

# Palm Leaves Manuscripts in Kerala and their Preservation: Factors necessitating digital archiving

Mohamed Sageer T. K.\* Dr. A.T. Francis\*\*

\*Research Scholar, Department of Library and Information Science,  
Karpagam University, Coimbatore, Tamil Nadu. - 641 021;

\*\* Head, Library, College of Horticulture, Kerala Agricultural University, Thrissur – 680 656;

*Abstract* - Palm leaves occupy a significant place among the manuscripts available in the state of Kerala. As in any part of the world, palm leaves were one of the main and important sources for writing before the advent of paper in the southern region of India. Due to the absence of a proper solution for the storage of data in bulk, over the past years, thousands of palm leaf manuscripts were perished even without retaining a copy or image for future use. Being a solution for the problem, a study was conducted to find out whether the digital archiving is a solution for preserving the contents of the palm leaf manuscripts and what are the prevailing issues in digitizing the manuscripts as a whole. This paper also discusses major reasons for the deterioration of palm leaf manuscripts, how they can be preserved and what are the factors necessitating the digital archiving.

*Index terms* - Palm leaves, Manuscript, Preservation of manuscripts, Digital archives, Digitization, Digital Library

## Introduction

In the ancient period, scholars (Gurus) transmitted their wisdom and knowledge through their pupils (shishyas) orally for many years and afterwards started copying the knowledge in to materials such as stones, wood, metal etc., but the area of scribing was very small. The scholars at that time failed to record their knowledge exhaustively due to the lack of a proper recording media until the invention of birch bark and palm leaves. According to sources, writing traditions were started in India as early as 5<sup>th</sup> century B.C. The first reference to writing in India was found in a Pali Buddhists Canon of the 5<sup>th</sup> century B.C. (Kesavan, 1985)<sup>1</sup>. But it was a great challenge to them to preserve the knowledge recorded on palm leaves from deterioration. Kerala was the land of scholars, teaching and studies and had a rich tradition in preserving ancient knowledge in the form of palm leaves. Even though a large number of manuscripts were perished irrecoverably, and lost many of this kind over the past years, still a large number of palm leaves manuscripts are preserved without any damage. Now it is the duty of the present day information scientists to find out an acceptable solution for the preservation of the contents in the palm leaves manuscripts and to find out the problems that exist in digital archiving the palm leaves manuscripts.

*History of Palm Leaves* – No correct idea is there regarding when the people started using palm leaves as a writing medium. One among the oldest palm leaf manuscripts available in India belongs to the 10<sup>th</sup> century AD (Dharma lingam, 2012)<sup>2</sup>. In India and its neighboring countries, still lakhs and lakhs of palm leaves manuscripts are lying un-identified. Perhaps each and every bundle may not be unique in nature, because in the early days, it was a common practice to transfer the content of a palm leaf to another before the original is being corroded.

*Type of Palm leaf material* - There are three types of palm leaves ; *Corypha umbraculifera* Linn, also known as ‘Talipot palm’. This is the long lasting material among the palm leaves having 300 to 400 years of life. Another one is *Borassus flabellifer* Linn, also known as ‘Palmyra palm’. The leaves are thick, strong and fibrous and not lasting compared to the Talipot palm. *Corypha taliera roxb*, has strong leaf which is slightly brown. This is also thick but not flexible and prone to insect attack. (Yana wan Dyke, 2009)<sup>3</sup>

*Preparation of palm leaves* - Palm leaves are collected from the petioles and cut in to required sizes and boiled in water. Later, the dried leaves are placed in between two wood planks prepared with the same size of the leaves. After a day or two, the leaves are taken out and small holes are made at the centre or either ends of the leaf and wooden planks. Then the leaves are polished and after drying for a few days bundled and stored in dry places.

*Writing on palm leaves* - Writing on palm leaves (incision) was a trained and skilled activity which requires patience and practice. In olden days, writing on palm leaves was practiced as a profession and they are known as Lipikaras (copyist). (Kamat, 2000)<sup>4</sup>. The act of writing was known as incision or scribing. There are references of families who belong to the generation of palm leaf manuscript writing (Udaya Kumar et.al, 2009)<sup>5</sup>. The palm leaves writers are also called ‘Scribers’ who used a metal made pen called ‘Stylus’.

*Preservation of palm leaves* - Preservation of palm leaves manuscript was the biggest challenge faced by custodians all the times. From the time when the palm leaves were prepared and used for recording information, there were several techniques used for preserving the material. From the ancient period the common accepted method was using herbal extracts to prevent natural decay. Later on fumigation methods are followed and started using chemical methods in modern world. Above all, digitization is accepted as the best practice for preserving the contents of the manuscripts, (Udaya Kumar et al, 2009)<sup>5</sup>.

### Review of Literature

Raman Nair (2004)<sup>6</sup> observed that digital conversion allows hitherto unavailable facilities for durable storage and speedy and efficient transmission / retrieval of information contained in all the analogue formats. Chowdhury and Sudatta Chowdhury (1999)<sup>7</sup> says that there are several digital library projects in the world for establishing digital libraries.....some of them are working with the support of International agencies and some are independent. At the same time in the state of Kerala, Kerala University, one of the pioneers in collecting and preserving indigenous materials have not satisfactorily digitized its archival collection (Raman Nair, 2006)<sup>8</sup>. Efforts are there in the state of Kerala for creating a user friendly full text search and retrieving tool. CIRD (Centre for Informatics Research and Development) in Kerala developed such a tool named "NITYA". The utility can be used for bringing out digital publications too. Nitya is created by interfacing UNESCO's database management system CDS/ISIS and Adobe Acrobat Reader. Searching of the digital library and opening of the full text are made possible by this front end Centre for (CIRD). (Ravindran Asari et.al)<sup>9</sup>

### Scope of the study

Kerala has given birth to eminent Indian philosopher like Jagath Guru Sree Sankaracharya. Over hundreds of years, the scholars in that geographical area have created and preserved their cultural, philosophical, and scientific heritage in the form of palm leaves manuscripts. Many of these manuscripts were looted out by the invaders from other countries and many have perished without retaining a copy. In this region, a large number of palm leaves manuscripts were identified and carefully preserved over years by many Governmental and Non Governmental institutions, individuals and families. Still there are a large number of palm leaves manuscripts in many parts of Kerala lying un-identified and properly preserved. The scope of the study lies on whether the findings can be practically applied on solving the existing problems in creating a digital library or consortia based sharing resources using the digital image so created and also to find out the possibility of bringing the material under a common roof.

### Objectives of the study

The objectives of the study can be summed up as; What is the present condition of the palm leaves manuscripts in Kerala State?. What are the factors leading to deterioration of manuscripts?. Whether the custodians are ready to transfer the palm leaves under their custody to a central place that is primarily entrusted with the task of preservation?. Whether the present custodians really feel that the digitization as a remedy to preserve its contents?. Then what are the hindrances behind the digital archiving of palm leaves under their custody?.

### Methodology used in the study

The study was conducted to know whether the custodians were ready to transfer the palm leaves to a centre that are entrusted for preservation and to know the awareness among them regarding the importance of preserving the palm leaves and the problems they are facing on the process of preservation. Visited most of the premises where the palm leaves are stored and collected the data directly in a data work Sheet that are prepared well in advance. A questionnaire also was used for the data collection from the custodians to know their expertise in the field and the methodology used for the preservation. In some cases, data are collected from the most reliable sources and their reports. The study population includes Government Institutions, Trusts, Old family houses (illam), Houses of old local rulers, Religious Centers and individuals who hold Palm Leaves Manuscripts. The study populations were broadly divided into three viz, Government Institutions, Private institutions and Individuals.

Table 1. Govt. Institutions who owned Palm Leaf Manuscripts					
Population	Government. Colleges	Universities	Preservation Centre	State Level Institutes	Total
Govt. Institutions	3	3	1	4	11
Table 2. Private Institutions owned Palm Leaf Manuscripts					
Population	Private Trusts	Religious Centers	Traditional families	Total	
Private Institutions	8	6	18	32	

Population	Traditional Scholars	Technical Persons	Ordinary People	Total
Individuals	6	8	24	38

### Results and Discussion

*Factors necessitating digitization* - The study reveals that the following factors are necessitating the digitization process in order to save our ancestral wisdom and heritage of the country. The study also reveals that the factors leading to the deterioration of the manuscripts and the factors that are gearing up the digitization process. These factors are natural, social, economical and technological.

*Natural Factors* - There are many natural factors affecting the life of palm leaves adversely, which can be termed as deterioration. While the natural factors directly affecting the life of palm leaves, these factors never affect the life of a digital content. These factors are:

- Biological factors: fungus, insects, rodents, worms, cockroach, termites, silver fish, book lice, etc.
- Climatic factors: heat, light, humidity, water, moisture,
- Chemical factors: dust, dirt, pollution, oxidation, etc.
- Natural calamities: flood, earthquake, hot wind, cold wind, fire, etc.

*Social Factors* - There are so many social factors adversely affecting the up keeping of palm leaves manuscripts at its original. At the same time many of these factors are highly demanding digitization of palm leaves. The important factors are:

- The nation's cultural heritage has to be preserved *intact*; Lack of social commitment;
- Lack of interest in preserving traditional materials at its original;
- Lack of awareness among community;
- Lack of professional skill in keeping the materials;
- Lack of proper storage;
- Lack of financial resources to meet the recurring expenses in this regard;
- Religious beliefs;
- Innocence and negligence from the stake holders;
- Rough handling of the material due to the lack of proper training in handling;
- Creating unwanted marks and symbols on the materials;
- Movements of the materials without adequate precaution;
- Some custodians do not permit others for reference; and
- Human factors such as carelessness, rough handling, misuse, etc.

*Economical factors* - There are some economical factors also necessitating the digitization of palm leaves. The economic factors necessitating digital archiving are:

- Compared to digital format, large space occupied for the storage of palm leaf bundles;
- The recurring expenses is very high in preserving palm leaves at its origin;
- Huge expense for creating physical security;
- A user has to spend huge amount for physically verifying the material;
- Up keeping of the material is highly labor oriented;
- Unknowingly spend huge amount for keeping duplicate copies.

*Technological factors* - When we go through the technology which is used for the preservation of manuscripts, we cannot see much progress over the last hundreds of years. Still we are using the primitive technology for preserving the palm leaves that is originally developed by the pioneers. That is why the life of the palm leaves cannot be extended beyond a few hundred years. This technological issue along with the following necessitates the digital archiving of palm leaves to a great extent.

- No technology has been developed so far to increase the life of palm leaves;
- The physical form facilitates single point storage while the digital archives facilitate multi point storage;
- While The physical medium is restricted to single access, the digital archives facilitate multiple access;
- The physical storage compels the user for physical presence at its premise, while the digital archives ensure global access from

the users premise;  
 It enhances the security;  
 Giving facility for full text search;  
 Giving meta data information for the same and related documents;  
 Overcome the barriers of time and space;  
 It ensures long term preservation; and  
 The technology ensures facility for providing translation and transliteration along with the original documents.

Results of the study

Table 4. Major factors caused for the deterioration of Palm Leaf Manuscripts

Area covered	Biological factors	Climatic Factors	Chemical factors	Natural Calamities	Human Factors
Government institutions	73%	6%	8%	0%	13%
Private institutions	70%	13%	12%	0%	5%
Individuals	65%	13%	14%	0%	8%

Table 4 above shows that the biggest factor caused for deterioration is the attack of biological agents like fungus, insects, rodents, worms, cockroach, termites, silver fish, book lice, etc. irrespective of the location where the manuscripts are preserved. Climatic factors and chemical factors are making less harm compared to the biological factors to the collection in the state of Kerala. The study also reveals that the human factors are very high in governmental organizations. In the state of Kerala, natural calamities are not making any harm to the manuscript collection.

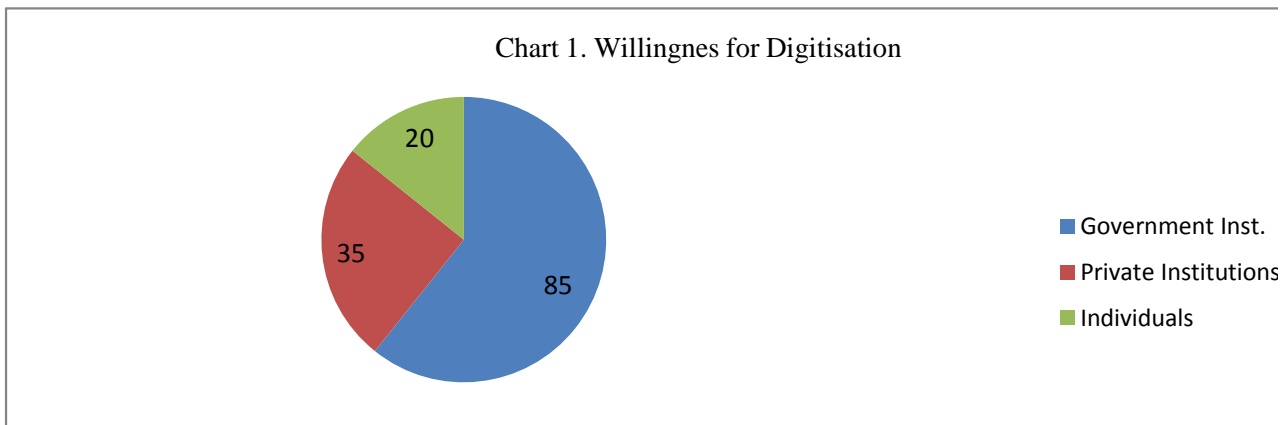
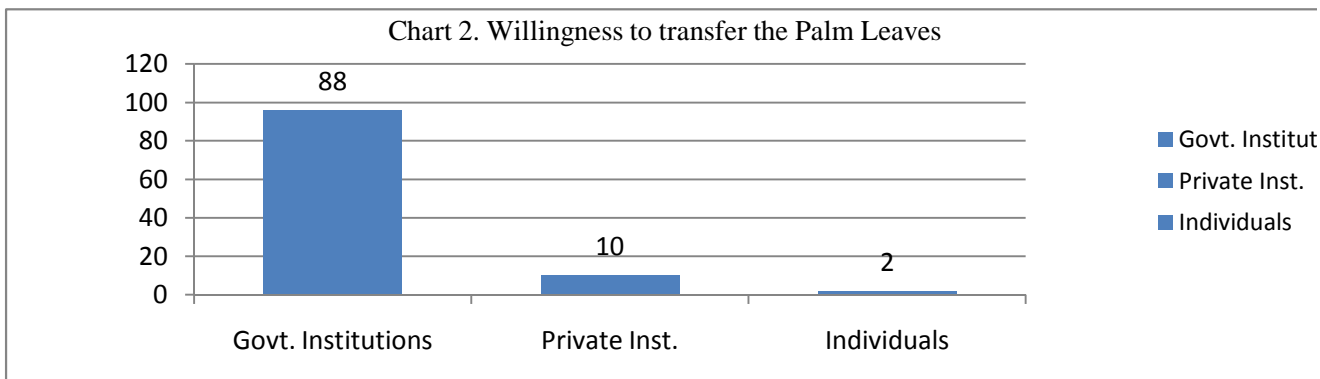


Chart 1 above shows that 85 % of the Governmental institutions are ready for the digitization process provided they are equipped with sufficient infrastructure and trained staff. Present custodians of a few of the Government institutions were reluctant to go for digitization because they feel that such a work will yield extra burden on them. While 65 % of the private institutions and families are reluctant for digital archiving of the entire content, only 20% of the individual custodians have agreed for the process. At the same time all custodians opined that digitization can be opted for the preservation of its contents.



The study shows that all the Governmental institutions are not able to comment on transferring the materials to a central place for proper preservation since it is a policy decision that has to be taken at higher levels. But taking in to account the advantages of storing the materials at a common place, chart 2 above shows that 88% of them favor the opinion. 70% of the Semi and non-governmental institutions favor the decision. 90% of the private institutions refused to offer the transfer and 98% of the individuals refused the same at this stage.

#### Limitations

The study could not cover all the persons and institutions that hold palm leaves manuscripts because of a number of reasons. Many private families deny permission to their collection because of personal and religious beliefs. Some were reluctant to disclose the present condition of the manuscript and comment on the holdings. Some did not respond at that moment for want of permission from their higher-ups or superior authority

#### Conclusion

Due to the absence of a proper solution for the bulk storage of data, over the past years thousands and thousands of palm leaves manuscripts were perished even without retaining a copy or image for future use. If there were such a technology, they would have saved crores of valuable documents and data / information and the future generation would have benefited. Compared to the natural and unavoidable threats on the life of palm leaves, the only remedy for preserving the data on palm leaves is to convert them in to digital format. Before starting the process of digital archiving, a number of questions are to be answered, such as whether it is possible to archive all the available manuscripts, question about the property right, data portability, inter operability, platform independency, technological obsolescence, data format to be used, storage media to be used, etc. The study reveals that, whatever be the questions and threats, digital archiving is the commonly accepted and immediate remedy in front of the information seekers and information scientists to preserve the contents in palm leaves.

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#### Authors

*First Author* - Mohamed Sageer T. K., MLISc, M.Phil.(Library and information Science), Research Scholar, Department of Library and Information Science, Karpagam University, Coimbatore, Tamil Nadu. - 641 021.  
E-mail: [tkmsageer@gmail.com](mailto:tkmsageer@gmail.com)

*Second Author* - Dr. A.T. Francis., MCom, MLISc, NET, PhD.(Library and information Science), Head, Library, College of Horticulture, Kerala Agricultural University, Thrissur – 680 656, E-mail: [francisaloor@yahoo.com](mailto:francisaloor@yahoo.com)

*Correspondence Author* - Mohamed Sageer T. K., e-mail: [tkmsageer@gmail.com](mailto:tkmsageer@gmail.com). [tkmsageer@gmail.com](mailto:tkmsageer@gmail.com).,