

Does The “Sri Lanka Scientific Technical Information Network” (SLSTINET) Stands To Serve The Expectations Of Its Network Members: A Critical Evaluation

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Abstract

This research paper examine whether the “Sri-Lanka Scientific and Technical Information Network” (SLSTINET) stands to serve the member institutions to meet the expectations of them. The evaluation of the SLSTINET was conducted based on its objectives and selected criteria. The Likert's Method of summated stating has been used to measure the objectives statement of the SLSTINET. The effectiveness of the SLSTINET has been assessed by using chi-square test with 95% confidence level. The structured questionnaire was used for this study. This survey covering all the participants of the network, yielded a rich set of data on which statistical analysis was done.

The study has found out the effectiveness of the SLSTINET is as 59.13%± 4.24% at 95% confidence level. As its effectiveness is found above 50%, so it is recommended to continue the network as worthwhile in the light of the recommendations given in this research study.

Keywords: *Library networks, Information network, Evaluation of Library networks, Scientific information, SLSTINET*

Introduction

The SLSTINET is a kind of combination of directed and non-directed network of 98 Scientific and Technical libraries which have a common interest in the field of Science & technology in Sri-Lanka with Sri-Lanka Scientific & Technical Information Centre (SLSTIC) of the National Science Foundation (NSF) as the Coordinating Centre.

The scope of the SLSTINET is to provide cooperative services and sharing & exchanging library materials, expertise and equipments for the economic use of the available resources for the betterment of the user community.

SLSTINET organized several training and workshop programme for the personnel development of the librarian and their user community. It also formulated standards and norms in order to have system of exchanging resources and information among the participants. SLSTIC has undertaken to publish home pages for the participants of the network. SLSTINET organized corporate programme for its development.

The SLSTINET has been serving its users continuously for the last 25 years since 1977 to-date, and thus having plenty of opportunities to offer better services. It was therefore felt useful to evaluate its performance in the context of networking activities and services to determine whether SLSTINET remains effective and that it responds to the needs of the users, which it serves.

The evaluation of the SLSTINET is important in order to obtain an objective outside view on the extent to which SLSTINET has succeeded in meeting its goals, and to derive recommendations, based on the findings. It will facilitates the development and improvement of the system, if it will judged worthy of continues. This study may also reveal the shortcomings and ways to promote its activities to make the SLSTINET an effective system.

Background of the study

Availability of Scientific Information in Sri-Lanka is scattered in several places or sources. Information available in the country is not conveniently organized for easy access.

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Hence users find it difficult to obtain the needed and relevant information from a single source. To solve this problem, the SLSTINET was formed to access indigenous and foreign generated Scientific Information, needed to support research and development work countrywide.

Since 1977 for over twenty years now, SLSTINET has been active and been involved with various activities to satisfy the information needs of the user community by sharing and exchanging the information among them. It has been found that periodical evaluation of the original goals, purposes, objectives, and standards of such activities are valuable to measure the performance with a view to improve the effectiveness of them. “Effectiveness must be measured in terms of how well a service satisfies the demands placed upon it by its users.” (Lancaster, 1979)

The importance of evaluation is emphasized by (Ruth, 1972) as

“there are various points in time when evaluation can or must be done. At the time of planning the purposes and objectives for which a consortium is being established, the members should evaluate the potential benefits they expect to receive; after (and during) ongoing operations, evaluation can improve system operation; at the time when a consortium is considering expanding or modifying its activities or planning new ones, evaluation is again a necessary procedural step. Thus, as the consortium operates it requires constant evaluation in terms of its original purposes and its evolving goals.”

Evaluation is therefore a key concept, underlying the development and improvement of any kind of Library and information services, the justification of the value of these systems, the appreciation by both operators and users of the potential and limitations of their systems and services, and the development of an increasing ability, again for both operators and users, to get the best out of their systems.

Statement of the Problem and Its Significance

The SLSTINET has been continuously operating for the last 25 years since its inception in 1977 by providing scientific and technical information services to its users to satisfy their information needs. There is no any in-depth study done so far to evaluate resource sharing and networking of the SLSTINET, though it is an important area, which should be done periodically. It is therefore necessary to find out to what extent the SLSTINET fulfilled its objectives and goals. It is also necessary to re-organize the network in the areas which needs improvement in considering the weaknesses in the system as stated (William, 1992) “The evaluation is an appropriate part of system design and current operation and is an important factor in identifying areas for improvement.”

Therefore, the evaluation help the network body to determine whether specified goals and objectives of the network have been achieved or not and reveals the weaknesses in the system.

Evaluation is the only means of ensuring an in-depth knowledge of what the SLSTINET actually does and how it is best used. Evaluation is therefore an important tool that denoting the limitation and weakness in the system and underlying the development and improvement of the network.

Hence this study will portray the present status of the SLSTINET in the context of networking activities and services to see whether SLSTINET remains effective and that it responds to the needs of the users, which it serves.

Objectives

The study has examined the following specific objectives;

01. To evaluate the existing resource sharing and networking model and its contribution in fulfilling the objectives of SLSTINET.

02. To evaluate SLSTINET on the view of its members, based on the criteria for the evaluation of Library Networks..
03. to propose an improved model that could significantly contribute to the overall success of the SLSTINET.

Research Questions

In this research study, several research questions were used to gather data to cover each specific objective so that comprehensive answers to them could be provided. Research questions are as follows:

1. Does the SLSTINET fulfill the collective goals and objectives for which it was established?
2. Is SLSTINET an effective network?

These questions have been taken into consideration and answers were found in analytical way.

Selection of the Study Area and Population

The member institutions of the SLSTINET are purposively selected as the study area. This includes Science faculty libraries of the universities, libraries of the Scientific & Technical research institutions and other libraries having Scientific & Technical collection. All participating librarians of the SLSTINET were taken as the study population.

Review of Literature

History of Library Networks

(Jayasuriya, 1999) brief the network initiatives in Sri-Lanka as

“Traditionally there have been a high level of formal cooperation in the academic and special library sector. Most of the cooperative networks were organized to improve the availability of books and journals through inter-lending. More recently bibliographic networks have been organized to share bibliographic and other records. Networks have been in

existence in the country during the last two decades.”

(Yapa, 1998) denotes the history of library co-operation in Sri Lanka as,

“the library co-operation took place in Sri Lanka on personal basis. A librarian had to contact a colleague librarian personally to obtain a document or to organize a service. Sri Lanka Scientific and Technical Information Centre (SLISTIC) of the National Science Foundation was the first organization, which initiated and formalized library co-operation in Sri Lanka.”

(Korale, 2000) describes the history of the Sri Lanka Library Networks as

“ By the 1980s it had been realized that co-operation alone is ineffective and insufficient and that the commitment and organizational infrastructure has to go beyond that of the informal co-operation that existed. The desire was to change from library co-operation to networking which was a response to an acknowledgement of the impact of technology on society in Sri Lanka, the faster people. In the decade of the 1980s was Sri-Lanka on the verge of entering this wide and expanding area of co-operation reaching beyond the traditional bounds to services of Library networks.”

Evaluation of Library & Information Network

(Besemer, 1987) describes the evaluation of library networks, emphasizing the need for evaluation to include both formal/ quantitative and informal/ qualitative factors.

“The former include such criteria as number of loans requested, success rate etc. The latter would include such thing as; degree of autonomy and authority of the network and its member, qualifications of the system administrators, breadth of service offered, accessibility and awareness of services to participating libraries, financial stability of the networks etc.”

(Chin, 1982) has given a comprehensive model for evaluation of library networks in providing information to the public, very much in the evaluation research style, and emphasizing qualitative factors.

(William, 1977) discusses the criteria for evaluation of library networks at a length at a conference in the USA in 1976. He suggested that some factors such as

“reliability, flexibility, accessibility, availability, acceptability, efficiency, effectiveness and quality control. These factors are considered from both internal and external points of view along the technical and behavioral / social dimensions.”

(Montague, 1979) also discusses the evaluation of network design and performance in details in the same conference.

(Rouse, 1979) also relates the problem of performance criteria for library network to the formulation of sound measures of the effectiveness of individual libraries in the conference.

(Sewell, 1981) denotes that

“although these factors were considered primarily from the point of view of computer-based resource sharing networks, many factors are relevant to resource sharing system of various kinds, particularly in their behavioral and economic aspects.”

Research Methodology

Data-Gathering Activities

The data for the research study generated using Survey Research Method.

The researcher collected qualitative and quantitative data through structured questionnaires, Interview and Records available in the library, in this study.

Research Design - Evaluation Based on Criteria

Four criteria such as **use, usefulness, reliability (improved resource sharing) and awareness** were selected as variables

to evaluate the SLSTINET on the eye view of the participants. Equal weight was given to these four variables that determine the effectiveness of the SLSTINET.

The study has taken the assumption that “If the SLSTINET is an effective network, the participants of the network should be satisfied on these variables”, because the evaluation of the network here was studied based on these criteria. The participants were asked to weigh each variable 1,2,3,4 respectively according to their opinion. The minimum possible summated value of a participant on these four variables is 04 and maximum possible summated value of a participant on these four variables is 15. In this study, the summated value of 04 is considered as 100% effectiveness where as 15 is considered as 0% effectiveness.

The sum value of each questionnaire was calculated. Then these values of a particular respondent were converted into effectiveness per-centage by using formula prescribed below.

Max. possible sum value of the variables
– **Individual’s summated value X 100**

% Effectiveness of individual = $\frac{\text{Individual's summated value}}{\text{Max. possible sum value of the variables}} \times 100$

Max. possible sum value of the variables
– **Min. possible sum value of the variables**

The individual % effectiveness of the respondents was pooled and analyzed to the overall effectiveness of the SLSTINET, using the one sample t test at 95% confidence level.

The study also found the effect of the variables like “usefulness, improved resource sharing and awareness” on the “use” of the SLSTINET by investigating the association between the use of the SLSTINET and other 03 variables separately.

The association among the variables was tested using chi-square statistical method. The statistical software “Minitab version 11.12 was used for this purpose.

Research Design - Evaluation Based on Achieving the Objectives

The Likert's Method of summated stating was used to measure these objectives statement. The participants of the networks responded to each statement with strongly agree, agree, don't know, disagree and strongly disagree. The responses collected to a questionnaire were weighed 5,4,3,2 & 1, respectively from strongly agree through strongly disagree. The total score was retained for the final scale.

Presentation, Analysis & Interpretation of Data

Evaluating SLSTINET in Achieving the Objectives

The effectiveness or efficiency for the individual whose expectation of the network have been met, the network is effective whether or not the network has met its stated goals and objectives or produced the stated outputs.

This study therefore rates its objectives. The primary purpose of estimating these statements was to obtain respondents' assessment of the importance of a number of key objectives of the SLSTINET.

Co-operate Objective Number 01: "SLSTINET have supported tremendously, the building of an effective information infrastructure in the field of Science & Technology". Fifty five (55%) of the respondents supported this objective and agreed. Out of 55%, the 2% of them supported this statement as very strongly. 24% of the respondents rejected this statement and felt that SLSTINET have not supported tremendously, the building of an effective information infrastructure in the field of Science & Technology. 11% of the respondents do not know about this objective statement.

Co-operate Objective Number 02: "SLSTINET have taken the leadership in the organization of information on the Science & Technology subset of the national information super highway". There was near consensus among the respondents (51%) of the respondents

supported and said they have achieved the second objective. 20% of the respondents rejected this statement. 19% of the respondents do not know about this second objective of the SLSTINET.

Co-operate Objective Number 03: "SLSTINET have helped end users to define their needs, learn to use the available system and gain access to the information they need". The survey respondents also expressed uncertainty about the role of SLSTINET in helping end users to define their needs, learn to use the available system and gain access to the information. Only 21% thought that SLSTINET have helped end users to define their needs, learn to use the available system and gain access to the information. And 55% responded oppositely. But 14 % of them do not know about the objective statement number 03.

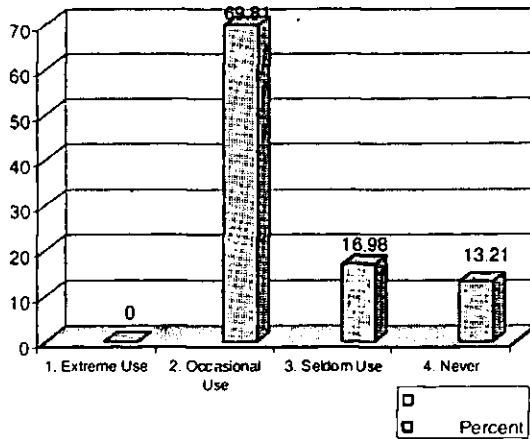
Co-operate Objective Number 04: "SLSTINET facilitated to share resources available at member libraries." Finally, approximately 75% of the respondents were agreed. 75% agreed that SLSTINET facilitated to share resources available at member libraries. 3% of the respondents said that they do not know about the participation of the SLSTINET in resource sharing among them. 12% of the respondents thought that SLSTINET have not facilitated to share resources available at member libraries.

Evaluating SLSTINET based on the criteria

The study evaluates SLSTINET based on 04 variables (criteria) such as **use, usefulness, reliability (improved resource sharing)** and **awareness** on the view of the participants.

Use

To find out the frequency of use of SLSTINET by the members, the question was designed as "use of SLSTINET in your library" and the four types of categorized answers were given and requested the members to tick off relevant to the particular institution viz: 01.Extreme Use, 02. Occasional Use, 03.Seldom & 04.Never. The results of the questions are summarized as follows in figure 01.

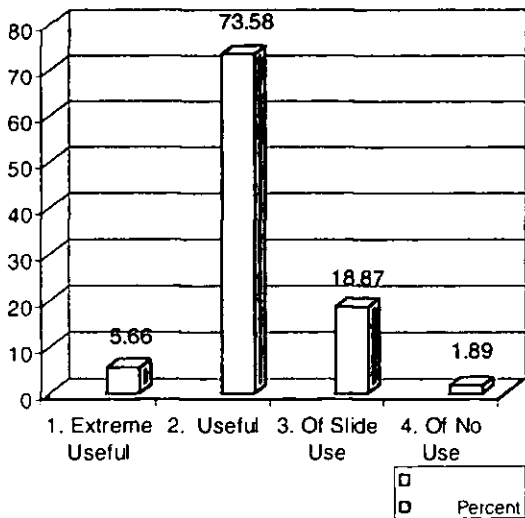


None of them reported that they use the SLSTINET extensively. 69.81% of the respondents use the SLSTINET occasionally. 16.98% of the respondents use the SLSTINET seldomly. 13.21% of the respondents indicated that, they never use the SLSTINET

Usefulness

The criteria usefulness will portray whether the information services provided by the SLSTINET are useful or not to members. The members were requested to answer the question on “Would you judge the information supplied to you by the SLSTINET to be “and the four types of categorized answers were given as;:

01. Extremely useful, 02. Useful, 03. Of slight use & 04. Of no use. The results of the question are summarized as follows in figure no. 2.



5.68% of the participants mentioned that the information provided by the SLSTINET is extremely useful.. The majority of them

(73.58%) reported that the information supplied by the SLSTINET is useful. The 18.87% of the participants said that of slight use. One participant reported that, the information supplied by the SLSTINET is of no use. Almost all the respondents except one stated that the information supplied by the SLSTINET is useful like extremely useful, useful and slight use.

Improved Resource Sharing (Reliability)

The aim of the question was to find out whether the members find improvement in resource sharing activities among the scientific and technical libraries after joining the SLSTINET.

“Do you find improvement in resource sharing among you and other scientific and technical libraries after joining the SLSTINET?” The members were requested to answer the question: 01.Highly improved , 02.Moderately improved, 03.Little improved & 04. Never

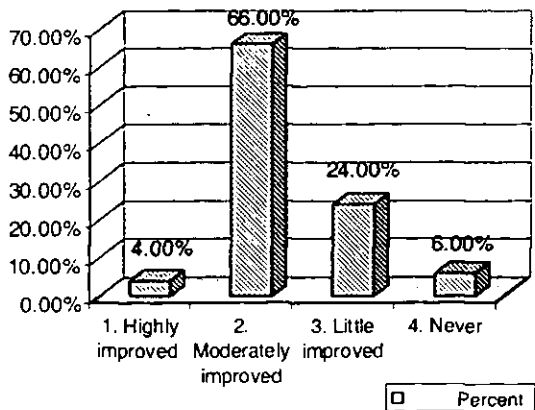


Figure 03 – Improvement in Resource Sharing in SLSTINET Libraries

The majority of SLSTINET revealed that the resource sharing activities among the Scientific and Technical libraries has improved after joining the SLSTINET. Out of that only 04% of the respondents denoted that their resource sharing activities have highly improved after joining the SLSTINET. The majority of them (66%) reported that their resource sharing activities have only moderately improved. While 06% of them denoted that no improvement even after joining the SLSTINET.

Awareness

The results reveal the awareness of members about the products and services of SLSTINET. The question was designed as “awareness of SLSTINET in your library”? The three types of categorized answers were given as: 01. Completely,

02. Partially & 03. Never. The results of the questions are summarized as follows in figure 04.

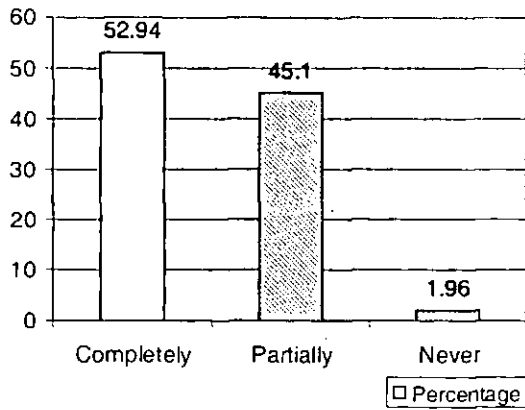


Figure 04 – Awareness about SLSTINET Activities

The majority of the respondents (52.94%) revealed that they completely aware of the products and services of the network. 45.10% stated that they only partially aware of the products and services of the network While 02% of them did not know about the products and services of the SLSTINET.

Association between Discrete Variables Use versus Usefulness

The results of the association between variables use and usefulness are summarized as follows in table 01. The interesting finding of this study was that the never users (28.57%) too reported that the SLSTINET is an extremely useful network. The majority of the never users (85.72%) feel that the SLSTINET is a kind of useful network (extremely use, useful, of slight use). The only 14.29% of the never users said that the SLSTINET is not useful for them.

Table 01: Association between Variable – Use & Usefulness

Use of SLSTINET	Usefulness of SLSTINET			
	1	2	3	4
Extremely Use	00%	00%	00%	00%
Occasional Use	2.78%	86.11%	11.11%	00%
Seldom Use	00%	44.44%	55.56%	00%
Never	28.57%	42.86%	14.29%	14.29%
All	5.77%	73.08%	19.23%	1.92%

Coding for Usefulness

1 - Extremely useful, 2 – useful, 3 - Of Slight Use, 4 - Of no use

Use versus Improved Resource Sharing

The results of the association between variables use and improved resource sharing are summarized as follows in table 02. The study portray that the resource sharing activities of occasional users is improved after joining the SLSTINET.

Where as, the seldom and never users stated that their resource sharing activities is **only little improved**.

Table 02: Association between Variable – Use & Reliability

Use of SLSTINET	Usefulness of SLSTINET			
	1	2	3	4
Extremely Use	00%	00%	00%	00%
Occasional Use	2.78%	80.56%	16.67%	00%
Seldom Use	00%	37.50%	37.50%	25.00%
Never	20.00%	00%	60.00%	20.00%
All	4.08%	65.31%	24.49%	6.12%

Coding for Reliability

1 - Highly improved, 2 - Moderately improved, 3 - Little improved, 4 - Never

Use versus Awareness

The results of the association between variables use and awareness are summarized as follows in table 03. Occasional and seldom users are aware of the SLSTINET completely

or partially, where as 20.00% of the never users do not aware of the networking products and services of the SLSTINET at all. 80.00% of the never users know about the networking products and services of the SLSTINET.

Table 03: Association between Variable – Use & Awareness

Use of SLSTINET	Usefulness of SLSTINET		
	1	2	3
Extremely Use	00%	00%	00%
Occasional Use	50.00%	50.00%	00%
Seldom Use	62.50%	37.50%	00%
Never	60.00%	20.00%	20.00%
All	53.06%	44.90%	2.04%

Coding for awareness

1 – Completely, 2 – Partially, 3 - Never

Conclusion

Evaluating the SLSTINET in Achieving the Objectives

The study concludes that the SLSTINET provided opportunities for the members in achieving the corporate goals of the SLSTINET. The respondents did not agree only with the third objective that is; “SLSTINET have helped end users to define their needs, learn to use the available system and gain access to the information they need”.

The SLSTINET members have agreed on other three objectives, as follows

- i. SLSTINET has supported tremendously, the building of an effective information infrastructure in the field of Science & Technology
- ii. SLSTINET has taken the leadership in the organization of information on the S & T subset of the national information super highway

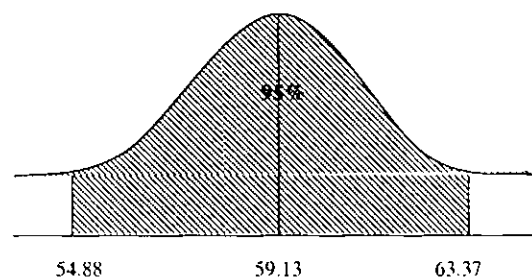
- iii. SLSTINET facilitated to share resources available at member libraries

The majorities of participants believe SLSTINET's success in facilitating information and in contributing to the achievement of the goals of the SLSTINET, on which it was evolved, justify its existence and revealed that the SLSTINET is an effective network.

Evaluation of Effectiveness of the SLSTINET based on the Criteria

The study found out the effectiveness of the SLSTINET is $59.13\% \pm 4.24\%$ at 95% confidence level. Therefore 95% of the population of the respondents says the SLSTINET is between 54.88% to 63.37% effective. Therefore the effectiveness of the SLSTINET is laid between 54.88 to 63.37 ($p=0.05$).

The effectiveness is more than 50%. The study therefore concludes that the SLSTINET is an effective network.



The association among the variables was tested and found that there is no effect of these variables on the use of SLSTINET. Even the members who do not use the network (never users) believed that SLSTINET is not only a useful network but also promoting resource sharing between the Scientific and Technical libraries. They also know about the products and services of SLSTINET.

Recommendation

The study recommends that the objectives of the SLSTINET should be revised for further improvement according to the current trend. The Vision statement, Long range goals, Short range goals & Annual objectives have also to be formulated.

It is recommended that focal points should prepare an annual review of their progress towards the achievement of the goals. The SLSTINET can be re-structured as a really effective network, if each of the Librarians takes the responsibility with clear and hard look in achieving the goals. The co-ordinating centre should also evaluate the products and services periodically.

Development of the SLSTINET

The SLSTINET member institutions are not scattered everywhere in Sri-lanka. Besides, 76 of them are located in and around Colombo. On the other hand 17 institutions are located in and around Peradeniya. Apart from these, it is observed the 05 institutions are found in Matara Distret. Also it is to be noted that Jaffna University in the Northern Province and the Eastern University in the East. All this time it is the SLSTIC of NSF that has been co-ordinating the SLSTINET. It is found that this co-ordination is very difficult as the Institutions are too many and scatted and located far away. Taking into consideration of the above facts the study proposes for re-structuring the network system into 03 major regional centres of the SLSTINET. The University of Colombo Library, Moratuwa and Peradeniya have been proposed for these regional centres.

University of Colombo Library

The Library of the University of Colombo is proposed as one of the Regional Centre, to co-ordinate the Institutions interested in seeking scientific information based in Colombo, as this Library forms the resourceful and full-fledged Library, having large number of Books and Periodicals in Science, other resources and manpower.

This Library also located in the Centre for other SLSTINET Libraries based in Colombo.

University of Moratuwa Library

The Library of the University of Moratuwa is proposed as one of the Regional Centres to co-ordinate the Institutions interested in seeking Technical information based in Colombo, as this Library forms the resourceful and full-fledged Library, having large number

of Books and Periodicals in Technology, other resources and manpower. This is the leading Library in Sri-lanka providing Technical Information and services.

University of Peradeniya Library

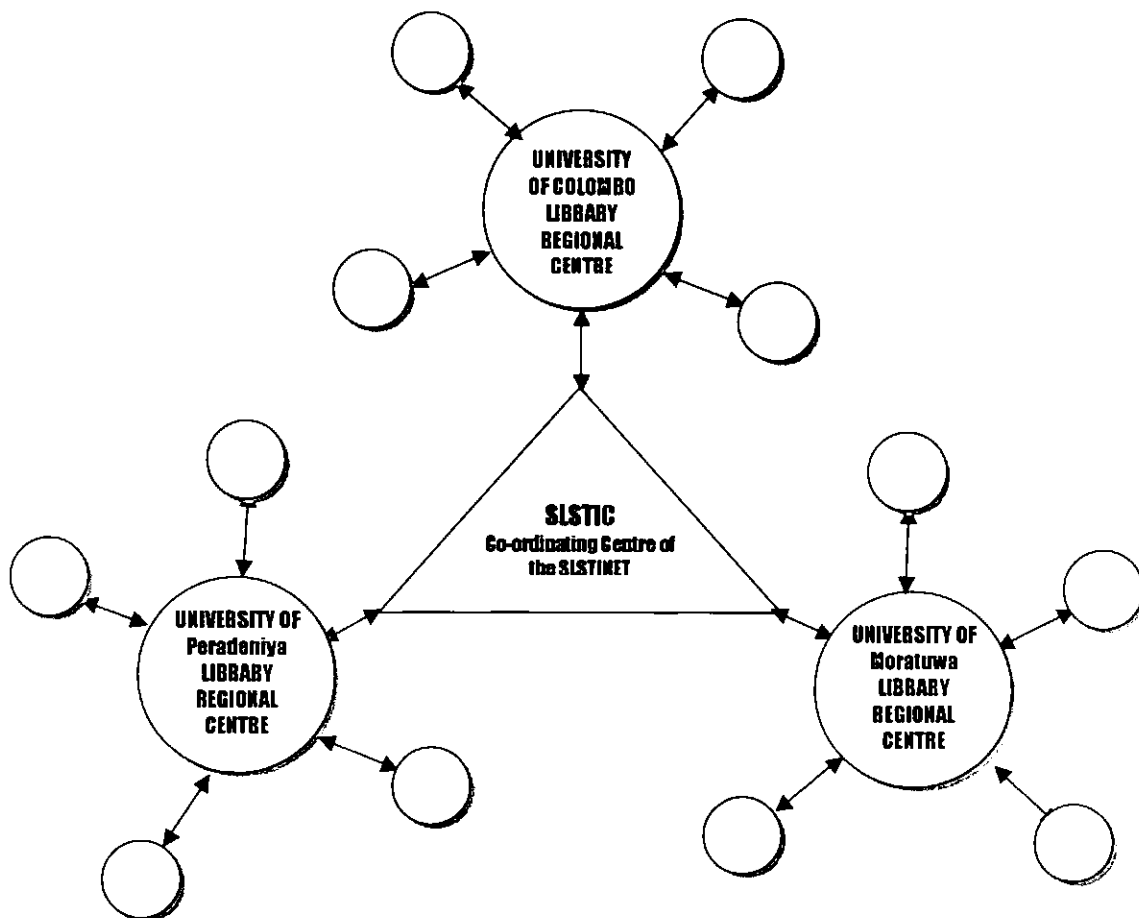
The Library of the University of Peradeniya is proposed as one of the Regional Centre for the Institutions in the Kandy district, Eastern and Jaffna as it is conveniently located for these institutions. This Library co-ordiante these institutions interested in both Scientific & Technical Information, as it is the biggest and full-fledged Library in the Island having large number of Books and Periodicals in Science & Technology, other resources and manpower.

Focal - Point and Regional Centres

The SLSTIC will be the Co-ordinating Centre or focal point of the Network. It will have a direct contact with these regional centres periodically and also monitor the activities of the network. The three regional centre of the SLSTINET are co-ordinated by the National focal point- the SLSTIC. The diagramme

shows a clear picture as to the relationship among them and their interaction of co-ordination for better exchange of resources and services.

In short, the final recommendation, for effectiveness of the network has direct relevancy upon the view of the UNESCO for making Library & Information Network effective that is “The effectiveness of network operation is determined to a great extent by the members’ level of commitment to the network’s goals, the extent by which the members are made aware of one another’s activities, the compatibility of the information systems and services of members, the design of co-operative working arrangements to develop and strengthen information flow among members, and the support extended to the network by members and / or their parent organizations or by the government agencies to which they report, However, the most important factor is the members’ perception of network benefits and how these benefits can offer the cost of their membership in the network”.



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