

# Preservation and Conservation of Palm Leaf Manuscript Libraries in Mahasarakham Province, Thailand: A Survey

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**Abstract** – Palm leaf manuscripts are one of the earliest forms of written media and were used in Southeast Asia to store early written knowledge about subjects such as medicine, Buddhist doctrine and astrology. Palm leaf manuscripts are available in most of the Buddhist temples in Mahasarakham province. They have very rich and oldest palm leaf and paper manuscripts amongst its collection representing ISAN region (north-east Thailand) and depicts information on Buddhism, cultural, social, political and economic history of people in Isan regions. This paper presents the comprehensive survey of Palm Leaf Manuscript libraries located at Buddhist Temples in Mahasarakham province of Thailand. The specific objectives of the survey are; To survey the selected manuscript libraries with regard to the nature of collection, organization and management; To examine the manpower and other infrastructure facilities available with the manuscript libraries (Buddhist temples) under study; To elicit monks' (who are in charge of the collection) opinions about the causes of deterioration of palm leaf manuscripts; To survey the extent of digitization carried out in those collection; and To identify the issues involved in the management of those collection. The authors proposed solutions for the better management of palm leaf manuscripts and greater sustainability to preserve the cultural heritage of Mahasarakham province representing the Isan region of Thailand.

**Keywords:** Preservation and Conservation, Palm Leaf Manuscripts, Mahasarakham Province, North-East Thailand

## I. INTRODUCTION

Manuscripts are invaluable sources for the creation and preservation of the art, history and culture of any land. Palm leaf manuscripts are one of the earliest forms of written media and were used in Southeast Asia to store early written knowledge about subjects such as medicine,

Buddhist doctrine and astrology. Therefore, historical handwritten palm leaf manuscripts are important for people who like to learn about historical documents. Palm leaf manuscripts relating to art and architecture, mathematics, astronomy, astrology, and medicine dating back several hundreds of years are still available for reference today thanks to many ongoing efforts for preservation of ancient documents by libraries and universities around the world. Palm leaf manuscripts typically last a few centuries but with the passage of time the palm leaves degrade and the writing becomes illegible to be useful in any form. They are one of the archaic recordings which are special to Thai society, culture and people, especially Isan region (north-eastern part) of Thailand.

## II. SCOPE OF THE PAPER

This paper presents the comprehensive survey of Palm Leaf Manuscript libraries located in Buddhist Temples in Mahasarakham province of Thailand. The specific objectives of the survey are as follows:

- To survey the selected manuscript libraries in Mahasarakham Province (Thailand) with regard to the nature of collection, organization and management;
- To examine the manpower and other infrastructure facilities available with the manuscript libraries (Buddhist temples) under study;
- To elicit Buddhist monks' (who are in charge of the collection) opinions about the causes of deterioration of palm leaf manuscripts;
- To survey the extent of digitization carried out in those collection; and
- To identify the issues involved in the management of those collection

### III. METHODOLOGY

The study is based on both secondary and primary data. The secondary data are being collected from the official records of the sample Buddhist temple libraries. The primary data are being collected through personal interviews with the monks of temples holding palm leaf manuscripts with the help of a well designed and pre-tested questionnaire. 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.

### IV. ANALYSIS AND DISCUSSION

The data in table I provide information about the MSS libraries under survey. It is observed that out of 13 MSS libraries, three are maintained by the university namely Mahasarakham University, Thailand and the remaining

ten are part of Buddhist 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 are 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.

TABLE I BACKGROUND INFORMATION ABOUT THE MSS LIBRARIES IN MAHASARAKHAM PROVINCE

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	Buddapaddi temple (BDT)	Chengkeuen Dist	Religious Community	Monk	Open Access	In Building	Donations & Self Financing
5	Thong Nophakun Temple (TNT)	Palan Subdist, Phayakkaphum 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)	Kanthrvijaya Dist Kanthrwachi Dist	Religious Community	Monk	Open Access	In Own Building	Donations
11	Sawang Dusit Temple (SDT)	Kanthrwachi Dist	Religious Community	Monk	Restricted Entry	In Own Building	Donations
12	Phra Phuttha Mongkhom Museum (PMM)	Kanthrwachi 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

TABLE II LIBRARY BUILDINGS IN MAHASARAKHAM

S. No.	Name of the Library	Library Area	Library Floor				Floor Finish			
			Ground	G + 1	G + 2	Other	Cement	Wood	Tile	Granite
1	PPNET	2000 sqft				1			1	
2	RINAC	2700 sqft	1							1
3	PAKML	6000 sqft			1			1		
4	BDT	1200 sqft	1						1	
5	TNT	2000 sqft		1				1		
6	SSM	2000 sqft		1				1		
7	KNT	2000 sqft		1				1		
8	PHT	600 sqft	1				1			
9	BTL	200 sqft	1					1		
10	TYT	700 sqft	1					1		
11	SDT	600 sqft		1					1	
12	PMM	1200 sqft	1				1			
13	KCT	1000 sqft		1				1		
Total			6 (46.15)	5 (38.46)	1 (7.69)	1 (7.69)	2 (15.38)	7 (53.85)	3 (23.08)	1 (7.69)

TABLE III PHYSICAL FORMS OF CATALOGUE IN MSS LIBRARIES IN MAHASARAKHAM

S. No.	Name of the Library	Physical Form of Catalogue			
		Card	Register	Note Book	Register & Computer forms
1	PPNET				1
2	RINAC				1
3	PAKML			1	
4	BDT		1		
5	TNT		1		
6	SSM	1			
7	KNT		1		
8	PHT		1		
9	BTL		1		
10	TYT		1		
11	SDT		1		
12	PMM		1		
13	KCT		1		
Total		1 (7.69%)	9 (69.23%)	1 (7.69%)	2 (15.38%)

The palm leaves are housed in the temple premises and they form part and parcel of the temple prayer hall. However there is space allotted for the storing and the area allotted varies from one temple to another. As observed from table II, the maximum area (6000sq ft) has been provided in PAKML temple and the least space (200sq ft) is allotted in

BTL temple. While in six temples / libraries (40.15%) the palm leaves are housed in the ground floor, on the other hand five temples (38.46%) are housed in ground with first floor.

Collection development is one of the important activities in any library and the manuscript libraries are not an

exception to this phenomenon. However it was observed that in Buddhist temples where the palm leaf MSS are housed do not have regular building of collection. Whatever they have at the temple are being maintained without any addition. However, the libraries in the Maharashtra university campuses are collecting the palm leaf MSS from various sources and taking care and preservation on scientific lines. In all the libraries under survey that the collection has been built over the years by only donation and not by any other means of acquisition such as purchase or on exchange.

Collection organization is another important activity in any library which covers the classification, cataloguing and shelving and other means of storing and preserving the information materials. It was found in the libraries in Maharashtra province that the MSS are not classified nor catalogued by following the standard schemes of classification such as DDC or UDC or catalogue codes like AACR. However it was observed that almost all the temple libraries are maintaining some bibliographic records. While nine temples maintain (69.23%) Register form catalogue, one each maintain card catalogue (SSM) and note book form of catalogue (PAKML). The libraries in the Maharashtra university campus (PPNET and RINAC) are maintaining both Register and Computer catalogues (Table 3). The reason for such sad state of affairs in Temples is that lack of trained man power and financial issues.

TABLE IV TYPE OF RACKS USED TO STORE MSS IN MAHARASHTRA

S. No.	Name of the Library	Types of Racks Used		
		Wooden	Glass	Wooden & Glass
1	PPNET			1
2	RINAC	1		
3	PAKML			1
4	BDT	1		
5	TNT	1		
6	SSM			1
7	KNT			1
8	PHT			1
9	BTL	1		
10	TYT	1		
11	SDT		1	
12	PMM	1		
13	KCT	1		
Total		7 (53.85%)	1 (7.69%)	5 (38.46%)

Manuscripts are to be stored in specific racks for effective storing. It is observed in Temple Libraries in Maharashtra that they are housed in wooden boxes dumping without any proper way. A majority of the temple libraries (7) are storing the MSS in wooden racks (53.85%). This is followed by five libraries (38.46%) use both wooden and glass cupboards. Only one library (SDT) using only glass door cupboard.

#### Nature of Deterioration of Manuscripts

From the data in Table V, the following inferences could be drawn:

- The first rank for biological agents and the second rank for dust preferred by the monks in Maharashtra are due the fact that the MSS are not properly shelved. Added to this there is no periodical cleaning or dusting being done due to the manpower and other infrastructural facilities.
- In temples there is no air conditioning and the heat also contributes to the deterioration of the MSS.
- Therefore the biological agents figure as the first rank. However, dust and atmospheric pollutants are given the second and third ranks respectively, since most of the libraries are not provided with the air conditioning facility.

#### Arrangement of MSS

The arrangement of information materials in any library is very important activity based on the scheme of classification or at least by broad subject-wise. The palm leaf MSS can be arranged either by accession number, or by subject wise, or by work wise or language wise or by period of the MSS wise. It is found in Maharashtra libraries that in seven libraries (53.85%) do not follow any system and there is no proper arrangement. On the other hand in five libraries (38.46%) the MSS are arranged by accession number wise. Only in one library (PPNET) subject wise arrangement is followed because it is the library maintained in the Maharashtra university campus and having staff.

#### Provision of Fire Security Measures

In Maharashtra province libraries / temples, almost all the libraries / temples, with an exception to one, did not provide fire security measures. It is very sad state of affairs prevailing in those libraries. Since the temples are having mostly wooden partition and flooring, it is advised to install and provide necessary fire security measures keeping in

view of the significance of the palm leaf manuscripts that provide the cultural heritage of the society and religion. On enquiry with the authorities of the temples and the libraries, it was learnt that financial problems and the technical knowhow are the major stumbling blocks in their failure of providing the fire security measures.

**Digitization and Microfilming of Palm leaf MSS**

It is observed that in the Maharashtra province libraries only three libraries namely PPNET, RINAC and PAKML are having digital library section and using digital library

software. While two libraries namely PPNET and RINAC use in-house developed software for the development of digital library of palm leaf MSS, PAKML use open source software. Also these libraries noticed some damage has been caused in the process of digitization of palm leaf MSS. It is significant to note that almost all the temple libraries with an exception to PAKML, do not attempted to go for digitization. None of the libraries surveyed in Maharashtra province have attempted for microfilming of palm leaf MSS.

TABLE V NATURE OF DETERIORATION OF MANUSCRIPTS IN MAHARASHTRA

S. No.	Nature of Deterioration of Manuscripts	PPNET	RINAC	PAKML	BDT	TNT	SSM	KNT	PHT	BTL	TYT	SDT	PMM	KCT	Total	WAM	Rank
1	Oxidation	No		1		1	1	1	1						5 (38.46)	0.84	6
		Little extent	1	1		1					1	1	1		6 (46.15)		
		Moderately											1		1 (7.69)		
		Very great												1	1 (7.69)		
2	Magnetism	No	1	1	1	1	1	1	1	1	1	1			11	0.30	7
		Little extent											1		1 (7.69)		
		Moderately													0 (0.00)		
		Very great												1	1 (7.69)		
3	High Humidity and heat	No					1								1 (7.69)	1.92	3
		Little extent				1	1		1	1					4 (30.77)		
		Moderately	1	1							1				3 (23.08)		
		Very great			1						1		1	1	5 (38.46)		
4	Moisture	No		1											1 (7.69)	1.61	4
		Little extent	1	1			1	1	1	1					6 (46.15)		
		Moderately				1					1	1			3 (23.08)		
		Very great									1		1	1	3 (23.08)		
5	Dust	No													0 (0.00)	2.07	2
		Little extent					1	1	1	1		1			5 (38.46)		
		Moderately			1								1		2 (15.38)		
		Very great	1	1		1					1			1	6 (46.15)		
6	Biological agents	No													0 (0.00)	2.15	1
		Little extent					1	1	1	1					4 (30.77)		
		Moderately		1							1	1			3 (23.08)		
		Very great	1		1	1					1		1	1	6 (46.15)		
7	Atmospheric pollutants	No													0 (0.00)	1.92	3
		Little extent			1		1	1	1	1					6 (46.15)		
		Moderately		1								1			2 (15.38)		
		Very great	1			1					1		1	1	5 (38.46)		
8	Excessive light	No				1	1	1	1					1	5 (38.46)	1.15	5
		Little extent		1		1							1		3 (23.08)		
		Moderately	1		1						1	1			5 (38.46)		
		Very great													0 (0.00)		

TABLE VI PRESERVATION AND CONSERVATION TECHNIQUES ADOPTED IN MAHARASHTRA

S. No.	Techniques	Periodicity	PPNET	RINAC	PAKML	BDT	TNT	SSM	KNT	PHT	BTL	TYT	SDT	PMM	KCT	Total	WAM	RANK
1	Lamination	VO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	8
		O	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		N	1	1	1	1	1	1	1	1	1	1	1	1	1	13		
2	Microfilming	VO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	8
		O	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		N	1	1	1	1	1	1	1	1	1	1	1	1	1	13		
3	Deacidification	VO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15	7
		O	1		1	0	0	0	0	0	0	0	0	0	0	2		
		N	0	1	0	1	1	1	1	1	1	1	1	1	1	11		
4	Binding	VO	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.38	5
		O	1	1	1	0	0	0	0	0	0	0	0	0	0	3		
		N	0	0	0	0	1	1	1	1	1	1	1	1	1	9		
5	Encapsulation	VO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	8
		O	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		N	1	1	1	1	1	1	1	1	1	1	1	1	1	13		
6	Cleaning and dusting of library materials	VO	1	1		0	0	0	0	0	0	0	0	0	0	2	0.76	3
		O	0	0	1	1	1	0	1	0	1	0	1	0	0	6		
		N	0	0	0	0	0	1	0	1	0	1	0	1	1	5		
7	Photocopying	VO	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0.53	4
		O	0	0	1	1	0	0	0	0	0	1	0	0	0	3		
		N	0	0	0	0	1	1	1	1	1	0	1	1	1	8		
8	Proper Shelving of library materials	VO	1	1	1	0	0	0	1	0	0	1	0	0	0	5	1.07	1
		O	0	0	0	1	1	1	0	1	0	0	0	0	0	4		
		N	0	0	0	0	0	0	0	0	1	0	1	1	1	4		
9	Installing Air Conditioner	VO	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.30	6
		O	0	0	0	0	0	2	0	0	0	0	0	0	0	2		
		N	0	1	1	1	1	0	1	1	1	1	1	1	1	11		
10	Adequate Security System	VO	1	0	1	1	0	0	1	0	0	0	0	0	0	4	1.07	1
		O	0	0	0	0	1	1	0	1	0	1	0	1	1	6		
		N	0	1	0	0	0	0	0	0	1	0	1	0	0	3		
11	Use of Insecticide	VO	1	1	1	0	1	0	0	0	0	0	0	0	0	4	1.00	2
		O	0	0	0	0	0	1	1	1	0	0	1	1	0	5		
		N	0	0	0	1	0	0	0	0	1	1	0	0	1	4		

As seen from the Table VI, in Maharashtra libraries, the first five ranks based on the WAM (Weighted Arithmetic Mean) values are as follows:

1. Rank 1 Proper shelving of library materials (1.07)
- Rank 1 Adequate security system (1.07)
2. Rank 2 Use of insecticides (1.00)
3. Rank 3 Cleaning and dusting of library materials (0.76)
4. Rank 4 Photocopying (0.53)
5. Rank 5 Binding (0.38)

***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.

TABLE VII BARRIERS OF PHYSICAL FACILITIES 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 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		6 (46.15)		

TABLE VIII BARRIERS OF INFRASTRUCTURE FACILITIES 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 facilities for pest control	SA									1	1	1	1	1	5 (38.46)	2.15	5
		A				1	1	1	1	1						5 (38.46)		
		DA	1	1	1											3 (23.08)		
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 (100)	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 (76.92)	2.69	3
		A		1	1											2 (15.38)		
		DA	1													1 (7.69)		
4	Lack of initiatives towards digitisation	SA				1	1	1	1	1		1	1	1	1	9 (69.23)	2.23	4
		DA			1						1					2 (15.38)		
		SD	1	1												2 (15.38)		
5	Lack of facilities for micro-filming	SA	1	1		1	1	1	1	1		1	1	1	1	11 (84.62)	2.76	2
		A			1											1 (7.69)		
		DA									1					1 (7.69)		

As seen from the Table VII, under the physical barriers, three variables are considered. In Maharashtra libraries, the first rank with high WAM value has been given to “Lack of prescribed storage boxes for palm leaf manuscripts (2.53)”, followed by “Lack of air-conditioning”(2.46) as the second rank.

The first three ranks, based on the WAM values are given by the respondents 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)

In Maharashtra, 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. It is interesting to note that 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 (Table IX).

In Maharashtra province, the first rank goes to the variable “Lack of finance/ sufficient funds (2.61)” as seen from the table X.

TABLE IX BARRIERS OF MANPOWER IN MAHARASHTRA

S. No.	Description	Extent of Agree	PPNET	RINAC	PAKML	BDT	TNT	SSM	KNT	PHT	BTL	TYT	SDT	PMIM	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	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 X 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	1	8 (61.54)	2.61	1
		A	1		1		1	1	1									
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 XI 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)		

As noticed from Table XI, the first rank goes to the variable “Lack of administrative support (2.53)”.

**Over all Status of Palm Leaf Manuscripts in Buddhist Temples in Mahasarakham province.**

Palm leaf manuscripts are prone to damage through becoming brittle over a period time. Damage and deterioration tends to be the result of insects staining, splitting and cleavage (separation of upper and lower surfaces) and mechanical damage. The authors have observed that the palm leaf manuscripts are stored in wooden boxes one above the other and there is no separate furniture and equipment to house such special collection. They are prone to deteriorate due to climatic, environmental, biological and physical hazards. Almost all the temples surveyed do not have trained personnel to maintain and conserve them. There is no systematic arrangement and they are placed in the corner of the prayer hall and mostly not used by the devotees. There exists the non -availability of the trained staff, space, equipment, chemicals, and lack of training programmes for the implementation of the preservation policy in the

temples. There are no safety measures being followed in the proper preservation and conservation of the collection. No attempts are being made or planned either to microfilm or digitize the collection. The traditional knowledge in the palm leaf manuscripts are put to non-use and no effective measures for care are being taken. For some temples the Mahasarakham University in its “Project for Palm Leaf Preservation in Northeastern Thailand” is making efforts to conserve them. But not all the temples are covered in the Mahasarakham province. The philosophy of the project is “Local wisdom is a lifestyle and spirit of community” and the aspiration is “Preserve originals, increase knowledge and glorify Isan wisdom”.

**V. CONCLUSION**

The results discussed in the analysis reveals that Buddhist temples where the palm leaf MSS are housed need proper care and maintenance and there are various barriers that come in the way of their preservation and conservation. The palm leaf manuscript collection in Buddhist temples in Mahasarakham province is the richest one in the Isan region

of 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. 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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