional Engineering Colleges (RECs) are institutes of national importance established under the Act of Parliament 2007, Ministry of Human Resource Development, Government of India. At present, there are 30 NITs in India. These are benchmarking for technical education especially in the areas of engineering, science and technology.

4. SCOPE AND LIMITATION OF THE STUDY

The research study is confined only to 20 NIT libraries in India concerning their facilities (CI, NI, ER, MA, LA and NS). The survey was limited to the librarians of the concerned NIT libraries. Patrons' interview/opinions and their degree of satisfaction (i.e. patron survey) would have added more value to the present study.

5. METHODOLOGY

A methodology adopted for collecting data was questionnaire of survey-based. It was designed in structural form and framed into different sections and representing specific facets. It was remain the primary source for collecting data. Besides, the secondary and tertiary sources were consulted to explore related information. After obtaining the relevant data through the questionnaire, these were tabulated, represented and interpreted using multiple numerical scales (Table 1) such as with appropriate graphs to understand clearly and easily.

Table 1: Numerical Scales

Sl. No.	Factors	Scales				Score
		<i>1 (Yes)</i>	<i>1 – 2</i>	<i>1 – 3</i>	<i>1 – 5</i>	
1	CI	√	√		√	13
2	NI	√	√	√	√	20
3	ER				√	15
4	MA			√	√	13
5	LA	√	√	√		14
6	NS	√				25

6. PERFORMANCE AMONG NIT LIBRARIES

Performance measurement is the management approach defining indicators towards achievement of goals. The effect of performance is based on assessment, the quality and effectiveness of resources and services provided by a library. Performance measures are valuable and very difficult to assess them. O'Farrell (1998) quoted that one of the main reasons why university librarians are unwilling to commit to regular performance measurement exercises is the amount of staff time and resources that is involved in collecting the necessary datasets (Goodall, 1988). The perceived benefits of performance measurement do not justify the required inputs of staff time and energy, and therefore librarians will not dedicate staff to management information gathering (O'Farrell, 1998). In the competitive environment, the libraries adopt certain protocols and methods to measure their

performance. In fact, many projects (E-metrics, EQUINOX and Measuring the Impact of Networked Electronic Services (MINES for Libraries)) have worked out to indicate the performance measures for an electronic library system, resources and networked services. However, this study adopts few measures with respect to resource facilities among NIT libraries using multiple scales. Accordingly, the libraries were ranked based on their performance of resource facilities individual and group wise.

Table 2: Performance among the NIT Libraries – Zone wise

	<i>Maximum Score</i>		<i>13</i>	<i>20</i>	<i>15</i>	<i>13</i>	<i>14</i>	<i>25</i>	<i>100</i>		
Sl. No.	Zones	NIT Libraries	CI	NI	ER	MA	LA	NS	Total	Grand Total Score	Average
1	North	MNNIT Allahabad	12	17	8	6	12	11	66	301	60
2		NIT Hamirpur	11	17	13	7	5	10	63		
3		NIT Jalandhar	7	14	12	6	7	12	58		
4		NIT Kurukshetra	10	11	11	5	10	14	61		
5		NIT Srinagar	10	12	4	8	8	11	53		
6	East	NIT Durgapur	10	12	7	8	10	17	64	212	53
7		NIT Jamshedpur	7	13	5	6	6	13	50		
8		NIT Patna	6	12	1	3	4	3	29		
9		NIT Rourkela	8	16	8	6	11	20	69		
10	North East	NIT Agartala	3	12	2	3	4	2	26	93	47
11		NIT Silchar	10	14	12	7	9	15	67		
12	South	NIT Calicut	11	15	12	10	14	23	85	316	79
13		NIT Surathkal	10	15	7	9	14	19	74		
14		NIT Tiruchirapalli	11	16	15	7	11	21	81		
15		NIT Warangal	10	16	11	10	12	17	76		
16	West	MNIT Jaipur	8	12	8	5	7	15	55	194	65
17		VNIT Nagpur	7	12	9	7	11	19	65		
18		SVNIT Surat	11	15	13	7	12	16	74		
19	Central	MANIT Bhopal	8	9	10	9	6	9	51	79	40
20		NIT Raipur	5	15	1	5	1	1	28		

Table 2 shows zone wise performance of each NIT library. The South (79%) performs better than other zones, followed by the West and North zones with an average score of 65 and 60 respectively.

East, North East and Central zones have shown their performance at below average. It is therefore observed that lack of considerable amount of library facilities, resources and services the libraries shown poor performance at their end. The outcome of an individual performance has been presented in Figure 1.

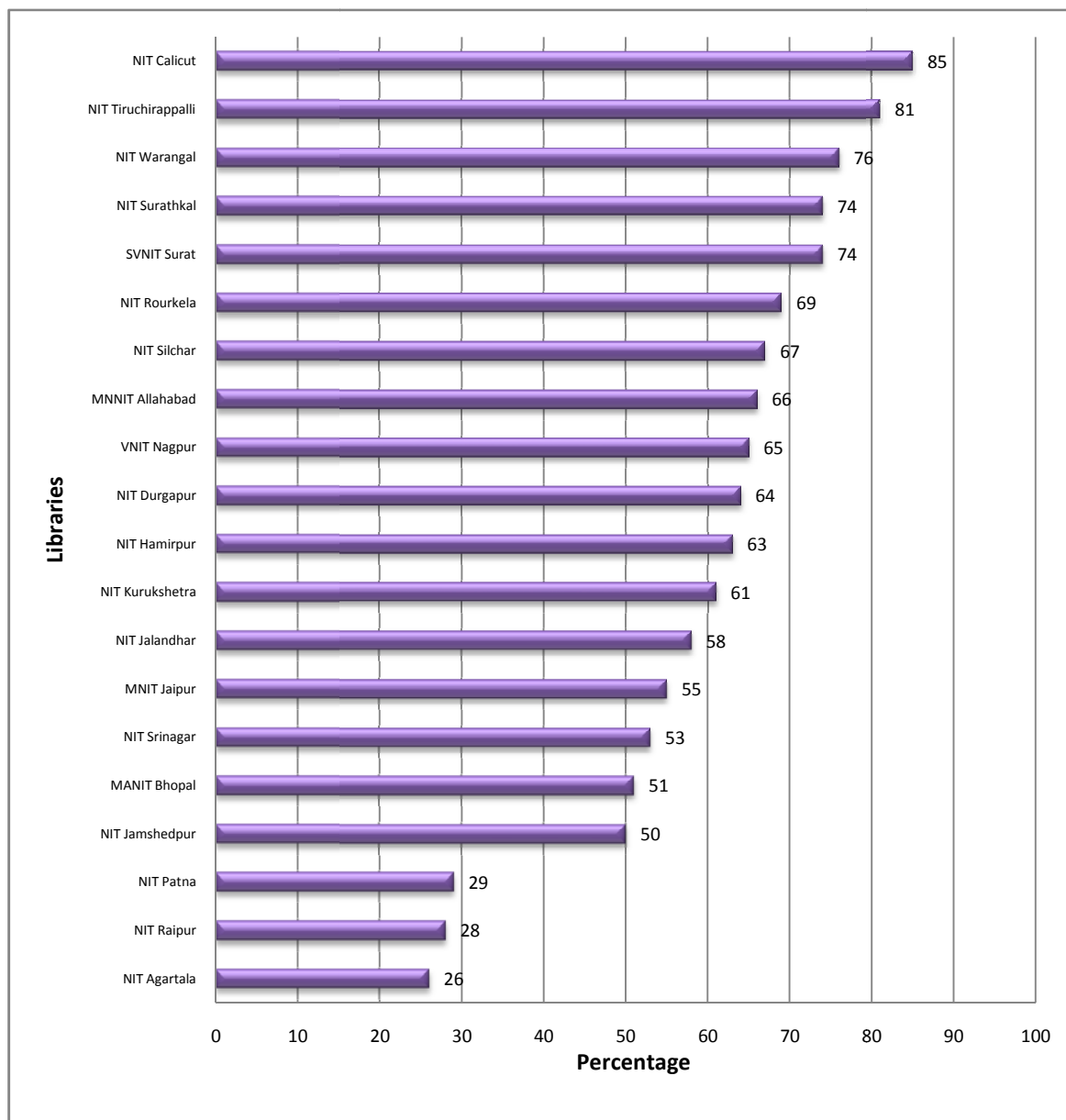


Fig. 1: NIT Libraries – Ranking

The Figure 1 shows the NIT Calicut holds at rank one, whereas Tiruchirappalli and Warangal are at distant second and third. The Surathkal and Surat have similar performance holding at 4th and 5th positions, while the other libraries perform moderately except NIT Patna, Raipur and Agartala. From the findings it is clear that all 17 NIT libraries previously RECs have scored more than 50%, whereas three NITs (Patna, Raipur and Agartala) previously old government engineering colleges are at below average. Possibilities could be an education culture between RECs and old government engineering colleges or lack of infrastructure, resource and service facilities, managerial support, manpower, skills, funds etc. However, libraries are managing their resources and infrastructure facilities effectively.

7. RESOURCE FACILITIES INDIVIDUAL AND ZONE WISE PERFORMANCE

The study addresses the NIT libraries and their stand on an individual and group with respect to multiple facilities (CI, NI, ER, MA, LA, and NS) rendered by them. Each facility has its own functionalities to perform towards growth and development of the libraries. Here, the facilities are briefly described and interpreted results via tabulated form of pictography to know the positions of NIT libraries in India individual and zone wise.

8. COMPUTER INFRASTRUCTURE (CI)

Infrastructure is a fundamental and developmental tool that has many meanings according to Lakos (1997) the infrastructure is *physical components – hardware & software, various equipment, communication lines, etc.* In this study, the CI consists of hardware, software and electronic equipments (digital scanners, barcode scanners, printers, video players/recorders and television sets). The strength of CI facilities among NIT libraries is shown in Table 1.

Table 3: Compute Infrastructure Facilities @ NIT Libraries – Ranking

Libraries	Individual wise %	Zone wise														
MNNIT Allahabad	92.31	<table><caption>Zone wise Percentage Data</caption><thead><tr><th>Zone</th><th>Percentage</th></tr></thead><tbody><tr><td>North</td><td>77</td></tr><tr><td>East</td><td>60</td></tr><tr><td>North East</td><td>50</td></tr><tr><td>South</td><td>81</td></tr><tr><td>West</td><td>67</td></tr><tr><td>Central</td><td>50</td></tr></tbody></table>	Zone	Percentage	North	77	East	60	North East	50	South	81	West	67	Central	50
Zone	Percentage															
North	77															
East	60															
North East	50															
South	81															
West	67															
Central	50															
NIT Calicut	84.62															
NIT Tiruchirapalli	84.62															
NIT Hamirpur	84.62															
SVNIT Surat	84.62															
NIT Kurukshetra	76.92															
NIT Srinagar	76.92															
NIT Durgapur	76.92															
NIT Silchar	76.92															
NIT Surathkal	76.92															
NIT Warangal	76.92															
NIT Rourkela	61.54															
MNIT Jaipur	61.54															
MANIT Bhopal	61.54															
NIT Jalandhar	53.85															
NIT Jamshedpur	53.85															
VNIT Nagpur	53.85															
NIT Patna	46.15															
NIT Raipur	38.46															
NIT Agartala	23.08															

In terms of individual performance, the Table 3 indicates above 85% of libraries have very good computer infrastructure facilities whereas 15% libraries are at minimal. Concerning the zones, the South zone (81%) is ahead of others; followed by North (77%), West (67%), East (60%) zones and North East and Central zones are having 50% of each.

9. NETWORK INFRASTRUCTURE (NI)

Network is a common pool to exchange, transfer and provide information. Access to NI facilities could better communicate with patrons reside at both local and remote locations and able to collaborate with other external patrons and libraries etc. Concerning to NI facilities, this study encompasses of Local Area Network (LAN) whether it is a dedicated or a part of campus network, media used, spread of campus network, Internet connectivity and bandwidth etc.

Table 4: Network Infrastructure Facilities @ NIT Libraries – Ranking

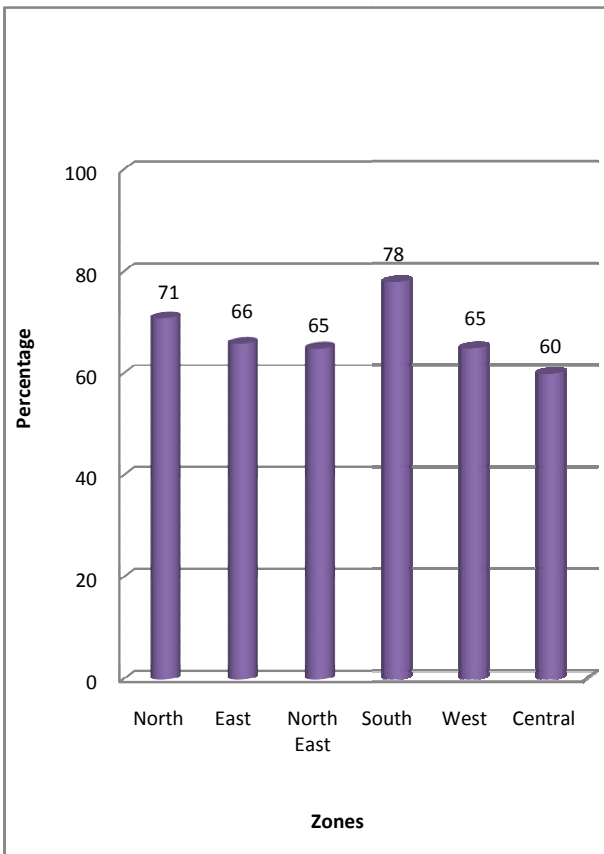
Libraries	Individual wise %	Zone wise														
MNNIT Allahabad	85.00	 <table><caption>Zone wise Network Infrastructure Facilities</caption><thead><tr><th>Zone</th><th>Percentage</th></tr></thead><tbody><tr><td>North</td><td>71</td></tr><tr><td>East</td><td>66</td></tr><tr><td>North East</td><td>65</td></tr><tr><td>South</td><td>78</td></tr><tr><td>West</td><td>65</td></tr><tr><td>Central</td><td>60</td></tr></tbody></table>	Zone	Percentage	North	71	East	66	North East	65	South	78	West	65	Central	60
Zone	Percentage															
North	71															
East	66															
North East	65															
South	78															
West	65															
Central	60															
NIT Hamirpur	85.00															
NIT Rourkela	80.00															
NIT Tiruchirapalli	80.00															
NIT Warangal	80.00															
NIT Calicut	75.00															
NIT Surathkal	75.00															
SVNIT Surat	75.00															
NIT Raipur	75.00															
NIT Jalandhar	70.00															
NIT Silchar	70.00															
NIT Jamshedpur	65.00															
NIT Srinagar	60.00															
NIT Durgapur	60.00															
NIT Patna	60.00															
NIT Agartala	60.00															
MNIT Jaipur	60.00															
VNIT Nagpur	60.00															
NIT Kurukshetra	55.00															
MANIT Bhopal	45.00															

Table 4 indicates that almost all NIT libraries have relatively similar NI facilities at both individual and group wise performance. However, the South zone (78%) libraries have better facilities while comparing to other zones.

10. ELECTRONIC RESOURCES (ER)

E-resources are prime ingredients and useful factors for the growth and development of the academia. Briefly, e-resources refer to information packages made available in digital format. This study consists of online journals databases (e-journals) searchable datasets (CD-ROM databases) learning resources (CD-ROM, audio/video cassettes), etc.

Table 5: Electronic Resource Facilities @ NIT Libraries – Ranking

Libraries	Individual wise %	Zone wise														
NIT Tiruchirapalli	100.00	<table><caption>Zone wise Electronic Resource Facilities</caption><thead><tr><th>Zone</th><th>Percentage</th></tr></thead><tbody><tr><td>North</td><td>64%</td></tr><tr><td>East</td><td>35%</td></tr><tr><td>North East</td><td>47%</td></tr><tr><td>South</td><td>75%</td></tr><tr><td>West</td><td>67%</td></tr><tr><td>Central</td><td>37%</td></tr></tbody></table>	Zone	Percentage	North	64%	East	35%	North East	47%	South	75%	West	67%	Central	37%
Zone	Percentage															
North	64%															
East	35%															
North East	47%															
South	75%															
West	67%															
Central	37%															
NIT Hamirpur	86.67															
SVNIT Surat	86.67															
NIT Jalandhar	80.00															
NIT Silchar	80.00															
NIT Calicut	80.00															
NIT Kurukshetra	73.33															
NIT Warangal	73.33															
MANIT Bhopal	66.67															
VNIT Nagpur	60.00															
MNNIT Allahabad	53.33															
NIT Rourkela	53.33															
MNIT Jaipur	53.33															
NIT Durgapur	46.67															
NIT Surathkal	46.67															
NIT Jamshedpur	33.33															
NIT Srinagar	26.67															
NIT Agartala	13.33															
NIT Patna	6.67															
NIT Raipur	6.67															

From the above Table 5, it can be seen that, about three fourth of libraries have more than 50% collections of e-resources (online journals databases, CD-ROM databases and audio and video cassettes) while one fourth libraries are at below average e-collections. With respect to zones performance, the South zone libraries are leading with a 75% followed by West (67%) and North (64%). Not many resources are available at North East, Central and East zones with the percentages of 47%, 37% and 35% respectively.

11. MANPOWER

Professional manpower is crucial and becomes an important component in the library paradigm. Patron expectations and their research needs are high. The new opportunities are created in the areas of processing, organizing, packaging information. Therefore, a professional expertise and competency is necessary to obtain new technological tools and techniques related to the library developments for making effective use of information. The main concern is not to evolve manpower but to acknowledge or uplift the skilled and qualified manpower for the purpose of managing library system and services.

In this study the professional manpower is one of the factors for evaluation of the NIT libraries. There are two categories of manpower has been considered one is professionals in Library and Information Science (LISc) and their qualifications and second one is non-professionals.

Table 6: Manpower Facilities @ NIT Libraries – Ranking

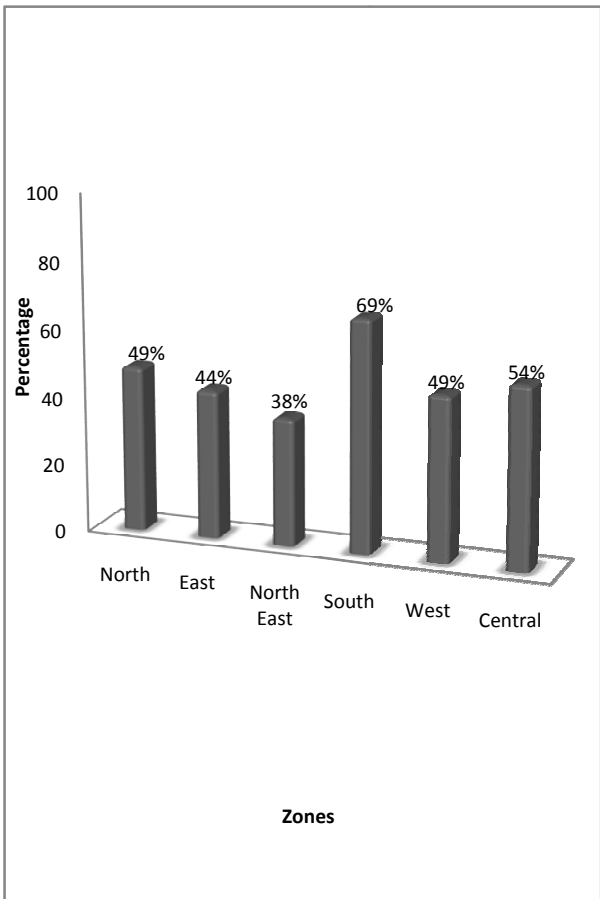
Libraries	Individual wise %	Zone wise
NIT Calicut	76.92	
NIT Warangal	76.92	
NIT Surathkal	69.23	
MANIT Bhopal	69.23	
NIT Srinagar	61.54	
NIT Durgapur	61.54	
NIT Hamirpur	53.85	
NIT Silchar	53.85	
NIT Tiruchirapalli	53.85	
VNIT Nagpur	53.85	
SVNIT Surat	53.85	
MNNIT Allahabad	46.15	
NIT Jalandhar	46.15	
NIT Jamshedpur	46.15	
NIT Rourkela	46.15	
NIT Kurukshetra	38.46	
MNIT Jaipur	38.46	
NIT Raipur	38.46	
NIT Patna	23.08	
NIT Agartala	23.08	

Table 6 presents that, fifty five percent of libraries have reported that they have more than 50% staff while 45% libraries have less than average staff. In considering the zone wise, the South zone (69%) is having more manpower, whereas, Central zone has 54% manpower. The other zones are almost equal in terms of having professional qualified manpower. The percentage of manpower for North, West, East and North-East are 49%, 49%, 44% and 38% respectively.

12. LIBRARY AUTOMATION (LA)

Automation is a buzz word applied ubiquitous. In the library setting, the phase of automation was forced in 1960s. Automation is one of the most important consequences for libraries in order to modernize their system, functions and services. In this study, the LA refers to degree of computerization whether it is fully or partially or in the process. It consists of various integrated library software, installation and management of library software and module functionalities such as acquisitions, cataloging, circulation, serials control, stock-verification and article indexing.

Table 7: Library Automation Facilities @ NIT Libraries – Ranking

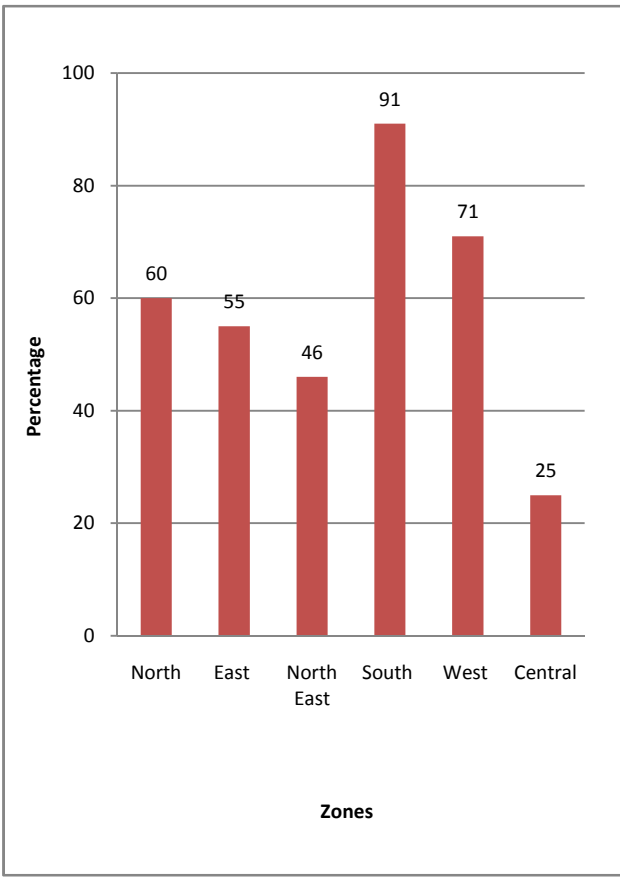
Libraries	Individual wise %	Zone wise														
NIT Calicut	100.00	 <table><tr><th>Zones</th><th>Percentage</th></tr><tr><td>North</td><td>60</td></tr><tr><td>East</td><td>55</td></tr><tr><td>North East</td><td>46</td></tr><tr><td>South</td><td>91</td></tr><tr><td>West</td><td>71</td></tr><tr><td>Central</td><td>25</td></tr></table>	Zones	Percentage	North	60	East	55	North East	46	South	91	West	71	Central	25
Zones	Percentage															
North	60															
East	55															
North East	46															
South	91															
West	71															
Central	25															
NIT Surathkal	100.00															
MNNIT Allahabad	85.71															
NIT Warangal	85.71															
SVNIT Surat	85.71															
NIT Rourkela	78.57															
NIT Tiruchirapalli	78.57															
VNIT Nagpur	78.57															
NIT Kurukshetra	71.43															
NIT Durgapur	71.43															
NIT Silchar	64.29															
NIT Srinagar	57.14															
NIT Jalandhar	50.00															
MNIT Jaipur	50.00															
NIT Jamshedpur	42.86															
MANIT Bhopal	42.86															
NIT Hamirpur	35.71															
NIT Patna	28.57															
NIT Agartala	28.57															
NIT Raipur	7.14															

Table 7 indicates computerization among NIT libraries. With respect to individual performance, about 70% libraries have automated their libraries at more than average level, while 30% were in the below average. Concerning to zones the South zone (91%) libraries have strong hold on it, whereas, West zone with 71% is distant second followed by North and East zones. Rest of the zones (North East and Central) was below average in performing library automation practices and activities.

13.NETWORKED SERVICES

NS are common in the library, used not only for exchange and share resources among patrons but also for transacting in-house functions and access remote databases. NS are viewed as electronic information services that patrons' able to access library resources residing both at local and remote site through a network media. Shim et al clearly indicate the definition of NS and their use in the library settings (Shim et al., 2001). Essentially, there are two types of services provided by the libraries through network: local and remote. In this study, the NS refer to all library transactions that patrons can do and services they can avail using computer and network technologies. The NS encompass electronic data interchange between publisher/suppliers for acquisition of library materials automated cataloguing for information search and retrieval, automated circulation for check-in, check-out, renewal, reservation, virtual reference for enquiring, electronic current awareness, online databases, Multimedia databases (CD-ROM, audio and video etc.), Electronic Theses and Dissertations (ETD), network communication services (Internet, e-mail, telephone, facsimile, video/teleconferencing and videotext/teletext), e-learning, e-publishing (e-news, blogs) Web-based

document delivery, support services etc.

Table 8: Networked Service Facilities @ NIT Libraries – Ranking

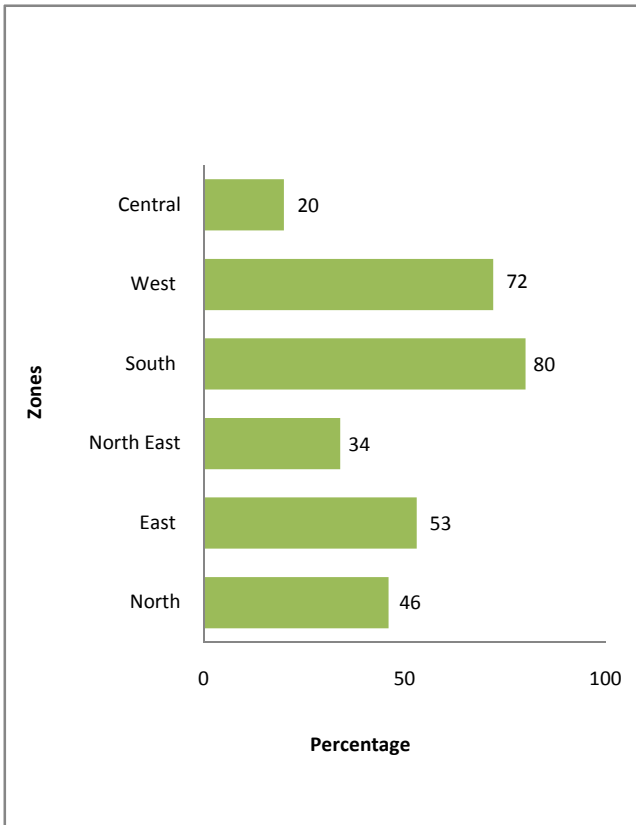
Libraries	Individual wise %	Zone wise														
NIT Calicut	92.00	 <table><caption>Zone wise Performance Data</caption><thead><tr><th>Zones</th><th>Percentage</th></tr></thead><tbody><tr><td>Central</td><td>20</td></tr><tr><td>West</td><td>72</td></tr><tr><td>South</td><td>80</td></tr><tr><td>North East</td><td>34</td></tr><tr><td>East</td><td>53</td></tr><tr><td>North</td><td>46</td></tr></tbody></table>	Zones	Percentage	Central	20	West	72	South	80	North East	34	East	53	North	46
Zones	Percentage															
Central	20															
West	72															
South	80															
North East	34															
East	53															
North	46															
NIT Tiruchirapalli	84.00															
NIT Rourkela	80.00															
NIT Surathkal	76.00															
VNIT Nagpur	76.00															
NIT Durgapur	68.00															
NIT Warangal	68.00															
SVNIT Surat	64.00															
NIT Silchar	60.00															
MNIT Jaipur	60.00															
NIT Kurukshetra	56.00															
NIT Jamshedpur	52.00															
NIT Jalandhar	48.00															
MNNIT Allahabad	44.00															
NIT Srinagar	44.00															
NIT Hamirpur	40.00															
MANIT Bhopal	36.00															
NIT Patna	12.00															
NIT Agartala	8.00															
NIT Raipur	4.00															

Table 8 projected the NS offered by the NIT libraries on individual and zone wise. Majority of services were provided by 60% libraries whereas, 40% libraries reported that they have limited services. Concerning to the zones performance, the South zone (80%) is much ahead of other zones, followed by the West zone with a percentage of 72. The East zone (53%) is moderate and followed by the North zone is 46%. Whereas, the North East (34%) and the Central zone (20%) is below the average in this context of catering these services.

14. CONCLUSION

In this study, NIT libraries play significant contributions towards development of their institutes individually and zone wise. Provisions of multiple facilities would certainly create a value for the institute to plan, implement and manage high quality, efficient and sustainable teaching and learning environment. The NIT libraries are not only in need of building a resource base but also a need of technical hub to access, share, serve and support the academic communities. Despite handicap of workforce, libraries are trying hard at various capacities to improve academic productivity. However,

strategic plans, processes and management approaches will certainly enrich the libraries for meeting best academic and research needs.

15. REFERENCES

- [1] Abdullah, A.H., & Gay, Btiau (1994). Implementing an interface to networked services. *ACM*, 25–33.
- [2] Breeding, M. (2006). Knitting systems together. *Computers in Libraries*, 26(9), 32-5.
- [3] Brophy, Peter (2001). Electronic library performance indicators: the Equinox project. *The EQUINOX Project*, 14(1).
- [4] Carrigan, Dennis P. (1988). The political economy of the academic library. *College & Research Libraries*, 49, 325-33.
- [5] Devi, Th. Purnima & Kh. Surchand Singh (2006). Role of UGC in manpower development in the field of library and information science in India. *Annals of Library and Information Studies*, 53, 143-148.
- [6] Franklin, Brinley, & Terry Plum (2006). Successful Web survey methodologies for Measuring the Impact of Networked Electronic Services MINES for libraries. *IFLA Journal*, 32(1), 28-40.
- [7] Goodall, D.L. (1988). Performance measurement: a historical perspective. *Journal of Librarianship*, 20(2), 128-144.
- [8] Lakos, Amos (1997). Assessment of library networked services: issues and options. *Proceedings of Ontario Library Association Super Conference*, Toronto, February 7, 1997, Ontario, Ontario Library Association.
- [9] O'Farrell, Jack (1998). The ISO 11620 standard and library automated systems, *New Library World*, 99(6), 254-259.
- [10] Patra, Chandana (2006). Introducing e-journal services: an experience. *The Electronic Library*, 24(6), 820-831.
- [11] Shim, Wonsik Jeff et al. (2001). Measures and Statistics for Research Library Networked Services: ARL E-Metrics Phase II Report. *Association of Research Libraries*, 219, 8-9.
- [12] Srinivasa Rao, Y., & Choudhury, B.K. (2010). Networked services of NIT libraries in India: a study, *Library Collections, Acquisitions, & Technical Services*, 34(4), 105-114.
- [13] Zhen W. (1996). Network in the library information services. *Networking and Implications for Digital Libraries Proceedings of the 17th Annual IATUL Conference Networks*, 24-28 June 1996, Irvine, CA.

●●●