

Barriers in the Preservation and Conservation of Palm leaf Manuscripts in Thailand and Tamil Nadu: A Survey

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Abstract

Palm leaf manuscripts are an ancient document form that comprises a significant documentary heritage. The literary treasures of ancient India and Thailand contained in the manuscripts were preserved in the houses of learned scholars, gurukulas, Buddhist monasteries, temples, padasalas, ashrams, other religious monasteries, temples, vihars and royal palaces who were patrons of art, culture and literature. This paper presents the survey of palm leaf manuscript libraries in Tamil Nadu (Chennai region) and Thailand (Mahasarakham province). A total of 13 palm leaf centres in Mahasarakham province has been considered for the study. In Chennai district of Tamil Nadu, nine Manuscript libraries are functioning. These libraries are mostly managed by religious and private institutions and a few are run by the State and Central Governments. It also focuses on the barriers such as infrastructural, financial, manpower, administrative, and physical facilities in the way of preservation and conservation of palm leaf manuscripts. Based on the survey, a few suggestions are given.

Keywords: Palm leaf manuscript libraries; Preservation; Conservation; Tamil Nadu; Thailand; Survey.

Introduction

Palm leaf manuscripts are an ancient document form that comprises a significant documentary heritage of the Isan people of Northeastern Thailand. These materials contain a vast amount of knowledge that can be classified into eight categories: Buddhism, tradition and beliefs, customary law, economics, traditional medicine, science, liberal arts, and history. Seventy percent of the content recorded in these palm leaf manuscripts consist of Buddhist stories and doctrine; the other 30% record local wisdom in the form of folktales, diaries, poems, ethics, customary law, rites and rituals. The literary

treasures of ancient India and Thailand contained in the manuscripts were preserved in the houses of learned scholars, gurukulas, Buddhist monasteries, temples, padasalas, ashrams, other religious monasteries, temples, vihars and royal palaces who were patrons of art, culture and literature. Several important manuscript libraries were destroyed by foreign invaders.

Palm Leaf Manuscript Libraries in Thailand and Tamil Nadu

In Mahasarakham province of Thailand, palm leaf MSS are available mostly in Buddhist temples and a few research institutions maintained by the universities. A total of 13 palm leaf centres in Mahasarakham province has been considered for the study (Table 1). In Chennai district of Tamil Nadu, nine Manuscript libraries are functioning (Table 2). These libraries are mostly managed by religious and private institutions and a few are run by the State and Central Governments.

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Table 1: Background Information about the Manuscript Libraries in Mahasarakham

S. No	Name of the Manuscript Library / Museum	Address	Nature of Institution	Administrative Head	Type of Access	Library Building	Library Fund
1	Palm leaf preservation in North Eastern Thailand (PPNET)	MSU, New Campus Library	University	Director	Open Access	Own Building	Govt.
2	The Research Institute of North eastern Art and Culture (RINAC)	Mahasarakham University, Old Campus	University	Director	Open Access	Own Building	Govt.
3	Pra Ariyanuwat Khemajaree Museum of Palm Leaf Manuscripts (PAKML)	Tald sub district, Muarng Dist, Mahasarakham	Religious Community	Director	Open Access	In Building	Institution
4	Buddapad di temple (BDT)	Chengkeuen Dist	Religious Community	Monk	Open Access	In Building	Donations & Self Financing
5	Thong Nophakun Temple (TNT)	Palan Subdist, Phykkaphum dist,	Religious Community	Monk	Open Access	In own Building	Donations
6	Sri Somporn Museum (SSM)	Chiang Yuen Dist	Religious Community	Monk	Open Access	In Own Building	Donations
7	Khorthi Nono Muang Temple (KNT)	Nong-Muang Village, Nachuak Sub dist & dist	Religious Community	Monk	Open Access	In Own Building	Donations
8	Phosri Cwiang Hian Temple (PHT)	Chiang Hian, Khwao sub dist	Religious Community	Monk	Open Access	In Own Building	Donations
9	Brama Prasad Temple Library (BTL)	Nong Um Village, Kanthrwachi Dist	Religious Community	Monk	Open Access	In Own Building	Donations
10	Tam Yaa Village Temple (TYT)	Kantrvijaya Dist Kanthrwachi Dist	Religious Community	Monk	Open Access	In Own Building	Donations
11	Sawang Dusit Temple (SDT)	Kantrwachi Dist	Religious Community	Monk	Restricted Entry	In Own Building	Donations
12	Phra Phuttha Mongkhom Museum (PMM)	Kantrwachi Dist	University	Monk	Open Access	In Own Building	Govt
13	Kasoin Charempoon Temple (KCT)	Makha Village	Religious Community	Monk	Open Access	In Own Building	Donations

Background Information about the Manuscript Libraries

The data in tables 1 and 2 provide information about the MSS libraries under

survey. It is observed from Table1 that out of 13 MSS libraries three are maintained by the university namely Mahasarakham University and the remaining ten are part of Buddhist

Table 2: Background Information about the MSS Libraries in Chennai

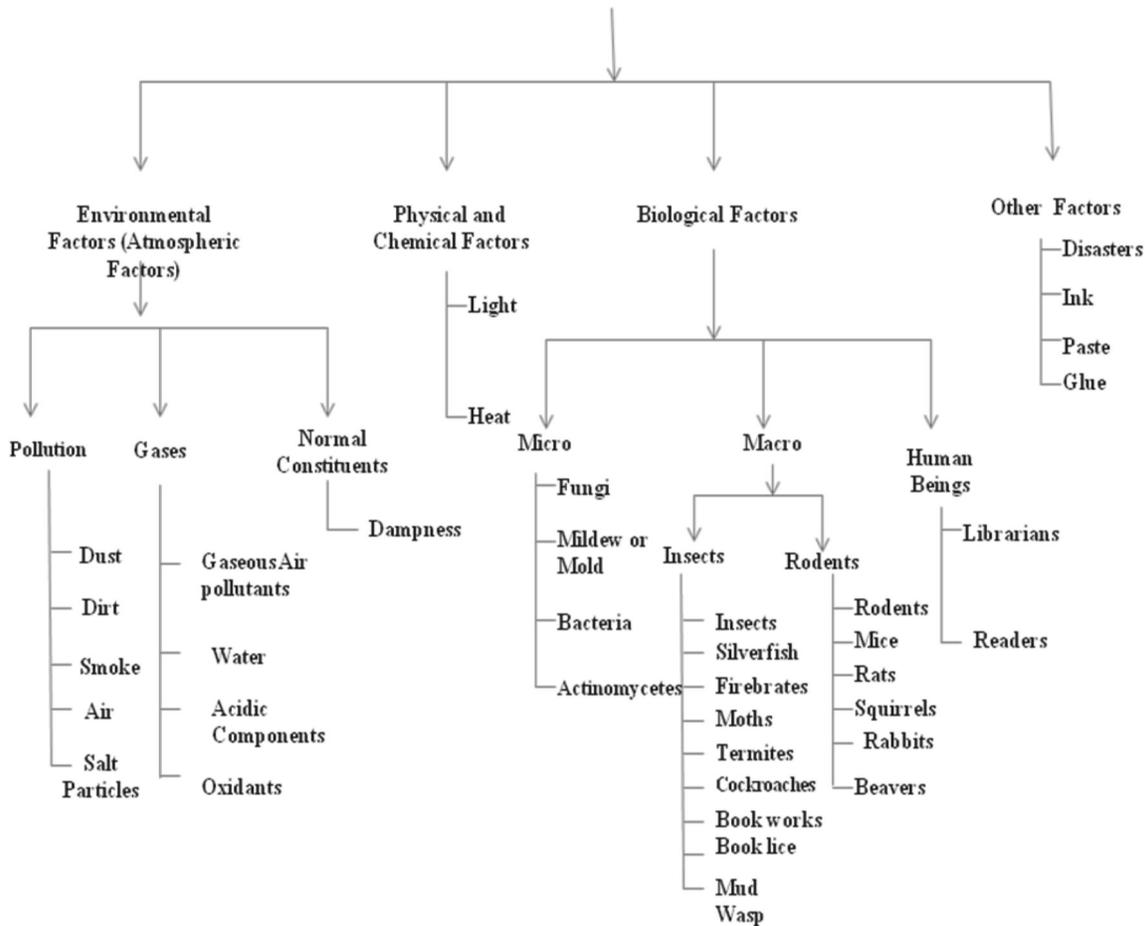
S. No	Name of the Library	Address	Year of Estd.	Nature of Institution	Head	Type of Access	Library Building
1	Sri Ramakrishnan Mutt Library (SRML)	31, Ramakrishna Mutt Road, Mylapore	1897	Religious Community	Swamiji	Open	Own land with own building
2	Government Oriental Manuscripts Library and Research Centre (GOMLR)	University of Madras, Chepauk	1869	Government	Curator	Open	Other's building
3	Adyar Library and Reference Centre, Theosophical Society (ALRC)	Adyar	1886	Autonomous	Director	Restricted Entry	Own building
4	Dr U V Swaminath Iyer Library (UVSIL)	2, Arundale Beach Road, Besant Nagar	1943	Private	Curator	Open	Donated land with own Building
5	Kuppuswami Sastri Research Institute (KSRI)	Mylapore	1947	Private	Director	Open	Own building
6	C P Ramaswami Aiyar Institute of Indological Research (CPRIL)	Alwarpet	1966	Private	Director	Open	Own building
7	International Institute of Tamil Studies (IITS)	CIT Campus, Taramani	1972	Govt & Autonomous	Director	Open	Donated land with own Building
8	Central Research Institute of Siddha Research Library (CRISRL)	Arumbakkam	1979	Govt & Autonomous	Director	Open	Donated land with own Building
9	Institute of Asian Studies (IAS)	Chemmancheery Sholinganallur	1982	Autonomous	Director	Open	Own land with own building

temples. Similarly those three are headed by Director and the remaining ten are headed by the Monks. It is very sad to note that a large majority of the manuscript libraries are not having either qualified people or with professional designation. Probably the reasons for not having the qualified administrative head may be due to the reason that most of the libraries are managed by religious institutions. Almost all the MSS libraries providing open access with an exception to one temple library. However the use by the public is almost nil as revealed by the monks. The reason being the public in the villages do not understand the script and the reading is not possible for them. All the libraries are functioning in their own land and buildings. As for as the libraries under the control of the university are concerned, they are being financed by the government grants and projects funds. On the other hand, the temple libraries are maintained by the public donations and these libraries are part of the temples only. The year of the establishment of these temple libraries could not be ascertained.

Background Information about the MSS Libraries in Chennai

The data in Table 2 reveals that there are nine MSS libraries in Chennai district of Tamil Nadu. The oldest library was GOMLR which was established in 1869 followed by Adyar Library and Reference Centre of Theosophical Society. Out of nine MSS libraries, three each are run by government and private managements. Only one is being run by Hindu religious institution established in 1897 and headed by Swamiji (Monk). While six libraries are headed by the Director and on the other hand two are headed by the Curator. Almost all the MSS libraries providing open access with an exception to one library. While 4 libraries are functioning in their own land with own building, 3 are functioning in donated land with own building. In Chennai there are exclusive libraries for palm leaf manuscripts and they are not part of any temples as seen in Mahasarakham.

ENEMIES TO INFORMATION MATERIALS



Preservation and Conservation of Manuscripts

Manuscripts play a pivotal role in helping the scholars in the process of knowledge evolution by unearthing the literary treasure hidden in them. Manuscripts were used to be collected by scholars as the scholarship of scholars was used to be measured by their personal collection of manuscripts. It is interesting to note that the dire need for the search of manuscripts had been felt in many countries by individuals which was subsequently taken over by well conceived institutions for this purpose with an organised built in structure. India and Thailand are no exception to this practice of preserving manuscripts.

Libraries and archives play a critical role in organizing, preserving and providing access to the cultural and historical heritage of the society. In the relatively stable world of

printing, hand-written and mechanically reproduced information, libraries and archives managed to preserve this rich heritage for specialized scholars and for the general public. Libraries and archives have served and serving as the central institutional focus for preservation and both types of institutions include preservation as one of their core functions. In recent decades, many major libraries and archives have established formal preservation programmes for traditional as well as digital resources. The introduction of digital technologies into the process of production, distribution and storage of information challenges the capacity of libraries and archives to carry out their responsibilities for preservation. Information Management covers the whole spectrum of information handling activities, technology, covering methods of inputting, storing, retrieving and

Table 3: Barriers of Physical Facilities in Mahasarakham

S. No.	Description	Extent of Agree	PPNET	RINAC	PAKML	BDT	TNT	SSM	KNT	PHI	BTL	TYT	SDT	PMM	KCT	Total	WAM	RANK
1	Lack of adequate space for storage of manuscripts	SA													1	1 (7.69)	1.46	3
		A	1	1							1	1	1			5 (38.46)		
		DA			1	1	1	1		1					1	6 (46.15)		
		SD							1							1 (7.69)		
2	Lack of Air condition provision	SA		1		1	1	1	1	1	1	1	1	1	1	11 (84.62)	2.46	2
		DA	1													1 (7.69)		
		SD			1											1 (7.69)		
3	Lack of prescribed storage boxes for palm leaf manuscripts	SA		1	1			1			1	1		1	1	7 (53.85)	2.53	1
		A	1				1	1		1	1			1		6 (46.15)		

distributing information. Its function incorporates a wide range of disparate activities including records management, library management, printing, reprography and micrography. The problem of preservation is further complicated by the rapid obsolescence of the hardware and software required to interpret and present digital documents.

Preservation is the maintenance of manuscript objects close to their original condition as far as possible, or until they are no longer needed. It includes all the managerial and financial considerations including storage and accommodation provisions, staffing levels, policies, techniques and methods involved in preserving library and archive materials and the information contained in them. Preservation is an integral aspect with the collection development and the provision of service to users of the present and future generations.

Conservation denotes those specific policies and practices involved in protecting the manuscripts from deterioration, damage and decay, including the methods and techniques devised by the technical staff. It deals with the

use of chemical and physical procedures in treatment or in storage to ensure the preservation of Manuscripts. Restoration of manuscripts denotes those techniques and judgments used by the technical engaged in the making good of Manuscripts damaged by time, use and other factors.

Conservation of manuscripts and documents is closely linked with the writing material that has been used in its creation. The conservation of documents and manuscripts has now been engaging the attention of the archivist and the conservationists. There has been a sort of awakening in this respect. The problems relating to their conservation are enormous. At the same time, climatic conditions, especially excessive heat and humidity in most parts of the country, injurious biological pests, improper storage conditions and paucity of conservative facilities have aggravated the problem. Conservation of documents and manuscripts include preservation, preventive measures and restoration. It has been observed that emphasis is laid more on collection of such material rather than its preservation.

Table 4: Barriers of Physical Facilities in Chennai

S. No.	Description	Extent of Agree	ALRC	CPRII	CRISRL	GOML	IAS	IITS	KSRI	SRML	UVSIL	Total	WAM	RANK
		SA				1		1		1	1	4 (44.44)		
1	Lack of adequate space for storage of manuscripts	A	1		1		1					3 (33.33)	2.11	3
		DA							1			1 (11.11)		
		SDA		1								1 (11.11)		
2	Lack of Air condition provision	SA			1	1	1	1		1	1	6 (66.67)		
		A		1								1 (11.11)	2.44	1
		DA	1						1			2 (22.22)		
		SA					1	1	1		1	4 (44.44)		
3	Lack of prescribed storage boxes for palm leaf manuscripts	A	1	1						1		3 (33.33)	2.22	2
		DA				1						1 (11.11)		
		DSA			1							1 (11.11)		

SA - Strongly Agree

A- Agree

DA - Disagree

SD - Strongly Disagree

Enemies/ Hazards to Information Materials

The following chart explains the various types of enemies to information materials in libraries. The enemies of information materials are broadly classified as:

1. Atmospheric (Environmental) factors
2. Physical and chemical factors.
3. Biological factors, including human beings
4. Other factors

These factors either work alone or in conjunction with one another that will hasten the deterioration of a library collection (Ramesh Babu, 2008) which has been depicted in Figure 1.

Barriers in the Preservation and Conservation of Palm Leaf MSS

A variety of barriers that come in the way of preservation and conservation of palm leaf MSS are noticed in the literature and they have been grouped as five categories namely physical facilities, infrastructure, manpower, financial and administrative barriers.

Under each category of barriers, a set of variables have been given to rank them in the four point scaling method as "Strongly Agree", "Agree", "Disagree" and "Strongly disagree". The results of the survey have been presented in Tables 3 to 12.

As seen from the Table 3, under the physical

Table 5: Barriers of Infrastructure Facilities in Mahasarakham

S. No.	Description	Extent of Agree	PPNET	RINAC	PAKML	BDT	TNT	SSM	KNT	PHT	BTL	TYT	SDT	PMI	KCT	Total	WAM	RANK
1	Lack of facilities for pest control	SA									1	1	1	1	1	5	2.15	5
		A				1	1	1	1	1						5		
		DA	1	1	1											3		
2	Lack of infrastructure facilities in conservation equipment such as fumigation chamber / Leaf casting equipment	SA	1	1	1	1	1	1	1	1	1	1	1	1	1	13	3.00	1
3	Lack of disaster planning management for security of manuscripts	SA				1	1	1	1	1	1	1	1	1	1	10	2.69	3
		A		1	1											2		
		DA	1													1		
4	Lack of initiatives towards digitisation	SA				1	1	1	1	1		1	1	1	1	9	2.23	4
		DA			1						1					2		
		SD	1	1												2		
5	Lack of facilities for micro-filming	SA	1	1		1	1	1	1	1		1	1	1	1	11	2.76	2
		A			1											1		
		DA									1					1		

barriers, three variables are considered. In Mahasarakham libraries, the first rank with high WAM value has been given to “Lack of prescribed storage boxes for palm leaf manuscripts”, followed by “Lack of air-conditioning” as the second rank. On the other hand, in Chennai libraries, it was in reverse order (Table 4). Significantly in both the cases the third rank goes to the variable, “Lack of adequate space for storage”.

With regard to the barriers of infrastructure facilities, five variables have been considered and the results are shown in Tables 5 and 6. It is interesting to note that both in Mahasarakham province and Chennai libraries there is an agreement and similarities on the opinions expressed by the respondents. The first three ranks, based on the WAM values, are given by the respondents of both the countries to the following variables:

Rank 1 Lack of infrastructure facilities in conservation equipment such as fumigation chamber / Leaf casting equipment (2.00)

Rank 2 Lack of facilities for micro-filming (1.77)

Rank 3 Lack of disaster planning management for security of manuscripts (1.66)

Under manpower barriers, four variables have been considered and the responses were tabulated with WAM values in Tables 7 and 8.

It is interesting to note that there is agreement by the respondents of both the countries on one variable namely “Lack of positive attitude by the library staff in undertaking preservation / conservation activities”, though it was ranked as fourth with WAM value as 2.30 in Mahasarakham (Table 7) and 0.77 in Chennai (Table 8) . In

Table 6: Barriers of Infrastructure Facilities in Chennai

S. No.	Description	Extent of Agree	ALRC	CPRII	CRISRL	GOML	IAS	IITS	KSRI	SRML	UVSIL	Total	WAM	RANK
1	Lack of facilities for pest control	SA				1	1					2	1.44	4
		A						1		1		(22.22)		
		DA	1						1		1	3		
2	Lack of infrastructure facilities in conservation equipment such as fumigation chamber / Leaf casting equipment	SDA		1	1							2	2.00	1
		A				1					1	(22.22)		
		DA	1	1								2		
3	Lack of disaster planning management for security of manuscripts	SDA			1							1	1.66	3
		A		1	1						1	3		
		DA	1			1	1	1	1		1	6		
4	Lack of initiatives towards digitization	SA							1			1	1.22	5
		A		1		1					1	3		
		DA	1				1	1			1	4		
5	Lack of facilities for micro-filming	SDA			1							1	1.77	2
		A		1					1			2		
		DA	1			1	1			1	4			

Maharakham, the first and the second ranks goes to the variables as “Lack of training in manuscriptology for the librarians (2.84)” and “Lack of in-service training programme in the preservation and conservation of manuscripts (2.76)” respectively. Significantly both the variables denote the training aspect only.

In Chennai the first and second ranks goes to the variables as “Lack of adequate trained professional staff in the branch of preservation and conservation” (2.44) and “Lack of training in manuscriptology for the librarians (2.11)” respectively.

Under financial barriers only two variables have been considered and the results are shown in Tables 9 and 10. In Maharakham

province, the first rank goes to the variable “Lack of finance/ sufficient funds (2.61)”. On the other hand, in Chennai the first rank goes to the variable Lack of Philanthropers to donate to the manuscript libraries (2.88)”.

Similar to the financial barriers, in Administrative barriers also two variables have been considered and the results are shown in Table 11 and 12. In Maharakham province,(Table 11) the first rank goes to the variable “Lack of administrative support (2.53)”. On the other hand, in Chennai (Table 12), the first rank goes to the variable “Lack of State / National level policy for the development of manuscript libraries (2.44)”.

Table 7: Barriers of Manpower in Mahasarakham

S. No	Description	Extent of Agree	PPNET	RINAC	PAKML	BDT	TNT	SSM	KNT	PHI	BTL	TYT	SDT	PMM	KCT	Total	WAM	RANK
1	Lack of adequate trained professional staff in the branch of preservation and conservation	SA				1	1	1	1	1	1	1	1	1	1	10 (76.92)	2.69	3
		A	1	1												2 (15.38)		
		DA	1													1 (7.69)		
2	Lack of in-service training programme in the preservation and conservation of manuscripts	SA		1			1	1	1	1	1	1	1	1	1	10 (76.92)	2.76	2
		A	1	1	1											3 (23.08)		
3	Lack of training in manuscriptology for the librarians	SA		1	1	1	1	1	1	1	1	1	1	1	1	11 (84.62)	2.84	1
		A	1	1												2 (15.38)		
4	Lack of positive attitude by the library staff in undertaking preservation / conservation activities	SA					1	1	1	1	1	1	1	1	1	9 (69.23)	2.30	4
		A			1											1 (7.69)		
		DA		1												1 (7.69)		
		SD	1	1												2 (15.38)		

Table 8: Barriers of Manpower in Chennai

S. No.	Description	Extent of Agree	ALRC	CPRII	CRISRL	GOML	IAS	IITS	KSRI	SRML	UVSIL	Total	WAM	RANK
1	Lack of adequate trained professional staff in the branch of preservation and conservation	SA	1			1	1	1			1	5 (55.56)	2.44	1
		A			1				1	1		3 (33.33)		
		DA		1								1 (11.11)		
2	Lack of in-service training programme in the preservation and conservation of manuscripts	A	1		1		1	1	1	1	1	7 (77.78)	1.77	3
		DA		1		1						2 (22.22)		
3	Lack of training in manuscriptology for the librarians	SA	1	1					1		1	5 (55.56)	2.11	2
		DA			1	1	1		1			4 (44.44)		
4	Lack of positive attitude by the library staff in undertaking preservation / conservation activities	A								1		1 (11.11)	0.77	4
		DA	1		1	1	1		1			5 (55.56)		
		SDA		1					1		1	3 (33.33)		

Suggestions and Recommendations

Any the survey can investigate the facts and truths. On the basis of the analysis of data, the researchers formed significant findings. These findings led the researchers to make

suggestions and recommendations. The essential elements for conservation are 1. Suitable building facilitating ideal storage conditions and scientific storage; Responsive fire prevention, detection and controlling

Table 9: Financial Barriers in Mahasarakham

S. No.	Description	PPNET	RINAC	PAKML	BDT	TNT	SSM	KNT	PHT	BTL	TYT	SDT	PMM	KCT	Total	WAM	RANK
1	Lack of finance / sufficient funds	SA			1				1	1	1	1	1	1	8 (61.54)	2.61	1
		A	1		1		1	1	1						5 (38.46)		
2	Lack of Philanthropers to donate to the manuscript libraries	SA					1					1	1	1	4 (30.77)	2.46	2
		A			1	1				2		2			6 (46.15)		
		DA	1	1					3		3				8 (61.54)		
		SD					1								1 (7.69)		

Table 10: Financial Barriers in Chennai

S. No.	Description	Extent of Agree	ALRC	CPRI	CRISRL	GOML	IAS	IITS	KSRI	SRML	UVSIL	Total	WAM	RANK
1	Lack of finance / sufficient funds	SA					1	1	1		1	4 (44.44)	1.66	2
		DA	1			1				1		3 (33.33)		
		SDA		1	1							2 (22.22)		
2	Lack of Philanthropers to donate to the manuscript libraries	SA	1	1		1	1	1	1	1	1	8 (88.89)	2.88	1
		A			1							1 (11.11)		

Table 11: Administrative Barriers in Mahasarakham

S.No	Description	Extent of Agree	PPNET	RINAC	PAKML	BDT	TNT	SSM	KNT	PHT	BTL	TYT	SDT	PMM	KCT	Total	WAM	Rank
1	Lack of administrative support	SA					1	1	1	1	1	1	1	1	1	9 (69.23)	2.53	1
		A			1	1										2 (15.38)		
		DA	1	1												2 (15.38)		
2	Lack of State / National level policy for the development of manuscript libraries	SA					1	1	1	1	1	1	1	1	1	9 (69.23)	2.46	2
		A				1										1 (7.69)		
		DA	1	1	1											3 (23.08)		

Table 12: Administrative Barriers in Chennai

S. No.	Description	Extent of Agree	ALRC	CPRII	CRISRL	GOML	IAS	IITS	KSRI	SRML	UVSIL	Total	WAM	Rank
		SA							1			1 (11.11)		
1	Lack of administrative support	A			1							1 (11.11)	1.22	2
		DA	1			1	1	1		1	1	6 (66.67)		
		SDA		1								1 (11.11)		
	Lack of State / National level policy for the development of manuscript libraries	SA	1	1				1	1	1	1	6 (66.67)		
2		A				1	1					2 (22.22)	2.44	1
		SDA			1							1 (11.11)		

measures; Preventive measure against biological agencies and Safety and security measures. Based to the survey following suggestions have been made for the better development of the collections and effective organisation and administration of manuscript libraries both in Thailand and India in general and Mahasarakham and Chennai in particular.

Manuscript Library Buildings/Buddhist Temple Libraries

Old buildings in which the manuscripts are housed should be strengthened on modern lines in order to preserve the manuscripts for the posterity. The paints used in the buildings should be manuscript friendly and should not attract various organisms that will destroy the manuscripts. The library building facing North and South instead of East and West is considered good orientation as it avoids direct entry of sun-light in the building. If possible, the surrounding area of building should be made vegetated to suppress the effect of pollutants, dust and heat. Sufficient space should be available all around the building to carryout fire fighting activities without any obstruction at the time of any serious fire accident. A building should have a responsive ventilated system and capable to obstruct the entry of outdoor sun radiations, hazardous to records. The floor height of a building should

allow racks of the heights facilitating search cases without use of stool, ladders, etc. having a space of 25 to 31 cm. between the top frame of racks and ceiling for free passage of air. A building should be well equipped with modern facilities of fire prevention, detection, and control system. If building is not isolated, focus is to be attended to the possibility of flames reaching the buildings at the adjoining, in case of any fire incident. Care should be taken to select materials for construction of building that are of no fire hazards and do not promote deterioration of records. Wooden partitions, furniture, windows, tapestry inflammable paints and varnishes all add to these.

Manpower Skills Development

Considering the necessity to possess and acquire various types of skills required for the manuscripts library manpower to organise, develop and maintain the manuscript libraries, it is recommended that managements of manuscript libraries should launch human development resources program to monitor the changing trends and dimensions in information handling, processing, storing and dissemination. For this purpose it is suggested to strengthen the existing manpower by appointing well qualified librarians. Further it is stressed to depute the library staff periodically for in-service training program such as short term courses, workshops,

symposium and seminars on current trends and best practices in the maintenance and upkeep of manuscript libraries with the right perspective. Provide in-service programme for working library professionals and training sessions for information science students on the topic of conservation of documents. It may be discussed as part of Library Management with practical. Orientation and refresher courses should also be arranged for them regularly.

Planning Strategies against Fire

Automatic detection systems, making use of all the ingredients of fire, light, heat and smoke raising alarm are available now and they should be made part of functional library buildings. Heat, smoke and optical detectors give the right answer to the problem of detecting fire. The view system maintained by lasers and the system based on change of air quality are more advance systems for detecting fire.

Ideal Storage Conditions

- *Dust free Stack Area:* It is must to save documents from hazards of dust. For the purpose stack area should be kept dust free. It requires three fold planning i.e., restricting entry of dust from outside, preventing dust creation inside the building and dust extermination.
- *Shelves:* Materials in making of shelves and shelving system are the most important aspect of documentary preservation. Maximum utilization of storage space and convenience of access apart from preservation are the most derived objectives behind shelving. These are achieved by right selection of design and size of stack including material in its making and the system in which they are arranged in the strong room. Wood has been widely used for making racks, because of some elements, it was replaced by iron. The right answer to avoid all demerits is steel. This is the reason that steel racks are preferred

world over today.

- *Proper Air-circulation:* Stagnant air in stack areas gives rise for growth of insects and fungus. From the standpoint of preservation, therefore, it should be ensured that no stagnant air pocket is formed within the area. For the purpose proper air circulation in the area is ensured which is augmented with the help of air circulators, fan and exhausts
- *Effective Light and Heat Controlling System:* Dry, ventilated, dust-free and adequately lighted accommodation is considered the suitable place for conservation of documents. Besides, optimum temperature 20°C to 25°C and humidity (50% to 60%) and unfluctuating environment are also making part of constituting ideal storage conditions promoting preservation. To maintain the latter three, the right answer is central air-conditioning. The four functions of air-conditioning are ventilation, filtration, humidity and temperature. The effective light controlling system involves two basic things, the restriction of entry of invisible radiations from outside the building and the filtration of light emitted by source of light installed in the storage areas.

Financial Provision

The government, corporate and other philanthropists who are interested in the process of knowledge evolution shall come forward and accord financial assistance for the organisation, preservation and conservation of manuscripts. In this context, it is stressed that the authorities concerned with provision of funds for management and development of libraries and museums of different categories shall earmark allocation in the respective budgets for developing and up-to-date conservation units wherever feasible and/or for adoption of suitable programmes for conservation and preservation work for all documents considered worthy of preservation

Preservation and Conservation Programme

Realising that enormous documentary wealth of the countries under study especially manuscripts stored in different libraries and information centres of Thailand (Mahasarakham) and Tamil Nadu, which are exposed to various kinds of hazards for want of adequate measures of conservation, it is urged that there is a need for a massive programme to protect those reading materials, manuscripts, books and other documents containing the cultural holdings of the country. In view of the utter lack of facilities for any comprehensive programme on a national scale for conservation measures in manuscript libraries and information centres, museums and archival institutions in India and Thailand it is suggested to provide facilities, finances and manpower to undertake preservation programmes to conserve the cultural and intellectual heritage of Thailand and India.

Establishment of Conservation Units

Considering the lack of conservation units, it is suggested that the National Library may play a leadership role in seeking co-operation of conservationists working in libraries, archives, museums and research institutes, to frame general guidelines for setting up of conservation units with special reference to the standard requirement of space, equipment, and personnel keeping in view the quantity as well as the nature and complexity of work that they will have to undertake. In view of the extremely meager conservation facilities available in the countries under study in general and Tamil Nadu and Mahasarakham in particular, the Conservation Division of the National Library may be suitably expanded to enable it to provide conservation assistance to the manuscript libraries. Further it is recommended that in order to make conservation facilities more easily and quickly available to manuscript libraries situated in different regions, Regional Laboratories for Conservation may be established in different regions of the country in the pattern of National Research Laboratory for

Conservation of Cultural Property, already established in Lucknow.

Conclusion

The palm leaf manuscript collection in Buddhist temples in Mahasarakham province and libraries in Chennai district of Tamil Nadu (India) are the richest ones in respective regions. In Thailand this collection is managed by the monks of the Buddhist temples who face many problems in maintaining and providing services to researchers or people who want to read. They could not get sufficient man power, technical knowhow and financial resources to follow new techniques to preserve this rare collection of palm leaf manuscripts. Similarly the Palm leaf manuscripts libraries in Chennai are being managed by the governments both the state and central governments. The task of preserving the manuscripts will go through a strategic planning process and then be taken as a project. The concerned monks need to be trained or developed to manage the palm leaf manuscript collection in the temples. It is high time now not only to know and recognize the knowledge imparted in the palm leaf manuscript heritage but also to utilize it and therefore it should be preserved properly.

To conclude in the words of **Lisa Fox**, "*the field of preservation is moving forwards rapidly in a great many areas as the profession seeks simultaneously to raise the consciousness of librarians and the public, to provide better education and training, to stimulate the development of programmes at all levels and to define this still embryonic field*".

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