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**Co-Editors : Prof. Smt. N. D. Dhuri, Prof. T. V. Kambale**

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**- Chief & Executive Editor**





## Prevalence of Mild Cognitive Impairment of the Elderly in Coimbatore District : A Community-based Study

Abdul Karim M.<sup>1</sup> & Venkatachalam J.<sup>2</sup>

### Abstract:

#### Background:

The aged population in India is radically increasing, which can lead to an increased risk of mild cognitive impairment (MCI) and other memory related disorders. **Objective:** The aim of the present study is to determine the prevalence of cognitive impairment among elderly in a community-based setting in Coimbatore, Tamil Nadu. **Methods:** In this cross-sectional study, the researcher included 60-years and above elderly participants, who enquired regarding memory oriented issues in the past two years in a private counseling centre, Coimbatore. Elderly people with delirium, severe Alzheimer's disease, and severe in dementia and related disorders were excluded. The participants were interviewed after obtaining their consent to collect demographic data and to administer the validated Tamil version of the Montreal Cognitive Assessment (MoCA-T) test.

#### Results:

One hundred and eighty five elderly participants were included for the study. The mean age of the included sample was  $71 \pm 6$  years. The prevalence of cognitive impairment was 35.10%. Low level of education, and institutionalized homes played significant effect on cognitive impairment. **Conclusion:** Prevalence of MCI in India, particularly in Tamil Nadu, using MoCA-T were in the higher side compared to other developing and developed countries.

**Keywords:** mild cognitive impairment, elderly, memory disorder, Montreal Cognitive Assessment (MoCA)

#### Introduction:

Early identification of cognitive impairment is playing a vital role in the field of aging research in India. A report (WHO, 2011, 2020) stated that the global population aged 60 years and over is 13.5% of the world's total population in 2020. Further, in 2050, the report is projected to reach the elderly population nearly 2.1 billion. Also stated that two-thirds of the elderly live in middle-income countries. Particularly in Asia, the proportion of the elderly is expected to increase from 10.5 percent to 22.4 percent during 2012-2050. In India, the population over the age of 60 is projected to increase from 8 percent in 2015 to 19 percent in 2050. Compared to the other states, Tamil Nadu is one of the highest proportions of the elderly, next to Kerala and Goa (Borah et al., 2016). Approximately 7.5 million people in Tamil Nadu were 60 years and above in 2011, and projected to increase more than 15% by 2021 (Dommaraju, 2016). Overall, all the figures pointing to that the elderly population has drastically increasing at all levels nationally and globally. Hence, to find out the problems facing the elderly at an early stage is inevitable in the present scenario.

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MCI is considered an intermediate stage between the normal cognitive changes of aging and the clinical features of dementia (Li et al., 2013; Petersen et al., 2014). The studies evaluating prevalence of MCI in Tamil Nadu is rarely found. A study was conducted by Vasantharekha et al. (2017) to provide first-hand information about the prevalence of MCI and Alzheimer's disease (AD) in Tamil Nadu. However, the authors classified MCI and AD based on Mini-Mental Status Examination (MMSE) and three-decade-old Peterson's criteria only. Also, lack of information about the regions covered in Tamil Nadu. Based on the above considerations, the present study aimed to investigate using the recently standardized tool for assessing MCI in evaluating the prevalence of cognitive impairment among the elderly in the Coimbatore region, Tamil Nadu. In addition, it is aimed to identify important risk factors for MCI among the study population.

### **Materials and Methods:**

In this cross-sectional study, elderly participants who are 60-years and above, enquired regarding memory-related issues in the past two years at the PRFI Counseling Centre, Coimbatore, were the sample for this study. The elderly with delirium, severe Alzheimer's disease, active depression, severe dementia, and related disorders, history of severe head trauma, were excluded.

The researcher interviewed after obtaining consent from the participants. The Tamil version of the Montreal Cognitive Assessment (MoCA-T) was used to assess the mild cognitive impairment (MCI). The Tamil MoCA scale was validated and obtained high internal consistency ( $\alpha = 0.83$ ) and high test-retest reliability (Karim & Venkatachalam, 2021). The maximum score of the MoCA scale is 30 points. Twenty-four (24) points were taken as cutoff points to discriminate normal and mild cognitive impairment.

### *Statistical Analysis*

All statistical analysis was conducted using the recent version of the Jamovi software package (The Jamovi Project, 2021). Descriptive statistics for the continuous variables were reported as means and standard deviations, and the categorical variables were summarized as frequencies and percentages. Continuous variables were compared using the Student t-test. Regression was used to evaluate potential risk factors for cognitive impairment.

### **Results :**

The demographics and baseline characteristics of the sample were given in Table 1. The study included 185 elderly subjects, comprising 44.90% of them were males, and 55.10% were females. The mean age of included participants was  $71 \pm 6$  years. Based on age-cohort, 50.80% (94) of the elderly were 60-69 years-old category, 35.70% (66) were 70-79 years-old category, and 13.50% (25) were 80-89 years-old category. 53.50% (99) of the total participants were from rural, while 46.50% (86) were urban. In education, 67 participants were in the primary category, 89 were in the high school, and 29 were in the graduation category.

The prevalence of mild cognitive impairment of the study population was 35.10% in Coimbatore region, Tamil Nadu. Compared with the groups, there was no significant difference between the mean values of MoCA score on age cohort, gender, and locality. However, there were significant differences between educational levels and the living status (Living with family vs. living at Institution). Table 2 shows that regression analysis of important risk factors of MCI. The institutionalized elderly have a low mean score of MoCA compared with the elderly living with family members.

## Discussion:

The purpose of the present study is to investigate the prevalence of MCI in the Coimbatore region, Tamil Nadu. Regionally, the prevalence of cognitive impairment of the present study is 35.10% which is influenced by other factors such as education and institutionalized home. Previous studies showed that the prevalence of MCI differs worldwide because of involving various factors such as education and the prevalence of other important risk factors. The low level of education triggers the cognitive impairment of the elderly. Further, the institutionalized elderly scored low MoCA scores as compared with the elderly living with family members. Various reasons involved in this finding including no physical activity, not having any simple household activities, depression, separation thought, and more. In addition, the present study also confirmed with the previous studies in regards to the effect of education on the cognitive functioning of the elderly (Busse et al., 2003; Li et al., 2013; Petersen et al., 2014).

**Table 1.** Demographic characteristics of study population along with MoCA mean score and significance level

Demographics	Number	Percentage	Mean	SD	p
<b>Age Cohort</b>					
60-69 years-old	94	50.80	22.60	2.90	0.34 <sup>NS</sup>
70-79 years-old	66	35.70	22.30	3.26	
80-89 years-old	25	13.50	21.60	3.33	
<b>Gender</b>					
Male	83	44.90	22.60	2.80	0.29 <sup>NS</sup>
Female	102	55.10	22.10	3.32	
<b>Locality</b>					
Rural	99	53.50	22.50	2.92	0.49 <sup>NS</sup>
Urban	86	46.50	22.20	3.30	
<b>Education</b>					
1.Primary	67	36.20	21.70	3.36	1 & 3
2.Higher Secondary	89	48.10	22.30	2.85	2 & 3
3.Graduation	29	15.70	24.10	2.54	$p < 0.05$
<b>Risk Factors</b>					
Diabetes Mellitus	25	13.50	23.00	2.57	-
Blood Pressure	35	18.90	22.40	3.54	-
Epilepsy	18	9.70	23.20	3.04	-
Cardiovascular Disease	8	4.30	23.30	2.87	-
<b>Group</b>					
Living with Family	77	41.60	24.00	2.22	$p < 0.01$
Living at Institution	108	58.40	21.20	3.12	
<b>Group</b>					
Normal Cognition	120	64.90	25.50	1.20	$p < 0.01$
MCI	65	35.10	20.60	2.39	



**Table 2. Regression Analysis of Important risk factors of MCI**

	<i>p value</i>	<b>OR</b>
<b>Demographics</b>		
<i>Age category</i>	0.899	0.969
<i>Group (Family vs Institution)</i>	0.001	4.173
<i>Gender</i>	0.207	0.636
<i>Locality</i>	0.903	1.043
<i>Education</i>	0.021	0.554
<b>Risk factors</b>		
<i>Diabetes Mellitus</i>	0.222	0.561
<i>Blood Pressure</i>	0.390	0.694
<i>Epilepsy</i>	0.581	0.727
<i>Cardiovascular Disease</i>	0.188	0.357

In conclusion, these results demonstrate that several factors seem to reduce the risk of MCI. The effect of education contributes to the elderly living with normal cognition. The elderly living in an institutionalized home again raised a question of their cognitive functions. The findings of this study suggest that the need for screening cognitive impairments is inevitable to the elderly after 60 years and also suggests developing culturally appropriate interventional strategies to come out of cognitive impairment.

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## Plant Based Natural Fibers : A Bibliometric Analysis

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### Abstract:

*This study is an effort to showcase the publishing trends on natural/crop fibers from year 2009 to 2020. Three data bases namely Web of science, Scopus and Google Scholar have been analyzed and compared on the bases of number of documents published per year, keyword analysis and country-wise publications on crop fibers. Diversity of results obtained from these databases is attributed to the spectrum of journals and the coverage of topics in each journal. VOSviewer software has been used to visualize the results obtained from WOS database on natural fibers. Using VOSviewer tool publishing trends have been analyzed using term analysis, co-occurrence of keywords and authors' collaboration. For each query the search syntax plays a key role and varies for different data bases. Reproducible results have been obtained for a query in WOS and Scopus. Some countries are found to retrieve a greater number of results in WOS and less in Scopus data base and vice-versa. Cotton is the leading crop showing the maximum number of publications according to WOS and Scopus data base. India is found to be the leading country in terms of the publication containing 'natural fiber' in the paper title. China occupies first place in 'crop fiber' publications. Mechanical properties of the natural fibers have been found the most frequently used keyword in the publications.*

**Keywords:** Natural fibers, crop fibers, bibliometric analysis, publications.

### Introduction:

Man has been using natural fiber since inception. Cave man have used plants, leaves and plant-based materials as food, for comforting themselves in the form of a soft seating, as a roof, to cook food and to cover their body. Ayurveda, which is an ancient medical science, uses plants, plants extracts, seeds, fruits, leaves, roots and barks as remedies for a variety of ailments. We are living in a world where all the natural resources are at the verge of ending. Inquisitive human mind has used plant based natural fibers to its hilt as a replacement of wood. Last decade of 20<sup>th</sup> century and the beginning of 21<sup>st</sup> century has been the time of converting natural fibers into useful end products. Natural fibers (Cheung et al., 2009; Salasinska & Ryszkowska, 2012) are abundant, cheap, environmentally safe, biodegradable, having low mass, low density and high stability (Kandola et al., 2018). Reinforcement (Biswas et al., 2013b; Ferreira et al., 2010) of natural fibers in some matrix, be it polymers, resin (thermoplastic or thermosetting) or cement, makes them of great use. Natural fiber reinforced plastics (FRP's) and composites (FRC's) (Syduzzaman et al., 2020; Takagi, 2019) have spectrum of applications as building materials (fiber/particle boards), thermal resistant products, in aerospace & automotive industries, medicines, cosmetics, decorative items, and many more. Mechanical (Husainie et al., 2020; Robertson et al., 2013; Soundhar & Kandasamy, n.d.) and thermal properties (Devi & Annapoorani, 2019; Hossain et al., 2013) of the FRP's are of great importance. The end usages and applicability of the FRC's depends on the fiber-matrix interaction. Chemical treatments (Albinante et al., 2013; Bajwa et al., 2020; Zhong et al., 2011) on fiber makes it porous, rough, irregular or develop cracks to enhance this interaction. Further improvement in the performance

of FRP's/FRC' is possible by the combination of man-made fibers with natural fibers to form hybrid composites (Cavalcanti et al., 2019).

The term bibliometrics (Pritchard, 1969) was first coined by Pritchard A. Such study was first done in 1917 with the name statistical analysis. Bibliometric is a qualitative tool and keeps a track of the past research, describes the immediate trend and future scope of the study of a particular topic/area in different fields in an organized fashion. Bibliometric analysis gives publication pattern of topics, countries, institutes, authors and sources etc. One can find out which sub-topic has been explored well and the scope of other related areas by such study. Bibliometric analysis provides an excellent platform for researchers who wish to explore a new field.

Three data bases namely Web of science, Scopus and Google Scholar have been chosen for study. Science citation index, presently known as Web of Science is the most powerful research engine and publisher-independent global citation database. It provides about 1.9 billion cited references from over 171 million records. *Science Citation Index Expanded (SCIE)* search across over 9,200 of the world's most impactful journals across 178 scientific disciplines. It provides 1.18 billion cited references date back from 1900 to present. Scopus is the largest abstract and citation database of peer-reviewed literature. It provides a comprehensive overview of research conducted in science and technology, medicine, social sciences, and arts and humanities. Google scholar and SCOPUS both were introduced in 2004. According to literature "Google Scholar should be referred to as an academic search engine not an academic database. As it lacks a stable document identifier and that it is not guaranteed that a once added document will also be shown in future search results. Google Scholar (Gusenbauer, 2019) includes research papers from all over the web including non-peer reviewed papers and reports".

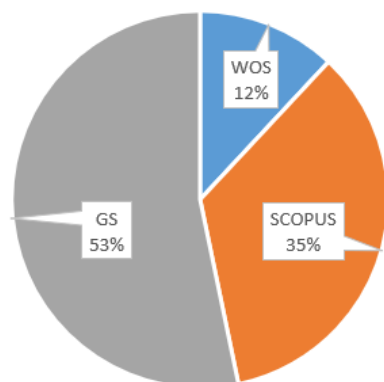
Lots of papers have been published on natural fibers but there is a severe lack in terms of the scientific record of such research. Considering vast spectrum of usage of plant fibers an effort has been made to undertake the bibliometric analysis of plant based natural fibers for a span of eleven years (2009 to 2020) in disciplined and organized manner. Publishing trends have been analyzed in terms of fiber crops, countries and authors' contribution to the subject. Scientific visualization maps have been generated using VOSviewer software based on the most common terms used in context of natural fibers, author keywords and their geographic location.

### **Material and Methods:**

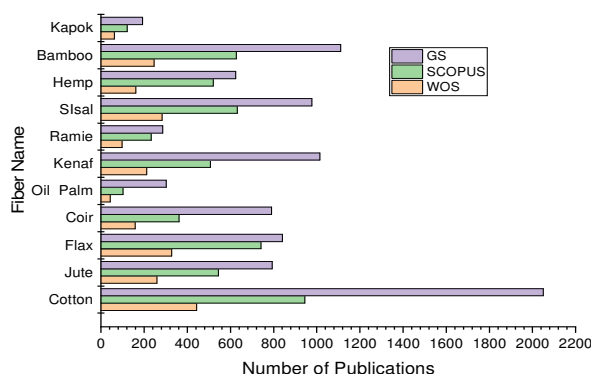
Fibers can be classified into three different categories namely: plant fibers, animal fibers and mineral fibers (Daniels P N et al., 2002) Plant based natural fibers obtained from leaf, stem, fruit or branch have been searched according to their common name. WOS searches were done directly from the data base. As the access for the data base was available for a limited time, Scopus data base has been accessed by using a python library called Pybliometrics (Michael et al., 2019). It has the facility to search a 'specific word' in keywords and abstract along with the title. Keywords in GS are the author's keywords. Abstract search in is not available in Google Scholar. Searches of WOS/Scopus and GS were done by the query "Natural/crop Fiber OR Natural/crop Fibre" excluding animal and mineral fibers. All the Boolean operators were entered in capital letters. Keywords and abstract searches were performed for terms mechanical properties, thermal properties chemical treatment and hybrid composites along with the title as mentioned above for each crop in WOS and Scopus data bases. WOS and Scopus allow to search

the country of affiliation of the authors. Such searches were performed for about 15 countries. A country which returns to more than 35 publications for the fiber crops collectively has been included in the data analysis. Author affiliation searches are not possible in GS.

**Results and Discussion:** Paper title is chosen such that the syntax fetches identical results in the three data bases. Percentage of research paper published containing 'natural fiber' in title in WOS, Scopus and GS are shown in figure 1.



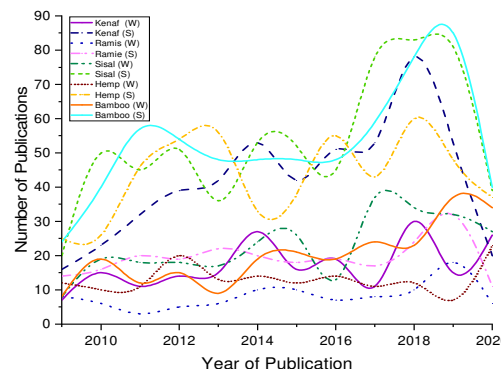
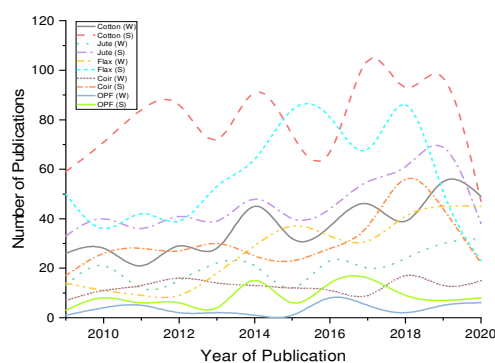
**Figure 1:** Percentage of publications with 'Natural fiber' in title.



**Figure 2:** Fiber crops publications in WOS, and Google Scholar from year 2009 to 2020.

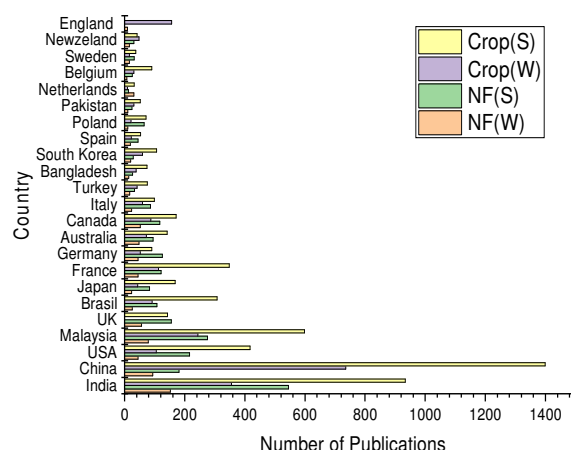
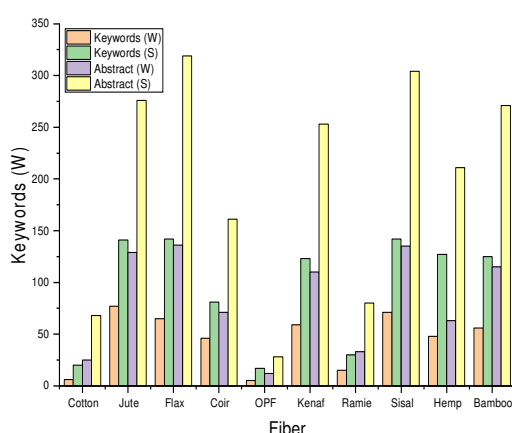
Query for a particular crop that fetch more than 40 results in WOS has been included for further analysis. 'Natural fiber' in the paper title hits the largest number of results for the data bases under consideration. The visual analysis reveals that a natural fiber topic may include a review paper or general study of many plant fibers together. Eleven crop fibers have been included in the study. In 'crop fiber' category highest number of publications were found for cotton crop. Flax, sisal and jute occupy second, third and fourth place respectively in the fiber hierarchy in WOS. In Scopus till third place crop hierarchy is the same as in WOS but bamboo reserves fourth place for itself. Bamboo, kenaf and sisal crops occupy second, third and fourth place in GS. It has been noticed that a query fetches a greater number of publications in GS for a particular crop in comparison to WOS and Scopus data bases. This may be due to the inclusion of a particular crop in the local journals which are not indexed in WOS or Scopus. Figure 2 represents this analysis for WOS, Scopus and Google Scholar from year 2009 to 2020.

Year-wise publications for the fiber crops are presented in figures 3 (a) and 3(b). These figures show certain peaks for a particular crop in a particular year for a data base. Same trend is not followed in the other database. Cotton has been the highest researched crop from 2009 to 2020 according to WOS and Scopus databases. In 2015 and 2018 flax crop fetches more publications than cotton in WOS data base. Flax remained on top with highest publications in Scopus in 2015. Flax, jute, coir and bamboo are the highest researched crops in both the data bases. Oil-palm fiber crop fetches minimum number of publications among the crops studied in both WOS and Scopus data bases.



**Figure 3(a) & 3(b):** Year-wise publication on the crops from 2009 to 2020.

Key word and abstract searches are available in both WOS and Scopus. Keyword search is offered by GS (using Publish and Perish software) is not at the same footing as WOS and Scopus, hence not been included. Maximum number of publications among selected keywords are based on the 'mechanical properties' for all the crops under consideration in WOS and Scopus. Cumulative number of publications on the 'natural fiber' in title with the mentioned keywords are 199 and 472 in WOS and Scopus respectively. WOS and Scopus publish about 78% and 73% articles respectively based on mechanical properties among the selected keywords. Keyword 'hybrid composite' obtains the minimum number of hits among the selected keywords. Jute fetches maximum number of publications on in WOS. Sisal, flax and kenaf are there after in the hierarchical order in WOS. Flax and sisal occupy the first place in the list and jute is at the second place with just a one less hit than jute and sisal. It has been noticed that Scopus fetches double or more papers on the crops under consideration. Same trend has been followed for 'natural fiber' title as well. The fluctuations in the keyword results from WOS and Scopus are attributed to the inclusion of different journals. Figure 4 represents the cumulative data obtained for the above-mentioned keywords.



**Figure 4.** Cumulative data from WOS and Scopus for the selected keywords and abstract searches.

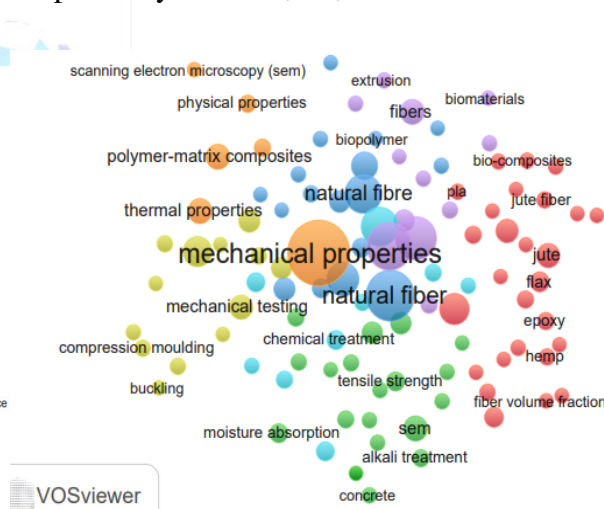
**Figure 5:** Country-wise publications of fiber crops.

for the selected keywords and abstract searches.

WOS and Scopus include the authors' full affiliation in terms of institute, city and country. If in a publication all the contributing authors are from the same country, such publication will be counted once. If a group contributing for a publication is having 'N' authors



**Term analysis:** Term analysis gives an idea about the heads on which the said research is based. It extracts the terms based on their occurrence in a publication. Minimum number of occurrences of a term is set to 10 which give 14322 results. Out of 14322 results 400 meet the threshold. Most relevant terms were chosen based on the default choice which is 60% of the most relevant terms. Hence 240 terms were selected which fall in four main clusters. Cluster one (denoted as red), two (green), three (blue) and four (yellow) respectively have 79, 78, 70 and 13 terms and are represented in figure 6.



**Figure 7:** Scientific map: Keyword analysis analysis showing eight clusters.

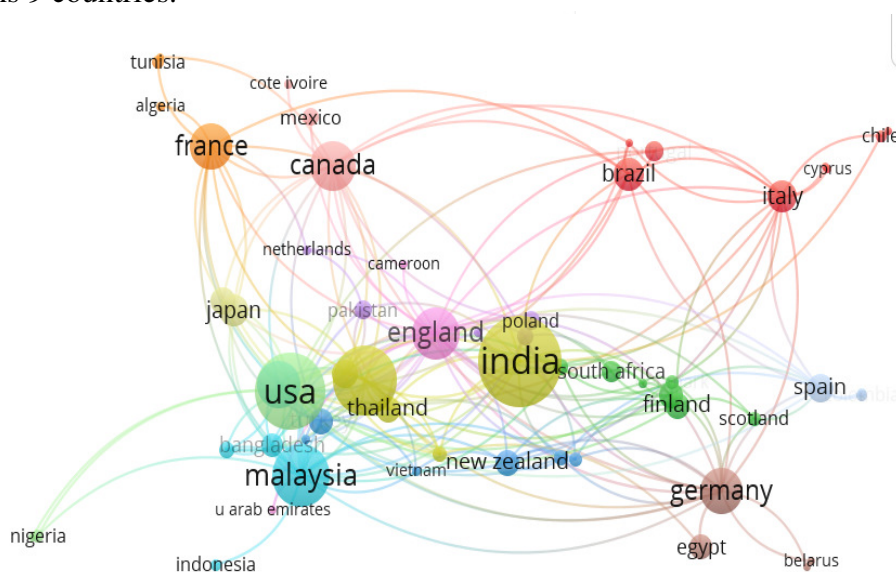
**Email - [researchjourney2014gmail.com](mailto:researchjourney2014gmail.com)**

the natural fibers and matrix generally used in fabrication of FRP's/FRC's such as bamboo, banana, cotton, jute, kenaf, natural fibers, cement, epoxy resin. Mechanical processes such as compression, compressive strength and durable elastic modulus have been highlighted in connection to construction industry. Forth cluster include additives and surface agents such as silane used in fiber surface modification. Such treatments make the final product water resistant and flame retardant.

### Keyword analysis:

Keyword's analysis is of utmost importance as it focuses on the core content of a publication. Hence co-occurrence analysis was done for author keywords using the full counting method. Minimum number of co-occurrence of a keyword was set to 5 and total 1775 results were fetched. Out of these 103 keywords were selected for the analysis. For each keyword, the total strength of the co-occurrence links with other keywords was calculated and keywords with the greatest total link strength were selected. Total eight clusters were found and the map is shown in figure 7.

**Co-authorship-country analysis:** Country wise distribution of the documents was performed by the co-authorship-country analysis facility. In the analysis maximum number of countries per document was chosen to be ten. Minimum number of citations of a country was set to one which fetches 71 results. Largest set of connected items had 71 items containing 8 clusters. Biggest cluster contains 9 countries.



**Figure 8:** Scientific map representing coauthor-country relationship showing eight clusters.

India is represented by the fourth cluster and stands first by publishing one hundred and fifty-two papers. USA, China and Malaysia respectively secure second third and fourth place. England, Canada, Australia and Germany published papers in the range from 45 to 56.

### Conclusions:

It has been concluded from the study that Web of Science is the most authentic and strict data base among the data bases considered. Search results for a query are reproducible. Tropical crops are country and climate specific. The research on such crops become region specific and may have less chances of inclusion in highly indexed journals such as WOS or Scopus. One such very peculiar crop is from south African country Egypt is known as papyrus. Leaf of papyrus plant contains natural glue which gets activated when dipped in water. Papers are been formed

out of it and been used for art work/ painting. Very few papers (Aqeel et al., 2012; Banchamlak, et al., 2021) are available on this fiber and the potential of this fiber is not been explored much. This is just one example. There may be several such fibers available but not known to the world. At such crucial points Google scholar may become a great help. Google Scholar includes anything that is similar to an academic article, research report, thesis, working paper, or book chapter based on its built-in algorithm. As a result, Google scholar supersedes WOS and Scopus in terms of number of results for a particular query. Google Scholar uses resources from academic publishers, universities, and academic repositories and flourish this search engine. Google scholar contains roughly 389 million documents including articles, citations and patents making it the world's largest academic search engine (Gusenbauer, 2019).

According to literature title (Yang, K. et al., 2006) of the research paper/ article is the best way to compare the research on a particular topic in different databases on the same footing. This fact has been reflected in WOS and Scopus results. Looking into the trends of publications in year 2019 and 2020, a drastic fall in the publications has been noticed in Scopus data base in 2020. This may be the Corona pandemic effect. For some fibers the number has reduced to half. No such noticeable change has been observed in WOS data base. Inclusion of the keywords along with the title makes the information fetching process even more effective. Keyword results show that mechanical properties of sisal, jute and flax fibers have been explored the most in WOS as well as in Scopus data base. Sisal fiber is most studied in terms of mechanical properties, chemical treatment on fibers and in producing hybrid composites in WOS and Scopus data bases. These facts show the importance of keywords and trend of publications on the sub topics of plant fibers.

Cotton has been the crop of maximum interest according to the data bases under study. Year-wise publications of WOS reveal that for cotton, jute, flax and sisal the number of publications is almost three times in recent years in comparison to 2009. Four times article growth has been seen in bamboo according to Scopus.

Maximum number of articles have been authored China on the crop fibers under study, in WOS as well as in Scopus. India stands second followed by Malaysia in WOS and Scopus data base.

Scientific map generated on natural fibers by Vosviewer confirms the fact that mechanical properties are the highest studied topic having the largest bubble in the map. Chemical treatments and thermal properties are also explored in details. If instead of a particular crop fiber, 'natural fiber' is considered in the paper title, India secures the first place. According to Scopus India secures the first place followed by Malaysia. The analysis and the maps of Vosviewer confirms this fact.

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## A Study of Reading Habits of Library Professionals in College and University Libraries

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### Abstract:

*This study is about reading habits of library professionals is based on users' survey. Researcher employed questionnaire to study reading habits of library professionals who is presently serving in university and college libraries. Finding from the study shows that the print collections are the major source of information. Majority of LIS professionals prefer English language for gaining knowledge in their profession. The study also shown that, the most important purpose of reading by LIS professionals is to meet the library users' requirements with the help of reference material.*

**Keywords:** Reading, Reading habits, Libraries, Library professionals,

### 1. Introduction:

Librarians are mostly associated with the literature. Whereas reading is primarily an intellectual activity and a vital mean of acquisition of knowledge, skills and expression of thought especially in this modern world of science and technology which demands that one should be able to take in an intelligent and informed interest of happenings within one's environment and the world in general. Reading is a skill that is essential to people's well-being, health, hygiene, negotiations and economic growth. The number of people who cannot read is shocking. The reading habit influences in the promotion of one's personal development in particular and social progress in general.

Aina et al. (2011) defined as a process of comprehending the representation of symbols that are written and printed by looking at them, recognizing them and sometimes verbalization of these visual signs. It involves a mental formulation of communication which represents sounds in human speech. Reading takes place when the reader understands what has been encoded and decodes it properly.

The UNESCO in a 2012 report found that 774 million people worldwide, including 123 million youth, could not read or write. Even those at school are lagging behind in reading age relative to their chronological age. UNESCO's 'Education For All Report' puts the number of functionally illiterate children in primary schools at 250 million. Most people would rather not read for leisure except for a purpose. In most cases we read when we have a programme at hand or to pass examinations. Many of us would rather prefer visiting friends, sit and chat, watch television or play video games than to read a book. Even when we read, we do not read to broaden our knowledge, we read because it is mandatory at that point in time. However, it is important to note that readers are leaders and good readers make good leaders.

The present paper is a questionnaire based study of the reading habits of library professionals who are presently serving in university and college libraries and serving to their users in their concern libraries from different part of the country. The reading habits of

professional requirements, their educational qualifications, psychological needs etc. have been studied. In order to carry out the study, a questionnaire was designed for the library professionalsserving in the college and university libraries in India.

## 2. Objectives:

The following were the specific objectives of the study:

1. To identify the kind of literature being read by the library professionals.
2. To study the frequency and extent of the use of the library by the library professionals.
3. To identify the barriers which keep away the library professional from reading and using the information.

## 3. Methodology

For the purpose of the study a questionnaire was designed and distributed among the respondents. The study was limited to find out the reading habits of library professionals who is serving in the college and university libraries in India and attended for attending Refresher course in HRDC, University of Hyderabad during 8 -28 December 2017. The data analysis and interpretation is based on sample of 50 participants selected respondents out of three categories viz., Assistant Professor in Library and Information Science, Assistant Librarians in University Libraries and College Librarians of different part of the country.

## 4. Data Analysis and Interpretation

### 4.1 State / Territory wise distribution of Library Professionals

Since the reading of literature and reading habit is one of the burning issues in the present scenario and to know the state wise distribution and designation wise statistic of the library professionals. A question was asked to know about the distribution of library professionals in the country. The received data is presented in table number 1.

**Table 1: State / Territory wise distribution of Library Professionals (n=50)**

State / Territory	Asstt. Professor	Asstt. Librarian	College Librarian	Total	Percent
Andhra Pradesh	1	0	2	3	6%
Assam	1	0	1	2	4%
Himachal Pradesh	1	0	1	2	4%
Karnataka	2	2	10	14	28%
Kerala	1	0	0	1	2%
Maharashtra	1	1	7	9	18%
Tamilnadu	3	4	2	9	18%
Telangana	3	1	3	7	14%
West Bengal	1	0	0	1	2%
New Delhi	0	2	0	2	4%
<b>Total</b>	<b>14</b>	<b>10</b>	<b>26</b>	<b>50</b>	<b>100%</b>

Out of the sample population, 28% respondents were from Karnataka state, followed by Maharashtra (18%), Tamilnadu (18%), Telangana (14%) and so on. Among all the respondents there were 26 (52%) College Librarians, 14 (28%) Assistant Professors and 10 (20%) were from the category of Assistant Librarians respectively.

### 4.2 Material for general reading:

It is assumed that all library professionals are dealing and spending most of the time with reading materials. A question was asked to know the reading preference given by type of the

collection available in the library by the LIS professionals. Responses are tabulated and presented in the following table no. 2.

**Table 2.: Preferred source of reading in general**

Type of collection	Asstt. Professor	Asstt. Librarian	College Librarian	Total	Percent
Print material	12	7	24	43	86%
Electronic Material	2	3	2	7	14%
Audio Video Material	0	0	0	0	0
Total	14	10	26	50	100%

From the above table no. 2 it is noticed that, library professionals mostly preferred print source (86%) of reading in the their day-to-daylife due to the comfortability and easiness in reading. Electronic material is preferred by 14%, whereas no one responded to the preference of audio and video books. This may be because its less availability in the library.

#### 4.3 Use of language for reading

Literature is available in many languages; English is the global language where most of the literature is available but there are many languages in India where we are able to find quality literature. To find out the preference of language given by the respondents, the question was asked. The received response is tabulated in the next table.

**Table 3.: Preferred language of reading**

Preferred language	Asstt. Professor	Asstt. Librarian	College Librarian	Total	Percent
English	8	6	19	43	76%
Mother tong language	6	4	7	17	24%
Any other language	0	0	0	0	0
Total	14	10	26	50	100%

From the Table 3 it can be understood that 43 (76%) of the respondents under the study preferred to read in English language whereas 17(24%) of the respondents prefer their own mother tong language to read. None of the respondents mentioned any other language. Thus the analysis is that the most preferred language is mother language.

#### 4.5 Purpose of reading

The purpose of reading may vary by person to person, like: reading for pleasure, reading for information or knowledge etc. That is why a question was asked to understand the purpose of reading among the LIS professionals. The recorded response is presented in the following table.

**Table 4.: Purpose of reading**

Purpose of reading	Asstt. Professor	Asstt. Librarian	College Librarian	Total	Percent
To meet users requirements	07	06	15	28	56%
To be knowledgeable	07	03	08	18	36%
For recreation	00	01	03	04	08%
Total	14	10	26	50	100%

It is evident that more than half of the respondents (56%) under the study read for meeting the users' requirements in learning and research. The second largest category of the respondents (36%) were reading to keep themselves up-to-date in their field. It was found that 8% were reading for the sake of recreation (Table no. 4).

#### 4.6 Source of Information

The source of information under the study can be divided into two categories i.e. scientific information and general information. The LIS professionals read scientific information in order to meet their user's needs and general information for knowledge, recreation etc. To know the source of information a question was asked. The results are tabulated in the following table no. 5.

**Table 5. Source of Information**

Purpose of reading	Asstt. Professor	Asstt. Librarian	College Librarian	Total	Percent
General Books	02	01	08	11	22%
Reference Books	04	04	09	17	34%
Periodicals / Journals	05	04	07	16	32%
News Papers	03	01	02	06	12%
Total	14	10	26	50	100%

From the above table it is noticed that reference book is clear indication of most preferred reading source (34%) as most of the queries in the library solved by using help of reference books. Periodical / Journals are second most preferred reading material (32%) of the LIS professionals under the study. General books (22%) and News Papers (12%) source of information preferred by the LIS professionals under the study.

#### 5. Conclusion:

The present study on preference of reading of LIS professionals of difference college and university libraries shows that print collections are the major source of information. It is also seen that majority of LIS professionals prefer English language for gaining knowledge in their profession. The study also shown that, the most important purpose of reading by LIS professionals is to meet the library users' requirements with the help of reference material.

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## Research Methodology - Scientific and Social Science

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### Abstract:

*The multiple research methodologies utilized in scientific and science research like conceptual research, empirical research, model research methodology, experimental research, formal methodologies, build research methodology, process research methodology and simulation method are measure mentioned in this paper. Also the algorithmic research cycle has been explained. The research method is compared with regard to each scientific and social science research. The less demarcation between the methodologies utilized in scientific and social science research is highlighted.*

**Keywords :** Research, Research Methodology, Conceptual Research, Empirical Research, Experimental Research

### Introduction:

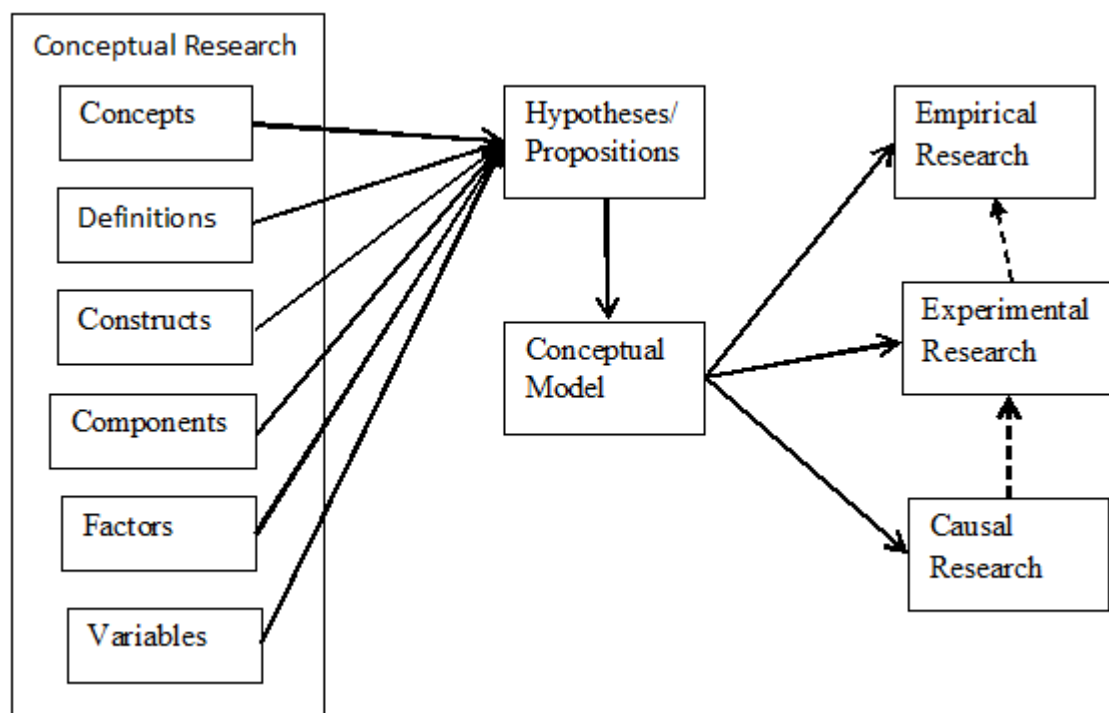
The Advanced Learner's Dictionary narrates research as: "A careful investigation or inquiry especially through search for new facts in any branch of knowledge". Research is an art of scientific investigation. It is an academic activity and as such the term, research should be used in a technical sense. Science springs from totally different domains and uses the analysis ways like experimental, theoretical and simulation. Any science consists of body of knowledge. Ancient philosophers like Aristotle, Plato, and Socrates have studies domains like natural philosophy, philosophy, arithmetic, logic and medication. Aristotle and stargazer area unit the initial contributors of research project. Current day researchers area unit finding out basic sciences, core sciences, engineering sciences, applied sciences, social sciences, natural sciences, biological sciences, zoological sciences, medical and health sciences. The current day social sciences embrace history, politics, sociology, social science, psychology, linguistics, philosophy and cultural studies.

The 'Methodology' has origins from Greek word. This paper explains the different research methodologies used in both scientific and social science research. Those methodologies embrace conceptual research, empirical research, model research methodology, experimental research, formal methodologies, build research methodology, and process research methodology and simulation method.

### • Conceptual Research:

It is helpful for creating derivations, definitions, propositions and explanation hypotheses supported literature gaps. This essentially identifies the fundamental constructs within the subject knowledge domain and finds the interconnections and links between constructs, factors and variables. Conceptual research is beneficial to create conceptual models referring to the topic space. Further, conceptual models are utilized to do empirical, causative and experimental analysis. Conceptual research is the essential step for empirical, causative or experimental analysis (Figure 1).

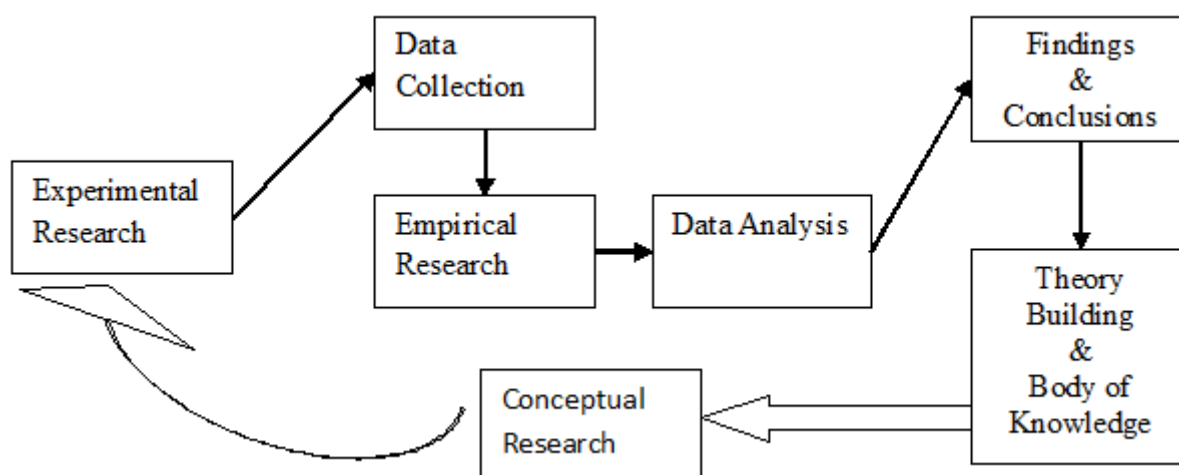




**Figure 1: Social Science Research Methods**

Based on the results of the experiments and observation, the hypotheses are balanced in the scientific research. Whereas, adjusting the hypotheses isn't attainable in management research when knowledge analysis. In management or social sciences research, the hypotheses measure either supported or not supported when knowledge analysis. The hypothesis is consistent here.

Scientific theory is predicated on empirical data came out of empiric experimentation. The scientific research cycle is as shown in Figure 2. The scientific research cycle is recursive in nature. The analysis ways followed in research methods are principally quantitative in nature. Whereas, analysis ways followed in social sciences are principally qualitative in nature. There are various measures cases that mixed ways also are followed in each scientific and social sciences analysis.



**Figure 2: The Scientific Research Cycle**

- **Empirical Research:**

Empirical research is usually utilized in social sciences, behavioural sciences, sociology, psychology, industrial psychology and political economy. Empirical research methods are utilized in project management research additionally. Empirical research utilizes techniques like questionnaires, interviews and case studies. Using questionnaires nominal, continuous, ordinal, interval, ratio and discrete data is collected. This information is additionally dissected for hypotheses testing and deriving conclusions utilizing statistical techniques. The empirical research considering structure and social factors ought to be able to analyse the qualitative comments and printed inputs.

- **Model Research Methodology:**

Model analysis methodology is employed to outline an abstract view of a complex system. Models are worked to maintain upper prices in building the whole complex systems. Model analysis methodology is typically utilized in combination with different analysis methodologies like experiment, empirical, etc. The models inbuilt scientific research are physical models totally different from the conceptual models developed in management or social science research. In management or social science research, conceptual models may be delineated as written text or diagrams. Whereas, in scientific research models are represented in the form of physical things.

- **Experimental Research:**

Experimental research methodology is that the common analysis methodology followed in each sciences and social sciences. However, in most of the cases it's applicable to scientific research. Experimental research has two types. One is exploratory phase and other is evaluation phase. In exploratory phase, the research is concerned the inquiries to raise about the system to be evaluated and in evaluation phase finds the answers to those queries.

- **Formal Methodologies:**

Formal Methodologies are utilized in technology to verify sure facts before automatic verification like finding the algorithmic rule time and area complexness. Formal methodologies are utilized in theoretical computer science technology. Formal methodologies additionally make uses of building abstract and mathematical models. These formal methodologies are used to realize efficient algorithms in areas like distributed systems, parallel computing, cryptography, and pure mathematics.

- **Build Research Methodology:**

In scientific research, build analysis methodology is additionally followed to make a replacement physical object that isn't present earlier. In computer science research, build analysis is wide accustomed design and build the software package systems. While building the software package systems, the software package components may be reused, specific programing language is chosen and continuous testing is completed to the code.

- **Process Research Methodology:**

Process research methodology is employed in bound areas like computer science, software quality, software process improvement and software engineering to seek out the processes accomplishing things. Process research methodology is wide used wherever human

interaction is additional. It's employed in human-computer interaction, vision, and psychological feature sciences.

- **Simulation Methodology:**

Simulation methodology is employed wherever in real implementation is complicated, time overwhelming and costly. For example in domains like astronomy, economics, and physics, computer simulation strategies are used.

- **Conclusion:**

This paper clarify the empirical and experiment research approaches or methodologies are utilized in each scientific and social science research. Conceptual research and model research are employed in each scientific and social science research. Simulation is employed in each economic and computer science. These finding indicates that there's no clear demarcation or the demarcation is extremely less within the methodologies employed in scientific and social science research. All the methodologies are serving to the researchers in each areas in using, interpreting and making right conclusions.

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## Dspace one of the Best Open Source Software in Library for Creating Institutional Repositories

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### Abstract:

*The demands of information users and researchers are increasing day- by-day. Old technologies of information exchange are being replaced by new technologies and methods. Last few years open access, digital publishing material and the related activities of self-archiving and creating institutional repositories have taken place of old methods. Library cultural is turning towards digitization. Today most of libraries are automated. Libraries have always been engaged in managing and developing their collection. Libraries have long experience for collection building and maintain the information. Institutional Repository and open access will be the next challenge for library and LIS professionals. The best software building Institutional Repositories, and Dspace one of the best software building Institutional Repositories.*

*This paper discuss the benefits and obstacles of setting up an IR, and role of reference libraries' and authors, in the successful management of an IR , Through effective IRs, the paper recommends that an IR be considered as the principal benchmark of Digital scholarship.*

**Keyword:** - Institutional Repositories, Advantages of Institutional Repositories, Reference Librarians and Institutional Repositories, Open Access software Dspace

### Introduction: -

The demands of information users and researchers are increasing day-by-day. Old technologies of information are being replaced by new technologies and methods. In this age Internet become an essential medium for information exchange and with its helps to maintain scholarly communication anyone can communicate his/her information with another at anywhere in the world. The result is that from last few years open access, digital publishing material and the related activities of self-archiving and creating institutional repositories have taken step. It's a new technique for digital college building, managing preserving information and creating new information in digital form in institutional and about institution or college. By using this repository the institution can offer services like dissemination of information, access to preserve and use information and as well as content submission and organization of information.

### Repository:-

Repository means formally organized means formally organized and managed collection of digital content generated by faculty, staff and students at an institution. The main purposes of institutional repositories are to bring together and preserve the intellectual output of a laboratory, department and commitment.

### According to Lynch:-

“University-based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. In a university setting an institutional Repository my provide a place for faculty work, students theses and dissertation, e-journals, datasets and so on.”

## **1. Characteristics of Institutional Repository**

Following elements that an Institutional Repository should have

### **1.1 Institutionally Defined**

- Content generated by the community in an institution
- Content present historical and tangible embodiment of the intellectual life and output of an institution.
- Existing library consortia will be a platform
- Consortia could help rapid growth of IR

### **1.2 Scholarly Content**

- Content include preprints, working papers published papers
- Research material, Staff information, teaching material, thesis, dissertations
- Research and technical reports, numerical and statistical report or data

### **1.3 Cumulative and Perpetual**

- Formed by successive additions
- Material should include should be preserved for future scholars to use
- More and more material of information should accommodate
- IR will continue pilling up day by day

### **1.4 Interoperable and open access**

- The user outside the institute must be in position to find out information from the repository
- System should maintain and expose the metadata to allow other services to harvest and search content.
- Internal and external users can access the content.

## **2. Contents of an Institutional Repository**

- Pre-prints of articles or research reports submitted for publication
- The text of articles accepted for publication in journal
- Revised text of published work with comments for academic readers
- Conference Paper
- Teaching materials
- Students projects
- Doctorial theses and dissertations
- Datasets resulting for research projects
- Committee paper
- Works of art
- Photographs and video recordings

## **3. Advantages of Institutional Repositories:**

Academic work available on the Internet is read more widely than work published in paper format Also academic work which is available at little or no cost is read more widely than work publication in expensive conventional publication. Depositing academic work in university repository therefore increases the profile of an author on worldwide basis. Increasing both the dissemination and the impact of the research they undertake.

The main primary advantages are



### **3.1 For Users**

- Expansion of the range of shared knowledge
- Opportunities to simplify and extend dissemination

### **3.2 For Institutions**

- Enabling of IPR to be exploited more effectively at institutional level.
- Flexible ways to develop existing scholarly communications.
- Opportunities for new forms of scholarly communication
- Flexible ways to develop existing scholarly communication

### **3.3 For Researcher Community**

- The research community will be able to access the world's research available in different institutional Repositories.
- IR helps for faster communication and reduces the unwanted duplication

### **4. Disadvantages:**

The institutional Repository also has some Drawbacks and that are as follows:

- In institutional there is no provision for long term digital preservation of information.
- It needs attractive institutional support.
- It needs good funding time by time.
- It will fail if the institution stops funding.

### **5. Institutional Repositories:-**

In simple terms, an institutional repository can be considered to be a digital collection of the intellectual output created by the workforce of an institution. An IR is defined to be a web-based database (repository) of scholarly material which is institutionally defined (as opposed to a subject-based repository); cumulative and perpetual (a collection of records); open and interoperable (e.g. using OAI-compliant software); and thus collects, stores and disseminates (is part of the process of scholarly communication).

An institutional Repository may be made accessible to users locally or globally with or without restrictions. These repositories may contain pre-prints/post-prints of research articles, research reports, conference papers, teaching materials, project reports, doctoral theses and dissertations, datasets resulting from research projects, committee papers, computer software, works of art, photographs, audio/video recordings, patents, standards and the like. The IR may cover content of which copyright is owned by the institution, or for which permission has been obtained from the publisher to include a copy suitable copyright or licensing arrangements have not been made. The content of the IR is institutionally bounded, scholarly in nature, cumulative in growth and perpetual in access.

Institutional repositories are built to showcase and disseminate the research output of institutions. The growth of such repositories and their content may be attributed to the growing awareness among the academics to publish research in online repositories as it ensures better exposure to the work and better opportunities for collaborations online. Digital publishing technologies, ever-expanding global networking, and enabling interoperability protocols and metadata standards are coalescing to provide practical technical solutions that can be implemented now. Institutional repositories are generally institutionally defined. Scholarly, cumulative and perpetual, and open and interoperable in general, salient features and **benefits of**

### **Institutional Repositories may be listed as:**

- Collect, preserve, and disseminate an institution's collective scholarly resources
- Act as significant pointers of an institution's academic or research quality
- Collate the intellectual capital of an institution on a single podium instead of diffusing it in diverse publications
- Give wider access and visibility to institution's research locally and globally, increasing status and prestige of authors and the institution
- Protect authors from copyright clutches and act as alternative to the monopoly of publishers
- Long-term preservation of research output.
- Provide free open access to content (global access to local content)
- Users just need network connectivity and computers to access them
- Makes it easier to demonstrate institutions' scientific, social, financial and intellectual value
- Provides measurable indicators of institutional productivity and increase its prestige.
- Reduces the time lag between a pre-print and a post-print thus facilitating more timely access to research and scholarship.
- Centralized storage helps carrying out research auditing exercises with ease and act as a central archive of author's research profiles.
- Captures unconventional research material such as datasets, video and audio which cannot be generally accommodated in traditional journals.

### **6. Academic Repositories:-**

Many academic libraries are actively involved in building institutional repositories of the institution's books, papers, theses, and other works which can be digitized or were 'born digital'. Many of these repositories are made available to the general public with few restrictions, in accordance with the goals of open access. Institutional, truly free, and corporate repositories are often referred to as digital libraries.

### **7. Kinds of Software Available for Institutional Repositories:**

There are a number of software available in market for institutional Repository. Some of them are on pay basis and some are free downloaded software. Four commonly used systems are:

- **Digital Commons**, commercial software, <http://www.bepress.com/ir/>
- **Dspace**, free open-source software, <http://www.dspace.org/>
- **E-Prints**, free open-source software, <http://www.eprints.org/>
- **Fedora**, free open-source software, <http://www.fedora-commons.org/>

#### **7.1 Dspace**

Dspace is the software of choice for academic, non-profit, and commercial organizations building open digital repositories. It is free and easy to install "out of the box" and completely customizable to fit the needs of any organization.

Dspace preserves and enables easy and open access to all types of digital content including text, image, moving image, mpegs and data sets. And with an ever-growing community of developers, committed to continuously expending and improving the software, each DSpace installation benefits from the next.

Dspace is very popular Software for developing open source Digital library. Dspace is available for capturing, indexing, storing, preserving and redistributing data. Dspace is an

important software. It is a perfect solution for institutional repository to manage and serve and reuse intellectual output of an intuition. Dspace is a digital asset management system. Creation, indexing searching storing and retrieval can possible in Dspace. The most important thing is Dspace is available free basis, so that the needy can use it easily.

#### **7.1.1 Dspace support following items**

- Computer program
- Published books
- Administrative records
- Articles, preprints, technical papers
- Theses/dissertations
- Images
- Audio, Video
- Web pages
- Multimedia Publication

#### **7.1.2 Technical support:**

Dspace-tech is a media by which one can help by Dspace developers. They share needed information, helps other and solve technical problems. Dspace wiki has been used by Dspace developers for keeping in touch with and for sharing code files. UNIX or Linux operating systems are used to run Dspace. Dspace can be easily installed and maintained by developers.

#### **7.1.3 Document Format:-**

Dspace supports different file formats text, audio, video & images. The plug ins is used to ingest document, like PDF,XML, HTML, Plain text, Excel, PPT etc.

#### **7.1.4 OAI Support:-**

Dspace is OAI PMH Compliant. It defines the metadata standards based on Dublin core for the purpose of interoperability. It uses OAI PMH through OAI cat tool for harvesting metadata. Dspace is default uses qualified Dublin core set for furnishing metadata. Dspace is one of the best and easier software for building institutional repository. In Dspace different forms of scholarly publication are archived and preserve.

### **8. Reference Librarians and Institutional Repositories:**

- Reference librarians can play a significant role in planning, establishing, and supporting -IRs. Here is a partial list of some of the possible activities that they may engage in, helping to create sensible IR policies and procedures and to provide feedback about how they work in practice
- Assisting in designing the IR user interface so that it is clear, easy to use, and Effective. Helping to identify current self-archiving activity on campus to aid the content Recruitment effort.
  - Acting as change agents by promoting the IR to faculty and graduate students in their subject areas.
  - Informing faculty and graduate students about Creative Commons licensing Options and publisher-print policies.
  - Depositing digital materials for faculty in their subject areas if such assistance is desired.
  - Participating in the creation of IR metadata, such as local controlled vocabularies (e.g., Subject categories for IR documents)

- Preparing Web-based ad paper documents that explain and promote the IR and advocate scholarly publishing reform.
- Training users in IR deposit and searching procedures.

### **Conclusions:**

Delivering digital content through the IR is a challenging task to any organization. It deals with different aspects like the basic infrastructure, the use of open source software, even though it is freely available, it has to be customized. The deposit of all types of material should be encouraged from different types of people. The IR should be fully accessible from within and outside the institution. IR their collective strength that attracted to the users highly with attractive and manageable way. The collection depending upon the categories of the institutions, research organizations and universities. Increasing the resource sharing the electronic resources among the IRs is remarkably increased through accessing respective portal or websites of the IR. The downloading statistics are also indicating that the users are mostly dependant on the electronic documents in the view of many advantages like fast, easy, anywhere, anytime accessibility, share ability, hyperlink facility to related texts, cost effectiveness and obtain of the storing of the retrieval problem. IR are taking advantage of space management, maintenance and man power to manage serial sections apart from the most economic viable pricing with the sharing mode of budget constraints.

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## **DSpace Institutional Digital Repository Open Source Software : An Overview**

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### **Abstract:**

*Institutional repository is an integral part of a university, college, or research institution, which is an effective means of systematically archiving and distributing digital copies of intellectual products, memorable videos, audio, photographs, music, scanned copies of manuscripts, various courses and question papers. There is several open source software available for the Institutional Repository. In this research paper, we will review the open source institutional repository software called D-Space. It is most commonly used by institutional repositories*

**Keyword:** open source software, Dspace, Dspace user, Dspace structure

### **Introduction:**

Libraries have gained a unique general significance since the evolution of human culture. This is because libraries have changed over time. Libraries have always worked to meet the human need for information through various means. Before the invention of the computer, the resources in the library were communicated to the readers in various forms. At present, libraries are not just a place to distribute books and they have undergone radical changes. Information is stored in a huge format through digital medium along with books. To do this, select the right information, process the information, store the information and convey it to the needy as per the demand. Libraries store a wide variety of information through institutional repository software. There is well-known software like Dspace, Greenstone, Eprints, but Dspace is considered as the most preferred and easy to use software. Dspace is software used primarily in almost all educational institutions. In this research paper, we will review Dspace software.

### **Objectives:**

1. To study of DSpace Institutional Repository software
2. To highlight the features of DSpace Institutional Repository software
3. Emphasis on raising awareness about DSpace Institutional Repository software.

### **Scope:**

The study is only related to Dspace Institutional Repository software. Why the use of DSpace institutional repository software is increasing. The number of users of this software as well as the future importance of this software will be explained.

### **Limitation:**

This research article will study the various aspects of D-Space software.



### **History of Open-source software:**

In computer technology, we are already using many things like Android mobile, Firefox browser, Wikipedia, encyclopaedia, free and open source software. The source code is not available to users from private computer technology companies. Alternatively, they become vulnerable and companies exploit them financially. Even if software is useful to the users, now that the new-updated software has arrived, the users are forced to take it for granted. To break this monopoly of companies, Richard Stallman of the United States set up a project under the free system in 1984 and also established the Free Software Foundation. Since then, the free system has become widely used in many countries. Source code is found in the open system. So you can change the software according to your needs. Moreover, they can be developed in the local languages of the country. The state of Kerala can be given as an example for this. In this state, most of the open system is used in all fields like educational and vocational. There are many examples of using free systems such as Wikipedia, Firefox, and Android Operating System. The open system is also used in all courts in India, LICs, many government agencies and government offices in many states.

### **Open Source software in library:**

Libraries are changing as times change. Libraries that used to cover only a few books and periodicals are now able to get information by contacting any library in the world. Library teams have been formed, through which many activities are being completed. In the past, all the work in the library was done manually. It has now been replaced by library software. Many libraries in the library sector use commercial or free software at their convenience.

### **List of open source library management software**

- BiblioQ
- CodeAchi
- Evergreen
- Invenio
- Koha
- Librarian
- NewGenLib
- OPALS
- OpenBiblio
- PMB

### **Features of Open Source Library Management Software:**

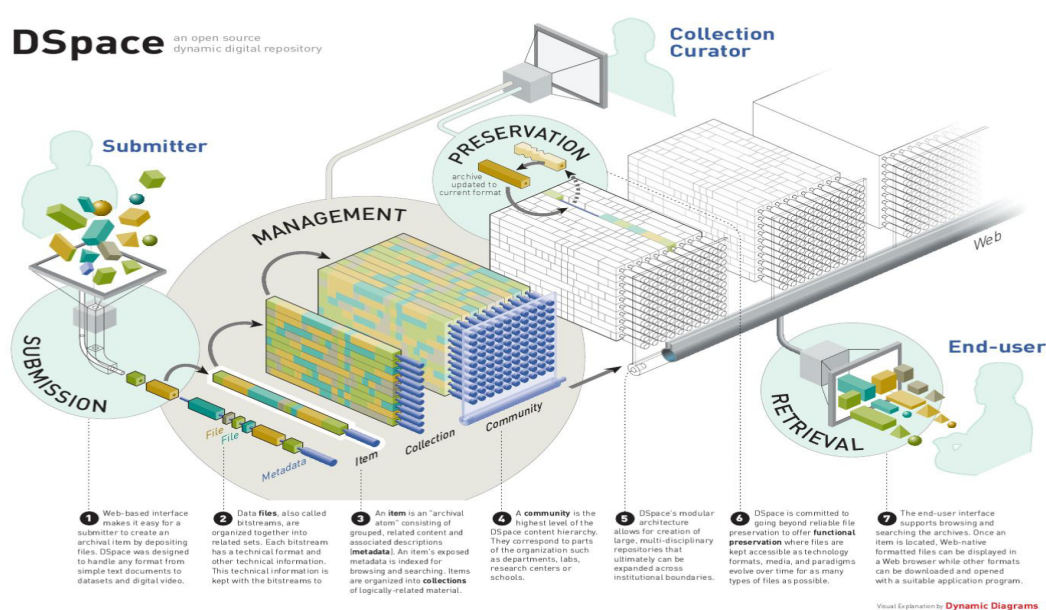
- Acquisition management
- Barcode scanning
- Catalogue management
- Different types of library report
- Inventory management
- Online access of books with their location & availability
- Online public access catalogue (OPAC)
- Online search option for the inventory
- Patron management

- Periodicals management
- Self check-in & check-out
- Subscription management

### Institutional Digital Repository software-DSPACE:

DSpace is open source software. DSpace software is useful for creating open institutional repositories for organizations working in various fields. Through DSpace, all the media like written material, images, video, and audio can be collected and delivered to the user. DSpace was developed and released in November 2002 by MIT Libraries and Hewlett-Packard Labs. DSpace became a DuraSpace project in 2009 when the Fedora Commons and DSpace organizations merged to form DuraSpace.

### DSpace Structure



### According to the DSpace.org

#### The DSpace Vision and Mission statement is;

**Vision:** The DSpace project will produce the world's choice for repository software providing the means for making information openly available and easy to manage.

**Mission:** We will create supervision open source software by harnessing the skills of an active developer community, the energy and insights of engaged and active users, and the financial support of project members and registered service providers.

**DSpace software will:** Focus on the Institutional Repository use case, Be lean, agile, and flexible, Be easy and simple to install and operate, Include a core set of functionality that can be extended to or integrated with complementary services and tools in the larger scholarly ecosystem.

#### Advantages of DSpace :

##### • Community based support:

There are more than 1000 institutions currently using the DSpace software all over the world and most commonly the research libraries are using the software for storage of intellectual publications.

- **Free and under GNU licensing available:**

It is totally free and anyone can download from GitHub and the licensing offers modification, upgradation and distribution from one to another.

- **Customization as per need possible:**

Customization in users interface is possible and apart from this there are customization options like; metadata, search, configure, authentication mechanism, database, and language, etc.

- **Use by government, private and NGOs:**

The software has been used by higher education institutions widely and has major approaches from all other organizations too.

- **Easy management:**

DSpace is the software one can easily download and install on any operating system like, linux, windows, unix, etc. It has also managed a large number of file formats which include, pdf, word, excel, video, text, tiff, etc.

### **DSpae.org Services:**

#### **DSpace Direct:**

DSpace directs a quick, cost effective fully-hosted service that allows users to store, organize, and manage DSpace repository content in the cloud. DSpaeDirect can be used to preserve and provide access to academic faculty and student paper, projects, and research making content easily searchable by end users and easily managed by content curators.

#### **Dura Cloud:**

DuraCloud is an open source hosted service that makes it easy to control where and how your organization preserves content in the cloud. DuraCloud enables your institution to store content with expert cloud storage providers while adding lightweight features that enable digital preservation, data access, and data sharing. The service is also available from 4Science via DuraCloud Europe.

#### **Archives Direct:**

ArchiveDirect is a hosted service offered in partnership with Artefactual Systems for creating standards-based digital preservation content packages that are archived in secure long-term storage.

### **Conclusion :**

Thus the DSpace open source software available under the GNU Public license is easy to install and customize as per the users' needs. It also provides the end number of feature and document management within the limit of organization. The academic library offers users digital services through DSpace OSS and several studies on users' satisfaction have proven it is one of the most users friendly and easy to handle software.

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## Impact of Covid-19 on Indian Banking System and Role of RBI

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### Abstract :

*The damage created by the worldwide pandemic COVID-19 toppled the whole economic status of the world. Must be the most terrible period of history human has ever seen. Whether it's a developing country, under-developed or the world's most potent economy for that matter, no country could run away safely from its impact. The economy was extremely exaggerated because of COVID-19 deadly disease. Reserve Bank of India; the Apex bank of India made obligatory changes with the aid of an expert in their course of action to face the COVID-19 pandemics. The entire Indian Banking sector faced and elongated to face many challenges such as liquidity concern, Reserve Bank of India reduced REPO rate etc.*

*As people are striving to receive income, the Reserve Bank of India manifested to provide an exception for paying EMI from the client by increasing the time of settlement. The objective of this research paper is to study how COVID-19 has incapacitated the Indian Banking sector and also the changes RBI brought in its course of action because of COVID-19. Further, the resolutions were projected for the Indian Banking system to deal with the deprivation because of COVID-19 Pandemic. The researcher found that the Indian Banking system has supplemented various measures because of COVID-19 Pandemic to make the Banking system smooth and efficient. Most of the Indian Banks were facing the problem of NPA, Non-recovery of loans, customer frauds, Bad Loans etc. and to add on to it COVID-19 has expedited the fall down of the Indian Banking system. No doubt banks are established in India with an elementary purpose to make a profit by providing expected ease to customers. But Covid-19 has changed the circumstances for Indian consumers. Because of the closure of businesses, the revenue source of the people came to bring to a close. Then where lies the possibility of availing loan and repaying with interest. These challenges our Indian banking is facing in the existing pandemic situation.*

**Key word: Pandemic, Covid-19, Banking, RBI Reform,**

### I. Introduction and Background:

Indian Banking system is endlessly framing reforms to curtail the consequence of COVID-19. As the entire world is in front of COVID-19 Pandemic. It will change the way humankind works. It created an immense slump in the economy. Indian banking sector got affected by Corona pandemic acutely. Banks got an outburst because of the novel Corona virus. Borrowers and Industries faced precarious problems like job losses, a slowdown in sales and a decline in earnings as the virus spread everywhere in India. Banking customers wanted some monetary relief and the Reserve Bank of India encouraged nationalized banks to provide the relief by framing feasible banking policies towards the necessities of customers. For medical and health-related problems amongst employees, it was decided to furnish a facility for employees to work from home.

World Health Organization (WHO) has urged people to use contactless payment and circumvent the management of bank-notes as much as achievable. It was found that the Corona virus can survive on bank-notes for days and accelerate the spread of the disease. One of the excellent reforms happening in India because of the Corona virus is banks are anticipating their shift towards Digital Marketing/Digital Payments. Now in India people reckon at Online

Banking, Telephone Banking and call centre. HSBC bank in India started working by dividing people into shifts. At Bank-level the predicament of Non- Performing assets has amplified. Spike increase in NPA in India. At present, the NPA rate in India akin to China like 2% but the credit cost ratio is shoddier. Indian Banking system transformed from stable to unconstructive, continuously hampering economic ventures because of the COVID-19 pandemic and a plummet in asset quality.

In this research paper, the researcher found out that the transcendence of the assets incessantly going downward from corporate, Small & Medium Enterprises (SME), and retail segments for lending on profitability and capital for lenders. Abridged yield and lockdown have already started to subjugate a toll on the financials of the corporate sector. Indian Banks faced a lot of obstacles because of the COVID-19 pandemic. The total in commission environment is unconstructive because of vagueness in surrounding the severity and period of the pandemic and the connected effects on Indian banks to put precincts on economic activities. Indian Banks already confronted weak business and consumer faith. Global risk aversion has thumped the Indian Financial Market very hard.

Reserve Bank of India set forth COVID-19 regulatory package for every commercial bank (including Small Finance Bank, Local Area Bank, Regional Rural Bank), All Primary (Urban) Cooperative Banks / State Co-operative Banks/ District Central Co-operative Banks, All-India Financial Institutions and All Non-Banking Financial Companies (including Housing Finance Companies). Government & RBI was constantly in action mode to provide relief to the nation. The government has publicized 1.7 trillion packages for the poor people who looked for money for their living and food security. Many corporate employees were layoff because of COVID-19 Pandemic.

The government is endlessly formulating economic measures and master plans so that the unemployment rate will trim down. The government has also directed many welfare agencies in India to amplify themselves and to maintain the society for augmentation. The government has also given conciliation to the municipal party. Gram panchayat for knowing the principal cause and find out the resolution to cut back on the difficulty. The government also accentuated priority segments like hospitals, schools, service sectors that took loans from banks and they needed support for continued existence.

## **II. Objectives of the Study:**

- 1.To understand the alteration in RBI's policy because of COVID-19.
- 2.To study the consequences of COVID-19 virus on the Indian Banking System.
- 3.To ascertain the resolution for the Indian Banking system to come to grip with COVID-19 virus.

## **III. Research Methodology:**

Research is based upon the consequence of COVID -19 in the Indian Banking Sector. The research is based on secondary data. For the Research paper data is collected from the Reserve Bank of India website, the Reserve Bank of India Manual, Guideline provided by RBI in their manuscript, books, internet, articles, journals, magazines and newspapers.

## **IV. Discussion:**

### **IV (A): RBI Reforms in India:**

#### **i) COVID -19 -Regulatory Package:**

By RBI circular proclaimed certain regulatory procedures for conquering the COVID-19 Pandemic disruptions by figuring out provisions and assets classification rules. In the

declaration, they declared that slackening in the repayment of debts and ameliorating access to working capital execution besides the RBI's focus on the elimination of monetary pressure from the industry holders, so that they can persist in their industries with a constructive environment.

**(a) Rescheduling of payment, term loans and working capital facilities:**

For lessening the consequences of the COVID-19 virus on all the commercial banks (including regional rural banks, small finance banks and local area banks), co-operative banks, all Indian Financial Institutions and Non-Banking Financial Companies (including housing finance companies) ("lending institutions") were permitted to offer slackening for next 3-Months i.e. from 1st June 2020 to 31st August 2020 in payment of all the Equated Monthly Installments (EMI) concerning term loan which comprises of an Agricultural term loan, Retail Loan, and crop Loan. For planned repayment of loans which has vestigial term will be changed to the broader time. Interest will incessantly accrue from the term loan during the suspension period.

Concerning working capital services, the Reserve banks of India came to a decision to sanction in the form of cash credit and overdraft. Commercial Banks came to a decision to relax in payments for another 3-Month from 1st June 2020 to 31st August 2020. On redemption of interest applied apropos of all such services. Financial institutions are allowed, at their discretion, to permute the accumulated interest for the rescheduled period up to August 31, 2020, into a funded interest term loan (FITL) which shall be repayable not later than March 31, 2021. Banking Industry is suffering from great pressure as strong industries downturned and business closure. As a result, there has been a systemic shift in banking sector policy.

**(b) Provisions for working capital financing:**

Reserve Bank of India offered the service to pay the working capital loan in the form of Cash Credit or to borrow and reduce the pressure of Financial Institutions. This regulatory step has been taken by the Reserve Bank of India as a measure to countenance COVID-19 Pandemic. RBI declared to reckon the 'drawing power' by decreasing working capital margin till 31st August 2020.

This conditional classification was done by the Reserve Bank of India till 31st March 2021. Reserve Bank of India continuously took the evaluation of approval of working capital limit till 31st March 2021, hinges on the reassessment of the working capital phase. The above actions will be dependent on the financial institute satisfaction that the identical needed on account of the economic aftermath from the COVID-19 pandemic. Further, accounts offered slackening under these directions shall be dependent upon subsequent administrative review relating to their excusable on account of the financial economy slump because of the COVID-19 pandemic. Financial Institutions worked consequently with the policies that are formulated by the board of the Reserve Bank of India.

**(c) Asset Classification:**

Reserve Bank of India manifested to convert accrued interest into a Funded Interest Term Loan and change the credit policy of the borrower to particularly bridle COVID-19 crisis. RBI worked on the conclusion for stressed assets as guidelines getting from 7th June 2019 in sagacious structure and comparatively will not develop downgrade of Asset Classification. Apropos of account classified standard on 29th February 2020, even if post-Covid-19 Pandemic

period. Wherever granted concerning term loans, will be ruled out by the Financial Institutions from the number of days payable for asset classification under the Income Recognition and Asset Classification (IRAC) standards. The asset classification for such financial credit will be identified based on modified due dates and the revised repayment plan. Similarly, concerning working capital facilities sanctioned in the form of cash credit/overdraft ("CC/OD"), where the financial credit is categorized as standard, including the special mentioned accounts.

**IV (B): Transitory economic disruption in the Indian Banking system because of covid-19:**

1. Inability to access the data / Infrastructure leads to a reduction in serviceability.
2. Temporary correction in the evaluation of FIs, with the unforeseen drop in income.
3. Difficulty in accessing branches for the regular procedure.
4. Fail to pay the loan amount.
5. Foreshorten of non-essential operations.
6. Considerable decline in domestic and cross border business.

**IV (C): A protract setback in the Indian banking system because of Covid-19:**

1. Increasing fondness for the dispersed workforce and shared services.
2. Raising necessities and inclination for digital transactions.
3. A growing inclination for health and life insurance plans.
4. Accumulation of additional funds because of inadequate deployed opportunities.
5. Increase in loan nonpayers because of reduced income sources.

**V. Findings:**

1. The government has taken initiative by proclaiming Rs. 1.7 trillion relief package for the poor people which includes cash transfer and food security
2. Financial Institutions affirmed a bigger corporate bailout package.
3. The government introduced emergency/drastring measures for economic existence.
4. The Indian government intensifying administrative machinery to efficiently distribute the advantage of the welfare program.
5. The Indian government raised the empowerment of local bodies for efficient crisis management of the difficult situation
6. Government pushes the priority sector by offering lending from banks.
7. Reserve Bank of India offered a 3-Month respite period for repaying term loans
8. Reserve Bank of India offered slackening in Asset Classification Norms to the public and private sector Banks.
9. RBI provided the guidelines for the institutions operating limits for customers for systemic strengthening.
10. Reserve Bank of India decreased the Repo rate by 90 BPS.
11. Reserve Bank of India reduced further Repo rate by 2-3%
12. Reserve Bank of India sustained Repo rate lowering to near-zero level.
13. Reserve Bank of India worked on through 25000 carriers Long Term Repo Operation (LTRO).
14. Reserve Bank of India made a further supplemented domestic liquidity through dollar SWAPS LTRO.



## **VI.Conclusion:**

Financial Institutions assisted a propitious environment for the human resources and re-skilling of the employees on new processes for ways of working. They have improved customer-centric approaches through online channels. RBI formulated the policy for ensuring business permanence, engage in a partnership to optimize the procedure and improve the experience. Reprioritized sectors and customer segments based on expansion and risk profile. As the state of affairs changes because of the COVID-19 pandemic government supporting people to design an innovative business model for the new industrial environment. Concentrating on developing a strong digital ecosystem employing cutting-edge technology.

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## Content Evaluation of Ayurveda College Library Websites in Kerala

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### Abstract:

*This study is the paper examines the accessibility, accuracy, currency and user-friendliness in ten selected library websites of Ayurveda colleges in Kerala. It further, discusses services and facilities being offered by the websites. The data were collected through a well-structured checklist from the selected colleges under study. All government and aided Ayurveda colleges are included in the study. Due to lack of information about library website only five private Ayurveda colleges are selected. P.N. PanickerSauhrida Trust Ayurveda Medical College is first in ranking. All colleges gave the information about collection of books and 90 percent of colleges subscribe journals. Majority of Libraries have rare collection books in medicine field. 70 percent libraries are digitalised. Only one library provide CAS and interlibrary loan. The study suggests, for carrying out such evaluative studies which is the need of hour to enable the institutions to update their websites periodically and come up with flying colours on user's expectations.*

**Keywords:** content analysis, Library, websites, Ayurveda colleges, Kerala.

### 1. Introduction.

The website is a collection of web pages, images, videos, and other digital contents. It is usually dedicated to a particular purpose such as education, news etc. As far as the college website is concerned, it is very important for college fraternity and works as a primary source for prospective students who seek information about academic programs and colleges in the decision-making process for taking admission. The development of Internet and ICT is very fast. The libraries are facing the challenge of meeting the varying information needs and demands of users that shifted from printed materials to electronic resources. The content of a websites can be presented in different forms, the most common and accessible being text and graphics. The content and its presentation play an important role in increasing the usability of the library. The stronger the content of any library website, the more users will be attracted. The main purpose of the evaluation of college library website is to guide its user towards accurate and authentic information. Mahamood and Richardson (2011) found that all the libraries were using Web 2.0 tools for sharing news, marketing their services, providing information literacy instruction, providing information about print and digital resources, and soliciting feedback of users. Bierman and Valenteino (2011)10 found that one third of American Research Libraries have podcasting initiatives, to present wide range of information to their audience and those efforts deserve to be marketed appropriately.

#### 1.1 Ayurveda College in Kerala

Ayurveda College in Kerala was established first ever study centre for Ayurveda in India, under the Government not in Gurukula model was established at Thiruvananthapuram in 1889 A.D .A well established library with enomalous collection of books. Ayurveda also has its deep roots in Kerala. Advent of Buddhism (AD 5-6 cent.) in this land contributed much to the spread

of classical ayurveda. So there were various traditions or Gurushishya parambara, transferring, updating and perfecting the knowledge and its application through generations. But in Cochin State, formal ayurvedic education was started only in 1926, in the Sanskrit college at Tripunithura. This college was established in 1914 by the then King Rama Varma Raja and Government Ayurveda College Kannur Periyaram established 1991-92. These are the three government ayurveda colleges in kerala. Two aided colleges in Kerala Vaidyarathnam Ayurveda Colleges, Thrissur and Vaidyarathnam P. S. Varrier's Ayurveda College Kottakkal and twelve private colleges.

## **2. Review of Literature**

Various content analysis studies are done in various subject fields. Usability evaluation of the library website of the University of Punjab has been done jointly by Iqbal and Nosheen (2012). Wickramanayake (2012) analysed the academic library websites and web pages in Sri Lanka. Web presence of engineering college libraries in Kerala has been jointly studied by Archana and Humayoon Kabir(2010). Savitha (2016) investigate the information available in the library websites of deemed university of Karnataka. Manjunatha2018, investigated the contents of eight special library websites of Karnataka with criteria such as general information, library collection, library services, domain and display quality, and link, search and retrieval interface. The study found that all libraries have provided the details of library collection, library services and web OPAC. Most of the libraries have given the general information related to the visitors of library website and only half of the libraries have updated their website. However, limited numbers of libraries have feedback options, FAQ links, suggestion box. Panday (2016) in the study, content analysis and usability of IIT library Websites have been examined. Though there is a growing number of ways and means of contacting users and showing the library "services, the library Website should always be the main starting-point for searches and the one virtual "entrance" to the library. The main criteria for quality for a library Website can be summarized thus adequate language; clear structure; options for different user groups; all information up-to-date and short, concise information. The best preparation for creating a website is for library staff to spend some time by surfing the websites of similar libraries or organizations. Chikkamanju (2015) A study web-based engineering college library information resources have great role to play in academic research activities. Most also provided access to other library catalogues, a description of services and an update date. Information professionals and users face a number of challenges in networked information resources and service environment. Keeping this fact in view, information professionals are largely depending upon the web-based information resources. Sessaiah and Rekha (2019) explore in their study on facilities, services and other information available on the library web pages of 246 engineering colleges in Andhra Pradesh. The outcome of the study reveals that most of the libraries of college websites provide information on their collection, hours, and electronic resources but consistency has to be ensured to achieve user satisfaction. Other features such as FAQs, web 2.0 applications, digital library and feedback facility have been used unwisely.

## **3. Objective of the study.**

- To know the general information of Ayurveda Colleges in Kerala.
- To know the basic information of Ayurveda Colleges.
- To knowabout sections of library.

- To know library services to provides in webpages.
- To know accessibility of SNSs.
- To know whether they are using any consortium to get e-books and e-journals.

#### 4. Methodology

The list of Ayurveda medical colleges in Kerala are collected in various source of information. Total 17 Ayurveda colleges are in Kerala among them 10 Ayurveda colleges have their library websites There are 3 government colleges, 2 aided colleges and 12 self financing colleges (private). All government and aided Ayurveda colleges are included in this analysis. In private colleges, only library website content colleges are included. As part of content analysis, all the contents of the home page and the links from it were analyzed to know the extent of coverage of information contained in them. These links were assigned a value based on which the sites were also ranked. In this study 10 Ayurveda colleges are involved. The checklist was prepared on the basis of earlier studies conducted by different authors. For content analysis, the information given on each website was scanned thoroughly during December 2021. The collected data was presented in tabular and graphical form.

#### 5. Data Analysis and Interpretation

##### Name of Ayurveda Colleges and URL address

Table 1

SL. no	Name of the Colleges	Abbreviations	URL
1	Govt Ayurveda College Trivandrum	GACTVM	www.govtayurvedacollegetrivm.nic.in
2	P.N. PanickerSauhrida Trust Ayurveda Medical College Kasargod	PNPMCK	http://www.pnpsayurmedicalcollege.com
3	Govt Ayurveda Medical College Thrippunithura, Ernakulum	GAMCTE	https://ayurvedacollege.ac.in
4	Vaidyaratnam p. s. Varrier's Ayurveda College , Kottakkal, Malappuram	VVACKM	https://www.kottakkalayurvedacollege.ac.in
5	KMCT Ayurveda Medical College Kozhikode	KMCTCK	https://www.kmctayurvedacollege.org
6	Govt Ayurveda Medical College Periyaram, Kannur.	GAMCPK	http://gack.kerala.gov.in
7	. Vaidyaratnam Ayurveda College Thrissur	VACTSR	vaidyaratnamcollege.org
8	SreeNarayana Institute of Ayurveda Studies and Research, Puthoor, Kollam	SNARPK	http://snayurveda.ac.in/
9	Pankajakasthuri Medical College Kattakada	PMCKTM	https://www.pkamc.ac.in
10	Mannam Ayurveda Co-operative Medical College Pathanamthitta	MACMCP	http://www.mannammedicalcollege.in/

The names of colleges in this study are entered in the table 8 and URL address of the college is given here. To identify the college names the abbreviations mentioned here.

##### Domain Structure of Ayurveda College Websites

**Table 2**

Domain	No.of.Colleges	% age
nic.in	1	10
ac.in	4	40
.com	1	10
.org	2	20
.in	2	20

In table 2 contains the domain structure used in college websites .Out of ten college websites domain extensions have 'ac.in' 40%, '.org' 20% and followed by 10% nic.in and .in It reveals that there is no standardization within college websites.

**Table 3 : General Information of Ayurveda Colleges in Kerala**

Website Content	GACTVM	PNNPMCK	GAMCTE	VVACKM	KMCTCK	GAMCPK	VACTSR	SNARPK	PMCKTM	MACMCP	TOTAL PERCENTAGE
About Library	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100
Mission/Vision	Y	N	N	N	Y	Y	Y	Y	Y	Y	70
Contact Information	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100
Library Rules	Y	Y	N	N	N	N	Y	N	Y	N	40
Library Hours	Y	Y	Y	Y	Y	Y	Y	N	N	N	70
Library Staff	Y	Y	Y	N	N	N	N	N	N	N	30
Infrastructure	N	N	Y	N	Y	N	N	Y	N	N	30
Timings	Y	Y	Y	Y	Y	Y	N	N	N	N	60
Membership	Y	Y	Y	N	N	N	N	N	N	N	30
Photo's	N	Y	N	Y	Y	N	N	Y	N	N	40
Site Map	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100

In this table 3 the general information of Ayurveda College and general details of library are collected. All Ayurveda college websites have information about their library and contact information. Majority of all colleges have mission and vision. Only 30 percent library websites have given details of library staff, Membership and furniture.

**Table 4 : Information about library collection**

Website Content	GACTVM	PNNPMCK	GAMCTE	VVACKM	KMCTCK	GAMCPK	VACTSR	SNARPK	PMCKTM	MACMCP	TOTAL PERCENTAGE
Books	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100
Journals	Y	Y	Y	Y	Y	Y	Y	N	Y	N	90
Reference Sources	N	Y	Y	Y	N	N	N	N	N	N	30
Thesis and Dissertations	Y	N	N	Y	N	N	N	N	N	N	20

News Paper	Y	Y	Y	Y	Y	Y	Y	N	N	N	70
Magazine	Y	Y	Y	Y	Y	Y	Y	N	N	Y	80
Conference Proceedings	N	Y	N	N	N	N	N	N	N	N	10
Rare Collections	Y	Y	Y	Y	N	Y	Y	N	N	N	60
Back Volume of Journals	Y	Y	Y	Y	Y	N	N	N	N	N	50
New Arrivals	N	Y	N	N	N	N	Y	N	N	N	20
Question Papers	N	N	N	N	Y	N	N	N	N	N	10
CD/DVD	Y	Y	N	Y	Y	N	N	N	N	N	40

In this table 4 all colleges entered the total number of books. Except Sree Narayana Institute of Ayurveda studies and research college that all other colleges are entered about the subscription of journals. 80 percent of colleges are subscribe the magazines and 70 percent of newspapers. 40 percent of colleges have collection of CD/DVD. Only 10 percent have collection of conference proceedings and question papers.

**Table 5 : Information on Library Services Provides in Web Pages**

Website Content	GACTVM	PNPMCK	GAMCTE	VVACKM	KMCTCK	GAMCPK	VACTSR	SNARPK	PMCKTM	MACMCP	TOTAL PERCENTAGE
Digital Library	Y	Y	Y	Y	N	Y	N	Y	Y	N	70
E-journals	Y	Y	N	N	N	N	N	N	N	N	20
Reprographic Service	Y	Y	Y	N	N	N	N	N	N	N	30
Referral Centre	Y	Y	N	N	N	N	N	N	N	N	20
Reading Room	Y	N	N	N	Y	N	N	Y	Y	N	40
Document Delivery Service	N	Y	N	N	N	N	N	N	N	N	10
OPAC	Y	Y	Y	N	N	N	N	N	N	N	30
Newspaper Clipping Service	N	Y	N	N	N	N	N	N	N	N	10
Inter library Loan	N	Y	N	N	N	N	N	N	N	N	10
Book Bank	N	Y	Y	Y	N	Y	Y	Y	N	N	60
CAS/SDI	N	Y	N	N	N	N	N	N	N	N	10
Internet Service	Y	Y	Y	Y	Y	N	Y	Y	Y	N	80

In table 5, 70 percent of Ayurveda colleges have Digital library section. 80 percent of colleges have internet facility. Book Bank is providing 60 colleges for poor students to study. Only 10 percent colleges have document delivery service, Newspaper clipping service, interlibrary loan and CDS. Mannam Ayurveda Co-operative Medical College not given any information about library services.

## 6. Findings of the study.

1. There are 17 Ayurveda colleges are in Kerala. All collages have their websites but only 10 colleges have library websites. In this study among 10 colleges all the college website provide the information about library, contact information and site map.



2. Only 30 percent of colleges gave the information about library staff.
3. Most of all libraries subscribing journals except SreeNarayana Institute of Ayurveda Studies and Research and Mannam Ayurveda Co-operative Medical College.
4. Most of libraries provide internet service and 60 percent of colleges provide book bank for sc/st students.
5. P.N. PanickerSauhrida Trust Ayurveda Medical College Kasargod and Govt Ayurveda College Trivandrum and are good in library collection and services. These are high rank in libraries.
6. Document Delivery Service, Newspaper clipping service and CAS is only provide N. PanickerSauhrida Trust Ayurveda Medical College.
7. Most of libraries provide Digital Library.

#### 7. Suggestions.

1. There is no uniformity among Ayurveda library websites.
2. Private Ayurveda college library websites need to develop more. The librarians need to know the advanced technologies available in libraries.
3. It is suggested to have a dedicated team to look after the library website and update it at regular interval.

#### 8. Conclusions:

This paper gives an informative preview of the Ayurveda college library website in Kerala. Librarian of the concern college must take initiative for providing the information of the library websites must be more informative & attractive. It should capture the attentions of the users. Librarians may develop their skills and technique to design a website by undergoing training and use of internet many improve the library frequent activates. This can be used better in the interest of institutional goals. The librarians need to adapt to the new environment, more dynamic and dedicated websites are needed to serve the users in more effective and efficient manner. User feedback and comparison of library websites with other websites is very necessary for the continuous development of the effective library websites. This study reveals that more number of Ayurveda college library websites need to develop more. Only a few number of libraries are active in Library websites.

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## Thermal Characterization of Some Polyurethanes and Their Vinyl Block Copolymers

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### Abstract :

*Thermal analysis plays a major role in the characterisation of polymeric materials. The thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC) can be used as a tool to study their thermal properties. In the present study both these techniques were used to characterise as well as to determine thermal stability, glass-transition temperature of polyurethane macroiniferters and polyurethane block copolymers.*

*Tetraphenyl ethane and its derivatives having a sterically hindered carbon-carbon single bond are known to act as thermal iniferters in free radical polymerization. Polyurethanes having such sterically hindered carbon-carbon bonds may also act as macroiniferters . Few numbers of polyurethane macroiniferters based on 4,4'-diphenylmethane diisocyanate (MDI), polypropylene glycol (PPG, M.W. 1000), 1,4-butane diol (BD) and 1,1,2,2-tetraphenylethanediol (TPED) were synthesised. All the synthesis were carried out thermally by the prepolymer method where MDI and PPG were reacted first followed by chain extension with short-chain diols BD and TPED. The molar ratio maintained in all the synthesis was MDI:PPG:short chain diol( 3:1:2). Polyurethane-block polyacrylonitrile and polyurethane-block-poly 2-hydroxyethyl methacrylate were synthesised from polyurethane macroiniferters by reacting with acrylonitrile (AN) and 2-hydroxyethyl methacrylate (HEMA) respectively. The block copolymers were then freed from homopolymers by partial dissolution technique and also by soxhlet extraction. The thermal behaviour of the resultant polymers were studied by TGA and DSC analysis.*

**Key words :** Polyurethane, macroiniferters, glass-transition temperature, block copolymer, TGA, DSC.

### 1. Introduction :

Polyurethanes are a unique class of thermoplastic materials. They are a broad class of polymers having only one aspect in common, the presence of urethane linkage. The soft segments of segmented polyurethanes are usually derived from linear polyether or polyester macrodiols having molecular weight between 600 and 3000. The hard segment is often an aromatic diisocyanate that has been chain extended with a low molecular weight diol.

Modification of polymeric materials to improve their performance as well as to widen their field of application has been a fascinating field of research. One way of modification may be its block and graft copolymerisation with vinyl monomers. For controlled incorporation of vinyl blocks into polyurethane blocks, iniferter concept developed by Otsu [1] can be employed.

There are two types of iniferters, one thermal- and another photo iniferter. In this paper, thermal iniferter is used to synthesise a series of polyurethane macroiniferters which contain sterically hindered C – C bond in the polyurethane backbone. The C – C bond in tetraphenyl ethane moiety is sterically hindered, thermally labile and acts as a thermal iniferter group. Polyurethane with this thermally labile group behaves as thermal macroiniferter. Such macroiniferters were synthesised and utilised for the synthesis of polyurethane-block-polyacrylonitrile and polyurethane-block-poly.2-hydroxyethyl methacrylate copolymers. Finally, the thermal properties of these resultant polymers were investigated by the thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC).

## 2. Experimental

### 2.1. Materials and methods

All solvents and chemicals were purified according to the methods given in a standard text [2]. 2-Hydroxyethyl methacrylate( HEMA; E.Merck ) and Acrylonitrile (AN ;Loba ) were purified by standard procedures. Dimethyl sulfoxide( E.Merck ), N,N-dimethylformamide (DMF) were first dried over CaO and then distilled under reduced pressure. Polypropylene glycol (PPG; M.W. 1000), 1,4-Butane diol (BD), Ethylmethyl Ketone (MEK; E.Merck), Ethanol(absolute), methanol, acetone, n-hexane and cyclohexane were used as received.

The thermogravimetric analysis(TGA) was carried out with a TA instruments series STD 2960 (Switzerland). In the present work, DSC measurements were carried out using a TA series DSC Q 10 V 9.0 Build 275 instrument under a nitrogen atmosphere and the measurements were started as soon as the heat flow in the DSC cell is stabilised. An approximately 5 – 8 mg sample in an aluminium pan was heated in the DSC cell at a heating rate of  $10^{\circ}\text{C min}^{-1}$  between  $-100^{\circ}$  to  $300^{\circ}\text{C}$  and from ambient temperature to  $350^{\circ}\text{C}$ .

### 2.2. Synthesis of polyurethane macroiniferters based on MDI, PPG, BD and / or TPED:

MDI and PPG were reacted at  $70^{\circ}\text{C}$  for 1 ½ h under dry nitrogen-atmosphere. The reaction mixture was cooled and TPED dissolved in MEK was added drop wise through the pressure equalising funnel. This was followed by the addition of catalyst dibutyl tin dilaureate. The reaction mixture was then again heated at  $50^{\circ}\text{C}$  for 5 hours and finally the polymer was precipitated from water. It was then dried in a vacuum oven for several days.

The amounts of MDI, PPG, BD and TPED taken to prepare polyurethane macroiniferters are listed in table 1

**Table 1: Synthesis of polyurethane macroiniferters.**

SI No.	PU-X%	A(g)	B(g)	C(g)	D(g)
1	PU -100%	2.0002	2.6602	1.9500	Nil
2	PU - 60%	2.0002	2.6602	0.5850	0.0959

PU – X% = Polyurethane macroiniferters, A= Amount of MDI, B= Amount of PPG, C= Amount of TPED, D= Amount of BD,

### 3. Polyurethane-polyvinyl block copolymers :

The polyurethane macroiniferters having varying percentage of the tetraphenyl ethane moieties were then used to synthesise a series of polyurethane-polyvinyl block copolymers. The vinyl monomers used were acrylonitrile (AN) and 2-hydroxyethyl methacrylate (HEMA).

#### 3.1. Synthesis of polyurethane-block-polyacrylonitrile copolymers :

The polyurethane macroiniferters having different percentage of TPED were taken in a 100 ml round bottomed flask and dissolved in DMF (25 ml) under nitrogen atmosphere. The acrylonitrile (AN) was then added and the mixture was heated to  $74^{\circ}\text{C}(\pm 1)$  for 12 h, in constant agitation (table 2). At the end of the reaction, the products were precipitated in water. The block copolymers were then freed from polyacrylonitrile (PAN) homopolymers by partial dissolution technique. Finally these were then soxhlet extracted with acetone to remove any impurity. The purified product was then dried under vacuum for several days.

**Table 2 : Synthesis of Polyurethane-polyacrylonitrile block copolymers.**

Sl.No.	PU-b-PAN	PU-X%	A(g)	B(g)	C(g)
1	PU <sub>100</sub> -b-PAN	PU – 100%	1.0722	2.3255	1.5475
3	PU <sub>60</sub> -b-PAN	PU – 60%	1.0722	2.3255	1.3311

(PU-b-PAN)= Polyurethane-block-polyacrylonitrile copolymers.

(PU – X%)= Polyurethane macroiniferters. A= Amount of PU – X%

B= Amount of acrylonitrile (AN).

C= Weight of dry product (PU-b-PAN copolymers) after removal of homopolymer (PAN).

### 3.2 Synthesis of polyurethane-block-poly 2-hydroxyethylmethacrylate copolymer :

The polyurethane macroiniferters having different percentage of TPED were taken in a 100 ml round bottomed flask and dissolved in DMF under nitrogen atmosphere. The 2-hydroxyethyl methacrylate (HEMA) was heated at 80°C(±1) for 12 h, in constant agitation (table 3). At the end of reaction, the polymers were precipitated in water. The block copolymers were then freed from poly 2-hydroxyethyl methacrylate (PHEMA) homopolymers by soxhlet extraction with methanol. The purified product were dried under vacuum for several days.

**Table 3 : Synthesis of polyurethane-block-poly 2-hydroxyethyl methacrylate copolymers.**

Sl.No.	PU-b-PHEMA	PU-X%	A(g)	B(g)	C(g)
1	PU <sub>100</sub> -b-PHEMA	PU – 100%	1.0722	2.3255	1.5714
3	PU <sub>60</sub> -b-PHEMA	PU – 60%	1.0722	2.3255	1.3098

PU-b-PHEMA = Polyurethane-block-poly 2-hydroxyethyl methacrylate copolymer

A= Amount of PU – X% B= Amount of 2-hydroxyethyl methacrylate (HEMA).

C= Weight of dry product (PU-b-PHEMA copolymers) after removal of homopolymer (PHEMA).

## 4. Thermal analysis of polyurethane macroiniferters and their block copolymers

Basically the thermal properties of polymeric materials are studied with the help of thermogravimetric analysis(TGA) and differential scanning calorimetry(DSC). In the present study, both these techniques were used to characterise as well as to determine thermal stability, glass-transition temperature of polyurethane macroiniferters and polyurethane block copolymers.

### 4.1. Thermo gravimetric analysis (TGA)

Thermogravimetric analysis is an important technique in polymer characterisation. In this analysis, the mass of a sample is continuously recorded as a function of temperature. Reactions or changes that occur within the same temperature range give thermogravimetric curves that appear to consist of one continuous mass loss. A derivative mode of thermogravimetric curve termed as DTG is useful in detecting partially overlapping reactions involving the formation of weakly stable intermediates. In such cases the DTG plots give distinct peaks corresponding to each mass loss.

The thermogravimetric analysis results can be used for diagnostic purposes as no two polymers will have the same thermogram. Further, the weight loss curves may be used as a proof of the formation of copolymers. Boni and co-workers [3] studied the weight loss of random copolymers, block copolymers of two  $\alpha$ -amino acids, the homopolymers of which had very different thermal stabilities. The random copolymer showed a smooth degradation curve which lied between the degradation curve of the two homopolymers. But the weight loss curve of block



copolymer, though did not show two well resolved waves, showed two distinct slopes corresponding to two polymer components. Similarly the weight loss curve of graft copolymer was found to be different from those of the homopolymers [4]. Further thermogravimetry can be used to ascertain the relative thermal stabilities of the copolymers with respect to the homopolymers.

Figure 1 shows the TGA-thermogram of the polyurethane (PU-0%) based on MDI, PPG and BD. The weight loss was a one step process as is evident from the thermogram. The midpoint of the inflection of the thermogram was considered as the decomposition temperature for the polyurethane and was found to be 368.69 °C. The polyurethanes undergo thermal decomposition of chemical linkages, oxidation and depolymerisation at elevated temperature. The thermal degradation mechanism of polyurethane based on MDI and BD was studied by Yang et al [5].

Figure 2 and figure 3 show the TGA-thermograms of the polyurethane macroiniferters PU-60% and PU-100% respectively. In each case the weight loss was found to be a three-step process. In case of PU-100% the initial weight loss was about 14%, which occurred at 196.67 °C, which was followed by another weight loss at around 309.99 °C. The final weight loss occurred at around 363.32 °C. Since it has been indicated that the initial degradation occurs in the hard segments [6], this may imply that the hard segment which is composed of TPED in place of BD degrade much before the over all degradation of the polyurethane. The two weight loss may be due to degradation of segments of different lengths containing the TPED units.

The TGA-thermogram of PU<sub>100</sub>-b-PAN based on PU-100% is shown in figure 4. The thermogram showed an initial weight loss at around 260.43 °C and the rest of the curve showed apparently one step weight loss process. However, DTG showed it to be consisted of three different weight loss processes at around 296.67 °C, 363.37 °C and 426.64 °C respectively. The thermogram of PU<sub>100</sub>-b-PAN is different from that of polyurethane macroiniferter (PU-100%) indicating different chemical composition of the two which implied the successful copolymerisation process. It is possible that TPED hard segments containing polyacrylonitrile segments of different lengths degraded at different temperatures. The final weight loss at 426.64 °C is evidently due to degradation of polyacrylonitrile segments as this was absent in the thermogram of the polyurethane macroiniferter. The thermogram (figure 5) shows the weight loss pattern of another PU<sub>60</sub>-b-PAN based on PU-60%. This is identical with that of PU-b-PAN based on PU-100%. The figure 6 and figure 7 show the TGA-thermograms of two PU-b-PHEMA samples based on polyurethane macroiniferters PU-60% and PU-100% respectively. Both the thermograms indicated two major weight losses at around 335- 339°C and 415 °C respectively. The weight loss patterns were distinctly different from that of the macroiniferters which showed a three-step weight loss process. The differences in the nature of thermograms again can be considered as a proof of different chemical nature of the polymers which was the result of copolymerisation process. The nature of the monomer 2-hydroxyethyl methacrylate (HEMA) is quite different from that of acrylonitrile (AN). Due to the presence of the hydroxyl group, it can interact with both the hard segment and soft segment of the polyurethane through hydrogen bonding and this will affect the thermal behaviour. While the degradation at 335 – 339 °C may be due to polyurethane segments, the degradation at 415 °C is probably due to degradation of the PHEMA segments of the block copolymer. The block copolymer appeared to have a better thermal stability than that of the polyurethane macroiniferter.

#### 4.2. Differential scanning calorimetry :

Differential scanning calorimetry (DSC) is a more versatile technique [7-9] for the determination of glass transition temperature ( $T_g$ ), the crystallisation temperature ( $T_c$ ), the melt temperature ( $T_m$ ) and the degradation or decomposition temperature (TD). This method is based on the comparison of heat flow to a sample and a reference consisting of an empty pan. The DSC thermogram appears as a plot of heat flow against temperature. The heat flow was recorded against temperature and glass transition was indicated by a shift in the base-line.

The attractive property that make block copolymers unique are determined by microphase separation. Therefore it is important from an application standpoint to be able to understand and control the degree of microphase separation and its relation to morphology. Thermal analysis, particularly differential scanning calorimetry (DSC) is an invaluable aid in assessing the extent of phase mixing and phase segregation. One common approach to determine the extent of phase mixing is to compare the glass-transition temperature  $T_g$ 's of a block copolymer with those of the corresponding homopolymers. If the values are the same, then the extent of phase separation is considered to be complete, that is each phase of the block copolymer is composed of nearly pure blocks. On the otherhand, shift in the glass-transition temperature ( $T_g$ ) of a block with respect to homopolymer may indicate some phase mixing. Further calorimetry can also indicate to some extent, the extent of heterogeneity in systems usually considered homogeneous [10].

Besides being useful in ascertaining the glass-transition temperature of polymers, the DSC is also useful in detecting other parameters[11] like melting temperature, pre-crystallisation which sometimes precede the melting and the order to disorder transition or the onset of microphase mixing. In the present case both the low temperature and high temperature DSC studies were carried out to investigate the glass-transition as well as the melting behaviour.

Figure 8, figure 9 and figure 10 show the DSC-thermograms of the polyurethane macroiniferter (PU-100%). Figure 8 and figure 9 are the DSC thermograms in the temperature range  $-100^{\circ}$  to  $300^{\circ}$  C in the first and second heating cycles respectively. Figure 10 is thermogram of the sample in the temperature range of ambient temperature to  $350^{\circ}$  C. In the first heating cycle the glass-transition temperature due to soft segment was observed at  $-19.98^{\circ}$  C, which was much higher than the  $T_g$  of pure PPG ( $-71^{\circ}$  C). This indicated a certain degree of phase mixing and bulky hard segments lowered the mobility of the soft segments. Another endothermic change was observed at  $179.15^{\circ}$  C. According to Leung and Koberstein [12] the intermediate temperature endotherm found generally in the range  $140^{\circ}$  to  $200^{\circ}$  C was due to order to disorder transition or the onset of microphase mixing. Figure 9 shows the DSC-thermogram of the sample quenched after the first cycle of heating. The quenched sample on the second cycle of heating showed the soft segment  $T_g$  at  $-26.64^{\circ}$  C. The DSC-thermogram (figure 10) shows a number of endothermic changes in the range  $150$  to  $215^{\circ}$  C, which were due to order to disorder transitions. The endothermic peak at  $304.99^{\circ}$  C may be due to melting of semi-crystalline hard-domains formed from MDI and TPED.

Figure 11 shows the DSC-thermogram of a non-quenched sample of PU<sub>100</sub>-b-PAN in the temperature range  $-100^{\circ}$  to  $300^{\circ}$  C. Three endothermic changes were observed in the region  $35^{\circ}$  to  $80^{\circ}$  C. The soft segment  $T_g$  due to PPG segment was raised to a temperature of  $38^{\circ}$  C. This rise was probably due to dissolution of polyacrylonitrile segments in it. The glass- transition temperature due to polyacrylonitrile segment was observed at  $79.69^{\circ}$  C. The DSC-thermogram

incidentally showed a prominent exothermic peak at around 266<sup>0</sup> C, the reason for which is difficult to explain, though it is known that polyacrylonitrile undergoes cyclisation in the temperature range 160<sup>0</sup> to 275<sup>0</sup> C.

Figure 12 and figure 13 show the DSC-thermogram of PU<sub>100</sub>-b-PHEMA copolymer, studied in the range –100<sup>0</sup> to 300<sup>0</sup>C and from ambient temperature to 350<sup>0</sup> C respectively. The low temperature thermograms showed two important endothermic peaks at –23.33 <sup>0</sup>C and 85.63 <sup>0</sup>C respectively. This may be due to soft segment glass-transition in polyurethane segment and the glass-transition due to PHEMA segments. The high temperature thermogram besides showing the endothermic glass-transition due to PHEMA segments also exhibited another endothermic peak at 247.17 <sup>0</sup>C which may be due to melting of polyurethane hard domains.

**Conclusion:** A series of polyurethane thermal macroiniferter having 1,1,2,2- tetraphenyl ethane moiety were successfully synthesized, from MDI, PPG, BD and 1,1,2,2- tetraphenyl ethane diol(TPED), by varying the amount of BD and TPED in the reaction mixture. These thermal macroiniferters were then used to synthesise a series of polyurethane-block-polyacrylonitrile and polyurethane-block-poly2-hydroxyethyl methacrylate copolymers. Thermogravimetric studies revealed the different degradation profiles of block with respect to macroiniferters. The behavior was in expected line of a block copolymer. The thermal stability of the block copolymers were observed to be marginally better than those of the macroiniferters. Differential scanning calorimetric studies indicated that block copolymerization process affected the glass- transition temperature of the polyurethane soft segments.

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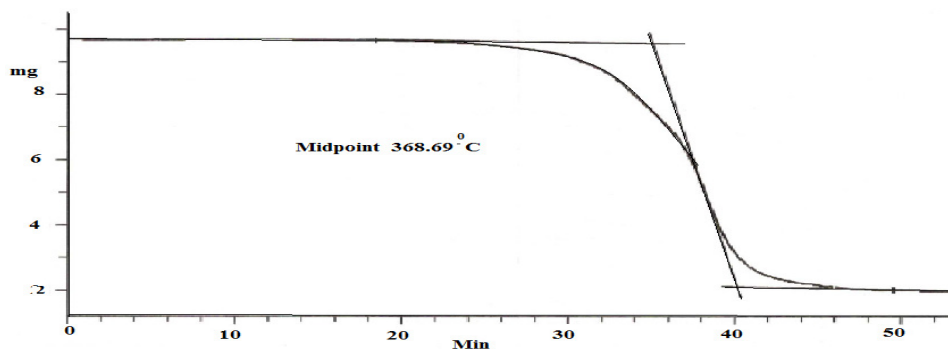


Figure 1: TGA – Thermogram of polyurethane (PU-0%)

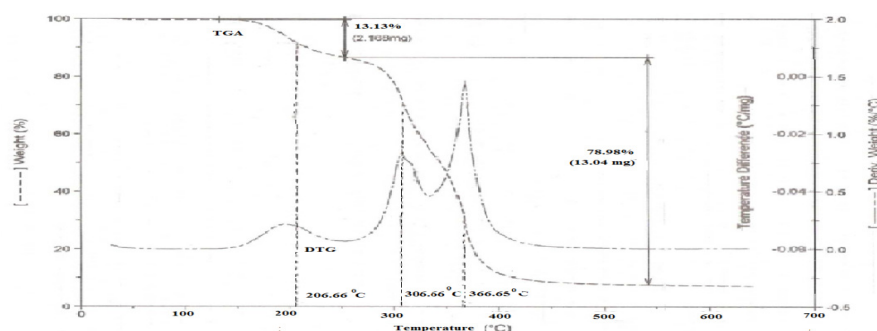


Figure 2: TGA -Thermogram of polyurethane macroiniferter (PU-60%)

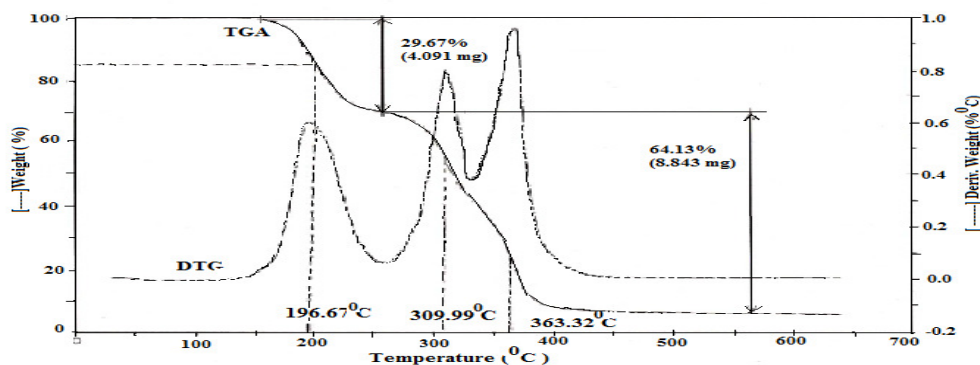


Figure 3: TGA -Thermogram of polyurethane macroiniferter (PU-100%)

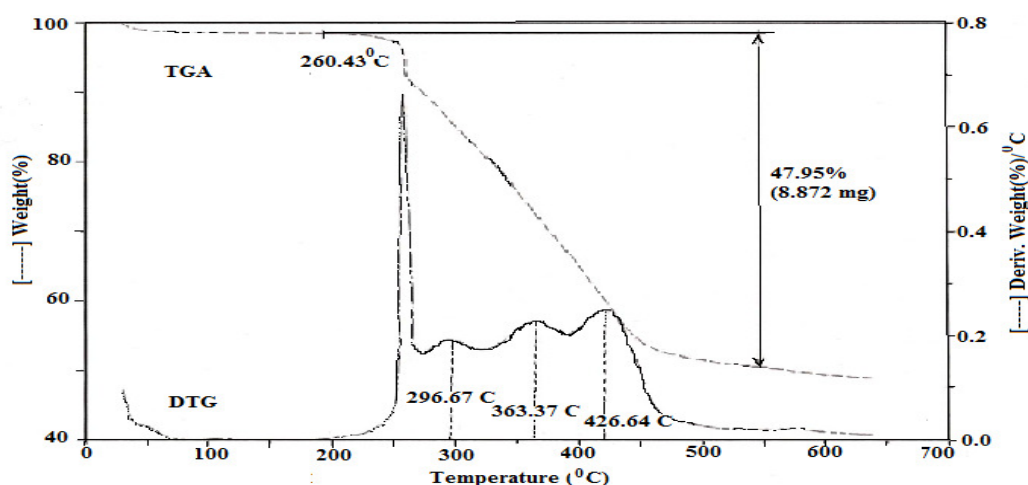


Figure 4: TGA -Thermogram of PU<sub>100</sub>-b-PAN copolymer

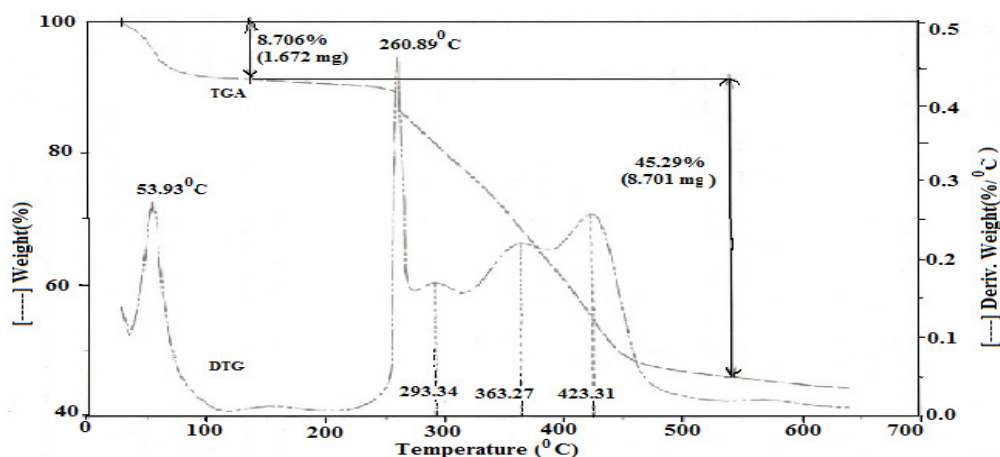


Figure 5: TGA -Thermogram of PU<sub>60</sub>-b-PAN copolymer

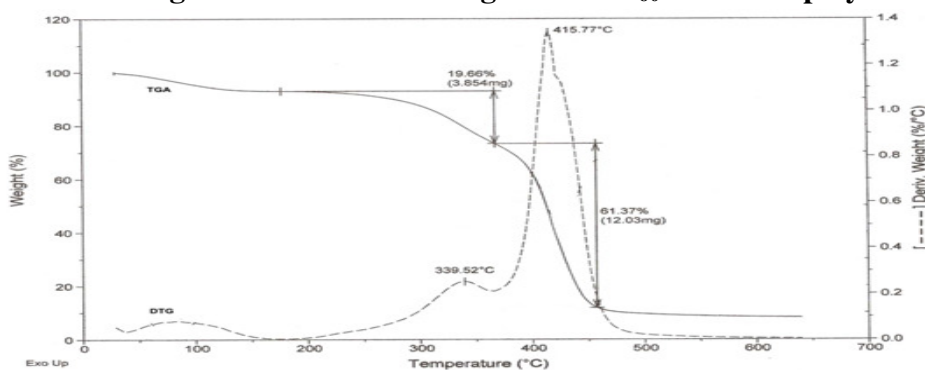


Figure 6: TGA -Thermogram of PU<sub>60</sub>-b-PHEMA copolymer

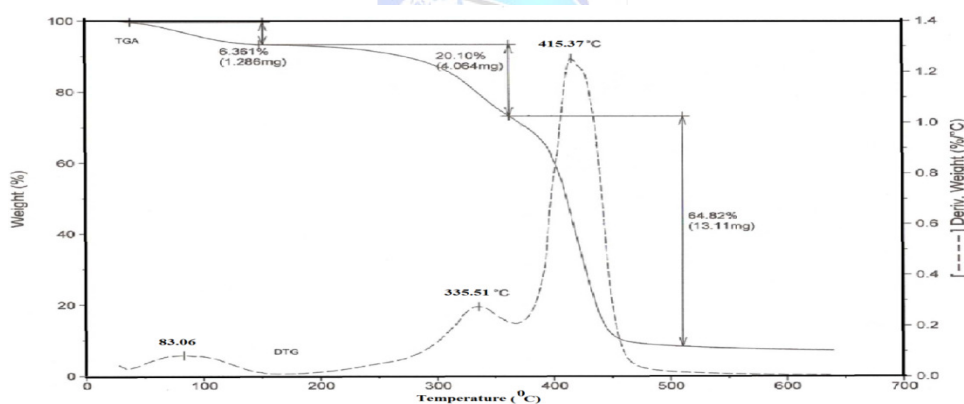


Figure 7: TGA -Thermogram of PU<sub>100</sub>-b-PHEMA copolymer

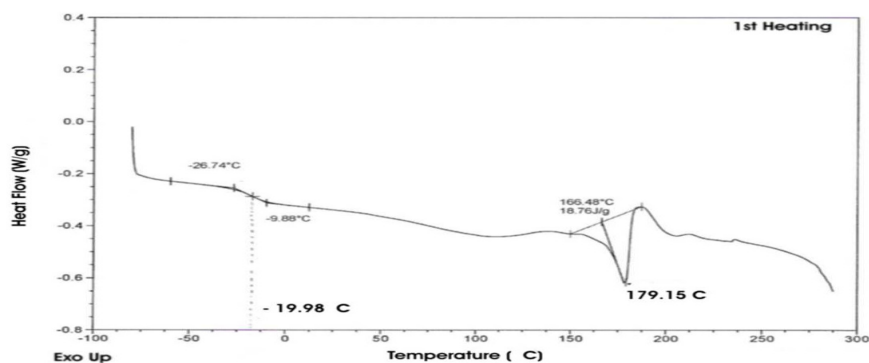
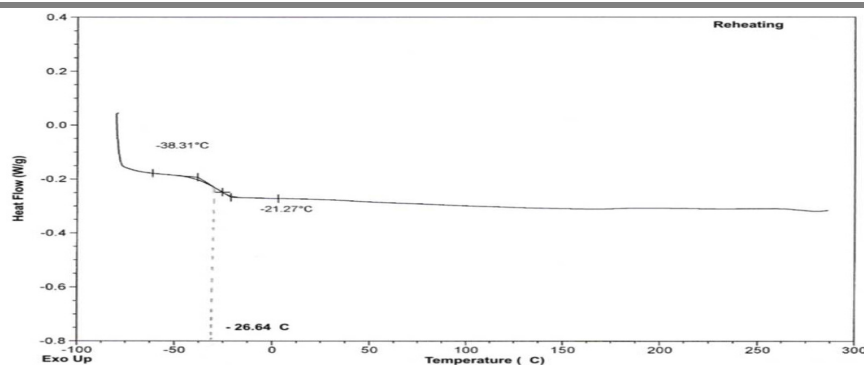
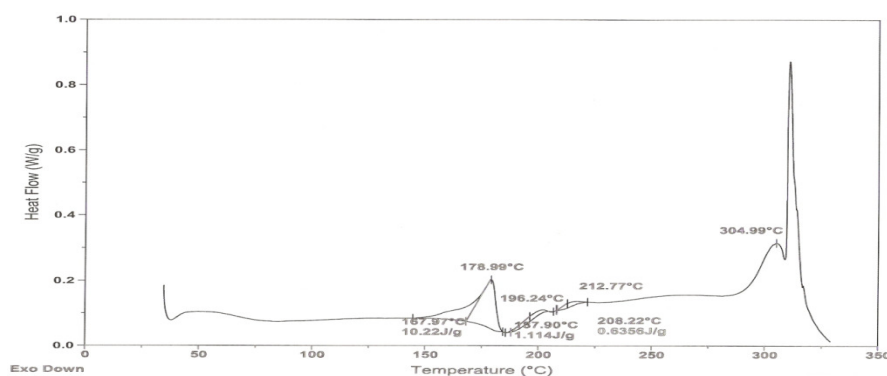


Figure 8: DSC-Thermogram of polyurethane macroiniferter (PU-100%)  
in the first heating cycles

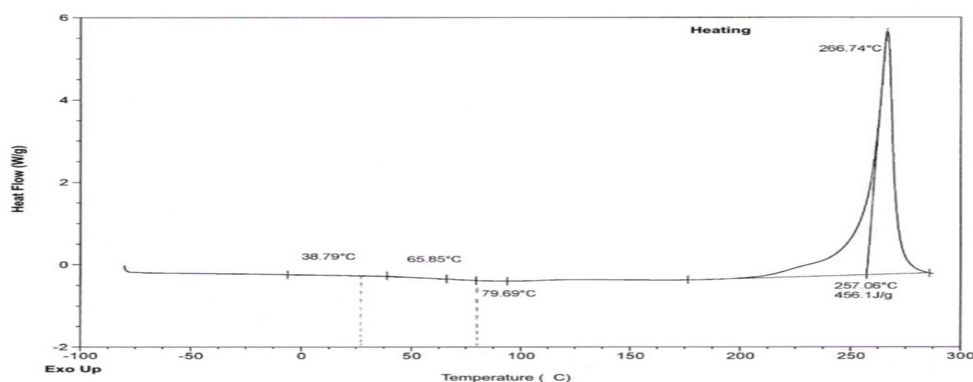




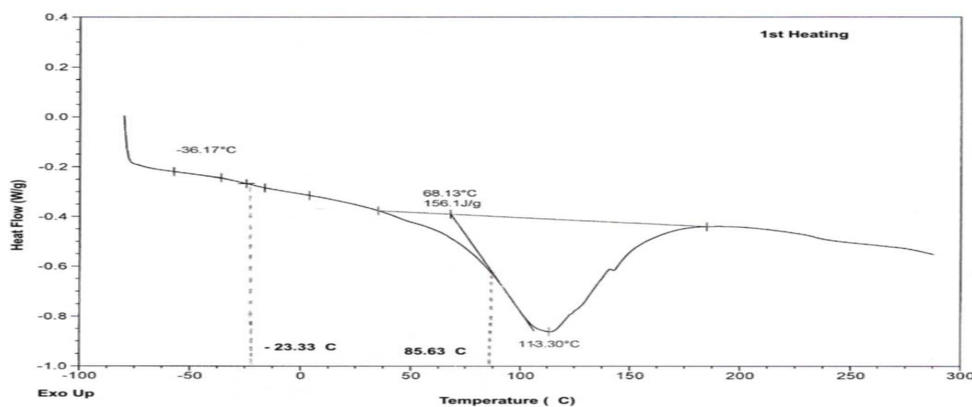
**Figure 9: DSC-Thermogram of polyurethane macroiniferter (PU-100%) in the second heating cycles**



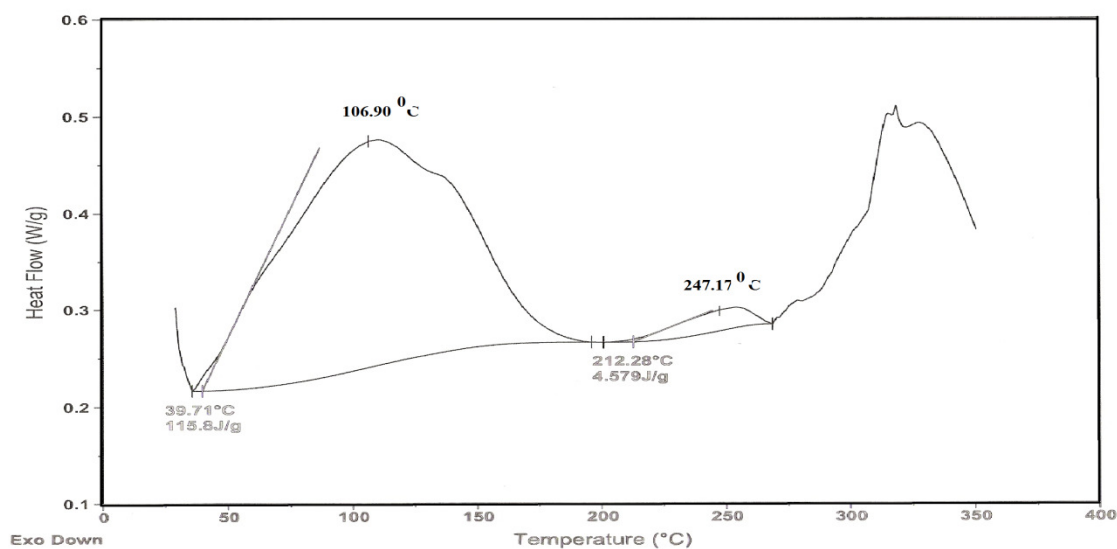
**Figure 10: DSC-Thermogram of polyurethane macroiniferter (PU-100%)**



**Figure 11: DSC-Thermogram of PU<sub>100</sub>-b-PAN copolymer in the temperature range -100<sup>0</sup> to 300<sup>0</sup>C**



**Figure 12: DSC-Thermogram of PU<sub>100</sub>-b-PHEMA copolymer in the temperature range -100<sup>0</sup> to 300<sup>0</sup>C**



**Figure 13: DSC -Thermogram of PU<sub>100</sub>-b-PHEMA copolymer**



## The Secret of Letting Go : Stress Management

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### Abstract :

*Present study entitled to provide a overview of what is stress ... ? It's causes & the ways to minimizing stress which has become a new lifestyle diseases. High stress job refer to work which involve hectic schedule & complex job responsibilities that result into imbalance between personal & work life. Even students are over stressed due to their exam readiness & studies. let's check it out how can we tackle stress....*

**Keywords :** stress, stress Management, Depression, Burnout syndrome, mediation

### 1. Introduction.

S - Someone

T - Trying to

R - Repair

E - Every

S - Situation

S - Solo

While dealing with stress I stopped explaining myself when I realized people only understand from their level of perceptions, then I came to know Don't stress yourself with useless people who don't even deserve to be an issue in your life. Why... ? because the people in your life should be a source of reducing stress & not causing it.

In 2018 the theme of 'WORLD HEALTH DAY' which is celebrated on 7th April is 'DEPRESSION' as per AIIMS research every 3 students among 5 are suffering from high blood pressure in Delhi. Day by day the number of patients with hypertension is increasing. Initially it is a disease of old age people but now there is no age group this all happens due to stress.

### 2. What is stress ?

As per various researchers stress is physical, mental, emotional response to when we are unable to meet all demands placed upon human beings.

Hans selye in 1936 defined stress as.

"The non-specific response of the body to any demand for change."

#### 2.1 Stages of stress :

As per 'General Adaptive syndrome model' of Hans selye there are 4 stages of stress.

- 1) Alarm reaction stage.
- 2) Resistance stage
- 3) Exhaustion stage
- 4) Termination.

We are unable to draw a thin line between all these stages because we even don't understand we are working under stress.

### **2.3 Signs of stress:**

There are various signs which indicate in our thoughts, behavior, emotions & in physical appearance also that we are in stress. When we are feeling hopeless, angry, upset, when we are unable to finish tasks within time, sleeplessness, headache, hypertension etc.

### **3. Major type of stress:**

- 1- Work stress
- 2- Environmental stress
- 3- Heat stroke
- 4- Study Stress
4. Effects of stress :

### **4.1 Depression :**

Due to different types of stress, depression results. In a research on 950 people in Germany they study the effect of work pressure on their body & mind. In that research they found due to it. 'C' reactive protein is more than its normal level in depressed people. It means you may suffer from major & dangerous disease in future, it may cause heart diseases.

### **4.2 Sleeplessness :**

Due to stress it causes & sleepless affect on our work efficiency & productivity. We need to have a sound sleep of nearabout 8 to 10 hours then only we can lead a healthy mind & body. Due to sleep disorder chances of heart attack, diabetes in young age. Mental status of sleepless people is more than a drunken driver.

### **4.3 Burnout syndrome :**

It is a state of emotional, mental & physical exhaustion caused by excessive & prolonged stress it occurs when you feel like unable to meet constant demands, it causes concentration & memory problem, inability to make decisions, reduce productivity & imagination, it affect on our psychological & physical well being & we can't enjoy our life.

### **4.4 Nomophobia :**

Nowadays we are imprisoned in a touch screen mobile world. We are getting more & more isolated from society & more involved in social media. More internet means 'Net loss' of relationship. Sometime it may lead to even suicide also. Actress Jiah Khan, Khushal Punjabi, Pratyusha Banerjee, There is indeed darker side to the celebrities life. They are facing depression anxiety & even several mental disorder or illness & some find themselves feeling so stressed out, that they turn to suicide as a last resort.

### **5. Stress Management :**

There is a need for a more positive thought process in our mind. No need to achieve more. Try to find a limit of your own satisfaction because expectation never ends. There are various strategies to deal with stress but it also varies from person to person & situation to situation & also on the gravity of stress. I would like to discuss some common stress dealing strategies to live a healthy & prosperous life. There are two main stress coping strategies.

#### **5.1 CBSR : Cognitive behavioural stress reduction.**

#### **5.2 MBSR : Mindfulness based stress reduction.**

MBSR consists of weekly sessions aimed to enhance mindfulness awareness & attention through the use of breathing body scans, meditation, gentle hatha yoga & group discussion.

#### **5.4 Digital Detox camps.**

Such camps are taken to save youngsters from mobile addiction.  
Don't look towards your weaknesses, make positivity your strength.

#### **Conclusion :**

Moral of the story is that we need to download positivity in our thoughts & mind. A single factor can not fight with stress. If your body is free of tension your mind tends to be relaxed. Help us to take proper decisions & solve problems & concentration. Our P.M. Modiji is also trying to reduce the stress of 10th & 12th students. 'Parikshes pe charcha' & try to solve their problem & enhance their 'feel good factor' so that they get motivated & perform better in exams. Pewdiepie, a famous & popular youtuber recently took a break because he got bored of his routine. Our willpower must be strong to combat stress.

Milton says 'The mind is in its own place & in itself can make a heaven of hell & a hell of heaven'. So we need to master our mind so that we get a stress proof brain & learn the art of letting go.

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- 9) tress.aspx



## Financial Resources at Academic Libraries

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### Abstract:

*Libraries are not profit-making organisations. Finance for libraries is an essential component of information sharing and dissemination. Books are the primary source of information and wisdom. Allotment of funds for various items necessitates thorough study and analysis of the year's expenditure. Financial Management is nothing but supplying finances for the Libraries Smooth functioning in form of providing cash and ensuring their effective utilisation. Financial management of Libraries is more than just managing cash and allocating funds*

**Keywords:** Academic Libraries, Financial Management, Financial Resources, Library expenditure

### 1. Introduction:

Libraries are not profit-making organisations. The majority of them are components of academic and other institutional entities that provide services. As a result, they have a unique duty to handle their funds with great care and prudence. The necessity of ensuring a steady supply of appropriate funding to libraries cannot be overstated. However, a few rules must be kept in mind, as finance is also a tool for control and assessment. No study of a vital public service, such as library services, can be full and productive unless it includes a financial component. A fundamental understanding of library finance, library expenditure, budgeting, and accounting is thus essential for any library.

Finance for libraries is an essential component of information sharing and dissemination. Books are the primary source of information and wisdom. Money must be set aside for the library. Allotment of funds for various items necessitates thorough study and analysis of the year's expenditure. When drafting a budget, one must examine past years' expenditures as well as suggested new programmes and plans. It is also important to adopt standards on many elements in order to estimate money from standard figures. Standards, on the other hand, give a rough estimate.

### 2. Objective:

Identify its aspects in relation to libraries; understand the necessity for and purpose of financial management, as well as its application in libraries and information centres; use norms and standards to calculate financial estimates for various Academic libraries.

- a) To understand the necessity for the purpose of financial management, as well as its application of financial management in the library
- b) To know various aspects of finance in relation to libraries
- c) use norms and criteria to calculate financial estimates for Academic libraries
- d) To recognise the need of a financial management system in Academic Libraries

### 3. Meaning of Financial Management:

Financial management of Libraries is more than just managing cash and allocating funds. It is the study of the concepts and methods associated in a Library financial operation. Financial

Management is nothing but supplying finances for the Libraries Smooth functioning in form of providing cash and ensuring their effective utilisation. It addresses the issues and processes associated with collecting, distributing, and properly utilising finances, balancing revenue and expenditure, and accounting for all transactions for improved management and assessment.

Essential Phases of Financial Management.

- budgeting
- forecasting of revenues and outflows
- utilisation of funds and revenues
- source of capital
- fund utilization
- financial accounting
- budgetary management
- financial monitoring

#### **4. Sources of Finance in Academic Libraries:**

Finance is the driving force behind any Institution. The same is true for libraries. In the case of many organisations, it is necessary to take caution in order to achieve a balance between revenue and expenditure. Libraries' spending continues to rise as services improve. In the case of libraries, their expenses are always considerably more than their revenues.

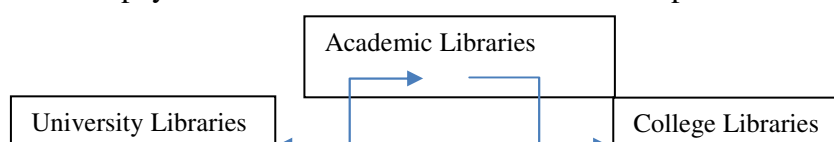
Library budget involves both the cash allotted to a library and the funds spent on it. Libraries rely largely on a steady flow of funding to organise their activities, programmes, and services. Finance is highly important in the organisation and management of any institution, especially libraries, which must buy and build up a collection on a continual basis throughout the year and even longer.

Furthermore, a consistent flow of cash maintains the rhythm and pace of user services. These services must be available on an ongoing basis. Libraries will remain ineffective unless appropriate finances are supplied for all of these operations.

Different types of libraries receive funding from various sources; however, some sources are more generous than others. Government subsidies, for example, are rather frequent. The highest proportion of operating funds Increasingly, they are derived from public money generated through taxation.

- Central and State Government Grants
- UGC Grants / RUSA
- Endowment and benevolent institution grants
- Fees, subscriptions, service sales, and other income received by the library
- Fines and other unspecified sources
- Miscellaneous sources

Libraries get two forms of financial support: recurrent and nonrecurring. Recurring donations are often granted for the purchase of books and periodicals, the maintenance of regular services, and the payment of expected contingency expenses.



### **University libraries:**

University libraries get funding from two sources, to different extents. They receive funding from universities via their own endowments as well as from the University Grants Commission and state governments through special grants. Typically, the government provides money to the university, which the university then distributes to the library. The University Grants Commission awards grants in three categories:

- recurrent
- non-recurring
- ad hoc

Few university libraries charge their student members a fee to use the library.

### **College Libraries:**

There are three major funding sources for college libraries.

- a) allocation from the current operating funds of the college:
- b) grants, individual gifts, and endowments
- c) subscription/membership fee charged from the students

### **5. Library Expenditure Areas:**

- a) The library is a Growing organism: the library's trinity of papers, readers, and personnel is continuously expanding. It suggests that the library's needs would continue to grow day by day. All of this implies more expenditure incurred.
- b) Spending Institution: Libraries, unlike many government institutions, do not generate income. They are spending institutions that contribute to nation-building efforts.
- c) Library expenses are frequently occurring: In an era of educational development, library services will need to keep a consistent rhythm in order to meet the academic needs of its clients. This indicates that library spending is cyclical in nature.

**Capital expenditure:** In general, money spent on buildings, expensive equipment, and furnishings is recorded as capital expenditure.

**Current expenditure:** Items such as books and magazines, stationery and postage, binding and contingencies, salaries and wages, Library Finance, and so on are indicated against current spending.

However, library spending may be classified into several categories, such as

- books and magazines
- publications
- salary and wages,
- furniture,
- contingency
- postage
- binding
- building
- equipment
- stationery

### **6. Financial Management of Digital Library Resources:**

Definition of DigitalLibrary:

According to E.A. Fox, the digital library may be defined as the “New way of carrying out the functions of libraries encompassing new types of information resources, new approaches to classification and cataloguing, intensive use of electronic systems and networks and dramatic shifts in intellectual, organizational and electronic practices”.

### **Digital Library Features:**

- A digital library is a digital entity that can contain text, audio, video, picture, and numerical multimedia components.
- Users can browse the digital library from their workplace.
- A digital library may help with both formal and casual learning methods.
- A digital library allows for remote access to rare and expensive materials. (Srivastava and Saxena 2004).

### **7. Digital library management:**

In many respects, managing a digital library differs from managing a traditional library. In the digital era, librarians must decide whether to raise financing or charge users to recover the continual costs spent by the technology used to manage the digital library. The primary challenges that library professionals face while managing digital library services are cost recovery, copyright issues, and training. These challenges must not be ignored, and managers must reconsider standard management techniques. Managers will need new tools and technology to deal with these and other issues and successfully administer a digital library. The stages below are involved in the design of a digital library.

- Infrastructure planning
- Planning of information resources.
- Methods and strategies for obtaining information
- Strategies to be used in the creation of information resources
- Professional Manpower is required.
- Financial support

### **8. Conclusion:**

Libraries, as service institutions, hardly produce income and so must be supported almost completely by their respective Institution. Hence libraries need constant supply of funding is required to keep libraries and information services running. Finance for libraries comes from a variety of sources, including regular funding from parent organisations, ad hoc grants from other organisations, endowment grants, fees, subscriptions, service sales, and so on.

Libraries financial management has for the most part been limited to establishing a budget and managing their operating money to buy various types of reading materials. Libraries spend their revenues on books and journals, salaries and benefits, the development of library, documentation, and information services, the building, equipment, equipment's, and so on. To maximise advantages, the expenditure is generally channelled according to defined regulations and processes, while complying to specific guiding principles.

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## Impact of foods on Human Psycho-Physical Behaviour as Reflected in Bhagavad Gita

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### Abstract:

*Bhagavad Gita says, "Every human being is born with innate faith, which can be of three kinds—sāttvika (mode of goodness), rājasika (mode of passion), or tāmasika (mode of ignorance)." (Bhagavad Gita 17.2) And the quality of our faith is decided by the nature of our mind. "The faith of all humans conforms to the nature of their mind. All people possess faith, and whatever the nature of their faith, that is verily what they are." (Bhagavad Gita 17.3) Foods in the mode of goodness increase the duration of life purify one's existence and give strength, health, happiness and satisfaction. Such nourishing foods are sweet, juicy, fatty and palatable. Foods that are too bitter, too sour, salty, pungent, dry and hot, are liked by people in the modes of passion. Such foods cause pain, distress, and disease. Food cooked more than three hours before being eaten, which is tasteless, stale, putrid, decomposed and unclean, is food liked by people in the mode of ignorance.*

**Keywords:** Bhagavad Gita, Food, Behaviour, Health, Mind, Body, Peace, Sattvika, Rajasika, Tamasika, Vegetables, Non-vegetables, Energy etc.

### Introduction:

Recently maggi noodles were banned because of unsafe and hazardous caused by overindulge of monosodium glutamate (MSG) which triggers obesity and metabolic ailments like diabetes, high blood pressure, hypertension, heart problems and so on. If an International food company like Nestle is able to adulterate foods, then how to believe local small food makers specially road side eateries can't do that. Day-by-day our food system is changing. As people need change in their taste, a variety of daily consumable food items are available in our competitive market. The basic substance used in preparing food items though remains unchanged, but the techniques making them more tasty, luscious and attractive are proportionately changed. In order to increase and make more profit, the food makers and vendors try to fabricate the food items by mixing adulterants. The adulterated foods are impure, unsafe, unhygienic and harmful to the health. An adulteration is a corruption or stratagem in food preparation. A number of articles on "Adulteration" published in research journals and contents available in internets reveal that "generally, if a food contains a poisonous or deleterious substance that may render it injurious to health, it is considered to be adulterated<sup>1</sup>". We all know that Mangoes are ripened with ammonia; vegetables are treated with carcinogenic pesticides; chicken is injected with overdoes of antibiotics; fish is preserved with formaldehyde – the chemical used to embalm dead bodies; spicy masālā powders are adulterated with dung, sand, saw dust and more. In her article entitled 'Food Adulteration' V. Lakshmi<sup>2</sup> have illustrated, in detail, a number of adulterants which are frequently used in food items. In order to accentuate the bright glowing green color of the vegetables, the 'malachite green' is used. The starch as an

adulterant is used not only in all milk products like panneer, Khoa, condensed milk, but also other Manchurian food items to make them more crispy and delicious. It causes stomach disorders and reduces nutritional values of the ingredients. The wax coating, as an adulterant, is used for shining the colours of apples and paper cups and plates. The wax is an indigestible substance and when it is congregated gradually in human digestive system, it causes severe stomach pain and disorder.

### **Purpose of the Study:**

It is natural inclination that everybody loves to enjoy delicious foods. Whether it is marriage ceremony or festival, birthday celebration or friends meet, official meeting or any gathering, seminar or conference, the foodstuffs matter a lot. The high quality foods to be served give an impression of high-mindedness and generosity of the provider which makes function memorable. The food items are not only relishable, cherishable or enjoyable but are required to maintain good health. The food is the source of energy for the subsistence of the body as well as the cause of disease damaging the natural healthiness of the physical body. The maxim 'healthy mind in a healthy body' ascertains to consume only hygienic eatables which in turn will keep human body vigorous, in a good physical shape and free from diseases. The nucleus of human body depends upon the foods which provide nutrients, minerals, vitamins, cereals, carbohydrates, proteins, calcium, Iron, magnesium and zinc etc. In order to supply high standard food items, many mega industries and factories are established which in turn contribute to our economy.

The present study aims at revealing the impact of food intake on psycho-physical behavior of human beings. The description of foods is copiously available in all Ayurvedic texts. Since the Bhagavat Gītā embodies supreme divine mystery and is an epitome of all the scriptures, the present study is related to foodstuffs as revealed there. The foods are lovable to whole human race. B.Gita) classifies foodstuffs into three categories i.e. Sāttvika, Rājasika and Tāmasika. It is also noticed that the people choose their food articles depending upon their innate disposition. The food subject discussed in the Gītā emphasizes the very nature of people to be determined by his / her diet.

### **Literature Review:**

The primary review of literature for this research paper is Shrimadbhagavadgita and Mahabharat and the secondary literature review of this research paper is several related research journals, weblinks and other relevant books. Many comparative statements on psycho-physical relation have also been quoted as well as presented in this article.

### **Vegetarian (Sattvika) Food and Its Consequence:**

The first category of food is well-known as Sāttvika which seems to be purely vegetarian diet. Sāttva generally means 'the quality of goodness, constructive and harmonious'. Anything pure, neat, immaculate, non-irritable, unadulterated, uncontaminated, or spick and span are counted as the qualities of Sāttvika. In this way, foods which physically keep us free from irritation, petulant, cantankerous, and psychologically provide moderate, calm, quite, and tranquil may be called Sāttvika. The benefits and consequences of this type of food is beautifully narrated in B. Gītā as follows -

The sāttvika Food augments vitality and thereby promoting the span of life; upholds sharp intelligence, transparent, aptitude and talent; bestows energy, vitality, strength and vigor; contributes healthiness and fitness to physical condition; advances happiness and cheerfulness.

Further the sãttvika food should be proportionately sweet, bland, substantial and heartily enjoyable. In this category the milk and all other milky sweet products, ghee, fresh vegetables, fruits, sugar, wheat, barley, rice, Juicy fruits like mango, pomegranate, coconut, figs, peaches, pears, whole soaked or sprouted grains, varieties of dals, beans and nuts, many herbs and spices in the right combination with other foods are added up.

Because of purity and immaculate nature, the sãttvika eatables bestow the goodness. Each and every action has its course of composite reaction as in the case of medicine's reaction capable in curing a particular disease. Similarly each and every foodstuff has certain response on our thinking, feeling, expression and action. The mental function, way of talking and behavior are absolutely governed by the type of foods we eat every day. The nature of sattva is pure, untainted and illuminating. The sãttvika food illuminates our senses, mind, and faculty of knowledge and binds us with pleasure and wisdom<sup>5</sup>. The sttva is not only related to but is equated with truth and consciousness of supreme self which is pure and untainted. To attain the nature of supreme self, one must follow the path of sãttva which is to be obtained from eating sattvika foods. It is a matter of common experience that our social reformers, religious leaders, tyagi, vairagi, saints and entire sadhu samaj who always take sattvika food, live comparatively a longer period and become more spiritual wisdom oriented. Their utterance, behaviour, appearance, movements mentally and physically are totally different from others.

Following the path of sattva, in the beginning, may be unpleasant, difficult and taxing but its result is joyful at the end. The sãttvika type of joy is joy par excellence. The sattvika type of food is the first step to make mind purified, tranquil and improve the quality of sãttvaguna. When sattvaguna will be predominant, it will lead to feel the lightness of the body and keenness in the mind<sup>6</sup>. The sãttvika food in turn awakens the faculty of judgment and discernment which generates unparallel everlasting happiness<sup>7</sup>. It further helps to differentiate good and bad, truth and false, right and wrong, knowledge and ignorance, love and aversion, awaken and sleep sloth and activeness.

Satva refers to that which is beneficial to all creatures in the world and denotes goodness. Joyfulness, contentment, nobleness, enlightenment and cheerfulness along with absence of stinginess, absence of fear, forgiveness, courage, abstaining from injuring any creature, self-control, truth, straightforwardness, absence of wrath, absence of malice, purity, intelligence, dexterity - these pertain to the quality of Sãttvika. Foods that increase the above mentioned qualities are known as Sãttvika Āhāra.

### **Rãjasika foods and Its Consequence:**

The second category food is called rãjasika. The rajoguna is recognized as the quality of passion, activity, neither good nor bad, self centeredness, egoistic, individualizing, motivation and dynamic. The foods which bestow these qualities are called rãjasika foodstuffs. It is well exhibited in the B.Gita as -

Foods that are bitter, sour, saline or salty, excessively hot, pungent, dry and burning and which cause suffering, grief and sickness are known as Rãjasika. These characteristics suggest the food prepared out of bitter gurd, neem, tamarind, salty items, pickles and non-vegetarian items which are difficult to digest. Along with other Foods that have been fried in oil or cooked too much or eaten in excess, specific foods and spices that are strongly exciting; sour fruits like oranges, grapefruit, lemons, apples, banana and guava, animal products like pork, beef, lamb, meat chicken/turkey, meat, fish, and eggs are enlisted under rãjasika foods.

The regular taking of rājasika food changes mind to be more passion oriented. The people who take such food will be begotten of sensual enjoyments thereby compulsorily binding them into worldly attachment. It also prompts one to be active, punctual, dynamic, energetic in own works and daily duties<sup>8</sup>. Such kind food also generates the tendency to be greedier, undertaking various forms of activities, restlessness and thirst for pleasure. It motivates one to be more excited. The influence of rājasika food changes the very nature of human being and compels them always to be more worried and addicted with worldly objects. They can't see anything above except worldly enjoyable experience. They can't attain higher stage in life and remain in this mortal world as human beings. Some more qualities are reflected on human beings who are fond of taking rājasika foods on regular basis. These qualities can be briefly enumerated as-harming others, pride, wrath, exertion, quarrel, jealousy, desire, malice, battle, protection of others, slaughter, bonds, affliction, cruelty, pointing out the faults of others, thoughts entirely devoted to worldly affairs, anxiety, animosity, false speech, disrespect, theft, killing, gambling, indulgence in scandal, attachment to dancing, instrumental music and songs.

### **Tamasika foods and Its Consequence:**

Tamas literary means darkness. It is the quality of imbalance, disorder, chaos, anxiety, impure, destructive, delusion, negative, dull or inactive, apathy, inertia or lethargy, violent, vicious, ignorant, covering and hindrance. The B.Gita declares the nature of Tāmasika foods as - Food which is half-cooked or half-ripe, food that is tasteless decomposed and putrid, food consisting of remnant, impure and untouchable things is listed under tāmasika foodstuffs. Such type of food is dear to men of Tāmasika disposition. This message of B.Gita intends further to convey other foods like dry fish, foods containing a naturally offensive smell like onion, garlic, and drinks like spirituous liquors, toddy, ganja, bhang, tobacco, cigarettes, bidis, frozen or old flesh products, tasteless and rotten are to be counted under tāmasika. Being habituated to eat such foods causes laziness, darkness, complete delusion, presumption of knowledge in ignorance, indecision in respect of action, sleep, haughtiness, fear, cupidity, grief, loss of memory, absence of faith, violation of all rules of conduct, want of discrimination, blindness, evil of behavior, being unfriendly, evilness of disposition, absence of faith, invalid reasoning, incapacity for association, sinful action, senselessness, absence of self-control, and degradation.

### **Advantages of Vegetarians:**

A growing body of scientific evidence indicates that wholesome vegetarian diets offer distinct advantages compared to diets containing meat and other foods of animal origin. The benefits arise from lower intakes of saturated fat, cholesterol and animal protein as well as higher intakes of complex carbohydrates, dietary fiber, magnesium, folic acid, vitamin C and E. The vegans put on even less weight as they get older, compared to vegetarians and meat eaters. An article published in *Food Technology* in October 2012 informed that plant-based diets either reduce or completely eliminate people's genetic propensity to developing long term diseases, including diabetes type 2, cardiovascular disease, and cancer. The vegetarian stuff prevents helps to maintain blood pressure, cholesterol level and improves longevity.

### **Result of the Study:**

The purpose of food is to increase the duration of life, purify the mind and aid bodily strength. This is its only purpose. In the past, great authorities selected those foods that best aid health and increase life's duration, such as milk products, sugar, rice, wheat, fruits and vegetables. These foods are very dear to those in the mode of goodness. Some other foods, such



as baked corn and molasses, while not very palatable in themselves, can be made pleasant when mixed with milk or other foods. They are then in the mode of goodness. All these foods are pure by nature. They are quite distinct from untouchable things like meat and liquor. Fatty foods, as mentioned in the eighth verse, have no connection with animal fat obtained by slaughter. Animal fat is available in the form of milk, which is the most wonderful of all foods. Milk, butter, cheese and similar products give animal fat in a form which rules out any need for the killing of innocent creatures. It is only through brute mentality that this killing goes on. The civilized method of obtaining needed fat is by milk. Slaughter is the way of sub humans. Protein is amply available through split peas, dal, whole wheat, etc.

Foods in the mode of passion, which are bitter, too salty, or too hot or overly mixed with red pepper, cause misery by producing mucus in the stomach, leading to disease. Foods in the mode of ignorance or darkness are essentially those that are not fresh. Any food cooked more than three hours before it is eaten (except prasadam, food offered to the Lord) is considered to be in the mode of darkness. Because they are decomposing, such foods give a bad odor, which often attracts people in this mode but repulses those in the mode of goodness.

### **Conclusion:**

Life is a homogeneous combination of body, sense organs, mind and soul. Food is considered to be the supporting pillars of the body. Diet plays a very important role on the mind and body even before birth and continues till death. Our food style is governed by our religious belief. Indian religions avoid the eating of flesh. It is believed that, "People can't get flesh without killing things. A person who hurts sentient beings will never be blessed by God. So, avoid killing innocent animals and taking their flesh. The vegetarian food is rich in fiber whereas the non-vegetarian food is deficient in this element. These fibers are helpful in providing minerals and vitamins to the body. These avoid constipation and related diseases like piles, hernia, appendicitis, hepatitis, and varicose veins. These fibers are important because they protect us from stones and heart diseases by mutual action of cholesterol and bilirubin.

Since vegetarians consume widely divergent diets, a differentiation between various types of vegetarian diets is necessary. Indeed, many contradictions and misunderstandings concerning vegetarianism are due to scientific data from studies without this differentiation. In the past, vegetarian diets have been described as being deficient in several nutrients including protein, iron, zinc, calcium, vitamin B12 and A, n-3 fatty acids and iodine. Numerous studies have demonstrated that the observed deficiencies are usually due to poor meal planning. Well-balanced vegetarian diets are appropriate for all stages of the life cycle, including children, adolescents, pregnant and lactating women, the elderly and competitive athletes. In most cases, vegetarian diets are beneficial in the prevention and treatment of certain diseases, such as cardiovascular disease, hypertension, diabetes, cancer, osteoporosis, renal disease and dementia, gallstones and rheumatoid arthritis. The reasons for choosing a vegetarian diet often go beyond health and well-being and include among others economical, ecological and social concerns. The influences of these aspects of vegetarian diets are the subject of the new field of nutritional ecology that is concerned with sustainable life styles and human development.

### **References:**

1. Food is "adulterated" if it meets any one of the following criteria: (1) it bears or contains any "poisonous or deleterious substance" which may render it injurious to health; (2) it bears or contains any *added* poisonous or *added* deleterious substance (other than a pesticide residue,



food additive, color additive, or new animal drug, which are covered by separate provisions) that is unsafe; (3) its container is composed, in whole or in part, of any poisonous or deleterious substance which may render the contents injurious to health; or (4) it bears or contains a pesticide chemical residue that is unsafe. Food also meets the definition of adulteration if: (5) it is, or it bears or contains, an unsafe food additive; (6) it is, or it bears or contains, an unsafe new animal drug; (7) it is, or it bears or contains, an unsafe color additive; (8) it consists, in whole or in part, of "any filthy, putrid, or decomposed substance" or is otherwise unfit for food; or (9) it has been prepared, packed, or held under unsanitary conditions (insect, rodent, or bird infestation) whereby it may have become contaminated with filth or rendered injurious to health etc. [https://en.wikipedia.org/wiki/Adulterated\\_food](https://en.wikipedia.org/wiki/Adulterated_food)

2. "An adulterant is a chemical substance which should not be contained within other substance (e.g. food, beverages and fuels) for legal and other reasons". The addition of adulterants is called adulteration. V.Lakshmi, *Food Adulteration*, "International journal of Science Invention Today" Review Article, Guntur, Andhrapradesh, 2012, 1(2) 106-113.
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## Impact of Dopants Like NSA and P-TS on Characteristics of Polymers Synthesized using APS as Oxidants

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### Abstract:

*Polypyrrole (Ppy) was synthesized using ammonium per sulfate APS. The ratio of monomer to oxidants was 1: 2.4 and polymerization was carried out at room temperature. The attempt was made to increase the electrical conductivity by using p-TS and (NSA) as dopants by adding 10% in weight of dopants to the weight of Ppy. Two probe method techniques was used to measure the electrical conductivity and was found to be in the range of  $10^{-3}$  to  $10^{-2}$  S/cm.*

**Keywords:** Polypyrrole, structure, doping, p-TS, (NSA),

### Introduction:

The conducting polymers have seen rapid growth from 1977 onwards. But substantial development was observed in this field since the year 2000 when Nobel Prize was awarded for this subject. More than 25 different applications of various conducting polymers such as Polyacetylene, Polypyrrole, Polyaniline, etc. have been demonstrated. These polymers can be synthesized by various methods like chemical, electrochemical, and radiations. They can be suitably doped to convert them into semiconductors.

When monomers join together to make a long chain, the material becomes polymer. An example of a naturally occurring macromolecule is insulin, a protein hormone that occurs in the pancreas. Starch, cellulose, and natural rubber are some examples of polymers available in nature, which are formed by the formation of chains of a simple unit repeated several times. The polymer has the most complex structure and it is necessary to prove it at four different levels. That is (i) Monomer level (ii) Molecular-level (iii) Supramolecular level and (iv) Bulk in order to determine the same, the widely used methods are described below:

#### (i) Optical Microscopy:

The "sizes" of crystals of polymers have been estimated to be of the order of a few hundred-angstrom units. In terms of the defect or para crystalline model, this distance might alternately be interpreted as an average dimension over which crystalline order persists.

#### (ii) Electron Microscopy:

The application of electron microscopy plays an important role in our understanding of polymer morphology, microstructure, and surface characteristics. Many physical properties of the polymer depend greatly on a structural arrangement, inter chain binding pattern in polymers. The physical properties of crystalline polymeric solids [1] are probably more sensitive to structure modification than other classes of the many semi-equilibrium states which are possible. The polymer has a whole range of orders from completely crystalline regions to completely amorphous regions.

#### (iii) IR Spectroscopy (Structural determination):

In the infrared study of polymers, it is desirable to determine the vibrational origins of absorption bands in the spectra. To do this it is necessary to study the characteristic group

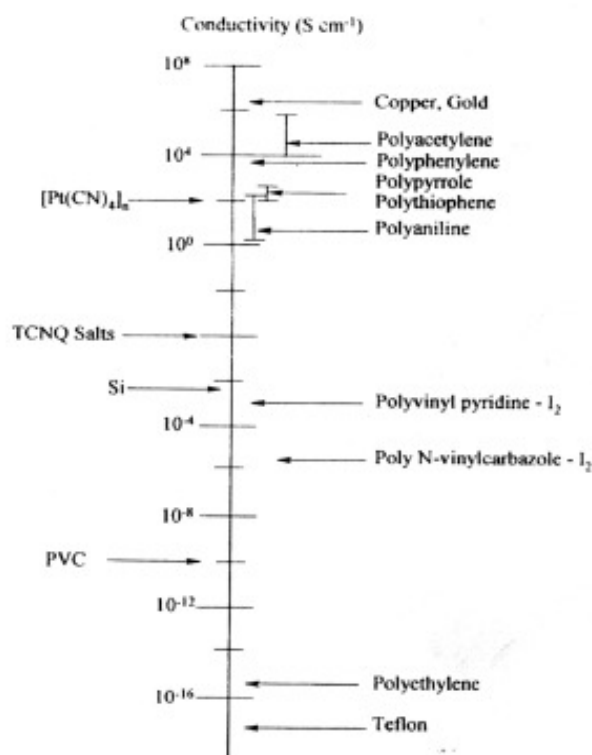
frequencies of related small molecules as well as polymers, to study vibrational selection rules using the symmetry of the polymer molecule or crystal, and to calculate the force constants and vibrational patterns by normal coordinate analysis. For polymers containing hydrogen atoms, it is very helpful to study the spectra of related polymers with the hydrogen atoms partially or completely replaced by deuterium atoms. This will lead to definite assignments of some hydrogen frequencies as well as some other frequencies. Polymer samples can generally be oriented in various ways and their spectra can be obtained with polarized infrared radiation.

#### (iv). X-ray Diffraction:

X-ray diffraction has played a very important role in the recognition and characterization of stereo regular polymers. An X-ray picture is said to have provided the clue which led to Natta's discovery of stereo regular polyolefins. The detailed information furnished by structural studies concerning the molecular conformation in the crystalline state permits one to classify a particular stereo regular polymer as iso tactic or syndiotactic [2-4]. Furthermore, the density of the perfectly crystalline phase, as obtained from unit cell dimensions, is a valuable piece of information for those engaged in dilatometric studies.

Conducting polymers are interesting materials for their unique optical, electrical, and mechanical properties. Different from the traditional polymers which are used in our daily life as passive materials, conducting polymers have active properties which can be applied in many areas like sensors, transistors, and optical materials. Those active properties, due to the rich chemistry of conducting polymers, have attracted the attention of many scientists and researchers in the last three decades, leading to the publication of thousands of papers.

Most polymeric materials are bad conductors of electricity and are excellent insulating behavior. But a significant number of polymeric materials do conduct electricity. In practice, the term "conducting polymer" includes a range of materials that display a wide variety of properties and consequently fit many diverse areas of established or potential application. The range of conductivities of interest is enclosed at one end of the scale by clues associated with a typical good insulator, such as polyethylene, ( $c.10^{-14}$  s/cm) and at the other end by those associated with a typical metallic conductor, such as copper ( $c.10^6$  s/cm). Conductivity may be an intrinsic property of the material, for example, poly (Sulphur nitride) (SN)<sub>x</sub>, the first "non-metallic metal", has a room temperature conductivity of  $c.10^3$  s/cm; alternatively, it may result from adding a conductive filler to an insulating polymeric matrix.



Conductivity ladder of some metals and conducting polymers

Dopants are either strong oxidizing or reducing agents. On doping, either positive or negative charge carriers are created in polymers.

$\text{Polymer} + \text{Dopant} \rightarrow [\text{Polymer}^+ - \text{Dopant}^-]$

(Acceptor) charge transfer complex

$\text{Polymer} + \text{Dopant} \rightarrow [\text{Polymer}^- - \text{Dopant}^+]$

(Donor) charge transfer complex

Redox doping is the best doping method available for polymers. This is also known as oxidative doping and is accomplished by removing  $\pi$  electrons from the conjugated  $\pi$  electrons. All conducting polymers e.g., Ppy, PT, PANi etc undergo p- and/ or n- redox doping by chemical and/ or electrochemical processes during which the number of electrons associated with the polymer backbone changes.

During the process of doping, dopants are converted into negative or positive ions with or without chemical modifications. The doping process involves the transfer of the charge to or from the bonding system of the conjugated polymer, leaving the system essentially intact and hence the structural density of an individual chain preserved. However, properties like vibrational energy, electronic configuration of the polymer are changed upon doping as well as its supramolecular structure. The result of the doping is the increase of the polymer conductivity over several orders of magnitude.

In some cases, conjugated polymers show metallic behavior having a negative temperature coefficient. Partial oxidation-reduction is achieved by doping the molecules. As a result charged quasi-particles are created called polarons, initially. As doping progresses, reactions between polarons take place, leading to energetically quasi-particles, i.e. a pair of charged solitons (bipolarons) in materials with a degenerate ground state. At low dopant concentration, the dopant molecules occupy random positions between the chains and affect the electronic properties by their coulomb potential and by hybridization with the polymer p-orbitals.

### **Polymerization using APS as oxidant:**

Pyrrole was distilled before use. 0.1 M Pyrrole solution was prepared by dissolving it in 100 ccs of distilled water and stirred for 15 minutes for proper mixing. The Ammonium Peroxy Disulfate  $[(\text{NH}_4)_2\text{S}_2\text{O}_8]$  (APS), obtained from SDL, was of reagent grade and was used as received. The solution APS was used in the standard ratio of monomer: oxidant, mixed in 100 ccs of distilled water. The Pyrrole solution was mixed with the aqueous APS solution slowly under constant stirring for 30 minutes. Then the polymerization reaction takes nearly four hours to complete. This preparation was kept unagitated for one day settled down. The Polypyrrole powder was filtered by Whatman's filter paper no.42 in a vacuum and washed with distilled water several times to remove any impurities present.

### **Characterization:**

#### **1 a FTIR spectroscopy:**

The FTIR spectrum shows strong absorption bands at around  $3435\text{ cm}^{-1}$  corresponding to N-H stretching. Other medium intensity peaks are observed at around  $2926\text{ cm}^{-1}$  -  $2854\text{ cm}^{-1}$  which can be attributed to aromatic C-H stretching vibrations. The absorption band at  $1534\text{ cm}^{-1}$  is related to  $\text{C}=\text{C}$  /  $\text{C}-\text{C}$  stretching vibrations of the Pyrrole ring. The band at  $1471\text{ cm}^{-1}$  is an indication of C-N vibrations arises due to stretching of the ring. The region at  $1261\text{ cm}^{-1}$  -  $1194\text{ cm}^{-1}$  corresponds to vibrations of the Pyrrole ring. The peak at  $1294\text{ cm}^{-1}$  is a result of C-N deformation vibration. The bond of C-H in plane deformation vibration is situated at  $1046\text{ cm}^{-1}$

and of the C-C out of plane ring deformation vibrations or C-H rocking is at  $681\text{ cm}^{-1}$ . The peak at  $924\text{ cm}^{-1}$  is due to C-H out of plane deformation vibration band of the ring.

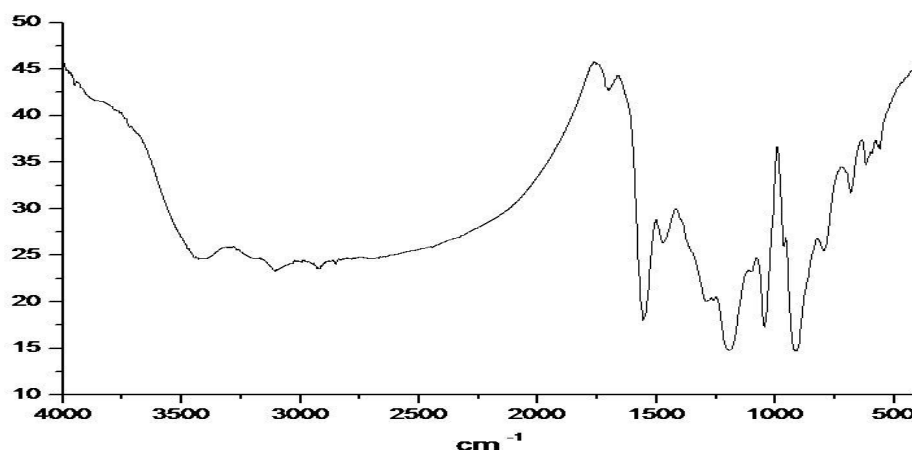


Fig.1 FTIR pattern for polypyrrole prepared using APS as oxidant

### 1. b. X -ray diffraction analysis:

A typical X-ray diffraction pattern for polypyrrole prepared using APS as oxidant is shown in Fig. The XRD pattern shows broad peaks in the region  $15^\circ < 2\theta < 30^\circ$  revealing that the resulting polypyrrole powders are amorphous. This agrees well with the structure reported in the literature. Such a broad peak usually indicates a short-range arrangement of chains. Gaussian distribution for the low angle part of the diffraction curve.

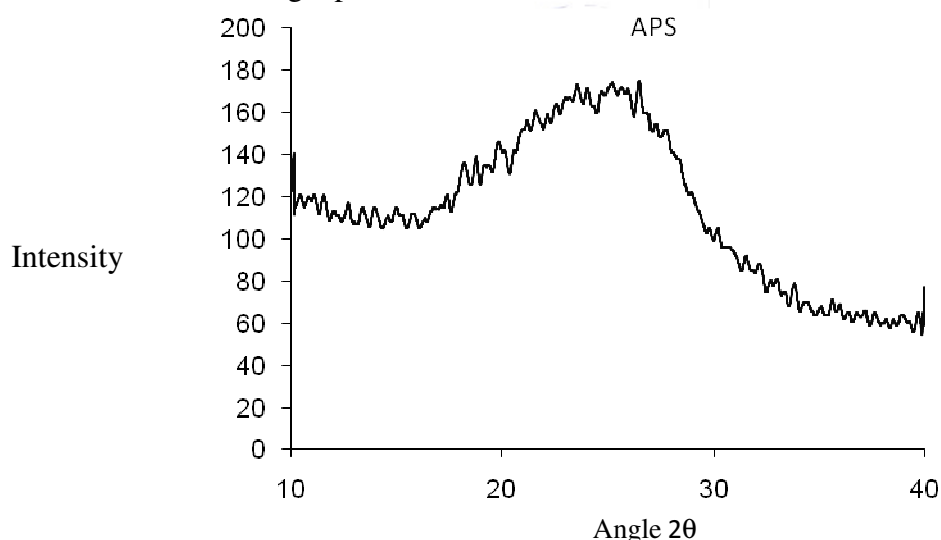


Fig.2 XRD pattern for polypyrrole prepared using APS as oxidant

### 1. c. Morphology:

The morphological features of polypyrrole synthesized chemically have revealed that mostly the growth is in the globular form. A typical SEM image is shown in Fig. The micrograph shows a globular structure. It can be seen from Fig. that when polymerization was done with APS the average size of globules was found to be  $0.59\text{ }\mu\text{m}$ . The individual globules observed were nearly spherical and have a close packing. It seems that such spherulites are growing one over the other and forming a continuous structure. The sizes of these spherulites are varying from  $0.2\text{ }\mu\text{m}$  to  $0.7\text{ }\mu\text{m}$ . Such morphological features are considered to be good for gas sensing applications.



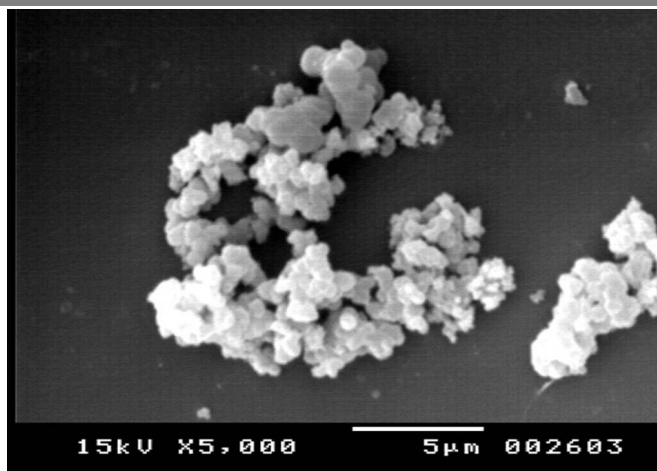


Fig.3 SEM of Ppy prepared by our method using APS as an oxidant

#### 1. d. I-V characteristics:

Typical plots of I vs. V for polypyrrole prepared using APS as oxidant is given in Fig.4. Nearly linear relationships of the graph of the I vs V curve were noted up to 8 volts. After this peak when voltage was increased further, a decrease in current was observed. The reason for such decrease is either that the current is now opposed by the flow of opposite charges in the opposite direction of degradation of the sample. This behavior was also seen when I vs V was studied for higher temperatures. The peak current-voltage ( $V_p$ ) decreases with temperature. It shows that the charges of the opposite kind are generated more in numbers as temperature increases. Additional evidence for the contribution to the current by ions is being explored. The conductivities were found in the range of  $1.0$  to  $4.6 \times 10^{-3}$  S/cm.

The temperature dependence of the electrical conductivity of the polypyrrole, prepared with APS was studied at various temperatures from  $30^\circ\text{C}$  up to  $70^\circ\text{C}$ . It was observed that the electrical conductivity decreased gradually for all the samples.

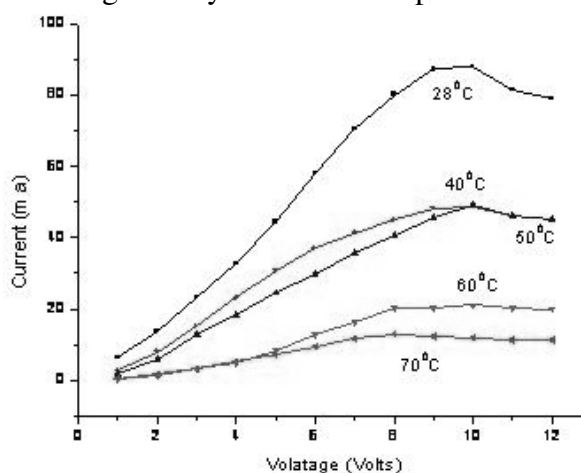


Fig. 4 I vs V graph of Ppy with APS as oxidant at various temperature

#### 2 Effects of dopants:

1 M Pyrrole solution was prepared in 100 ml distilled water and then mixed with dopants such as p-TS and NSA (10% w/w) and stirred for 30 minutes for proper mixing. The solutions were slowly mixed with an oxidizing agent, APS, in the ratio mentioned above, under constant stirring for 30 minutes. Then the polymerization was conducted for 4 hours under constant stirring. These preparations were kept unagitated for 24 hours so that Ppy powder settled down.

The doped Polypyrrole powders were filtered out under vacuum and washed with distilled water several times to remove any impurities present. These Polypyrrole powders were dried for 2 days at room temperature.

Following is the comparative chart of X-ray peak position, Half-width, Globular size, and conductivity of Ppy prepared using APS and various dopants.

Table- 1 X ray peak position, half width, Globular size and conductivity of Ppy prepared using APS and various dopants.

Sample	X ray Peak position	X ray half width	SEM size of globule	Conductivity at R.T. over a linear portion of curve
Pure Polypyrrole	25.4 <sup>0</sup>	8 <sup>0</sup>	0.59 $\mu\text{m}$	1.70 X 10 <sup>-3</sup>
Polypyrrole with NSA	25.3 <sup>0</sup>	6.6 <sup>0</sup>	0.63 $\mu\text{m}$	2.92 X 10 <sup>-3</sup>
Polypyrrole with p- TS	24.6 <sup>0</sup>	6.8 <sup>0</sup>	0.27 $\mu\text{m}$	4.60 X 10 <sup>-3</sup>

### Conclusions:

Polypyrrole prepared with various oxidants like APS along with various dopants p-TS and NSA by chemical oxidative method shows excellent electrical conductivity. Even though they cannot be obtained in the film form as they are obtained in amorphous nonsoluble powders, the slurry of it shows good ohmic contact when pasted on PCB. The most important part of it is that it works at room temperature.

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## **Women Empowerment through Contemporary Legislative Approach in Indian Society : Critical Evaluation of Amendments introduced in Indian Penal Code, 1860 vide The Criminal Law (Amendment) Act, 2018**

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### **Introduction:**

Ever since time immemorial women have belonged to vulnerable group and are exploited. Women empowerment and gender equality are necessary for sustainable growth and development of society. The author has undertaken this research to analyse legislative contribution towards women empowerment in contemporary Indian society. The researcher shall humbly attempt to critically evaluate amendments introduced in Indian Penal Code, 1860 vide Criminal Law (Amendment) Act, 2018 to ascertain pros and cons of the said amendments.

**Research Methodology:** Doctrinal research methodology has been followed in this paper. The author has extensively relied on primary sources of data like parliamentary debates.

### **Meaning of Empowerment of Women:**

1. "Participation and influence over decision making for own needs, children's needs, family needs and community activities."<sup>3</sup>
2. The Convention on the Elimination of All Forms of Discrimination against Women<sup>4</sup> provides the basis for realising equality between women and men through ensuring women's equal access to, and equal opportunities in, political and public life -- including the right to vote and to stand for election -- as well as education, health and employment. States parties agree to take all appropriate measures, including legislation and temporary special measures, so that women can enjoy all their human rights and fundamental freedoms.

After referring the above stated meaning professed by CEDAW, the author gathers that one cannot identify any one factor which can be conducive to empowerment of women. Holistic approach is the need of the hour which will include meaningful and timely contribution from legislature, judiciary and executive. The author hereby analyses legislative approach.

### **The Criminal Law (Amendment) Act, 2018:**

This Act has been passed in the aftermath of gruesome Kathua and Unnao rape incidents. The heinous Kathua rape case involved abduction, gang rape and murder of an eight year old girl belonging to nomadic Bakarwal community. The incident made national headlines. The widespread outrage against this loathsome incident is documented by author as under:

1. On 18 January, 2018 opposition parties in Jammu and Kashmir staged a walkout from the Legislative Assembly.

<sup>3</sup> <https://www.oecd.org/social/gender-development/32126577.pdf>, accessed on 10.5.21

<sup>4</sup> <https://www.un.org/womenwatch/daw/cedaw/cedaw.htm>, visited on 10.5.21

2. Various protests were held across Jammu and Kashmir<sup>5</sup>: The call for the shutdown was given by High Court Bar Association of Jammu (BAJ) and other groups. Shops and business establishments were closed and roads wore a deserted look. Protestors also blocked Jammu-Pathankot National Highway at several places.
3. Two prominent political women leaders of India - Mrs. Maneka Gandhi and Mrs. Mehbooba Mufti - then Chief Minister of Jammu and Kashmir expressed support for death penalty in cases of child rape. Mrs. Gandhi further stated that her ministry will request for amendment POCSO Act. The author has reproduced her message verbatim below which was posted by her in a video on YouTube:

"I have been deeply, deeply disturbed by the rape case in Kathua and all the recent rape cases that have happened on children. I and the ministry intend to bring an amendment to the POCSO Act asking for the death penalty for rape on children below 12 years.<sup>6</sup>"

4. The incident was also condemned by SC of India, Prime Minister of India and also UN Secretary-General Antonio Guterres.

Women empowerment does very much include safety and protection of women. The author shall very humbly attempt to objectively evaluate both pros and cons of amendments introduced in Indian Penal Code, 1860 vide The Criminal Law Amendment Act, 2018.

	<b>Indian Penal Code, 1860 provisions - prior to 2018 Amendment</b>	<b>Indian Penal Code, 1860 provisions - vide 2018 Amendment</b>
<b>Amendment of Section 376</b>	<b>Section 371(1)-</b> shall not be less than <b>seven years</b> , but which may extend to imprisonment for life, and shall also be liable to fine	<b>Section 371(1)-</b> shall not be less than <b>ten years</b> , but which may extend to imprisonment for life, and shall also be liable to fine
	<b>Section 376(i)-</b> Commits rape on a woman when she is under sixteen years of age	<b>Section 376(i)-</b> <b>OMMITED</b>
		<b>Section 376(3):</b> Whoever, commits rape on a woman under sixteen years of age shall be punished with rigorous imprisonment for a term which shall not be less than twenty years, but which may extend to imprisonment for life, which shall mean imprisonment for the remainder of that person's natural life, and shall also be liable to fine: Provided that such fine shall be just and reasonable to meet the medical

<sup>5</sup> <https://www.dnaindia.com/india/report-kathua-rape-a-day-of-multihued-protests-in-jammu-and-kashmir-2603745>, visited on 10.5.21

<sup>6</sup> <https://www.ndtv.com/india-news/kathua-rape-case-maneka-gandhi-to-ask-for-death-penalty-for-child-rape-1836964>, visited on 10.5.21

		expenses and rehabilitation of the victim: Provided further that any fine imposed under this sub-section shall be paid to the victim.”
<b>Insertion of new section 376AB: Punishment for rape on woman under twelve years of age</b>	_____	<b>Section 376AB:</b> Whoever, commits rape on a woman under twelve years of age shall be punished with rigorous imprisonment for a term which shall not be less than twenty years, but which may extend to imprisonment for life, which shall mean imprisonment for the remainder of that person's natural life, and with fine or <b>with death</b> : Provided that such fine shall be just and reasonable to meet the medical expenses and rehabilitation of the victim: Provided further that any fine imposed under this section shall be paid to the victim.”.
<b>Insertion of new section 376DA Punishment for gang rape on woman under sixteen years of age</b>	_____	<b>Section 376DA:</b> Where a woman under sixteen years of age is raped by one or more persons constituting a group or acting in furtherance of a common intention, each of those persons shall be deemed to have committed the offence of rape and shall be punished with imprisonment for life, which shall mean imprisonment for the remainder of that person's natural life, and with fine: Provided that such fine shall be just and reasonable to meet the medical expenses and rehabilitation of the victim: Provided further that any fine imposed under this section shall be paid to the victim
<b>Insertion of new section 376DB Punishment for gang rape on woman under twelve years of age</b>	_____	<b>376DB:</b> Where a woman under twelve years of age is raped by one or more persons constituting a group or acting in furtherance of a common intention, each of those persons shall be deemed to have committed the offence of rape and shall be punished with imprisonment for life, which shall mean imprisonment for the remainder of that person's natural life, and with fine, or <b>with death</b> : Provided that such fine shall be just and reasonable to meet the medical expenses and rehabilitation of the victim: Provided further that any fine imposed under this section shall be paid to the victim
	<b>Indian Penal Code, 1860 provisions - prior to 2018 Amendent</b>	<b>Indian Penal Code, 1860 provisons - vide 2018 Amendment</b>
<b>Amendment of Section 376</b>	<b>Section 371(1)-</b> shall not be less than <b>seven years</b> , but which may extend to imprisonment for	Section 371(1)- shall not be less than <b>ten years</b> , but which may extend to imprisonment for life, and shall also be liable to fine



	life, and shall also be liable to fine	
	<b>Section 376(i)-</b> Commits rape on a woman when she is under sixteen years of age	<b>Section 376(i)-</b> <b>OMMITTED</b>
		<b>Section 376(3):</b> Whoever, commits rape on a woman under sixteen years of age shall be punished with rigorous imprisonment for a term which shall not be less than twenty years, but which may extend to imprisonment for life, which shall mean imprisonment for the remainder of that person's natural life, and shall also be liable to fine: Provided that such fine shall be just and reasonable to meet the medical expenses and rehabilitation of the victim: Provided further that any fine imposed under this sub-section shall be paid to the victim."

The author would now refers primary **sources like Parliamentary debates<sup>7</sup> of Rajya Sabha** with reference to this Amendment Act of 2018:

### 1. Prof. Manoj Kumar Jha (Bihar):

"Sir, the death penalty provisions, I have a fear, might endanger victim girl's life because the rapist might want to destroy the evidence if the punishment for murder and rape is one and the same. Precarious new offences have been listed under IPC. When we go for any such move, do we undertake any study to show how and whether it will be more effective in new offences not being committed?"

**2. SHRI K.T.S. TULSI (Nominated):** "But I believe that simply enhancing punishment does not solve any problem.

- For offences of rape on women under the age of 12, the legislation has prescribed death penalty, and, in this connection, Sir, I would make an appeal whether this will really help us to meet the ends of justice. Sir, I will like to draw the attention of the House and yourself to an NCRB Report, 2016 which reveals that 94 per cent of all cases registered under rape on children were committed by people known to the victims such as family members, relatives, neighbours, employees, coworkers or other known persons. So, the person who helps the child to lodge a complaint is the parent and if the parent realises that it is a close relative, will he or she pursue the prosecution? So, I feel that this is something which will deter the parents from lodging the complaint.
- Sir, in cross examinations in this case, if my client is going to be charged with life imprisonment or death, the lawyer in that case then, would go to any extent to cross examine the child and bring terror and fear in his mind and I don't think we will really be achieving the kind of benefit that we are looking for the victim."

<sup>7</sup> [https://rsdebate.nic.in/bitstream/123456789/683762/2/PD\\_246\\_06082018\\_p408\\_p439\\_39.pdf](https://rsdebate.nic.in/bitstream/123456789/683762/2/PD_246_06082018_p408_p439_39.pdf), visited on 10.5.21

### 3. Shri Tiruchi Siva:

“Sir relating to death penalty for rape and gang rape of girls of less than twelve years, in a seminar conducted in Chennai about the abuse against girl child, what the women, in general, expressed was that death penalty means that the accused will immediately be hanged and there would not be any time for him to repent. He should be in prison lifelong only then no other person will dare to commit such crime was the observation made not only by NGOs but also by many parents. Suppose a person is punished with death penalty, he will die as soon as he is executed. There will be no time for him to repent. So, he should rather be put in prison for life. Only then the law will serve the purpose.”

**After Parliamentary debates the author refers following two relevant reports:**

#### **1. Committee on Reforms of Criminal Justice System Government of India<sup>8</sup>, Ministry of Home Affairs, Chairman Dr. Justice V.S. Malimath**

The Committee reported that since death penalty was harsh and irreversible it should be awarded only in the rarest of rare cases as observed by Bhagwati, P.N., Chandrachud, Y.V. (CJ), Sarkaria, Ranjit Singh, Gupta, A.C., Untwalia, N.L. in *Bachan Singh v State of Punjab*<sup>9</sup>. The Committee also suggested alternative to death penalty:

“Section 53 be suitably amended to include imprisonment for life without commutation or remission as one of the punishments”

#### **2. Report of the Committee on Amendments to Criminal Law, Justice J.S. Verma, Chairman<sup>10</sup>:**

It opined that death penalty should not be awarded for the offence of rape as there was considerable evidence that death penalty was not a deterrence to serious crimes. It recommended life imprisonment for rape.

#### **Deterrent effect of capital punishment to perpetrators of offence of rape:**

- Cesare Beccaria in his Essay on Crimes and Punishments has advocated the idea of punishment as a deterrent and observed:

“Rational beings will choose not to commit crime, if the punishment fits the crime and they know that they will be punished.”<sup>11</sup>

#### **The 35th Report on Capital Punishment (1967)<sup>12</sup>:**

“On a consideration of all the issues involved, the Commission is of the opinion that capital punishment should be retained in the present state of the country.”

#### **• Trauma borne by rape victims:**

Victims of rape have been found to suffer from unbearable and persisting effects to their mental and physical health like emotional disturbance, sleeping or eating disorders, feelings of

<sup>8</sup> [https://www.mha.gov.in/sites/default/files/criminal\\_justice\\_system.pdf](https://www.mha.gov.in/sites/default/files/criminal_justice_system.pdf), visited on 10.5.21

<sup>9</sup> 1982 SCC (3) 24

<sup>10</sup> <https://prsindia.org/policy/report-summaries/justice-verma-committee-report-summary>, visited on 10.5.21

<sup>11</sup> Eamonn Carrabine; *Criminology - A Sociological Introduction*; pg, 56, ed. 4

<sup>12</sup> <https://lawcommissionofindia.nic.in/1-50/Report35Vol1and3.pdf>, retrieved on 10.5.21

insecurity or troubled relationships over a period of time.<sup>13</sup>

• **According to National Crimes Record Bureau of India**

Major crime heads under 'Crime Against Children' during 2019 were Kidnapping & Abduction (46.6%) and Protection of Children from Sexual Offences Act, 2012 (35.3%) including child rape<sup>14</sup>. The crime rate registered per lakh children population is 33.2 in 2019 in comparison with 31.8 in 2018.

Below 6 Years - 144 Between 6-12 Years- 428=572

(Women & Girls Victims of Rape (Age Group-wise) - 2019)

**Conclusion:**

The author agrees that protection and safety of women is indeed one of the very important facets of women empowerment. But amendments introduced in IPC at the behest of popular national sentiment might just not prove to be enough to deter potential rapists and curb the growing menace of rape. The author also cautiously states that there is always scope for judicial error and as observed in Bachan Singh's case no possible judicial safeguards can prevent conviction of the innocent. Similar concerns can also be deduced from above reproduced excerpts of relevant Parliamentary debates and reports by legal experts. As observed above by erstwhile member of Parliament, systematic and scientific studies should be undertaken to gauge deferent effect of any form of punishment including capital punishment in cases of barbaric and heinous offences like rape.

**Recommendations:**

1. In cases of rape a reliable, strong and effective witness protection mechanism is dire need of the hour.
2. Adequate forensic facilities and trained forensic personnel who can carry their equipment on the crime spot and collect evidence scientifically is also required.
3. Rape victims specially during their tender age should not be required to frequently face perpetrators of crime during trial. Hence sensitised officers of courts and special court mechanism is desirable.
4. The author herein includes recommendations of two Law Commission Reports –

**The 35th Report on Capital Punishment (1967)<sup>15</sup>:**

"The Commission does not recommend in the present report that any other offences under the IPC, should be punishable with death."

**Report No. 262 of Law Commission of India on the death penalty:**

"The Commission accordingly recommends that the death penalty be abolished for all crimes other than terrorism related offences and waging war."<sup>16</sup>

**Findings:**

Heinous and barbaric offences like rape should be strictly dealt by introducing timely legislative amendments. Offenders should be made to realise about the gravity of their act and

<sup>13</sup> Ruback and Thompson, 2001

<sup>14</sup> <https://ncrb.gov.in/sites/default/files/CII%202019%20Volume%201.pdf>, retrieved on 10.5.21

<sup>15</sup> ibid

<sup>16</sup> <https://lawcommissionofindia.nic.in/reports/Report262.pdf>, retrieved on 10.5.21

made to repent. Systematic and scientific exercise and survey should be conducted before determining new punishments for various offences.

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## Agriculture Marketing Reforms in Maharashtra State

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### Abstract:

*Agricultural Marketing in India continued to be a subject of greater interest and controversy since independence. British government was first to set up Royal Commission on Agriculture way back in 1850 to look into the problems of agricultural marketing and suggested setting up of regulated market. Since then in India the concept of regulated market is in existence in some modified form.*

*Agricultural marketing has many deficiencies or shortcoming such as existence of large number of intermediaries, defective weights and scale, lack of unity among the cultivators, lack of sufficient storage facilities, shortage of transportation, high cost of transportation, lack of market information, lack of standardisation of quality distress sale.*

*The present paper highlights the agricultural marketing reforms in the country with special focus to Maharashtra state. The measures taken by the government include Regulated Market, Development of infrastructure, co-operative marketing and the different policy instruments like minimum support price, maintaining buffer stock, public distribution system.*

*Agricultural marketing reforms in Maharashtra include various measures such as Direct Marketing Licence, Single Market Licence, Private market, Farmers consumers market, contract farming. Deregulation of sale and purchase of fruits and vegetable, Recovery of commission from traders and e trading system.*

*The government has prepared an index to compare the reforms in agriculture marketing undertaken by all the states. This index is called Agricultural Marketing and Farmers Friendly Reforms Index (AMFFRI). Maharashtra ranks first in the country in agriculture reforms index. Thus the government of Maharashtra has introduced various reforms in agricultural marketing over the period of time.*

**Key Words:** Agriculture Marketing, APMC, Contract Farming, E Trading, AMFFRI

### Introduction:

Agricultural marketing is a process which combines the activities like production, assembly, grading, storage, transportation and distribution. The three elements of agricultural marketing are primary market secondary market and export market.

Agricultural marketing is important because of the following-

- Efficient use of resources
- Output management
- Higher income to farmers
- Expanding the size of the market
- Development of Agro based industries
- Creation of more employment
- Price signals
- Use of latest technology
- Creation of form, place, and time utility
- Higher National Income



Agricultural marketing is more complex due to the nature of agricultural produce such as-

- Perishable Nature of the product
- Seasonal nature of production
- Bulky products
- Greater variation in quality
- Output fluctuations
- Scattered production
- Small size of land holding
- Pricing problem
- Needs some processing

Some of the problems of agricultural marketing are-

- Too many intermediaries
- Defective weights and scale
- Lack of Unity among farmers
- Lack of financial resources
- Lack of storing
- Lack of organised market system
- Lack of transport facilities
- Lack of standardisation
- Lack of awareness of the market
- Distress sale
- Poor quality
- Lack of market intelligence



The measures taken by the government for improving the agricultural marketing include-

Regulated Market	Development of Infrastructure	Co-operative Marketing	Policy Instruments
Minimum Support Price	Maintaining Buffer Stock	Public Distribution System	

### **Objectives of the Research:**

The major objectives of the research are-

1. To find out the agricultural marketing problems of the farmers
2. To find the role of APMC in agricultural marketing
3. To find out the reforms in agricultural marketing taking place in Maharashtra state

### **Research Methodology:**

- **Research Design:** The research design used for the present research is descriptive research design which describes the present status of the agricultural marketing in India. Descriptive research design makes presentation of data in most simple and meaningful way.
- **Sources of Data:** The research is based on the available secondary / published data on the subject. There is plenty of published data and literature on the subject of research especially from NABARD and other government agencies.

- **Data Analysis and Tools:** The available secondary data is analysed in terms of simple trends and percentages. The data is presented in the form of tables and charts and the results are analysed.
- **Limitations of the Research:** Some of the limitations of the present research are-
  1. The research is based on only the secondary data and does not include the primary data/
  2. The research is focused on the quantitative research and not on qualitative research.
  3. The problem of farmers / cultivators at the micro level is not taken into consideration.
  4. Agricultural marketing reforms undertaken by other states are not taken into consideration. Only Maharashtra state is taken and the state is ranked first in agricultural marketing reforms by the government.

### **Current Status of Agricultural Marketing Reforms:**

Agricultural marketing reforms in Maharashtra covered the following areas-

- Direct Marketing Licence
  - Single Market Licence
  - Private Market
  - Farmers Consumer Markets
  - Contract Farming
  - Deregulation of sale / purchase of fruits and vegetables
  - Recovery of commission from traders
  - E Trading System
- **Direct Marketing Licence :** The government of Maharashtra introduced this for processing, export, grading, packing of agriculture produce of particular specification. Till 2018 total of 940 are issued to different categories such as Corporate, Farmers' producers, Individual farmers, cooperatives etc. This can be seen as below-

Table No. 1

Number of Direct Licences Issued

Description	No. of Licence
Corporate	295
Farmer Producers Companies	464
Individual Farmer	70
Farmer Group	39
Co-operatives	16
Total	940

Source: Own Compilation

- **Single Market Licence:** The government introduced single market licence where a licence could directly purchase notified agriculture commodities from more than one market. A total of 28 such licences have been issued. This will simplify the procedure and reduce marketing complexities.
- **Private Markets:** The government allowed private investor to establish a private market in the area of existing APMC market giving farmers wider choice to sell their produce. 50 such private markets are operating in the state. This will allow farmers to choose their own methods whichever is beneficial to them.

- **Farmers Consumer Markets:** The government allowed farmers to establish consumer markets on the lines of Raitu Bazar Scheme of Andhra Pradesh. Under this market farmers can directly sell to consumers. Such marketing is being carried out by farmers in different states and cities of the country.
- **Contract Farming:** The government allowed contract farming under which private businessman can make a contract with the farmers for the purchase of agriculture produce at some fixed prices.

The details regarding year-wise turnover of initiatives under Agricultural Market reforms can be seen from the following table-

Table No. 2

Turnover Under Different Initiatives

Year	DML		PML		Single Licence	
	No	Rs/Cr.	No	Rs/Cr.	No	Rs/Cr.
2010-11	18	0	8	0	6	00
2011-12	4	0	13	0	17	0.022
2012-13	44	1116	22	0	5	0.091
2013-14	17	1775	22	1375	13	0.095
2014-15	48	1182	28	3064	28	0.260
2015-16	34	1554	34	3121	32	0.290
2016-17	103	2279	52	3013	39	2845
2017-18	230	2792	50	2947	46	2257

- **Deregulation of sale / purchase of Fruits and Vegetables Outside the APMC:** The government allowed the sale and purchase of fruits and vegetables outside the APMC area without payment of market fees. This resulted in establishment of weekly Bazaar's. The government introduced Savta Mali Weekly Bazaar Scheme where farmers bring their produce for direct sale. Total 110 such bazaar are established.
- **Recovery of Commission From Traders:** Government recovered commission from the purchase rather than farmers. Thus farmers were benefited and they trades in the market without any deduction.
- **E Trading:** The government introduced e trading to implement e NAM. At present 60 APMC are linked to the e trading.
- **Agricultural Marketing Index:** The government has prepared an index to compare the reforms in agricultural marketing undertaken by different states. This index is called Agricultural Marketing and Farmers Friendly Reform Index (AMFFRI). The index is based on three broad categories namely institutional charges innovation and agricultural taxation, lease land aspects, freedom to sell forest output grown on private land.

The top five states in the country are-

Rank	State	Index
Rank 1	Maharashtra	81.7
Rank 2	Gujarat	71.5
Rank 3	Rajasthan	70.0
Rank 4	Madhya Pradesh	69.5
Rank 5	Haryana	63.3

Thus Maharashtra ranks first in India in agricultural marketing reforms introduced over the period of time.

### **Summary and Conclusion:**

1. Agricultural marketing has remained a subject of greater interest and controversy since independence. British government was first to appoint a commission to look into the problem of agricultural marketing and suggest measures. One of the suggestion was the setting up of regulated market.
2. Agricultural marketing is important because of efficient use of resources, higher incomes to farmers, creation of more employment, development of agro based industries, price signals, contribute to higher national income.
3. There are various defects of agricultural marketing. These are too many intermediaries, defects weights and scale, lack of warehousing facilities, lack of infrastructure, lack of efficient transportation, high cost of transportation, lack of market intelligence, lack of inputs, low marketable surplus, lack of standard quality, distress sale etc.
4. Measures taken by the government for improving agricultural marketing include Regulated Market, Development of infrastructure, Co-operative Marketing and Policy Support in the form of Minimum Support Price, Maintaining Buffer Stock and Public Distribution System.
5. Agricultural marketing reforms in Maharashtra include Direct Marketing Licence, Single Market Licence, Private Market, Farmers Consumer Market, Contract Farming, Deregulation of sale purchase of fruits and vegetables, Recovery of commission from traders, e trading system.
6. The government has prepared an index to assess the reforms in agricultural sector undertaken by different states. This index is called AMFFRI (Agricultural Marketing And Farmers Friendly Reforms Index). Maharashtra state ranks first on the basis of this index with points 81.7 followed by Gujarat (71.5), Rajasthan (70.0), Madhya Pradesh (69.5) and Haryana (63.3).
7. Thus Maharashtra state has initiated various reforms in agricultural marketing. It offers variety of choices and options to farmers to sell their agricultural produce. The state has not implemented the three new legislations passed by central government for agricultural marketing.

### **Suggestions:**

There should be more focus on direct marketing and e trading. At present only 60 APMC market are linked to e trading. Hence more and more market should be brought under this. Maharashtra has done exceeding well in the reforms in agricultural marketing. These reforms should be continued so that all the stakeholders are benefited.

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## Plagiarism and Research

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### Abstract:

*Plagiarism is the essential tool for high-quality research which research is useful for society. Plagiarism is found the research quality and avoid the duplication of ideas of other researcher plagiarism is help to increase the creative ideas and create the own research. Own research avoids copy-paste culture. This paper focuses on Plagiarism policy in University and institute published by UGC regulation 2018 and ethical issues in research and differentiated the copyright and plagiarism and explain the plagiarism definition. Explain the importance of plagiarism in research defined the types of plagiarism and how to avoid plagiarism by students and academicians. Penalties for plagiarism in research which penalties decided by UGC plagiarism detected at last, conclude the theme of this paper.*

### Introduction:

In the 1980s, India was among the top 10 countries in the world producing original research, slipping to no. 12 in the 1990s. And in the first decade of the new millennium, its position further slipped, alarmingly, to below 20. The research was no longer seen as a prestigious career option because India has failed to provide adequate encouragement, incentive, and appreciation for students to get into research areas, "said Narayan Murthy. India has come into a research topper country original research is a must. Original research help to the development of nation so Plagiarism help for find out original research

The word *plagiarize comes from the Latin plagiarise—to kidnap (Oxford English Dictionary)*. Plagiarism is the act of stealing someone else's work and attempting to "pass it off" as your own. This can apply to anything, from term papers to photographs to songs, even ideas! Submit a paper / Dissertation Thesis to be graded or reviewed that you have not written on your own. Copy answers or text from another classmate and submit it as your own. Quote or paraphrase from another paper without crediting the original author. Cite data without crediting the source. Propose another author's idea as if it were your own. Fabricating references or using incorrect references. Submitting someone else's presentation, program, spreadsheet, or other files with only minor alterations; Buying or selling term papers / assignments/ Dissertations / Thesis Plagiarism is specifically defined as a form of research misconduct. Misconduct means fabrication, falsification, plagiarism, or any other practice that seriously deviates from practices commonly accepted in the discipline or the academic and research communities generally in proposing, performing, reviewing, or reporting research and creative activities. Fabrication is the intentional act of making up data or results and recording or reporting them. Falsification is manipulating research materials, equipment, or processes or changing or omitting/suppressing data or results without scientific or statistical justification, such that the research is not accurately represented in the research record. This would include the "misrepresentation of uncertainty" during the statistical analysis of the data. Fake peer reviews

### Plagiarism Policy for University /Institute :

In the UGC regulation 2018 published about Plagiarism policy in Plagiarism policy Include following contents.

} Preamble

- } Infrastructure
- } Awareness
- } Constitution of DAIP and IAIP
- } Plagiarism Guide
- } What is Plagiarism?
- } Types of Plagiarism
- } How to detect
- } Plagiarism FAQs
- } How to Avoid? Plagiarism Prevention Guidelines for Students
- } How to Avoid? Plagiarism Prevention Guidelines for Educators
- } What is Citation
- } How to Cite Sources
- } Listing References
- } Citation Styles
- } Counselling
- } Important Terms

#### **Academic Integrity and Ethical Issues in Research**

- } Honesty
- } Objectivity
- } Integrity
- } Carefulness
- } Openness

#### **Respect for Intellectual Property**

- } Confidentiality
- } Responsible Publication
- } Responsible Mentoring
- } Respect for colleagues
- } Social Responsibility
- } Competence
- } Reference Management Tools
- } Legality
- } Animal Care
- } Human Subjects Protection



#### ***Copyrights vs. Plagiarism***

Copyright is about protecting the right so for the creator of information. Plagiarism is using someone else's work or ideas without giving proper credit. Plagiarism is a violation of academic norms. Plagiarism is an offense against the author, while copyright violation is an offense against the copyright holder. Copyright applies to licensed contents only, while plagiarism applies to both licensed and unlicensed contents.

#### **Plagiarism in Research**

Plagiarism is specifically defined as a form of research misconduct. "Misconduct means fabrication, falsification, plagiarism, or any other practice that seriously deviates from practices

commonly accepted in the discipline or the academic and research communities generally in proposing, performing, reviewing, or reporting research and creative activities

### **Intentional Plagiarism: Falsification, Fabrication**

Fabrication is the intentional act of making up data or results and recording or reporting them. Falsification is manipulating research materials, equipment, or processes or changing or omitting/suppressing data or results without scientific or statistical justification, such that the research is not accurately represented in the research record. This would include the “misrepresentation of uncertainty” during the statistical analysis of the data. Fake peer reviews

### **Unintentional or Accidental Plagiarism**

Failing to document or “cite” properly. unfamiliar with International styles of documentation. Quoting excessively. Failing to use your own “voice” to present information or ideas. I May not know how to integrate the ideas of others and document properly. I May not know how to take notes properly, or have done sloppily taking the ideas of other writers and mixing them. Using minimal or careless paraphrasing

### **Self-plagiarism**

Copying material you have previously produced and passing it off as a new production. Writers often maintain that because they are the authors, they can reuse their work as they please; it couldn't be defined as "plagiarism" since they are not taking any words or ideas from someone else. However, while the debate on whether self-plagiarism is possible continues, the ethics of self-plagiarism is significant, especially because self-plagiarism can infringe upon a publisher's copyright.

### **Penalties:**

#### **If a student found guilty of academic misconduct;**

- } A requirement for submission of a new or alternative piece of work.
- } The rescinding of University-funded scholarships or bursaries.
- } Partial or total loss of marks on the examination or assignment or course in which the offense occurred.
- } Suspension or expulsion from the University
- } A recommendation for revocation/rescinding of a degree.

#### **If a Researcher / Academician is found guilty; they may face the following penalties**

- } Disgrace to both Individual and institution
- } May face disciplinary action as per institute rules
- } It can cost a person his or her professional credibility or even a job
- } Debarment from eligibility to receive research funds for grants and contracts from any government agency in India,

#### **University Grants Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018**

- } Academic Integrity Panel
- } Departmental
- } Institutional
- } Penalties Similarities upto 10% -excluded

- } Level 1: Similarities above 10% to 40%
- } Level 2: Similarities above 40% to 60%
- } Level 3: Similarities above 60%

### Conclusions:

This paper Suggest to Understand why students or educator cheat?  
Educate them about the plague of plagiarism. What is plagiarism? Tell them the benefits of citing sources.

### Acknowledgments and Declaration by Author:

I Would Like to express my sincere thanks to the author of *Dr. Ramesh C. Gaur* Director (Library & Information) & Head Kala Nidhi Division Indira Gandhi National Centre for Arts (IGNCA) Presentation In the SWAYAM course. This Paper is mainly prepared to create an awareness among students and researchers about the plague of Plagiarism

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## Research Methodology in Social Sciences : A New Perspective

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### Abstract:

*This paper is about the adoption of new approach to the research methodology in social sciences with reference to the higher education scenario. This in the line of prescription of MLA conference handbook for updated use of research methodology given in hands on forms and descriptive in approach. The present paper covers need and scope of new approach in the light of existing research methodology in social sciences. In order the research to be meaningful and useful it is needed to be carried out through a proper methods with a sense of scientific base in the way. The word scientific has very special significance as it relates to certain principles and theoretical laid down norms as regulation which in broad term must be defined as research methodology.*

**Keywords:** Scientific, methodology, formulation, generalization, , qualitative, quantitative

### Introduction :

Research is an academic discipline with varying significance as per the field of study and research. Any research to be meaningful and useful it is needed to be carried out with sense of dedication in a certain scientific way. Here the word scientific has very special significance as it relates to certain principles and theoretical laid down norms as regulation which in broad term must be defined as research methodology. Hence the present chapter is important for the any researcher as it deals with the various research methods that are in vogue to carry out research in social sciences and humanities.

In order to conduct research scientifically, it is prior to ensure following of the proper research methodology which help to remove flaws in research and helps to arrive at conclusions without any bias and prejudice. The proper research methodology consists of or begins with the process of selection and topic, formulation of topic with the guidance of the research supervisor and preparing an ideal research design. The research design is the key part that determine the direction of research and it helps to save time and energy. After preparation and sanction of the research design by the panel of research review expert the research continues his work in the field using the updated methods of primary and secondary data collection. For the collection of required data to be processed, he has to connect with the predetermined sample units to surmise and predict the nature of the problem on the basis of valid logical interpretation with help of existing theories of research frequently modified by the academics.

### Research in Social Sciences:

The industrial and technological revolution has increased the complexity of human life. All these complexities are coming more and more in the new social structure. For this, the development of the world, naturally, needs to solve the problem immediately. If research is not undertaken, it is difficult to make sense of it. Research is the search for knowledge. In terms of interpretation, research is the scientific and systematic research on a particular problem. Research has been interpreted by many scholars and social scientists. Research, like Webster's



International Dictionary, is a careful and critical examination of facts and principles. Research has many features. Research emphasizes the generalization of the development of principles and theories. It is based on evidence. The accuracy of the observations, the aggregation of the information, the specific skills for careful design, all these processes are all verified, there are many features and objectives of the research.

The objectives such as development of knowledge, scientific study of histories, classification of facts, reliable predictions of past events, study of contexts and regimes, aspirations of creative ability, aspirations of social service and aspirations of respect in society are important. The scope of research in history and social sciences is as large as human behavior. Industrialization has created many problems in the country. It is imperative to find solutions to the pressures of labor, industrial technology, objective approaches, new jobs, changes in business structure and demand. This is the scope and nature of the study of research in history. Research in history is important because it provides guidance for social planning. Facilitates social control. Gives knowledge for happiness. Suggests therapeutic tools, Vishwasards suggests hypotheses and discovers techniques and tools for research.

Physical phenomena are known through the senses. So social phenomena are known through norms, traditions and values. These things cannot be easily verified. In this context, it is said, some high concepts and techniques are used to evaluate objective things. Whether there is a difference between social phenomena and material phenomena is debatable. However, after proper analysis, these two things are shown differently and different groups are formed. Experiments are carried out in a controlled laboratory in physics.

Science has created many problems in man. Experiments are brought to the school for that experiment. Researchers do not understand the causes and consequences of poverty and inefficiency in the social sciences. According to McLaughlin, if a researcher does not understand these things, he can ask the wrong questions and find the wrong answers. These difficult things have to do with developed techniques and methods. According to Marton, research in history is far behind physics research, but this is not entirely true. Because in the 20th century, research in both disciplines has reached the same level. The scope of research in history is very wide and its limits are as wide as human behavior and its maturity. It is undertaken to discover new approaches in history and the social sciences. This is achieved through hard work. Research in this field is highly regarded.

Some theories are evolving in the social sciences. But since they are based on a limited section, they are called culture and situation limited. That is, they are limited to specific situations. In short all theories are tested in different situations. Social scientists and historians are skeptical of theories and conclusions developed in a particular society because of their different backgrounds. Research in history is accepted only after taking scientific tests. In a developed country, social pressures are contradictory. There is a conflict between tradition and modernity. There is unrest in such a society. Naturally, this research has a lot of scope in a country like India. India is a welfare nation.

There are many programs for the weaker sections, women, children, mentally and physically handicapped. In India, the government has passed some development laws. This is done to increase the strength, competence and motivation of these vulnerable elements. The social scientist can do research on this reliable information. Such developmental laws are based on the needs of the people. All these things are based on assumptions. There are different types

of research in the social sciences. These are based on classification, theory, purpose, nature of research. Types of research include descriptive research, analytical research, applied research, basic research, numerical research, qualitative research, conceptual research, empirical research, experimental research, evaluative research, artistic research, clinical research, survey research, etc.

### **Types research:**

#### **A) Descriptive Research:**

This is a type of fact finding research. The main purpose of this type of research is to describe the state of affairs that exists. The main feature of this type of research is that the researcher cannot control the diversity. He can narrate an incident that happened. At the same time, the researcher can try to find out the reasons behind the revolt, uprising and anarchy. This is simple and specific research. This type of research gives less scope to analysis, more space to describe events. The researcher should get the basic information required for this research accurately and in abundance.

#### **B) Analytical research:**

The research termed as analytical research is a very important type of research in the study social sciences. For this the researcher can use the available information and facts. The researcher critically evaluates the situation by analyzing the available information and facts. For example, since India has been invaded by many foreign invaders in the past, the researcher analyzes the available information, causes, effects and motives of the invasion.

#### **C) Applied Research:**

Society has to face many problems while living pertaining to historical, social, economic, religious and political understanding etc. There is a problem and it needs to be solved immediately. Applied research is about finding real problems in life and finding solutions to them. This research is called policy sponsored, action sponsored and actual action research. It is based on knowledge, theory and evidence. E.g. An outbreak in society is caused by a specific cause. For this, the researcher explains the reasons behind it and the solution plan. Naturally, this research gives immediate and objective results. There is a lot of scope for this research in history. And from this new theories can emerge.

#### **D) Basic research:**

This research is also called pure research, basic research or basic research. Research is the antithesis of applied research. This research does not serve any kind of money or financial need, it is only useful for knowledge. This research is undertaken through intellectual therapy. As an instance, research in the Upanishads is also included. The reason for undertaking such research is that it quenches the intellectual desire and thirst of the researchers. This research is useful to improve the existing principles, theories.

#### **E) Numerical Research:**

There are many types of problems in human life. Some of the problems are related to basic research and some are related to pure research. Numerical research is based on numerical evaluation and statistics. As an instance, research in the context of a five-year plan or evaluation of a military by a ruler. In short, this research is based on money, amount and number. The

findings of this research are statistical, percentage and numerical and are clear and concise. This famous type of research is undertaken in all countries in the context of the Five Year Plan.

#### **F) Qualitative research:**

This research deals with qualitative events in specific situations. It studies the behavior of an individual, a group or a crowd. Why did a certain group of people behave like this on an occasion? Why did you do such an act? This is considered. This research explores the motives behind the specific behavior of a group or group. This research explains people's attitudes and opinions. This research is undertaken in Behavioral or Hidden Behavior. In fact, this research is difficult and is done under the guidance of skilled and experienced researchers.

#### **G) Imaginative research:**

This research is done to understand abstract ideas, things. This research is based on abstract theory, which is very difficult to understand. The research problem in this is to find the relationship between God and the soul, the soul and the paramatma, or according to some, the creation of the universe, in the context of birth. To understand this problem the common man has to give a lot of explanation. The research is mainly undertaken by thinkers and philosophers. The purpose of this research is to create new concepts by interpreting existing ideas or theories.

#### **H) Empirical research:**

This research is based on experience or observation and does not consider other methods and theories. This research is based on information. The end of this research is to prove the power of observation, to give research experience. In contrast, this research is somewhat experimental. This research explores the tools of fact, the stimuli and the factors that affect reality. The researcher finds the assumptions and reaches the expected result. It also gathers enough information to prove or disprove the assumptions.

#### **I) Experimental research:**

This research aims to examine or analyze a situation. In other words, two different things are related to each other, but for that, there has to be a relationship between those two things. Many diagrams, diagrams are available for this research. The purpose of these different diagrams is to reduce the differences between these different processes and to achieve definite results. In short, in this research, the researcher controls different objects and studies the effects of diversity and their relationship. In this, a theory or theorem is proved through experiment.

#### **J) Evaluation Research:**

This research studies the ongoing welfare projects in different parts of the country, their evaluation and their results. For example, free medicine camps, free legal advice, rural development programs and land improvement projects are undertaken by the government. The study of the results of such work is undertaken in this research.

#### **K) Guided Research:**

Guided research is also called artistic research. This research helps the researcher to formulate clear assumptions. In this, the researcher focuses on finding innovative things using research. In fact, the structure of this research is wrong. This research is undertaken for a preliminary study of specific issues.

### **L) Therapeutic research:**

Why specific incidents occur frequently in this research. The reasons behind it are explored. This research investigates the extent to which internal and external pressures cause this phenomenon to occur. For this research, the researcher needs to have knowledge of the basic problem. For this, the researcher solves specific problems by adopting the correct method.

For the present study, the researcher has selected the subject entitled "A Critical Study of Women's Role in Child Growing Practices: A Case Study of Women Residing in Akola District (MS)" As the first and important step of any research is the selection of topic and in doing so, any researcher following his personal curiosity should be supposed to give priority to the areas of his interest. It is equally true that a person's curiosity has always led to many great inventions. Curiosity means a person's eagerness to gain knowledge of a subject. Hence, the great researcher and scientist, Semel has stated that either a subject under study is the subject of researchers interest or he is eager means curious about the knowledge of the subject.

To move ahead, after, the researcher has decided the topic of his interest and subsequently, the topic of research, it is necessary to prepare outline or to make a planning of the research in the light of objectives. To achieve the objectives of the research it is necessary to work in a planned manner. Before actual beginning of the research the researcher has to make a proper planning so that he could avoid the possible fourth coming difficulties and impediments in the research process. The proper needed to be systematized following the proper sanctioned research methodology.

### **Conclusion:**

In order to make the research more reliable and authentic, it is very necessary to have basic understanding of the nature of research in general. Apart from this, the function and objectives of research are equally significant aspects of the research in higher education. As a part of planning, it is found that the research plan has always been varying and changes are incorporated as per the objectives of the regular research. Four types of research objectives can be laid down. and equally, there are four types of research outlines, termed as research designs.

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## Juvenile Delinquency in Delhi (India)- Latest Trends and New Amendments in Juvenile Justice

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### Abstract:

*Juvenile delinquency is a serious offence. There is an increase in juvenile crimes all over the world and India is one of the countries which has a higher involvement of the youth /juveniles in the crimes. It is a serious concern for the country. Indian legal system and the judiciary has responded to these trends and has brought some amendments in the laws that are related to the juvenile justice. The analysis of statistical data available at official sites indicates that there is an increase of youth involvement in heinous crimes. To resolve the problem of the juvenile delinquency in India, the Act pertaining to Juvenile Delinquency has been amended.*

**Key words:** Juvenile, delinquency, Juvenile Justice System, Juvenile Justice Act, Juvenile Justice Board.

### Introduction:

Children are the rock of any nation on which it's future is built. They become the leaders of the country, the creators of national wealth, who care for and protect the human community of the land to which they are rooted. They increase their ability to think abstractly and develop their own views regarding social and political issues. They develop ability to indulge in long- term - planning and goal setting. They yearn for separate identity and independence from parents. This is the age when peer influence and acceptance become very important. They also develop strong romantic ideas, and tend to show indulgence in Love and long- term relationships.

Statement problem of research study:

“Juvenile delinquency in Delhi, India- latest trends and new amendments in juvenile justice”

### Objective of study:

To understand the latest trends in juvenile delinquency, statistical data from National Crime Records Bureau in Delhi, India.

### Scope of study:

The study would help us in knowing about the latest trends and new amendments in juvenile delinquency in Delhi, India.

### Juvenile:

The word 'juvenile' has been derived from the Latin word 'juvenis' meaning young. Juvenile can be defined as a child who has not attained certain age at which he, like an adult person under law of the land, can be held liable for his criminal acts. The juvenile is a child who is alleged to have committed /violated some law which declares the act or omission on the part of the child as an offence. (Black Dictionary of Law)

### Crime:

Crime is an offence or an antisocial activity of the child) which violates the law and it punishable by law.



### Delinquent:

The word 'delinquency' has been derived from 'delinquere' in which 'de' means do away and 'liqueur' meaning to leave and to abandon. Delinquent is typically a young person who tends to commit crime, particularly minor Crime or the one who violates the law. Moreover in 1942, it was said that a delinquent is a person who knowingly, intentionally and self-consciously violates the mores of the society to which he belongs".

### Reasons for Juvenile Crimes:

The behavioural changes occur in the juveniles/ adolescents, which are related to the sudden changes in their body due hormonal surge, associated with puberty. The changes are most apparent in physical parameters, such as change in height and weight of the adolescents, and are soon followed by other sexual and physical changes of maturity. These physical changes are accompanied by mental changes also.

**Table 1: Cases registered against Juvenile in conflict with law under IPC during 2014 to 2019 - In all over India**

Year	Cases Registered		Percentage cases of Juvenile in conflict with law to total cognizable Crimes
2014 to 2019 (6- Years)	Under total cognizable IPC Crimes (all over India)	Against Juveniles in conflict With Law (all over India)	Percentage (all over India)
2014	2851563	38455	1.0
2015	294900	33433	1.0
2016	297571	35849	1.0
2017	3069579	33606	1.0
2018	3132955	31591	1.0
2019	3225701	32235	1.0

**Table 2: Cases registered against Juvenile in conflict with law under IPC during 2014 to 2019 -In Delhi**

Year	Cases Registered		Percentage cases of Juvenile in conflict with law to total cognizable Crimes(In Delhi)
2014 to 2019 (6-years)	Under total cognizable IPC Crimes (In Delhi)	Against Juveniles in conflict With Law (In Delhi)	Percentage (In Delhi)
2014	155654	1969	0.79
2015	191377	2366	0.81
2016	209519	2499	0.84
2017	232066	2965	0.78
2018	249012	2727	0.91
2019	299475	2783	1.10

**Table 3: Cases registered in all over India and Delhi against Juvenile in conflict with law under different crime heads of IPC during 2019**

S.no.	Types of crime	No. of cases in all over India	No. of cases in Delhi
1.	Murder (Section 302 IPC)	827	72
2.	Attempt to commit murder (Section 307 IPC)	994	59
3	Culpable Homicide not amounting to murder (Section 304 IPC)	30	1
4	Attempt to commit Culpable Homicide (Section 308 IPC)	71	29
5	Rape (Section 376 IPC )	1249	99
6	Kidnapping and Abduction	963	33
7	Dacoity	153	1
8	Robbery (Section 392 To 394, 397 And 398 IPC)	696	158
9	Criminal Trespass (Section 447 To 452 IPC)	173	1
10	Burglary (Section 457 To 460 IPC)	2128	87

**Table 4: Juveniles Apprehended under IPC and SLL Crimes by Age Groups During 2019 in all over India**

Sr. No..	Types of crime	Below 12 years	12 -16 years	16- 18 years	Total
1	Murder (Section 302 IPC)	23	214	787	1024
2	Attempt to commit murder (Section 307 IPC)	5	272	1028	1305
3	Culpable Homicide not amounting to murder (Section 304 IPC)	0	16	18	34
4	Attempt to commit Culpable Homicide (Section 308 IPC)	0	17	86	103
5	Rape (Section 376 IPC )	24	338	1021	1383
6	Kidnapping and Abduction	4	228	794	1026
7	Dacoity	0	32	233	265
8	Robbery (Section 392 To 394, 397 And 398 IPC)	5	182	725	912
9	Criminal Trespass (Section 447 To 452 IPC)	0	35	163	198
10	Burglary (Section 457 To 460 IPC)	65	876	1981	2922

Table-1, shows number of Cases registered against juveniles in conflict with law. From 2014 to 2019, this number has ranged from 38455 to 32235 (in category of against Juveniles in conflict with law) and from 2851563 to 3225701 (Under total cognizable IPC Crimes) in all India. Though the Percentage cases of Juvenile in conflict with law to total cognizable Crimes has 1.0.

Table-2, shows there is an increase in number of Cases registered against juveniles in conflict with law. From 2014 to 2019, this number has increased from 1969 to 2783 (in category

of against Juveniles in conflict with law) and from 155654 to 299475 (Under total cognizable IPC Crimes) in Delhi. Though the Percentage cases of Juvenile in conflict with law to total cognizable Crimes has increased from 0.79 to 1.10 in Delhi.

Table-3 shows number of cases registered all over India for the juveniles under various crimes under different heads of IPC during the year 2019. These figures are pretty alarming.

Table-4 shows the figures for Juveniles Apprehended under IPC and SLL Crimes by Age Groups during 2019 under different age categories. It is evident that involvement of juveniles in the age group of 16- 18 years is very high. It has been pointed out in the discussion that the youngsters are not able to control their biological impulses prompted by hormonal changes. This can be seen in the table-4 on various categories of crimes committed by juveniles- a staggering 1383 number of cases of rape charges, the highest in all types of crimes committed by the youth in year 2019.

### **Need for Amendments in Juvenile Justice Act:**

Due to this trend, legal definition of child under Indian legal system came under question. Malavika Tyagi (2016) also feels that with trend of involvement of juveniles in violent crimes in India, state intervention is required in terms of making amendments and in terms bringing in new legal provisions. The new Juvenile Justice Act of 2015 took into cognizance the involvement of juveniles in heinous crimes and brought out some amendments.

The Juvenile Justice bill was introduced in the Lok Sabha in 2014, after it was felt in the post- Nirbhaya case that some action has to be taken against the increasing involvement of juveniles in the age group of 16 to 18 in heinous/ serious crimes. The serious crimes have not been in the Indian Acts per se, but they may be taken to mean the category of crimes which would entail imprisonment for 7 years or more for adults. It was felt that JJ Act 2000 was flawed with implementation issues, and the new bill intended to close these loop holes. legal provisions, if a child of 16 years or above commits a heinous crime, a preliminary assessment of his mental and physical maturity will be made by the Juvenile Justice Board. Level of maturity will be matched to his capacity to commit such an offence, his ability to understand the consequences of his offence and the circumstances in which he allegedly committed the offence.

### **Conclusion:**

The Juvenile Justice Act of 2016 can be seen as a very progressive step of the Indian government towards keeping pace with changing trends in juvenile crimes. The bold step under the Act on treating the juvenile offenders found guilty of committing heinous crime as adults, subject to the observations of the Juvenile Justice Board.

### **Suggestions:**

Some suggestion can be made to deal with the issue of Juvenile Delinquency in India.. It has been found that though various provisions for juvenile justice have been laid down, they are followed properly. For instance, the members of the Juvenile Justice Board should be trained in child psychology & sociologist and should be sensitized in child related matters, more often they are incompetent in this area. It is also important to monitor the functioning of Observation Homes and Shelter Homes. Community participation and sensitization in matters related to juvenile delinquency is very important. In the administration of Juvenile Justice, preventive measures are very important. For this, if people in society are sensitized about issues of neglected children and children living in difficult situation, they can play important role in

rehabilitation. It has been reflected earlier in this paper that families are important agents of social control and socialization. So, families, along with other primary groups in society can be more effectively involved in preventive measures

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## **Higher Education in Commerce India and Abroad**

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### **● Introduction :**

The approach to higher education in India vs education abroad is fundamentally different. The differentiating characteristics include education system, approach, research in education, curriculum etc. India being a developing nation lacks funds and hence there is a need to gather funds and use them to enhance the education system. Beginning with more research-oriented education, there are a lot of things that we need to achieve, such as flexibility, updating the curriculum, global knowledge, etc.

Commerce Education started with a view to prepare the manpower requirements of the industrial world at large. As a field of study, Commerce Education is almost a century old. It was first started in India in the year 1889. In the pre-independence era, it was treated as a centre for attraction with limited objectives of providing clerical and accounting personnel with an emphasis on training in typewriting, shorthand, letter writing and business methods which ultimately widen due to the growth in trade, commerce and industrialization and then became a part of the main stream of higher education in India.

### **● Objectives of the Study :**

- To Study about the issues and challenges to Commerce Education in India
- To Study about the Scope for Commerce Education in India

### **● Challenges to Commerce Education in India :**

- Craze for Medicine, Engineering, Management and IT courses.
- Unpopularity of commerce at competitive examinations:- the syllabus of
- commerce at competitive examinations is not attracting even the meritorious commerce students.
- Commerce graduates are not eligible for teacher training courses, such as B.Ed. in many States.
- Lack of knowledge about commerce at school level as commerce education is not introduced at school level in many States.
- No preference or reservation for commerce graduate either in employment or in admissions to professional courses like C.A, CWA, CS, M.B.A. etc.
- Poor teaching in many colleges forcing many students to go for tuitions, which means additional cost and effort.
- High student low teacher ratio.
- Lack of proper infrastructure: - it is sometimes remarked that many colleges are virtually academic slums.
- Instruction in regional media and inadequate or non availability of reading material in regional media.
- Inadequate teaching aids like commerce lab, CTV-Video films.
- Untrained and ill-equipped teachers.
- It is more content oriented rather than skill and practice oriented.



● **Job Opportunities in Commerce Education :**

The job prospects of commerce graduates are many. They have the ability to serve in walks of the society when taking into account the role played by Finance and accounts in day to day life of every person and company. Successful business often depends on strong employee skills and specialized staff who can help the management to run things effectively by analyzing problems and recommending solutions.

● **The various areas of job possibilities for a commerce graduate are :**

Banking Institutions ,Financial companies and offices ,Firms providing financial outsourcing ,Companies engaged in the Insurance sector, Private and public Audit firms ,Industrial Accountancy firms, Offices in multipurpose companies , Various Government undertakings, Planning and Budget departments, Ministerial affairs offices , Schools and Colleges ,Hospitals (Accounting Staff) ,Hotels (Accounting Staff) , Factories (Accounting Staff) ,Financial Teaching institutes .

● **Scholarships for Indian Students to Study Abroad :**

There are numerous scholarships for Indian students to study abroad after 12th across the globe. Here is a list of top scholarships after 12th to study abroad:

- Inlaks Scholarships– North America or Europe
- TATA Scholarships– Cornell University, USA
- Lester B.Pearson International Scholarships- University of Toronto
- Wilfrid Laurier University Merit Scholarships- Wilfrid Laurier University, Canada
- Monash International Merit Scholarships- Monash University, Australia
- India Global Leaders Scholarships- University of Queensland, Australia
- University of New South Wales Future of Change India Scholarship – UNSW, Australia
- Orange Tulip Scholarship– Netherlands
- Oxford and Cambridge Society of India Scholarship– UK Universities
- Saltire Scholarships– Scotland Universities
- UWE International Scholarships- Bristol University
- Asian Women in Business Scholarship Fund- Business Degree at a US University

● **Difference between Indian and foreign education :**

It is essential to understand the difference between Indian and foreign education especially if you are aspiring to study abroad. Here is a comparison between Indian education and foreign education (on the basis of education provided in nations like the US, UK, Germany, etc.) to guide you :

**1-Option to Switch :** Students cannot switch their major subjects in the middle of courses. For e.g. If you are a Physics major student then you can't opt for varied subjects like Languages or Economics in the middle of your course.

Most of the universities in European colleges and US-based colleges allow students the options to switch subjects and don't limit them to just one subject.

**2- Approach towards Education :** The curriculum in Indian educational institutes focus more on theoretical education and rely on the research that has been conducted in the past.

The curriculum of foreign universities follow a more practical approach in education and encourage fresh research other than what has already been discovered.

### **3- Research Initiatives :**

Despite the continuous help offered by the government, there are limited research funds, therefore, research initiatives are also less.

Research in foreign universities is funded by some of the biggest organizations of the world, such as Google, Microsoft. Hence research initiatives offered there are better.

**4 - Curriculum :** Modifications based on the latest and approved research studies are implemented quite late in the curriculum of Indian universities.

Universities in the US and some other developed countries update their curriculum every few years, hence offering more advanced education.

**5 - Exposure :** India has not yet been able to internationalize education in order to attract students from various countries to choose courses offered by Indian Universities.

Foreign Universities have a mixed group of students coming from various countries. Therefore a student gets better exposure.

**6 - Course Options :** Indian universities and colleges provide limited courses to choose from to the students.

International universities provide multiple courses and specialisations to students.

**7 - Job Opportunities :** The job opportunities provided by Indian Universities are limited to top educational institutes.

International Universities provide excellent job opportunities for students.

**8 - Funds :** Pursuing education from India is affordable.

Pursuing education from Foreign country is always expensive as the cost of living, food, travel, etc get added to the overall expenditure.

**9 - Return of Investment (ROI):.** ROI of Indian Universities is conditional and depends upon the college you are going to join.

ROI of foreign universities is good. The cost of studying might be expensive but study abroad gives a kick start to one's career.

**10 -Scholarships:** Indian Universities have limited scholarships.

Foreign Universities provide numerous scholarships to international students. Apart from that, students can also take part in work-study programmes

#### **● Challenges in Commerce Education in India :**

With a quantum jump in the business world, the need to redefine and strengthen the commerce education in India has increased. Commerce education is considered as the backbone of serial development of business in the nation. So, it is important that a sector as crucial as this one, there are no flaws in the system. Here are some challenges that commerce education is or will be facing in India.

-Reforming International and Indian economic sectors.

-Emerging issues in commerce, global economy and management.

-Internationalisation or globalisation of Financial Market in the world.

-Strategies and challenges to control inflation.

-Role of Foreign Institutional Investment and Foreign Direct Investment.

-Role of IMF and World Bank.

- Govt. policies for acquisitions and mergers.
- Import and export of commerce, industry and trade.
- Challenges in the current market as with respect to the international scenario.
- Strategies and challenges for the stock market
- Future Trends and Opportunities in Commerce Education in India

A commerce graduate has ample opportunities in the private as well as government sector. Taking the current scenario and development into account, India will experience standards-based education in Commerce that focuses on outcomes for student learning. As per a research study, the number of e-commerce students/ aspirants in India will rise to 100 million in the next few years. This will create even more job opportunities and career scope for commerce education.

● **Conclusion :**

In the new era of globalisation, the traditional commerce education has become redundant. With the increased emphasis on global economy and information, higher education is viewed as very essential. With the changing trends in the education system, there has been an explosion of knowledge and technologies in all spheres. In such a situation, it is important that Commerce education does not face compromise with respect to quality as commerce education provides ample opportunities to graduates for employment. With growing emphasis on information technology, higher education was viewed as increasingly essential for the world population. Information technology and mobile technology is now forcing education sector to change according to the need of the time the most emerging dimension of the business and commerce education in the 21st century is the need for business school to use technology and make it integral part of course content.

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## **A Study on Impact of Covid 19 on Financial Market in India**

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### **Abstract :**

*Indian stock market is important for economic and national development. The economic development of a country depends on industrialization in that country. Industrial growth of a country ensures the economically development of the country. Therefore, economic development of a country can be measured through stock exchange. In other words, it can be said that stock exchange is a barometer of the economic development of a country. Market capitalization of exchange in India was about \$2.16 trillion. Before Covid 19 the market conditions were generally favorable after COVID 19 pandemic, global market affected share markets crash under fear as uncertainty situation BSE Sensex and Nifty 50 fell by 38 per cent. and total Market Capitalization lost a suddenly 27.31% from the start of the year. The stock market has reflected the sentiments this pandemic unleashed upon investors, foreign and domestic alike. Covid 19 affect on employment sector such as hospitality, tourism and entertainment has been impacted adversely and stocks markets .This paper enlighten on Indian Economy Impact of covid 19 on stock market ,Investor Psychology in covid 19 pandemic .*

### **Introduction:**

#### **Stock Markets in India:**

The History of the capital market in India dates back to the eighteenth century when East India Company securities were traded in the country. Until the end of the nineteenth century, Securities trading were unorganized and the main trading centers were Bombay (now Mumbai) And Calcutta (now Kolkata). Of the two, Bombay was the chief trading centre wherein bank shares were the major trading stock. During the American Civil War (1860-61). Bombay was an important source of supply for cotton. Hence, trading activities flourished during the period, resulting in a boom in share prices. This boom, the first in the history of the Indian capital market, lasted for a half a decade. The first joint stock company was established on 1850. The bubble burst on July 1, 1865, when there was tremendous slump in share price.

The Securities Contracts Regulation Act, the Government of India saw the Bombay Stock Exchange as the genuine Stock Exchange in the nation in 1956. In any case, there was no true system to assess the general execution of the exchange. In like way, in 1986, BSE Sensex made by the Bombay Stock Exchange (Sensex = Sensitive Index), an outline of top 30 affiliations, which gave a way to deal with oversee direct measure the general execution of the Exchange. Until late 1980s, BSE kept running with low straightforwardness and a delicate clearing and settlement structures. Around the fulfillment of the 1980s, the new economic powers, money emergency and the economic movement underscored the requirement for modernization of the budgetary framework. Government built up the Securities and Exchange Board of India (SEBI) in 1988. In April 1992, Bombay Stock Exchange beat due to Harshad Mehta Scam. Dr. Manmohan Singh is the past record serve has recommended that the need of other Stock Exchange in converse with BSE. He manhandled the Industrial Development Bank (IDB) to stand out of the errand for making conflict in BSE. In November 1992, NSE (National Stock Exchange) was begun as the supervisor electronically exchanged Stock Exchange India.

### **The BSE and NSE :**

The Indian stock market happens for exchanging into two stock exchanges: (1): BSE - Bombay Stock Exchange; (2): NSE - National Stock Exchange. The BSE has been in set up in 1875. The NSE was set up in 1992 and began exchanging 1994. The two exchanges look for following a near to exchanging hours, exchanging structure, settlement process, and so on. At the last check, the BSE had 4,700 recorded firms, while the NSE had 1,200. Just 500 firms the BSE make over 90% of its market in capitalization; the rest of the contains exceedingly illiquid shares. Extra segment trailed the movement system were begun in 1991 as advancement of capital markets was made a principal bit of the re-trying structure. Today, Indian markets achieved the general standards both to the degree structure and to the degree working proficiency.

#### **• Objectives of the Study:**

- 1) To know the Indian stock market
- 2) To know impact of Covid 19 on share market
- 3) To Understand Investors Psychology

#### **Research Methodology:**

The study is based on Secondary data. The data is collected through different published sources and NSE BSE websites for this study.

#### **Impact of Covid 19 on Indian Share market:**

Economic development of a country can be measured through stock exchange. In other words, it can be said that stock exchange is a barometer of the economic development of a country. Market capitalization of exchange in India was about \$2.16 trillion before covid 19. The Impact of novel corona virus (COVID-19) on the stock market is one such event, which has all characteristics of a black swan. Greater uncertainty about the future course and repercussion of Covid-19 has also made the financial market extremely volatile; one of the major slides in the domestic equity markets. The outbreak of covid 19 has impact on entire global financial market..due to Covid 19 affect on entire world business, employment, sector such as hospitality, tourism , entertainment banking finance and also impacted adversely and stocks market ...The markets around the world have come crashing down to a level last seen during the financial crisis of 2008. , Global market affected share markets crash under fear as uncertainty situation BSE Sensex and Nifty 50 fell by 38 per cent. and total Market Capitalization lost a suddenly 27.31% from the start of the year.

#### **Impact of Covid 19 on Indian economy:**

India,s economy has already been suffering from slow down in resent past and recent corona virus another shock its adverse impact on economic growth of the country will probably be very serious.covid 19 affect on employment ,business, wealth ,pensions,investment,share market Indian economy was expected to lose over 32,000 crore every day during the first 21 days of complete lockdown IMF estimates GDP growth of just 1.9% for the country India the lowest rate since the 1991 balance-of-payments crisis. Government of India has announced a variety of measures to tackle the situation, The Reserve Bank of India has announced a slew of monetary measures (cut in repo rates, cut in CRR, freeing up liquidity in the banking sector etc) since the imposition of the lockdown (Sengupta and Felman, 2020). The Finance Minister has announced a package ("Atmanirbhar Bharat Abhiyaan" package) of policy initiatives targeted at



low income households and micro, small and medium enterprises which are likely to be most vulnerable in the broad-based economic slowdown. The total amount of the package has been announced to be Rs 20 trillion (or roughly 10% of GDP).

### **Investor Psychology In Covid 19:**

During the post demonetization and GST Indian economy was struggling continuously to recover from the economic crisis .in the financial year 2019-20 GDP rate fell from 7% to 5.4% which is about 18.20% BSE Sensex index was 42273 as on January 2020 but on April 2020 it was 29894 during the financial year 2019-20 reduction of 26% in mid Cap index was observe but at the same time sensitive index reduced by 22% these thing affect the share market and financial stability of people.

The stock market over the last one year become volatile and crashed to handle the downwards economy government took the initiative and announced deep tax cuts for business in the month of august 2019.but in the beginning of the year there was another suddenly phase which stubborn the economy .this time it was a virus named covid 19 which create a pandemic situation and spread all over the word. Nation wise lockdown was announced to fight with covid 19 .the covid 19 outbreak measure taken by the government to control the spread of covid 19. Lockdown and social distancing impacted on Indian economy in this circumstance stock market crash individual investor willing to invest in mutual fund and stock market has been impact negatively. Unpredictable stock market situation investors seem to have become more risky and they prefer secure investment option.

### **Conclusion:**

Indian stock market is important for economic and national development. The economic development of a country depends on establishment of Industries in that country. Industrial growth of a country ensures the economically development of the country. Therefore, economic development of a country can be measured through stock exchange. In other words, it can be said that stock exchange is a barometer of the economic development of a country. Unfortunate pandemic, Covid-19 has badly affected on Indian economy, employment, productivity, financial, medical Share market crisis in the country. Government of India has taken initiative with a number of reforms such as reductions of repo rate, regulatory relaxation by extending moratorium and several measures to boost liquidity in the system in response to the current situation. Current market trend is not permanently it is temporary, market recover faster than expected. .investors point of view this is good opportunity to invest the market and earn a higher return especially for those with long term investment.

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- 6) [Www.irjcjournals.org](http://Www.irjcjournals.org)
- 7) Federation of Indian chambers of commerce & industries

## **An overview of Library services to physically challenged patrons**

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### **Abstracts:**

*The purpose of this paper is to explore the nature, challenges and strategies of library services to the physically challenged. Findings from the study that library services to the physically challenged exist in form of oral reading services, provision of reading materials in varied formats. The study also revealed that among the challenges faces by physically challenged people in using the library are architectural barriers, funds to procure, lack of skilled manpower to produce materials needed by the physically challenged.*

**Keywords:** Physically challenged, Information service, Talking Books, Academic Institutions and Braille.

### **Introduction:**

This study deals with library services to blind, partially sighted, and physically handicapped readers in India. New technology, new laws, and new patterns of organization and funding are among the recent developments which make such a review essential at this time. Visually and physically handicapped persons have all of the same needs for library services as non-handicapped persons, A handicapped users are greater dependence on reading because of restrictions on other activities. Fundamentally, library service should accomplish the same objectives for the blind and visually handicapped as for the sighted. Blind people cannot use conventional printed materials. They must depend on the spoken word, on large type, on tactile devices such as braille or on other mechanical or optical aids. Useful as they are, these methods cannot be said to meet the full range of reading needs.

### **Review of Literature:**

(Ilayaraja & Manoharan, 2012) In this study Library and Information services to the physically challenged students using Wheelchairs, crutches and Braces for mobility in the University Libraries in Tiruchirappalli district. Questionnaire and interview methods are used for the study. Analysis of the findings indicated that the physically challenged students lack accessibility to and within the library, hence they found library and its resources ineffective. Findings further exposed different needs of the students such as the recruitment of well-trained library staff with a good understanding of disability issues. Age, Gender, type of course and challenge etc. they determine the kind of assistance to be offered by the library. The study also recommends, among other the use of library guides, ramps, elevator, good hand railings, wide doorways, accessible library shelves and good communication between the library staff and the students. (Idhalama, 2019) This paper examines the provision of reference and information services to the physically challenged persons in Nigeria: challenges and prospects. The article demystifies the conceptual framework of information services and physically challenged persons, the information needs of the physically challenged as a concept was succinctly analysed and the attention or relegation received by this group of library users discussed. ( Bhyrappa, 2016) In this study depicts the library facilities and services rendered to physically challenged category by academic libraries at Mysore district. By accessing information needs of users,

identifying various channels of information used by users to make use for academic purpose, the study analyses the perception of uses about the library services and also examines the services provided by academic libraries to user ends. The study finds that the questionnaire method was used along with observation and interview schedule for data collection from the respondents. (Nwaohiri & Emezie, 2015) This article discusses the state of the physically challenged in our society. It describes the nature and characteristics of the term physically challenged. The article emphasizes the role of libraries and information professionals in bridging the gap between the physically challenged and their normal counterparts in the 21 century. It highlights the various assistive devices that can be provided by libraries to meet the special information needs of the physically challenged. (Daniel et al., 2017) This paper seeks to interrogate whether the physically challenged in Nigeria have secured their legal and institutional right of access to education. They observed that the physically challenged are continually being deprived reasonable access to education and this has contributed negatively to their social conditions in the long run. It is suggested that the Nigerian government should streamline a substantial legal and policy framework with the aim of guaranteeing access to education for all persons with disability. (Bigdeli, 2009) This study attempted to investigate the capabilities of the Iranian academic libraries in meeting the information needs of handicapped students. The study aimed to explore what information sources and information services especially designed for handicapped people are available in academic libraries. It also attempted to find out how these libraries manage to help handicapped students have easy access to these information sources and services. To collect the data, a checklist with 43 questions was developed and distributed by mail among 120 universities. The results showed that the handicapped students are deprived of services and facilities in academic libraries. Special services to handicapped students are almost non-existent. Thus, it is essential to rethink and reconsider academic libraries in every aspect, from designing building to developing information resources, and to structuring information services. Academic libraries, Iran handicapped students, Library resources, and Library services/special groups of users.

### **Concept of Physically challenged persons:**

According to Dictionary of Public Health: This term is still used to describe persons whose impairment or disability affects their capacity to function in a way expected in the society in which they live. For instance, a person who cannot speak (a disability) cannot readily communicate with others (a handicap). Impaired vision and hearing are common and important forms of physical handicap. As a label, the word handicapped is opposed by many people with impairments or disabilities because they feel it reflects societal expectations rather than their actual capacity to function effectively in society.

According to the Longman Dictionary Physically Challenged: someone who is physically challenged has a problem with their body that makes it difficult for them to do things that other people can do easily. The term Physical challenged is defined as impairment associated with person's speech, hearing, vision, body, mental and emotions which may be as a result of birth defects, disease, age and accident.

A Physical disability is a limitation on a person's physical functioning, mobility, dexterity or stamina. Other physical disabilities include impairments which limit other facets of daily living, such as respiratory disorders, blindness, epilepsy and sleep disorders (Wikipedia)

### **Library Services:**

1. **Library services to children with dyslexia:** A special kind of talking books with text read in 2-3 different speeds are also useful for those who need to read the accompanying text slowly. Most of the children with reading problems should have the opportunity to experience the joy of reading by listening to talking books. The library should cooperate with nursery schools in offering books with children's rhymes, which provide a pre-school reading training that is very useful, especially for dyslexic children. The library may also provide schools and parents with materials for reading instructions, books combined with talking books, Easy-to Read-books, carefully chosen texts at the appropriate reading level, as well as educational computer programs.
2. **To solve the difficulties of physically challenged person:** Librarian should have professional with specialist knowledge of both reading difficulties and appropriate materials for this group of readers. A useful product of this cooperation could be a brochure with information about dyslexia and regular office hours for teachers and parents on library materials and services to reading disabled persons.
3. **Pleasant surrounding:** It is essential that the materials for people with reading disabilities be available in a central location in order to catch the eye of a person entering the library. The section for weak readers should be attractively designed and include a seating area. A tape recorder or a cd-player should be available for selecting talking books.

### **Reading Material:**

1. Easy to read materials: There are two types of Easy-to-read-books
  1. Adopt of existing books
  2. Books written especially for person with reading difficulties

Easy-to-read-books are produced together with a taped version. The user listens to the tape and follows the text in the printed book

2. Talking Books: Talking books on tapes, cassettes, or new digital media are produced either by commercial publishing houses or libraries for the blind. Public libraries should work with libraries for the blind in each country to assure access to talking books for all who need them. A special kind of talking books has 2-3 different speed levels. These talking books are produced both for children and adults.
3. Newspapers: In some countries national and local newspapers are produced on tape, mainly for the visually impaired. In Sweden there is also an electronic version of some daily newspapers that can be read on a computer with the help of enlarged print or synthetic speech.
4. Periodicals: Magazines contain current information on world events, science, medicine, art, and various consumer areas. Recorded periodicals may be available through libraries for the blind.
5. Sound Recordings: Talking books, spoken records, and tapes are a necessity for blind readers and for many of the physically and mentally handicapped who have difficulty handling printed materials.
6. Book Topics: Talking books, braille and tapes are mailed free of charge to the blind, partially sighted and other physically handicapped people who are unable to use conventional printed materials because of a physical limitation.

7. Braille: Braille is important, since some of the blind prefer it and many things in braille are not available in sound recordings. Many persons who have been blind since childhood read braille, and some prefer it. One of the fastest growing braille collections of the Library of Congress Division for the Blind and physically Handicapped is musical scores.
8. Large Type Books: In recent years few books were available in large type. A number of periodicals are also available in large print. In 1965 Keith Jennison produced for sale the first American trade book in large (18-point) type, profiles in courage. Merriam-Webster's Seventh New collegiate Dictionary and the Grolier Large Type Dictionary.
9. Page Turners: Automatic page turners are especially useful for physically handicapped readers who are unable to turn pages themselves. There are also other types of simple devices which the severely handicapped use, such as mouthsticks.
10. Prism Glasses: Prism glasses or "bed specs" are very useful for persons who cannot sit up. A book or magazine can be propped up on the person's chest, and the prism glasses allow him to read from a prone position.

### Technological Progress:

There are two categories of visually and physically handicapped readers of visually and physically handicapped readers, those who are able to read regular printed library materials with some type of optical aids, and those who must use other media involving audio or tactile perceptions. The last few years have seen a rapidly growing number of devices, most of which provide magnification and increased illumination of ordinary print, and complementary devices such as reading stands and posture chairs. One of the more sophisticated devices for making the ordinary printed page readable by many partially sighted readers applies the principle of closed circuit television. A new device which scans the printed page and simultaneously converts it into a tactile impression under the reader's hand, allowing the totally blind person to read printed materials directly from the page. A recent development, referred to as compressed tape, makes it possible even to substantially speed up the playing of tapes for greater reading speed.

### Conclusions:

Most of the materials should be available in all libraries which serve even a small number of handicapped readers. Only a small number of libraries in each state need extensive collections of the various materials and equipment. Local librarians should encourage use of their limited collections of special materials and equipment, and they should also actively promote the use. Certainly one of the most useful services a librarian can perform for the handicapped is to let them know about the vast range of library resources which are available for them free of charge from non-local sources. Books are the spiritual powerhouse of humanity the resource that can enable humanity to face the future with confidence. Books need-books deserve universal interest and support.

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## Reverse Migration During Covid-19 : A Study of Kalaburagi District

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### Abstract:

*The large-scale reverse migration had dominated headlines during April 2020 as workers walked thousands of kilometers or hitched rides on cramped goods lorries to get to their homes. With no prior notice, a sudden imposition threw life into uncertainty. Every sector of the economy was hit badly and the worst sufferers were the migrant workers. The migrant workers who used to send remittances back to their native places were left with very little or no savings to fight this sudden situation. The breadwinners had returned jobless. This was an alarming situation for the family and their dependents.*

*This COVID-19-triggered reverse migration was the second-largest mass migration in the recorded history of India, after the Partition, where more than 14 million people were displaced.*

*Invisibilized lives and working conditions of migrants were brought to national attention when the unplanned lockdown forced them to steer long distances to reach their homes. Against this backdrop, the paper tries to understand the concept of reverse migration, identify reasons for reverse migration, analyze the impact on the lives of the migrant returnees and lastly look into the measures of the government to uplift the conditions of the migrant returnees.*

*The paper focuses on the impact of lockdown and reverse migration on the migrant returnees from one of the districts of Karnataka, the Hyderabad Karnataka region, Kalaburagi district which was most affected due to the pandemic in the first wave.*

### Introduction:

India witnessed its first-ever lockdown on March 25, 2020. During this time, activities not contributing to the production and supply of essential goods and services were completely or partially suspended. Passenger trains and flights were halted. With no prior notice, a sudden imposition threw life into uncertainty. Every sector of the economy was hit badly and the worst sufferers were the migrant workers. The lockdown severely impacted migrants, several of whom lost their jobs, thanks to the shutting of industries, and were stranded outside their workplaces eager to get back to their homes. Since then, the government has announced relief measures for migrants and made arrangements for migrants to return to their native places by arranging Shramik trains.

Invisibilized lives and working conditions of migrants were brought to national attention when the unplanned lockdown forced them to steer long distances to reach their homes. Against this backdrop, the paper tries to attempt to understand the concept of reverse migration, identify reasons for reverse migration, analyze the impact on the lives of the migrant returnees and lastly look into the measures of the government to uplift the conditions of the migrant returnees.

### Objectives:

1. To understand the concept of reverse migration
2. To identify the reasons for such reverse migration
3. To analyze the impact on the migrant workers
4. To look into the measures taken up by the government to support the migrants

## Methodology

The area selected for study is one of the backward regions of Karnataka, the Hyderabad Karnataka region, and one of the districts, the Kalaburagi district where the first covid death in the country occurred in March 2020 (first wave) which sent tremors across the nation and bought the district into the national headlines.

For analysis secondary data collected from various articles in newspapers, newspaper clippings, and reputed journals and online search engines has been used. In addition, data from the HKDRB and Directorate of Economics and Statistics, Economic Survey, HDI report of Karnataka 2014, District at a glance was referred for statistics.

## Migrants In Karnataka

The large-scale reverse migration had dominated headlines during April 2020 as workers walked thousands of kilometers or hitched rides on cramped goods lorries to get to their homes. The migrant workers who used to send remittances back to their native places were left with very little or no savings to fight this sudden situation. The breadwinners had returned jobless. This was an alarming situation for the family and their dependents. People from the backward Hyderabad Karnataka region migrated to the neighboring cities and the State capital in search of employment. Migrants in Karnataka are categorized into two groups.

- The first is made up of people from the **Hyderabad-Karnataka region**. Most of these people are from an agricultural background and work in the construction sector in Bengaluru, Hyderabad, Mumbai, and Pune. The paper focuses on the impact of lockdown and reverse migration on the migrant returnees from one of the districts of this region, the Kalaburagi district which was most affected due to the pandemic in the first wave.
- The second group of migrants is from north India. These semi-skilled laborers work in masonry, painting, kitchens, and housekeeping.

## Meaning:

**Reverse Migration** refers to the situation when laborers, workers, and people start migrating back to their native place in the backdrop of non-availability of livelihood and job opportunities.

## Why Did It Happen?

Reports show nearly 39, 073 people from the Kalaburagi district returned to their hometowns due to the first lockdown.

- Following the COVID-19 lockdown, almost all industries and different economic activities came to a standstill deteriorating the conditions of daily wage earners, most of whom were migrants.
- With no availability of livelihood and worsening conditions, reverse migration started with all migrants returning to their native places by any means available.
- These migrants, over 450 million, whose movement can be directly or indirectly linked to the search for employment turned back to the source centers, the same happened with the migrants of Kalaburagi district.
- Migrant workers who formed the key contributors to high-growth sectors of construction, manufacturing, and urban services at the destination sites lost jobs and no compensation was provided.
- These migrant workers earn very meager income which they use partly as remittances and the rest for consumption and hence nothing left as savings to utilize during difficult times.

This COVID-19-triggered reverse migration was the second-largest mass migration in the recorded history of India, after the Partition, where more than 14 million people were displaced.

### **Reasons for Migration in the Area:**

Kunal Keshir and R.B. Bhagat stated that people migrate due to poverty, inequality (in access to land), and discrimination, along with the mirage of city life consisting of better resources such as livelihood opportunities, education, housing, and health facilities.

Kalaburagi district is identified as one of the most backward districts by the Nanjundappa Committee Report, has 11 talukas and 918 villages and a population of 2566326 having 543960 projected 2020 household figures.

With a PCI of 91,970 at current prices 2017-18 ranks 29<sup>th</sup> among 30 districts against the State's PCI of Rs.1,88,765 displaying the level of poverty and gives us a reason to understand reasons for migration. (Directorate of Economics & Statistics, Planning Programme Monitoring & Statistics Department 2019-20.

The overall literacy rate is 65% much below the state average of 75.36%. Female literacy is far lower than the state average i.e 55.87 against 68.13 % (Azim Foundation Survey 2013-14) Among the main categories of workers,

22. 41% form marginal workers, 20.24% constitute the agricultural cultivators out of which 2,13,022 of them hail from rural areas, agriculture laborers formed 38.6%, 3,96,788 of 4,15,269 are from rural areas, 41.60% constitute non-agriculture workers and household workers constitute 2.38% (. (Directorate of Economics & Statistics, Planning Programme Monitoring & Statistics Department 2019-20.)

Dryland farming is one reason for people to shun their lands and migrate elsewhere. District Statistics show only 11.30% of the total land sown is irrigated displaying dryland farming being dominant against irrigated districts of Shivmogga, D. Kannada, and Mandya. The poor HDI figures making the district 20<sup>th</sup> in ranking with 0.407 displaying poor living standards, health indicators, and education index in the district.

Poverty coupled with a lack of employment opportunities in the district has led to the migration of the educated and the landless to the neighboring states of Maharashtra, Telangana, and Capital Bengaluru.

The educated manage to find a decent job and living conditions in the destination center while the unskilled and semi-skilled find themselves placed in industrial and construction sectors. The Kalaburagi District Human Development Report (KDHDR) 2014 displays a dismal picture of continued backwardness of development with nearly 43% of the rural living in depleted housing facilities. The above figures explain in themselves the reasons for people from the district to migrate to cities in search of jobs. But now the lockdown forced them to get back to sources.

### **The Impact**

The breadwinners who had left their source centers for livelihood and sent their earnings back home had returned empty-handed giving a death blow to the family livelihood.

Ramesh, 28, working in Mumbai and Hyderabad for eight years, longed to reach home after the city abandoned him. People in his village are not yet prepared to embrace him and he understands their concern. "The COVID-19 fear and the lack of jobs have made life difficult for us" There are several families in his village Kalgai in Kalaburagi district who have returned from Maharashtra and Telangana.

Migrants who have returned to their homes in Kalaburagi's Ladhincholi village from Maharashtra amid the coronavirus-induced lockdown say "We have come from Maharashtra and joined the work after completing 14-day quarantine. We are feeling really good to work here. We want more work because of how long a person can sit at home. We do not plan to go back to Maharashtra as we have our families here. We will think about it if the COVID-19 situation gets better. If we continue to get work here then we will stay here or else we will have to go back to Mumbai. I thank the government for giving us work,"

Amitha, a migrant laborer "We were scared of COVID-19 so we had to return to Karnataka from Maharashtra. After coming back we were placed under quarantine for 20 days. We did not have anything to do, no job cards so later job cards were made. Four members from my family are doing the farming work and we earn Rs 275 every day," said Kishan Rathod, another migrant laborer.

If we could closely understand the opinions of these migrant returnees, we could understand that they were forced to leave their source centers in search of jobs while they would stay back in case they were provided jobs at their native places. Employment is key to control migration to metropolitan cities which are bloating up and accommodating these migrants who live in poor living conditions and slums with no basic amenities.

### **Government Measures Were Undertaken To Help The Migrant Returnees**

Migrant laborers, who returned from Maharashtra's Mumbai to their villages in Karnataka, have been given employment by the local administration, under the Mahatma Gandhi National Rural Employment Generation Act (MGNREGA) scheme. Zilla Panchayat has issued temporary job cards, instead a permanent source of income is the way forward.

- At least 5% of these returnees would want to settle in the villages permanently, while many others won't be able to move to the cities soon because of the lack of opportunities.
- The need for easy credit, socio-psychological counseling, and encouragement for entrepreneurship will enable a smooth transition into life in their villages.
- They had no problem with shelter but only of jobs as they have their own houses in their home villages.
- MGNREGA can provide the much-needed cushion, there is a need for a long-term approach that equips rural people as providers and villages as production centers, and not as consumers.
- If policymakers aim to improve urban areas, it is pertinent that they focus on improving rural infrastructure to decongest cities. The pandemic-related uncertainty has made even the smallest landholders cultivate their lands to earn, some of which have also solved the labor shortages that rural India was facing because of economic migration to cities.
- Under the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) Scheme, facilitating cash transfers has also catalyzed a lot of migrant farmers' interest in farming. Rs 2,000 was already being transferred to their accounts.

### **The assistance of the Government of Karnataka**

- The wages under MGNREGA were increased from ₹249 a day to ₹275 a day. Kayaakmitra App was launched for migrants to apply under this scheme.
- Each of them will receive one-time assistance of Rs 5,000, and this is expected to benefit about 775,000 auto and taxi drivers, 60,000 washermen, and about 230,000 barbers in the



state. Flower growers who have lost demand for their products will also get compensation of Rs 25,000 per hectare.

- The state has launched “Nekarara Sammana Yojana” under which it is depositing Rs 2,000 directly into the bank accounts of handloom weavers. This is likely to benefit 54,000 handloom weavers in the state. Under the scheme, every migrant with an Aadhar card could receive a one-time supply of rations for two months.
- The Karnataka government also announced a new scheme for the drivers, farmers, weavers, small and medium industries, flower growers, washermen, building workers recently named as Karnataka Driver Scheme.
- Building transit homes for migrant workers in Bengaluru, not in other parts of the state on lines of Kerala’s model of Apna Ghar.
- Indira Canteens in Karnataka is a popular source of sustenance for migrant laborers, sanitation workers, delivery agents, and ones without shelter.

### Way Forward

Several measures needed to ease workers distress are:

- Providing housing and shelter to these returnees
- Increasing banking facilities and financial inclusion of these workers
- Providing basic minimum wages
- Affordable Healthcare facilities to be extended
- Free education to the children of migrant workers and
- Providing personal safety and social security measures

### Conclusion:

Instead of focusing on short-term goals, thrust on long-term goals would enable migrant returnees to stay back at the source centers and live a life of respect and a decent standard of living. Government policies must focus on easing stress on cities and avoiding living in deplorable conditions must be thought of.

Despite the lack of labor-friendly laws, information, and the existence of worker’s welfare funds, Karnataka can still take a few measures towards immediate income support to the migrant returnees of the much neglected H-K region. Advance payments to MNREGA cardholders, contract/daily wage workers employed by the Government, and monetary assistance to BPL and Antyodaya Anna Yojana families would ease the problem of hunger among the poor migrants and get their lives back on track.

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## Emerging and Innovative Technologies in Libraries

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### Abstract :

*Emerging Technology The library recognizes, evaluates and implements the use of current and emerging technologies for use, and technological advances must be regularly updated to compete with the rapidly growing environment. This article details how advanced technology has led to improved library services. Sharing resources with available facilities using new technologies that are available to save time, drive community development and run better services for library users. This paper fills in the gaps in the digital library project management literature by providing an overview of emerging technologies and issues related to the implementation and use of innovative methods in the library.*

**Key Words :** Emerging Technology, Innovative Technology, Emerging Information Technology : A Conceptual Framework, Innovative technologies to implement at the library of the future.

### Introduction :

Information is an essential input for academic and research production and other activities. Libraries and information centers are primarily responsible for extending wider and deeper access to information and information resources in support of user needs. Over the years, library and information service professionals have been using a variety of tools, techniques and technologies in organizing and promoting the use of information. One of the innovative technologies where library and information centers can effectively use in providing timely access to information is Information and Communication Technology (ICT).

The developments in ICT combining computer, communication, networking and multimedia technologies and its profitable applications to library and information activities, functions and services have not only changed the work calibers of libraries but helped in resolving many hurdles in information access, transfer and use. Thus the effective use of emerging information technologies in library and information centers have also helped in improving the quality of the work, whether it may be teaching, research, production, management etc.<sup>(1)</sup>

### Definition :

#### Emerging Technology :

Martin (1995) "A 'generic emerging tedhnology' is defined as a technology the exploitation of which will yield benefits for a wide range of sectors of the economy and/or society".<sup>(6)</sup> Hung and Chu (2006) "Emerging technologies are the core tedhnologies, which have not yet demonstrated potential for changing the basis of competition".<sup>(7)</sup>

#### Innovative Technology :

Google CEO Larry Page, January 17, 2013, "You may say that Apple only does a very, very small number of things, and that's working pretty well for them. But I find that unsatisfying. I feel like there are all these opportunities in the world to use technology to make people's lives better".<sup>(8)</sup>

Peter Drucker (Hesselbein, 2002), "Change that creates a new dimension of performance".<sup>(9)</sup>

### **Emerging Information Technology : A Conceptual Framework :**

Perez (2002)<sup>(2)</sup> identified and systematically organized the technological revolutions, spurred by the emergence of a novel technologies or combination of multiple technologies, have occurred approximately every 50 years over the past 250 years in the history of the civilized world. Indeed, a sequence of (a) Technological revolution (b) Financial bubble (c) Collapse (d) Golden age and (e) Political unrest can be traced to occur repeatedly, caused by emerging technologies. The five technological revolutions are identified as;

- *The Industrial Revolution (1771), with the launch of the first textile mill:* a process technology that enabled automation for the first time.
- *The age of steam and railways (1829)* with the test of the Rocket steam locomotive.
- *The age of steel, electricity, and heavy engineering (1875)* was introduced with Carnegie's first steel plant in Pittsburgh, Pennsylvania;
- *The age of oil, the automobile, and mass production (1908)* with the first Model-T automobile by Henry Ford. The age of information and telecommunications (1971) with the introduction of Intel's first microprocessor.

According to the Merriam-Webster Dictionary,<sup>(3)</sup> "emerging" means coming forth into view, and emerging technologies may thus be considered technologies coming into prominence.

Information and Communication Technology (ICT) is perhaps the greatest agent of change in the 21 century. This is true is because already proved how information technologies are most essential components for overall progress of the society. Although never without risk, technological breakthroughs promise solutions to the most pressing global challenges of our time. Emerging technologies are technologies that are perceived as capable of changing the status quo.<sup>(4)</sup> Emerging information technologies are those technical innovations which represent progressive developments within a field for competitive advantage".<sup>(5)</sup>

### **Innovative technologies to implement at the library of the future:**

#### ***Big data :***

Along with all the technological advancements, people's most basic activities are generating more data than ever. The storage and analysis of large datasets can be a real advantage for librarians as they have the relevant skills and knowledge to make the best use of these massive sources of information.<sup>(10)</sup>

#### ***Artificial Intelligence :***

With Siri and Alexa available on everyone's devices nowadays, artificial intelligence is no longer a futuristic technology as it is gaining more and more traction in our everyday activities.<sup>(11)</sup>

#### ***Blockchain technology :***

Blockchain technology has been one of the most discussed technologies in the past year, as Bitcoin has gained more and more power. Blockchain technology represents a decentralized database that keeps records of pseudonymized digital transactions that are visible to anyone within the network. Therefore, it is a new way to collect and store data.<sup>(12)</sup>

#### ***Internet Of Things :***

Since having connection to the internet has become a necessity more than a luxury, The Internet of Things (IOT) receives more and more attention. Just like the RFID (Radio-Frequency

Identification) technology, IOT refers to the possibility of connecting everyday devices and transferring data between them. But only in the case of IOT, the data is transferred over the Internet.<sup>(13)</sup>

#### ***Library bookmark apps :***

In his article on the “eBook friendly” website, Piotr Kowalczyk gives a few examples of technologies that could be used in the future. The author mentions an interesting device from a Chinese design company Toout that acts as a regular bookmark but also has additional features that facilitate the user’s activity related to finding books.

The tool is still in the concept phase but features the possibility to offer directions to the user regarding the book they want to find or keep track of their lending activity in a more interactive way. Locating books inside the library is still a struggle for many users so a functionality that can guide the user towards the book is a cutting-edge fix to this problem.<sup>(14)</sup>

#### ***User-focused interfaces and application :***

One of the future perspectives of library services is a personalized interaction between the system and the user. Whether this is an interactive game projected onto the floor for children to interact with, digital exhibitions featured on screens, big screens in libraries that can be used to offer different kinds of information and also inspire users to find certain books or a simple display that allows taking a ‘selfie’; libraries can use technology to create a digital experience for the user.<sup>(15)</sup>

#### ***Augmented reality :***

Augmented reality is a hot topic in the tech world and people are curious about its deployment in various domains, from medicine to gaming. So why not implement it in libraries too and combine digital with reality?

AR’s ability to enhance what already exists is what makes it a perfect fit for libraries. One example of how libraries can use augmented reality is provided by SolUS, a British company that offers digital solutions for libraries and changes the way users engage with library services. Their augmented reality digital Mythical Maze app has been used in summer reading challenges all over the United Kingdom to help children improve their reading skills during the summer holidays.<sup>(16)</sup>

#### ***Digital interfaces for printed books :***

A combination of the real with the digital is a development we are all impatiently waiting for, especially when we talk about physical objects. Everyone loves the ‘copy’ and ‘find’ functions of an e-book and the practice of highlighting all the important excerpts from documents.<sup>(17)</sup>

#### ***Driverless cars :***

Driverless cars still seem just a depiction of the sci-fi movies we’ve all seen when growing up. But according to Ida Joiner, writer of the recently published book called “Emerging Library Technology”, vehicles that can travel between destinations without a human driver can be of high importance for libraries in the future.

Librarians will play an important role by providing resources to users who want to learn more about driverless vehicles and who want to pursue careers in these areas. Libraries can collaborate with schools, companies and workforce agencies that are spreading this technology and offer



different possibilities to the users such as arranging internships, mentor opportunities for students, host career fairs or workshops to learn about the technology.<sup>(18)</sup>

#### **Drones :**

The small flying devices remotely controlled are another trendsetter in science nowadays. Either by adding a new technology at the library or creating workshops for users where they can learn to build and use a drone, the libraries can benefit a lot from its use. Furthermore, drones can be used for creating content for the library, collecting data or as Piotr mentions in his article, the drone can be used for delivery service for the library users who don't have the possibility to go to the library: be it because of a disability, or because of the long distance to the Library.<sup>(19)</sup>

#### **Conclusion :**

Information technology is already a strong part of daily life. Instead of trying to see how technology can change our lives, we should embrace this technology as a set of other tools and move forward to make the best use of it for the library and all its users. We do, however, need to take the initiative to ensure that we are controlled and not controlled by future technology. The main purpose of libraries is to organize and access information, and although these adaptations and methods have changed drastically, it remains so. In the current situation of declining budgets and high subscriptions of journals, it is becoming very difficult to meet the demands of library users. The only solution to the problem is porting and printing resources, as well as electronic sharing through consortia. New technologies have opened up great opportunities for service delivery in consortia. More and more libraries need to be integrated to get the most out of it. Of course, attitudes, methods and policies need to change. Research needs to be done with the help of advances in technology to compete with the fast growing environment. The movement of libraries in India is growing rapidly and traditional libraries are now on the path of gradual digitization. In a developing country like India, where resources are limited, funding is insufficient; Library professionals need to make careful and appropriate decisions when choosing library materials.

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## Digital Library Facilities and its Usefulness to Faculty of Medical College in Wardha District of Maharashtra State : A study

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### Abstract:

*The wealth of a nation is the health of its people. There every effort must be made to ensure the highest level of well-being especially where disease prevention and control are feasible.*

*The objective of this study is to present the state of the digital library education in Medical institutions. This paper presents the study on the use of digital resources by faculty members available in the medical college libraries. The sample units were the 90 faculty members of 2 Medical colleges in Wardha district of Maharashtra state. The Primary data was collected and the findings suggest that most of faculty members are familiar with the usage of digital resources, using CD-ROM, Internet, E-mail, search engines and college website daily.*

**Keywords:** Digital Library, faculty Members, Medical College, Libraries.

### Introduction:

The modern libraries are service agencies, which welcomes user and organized to facility the use of graphic records, Waiting in his introduction to library science. Pierce butter stated that 'The Basic element of Librarianship consist in the accumulation of knowledge by society and its continuous transmission to the living generation so for as these process are performed through the instrumentality of graphic records," and that fundamental phenomenon of librarianship is the transmission of the accumulated experience of society to its individual members through the instrumentality of the book.

The advent of the digital age has been an unprecedented event for the world. The fact technological developments in recent years, especially in the field of Telecommunication, multimedia and digital technology, have fundamentally changed the way we generate, collect, organize, present and disseminate information. In a complex world where citizens are divided by time, distance, culture, religion and economy, digital information can be unifier by providing on environment where no citizen of the world is isolated from information or learning. In the e-environment, the digital information systems are increasing user's productivity, efficiency and providing complete seamless user experience in health sector.

### Objectives of the study:

The objectives of the present study are –

- To study the use of digital library facilities by faculty members in medical colleges in Wardha district.
- To study the availability of digital library facilities in Medical College.
- To recommend suitable measures to improve the digital resources by college management.
- To find out the challenges faced by faculty members in accessing the digital information.

### Research Methodology:

Keeping in view the objective in mind a questionnaire is prepared to collect data from the faculty members of following medical college in Wardha district, Maharashtra.

**1) Library Mahatma Gandhi Institute of Medical Sciences Sevagram, Wardha :**

From the year of establishment the library developed its collection up to the 29026 volumes books. Library subscribe 308 current periodicals to provide more effective and efficient services to its user library also have volumes of audio visual cassettes / material and thousands of CD's and available e-resources, internet.

**2) Library Jawaharlal Nehru Medical College, Sawangi, Wardha:**

It is established in year 1990 the library developed its collection up to the 25132 volumes of books 1076 bond volumes of periodicals. Library has subscribed 194 current periodicals representing the variety of the subjects in its entire ramification. Library also has thousands of volumes of computer readable material. Library provided internet facility and available e-resources.

**Data Analysis and Interpretation:**

**1. Faculty Members familiarity with digital sources.**

The distribution of faculty members according to their familiarity to use digital resources is shown in Table – 1

**Table – 1**

**Faculty Members familiarity with digital resources**

Use	No of Responses	Percentage
Familiar	65	72
Non familiar	25	28
Total	90	100

It is evident from Table – 1 that 72 percent of the faculty members are familiar with digital resources while 28 percent replied in the negative.

**2. Frequency of using the computer.**

The distribution of faculty members according to their frequency of using the computers is shown in Table – 2

**Table – 2**

**Faculty Members usage frequency of computers**

Frequency	No of Responses	Percentage
Daily	28	31
2 or 3 times a week	31	34
Once a week	09	10
Once in Month	10	10
Rarely	03	05
Never	09	10
Total	90	100

It is evident from table 2 that about 34 percent of the faculty members are using the computer two or three times a week, 31 percent daily, 10 percent once in a month 10 percent never and 05 percent in rarely using the computer.

**3. Frequency of using the digital resources:**

The distribution of faculty members according to their frequency of using the digital resources is shown in table 3.

**Table – 3**

**Faculty Members Usage frequency of digital resources.**

Digital Resources	Frequency (%)						Total
	Daily	2 or 3 times in a week	Once in a week	Once in a month	Rarely	Never	
CD ROM = Database	31 (34)	09 (10)	28 (31)	10 (10)	09 (10)	3 (05)	90 (100)
Internet	28 (31)	31 (34)	10 (10)	09 (10)	03 (5)	9 (10)	90 (100)
E-mail	65 (72)	10 (10)	03 (5)	12 (13)	--	--	90 (100)
Online Database	65 (27)	23 (25)	12 (13)	10 (10)	15 (16)	5 (5)	90 (100)
Search Engines	25 (44)	21 (23)	15 (16)	--	14 (15)	--	90 (100)
OPAC	40 (31)	10 (10)	31 (34)	3 (5)	9 (10)	10 (10)	90 (100)
College Website	--	10 (10)	--	65 (72)	15 (16)	--	90 (100)

It is evident from table-3 that 34 percent of faculty members are using CD-ROM daily and 2 or 3 times a week 31 percent are using internet daily followed by 10 percent 2 or 3 times a week, 27 percent of faculty member using online database daily, while 44 percent using search engines daily also 34 percent faculty members use once in a week OPAC. 72 percent user once in month visit college website.

#### 4. Purpose of using digital resources:

The distribution of faculty members according to purpose of using digital resources is shown in table 4

**Table – 4**

**Purpose of using the Digital Resources.**

Purpose	No of Responses	Percentage
For research	40	44
For Communication	28	31
Upgrade General Knowledge	31	34
To collect subject information	65	72
For career Development	28	31

Table – 4 indicate that 44 percent of the faculty members indicate that the digital resources are used for research purpose. 72 percent use to collect subject information. 34 percent are used digital resources for upgrade general knowledge 31 percent faculties are used for communication and career development.

#### 5. Learned to Use digital Resources.

The distribution of faculty members learned to use digital resources is shown in table 5.

**Table – 5**

**Distribution of faculty members according to the learned to use digital resources.**

Learned to use digital resources	No of Responses	Percentage
Self-study (Reading books/Journals)	31	34
Family, friends or colleague	18	20
Guidance from the library staff	37	41
Guidance from the dept. staff	04	05
Formal courses	00	00
<b>Total</b>	<b>90</b>	<b>100</b>

It is evident from table 5 that 41 percent faculty member guidance from library staff to use digital resources. 34 percent are learning the necessary skills to use digital resources through



self study (reading books/journals, etc) 20 percent through family, friend or collegiate, 5 percent guidance from the departmental staff of computer science.

#### **6. Prevents in accessing the digital resources.**

The distribution of faculty members according to prevents in accessing the digital resources is shown in table 6.

**Table – 6**

**Distribution of faculty members according to the prevents in accessing the digital resources.**

<b>Prevents</b>	<b>No of Responses</b>	<b>Percentage</b>
Lack of time	36	41
Lack of training	18	20
Too much information retrieved	15	17
Lack of IT knowledge	10	11
Limited accesses to computer	11	11
<b>Total</b>	<b>90</b>	<b>100</b>

It is evident from the table 6 shows the opinion of the faculty members regarding prevents in accessing the digital resources. Majority 41% of the faculty members stated that 'lack of time' is the main impediment to use digital resources, 20 percent 'lack of training' 17 percent too much information retrieved. 11 percent limited to access to computer and lack of IT knowledge is the main prevent to use digital resources.

#### **7. Adequacy of Information in Digital Resources.**

The distribution of faculty members according to the adequacy of information in digital resources is shown in table – 7

**Table – 7**

**Distribution of faculty members according to the adequacy of Information in digital resources.**

<b>Opinion</b>	<b>No of Responses</b>	<b>Percentage</b>
Always	47	52
Same time	28	31
Never	15	07
<b>Total</b>	<b>90</b>	<b>100</b>

It is evident from table 7 that 52 percent of the faculty members indicate the information available in the digital resources always adequate, 31 percent indicate same time, and 7 percent indicate the information available in the digital resources is never adequate.

#### **Main findings:**

- Most of the faculty members are familiar with the usage of digital resources.
- Majority of the faculty members are using in Library computer two or three times a week 31 percent daily and 10 percent of them never use.
- In the study found that most of the faculty members are using CD-ROM, Email search engines, Internet daily respectively. However some of the faculty members are using once a week while others are using on line database daily. High percentage faculty members visit the college website once in month.

- Majority of the faculty members are using digital resources for their research work and to collect subject information also found that enhancing and upgrading the communication purposes.
- Majority of faculty members opined that they were acquiring skills to use digital resources through 'self study' method and some opened guidance from the library staff.
- Majority of the faculty members have expressed lack of time and lack of training are the main problems in securing access to digital resources.
- Majority of the faculty members opined that the information available in the digital resources is always 'adequate'.

### **Suggestions:**

The following suggestions are made to improve the use of digital resource in the medical college.

1. The college should create more awareness levels towards continuous usage of online journals for enhancing the knowledge base of the faculty members.
2. The colleges should allocate more funds towards digitalization of library and should subscribe more online journals.
3. The college management should update the digital resources in the library from time to time.
4. The college library must facilitate the conduct of evaluations and assessment at regular intervals by college staff and students for bringing changes in digital resources.

### **Conclusion:**

Digital resources are officiating collection development and management policies and drawing attention to two areas that have been neglected for too long in Indian libraries, namely how do library management react to changing information needs of users. While more and more resources available in digital format, the collection development has to include these resources, thus making them easily accessible to users.

The day is not far off to visualize all Indian libraries with huge digital collection and the latest technology to access the same.

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## Ahobilam : The Sacred Abode of Navanarasimha at Andhra Pradesh

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### Abstract:

*The Ahobila Kshetra is a temple dedicated to Ugra Narasimha Swamy, the Lord who destroyed Hiranyakasipu and showered his blessings on Prahlada, the son of Hiranyakasipu. Ahobilam is situated in the Nallamalai Hills, 112 Kms. from Cudappah and 65 Kms from Nandyal in Andhra Pradesh. It is one of the important Vaishnava centres of Narasimha worship and one of the DivyaKshetras. The Narasimha cult appears to have flourished in Andhra Pradesh and south India even before the commencement of the historical era in India. Ahobilam is unique for two reasons: first, nine iconographic forms of the Man-Lion are said to be worshipped at the site, thus the name Nava Narasimhakshetra; and second, the Narasimha cult is influenced by the indigenous beliefs of the hunter-gatherer Cenchu tribe, who have lived in this area since the Paleolithic Age.*

*The representation of Narasimha in a variety of aspects as a peaceful god, a ferocious god and as an affectionate husband to Cenchita can be witnessed in the sculptures at the Upper and the Lower Ahobilam. Sculptures and relief works of Narasimha on the pillars depicting the Classical Mythology and the Folk legend are unique. With Vijayanagara features, these unique representations display the convergence of historicity, puranas, legends and the folk culture.*

*This paper discusses the Ahobilam temple and focuses on the unique sculptures displaying the Rasas along with the narratives aspects in the representations.*

**Keywords:** Narasimha, Ahobilam, Ranga Mantapa, Sculptures, Mythology

### Introduction:

Ahobilam, as the name reverberates with divinity and spirituality is one of the 108 Divya Desams and the precinct of Lord Narasimha. Situated in Andhra Pradesh, it is one of the prominent swayam vyakta kshetras, after Srirangam, Kanchipuram and Tirumala. Of the many Narasimhakshetras, Ahobilam is the only place where the Lord appears in nine different forms and hence called the Nava Narasimha Kshetram. The temples are spread across five krosas (ten miles), which is why the sacred place is also known as pancakrosanarasimhakshetram (Vasantha: 2001, 5).

The Ahobilam Kshetra is a temple dedicated to the Lord Narasimha who manifested Himself in a Man-Lion form to kill Hiranyakasipu and bestow his blessings on Prahlada, the son of Hiranyakasipu. The complex of the Ahobilam Kshetra is composed of two parts - the Eguva Ahobilam or the upper Ahobilam which has the main temple for Ugra Narasimha Swamy and the Diguva Ahobilam or the lower Ahobilam having the temple of Sri Lakshmi Narasimha. The other Narasimha shrines are at various locations, totally comprising the Nava Narasimhas. The hill temple on the Eguva Ahobilam is around 8 km. away from the Diguva Ahobilam town amidst the scintillating mountains of the Nallamalai hills in the Kurnool district of Andhra

Pradesh in India. The Ahobila Kshetra can be reached from Hyderabad by road via Kurnool and Allagadda.

### **Objectives:**

The objective of this paper is to bring out the different sculptural aspects in the Architectural elements at Ahobilam.

### **Hypothesis:**

Apart from few traditional accounts, inscriptional evidences, there are hardly any evidence to assign the dating of the temple. Inscriptional evidences and Architectural styles along with the sthalapurana are considered for further investigation.

### **Scope:**

The paper delves into the sculptural aspects, as the temple is a treasure trove of art and architecture, there are huge possibilities to work on the architectural elements. The immense temple complexes at the upper and lower Ahobilam are on a large-scale, the paper focuses on the sculptural characteristics of the Lower Ahobilam's Rangamandapa.

### **Research Methodology:**

The research methodology followed is of an inherent structure with collection of the data which is visual, written and oral. Selection of the major sculptures, analysis and synthesis, testing against known visual norms.

### **Research Tools:**

The research tools that are employed are Historical, Philosophical (theoretical), Comparative (cross-cultural), Descriptive (using surveys, causal-comparative methods), Naturalistic (interpretative, Practical (creative, expressive / productive)

### **History:**

The Narasimha cult appears to have been in Andhra Pradesh and south India even before the dawn of the historical age in India. Narasimha is thought to have originated from a lion deity worshipped by tribals in Telangana and Andhra Pradesh, according to historians. The oldest known image of Narasimha may be discovered in a panel from the 4th century CE in the Kondamodu hamlet of Andhra Pradesh's Guntur district. It depicts a lion with two human hands holding a gada and chakra, the symbols of Lord Vishnu. The Kondamodu Narasimha dates to the late Satavahana times. It was during the Gupta dynasty (4th to 6th century CE) that Narasimha worship gained extensive popularity in large parts of India.

Traditional accounts connect the history of the temple with the Kakatiya king Pratapa Rudra Mahadeva. There is hardly any epigraphical evidence, except for the early Kakatiya influence in the pillars of the Mukhamantapa of the Upper Ahobilam establishing support to the conventional account of the connection of the temple with the Kakatiyas. The Ahobilam Kaifiyat mentions Nandana Chakravarti in whose reign, worship was being performed to Ahobila Narasimhaswamy. Such worships are mentioned during the time of the Chalukya kings Jagadeka Malla, Bhuvana Malla and Tribhuvana Malla. The Kaifiyat also provides information of worship being performed during Ganapati's reign and in the reign of Pratapa Rudra Deva Maharaja of Warangal. It also mentions that the Utsava Vighraha of Ahobilaswamy was made by Pratapa Rudra Mahadeva (Vasantha: 2001, 52).



The traditional records of the Ahobila mutt mentions that while the first Swamiji of the Ahobila Mutt was alive, Pratapa Rudra of Warangal camped near Ahobilam and melted gold to make an image of Lord Siva, for his daily worship; it is said that the melted gold kept turning into an image of Narasimha. Pratapa Rudra worshipped Lord Narasimha and presented the gold idol to the Swamiji of the Ahobila math ( Vasantha: 2001, 5).

In 1579 CE, Ibrahim Ali Qutub Shah, the Golkonda Sultan, invaded Ahobilam and destroyed the temple structures. After his demise, his son Quli Qutub Shah became the sultan. Sriranga Raya the king of Vijayanagara empire, unable to challenge the supremacy of the Sultan visited the seventh Jeeyar of Ahobila math and persuaded him to restore the glory of Ahobilam. He fought with the Sultan's army and drove them out Ahobilam. To commemorate his victory, he erected the Jaya Stambha in front of the Lower Ahobilam temple in 1584 CE.

#### **Sthalapurana/Legend**

Ahobilam is also known as Singavelkunram (hill of the lion spear) and the Navanarasimhakshetram is the centre of Narasimha worship in Andhra Pradesh. The place is variously referred to in the inscriptions as Vobula, Ahobala, Ahobila, Ahobilagiri, Vedadri, Diguva Tirupati, Garudadri, Virakshetra, Achalachaya Meru, Singavel Kunram, Nidhi and Nagari. Ahobala is the ancient form of the present name Ahobila.

The sthalapurana and popular legends provide an interesting story about the etymology of the word 'Ahobilam'. The Gods while witnessing the ferocious aspect of tearing Hiranyakasipu to pieces exclaimed in wonder 'Ahobala' (lo! stupendous strength). Hence the name Ahobila (Sitapati:1982, 2).

A popular Sanskrit verse about Ahobilam reads:

Ahoviryam Ahosauryam Ahobahu Parakramah |

Narasimham Param Daivam Ahobilam Ahobalam ||

The Ahobilam Kaifiyat provides a legendary account substantiating the name of Ahobilam. In the 'abhinava jambu dweepa' and to the south of the area of mount Meru and near the southern Varanasi-Srisailam, a part of the Karnataka country is the Nallamalai hill range. On one of these mountains Garuda commenced silent penance to obtain the vision of Lord Narasimha who destroyed Hiranyakasipu; the lord in his grace, after long years of tapas of Garuda, manifested Himself in the cave of a mountain.

The mountain on which Garuda performed tapas became famous as Garudachala. According to legend, putting green grass in the mountain cave would cause it to catch fire and release smoke. Several great Rishis lived there; when they came to know that the place would become popular during the kali age, they left to northern lands, covering up the Narasimha cave with boulders. As a result, this place became known as the Narasimha Kshetra.; there are thus nine places where the Lord was installed by the rishis and worshipped (Vasantha: 2001, 67).

Jwala Ahobila Maha Lola

Kroda Karancha Bhargava

Yogananda Kshatravata

Pavaneya Nava Moorthayaha

According to Sthalapurana, an Asura called Somaka stole away the Vedas from Lord Brahma. Then they were restored by Lord Vishnu after he killed the Asura. After this incident, severe penance was performed in this place and Lord Narasimha, pleased with their penance blessed them that thereafter the Vedas would not be stolen away by anybody else. To signify this

occurrence the mountains are called "Vedadri". The first reference to Ahobilam dates from 1410 A.D (Vasantha: 2001, 17).

The Telugu Nrsimhapuranamu of Yerrapragada (first quarter of 1300 C.E.) places the mythological incarnation of Narasimha in Ahobilam. According to this Purana, after rescuing Prahlada, Narasimha was praised by Prahlada and other gods exclaiming, "Ahobala! (Behold! The mighty strength!)"'. Pleased with their praises, Narasimha promised to manifest in the sacred place where he rescued Prahlada and named it Ahobalam since it was here that they praised him for his great strength (Aho-Balam), the place came to be called as Ahobilam. The sthalapurana is also based on the incarnation of the Narasimha myth of the classical Hindu canons and also connected with the local people, with nine forms of Narasimha manifested in twelve temples (Sitapati:1982, 2).

While the classical myths portray the unification of Narasimha with Vishnu, the sthalapurana portray diversification and depict Narasimha as a significant and individual deity. The Ahobilam temple legend portrays a completely new dimension to the Narasimha incarnation myth of the classical Hindu Puranas. After killing Hiranyakasipu, Narasimha begins to live in the Ahobilam forests where he marries Chenchita. The Ahobilam sthalapurana departs from Narasimha's classical image by incorporating the local culture. Narasimha's intimate relationship with the local people is established in the Sthalapurana., by blending features of local traditions with the well-known mythology.

There are several small popular legends connected with this kshetra. A popular legend is that when Lord Vishnu took incarnation as Lord Narasimha, Goddess Lakshmi was born in the Chenchu tribe and both lived happily in Ahobilam; God refused to go back to Vaikuntam. Another interesting story connected with this place is the belief that Brahma Himself worshipped the Lord here. It is in this place that the God in idol form (Lord Lakshmi Narasimha) was worshipped by two Gods in human form, Lord Sri Rama and Lord Venkateshwara. Lord Venkateshwara is believed to have married Padmavathi only after worshipping Lord Narasimha at Ahobilam.

Similarly, Lord Sri Rama worshipped Lord Lakshmi Narasimha in this kshetra and sung the Narasimha Panchamirtham, which consists of five verses in honour of the Lord. It is claimed that only after offering worship to Lord Narasimha here Sri Rama received information of the whereabouts of Sita which led to the killing of Ravana.

### **The Nava Narasimhakshetra of Ahobilam:**

The Narasimha Kshetra at Ahobilam became one of the most important Srivaisnava centres of Narasimha worship after gaining the support of the rulers of the Vijayanagara Empire. It follows the Pancaratra order and the Sri Vaishnava matha that governs the temple belongs to a Vadakalai sect. Ahobilam is counted among one hundred and eight holy places of Sri Vaishnavism.

The Nava Narasimha refers to the nine forms in which Lord Vishnu is said to have appeared for the sake of his devotees at Ahobilam. Hence Ahobilam is also called the Nava Narasimhakshetra. It is also taken to refer to "Navaka" Narasimha, Navaka meaning fresh, new, young or novice. Lord Narasimha having sprung fresh from a stambha in answer to the prayer of his devotees is called Navaka Narasimha or "Sthauna Narasimha". According to the Upanishads, the Narasimha form is of the 'ugra' type and full of 'vira': it is all-pervading: it combines man and lion forms. It is enemy to enemies of 'Bhaktas'. According to Upanishads, nine is also the number

of Agni, the ninth is an essence who has entered and is its form. Moreover, number nine is considered the most mysterious and auspicious of all numbers in all calculations.

The Ahobila Kshetra is a group of temples scattered all over the Ahobilam hills. The nine Narasimha Kshetras are Jwala Narasimha, Ahobila Narasimha, Malola Narasimha, Kroda Narasimha, Karanja Narasimha, Bhargava Narasimha, Yogananda Narasimha, Kshatravata Narasimha and Pavana Narasimha.

### **Eguva (Upper) and Diguva (Lower) Ahobilam:**

The whole complex is composed of two parts - one called Eguva Ahobilam which contains shrines devoted to (upper Ahobilam) Nava Narasimha (nine Narasimhas) and the other called Diguva Ahobilam (lower Ahobilam) with a single shrine for Lakshmi Narasimha.

### **Upper Ahobilam (Eguva Ahobilam):**

The Upper Ahobilam is the ancient temple of Lord Ahobila Narasimha Swamy on the banks of the river Bhavanashini. The Lord manifested Himself in a cave in Upper Ahobilam on the Garudadri. The Lord appears to have been worshipped by the tribal people of the area since the dawn of the historical age. The Garbhagriha is a very naturally formed cave measuring 8 feet X 7 feet with a height of 3.5 feet only for the western portion of the cave where the Mulamurti has manifested Himself facing east. The rest of the cave, approximately half of the little cave shrine, is around six feet tall (Sitapati:1982, 5).

### **Diguva Ahobilam/Lower Ahobilam (Chinna Ahobilam):**

The Sri Lakshmi Narasimha Swamy Temple at the lower Ahobilam does not form part of the Nava Narasimha Kshetra but is a tenth Lakshmi Narasimha Swamy shrine that came up during the Vijayanagara period. The temple is a treasure house of sculptures and bas reliefs belonging to the Vijayanagara period.

Sri Lakshmi-Narasimha Swamy is the presiding deity. The Lord in the garbhagriha is in Sukhasana with the left leg folded while the right leg is dangling; Lakshmi is seated on his left thigh. He is depicted with four arms, the right upper arm holds the chakra, while the left upper arm holds the sankha; the lower right hand is in abhaya hasta while the lower left hand is around Lakshmi. The lord is depicted with a simhatorana.

Apart from the Temples at the upper and the lower Ahobilam, the Ahobilam and Rudravaram Kaifiyats list 12 mandapas, 12 thirthams and 8 konerus. The mandapas are spread between the upper and the lower Ahobilam as well as inside the temples displaying exquisite artistic exuberance.

### **The Ranga Mandapam at Chinna Ahobilam:**

The Ranga Mandapam showcases the Vijayanagara school of sculpture's exquisite craftsmanship, and the temple itself is a repository of magnificent sculptures and bas reliefs. Such intricacy and aesthetic content is a work of beauty and ecstasy. The name of the Ranga Mandapam is said to have an association with Sri Ranga I of Penukonda who played a historical role in the release of the Ahobilam temple from the Muslim domination.

The unique Ranga Mandapam is neither square nor rectangle, but a many-sided structure. The total length of the mandapam is 30.5 metres and the width is 31.10 metres. The Mandapam has a central pillared pathway of about 3.75 metres leading to the shrine of Shri Lakshmi-Narasimhaswamy. The Lord is facing East and the Ranga mandapam has two demarcated Northern and Southern portions with uniquely sculptured sub-mandapams (Sitapati:1982, 27) .

The sub-mandapams are square with a side of 4.25 metres. The Ranga mandapam with its characteristic Vijayanagara ceiling, pillars with corbels having well-developed pushpabodigai (not fully detached), the complex pillars with the Yaksha figures and a beautiful adhistanam sculptured with bas reliefs of elephants exhibits the unique craftsmanship of the Vijayanagara school of art.

The stone adhishtanam of the Ranga mandapam are beautifully carved. The lowest level is carved with elephants and riders on horses on the upapitham. The riders are said to be the soldiers of Vijayanagara who wore headgear and carried bows and arrows, broad swords etc., The next Upanam layer showcases sculptures of swans. The other layers, the Padmam, the Kumudam, the Kandan and the top layer akrapattayal are carved beautifully. Niches are also sculptured on the adhistanam with the images of the Lord. These miniature devakoshtas on the adhishtanam with representations of full pillars and mandapam with kudur and kudu representations with Gandharva mukhas on the akrapattiyal layer are carved beautifully. The other interesting characters on the adhishtanam are the 'pirangis' or foreign soldiers mounted on horses, soldiers on foot carrying broad swords and are seen wearing large gowns in Moghul tradition. The riders on the horses are seen wearing Kabuli type of shoes (Sitapati:1982, 27).

The pillars are exquisitely sculptured with corbels and well-developed pushpabodigai standing on the adhishtanam. The main pillars are carved with the nagabandas. Other sculptures include Narasimhaswamy destroying Hiranyakasipu, the bas-relief of Garuda, Prahlada in Anjali mudra. The corbels are profusely sculpted with Yakshas, riders on yali lions etc. The Pushpabodigai in the corbels reminds one of the Vijayanagara School of art.

The other side of the Rangamandapam pillar features an erotic sculpture, a bas-relief of Lord Narasimha pursuing Hiranyakasipu, and a rider on a horse with its hind feet mounted on a makara. The view on the southern side of the pillar shows Yali lions and the Yakshas in a joyous mood. The corbels with fully developed pushpabodigai (not fully detached) are also seen. The other view of the pillar shows the characteristic riders on Yali lions, Yakshas and the corbels with Kabuli type of shoes and Anjaneya (Sitapati:1982, 27).

The Ranga mandapam in solid granite is profusely carved with unique sculptures of dancing figures, musicians, deities, a man playing mridangam, Yaksha, a man with cymbals. The sculptures display the style of attire and ornaments worn by the common man during those days. The man wears the dhoti, his chest is bare and he is depicted with bare feet. He wears the Kadyalu, Kantabharana, necklace, earrings and also ornaments on his arms (Sitapati:1982, 29). His long hair is tied and ornamented with a cobra band. An anga vastra is tied around the top of the dhoti.

The appealing figure of a Vaishnavite dasa clutching a tambura is attractive. His attire displays the customs of those days. The dancer who is 3 feet in height is wearing a tight blouse, skirt or pavadaai commonly used by dancers. She is adorned with bangles, necklaces, flowers in her ears as earrings and has a special 'kondai' type of hair-do. She is depicted as offering flowers. Another dancer in pavadaai and tight blouse is beautifully sculpted with a sleek body. She is adorned with 'gajjalu' (anklets). The other sculptures that of the Rama. Anjaneya, a drummer, exhibit the quality of workmanship of the artist during those days (Sitapati:1982, 29).

### **Unique Sculptures in the Mandapam:**

#### **Minakshi:**

The sculpture of seated Minakshi is one of the many unique sculptures in the mandapa, and it is carved beautifully, perhaps the most aesthetically sculpted. She is in sukhasana, holding



a flower in her right hand; the left-hand holds a phala (fruit) and a parrot perched on her right foot is carved as pecking away at the fruit. This beautiful and rare form of seated Minakshi, where the parrot is sported by her, is fed by the Devi herself. The left foot of the Devi rests on a lotus pedestal (Vasanth: 2001, 108).

### **Lord Narasimha wooing the Mother Chenchu Lakshmi**

The Ugra murthi only became a Shanta murti after Hiranyakasipu's destruction when he fell in love with the Chenchu maiden Lakshmi. The sculpture is portrayed beautifully showing the Chenchu maiden holding a bow, and Lord Narasimha is making advances of love to his consort. His two upper hands hold the Chakra and Sankha while the lower hand is petting the chin of the consort; the lower left hand holding the breast of the Chenchu maiden. This is a mithuna sculpture but a rare one, as the Lord is usually depicted in a cheerful mood embracing his consort. The sculpture represents Srikantha, the Lord of Lakshmi, transforming himself from an Ugra Narasimha into an Anandamurthi.

### **Lord Narasimha pursuing Hiranyakasipu:**

The sculpture depicts the Lord pursuing Hiranyakasipu after emerging out of the pillar. The artist has aesthetically brought out the ugra rasa in the face of the Lord and the bhayanaka rasa in Hiranyakasipu.

### **Lakshmi Narasimha:**

The Lakshmi Narasimha murthi in the north of the Ranga Mandapam is a unique sculpture. The Lord is depicted with chakra in the right upper hand, while the conch is shown in the left upper hand. Lakshmi is seated on the left thigh of the Lord in sukhasana. She holds the kataka in her right hand and her left-hand rests on the thigh of the Lord.

### **Lakshmi Varahamurthi**

The Lord as the Lakshmi Varahamurthi holds the Chakra and Shanka in the upper hands. The lower right hand exhibits the abhaya-hasta while the left-hand embraces Lakshmi seated on his thigh. Lakshmi is depicted holding a flower in her right hand.

### **Lakshmi Yoga Narasimha Murthy**

A one-of-a-kind sculpture of Yoga Narasimha Swamy wearing the Yoga Patta with Lakshmi seated on his thigh. This is a unique sculptural representation as the Yoga figures are normally sculptured without the consort. This distinctive representation goes well with the Yoga and Lakshmi (bhoga) concept only in the case of the Supreme Lord. The Yoga Narasimha Swamy is depicted in abhaya-hasta; Lakshmi seated on his thigh holds a kataka in her right hand while the left hand is in prasrita dakshina-hasta pose. The left hand of the Lord is shown wielding bows and arrows while his right hand is embracing Lakshmi. The upper right hand is missing.

### **Conclusion:**

The 82 pillars in the Ranga mandapam consists of sculptures depicting the themes from Ramayana, Mahabharata and from the Narasimha Purana (Vasanth: 2001, 107). The sculptures from other pillars also contain events such as Narasimha pursuing Hiranyakasipu, holding the tuft of hair of the asura, Narasimha in standing position and holding the Asura Hiranyakasipu in his mouth, Narasimha pulling out the entrails of the Asura on his lap are found in the pillars of the mantapa at Ahobilam. Narasimha dressed in tribal costume along with Chenchita and holding



the bow and arrow are unique depiction in most of the temples at Andhra Pradesh. Representation of Ramanuja, Vaishnavite saints, dancers and musicians, Ashtadikpalas, Avatars of Vishnu, Bhairava, Mahishasuramardini are some of the exquisite sculptures found at Ahobilam. These bas reliefs displays the artistic ability of the sculptor and transforms the spectator to a divine sphere and no doubt Ahobilam is considered as one among the divya desams.

**Photos:**



Lower Ahobilam



Upper Ahobilam



Rangamandapa



Lakshmi Narasimha.



Lord Narasimha pursuing Hiranyakasipu



Lord Narasimha wooing the Mother Chenchu Lakshmi

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## **Pallava Art and Architecture in South India Study**

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### **Abstract:**

*The Period between the latter half of the sixth and the first half tenth Century an interval of four hundred years marks an important epoch in the history of South India and its culture. It coincides with the rise to power of three important dynasties the Chalukyas of Badami ( Distric Bjapur) the pallava of Kanchi ( Modern Kanchipuram) and the Pandys of Madurai and simultaneously with the revival of Saivism and vaishnavism herlted by Nayanmars and Alwars in the tamil country . The religious revival accompanied by an enormous literary output and a consequent development of art, articulture sculpture and painting was in no way impeded by the almost constant wars among three dynasties. The Particulary the Pallava art and architecture represent an early stage of draviian art and architecture which blossomed to the fullest extend under the chola dynapts. The first stone and more for temples of south india were constructed during Pallava rule and work based on earlier brick and timber prototypes.*

### **Key Words:**

Art and architecture – Pallavas – Mahabalipuram-monuments – Dravidian type- Pallava Mamalla – Kailasanatha – Ellora – Kanchipuram – Chalukyas –Rashtrakutas – Simhavishnu Vaikundaperumal temple – Archaeological

### **Introduction:**

The Pallava dynasty was an Indian dynasty that existed from 275 CE to 897 CE, ruling a portion of southern India. They gained prominence after the eclipse of the Satavahana dynasty, in which the Pallava served as feudatories.

Pallavas became a major power during the reign of Mahendravarman I ( 571-630 CE) and Narasimhavarman 1 (630-668 CE) and dominated the Telugu and northern Parts of the Tamil region for about 600 Years until the end of the 9<sup>th</sup> Century.

Pallavas art and architecture represent an early stage of Dravian art and architecture which blossomed to its fullest extent under the Chola Dynasty. The first stone and mortar temples of South India were constructed during Pallava rule and were based on earlier brick and timber prototypes.

Starting with rock cut temples, built between 695 and 722 and archacological excavations dated to the 6<sup>th</sup> Century and earlier , Pallava sculptors later graduated to free standing structure shrines which inspired Chola temple of a later age. Some of the best examples of Pallava art and architecture are the Kailasanathar Temple at Kanchipuram , the Shore Temple and the Pancha Rathasof Mahabalipuram. Akshara was the greatest sculptor of their time.

### **Pallava Architecture:**

The rock cut phase lasted from the 610 to 668 AD and consisted of two groups of monuments the Mahendra group and the Mamalla group. The Mahendra group is the name

given to known monuments constructed during the reign of Mahendravarman I (610-630 AD). The monuments of this group are invariably pillared halls hewn out of mountain faces. These pillared halls or mandapas follow the prototype of Jain temple of the period. The best examples of Mahendra group of monuments are the cave temples at Mandagapattu, Pallavaram and Mamandur.

The Second group of rock cut monuments belong to the Mamalla group in 630 to 668 AD. During this period free – standing monolithic shrines called rathas were constructed alongside pillared halls. Some of the best examples of this style are the Pancha Rathas and Arjun's Penance at Mahabalipuram.



The cave temples at Mandagapattu

#### **The Structural Phase:**

The structural Phase was when free standing shrines were constructed with stone and mortar brought in for the purpose. Monuments of this phase are of two groups – the Rajasimha group (690 to 800 AD) and the Nandivarman group (800 to 900 AD). The Rajasimha group encompasses the early structural temples of the Pallavas when a lot of experimentation was carried out. The best examples of this period are the Shore Temple at Mahabalipuram and the Kanchi Kailasanathar Temple at Kanchipuram both constructed by Narasimhavarman II who was known as Rajasimha. The best example of the Nandivarman group of monuments is the Vaikunta Perumal Temple at Kanchipuram. During this period, Pallava architecture attained full maturity and provided the models upon which the massive Brihadeeswarar Temple of the Cholas at Thanjavur and Gangaikonda Cholapuram and various other architectural works of note were constructed.



The Shore Temple at Mahabalipuram

#### **Pallava Sculpture and Architecture Style:**

The Pallava sculptors had a lot of passion and the slender skills of the artists in the carving of the sculptures can be seen. Pallava dynasty was a famous dynasty in South India.



The present Pallava art and sculptures are dated back to the 610 AD to 690 AD. Probably the rock cut caves also came into existence during the period of Pallavas. The kings of Pallavas encouraged the artists to construct the temple and replaced the old temples with innovative rock sculptures and architecture.

During the rule of Pallavas, the artists improved their skills of excavating temple from the rocks. There were Special institutions to reach the techniques of carving the architecture. They brought the Dravidian style of art and introduced in the temple construction. The development of temple and architecture changed from one king to another. They brought the cave based constructing temples to structural temples. The Pallavas constructed many monuments around the temples. According to the Histroians, the temple construction styles changed in four stages.

The great Mahendravarma I encouraged the rock cut temples, we can see them at Mahendravade, Mamandur, Dalavanm, Vallan and some other places in Tamilnadu. We can see the second stage of Pallava style of temple at Mamallapuram. Here the temple's architecture constructed by Monolithich rathas and Mandapas. Naasimhavarman constructed the temples with magnificent architectural monuments. The mandapas in the temple had the decorations with stunning sculptures which were narrating the stores of Hindu epics.

Mahendravarman I inherited the Pallava throne from Simhavishnu and with it a Large and settled empire extending from the Krishna River in the north to the kaveri in the south. He was an exceptional and unorthodox king, whom Dubreuil referred to as one of the greatest figures in the history of Tamil civilization. A many sided and gifted personality, musician, poet, builder and statesman, it was he who called forth the immense flowering of culture and art which would spread all over South India and overflow to other countries of Asia, and finally even survive the decline of his own dynasty and empire. Pallava conquest and expansion of power came to a stand still in his time. His fame in history was not achieved on the battlefield but by the fact that he was the first under whom cave temples were carved into the granite rocks of the South – cave temples of a specific and unmistakable style named after him. Into those temples he recorded his expressive inscriptions in fine Sanskrit and in the beautiful letters of his time.

The fascination of carving a whole temples into the living rock which spread over india during the first millennium AD had not yet seized the South by the end of the 6<sup>th</sup> Century. Even as a building material, stone was not or rarely used here, possibly because of its strong association with funerary customs (Viz the erection of stone to venerate the dead). The materials in use were brick. Mortar and thatch perishable substances of which nothing has remained. No architectural structure of a period earlier than Mahendra's reign has survived in the Dravidian country.

### **The Construction Technology of Pallava Temple:**

The construction of temple is an art, a science and a complicated creative study with a blend of mathematics, logic, geography, geology, science, ecology, art, sculpting, music, light and sound, religion, social sciences and astrology.

The historical information about construction of temple which is available today is mostly inscribed on the stones slabs, metal plates, palm leaves and manuscripts. The knowledge and skills of the construction techniques were passed on verbally from generation to generation among the temple architects. One of the most important surviving



records about the construction of temple is the palm leaf manuscript which explains the details of the building operation of Pallavas.

### **Characteristics of Pallava Architecture:**

The Pallava dynasty maintained its varying forms of architecture for some three centuries, from A.D.600 to 900, and its productions are classified themselves into two phases the first of these occupying the seventh century, and the second the eighth and ninth centuries. In the former the examples were entirely rock cut, in the latter they, were entirely structural. There were four principal rulers during the period of their power, and the works of each phase had been divided into two groups, comprising four groups in all, each of which is named after the king who was ruling as time.

- Ist Phase: Mahendra Group - A.D. 610 to 640
- Mamalla Group - A.D.640 to 690
- 2<sup>nd</sup> Phase Rajasimha Group - A.D.690 to 800
- Nandivarman Group - A.D.800 to C.900

### **Mahendra's Rock Architecture:**

Rock temples have but one faced: in those of Mahendra it consists of a row of pillars which are comparatively short and massive and without the clear demarcation of the various parts of a pillar which the shastras prescribe. Their plan archaic shape with straight outlines has a certain similarity to Buddhist pillars or railing post which may have served as a model. It is in strange contrast to other contemporary pillars, for example, those of the Chalukyas at Badami or the Vakatakas of Ellora which are not only elaborately, shaped, but also, have a rich ornamental and figural décor. Mahendra's Pillars have two large, almost cubical parts at the base and the top, with an intervening part which is leveled off at the corners and has thus, an octagonal shape, The cubical parts on the top and bottom are called sadurams, while the octagonal section in between is the kattu. In later times, lotus medallions are found on top and bottom sadurams which resemble the typical Buddhist lotus motif. The corbel sits on the upper sadsuram and has curved, rarely angular arms, proportionate in size to the massiveness of the pillar. In later cave temples they are decorated with roll mouldings called Taranga.

The Shrine cells are either cut behind the mandapa, facing the façade of the temple or else into one of its side walls, They are excavated on a higher level than that of the hall and entered by one or several rock cut steps, In Mandagapattu, Mahendra's first excavation, the level difference is just a small steps. In Mandagapattu.Mahendra's first excavation, the level difference is just a small step of about three inches, in later cave temples it would grow higher until it would provide the space for a mulded adisthana (base) running along the front wall of the shrines, interrupted only by the rock steps at their entrance. The shrine chambers area plain and bare of any ornamentation: they contain neither a relief sculpture of the deity nor a rock, cut linga. Non – monolithic lingas of black published stone and uncertain age are often found inserted into a socket hole which was cut into the floor at a later time.

Another noteworthy feature is the absence of any water outlet (pranala) from the sanctuary, The abhisheka (ceremonial bath) consisting of liquids like coconut water, milk, honey, ghee etc., was obviously received in a vessel inside the sanctum itself. A rock cut pedestal or platform is often found at the rear wall of the shrine, suggesting that an image of

the deity was placed upon it, Such images were formed of painted stucco or wood or brick with succo. The tradition of shaping the deity of the shrine in these materials has been preserved to the present day where wooden or stucco mulasthanas are found in South Indian temples. Remnants of paint on the rear wall of some shrines may indicate that the figure of the god was painted there over a thin coat of plaster. This is confirmed by reference in the Sangam literature where temples are described as having their deity painted on the hind wall of the shrine.

An outstanding feature of Mahendra cave temples, which are otherwise bare of any sculptures, are the doorkeepers or dvarapalas . They represent the guardian figures of the threshold, a very ancient symbol frequently met with in legend and occult literature. There, they have a frightful, sometimes nonhuman appearance, to test the intrepidity of the seeker before they let him pass and continue his quest. Indian temples too, whether monolithie or expressive figures in a temple. They are regarded as semi divine beings, sometimes emanations of the god inside the shrine.



An example of Dvarapalas in the Satrumalla Pallava Cave Temple

In the centuries following the time of King Mahendra, his successors continued to carve cave temples in specific style. By continuing his particular style they were honouring him as the first who had carved his temples into the grantie of the South. In fact, not only his successors , but also the pandyas, Muttaraiyars and other South Indian dynasties followed in their rock architecture the style which had been initiated by him. At the same time, they created their own refined and developed style of rock and structural architecture which differed much from that of Mahendra.



Mamandur Cave Temple

### **Structural Temple:**

After the period of Mahendra and Mamalla, King Rajasimha introduced and made some alteration of construction which is called “ Structural temple “ Structural Temple technique made a new revolution in Pallava Architecture. The technique was also accepted and applied by Chola and Pandyas. In Structural temple method stones are carved independently in squire and rectangle shape and arranged one by one to make walls and

ceilings. Through this method they constructed 'Muga Mandapa' 'Artha Mandapa' and above the walls, "Vimana" was also constructed. Surround the walls and pillars, sculptures were carved low or high. This type of temple are followed by Rajasimha and followed by Nandhvarman.

The monolithic rathas and sculptural mandapas constitute the Mamalla style of architecture. The Pallava king, Narasimhavarman. I was known as Mamalla. He had converted the part of Mamallapuram as a beautiful city of art and architecture. The Monolithic rathas at Mamallapuram are now called as Pancha Pandavda Rathas. Each ratha or chariot was carved out of single rock and hence the name monolithic. These rathas depict the five different forms of temple architecture.

The Mandapas or halls at Mamallapuram had also belonged to the Mamallan period. Each mandapa was carved out of single rock. On the side walls of these mandapas, beautiful sculptures depicting Puranic stories had been carved. The scene depicting the Goddess Durga's attack on Mahishasura is seen in the Mahashasura Mardhini Mandapa. Such beautiful sculptures have also been carved in Thirumoothi and Varaha mandapas. The most important among the Mamalla style of architecture is the Open Art Gallery. Several miniature sculptures have been carved beautifully on the wall of a big rock. The fall of the River Gange from the head of God Siva and the Arjuna's penance are notable among them. The images of deer, monkey, cat, mouse and other animals are beautifully carved on this huge rock.



Sri Virupaksha temple at Pattadakal

Thus it is clear that Pallava architectural features are unique and they are great works of cultural contribution. Undoubtedly, Pallavas were the great masters of the art and were pioneers, in this artistic tradition. Their cultural edifices remain as examples of superior craftsmanship and exemplary art.

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## Author Productivity and Application of Lotka's Law on Fossil Fuels Research Publications

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### Abstract:

*This paper has made an attempt to identify the characteristic features of scholarly publications in the field of fossil fuels at global level using scientometric analysis. For analysis, the data was gathered through Web of Science (WoS) database from Clarivate Analytics. This paper is based on the analysis of 13441 research publications retrieved from the Web of Science database during the period 1989 to 2019. Data is collected and analyzed using Histcite software. The study focuses on the various aspects of quantitative research such as growth of papers (year wise), Collaborative Index (CI), Degree of Collaboration (DC), Co-authorship Index (CAI), Collaborative Co-efficient (CC), Lotka's Exponent value, Kolmogorov-Smirnov test (K-S Test). This study targets the authorship pattern and applicability of Lotka's Law by counting the number of publications by each author, also applies the Chi-square test to test the hypothesis and to find whether the law is applicable to this research study.*

**Key words:** Lotka's Law, Author productivity, Straight Counting Method, Chi-Square test, Kolmogorov-Smirnov (K-S) test, Scientometrics.

**Keywords:** Scientific publications, Scientometrics, Periyar University, Authorship pattern, Research trend, Lotka law, WOS.

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### Introduction:

Scientometrics is the broad area of study in which the quantitative parameters of scientific research are determined from various sources and considered for study. It reveals important information to all researchers in various research institutes, industries and professional bodies. In Scientometrics, statistical methods are more often used to strengthen the data collected by way of systematic organization and analysis of the findings for correlation. The statistical methods are important in exhibiting the results of a study because it gives a clear picture of the significance of the domain of study; reputation of the individual or team through the number of the research output in terms of publications and so on. Scientometrics play a vital role in explicating to research institutions, industries and scientific organizations, the field or domain which need to be focused more or the domain that seeks more immediate attention. As a result of scientometric analysis the performance of many countries in research has increased substantially. The impact of scientometric analysis is most obvious from the quality and quantity of publications by the international research community.

The Lotka's law on authorship productivity of fossil fuels literature has been tested to confirm the applicability of the law to the present data set. K-S test was applied to measure the



degree of agreement between the distribution of the observed set of data against the inverse general power relationship and the theoretical value of  $\alpha = 2$ .

### **Review of Literature :**

Lotka's Law has been applied to the literature of various disciplines by various authors since its publication. The applicability of Lotka's law for the productivity patterns of entomological research in Nigeria was tested by D. K. Gupta (1987). The author had four sets of data, first for the publications of all the authors, second for the publications by first authors, third for single authors and fourth for coauthors. When Lotka's law was applied to the four data sets, it is not applicable as inverse square law. But it was found to be valid in its usual form with the calculated values of characteristic exponent  $\alpha$ . The values of  $\alpha$  were found to be 1.9, 1.8, 2.2 and 2.4 for the four different data sets. K-S statistical test was used to check the validity of the normal form of Lotka's law. The highest difference in the experimental and expected values of the part of authors was found to be highly insignificant at 0.01 level of significance in each of the four cases. B. Mini Devi (2013) applied the Lotka's law to Toxicology literature collected from the international database, Toxicology Information Online (TOXLINE), and its validity on that data was tested. The data was found unfit for the law.

Ifeanyi Adigwe (2016) tested the applicability of Lotka's Law for the productivity patterns of authors in biomedical science in Nigeria on HIV/AIDS. From the findings of the study, it is clear that in the productivity distribution for authors on the subject of HIV/AIDS, only the co-authors category fit in the Lotka's Law, whereas the category of all authors and first author categories differ from the distribution of Lotka's inverse square law.

R. Senthilkumar & Satish Kumar (2019) tested the applicability of Lotka's law to the literature of Astronomy & Astrophysics in India. Examining the Lotka's Inverse square ( $n=2$ ) method as well as general power method ( $n \neq 2$ ), (calculating the value of 'n' with observed data) was used to test the applicability of Lotka's law. Goodness of fit test - Chi-Square test and Kolmogorov-Smirnov (KS) test was also used to measure the viability of Lotka's law in the field of Astronomy & Astrophysics research in India. The authors found that the productivity distribution didn't fit when Lotka's law was applied in generalized form as well as in its original form on the data set.

S.Thanuskodi et al.(2020) tested the applicability of Lotka's law for the Pattern of Scientific Productivity in the Marine Pollution Research. The validity of Lotka's law for the Literature on Marine Pollution was checked with the Chi-Square test to assess the observed values with the expected values. The calculated Chi-Square value (1787.57) was higher than the table Chi-Square value i.e. 47.40 at a degree of freedom of 33 and level of significance at 0.05. From the results, it was found that Lotka's law did not fit for the literature on Marine pollution.

This study targets the authorship pattern and applicability of Lotka's Law by counting the number of publications by each author, also applies the Chi-square test to test the hypothesis. The study carried out by N. Amsaveni & M. Sadik Batcha (2019) targets the authorship pattern and its applicability of Lotka's law by counting the number of publications by each author, also used the Chi-Square test to test the hypothesis and finds that the Lotka's law is still applicable to their research study. M. Sadik Batcha and S.B. Chaturbhuj (2020) studied the applicability of Lotka's law for the author's productivity in the field of Thermodynamics. The Goodness of fit test Kolmogorov – Smirnov (K-S) test was applied to the data of thermodynamics research. It

was identified that the applicability of Lotka's law is found with 0.003 level of significance in the field of Thermodynamics. But the Lotka's inverse square law does not fit for this study.

### **Objectives of The Study**

The main objective of this study was to use Mapping of Fossil Fuels Research output: A Scientometric analysis with special reference to research activities at global level: (i.e)

- To identify and analyze the rate of growth of research productivity on Fossil Fuels Research output;
- To examine the Year wise distribution of publications on Fossil Fuels Research output
- To note the Document wise distribution of publications on Fossil Fuels Research output;
- To analyze the authorship pattern and examine the extent on research collaboration
- To identify journal wise distribution of publications on Fossil Fuels Research output;
- To assess the Institution wise research contribution on Fossil Fuels Research output;
- To identify Country wise Collaborative Distribution of Publications;
- To identify the word wise distribution of publications.
- To test the Applicability of Lotka's law on Fossil Fuels Research output.

### **Methodology**

For the present study, the Fossil Fuels Research output literature encompassing records obtained from web of science database which is a scientific and indexing service maintained by Clarivate Analytics is used. The present study aims at analyzing the research output of Researchers in the field of Fossil Fuels Research. It brings into focus the distribution of research output by following categories such as related growth of output and doubling time, authorship pattern, and language of publications, forms of publications, country affiliations, core journals and so on. Quick, easy and comprehensive, web of science provides superior support of the literature research process. In addition, statistical tools like trend analysis, correlation analysis and time series analysis were used to predict the future in Fossil Fuels Research output. The data was downloaded from web of science database. A total of 13441 records were downloaded and analyzed by using the Histcite software application and tabulated for making observations as per the objectives of the study. The study explores the research concentration in Fossil Fuels Research output and journal priority in publishing Fossil Fuels Research output articles.

For collecting the publication metadata, the renowned Web of Science (WoS) database was used which covers the entire set of journals, conferences and other sources. The data was collected for the period 1989-2019. The 31 years period is a good period for detailed analytical study purpose.

In this study, the following bibliometric/scientometric indicators and statistical techniques/tools were employed while analysing the data on Fossil Fuels Research output collected from the Web of Science.

- Relative Growth Rate (RGR)
- Doubling Time (Dt)
- Collaborative Coefficient (CC)
- Co-authorship Index(CAI)
- Author Productivity
- Degree of Collaboration
- Lotka's Law

## Analysis And Interpretation of Results

In the present study the research output on Fossil Fuels Research is taken as a tool to evaluate the performance at various levels.

**Table 1 Fossil Fuels Research output during 1989-2019**

S.No	Particular	Data
1	Records	13441
2	Time Span	1989-2019
3	Contributed authors	36561
4	Number of Journals	2277
5	Document type	19
6	Contributing Country	140
7	Language	23
8	Institutions	8219
9	Institutions with sub divisions	2000
10	Global citations	475797
11	Local citations	18429
12	Words	12406
13	All cited references	706518

Table 1 reveals the brief description about the Fossil Fuels research output during the sample period from the web of science database. The total time span is 31 years, and 13441 records were downloaded. The total 13,441 records earned 475797 global citation scores, 18429 local citation scores, 12406 words used and 112073 cited reference scores for the publications. Overall the Fossil Fuels Research output was in only three different languages, published via 19 different types of documents, for which 36561 authors contributed through 2277 journals. The contributions were from 140 countries' and published through 1365 different type of institutions.

## Year Wise Distribution of Publications

To analyze the year wise publication of research output on Fossil Fuels Research the data has been presented in Table 2. The table depicts the research output at the global level. From the table below, it could clearly be seen that during the period 1989 – 2019 a total of 13441 publications were published.

**Table 2: Year wise distribution of the publications**

#	Publication Year	Records	Percent	TLCS	TGCS	ACPP
1	1989	13	0.1	36	241	18.54
2	1990	25	0.2	18	191	7.64
3	1991	70	0.5	95	2074	29.63
4	1992	84	0.6	67	1601	19.06
5	1993	111	0.8	150	2108	18.99
6	1994	111	0.8	176	2326	20.95
7	1995	105	0.8	196	3581	34.10
8	1996	135	1.0	273	4008	29.69
9	1997	117	0.9	292	8367	71.51
10	1998	128	1.0	244	5272	41.19
11	1999	117	0.9	218	5337	45.62
12	2000	132	1.0	224	6756	51.18
13	2001	118	0.9	239	7379	62.53
14	2002	127	0.9	215	8640	68.03

15	2003	141	1.0	225	6242	44.27
16	2004	165	1.2	390	11705	70.94
17	2005	200	1.5	577	17620	88.10
18	2006	231	1.7	769	20174	87.33
19	2007	336	2.5	888	22372	66.58
20	2008	383	2.8	1377	34274	89.49
21	2009	500	3.7	1368	29487	58.97
22	2010	540	4.0	1551	37699	69.81
23	2011	646	4.8	1429	33479	51.83
24	2012	714	5.3	1298	31167	43.65
25	2013	780	5.8	1200	34939	44.79
26	2014	860	6.4	1243	30728	35.73
27	2015	976	7.3	1262	30368	31.11
28	2016	1175	8.7	1085	29827	25.38
29	2017	1241	9.2	758	23871	19.24
30	2018	1491	11.1	467	17499	11.74
31	2019	1669	12.1	99	6465	3.87
		13441			475797	35.40

**\*TLCS – Total Local Citation Score \*\* TGCS – Total Global Citation Score**

The highest number of publication is 1669 in 2019, followed by 1491 papers in 2018, 1241 papers in 2017, 1175 papers in 2016, 976 publication papers in 2015, 860 publication papers in the year 2014, 780 publication papers in 2013, 714 publication papers in the year 2012 and 646 records of the publication in the year 2011. The least number of publications was in the year 1989 with only thirteen publications, which is followed by the year 1990 with 25 records of the publications.

**Relative Growth Rate**

In order to identify the relative growth rate, a model developed by Mahapatra was adopted. The relative growth rate is the increase in the number of publications per unit of time. The mean relative growth rate  $R(1-2)$  over a specified period of interval can be calculated from the following equation.

$$R(1-2) = \frac{W2-W1}{T2-T1}$$

Where,

$R(1-2)$  = Mean relative growth rate over the specified period interval;

$W1 = \log w1$  (Natural log of initial number of publications)

$W2 = \log w2$  (Natural log of final number of publications)

$T2-T1$  = the unit difference between the initial time and final time.

The relative growth rate for publications can be calculated separately. Therefore,

$R(a)$  = Relative growth rate per unit of publication per unit of time (year)

**Doubling Time:**

It is also calculated that there is a direct equivalence existing between the relative growth rates and doubling time. If the number of publications of a subject doubles during a given period, then the difference between the logarithms of the numbers at the beginning and at the end of the period must be the logarithms of the number 2. If one uses natural logarithms, this difference has a value of 0.693. Thus, the corresponding doubling time for publications can be calculated by the following formula:

Doubling time (Dt) =  $0.693/R(a)$

**Table 3 Doubling Time In Number Of Publications Observed During 1989 to 2019**

S.No.	Years	Records	Log w1	Log w2	R(a)	Mean R(a) 1-2	DT	Mean Dt R(a) 1-2
1	1989	13		2.56	2.56		0.27	
2	1990	25	2.56	3.22	0.66		1.05	
3	1991	70	3.22	4.25	1.03		0.67	
4	1992	84	4.25	4.43	0.18		3.83	
5	1993	111	4.43	4.71	0.28		2.48	
6	1994	111	4.71	4.71	0.00		0.00	
7	1995	105	4.71	4.65	-0.06		-12.37	
8	1996	135	4.65	4.91	0.26		2.71	
9	1997	117	4.91	4.76	-0.15		-4.69	
10	1998	128	4.76	4.85	0.09		7.71	
11	1999	117	4.85	4.76	-0.09		-7.71	
12	2000	132	4.76	4.88	0.12		5.74	
13	2001	118	4.88	4.77	-0.11		-6.18	
14	2002	127	4.77	4.84	0.07		9.43	
15	2003	141	4.84	4.95	0.10		6.63	
16	2004	165	4.95	5.11	0.16	0.32	4.41	0.87
17	2005	200	5.11	5.30	0.19		3.60	
18	2006	231	5.30	5.44	0.14		4.81	
19	2007	336	5.44	5.82	0.37		1.85	
20	2008	383	5.82	5.95	0.13		5.29	
21	2009	500	5.95	6.21	0.27		2.60	
22	2010	540	6.21	6.29	0.08		9.00	
23	2011	646	6.29	6.47	0.18		3.87	
24	2012	714	6.47	6.57	0.10		6.92	
25	2013	780	6.57	6.66	0.09		7.84	
26	2014	860	6.66	6.76	0.10		7.10	
27	2015	976	6.76	6.88	0.13		5.48	
28	2016	1175	6.88	7.07	0.19		3.73	
29	2017	1241	7.07	7.12	0.05		12.68	
30	2018	1491	7.12	7.31	0.18		3.78	
31	2019	1669	7.31	7.42	0.11	0.15	6.14	5.65
		<b>13441</b>					<b>98.69</b>	

Table 3 clearly shows the doubling time in number of publications observed during the period 1989- 2019. A total of 13441 publications, were published at global level. The growth pattern of global Fossil Fuels Research output is calculated using the standard methods and formulae described in the methodology of this study.



The highest number of publication 1669 in 2019, is followed by 1491 papers in 2018, 1241 papers in 2017, 1175 papers in 2016, 976 publication papers in 2015, 860 publication papers in the year 2014, 780 publication papers in 2013, 714 publication papers in the year 2012 and 646 records of publications in the year 2011 and the doubling time in the number of publications was calculated. The Mean R(a) is 5.65 in 98.69 years. It denotes that the Doubling time in the research output of Fossil Fuels is 98.69 years for the study period.

### Collaborative Coefficient (Cc):

The pattern of co-authorship among different countries have been examined by making use of Collaborative Coefficient (CC) suggested by Ajiferuke et al. (1988). The formula used for calculating CC is as follows. Where

$$CC = 1 - \left[ \sum_{j=1}^k \left( \frac{1}{j} \right) F_j / N \right]$$

F<sub>j</sub> = the number of authored papers

N = total number of research published; and

k = the greatest number of authors per paper

According to Ajiferuke, CC tends to zero as single-authored papers dominate, and to 1-1/j as j-authored papers dominate. This implies that higher the value of CC, higher the probability of multi-authored papers.

### Co-Authorship Index (CAI):

To study how the patterns of co-authorship have changed during a period use of Co-authorship index has been applied in this study. For calculating CAI the entire data set was divided into four blocks.

$$CAI = \{ (N_{ij}/N_{io}) / (N_{oj}/N_{oo}) \} * 100$$

N<sub>ij</sub> : Number of papers having j authors in block I

N<sub>io</sub> : Total Output of Block I

N<sub>oj</sub> : Number of papers having j authors for all blocks;

N<sub>oo</sub> : Total number of papers for all authors and all blocks

J = 1, 2, 3, > 4

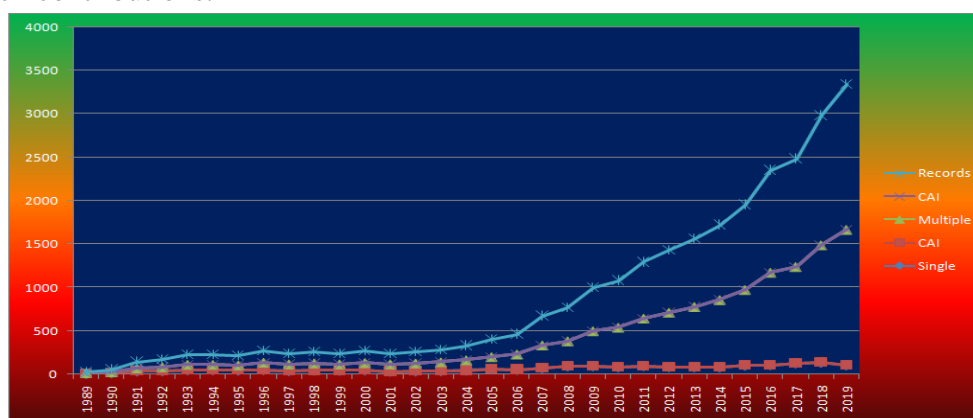
CAI = 100 implies that co-authorship in a particular block for a particular type of authorship corresponds to the world average, CAI > 100 reflects higher than average co-authorship effort and CAI < 100 lower than average co-authorship effort in a particular block for a particular type of authorship.

**Table 4 Pattern of Co-Authorship index**

Year	Single Authors		Multiple Authors		Total
	No. of Output	CAI	No. of Output	CAI	
1989	5	2.62	8	0.72	13
1990	13	3.54	12	0.56	25
1991	35	3.40	35	0.59	70
1992	37	3.00	47	0.66	84
1993	49	3.01	62	0.65	111
1994	48	2.94	63	0.67	111
1995	44	2.85	61	0.68	105
1996	51	2.57	84	0.73	135

1997	39	2.27	78	0.78	117
1998	43	2.29	85	0.78	128
1999	43	2.50	74	0.74	117
2000	46	2.37	86	0.76	132
2001	32	1.85	86	0.85	118
2002	35	1.88	92	0.85	127
2003	39	1.88	102	0.85	141
2004	43	1.77	122	0.87	165
2005	57	1.94	143	0.84	200
2006	52	1.53	179	0.91	231
2007	72	1.46	264	0.92	336
2008	93	1.65	290	0.89	383
2009	95	1.29	405	0.95	500
2010	82	1.03	458	0.99	540
2011	96	1.01	550	1.00	646
2012	84	0.80	630	1.03	714
2013	84	0.73	696	1.05	780
2014	81	0.64	779	1.06	860
2015	101	0.70	875	1.05	976
2016	107	0.62	1068	1.07	1175
2017	128	0.70	1113	1.05	1241
2018	135	0.62	1356	1.07	1491
2019	105	0.43	1564	1.10	1669
	1974	55.93	11467	26.71	13441

It is observed from the Table 4, the CAI for single authors is declined from 35 percent in the year 1990, 34 percent in the year 1991, 30 percentage of Co-author index in the year 1992 and 1993 and 29 percentage of CAI in the year 1994. On the other hand, the CAI for Multiple authors is enhanced from 11 percentage in the year 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012 and 2011 which indicates the pattern of co-authorship is on an increasing trend among the research contributions.



**Figure 1 shows that the Pattern of Co-Authorship index**

This spider figure shows the pattern of Co-authorship Index. Blue colour thread indicates the total number of publications, red mark shows single author's number of output, violet colour thread defines the multiple authors' number of output. Both single and multiple author productivities in comparison with the CAI, is shown in the figure in green colour.

### Degree of Collaboration

In order to identify the degree of collaboration, the researcher has adopted K. Subramanyam's formula<sup>3</sup>.

The formula is  $C = N_m / (N_m + N_s)$

Where C = Degree of collaboration in a discipline

$N_m$  = Number of multiple authored papers

$N_s$  = Number of the single authored papers

**Table 5 : Year wise Distribution of Degree of Collaboration**

Year	Single Authors		Multiple Authors		Total	Degree of Collaboration
	No. of Output	%	No. of Output	%		
1989	5	0.04	8	0.06	4	0.62
1990	13	0.10	12	0.09	9	0.48
1991	35	0.26	35	0.26	7	0.50
1992	37	0.28	47	0.35	12	0.56
1993	49	0.36	62	0.46	24	0.56
1994	48	0.36	63	0.47	30	0.57
1995	44	0.33	61	0.45	27	0.58
1996	51	0.38	84	0.62	39	0.62
1997	39	0.29	78	0.58	44	0.67
1998	43	0.32	85	0.63	35	0.66
1999	43	0.32	74	0.55	25	0.63
2000	46	0.34	86	0.64	19	0.65
2001	32	0.24	86	0.64	18	0.73
2002	35	0.26	92	0.68	27	0.72
2003	39	0.29	102	0.76	25	0.72
2004	43	0.32	122	0.91	19	0.74
2005	57	0.42	143	1.06	42	0.72
2006	52	0.39	179	1.33	36	0.77
2007	72	0.54	264	1.96	57	0.79
2008	93	0.69	290	2.16	29	0.76
2009	95	0.71	405	3.01	58	0.81
2010	82	0.61	458	3.41	51	0.85
2011	96	0.71	550	4.09	51	0.85
2012	84	0.62	630	4.69	81	0.88
2013	84	0.62	696	5.18	96	0.89
2014	81	0.60	779	5.80	82	0.91
2015	101	0.75	875	6.51	76	0.90
2016	107	0.80	1068	7.95	96	0.91
2017	128	0.95	1113	8.28	96	0.90
2018	135	1.00	1356	10.09	96	0.91
2019	105	0.78	1564	11.64	135	0.94
	<b>1974</b>	<b>14.69</b>	<b>11467</b>	<b>85.31</b>	<b>146</b>	<b>0.85</b>

It is inferred from the table 5 that at the aggregate level, the degree of collaboration is of 0.85 during the study period 1989 to 2019 i.e. out of total 13441 literature published, 98% of them are published as joint author publications in "Fossil Fuels Research output". This brings out clearly the high level of prevalence of collaborative research in Fossil Fuels Research Output.

## Lotka's Law of Author's Productivity

Application of Lotka's Law, Lotka was the first to observe and analyse the productivity patterns of authors in a sample data from Chemistry and Physics. He came out with a general formula, known as Lotka's law and it can be written as

$$X^n Y = K \text{-----(1)}$$

where, Y is the frequency of authors making n contributions each and K is a constant.

$$g(x) = (6/p)(1/x^2), \quad x = 1, 2, 3 \dots (2)$$

Where, g(x) is the proportion of authors making x contributions.

A generalized form of Lotka's law was presented by Bookstein as

$$g(x) = kx^{-n}, \quad x = 1, 2, 3, 4 \dots X_{\max}, \quad k > 0 \quad (3)$$

Where g(x) represents the fraction of authors publishing x articles; k and n are parameters to be estimated from the data; X<sub>max</sub> represents the maximum size or value of productivity variable x; and n is usually  $\geq 1$ .

According to Pao, the following procedure should be followed in studying the application of fit of the Lotka's law to a given citation data sample.

(a) Estimation of parameter 'n' The first step in the application of Lotka's law is to determine the value of n, which is to be determined either by using the Linear Least Square (LLS) regression method or one of its equivalent form given by the following formula:

$$n = \frac{[N \sum (\ln x \cdot \ln g(x)) - \sum \ln g(x) \sum \ln x]}{[N \sum (\ln x)^2 - (\sum \ln x)^2]} \quad (4)$$

where N is the number of pairs of data considered  $x = 1, 2, 3 \dots X_{\max}$

(b) Estimation of parameter 'k' The value of k, which is the theoretical number of authors with a single article is determined from the following formula:

$$k = \frac{1}{\sum_{x=1}^{p-1} \frac{1}{x^n} + \frac{1}{(n-1)(p^{n-1})} + \frac{1}{2} p^n + \frac{n}{24 \times (p-1)^{n+1}}} \quad (5)$$

here, p is assumed to be 20 and n is the experimentally computed value of the exponent from the observed distribution.

Once the value of n and k is determined, then using Eqn. 3, determine the number of authors writing 1, 2, 3, ... x articles.

## Goodness-of-Fit Tests

There are several statistics tools available for goodness of-fit tests. Among those tests, the Chi-square test and Kolmogorov-Smirnov (K-S) test are commonly used as goodness-of-fit tools.

### (a) Chi-square Test

Lotka's law of author productivity explains the number of authors who have contributed 'n' number of papers. Potter identified the Lotka's fraction  $1/an - 4.65$  on the basis of Euler – Maclaurin formula of summation. This model is applied in the present study.

The sum was used as deviser for  $1/n - 4.65$  to determine the proportion of the total number of authors expected to produce 'n' paper (in the case of present study  $n=1, 2, 3, 4, \dots 10$ ), the following formula was used to find the proportions.

$$S = \sum 1/n - 4.65$$

For the present study S is the sum of Lotka's modified ratios for the value  $a = 4.65$ .

The formula

$$A_n = 1/n \cdot 4.65 \cdot T/S \quad (n = 1, 2, 3, \dots, 10)$$

Where T is total number of authors in the sampling and 'An' is the total number of expected authors producing 'n' papers.

The Lotka's law is also tested with the application of scientific productivity using chi-square model in relation to a number of authors who contributed 'n' number of publication.

It can be expressed by the equation  $a_n = a_1/n^2$ ,  $n = 1, 2, 3$

Where 'an' is the numbers of authors contributing 'n' papers each; and a1 is the number of authors contributing each one paper.

The chi-square can be computed as  $(F-P)^2/P$ .

F = observed number of authors with 'n' publications

P = expected number of authors.

If the observations in a sample fall into certain specified categories or classes it may be of interest to know whether the observed frequencies differ significantly from those which could be expected in these categories on the basis of certain hypotheses or theoretical considerations. The  $\chi^2$ - test is useful in finding out where a theoretical distribution like Lotka's Law or any other, fits the given observations satisfactorily or not.

#### (b) K-S Test

The test is accomplished by finding the theoretical cumulative frequency distribution which would be expected under the null hypothesis  $[F(x)]$  and comparing it with the observed cumulative frequency distribution  $[S_n(x)]$ . The point at which these two distribution, theoretical and observed show the maximum deviation is determined. Let  $D = \text{Maximum } |F(x) - S_n(x)|$ . The value of D is calculated and compared with the critical value. The null hypothesis is rejected if the calculated value of D is greater than critical value; otherwise not.

#### Lotka's Law of Author Productivity

Generally author productivity is determined on the basis of number of papers contributed by the Research output literature in a specific field. It is quite relevant to study the impact of Lotka's Law in examining the author productivity in Fossil Fuels Research output. Table 6 presents the results of author productivity based on Lotka's Law.

**Table 6 Authorship pattern productivity of the publications**

x	g(x)	lnx	lng(x)	ln(x).lng(x)	ln(x).ln(x)
1	1974	0.00	7.59	0.00	0.00
2	2697	0.69	7.90	5.48	0.48
3	2684	1.10	7.90	8.67	1.21
4	2235	1.39	7.71	10.69	1.92
5	1501	1.61	7.31	11.77	2.59
6	979	1.79	6.89	12.34	3.21
7	519	1.95	6.25	12.17	3.79
8	325	2.08	5.78	12.03	4.32
9	198	2.20	5.29	11.62	4.83
10	108	2.30	4.68	10.78	5.30
11	63	2.40	4.14	9.93	5.75
12	50	2.48	3.91	9.72	6.17
13	19	2.56	2.94	7.55	6.58



14	16	2.64	2.77	7.32	6.96
15	9	2.71	2.20	5.95	7.33
16	8	2.77	2.08	5.77	7.69
17	13	2.83	2.56	7.27	8.03
18	8	2.89	2.08	6.01	8.35
19	3	2.94	1.10	3.23	8.67
20	4	3.00	1.39	4.15	8.97
21	6	3.04	1.79	5.46	9.27
22	1	3.09	0.00	0.00	9.55
23	4	3.14	1.39	4.35	9.83
24	4	3.18	1.39	4.41	10.10
26	1	3.26	0.00	0.00	10.62
28	1	3.33	0.00	0.00	11.10
29	1	3.37	0.00	0.00	11.34
31	2	3.43	0.69	2.38	11.79
34	1	3.53	0.00	0.00	12.44
36	1	3.58	0.00	0.00	12.84
42	1	3.74	0.00	0.00	13.97
60	1	4.09	0.00	0.00	16.76
67	1	4.20	0.00	0.00	17.68
71	1	4.26	0.00	0.00	18.17
77	1	4.34	0.00	0.00	18.87
78	1	4.36	0.00	0.00	18.98
		<b>100.29</b>	<b>97.74</b>	<b>179.04</b>	<b>315.48</b>

The Lotka's Law reveals the productivity frequency distribution of authors in a given subject/discipline. In this paper, an attempt has been made to study the applicability of the Lotka's Law to the publications of Fossil Fuels research output. For investigation it is applied that the value of 'n', 'C' and 'Critical value' of the data set, has been determined with the help of calculations made in the table shown below.

**Table 7 Calculation of N and C**

x	y	cf	logx	logy	XY	X <sup>2</sup>
1	1974	1974	0.000	3.295	0.000	0.000
2	2697	4671	0.301	3.431	1.033	0.091
3	2684	7355	0.477	3.429	1.636	0.228
4	2235	9590	0.602	3.349	2.016	0.362
5	1501	11091	0.699	3.176	2.220	0.489
6	979	12070	0.778	2.991	2.327	0.606
7	519	12589	0.845	2.715	2.295	0.714
8	325	12914	0.903	2.512	2.268	0.816
9	198	13112	0.954	2.297	2.192	0.911
10	108	13220	1.000	2.033	2.033	1.000

11	63	13283	1.041	1.799	1.874	1.084
12	50	13333	1.079	1.699	1.833	1.165
13	19	13352	1.114	1.279	1.424	1.241
14	16	13368	1.146	1.204	1.380	1.314
15	9	13377	1.176	0.954	1.122	1.383
16	8	13385	1.204	0.903	1.087	1.450
17	13	13398	1.230	1.114	1.371	1.514
18	8	13406	1.255	0.903	1.134	1.576
19	3	13409	1.279	0.477	0.610	1.635
20	4	13413	1.301	0.602	0.783	1.693
21	6	13419	1.322	0.778	1.029	1.748
22	1	13420	1.342	0.000	0.000	1.802
23	4	13424	1.362	0.602	0.820	1.854
24	4	13428	1.380	0.602	0.831	1.905
26	1	13429	1.415	0.000	0.000	2.002
28	1	13430	1.447	0.000	0.000	2.094
29	1	13431	1.462	0.000	0.000	2.139
31	2	13433	1.491	0.301	0.449	2.224
34	1	13434	1.531	0.000	0.000	2.345
36	1	13435	1.556	0.000	0.000	2.422
42	1	13436	1.623	0.000	0.000	2.635
60	1	13437	1.778	0.000	0.000	3.162
67	1	13438	1.826	0.000	0.000	3.335
71	1	13439	1.851	0.000	0.000	3.427
77	1	13440	1.886	0.000	0.000	3.559
78	1	13441	1.892	0.000	0.000	3.580
			43.554	42.447	33.769	59.503

$$n = \frac{N \sum XY - \sum X \sum Y}{N \sum X^2 - (\sum X)^2}$$

$$n = (((36 * 33.769) - (43.554 * 42.447)) / ((36 * 59.503 - (43.554^2))))$$

$$n = -2.58$$

$$c = \frac{1}{\sum_{i=1}^{p-1} \frac{1}{x^n} + 1 / ((n-1)(p^{n-1}) + 1/2 * p^n + n/24 * (p-1)^{n+1})}$$

$$C = ((1 / ((0.005568 + 0.00022 + 0.000003))))$$

$$C = 172.68$$

Where p is equal to the number of observed or fixed value. Pao (1985) checked that the residual mistake is no significant if P is equal to 20. In the verification of the law using the K-S test formulae, the fitness of one dataset to another data, i.e observed and expected authors combine for the test.

**Table 8 K-S test on Observed and Expected Distribution of authors**

x	g(x)	fof	cf	fef	cf	Dmax
1	1974	0.15	0.15	172.68	172.68	-172.53
2	2697	0.20	0.35	28.88	201.56	-28.68
3	2684	0.20	0.55	10.15	211.70	-9.95
4	2235	0.17	0.72	4.83	216.53	-4.66
5	1501	0.11	0.83	2.72	219.25	-2.60
6	979	0.07	0.90	1.70	220.95	-1.62
7	519	0.04	0.94	1.14	222.09	-1.10
8	325	0.02	0.96	0.81	222.89	-0.78
9	198	0.01	0.98	0.60	223.49	-0.58
10	108	0.01	0.99	0.45	223.94	-0.45
11	63	0.00	0.99	0.36	224.30	-0.35
12	50	0.00	1.00	0.28	224.58	-0.28
13	19	0.00	1.00	0.23	224.81	-0.23
14	16	0.00	1.00	0.19	225.01	-0.19
15	9	0.00	1.00	0.16	225.16	-0.16
16	8	0.00	1.00	0.14	225.30	-0.13
17	13	0.00	1.00	0.12	225.42	-0.11
18	8	0.00	1.00	0.10	225.52	-0.10
19	3	0.00	1.00	0.09	225.60	-0.09
20	4	0.00	1.00	0.08	225.68	-0.08
21	6	0.00	1.00	0.07	225.74	-0.07
22	1	0.00	1.00	0.06	225.80	-0.06
23	4	0.00	1.00	0.05	225.86	-0.05
24	4	0.00	1.00	0.05	225.90	-0.05
26	1	0.00	1.00	0.04	225.94	-0.04
28	1	0.00	1.00	0.03	225.98	-0.03
29	1	0.00	1.00	0.03	226.00	-0.03
31	2	0.00	1.00	0.02	226.03	-0.02
34	1	0.00	1.00	0.02	226.05	-0.02
36	1	0.00	1.00	0.02	226.06	-0.02
42	1	0.00	1.00	0.01	226.08	-0.01
60	1	0.00	1.00	0.00	226.08	0.00
67	1	0.00	1.00	0.00	226.08	0.00
71	1	0.00	1.00	0.00	226.09	0.00
77	1	0.00	1.00	0.00	226.09	0.00
78	1	0.00	1.00	0.00	226.09	0.00
879	13441	1.00	33.39	226.09	8002.35	-225.09

The maximum deviation between the cumulative distributions was found as  $D_{max} = 23$  which is more than the critical value observed i.e. C.V. = 23.269. Hence, it can be declared, that the K-S test reveals that the present data set doesn't confirm the applicability of Lotka's Law in the field of Fossil Fuels Research output publications.

### Chi-square test

To prove whether the author's productivity frequency is according to Lotka's law or not, the Chi-square-goodness-of-fit test is applied to the data set. It is shown in Table 9.

**Table 9 Lotka's Law of Author Productivity-Chi-Square Test**

No. of Authors	Observed No. of authors with 'n' or (an) or (f)	Expected No. (an=an/n <sup>2</sup> )	Expected No. of authors or (p)	(F-P) <sup>2</sup> /P
1	1974	1974.00	8307.38	4828.44
2	2697	674.25	2837.51	6.96
3	2684	298.22	1255.04	1626.99
4	2235	139.69	587.86	4615.15
5	1501	60.04	252.67	6167.36
6	979	27.19	114.45	6531.12
7	519	10.59	44.57	5049.49
8	325	5.08	21.37	4313.87
9	198	2.44	10.29	3425.24
10	108	1.08	4.55	2354.84
11	63	0.52	2.19	1687.57
12	50	0.35	1.46	1612.33
13	19	0.11	0.47	725.47
14	16	0.08	0.34	713.52
15	9	0.04	0.17	463.35
16	8	0.03	0.13	470.78
17	13	0.04	0.19	866.93
18	8	0.02	0.10	600.01
19	3	0.01	0.03	251.38
20	4	0.01	0.04	372.23
21	6	0.01	0.06	616.80
22	1	0.00	0.01	113.02
23	4	0.01	0.03	494.84
24	4	0.01	0.03	539.51
26	1	0.00	0.01	158.64
28	1	0.00	0.01	184.30
29	1	0.00	0.01	197.84
31	2	0.00	0.01	452.71
34	1	0.00	0.00	272.69
36	1	0.00	0.00	305.96
42	1	0.00	0.00	417.16
60	1	0.00	0.00	853.43
67	1	0.00	0.00	1064.68
71	1	0.00	0.00	1195.84
77	1	0.00	0.00	1406.85
78	1	0.00	0.00	1443.68
879	13441	3193.85	13441.00	56400.97

Further the Lotka's Law was also tested with application of Chi-square model in relation to the number of authors who contributed n number of publications. It is observed from the Table 9 that the calculated chi-square value (56400.97) is lesser than the table value at 0.05 growth level of significance. Therefore the growth of 'Fossil Fuels research output' does fit with the lower pattern and the analysis of quantum of productivity theoretically validated Lotka's findings. From the above analysis, it is inferred that Lotka's Inverse Square Law does not apply to the 'Fossil Fuels research output' studied. However it is to be mentioned that Lotka's Law to be treated as general and theoretical estimate of productivity not as precise statistical distribution.

### **Conclusion:**

The present study could review that there are 13441 numbers of publications indexed by web of science databases under the subject category of Fossil Fuels Research output for the study period 1989-2019. There are 940 journals which has published the research output on Fossil Fuels, by 50262 number of authors from 8219 number of institutions, located in 140 number of countries. It is also found that the publications on Fossil Fuels Research output have got 475797 numbers of Global Citations.

Bibliometric and /or scientometric analysis is a reliable tool to evaluate the development and quality of scientific publications. The study quantitatively identified the Fossil Fuels Research output pattern and trends. The data suggests that there was a significant amount of research output in the field of Fossil Fuels during the study period. The analysis shows that there is a common set / nucleus zone of journals publishing Fossil Fuels Research output, which is scattered among many sources of publishing.

The preference of the academicians seems to be the journals with a broader scientific scope, that attract wider readership and high impact factor, rather than the journals with focused fields of specialization. The journal distributions in Fossil Fuels Research output conform to the Bradfords's Law of Scattering. In case of Lotka's law validation, the chi-square method is closer to the observed values of Fossil Fuels Research output as compared with Maximum likelihood.

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## Study of Vegetative Morphology of Melghat Trees by Using Digital Photographic Method as an Integrated Tool for Species Identification

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### Abstract :

*Present study was based on data recording, field survey and collection of specimens. Distribution of the trees species and their diversity appeared to be strongly related to environmental factors. Study of trees species was completed by collecting all the required information available with respect to morphodiversity, e.g. specimen sample collection, photographs, description, illustrations, height and girth data and bark features. Here significant amount of digital plant images as specimens were available in our photographic collections which were helpful in understanding this area. It could assist in constructing a database, as initiative was taken by the present researcher in this regard. Image specimen's sets showed photographic digital images with important morphological features of the different tree species and the time, date, and location of image collection. Digital visual plants were used as tools for the manipulation of data by digitizing, arranging, organizing and integrating species information. It was the image based tool for plant diversity research. This study provided base line information to understand the diversity of the species in the tropical dry deciduous forest of MTR by using digital photographic method as an integrated tool.*

**Key Words:** Biodiversity, Biodiversity Informatics, Satellite, Digital Technology, MTR

### Introduction:

The Melghat Tiger Reserve is situated in the Satpura range of hills within the 'Central Highlands' province of the Deccan Biogeographic Zone of Peninsular India. MTR in the southern Satpuras is located in Dharni and Chikhaldra Tahasils of Amravati District of Maharashtra ( $21^{\circ} 15' N$  to  $21^{\circ} 45' N$  Latitude and  $76^{\circ} 57' E$  to  $77^{\circ} 30' E$  Longitude) about 50 km from Parathwada. The Tiger Reserve is bounded on three sides by the forests of the East, West and South Melghat Divisions and by the Tapti River to the North and Betul District of Madhya Pradesh in the north and northeast. In 1973, areas of 1572 km<sup>2</sup> of the Melghat forests were declared as a Tiger Reserve, which included the Dhakna - Kolkaz Wildlife Sanctuary. Later 308.24 km<sup>2</sup> of the core area of tiger reserve and 53.60 km<sup>2</sup> of buffer were given the status of Melghat Wildlife Sanctuary in 1985. In 1987, Gugamal National Park was carved out of the Melghat Wildlife Sanctuary. It comprises the Gugamal National Park, Melghat Wildlife sanctuary and the the Multiple Use Area (MUA). MTR currently includes 1262 km<sup>2</sup> of the Melghat Sanctuary, 350 km<sup>2</sup> of Wan, Ambabarwa and Narnala sanctuaries and 362.80 km<sup>2</sup> of Gugamal National Park. MTR consists of a succession of hills and valleys, marked by abrupt changes in altitude, aspect and gradient. The southern part of the reserve is more rugged than the rest of the region. The area is drained by a number of streams in addition to 5 major rivers viz., Khandu, Khapra, Sipna, Garga and Dolar, whcih form the tributaries of Tapti river. The drainage is towards north and northwest of the reserve. The area of the reserve gradually descends towards the northwest about 950 m above MSL in the east and to about 381 m above MSL in the west, near the Tapti River (Musavi et al., 2006).

## **Review of Literature :**

Wattenberg and Breckle (1995) studied tree species diversity of a premontane rain forest in the Cordillera De Tilaran, Costa Rica. The study plot consisted of 25 squares of 20×20 m, located at an altitude of about 1000 m. Dominance and abundance of tree species was critically discussed. About 94 species of trees (DBH ≥ 10 cm) from 40 families of Angiosperms were recorded. The canopy of the study-plot reached a height of 40m. The mightiest canopy layer was formed at medium height between 10 to 20m by 55% of all trees. Valencia et al., (2004) mapped and studied tree species distributions and local habitat variation in the Amazon. The largest number of species was mid –sized canopy trees with maximum height 10-20m and understory treelets with maximum height of 5-10m. There were no more than three distinct vegetation zones: valley, mid-slope, and upper ridge, and the latter two differed only slightly in species composition. Similarity species composition declined with distance even within a topographic habitat, to about the same degree as it defined between habitats. Linares-Palomino (2005) studied spatial distribution patterns of trees in a seasonally dry forest in the Cerros de Amotape National Park, northwestern Peru in six one hectare plots. Aim of the paper was to examine the spatial structure of characteristic tree species of a seasonally dry forest and to discuss the results in the light of the biological and anthropogenic factors that could produce them. The result of their study showed clumped, random and regular patterns for *B. graveolens*.

Kharwal et al., (2007) studied distribution characteristics of the tree species in central Himalaya, India. The Himalayas were well outside the tropics, therefore, climatic conditions and different vegetation types were very close to those of more northerly latitude. A total of 257 tree species were recorded and studied for their pattern and altitudinal distribution in Central Himalaya. Relatively higher percentage (65%) of deciduous species was recorded. Their study concluded the distribution of trees in central Himalaya, depended upon climate, soil, temperature and altitude. Chao et al., (2007) evaluated the spatial distribution patterns of trees in a lowland rainforest in the 5.88 ha Lanjenchi plot of the southernmost Taiwan. Among the 88 species with more than 15 individuals, 87.5% had an aggregated distribution pattern, and 9.1% species were randomly distributed. Rare species tended to be more aggregated than common species at all distance scales. The authors found that the habitat differentiation was likely to be one of the factors that control species distributions in the lowland rainforest of Taiwan. Hedge et al., (1998) studied variation in bark thickness in a tropical forest community of Western Ghats in India. They examined the relation between bark thickness and girth in a large sample of trees from evergreen and semi-evergreen rain forest. There was a significant tendency for bark thickness to increase with tree girth. They found a significant trend for species from more disturbed habitats to possess thicker bark. Species from more disturbed habitats also had a greater propensity for secreting gums and resins. communities created by different levels of disturbance.

Seetharam et al., (2000) worked on structure, composition, regeneration, status and plant diversity of Bidar District of North-eastern Karnataka. On the basis of dominance of the series of plant communities occurring in the forest were a) *Chloroxylon swietenia*-*Anogeissus latifolia*-*Acatia chundra*. b) *Albazia amara*-*Bauhinia racemosa*-*Lannea coromandelica*, c) *Dalbergia paniculata*-*Butea monosperma*-*Soymida febrifuga*. The girth and height distribution of trees and shrubs of the different classes showed 'L' shaped curve. Hajra et al., (2002) studied population structure of corridor forest through density diameter relationship between Rajaji and Corbett National Park, Uttarnchal, India. The diameter distribution curves showed that in most of the

cases there was an equal representation of individuals in the intermediate girth classes. In many cases the old trees with higher girth at breast height (gbh) values were seen to be exceptionally less thus leading to the preponderance of intermediate aged stands. Therefore the results obtained indicated that all communities show a more or less equal distribution of individuals in the intermediate gbh classes. Pant (2003) worked on the structure, composition, regeneration status and plant and animal diversity of the North and South Betul forest divisions in Madhya Pradesh. Diversity of plant species tended to decrease in old growth stands, steep slopes, very disturbed area i. e. areas around villages or recently felled coups, very dry areas, areas that had experienced fires in the recent past etc. Areas in valley flats, riparian areas, remote and less disturbed areas etc. showed a high diversity. The Satpura Conservation Area was a large block of Protected Areas and Managed forests. The porosity of the area was more in Managed Forests while the Protected Areas were more or less contiguous blocks of forest. Image specimen sets should include standardized high resolution digital images of taxonomically important features of the organism, and the time, date, and location of image collection. (Baskauf and Kirchoff, 2008).

Historically, botanists have collected, pressed and dried plant specimens as a mechanism of recording botanical diversity. Herbarium specimens have important role in assisting in plant identification, and teaching taxon recognition. They are particularly effective in these roles when they represent all parts of the plant. Visual plants are at first a specimen-based database with an automatic function to compile the information as species-based. It can use on-site without having an internet connection for the education of students for dissemination of information and taxonomic and ecological research (Dalitz and Homeier, 2004). The 'digital forest' provides a stable database to develop test models, and is accessible for planning new experiments and future research. The forest database proves to facilitate research efficiency and capability. The wealth of digital data permits the development of new approaches to using spatial information for forest management. Generally, digital forestry is defined as the science, technology, and art of systematically acquiring, integrating, analyzing and applying digital information to support sustainable forests. Digital forestry database of high efficiency and perfection could improve sustainable forest management and be useful in the process of sustainable forestry development (Jingzhu et al., 2006).

Digital technologies allow several new possibilities for addressing or reducing the difficulties of making series mapping accessible and available. The tools for accessing series mapping in the non-digital world have traditionally been either text based lists or graphic indexes. In digital world, both of these methods still have value and with modification, could extend and enhance the effectiveness of their hard-copy equivalents. New technologies in dynamic mapping services, using technologies to crop and geo-reference, and common geospatially index component images extend the value even further. These newer methods have no offline equivalent or antecedent, but they have tremendous capabilities to not only locate desired "trees within the forest" in numerous ways, but to view and interact with these "trees" once located (Fleet, 2006). Biodiversity Information System (BIS) involves all kinds of heterogeneous data, which include ecological and geographical features. One representative example of such problems appear in the context of biodiversity, where expert end-user must contend with at least two kinds of unrelated systems: Biodiversity information Systems (BISs) and image information systems. The later involve software that allow user to manage images'



content (e.g., patterns, shape, color, texture). In the biodiversity context, they are adopted by scientists for their image archives to help them identify species (Torres et al., 2007).

### **Materials and Methods:**

Melghat Tiger Reserve Maharashtra located under East Dhargad Circle and is situated in between Gullarghat village and the Narnala Fort. The survey was carried out during study period to acquaint with the forest area, often visits were arranged of the place by taking help of forest guards, foresters, ranger, and collected first-hand information of natural habitat research area. There are total 715 compartments or vegetation monitoring plots (VMP) in MTR. These plots have been monitored and observed, periodically. The East Dharghad Circle is consisting of 18 plots. The vegetation cover was studied, plants counted, and species enlisted. Accurate data of tree size and number was prepared. In the present study especially the tree species were selected because the trees were economically and medicinally important and they show lot of diversity among them. The trees are perennial so the morphodiversity study can be carried out through out the year. Moreover, flowering and fruiting period of the trees are different, and the morphological characters are visible with naked eyes. Study of diversity was done up to the family, genus and species level. The whole information was carried over further to computational study. The data collection process of the research area was started with the assistance of forest staff and local residents. Firstly, the formats were made in Marathi as it was the language of conversation of the forest staff and residents; finally this information was transformed into English. Tree height and girth were recorded. Inventory of tree species was generated by noting local, botanical names and taxonomical description of the plant in order to make the data ready for computation study. The biodiversity information was gathered and processed by applying bioinformatics tools.

Trees were coded, tagged, and labeled with unique tree code. The tree height was measured with the help of bamboo by doing feet wise marking on it, and in case of very tall and tallest trees the height was measured by climbing on tree if necessary. The girth of the tree was measured by measuring tape. The height and girth data was important criteria for evaluation of research site in relation to number of tree species, genera, and families. The bark specimens are collected by cutting small portion of the bark of the trees and tagged. External features like colour and texture of the bark was studied. The information on medicinal use of the bark was collected from local tribal inhabitants. Bioinformatics is more of a tool than a discipline. Information technology makes usage of software, hardware and internet based communication systems for the analysis of Biological Data. Using World Wide Web, the information on vegetation cover was prepared. The photo graphs were down loaded from the internet. Aerial satellite photographic method was useful for mapping large scale forest area. Accurate identification of spot-vegetation potential was done, and topographic situations were well labeled. The series of photographs helped in proper interpretation. Visual photographs were easier for understanding the position of vegetation.

### **Observations and Results:**

The current research study deals with the survey and distribution of trees species of Melghat Tiger Reserve. With the support of forest staff of East Dharghad Circle, a field survey was carried out. During this survey, Melghat Sanctuary was found to be a suitable area for study. The research area was showing maximum variability in vegetation type and topography. This forest was of dry mixed deciduous type hence there was always fear of forest firing in summer.

The number of trees showed leaf fall during summer season and many of them had timber value. It was observed that the Teak (*Tectona grandis* Linn.) was the predominant species of the forest area. Present study was based on data recording, field survey and collection of specimens. It was seen that at ground level, tree density was quite good, while tree population was sparse with low vegetation growth at upper middle area of the hills where the vegetation was exposed directly to the sunlight. Some part of the compartment was close to core area and rest was under buffer zone. Distribution of the trees species and their diversity appeared to be strongly related to environmental factors. Study of trees species was completed by collecting all the required information available with respect to morphodiversity, e.g. specimen sample collection, photographs, description, illustrations, height and girth data and bark features.

The most common teak associates in this forest area were *Lagerstroemia parviflora*, *Lannea coromandelica*, *Phyllanthus emblica*, *Terminalia tomentosa*, *Anogeissus latifolia*, *Desmodium oojeinensis*, *Boswellia serrata*, *Wrightia tinctoria*, *Cassia fistula*, *Bauhinia racemosa*, *Butea monosperma* and *Mitragyna parviflora*. Some trees were so notable that could catch the eye attention in hot dry deciduous summer by being lush green in otherwise dry deciduous leafless forest, the most prominent being *Terminalia* sp., *Madhuca* sp., *Buchanania* sp., *Diospyros* sp., *Lagerstroemia* sp., *Butea* sp. and *Ixora* sp. The bark also showed variability from thin scaly, papery, smooth, greenish, to thick furrowed, and spiny; most of them showing vertical cracks, ridges and furrows and of various colours. Species diversity, height and girth i.e. growth of the trees was dependent primarily on age of the individuals and truly on ecological conditions of the forest area of research. This study provided base line information to understand the diversity of the species in the tropical dry deciduous forest of MTR. Satellite photographic images of research area was relatively new method in computing was attempted to improve modeling of the real world. This data images used to solve the information in handling large complex spatial data. The main intension of using this digital image processing system was to provide current status of forest with its potentially important data for monitoring, planning, conservation and management of the forest. Satellite data was mapped and magnification of areas was done to focus it in maximum possible closer view. Overall the Melghat forest exhibited dense crowded patches of vegetation. The Melghat sanctuary and its peripheral area was clearly demarcated by labeling surface area. These are the usage of new technology in monitoring forest cover which describes relationship in between real world and its computer representation. Aerial digital satellite maps provided accurate and real picture of geographical distribution of the research area. This was achieved by using software MS-Internet Explorer (Web browser), Adobe ImageReady CS, Adobe Photoshop CS, and Corel Graphics suite 11. The satellite maps were prepared with the support of Google Earth Maps searching tool. This software's were used to visualize captured data and to zoom it many more times.

### Discussions:

Pant (2003) carried out ecological analysis of the Satpura conservation area landscape through stratified field sampling and Remotely Sensed data. The tree density ranged from 323 to 507. The trees in the protected areas were composed of various girth classes as against the managed forest which included trees of lower girth classes predominantly. Comparison of g.b.h. (Girth at breast height) class distribution of the selected tree species, across the areas, showed a significant difference in population structure. For the species like *Tectona grandis* and *Chloroxylon switenia*, plant parts other than seed/fruits were harvested, thus these species had

good regeneration in the managed forest. Species exploited for human use were, mainly fruits of *Emblica officinale*, *Madhuca indica* and *Buchnanian lanzan*. Similarly, The trees in the protected area were composed of various girth classes where trees of lower girth 30-60cm and height 15-20 ft class predominated. The important timber trees species *Tectona grandis*, *Haldina cordifolia* were cutting down heavily. Fruits of *Phyllanthus emblica*, *Madhuca longifolia*, *Buchnanian lanzan* and *Ziziphus mauritiana* etc. were collected by the local residents for the source of income to meet out daily expenses that badly affected tree vegetation of protected areas. Seetharam et al., (2000) worked on structure, composition of a dry deciduous forest of Bidar District of North-eastern Karnataka. Fabaceae was the most dominating family in terms of the species richness in the forest, followed by Rubiaceae (16), Combretaceae (12.47), Rhamnaceae (10.56), Euphorbiaceae (8.87), Meliaceae (5.97), Anacardiaceae (5.79) and Tiliaceae (4.5), Combretaceae was represented by only three species *Terminalia bellerica*, *T. arjuna*, and *Anogeissus latifolia*. In the, research area Anacardiaceae, Caesalpiniaceae and Combretaceae each represented 4 species (10%); Fabaceae and Moraceae each 3 species (8%); Rhamnaceae, Rubiaceae and Verbenaceae each 2 species (5%), Rest of the families represented only 1 species (3%). Family Combretaceae was represented by only three species i.e. *Terminalia bellerica*, *T. arjuna*, and *Anogeissus latifolia* in Bidar District of North-eastern Karnataka (Seetharam et al., 2000).

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## Digitization Impact on Consumer Behaviour Changed Their Buying and Payment Pattern

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### **Abstract:-**

*The Digitization has altered consumer behavior remarkably. Constantly changing in digital era their trends affects consumer behavior. These changes are realization is a necessity for their survival, the adoption of digitization momentum is likely to carry forward and became permanent. At present consumer often referred to as a "Smart consumer" has the power to make or break any brand or business with just a finger click and a single review, they can buy any thing within a single click and make their payment as same. Digitization provide an opportunity to their users to have a look on the information of the product provide by the E-commerce companies they can able to do comparison, they have various mode to make their payment with E-payment platform. Consumers are able to enjoy right to choice, place order and make their payment at any time 24\*7 at any place. At present we have latest updated technologies and increase in the usage of internet broadband connectivity and engagement of consumers is increasing day by day their results of changed in consumer behavior not even urban sector, rural sector also influence by Digitization. Consumer of those sectors changed their buying and payment pattern. In pandemic COVID-19 also have dramatically change in Consumer buying and payment pattern behavior during this period consumer prefer to their purchases and their payment on Mobile devices, social media also play a big role at this time to change in consumer behavior.*

*In this paper, we discuss how to digitization impact on consumer behavior changed their buying and payment pattern and also understanding and shaping in consumer behavior and also focus the specific impacts in various sectors on consumer behavior have shifted throughout the pandemic and how COVID-19 is transforming in all changes on consumer behavior such as shopping, payment, banking and many more.*

**Keywords:-** Digitization, consumer behavior, smart consumer, E-commerce, E-payment, mobile device , social media, COVID-19, pandemic .

### **Introduction:-**

In modern era, the study of consumer behavior has become necessary for every sector it's a very difficult to understand the current trends in consumer behavior because they are more capricious and less loyal, they have less time but are more conscientious. Consumer playing the distinct role such as buyer, payer and user. Digitization impact on consumer behavior it help the expansion in the availability of various products and services and easy to make their payment all has given to rise a new segment of consumer and new trendy life style. The new generation of consumers is easily adopt the digitization in their behavior and more prepared to move through this environment, mobility has increased with digitization. The relationship of consumer and brand has risen with the emergence of the broadband internet services . Now smart consumer



expect relevant content in relation to what they are doing any where, anytime, in the format they desire and on a device of their choice. Digitization aware and educate to their consumer. There is the biggest challenge in understanding consumer behavior the main difficulties involved in the conduct of research in consumer behavior are-consumer may have multiple buying and payment motives and is unable to express their main motive.

Now the pandemic COVID-19 has disrupted nearly every routine in day to day life the crises has caused consumers everywhere to change their behavior rapidly in large numbers. The pandemic COVID-19 has accelerated the shift towards a more digitally and triggered changes in online shopping and online payment behaviors that are likely to have lasting effects. At present consumers accessing easily in smartphones with high-speed data at any time and anywhere they prefer E-commerce, E-payment, E-banking etc. The Smartphones in particular is now a days it has an enormous impact on our everyday lives. In addition, online shopping and online payment spread into rural areas also, our prime minister Mr. Narendra Modi initiated the campaign for their Dream Project “Digital India” program more influenced to rural consumer towards with online platforms. Rural consumer also prefer to buy and pay in online platforms consumer behavior of rural sector change driven by digitization advancement. More and more consumer are buy and pay online they can compare the quality, price etc. of their product and easily make their payment behavior of consumer changed everywhere even they belong to any area or sector. The Digitization has changed consumer behavior permanently.

### **Review of Literature:-**

After studying in relevant studies. Most of previous researcher talked about consumer behavior in online shopping, their benefits, Digital literacy, Demographics factors, impact on digitization, Impact of Digital marketing on consumer behavior, Social media impact on consumer behavior, COVID-19 impact on consumer behavior, lockdown impact. Some of relevant study are finding from literature are presented below:-

- (1) Carolin Fitzke at 27, March(2019) in “ How the Digital Era Changed Consumer behavior” they explained that technologies have changed buyers relationships and their fundamental they influenced the business models, boundaries between offline and online are fading, advertisers need an omnichannel marketing strategy.
- (2) Ishan Chapadgaonkar Intern, BDE-International Business at being platinum World Pvt. Ltd. At August 11 (2020)” How has Digitization changed consumer behavior” reveled that the digital revolution has altered consumer behavior drastically, technology have refined how companies build customer relationship and influenced their business model these changes paves the way for newer opportunities, effective adaptation can help drive the image of brand of the organization to a newer height.
- (3) Noor UI Hadi at February(2020) in “ Impact of Digitization on Consumer buying behavior with respect to consumer Demographic Factors” they explained the digitization, consumer behavior ,relation to social media and consumer demographic factors, they explained the various factors have been explored in the relationship between Digitization and consumer buying behavior.
- (4) Aneesh Reddy on April 14 (2020) in “ COVID-19 impact : Consumers move more towards digital” they explained that COVID-19 pandemic has changed the way we work, shop and communicate, Covid-19 epidemic, creating a paradigm shift in consumer behavior.

- (5) Seema Mehta, Tanjul Saxena, Neetu purohit on 30, July (2020) in “ Paradigm amid Covid-19: Permanent or Transient” they explained about the consumer behavior approaches in times of crises, Market dynamics during COVID-19, changes in consumer shopping journey before, during and after the pandemic, spiritual approach of consumerism: The ‘Next Normal’ of consumer behavior.
- (6) Renu Singh, Garima Malik on 7 April (2019) in “ Impact of Digitization on Indian Rural banking customer: With reference to payment systems” explained the Digital payment procedure in rural India, cashless economy with ‘Aadhaar pay’ in rural India, impacting factors of digital payments, challenges of digital payment faced by rural India.
- (7) McKinsey & company on 24 July (2020) in their article “ Understanding and shaping consumer behavior in the next normal” revealed that consumer behavior and belief are changing fast, when consumers are curious and ecstatic by new experiences, even long-standing beliefs can change, making consumers more willing to repeat the behavior, shape emerging habits with new products and using contextual cues.

### Objectives of The Study:-

The objectives of the present study are:-

- (1) To assess the change in consumer buying and payment behavior and impact of digitization on consumer behavior.
- (2) To study how to change the consumer behavior change their buying and payment behavior.
- (3) To study the various factors influences to change in consumer behavior.
- (4) To study the impact of digitization on the consumer's new buying and payment behavior due to pandemic COVID-19 virus outbreak.
- (5) To study the digitization has been reached every sector and areas who influence to the consumer to change their behavior and improve their living of standard.

### Consumer Behavior Patterns :-

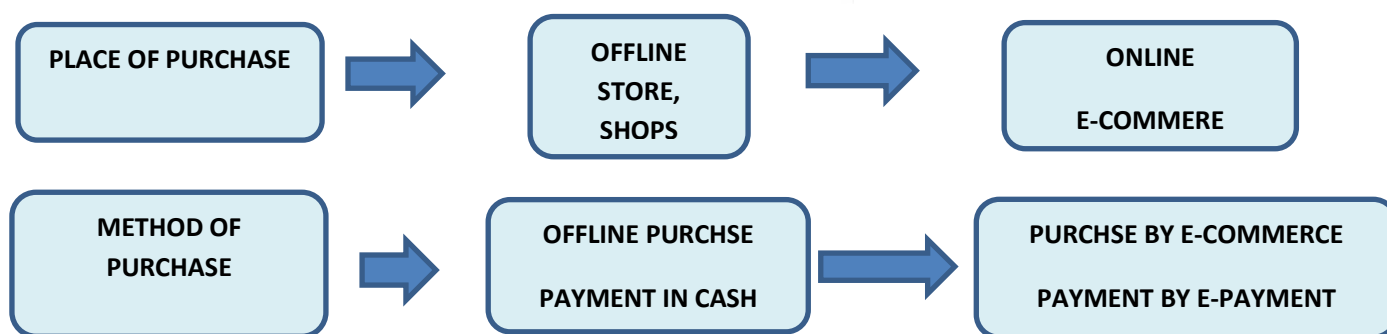


Figure 1: Own Processing

Source- google 4 Nov 2020

Each consumer has their special and unique buying and payment habits, while buying behavior and their payment behavior patterns are collective, offers by E-commerce sites or marketers, cash discount or incentives and cash back offers by e-payment platforms all has special and unique characterization. The impact of digitization on consumer behavior to change their buying and payment patterns to traditional to modern as on previous time consumer purchase their needs in Traditional shops, departmental stores etc. and make their payment in cash but in modern era digitization influence to consumer to change their behavior, they prefers E-commerce for their shopping and E-payment to make their payment easily and pandemic COVID-19 drive this consumer behavior change their buying and payment pattern.

### **Research Methodology:-**

The study is descriptive, quantitative cum analytical in nature. It is a blue print of the various elements of the study and objectives of research and the set of methodologies adopted to achieve those objectives. The sample in the study by respondent were obtained using random sample techniques. The data has been collected will then be processed using the Micro soft Excel application.

### **Collection of Data :-**

In every statistical investigation, the first and important thing is the collection in content method, structured questionnaire, and the survey method, collected data will be edited, coded, classified, tabulated and will be analyzed by micro soft word and excel.

### **Primary Data:-**

The primary data used in this study are obtained directly from respondents answers through the questionnaires. The questionnaire in this study was made using the Monkey survey site and google forms and then distributed online to 300 respondent who were give answer according to the topics.

### **Secondary Data:-**

Secondary data has been conducted to refine the available data from Research papers, Articles, Blogs, Newspapers, survey earlier conducted by E-payment and E-commerce companies.

### **Changes in Consumer Behaviour Due To Digitalization:-**

The rise of internet broadband and rapid increase of digitalization has had some intense and unpredicted effects on 21<sup>st</sup> century and COVID-19 proliferation this form. The impact of pandemic the consumer is more knowledgeable and prepared to move through this environment, mobility has increased with the technology available like as smart phones, computer, laptop, tablets and so on. A change in consumer buying and payment behavior due to digitization which entrust today's consumer with broad knowledge that we comfort them in making the best choice based their needs and convenience The baseline is that consumer buying and payment behavior is advance in digital retail which in revolve is driving for unceasing transformation. Consumers expect compatible content in relation to what they are doing anytime, anywhere, in the format they want and on a device of their choice and their convenience, to educate the consumer then annoyed the several digital platforms to make a buy and pay which could be online or offline. Here some the top trends that we need to focus on with respect to consumer behavior are:-

1. Use of Mobile apps for purchase and payment are outpacing the growth of even online platform, the convenience of mobile apps to the mind of the consumer is irreversible and impacting to consumer buying and payment behavior.
2. E-payment provide a harmonious experience to consumers from their smartphones, today's consumer adopt E-payment because of convenience and ease to use, their attractive incentive, cash back offers rewards and discounts such payments provide and it also has the necessary conformity and reliability features in place.
3. Social media play a big role to change in consumer behavior, it has made colossal leaps in today's world be it for staying in touch or connection the latest information and to compete with the current evolution many of social media sites such as Facebook, Instagram, Twitter, you tube etc.
4. Voice recognition their convenience is navigating today's consumer their buying and payment behavior towards a satisfying experience, consumer easily search with voice recognition for any product and services using their natural speech makes the entire process effortless and faster.
5. Virtual reality is also an important aspect of changing consumer behavior, it allows for consumers to experience the reality of the product in virtual world, this gives the customer a more pragmatic picture about the product they intend to purchase.
6. At digitization era consumers find that customization is available for several more product at affordable prices and many of payment apps with attractive rewards, incentives, discounts and cash back offers.
7. Reverse showrooming or webrooming is when consumers go for online shopping to search products, it help them to select products for buy later in a brick and mortar (offline)stores.

#### **How Covid-19 Pandemic Change in Consumer Behavior :-**

The pandemic COVID -19 is changing everything how we work, travel, communicate, shop, pay and many more. The pandemic has impacted virtually every aspects of our lives. some change have been unexpected and mandatory like as wearing masks, keep social distancing, restriction on public places, it is hardly accelerated the adoption of behaviors already acquire friction, such as digitization of shopping, payment, banking and many more. Todays consumers are sort out into new patterns of behavior with digitization for significantly length of time in reaction to the multiple waves of this pandemic. The E-commerce and E-payment sector has responded rapidly to the challenge of creating pragmatic experience in response to the pandemic. There are increased in use of digital device is obscure the lines between work, lifestyle and social interaction and between realm like mobility, health, finance and many more.

Here we see those key trends in the behavioral changes appear from the impact of COVID-19:

1. Change in buying behavior consumer move to value-based purchasing and online shopping.
2. Change in payment pattern due to pandemic many of consumer adopt E-payment to make their payment safely.
3. Increased digital adoption people adopt and enhance in use of digital platforms for regular needs.
4. Change in mobility patterns people more use remote working than use in public transport.



5. Increased awareness of health ,people more aware about hygiene they used digital platform to work in various sector.



### **Pandemic Changing the Trends in Consumer Behavior:-**

1. Consumers are being more mindful about their spending.
2. Consumer are going with digital tools and omni-channel and their expectations are changing.
3. Consumer are actively trying new apps, technologies for their convenience they have shown increasing interests in digital experiences and online content.
4. Consumer prefer to resume activities at home or with social distancing.
5. Outbound shopping and cash payment experienced significant reductions.
6. Adopt 3D technologies like 3D visualization, and 3D customization to make up for a lack of “touch and feel”.

### **Data Analysis and Discussion:-**

At present digitization play a vital role in modern era. Most of people prefer latest advanced technologies, it gives major impact on consumer behavior change their buying and payment pattern have from past few years. Majority of consumers change their buying and payment to online mode, They use E-commerce, E-payment and various digital platforms. The impact of COVID-19 also forced many consumer to go online shopping and online payment rather than direct shopping and direct cash payment. Hence, this gave me an opportunity to study on this topic to analysis their changes.

Research question of the study:-

- Digitization affects consumer buying and payment behavior.
- Impact of Digitization on consumer buying and payment behavior is affected by demographics factors.
- Impact of Pandemic Covid-19 on consumer buying and payment behavior.



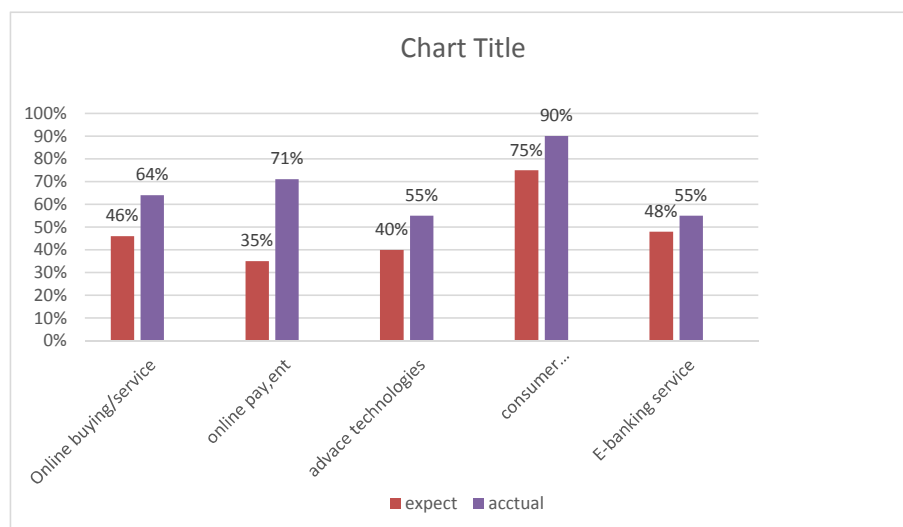
Table 1: Demographic profile of the respondents

Particular	No. of Respondent	Percentage
<b>A- Gender</b>		
Male	140	46.67
Female	160	53.33
Total	300	100%
<b>B- Qualification</b>		
Pg	65	21.67
Ug	140	46.67
Below 12 <sup>th</sup>	95	31.66
Total	300	100%
<b>C- Occupation</b>		
Salaried	55	18.33
Professional	45	15
Self Employed	110	36.67
House Wife	70	23.33
Others	20	6.67
Total	300	100%
<b>D- Age</b>		
Below 20 Years	50	16.67
21-39 Years	140	46.67
40-59 Years	80	26.67
Above 60 Years	30	10
Total	300	100%

Source:- Primary data.

Table 1 shows the total no. of respondents are participated and give their answer. Majority of respondents were females 160 (53.33%), Male respondents conceded of a total sum of 140 (46.67%), about 6.66 lesser than the female respondents. As demonstrated in the table the majority of 140 respondents comprised of graduated with 46.67%, 65 (21.67%) respondent had post graduate, 95 (31.66) respondent had an education level of below 12<sup>th</sup> of the total 300 respondents. The data obtained depicted in the table shows us occupation of respondents respectively 55 (18.33%) are salaried person, 45 (15%) respondents are professionals, majority of the group is 110 (36.67%) are self- employed, housewife are 70 (23.3%) and others are 20 (6.67%), as demonstrated in the table age statistics shows us that 50 (16.67%) respondents age are below 20 years, formed of majority with 140 (46.67%) respondents belong the age between 21-39 years, the second most majority among the respondent are 80 (26.67%) was the age bracket of 40-59 years, respondents of above 60 years are 30 (10%) made it to the total of 300 respondent.

**Figure 2: Responded To A Range of Covid-19 Related Changes -:**



source:- business lines June 2021.

As demonstrate in Figure 2 respondent to a various range of COVID-19 pandemic impact changes in consumer behavior expected and actual, COVID-19 impact on various sector but the help of digitization consumer behavior change and recover to new normal here we study about this change to read various article and blogs and get this change which are expected and whom are actual. Pandemic impact on online buying which is expected 46% change but actual are 64% this sector was boost in pandemic period due to lockdown, fear of spreading virus and many more reasons people use this service, In online payment users expected change are 35% but COVID-19 mostly impact this sector 71% change is actual, at advanced technologies change expected are 40% and actual change is 55%, consumer needs and expectation are change due to pandemic mostly consumers needs are essential and brand choice are also enhance at this time, COVID-19 impact on E-banking service too consumer use this service for their work at home 48% are expected change and actual are 55% there are lower difference in actual and expected cause of their inconvenience, lack of knowledge, fraud and many more.

**Table 2: The benefits of using online shopping and online payment towards consumer behavior top reason that consumer buy and pay online:-**

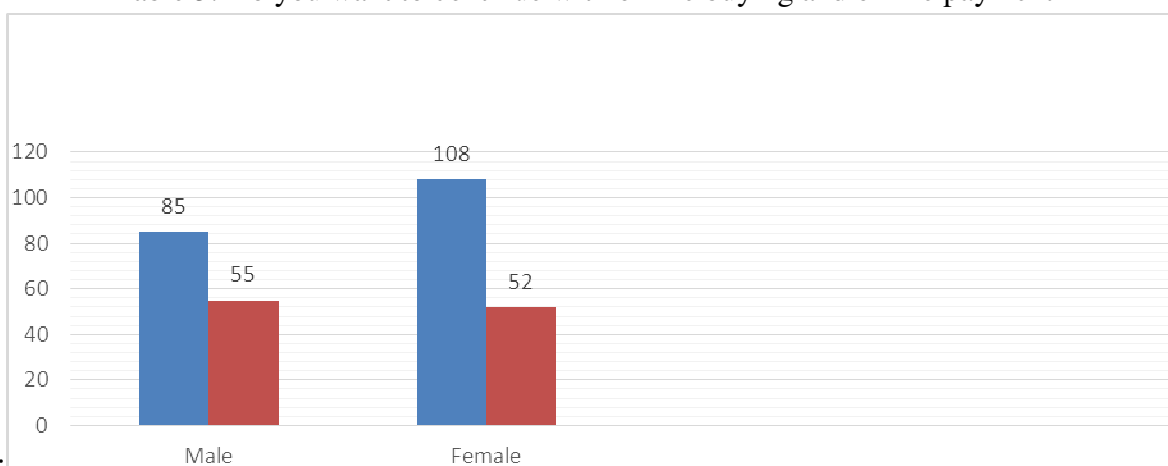
Below 20 years %	21-39 years %	40-59 years %	Above 60 years %
24*7 services 68%	Time saver 68%	Increase 72% Confidence	Hygiene 67%
Easier to find a 55% Specific product	It's more 66% Convenient	Easy to use 68%	Its more 63% Convenient
Easier to make a 58% Choice	Easier to find a 58% New product	Time saver 62%	Easy to use 60%
Easier to make a 62% Payment online	Easier to buy and 67% Pay for daily needs	Hygiene 60%	Easier to buy and 55% Pay online
It's more 68% Convenient	24*7 service 58%	Easy to buy and 57% Pay online	Increase 43% Confidence

Recent trends 52%	Increase 55% Confidence	Valuing 55% experience Over services	Easy to make a 48% Choice
I can have 56% Product Delivered And pay online At my home	I can have 50% Product delivered And pay online At my home	24*7 52% Services	I cant shop offline 45% Due to COVID-19 Period

Source:- primary data

Table 2 shows that different age respondent get different benefits for online shopping and online payment table are divided into four age group their benefits and percentage of respondent shown there, we can easily find that different age group get different benefits, now respondent answer shows that they leave traditional system of shopping and payment pattern calmly and adopt the new way of online shopping and online payment service. Digitization impact on consumer behaviour change their buying and payment pattern

Table 3: Do you want to continue with online buying and online payment-



Source:- primary Data

In table 3 shown that respondent want to continue with online buying and online shopping here we divide our respondent to male and female. 85 male respondent are say yes they continue with this service and 55 male respondent say no they can't continue with online buying and online payment due various problems such as fear of fraud, lack of knowledge , fear of advanced payment, complicated instruction, security issue and many more. 108 female respondent say yes and they continue use this service but 52 female respondent say no they can not continue with online buying and online payment service due to their problems. There are majority of positive male and female respondent. This shows that even through some difficulties from online buying and online payment but they still prefer to use this service continue.

#### Suggestions:-

- (1) Shop with reputable retailers and pay with easiest and secure methods.
- (2) Use a VPN and pick strong password.
- (3) Check site security before you buy and pay.
- (4) Guard your personal information.

- (5) Keep an eye out for fraud.
- (6) Avoid offers that seems “too good to be true”
- (7) Keep track of your bank statements.
- (8) Choose strong antivirus software.
- (9) Always place order and pay their payment online from a secure connection.
- (10) Watch out for strange emails and links.

### **Conclusion-:**

Considering the above study conducted on the Digitization impact on consumer behavior change their buying and payment pattern. Digitization has changed consumer behavior permanently, consumer easily purchase and payment on mobile devices, viva-voice assistants or within their social media feed on Instagram, Facebook, Snapchat and many more, boundaries between offline& online are fading. The combination and relationship of Digitization and consumer behavior is quite significant and can certainly increase adoption online buy and pay pattern. Not only various age group but Gender also play a key role in affecting consumer buying and payment pattern behavior which is impacted by Digitization. Now company used to focus on the buying and payment behavior of the younger age group and rural sector and their needs, convenient, buying and payment behavior alter. Age and rural sector segments helps to demonstrate the tendency to grow further. At present COVID-19 has molded our choices and preferences and hence the way we look at life, it may offer a new motivation for long-term behavior change, suggestive of a new segment of migrated consumers who with a new value of 'save and stockpile' and change their buying and payment habits will become more frugal, consumer are being more mindful about their spending. Consumer behaviors have always been changing with the time and this change were inevitable the rise of E-commerce and E-payment.

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**बांबू प्रक्रिया उद्योग संस्था-कॉनबॅक, कुडाळ : अर्थशास्त्रीय दृष्टीकोनातून अभ्यास****प्रा. मृण्मयी अशोक बांदेकर**

NET अर्थशास्त्र, वेंगुर्ला, सिंधुदुर्ग

**सारांश :-**

भारतासारख्या कृषिप्रधान परंतु; मोठ्या लोकसंख्येच्या देशात केवळ कृषीवर अवलंबून राहणे एकूणच देशाच्या दृष्टीने हिताचे नाही. त्यामुळेच द्वितीय व तृतीय क्षेत्रांना महत्व देणे अपरिहार्य ठरते. द्वितीय क्षेत्र म्हणजेच उद्योग क्षेत्राचा विकास होत असल्याने शेतीवरील ताण कमी होण्यास मदत होत आहे. शेती क्षेत्रातील आदाने अर्थातच कच्चा माल प्रक्रियेद्वारे प्रदानात म्हणजेच पक्क्या मालात परावर्तित होतो. द्वितीय क्षेत्रात उत्पादन, विपणन व वितरण याद्वारे त्याला योग्य दिशा मिळते. शिवाय या सर्व बाबींसाठी कुशल व अकुशल कामगारांची मोठ्या प्रमाणावर आवश्यकता भासते. परिणामी अनेक कुटुंबांना रोजगार संधी प्राप्त होते. द्वितीय क्षेत्रामुळे देशाच्या स्थूल उत्पादनात व पर्यायाने दरडोई उत्पन्नात वाढ होते. असाच एक उद्योग म्हणजे प्रक्रिया उद्योग. भौगोलिक प्रादेशिकतेचा विचार करता निसर्गातील उपलब्ध घटकांच्या वापराद्वारे प्रक्रिया केंद्रे सुरू करून विविध वस्तूंचे उत्पादन घेता येते. उदाहरणार्थ- कोकणात बांबूची लागवड मोठ्या प्रमाणावर होत असल्याने तेथे बांबू प्रक्रिया प्रकल्प स्थापन करण्यात आला असून **कॉनबॅक** ही कुडाळ येथील संस्था हा प्रकल्प यशस्वीरीत्या राबवत आहे. कॉनबॅक या बांबू प्रक्रिया उद्योग संस्थेचा अर्थशास्त्रीय दृष्टीकोनातून अभ्यास हा या संशोधन प्रकल्पाचा विषय असून त्यासाठी माहिती संकलन प्रश्नावली व प्रत्यक्ष मुलाखतीचे चे साह्य घेतले आहे. विश्लेषणासाठी सरासरी/टक्केवारी हे संख्याशास्त्रीय तंत्र वापरले आहे.

**कळ शब्द :-** बांबू प्रक्रिया, कोकण, कॉनबॅक, रोजगार संधी, अर्थव्यवस्था.**प्रस्तावना :-**

बांबू ही जलद वाढणारी, सदाहरीत व दिर्घायु प्रजाती आहे. बांबू लागवडीमुळे शेतकऱ्यांना आर्थिक सुरक्षा (economic security) मिळण्याची क्षमता आहे. याचाच विचार करून कॉनबॅक अर्थातच कोकण बांबू अँड डेव्हलपमेंट सेन्टरची स्थापना कुडाळ तालुक्यातील MIDC या औद्योगिक वसाहतीत २००४ साली करण्यात आली. डॉ. रामानुज राव हे त्या संस्थेचे अध्यक्ष असून पाच संचालक आहेत. येथे माणगा, भोर, कनक जातीचे जिल्ह्यात उपलब्ध असणारे बांबू प्रक्रिया प्रकल्पासाठी वापरले जातात. सुरुवातीला १ वर्ष कालावधी पूर्ण केलेल्या बांबूची मुळासकट काढणी करून लागवड केली जात असे. नंतर मात्र पेरापासून बांबू लागवड केली जाऊ लागली. विविध शोभेच्या वस्तू, विशिष्ट प्रकारचे गृहोपयोगी साहित्य, फर्निचर बांबू प्रक्रियेद्वारे तयार केले जाते. त्यासाठी तरुणांना बाजारयंत्रणेचे प्रशिक्षण दिले जाते. मुंबई, पुणे, कोल्हापूरसह दिल्ली, गुजरात येथे या वस्तूंना मोठी मागणी आहे. मालदीव येथे कॉनबॅकच्या कर्मचाऱ्यांनी बांधलेल्या रिसॉर्टला CNN या जागतिक संस्थेने जगातील उत्तम रीसॉर्ट्सच्या यादीत स्थान दिले आहे. शेतकऱ्यांना कॉनबॅकतर्फे बांबूच्या प्रतवारीनुसार व्यापाऱ्यांकडून मिळणाऱ्या दरापेक्षा अधिक दर मिळतो. सध्या ३ वर्ष पूर्ण झाल्यावर बांबूची तोडणी केली जाते. बांबूला सतत फुटवे येत असल्याने ते पर्यावरणपूरक आहे. कॉनबॅक संस्थेत UV लेझर प्रिंटरच्या आधारे बांबूवर प्रिंटिंग देखील केले जाते. सध्या ३०० कामगार येथे प्रत्यक्ष कार्यरत असून उल्लेखनीय

म्हणजे सर्व कामगार महिला आहेत. हजारो लोक अप्रत्यक्षपणे या कामाशी जोडले गेले आहेत. आंतरराष्ट्रीय स्तरावरही कॉनबॅक प्रगतीपथावर वाटचाल करत आहे. या सर्व मुद्द्यांचा परामर्श या संशोधन पत्रिकेत अर्थशास्त्रीय अनुषंगाने घेतला आहे.

#### **अभ्यासक्षेत्र :-**

कुडाळ हा महाराष्ट्रातील सिंधुदुर्ग जिल्ह्यातील तालुका असून तो १६.००८° उत्तर रेखावृत्त ते ७३.६८७°पूर्व अक्षवृत्तात स्थित आहे. येथे नगरपंचायत असून लोकसंख्या २०११ च्या जनगणनेनुसार १६,०१५ इतकी आहे. यात ५१% पुरुष तर ४९% महिला असून साक्षरतेचे प्रमाण ७८% आहे. कुडाळ तालुका हा सिंधुदुर्ग जिल्ह्याचे मुख्यालय ओरोस पासून १६. किमी तर महाराष्ट्राची राजधानी, देशाची आर्थिक राजधानी मुंबई येथून ४७४ किमी अंतरावर आहे. कुडाळचे वार्षिक तापमान २२ ते ४४°C च्या दरम्यान असून वार्षिक पर्जन्यमान ११०० मिमी इतके आहे. राष्ट्रीय महामार्ग क्रमांक ६६ कुडाळवरून जातो. शिवाय कुडाळ हे मुंबई व मंगलोर कडे जाणाऱ्या व तेथून येणाऱ्या रेल्वेसाठीचे स्थानक आहे. या ठिकाणी MIDC हे औद्योगिक क्षेत्र असून कॉनबॅक या बांबू प्रक्रिया संस्थेचे येथे कार्यालय आहे.

#### **उद्दिष्टे :-**

- १) स्थानिक पातळीवरील रोजगार संधी म्हणून कॉनबॅक प्रकल्प अभ्यासणे.
- २) द्वितीय क्षेत्रनिहाय कॉनबॅकच्या वाटचालीचा मागोवा घेणे.
- ३) कॉनबॅकचे कोकणच्या अर्थव्यवस्थेतील योगदान अभ्यासणे.
- ४) कॉनबॅकच्या राष्ट्रीय व आंतरराष्ट्रीय स्तरावरील कामगिरीचा लेखाजोखा मांडणे.

#### **गृहितके:**

- १) कॉनबॅकच्या माध्यमातून कोकणातील स्थानिक व पारंपरिक जनतेला रोजगार मिळाला आहे.
- २) कोकणच्या अर्थव्यवस्थेत कॉनबॅकचे योगदान लक्षणीय आहे.
- ३) आंतरराष्ट्रीय पातळीवर कॉनबॅक या संस्थेची कामगिरी उल्लेखनीय ठरत आहे.

#### **संशोधन पद्धती व नमुना निवड:**

संशोधिकेने संशोधन पद्धतींपैकी प्रत्यक्ष मुलाखत व प्रश्नावली पद्धत वापरली आहे. त्यासाठी संशोधन विषयासंदर्भात प्रत्यक्ष संस्थेला क्षेत्रभेट देऊन तेथील ३० कामगारांकडून प्रश्नावली भरून घेतली. तसेच ५ पैकी ३ संचालकांची प्रत्यक्ष मुलाखत घेतली. व त्याद्वारे माहिती गोळा करून त्याचे विश्लेषण केले गेले आहे.

#### **माहितीचे विश्लेषण व अर्थनिर्वचन :**

**सारणी अ) स्थानिक पातळीवरील रोजगार संधी म्हणून कॉनबॅक अभ्यासणे.**

अ.क्र.	कथन	होय	नाही
१	बांबू लागवड व उत्पादन या माध्यमातून स्थानिक व्यक्तींना मोठ्या प्रमाणात रोजगार मिळाला आहे का?	१००%	0%
२	कॉनबॅक प्रकल्पात सहभागी होण्यापूर्वीची परिस्थिती व सहभागी झाल्यानंतरची परिस्थिती यात सकारात्मक बदल घडल्याचे जाणवते का?	१००%	0%

३	बांबू प्रकल्पाची विस्तृत माहिती तळागाळातील स्थानिक लोकांपर्यंत पुरेशा प्रमाणात पोहोचली आहे का?	९०%	१०%
४	कॉनबॅक प्रकल्पात बांबू व्यतिरिक्त अजूनही पर्यावरणपूरक घटकांचा समावेश करता येईल का?	१७%	८३%
५	स्थानिक पातळीवर कुशल कामगार मिळवणे जिकिरीचे ठरते का?	७६%	२४%

स्रोत : संबंधित माहिती संशोधकाद्वारे संकलित केली गेलेली आहे.

### अर्थनिर्वचन :

स्थानिक पातळीवरील रोजगार संधी म्हणून कॉनबॅकच्या अभ्यासासाठी वरील प्रश्नांचे सहाय्य घेतले आहे. बांबू लागवड व उत्पादन या माध्यमातून स्थानिक व्यक्तींना मोठ्या प्रमाणात रोजगार मिळाला आहे का? व कॉनबॅक प्रकल्पात सहभागी होण्यापूर्वीची परिस्थिती व सहभागी झाल्यानंतरची परिस्थिती यात सकारात्मक बदल घडल्याचे जाणवते का? या दोन्ही प्रश्नांना १००% लोकांनी सकारात्मक प्रतिसाद दिला आहे. बांबू प्रकल्पाची विस्तृत माहिती तळागाळातील स्थानिक लोकांपर्यंत पुरेशा प्रमाणात पोहोचली आहे का? या प्रश्नाबाबत ९०% लोक होकारार्थी उत्तर देतात तर १०% लोकांना तसे वाटत नाही. कॉनबॅक प्रकल्पात बांबू व्यतिरिक्त अजूनही पर्यावरणपूरक घटकांचा समावेश करता येईल का? या प्रश्नाला १७% व्यक्ती सहमती दर्शवतात तर ८३% लोकांच्या मते केवळ बांबू उत्पादनच केले जाऊ शकते. स्थानिक पातळीवर कुशल कामगार मिळवणे जिकिरीचे ठरते का? या प्रश्नाला ७६% लोक सहमत आहेत. कारण बांबू पासून वस्तू निर्मिती हे जास्त कौशल्याचे काम आहे व या सर्वाना कॉनबॅक मार्फत प्रशिक्षण दिले जाते. तर २४% लोक याबाबत नकारार्थी मत देतात. ते पारंपारिकरित्या या कामात कुशल आहेत.

### सारणी ब) द्वितीय क्षेत्रनिहाय कॉनबॅकची वाटचाल

अ.क्र.	कथन	होय	नाही
१	बांधकाम क्षेत्रात बांबू उद्योगाचा विस्तार वाढत आहे का?	९०%	१०%
२	विविध उद्योगांमध्ये बांबू प्रक्रिया उद्योगाचा प्रसार व प्रचार मोठ्या प्रमाणावर होण्याची गरज वाटते का?	४६%	६४%
३	कोरोना परिस्थितीचा वाईट किंवा नकारात्मक परिणाम कॉनबॅकवरही मोठ्या प्रमाणात झाला आहे का?	१००%	०%

स्रोत : संबंधित माहिती संशोधकाद्वारे संकलित केली गेलेली आहे.

### अर्थनिर्वचन :

द्वितीय क्षेत्रनिहाय कॉनबॅकची वाटचाल या प्रश्नांद्वारे अभ्यासली आहे. बांधकाम क्षेत्रात बांबू उद्योगाचा विस्तार वाढत आहे का? यावर ९०% व्यक्ती सहमत आहेत तर १०% व्यक्तींना तसे वाटत नाही. विविध उद्योगांमध्ये बांबू प्रक्रिया उद्योगाचा प्रसार व प्रचार मोठ्या प्रमाणावर होण्याची गरज वाटते का? ४६% लोक होकारार्थी मत दर्शवतात तर ६४% लोक याला नकार देतात. कोरोना परिस्थितीचा वाईट किंवा नकारात्मक परिणाम कॉनबॅक वरही मोठ्या प्रमाणात झाला आहे का? याला १००% लोक सहमती दर्शवतात.

**सारणी क) कॉनबॅकचे कोकणच्या अर्थव्यवस्थेतील योगदान**

अ.क्र.	कथन	होय	नाही
१	कोकणचा विचार करता पर्यावरण व आर्थिक दृष्टीकोनातून बांबूपासून घरे ही संकल्पना संयुक्तिक वाटते का?	२०%	८०%
२	कॉनबॅक प्रकल्पातील वस्तू सर्वसामान्य जनतेलाही परवडतील अश्या प्रकारचे धोरण कॉनबॅक आखेल का?	१०%	९०%
३	कोकणची अर्थव्यवस्था अधिकाधिक समृद्ध होण्यासाठी कॉनबॅकच्या माध्यमातून विशेष प्रयत्न केले जात आहेत का?	१००%	०%
४	पर्यावरण आणि अर्थव्यवस्था यांचा बांबू प्रक्रिया उद्योगात समन्वय साधला गेला आहे का?	९७%	३%

स्रोत : संबंधित माहिती संशोधकाद्वारे संकलित केली गेलेली आहे.

**अर्थनिर्वचन :**

कोकणचा विचार करता पर्यावरण व आर्थिक दृष्टीकोनातून बांबूपासून घरे हि संकल्पना संयुक्तिक वाटते का? हे कथन २०% लोक स्वीकारतात तर ८०% लोकांच्या मते ते संयुक्तिक वाटत नाही. कॉनबॅक प्रकल्पातील वस्तू सर्वसामान्य जनतेलाही परवडतील अश्या प्रकारचे धोरण कॉनबॅक आखेल का? १०% व्यक्ती याला अनुकूल आहेत;परंतु ९०% लोक याबाबत प्रतिकूल आहेत. त्यांच्या मते, बांबू प्रक्रिया हा अत्यंत कौशल्यपूर्ण व खर्चिक प्रकार असल्याने असे धोरण आखणे आर्थिक हिताचे ठरणार नाही. कोकणची अर्थव्यवस्था अधिकाधिक समृद्ध होण्यासाठी कॉनबॅकच्या माध्यमातून विशेष प्रयत्न केले जात आहेत का? १००% लोक याबाबत अनुकूल आहेत. पर्यावरण आणि अर्थव्यवस्था यांचा बांबू प्रक्रिया उद्योगात समन्वय साधला गेला आहे का? ९७% लोक होय म्हणतात तर ३% लोकांचे मत नाही असे आहे.

**सारणी ड) कॉनबॅकची राष्ट्रीय व आंतरराष्ट्रीय स्तरावरील कामगिरी**

अ.क्र.	कथन	होय	नाही
१	बांबू प्रकल्पासंदर्भात शासनस्तरावर अधिक लक्ष पुरवण्याची गरज आहे का?	५३%	४७%
२	कॉनबॅकसारख्या संस्थांमधील बांबू प्रकल्पासाठी अधिक विविध योजना राबविल्या जाव्यात का?	१७%	८३%
३	आंतरराष्ट्रीय स्तरावर दखल घेतली गेल्याने येथील कामगारांच्या जीवनमानात फरक पडला आहे का?	७३%	२७%
४	आंतरराष्ट्रीय स्तरावर बांबू प्रक्रिया उद्योगाला मिळणारा प्रतिसाद प्रचंड आहे का?	५०%	५०%

स्रोत : संबंधित माहिती संशोधकाद्वारे संकलित केली गेलेली आहे.

**अर्थनिर्वचन :**

बांबू प्रकल्पासंदर्भात शासनस्तरावर अधिक लक्ष पुरवण्याची गरज आहे का? ५३% लोकांना तशी गरज वाटते. तर ४७% व्यक्ती म्हणतात की, शासन स्तरावर बऱ्याच अंशी दखल घेतली गेली आहे. त्यामुळे अधिक काही करण्याची आवश्यकता त्यांना वाटत नाही. कॉनबॅकसारख्या संस्थांमधील बांबू प्रकल्पासाठी

अधिक विविध योजना राबविल्या जाव्यात का? १७% व्यक्ती या कथनाला सहमत असून उर्वरित ८३% लोक नकारार्थी मत व्यक्त करतात. आंतरराष्ट्रीय स्तरावर दखल घेतली गेल्याने येथील कामगारांच्या जीवनमानात फरक पडला आहे का? ७३% लोकांना वाटते की त्यांचे जीवनमान उंचावले आहे; परंतु २७% लोक मात्र हे कथन नाकारतात. आंतरराष्ट्रीय स्तरावर बांबू प्रक्रिया उद्योगाला मिळणारा प्रतिसाद प्रचंड आहे का? या कथनाला समान म्हणजेच ५०% होकार व ५०% नकार असा प्रतिसाद लाभला आहे.

#### **निष्कर्ष:**

विविध सारणींच्या विश्लेषण व अर्थनिर्वचनाद्वारे तसेच प्रत्यक्ष क्षेत्रभेटीतून गोळा केलेल्या माहितीच्या आधारे असा निष्कर्ष निघतो की, कोकणातील पारंपरिक बांबू कारागिरांना, विशेषतः महिलांना रोजगार मिळाला आहे. शिवाय कोकणची अर्थव्यवस्था सुदृढ होण्यास मदत होत आहे. द्वितीय क्षेत्रात कॉनबॅकची वाटचाल प्रगतीपथावर आहे. कोरोना काळाचा नकारात्मक परिणाम कॉनबॅकवरही झाला आहे. तरीदेखील आंतरराष्ट्रीय स्तरावर कॉनबॅकची दखल घेतली जात आहे. तसेच पर्यावरण व अर्थव्यवस्थेचा योग्य समन्वय या संस्थेत साधला गेला आहे. शासन स्तरावर देखील अनेक योजनांद्वारे या प्रकल्पाला बळकटी मिळली आहे. थोडक्यात कोकणच्या अर्थव्यवस्थेत कॉनबॅक या बांबू प्रक्रिया संस्थेचे योगदान स्पृहणीय आहे.

#### **संदर्भ:**

- 1) व्यापारी बांबू लागवड-संपादन रावसाहेब पुजारी- तेजस पब्लिकेशन कोल्हापूर
- 2) बांबू लागवड- बांबू उद्योग- गोडवा कृषी प्रकाशन

#### **Website:**

[www.krushisamrat.com](http://www.krushisamrat.com)



## **ऐतिहासिक संशोधन पद्धती**

**डॉ. संजीवनी चंद्रशेखर बाराहाते**

इतिहास विभाग प्रमुख

बी. रघुनाथ महाविद्यालय परभणी.

### **प्रास्ताविक:**

इतिहास या विषयाला सामाजिक शास्त्राचा दर्जा प्राप्त झाल्यानंतर गेल्या दोनशे वर्षांत इतिहास संशोधन पद्धत रुढ होत गेली. जगभराच्या निरनिराळ्या देशात गतकाळाची चे पुरावे शोधले गेले. गेल्या चार-पाचशे वर्षांतली कागदपत्रे गुंडाळली गेली. या सर्व साधनाचा अन्वयार्थ लावून इतिहास संशोधन झाले असाच प्रयत्न भारतातही झाला असे असले तरी इतिहासातील वाटचालीचे सारेच धागे-दोरे उलगडले गेले आहेत असे मात्र नाही लक्षावधी वर्षांच्या या वाटचालीतील हजारो वर्षे अजूनही अज्ञानातच आहेत. याचा शोध घेतला गेला असला तरी अजूनही हजारो पुरावे जगभर विकृत पडलेले आहेत. याची नोंद घेतली गेली नाही त्यामुळे इतिहास संशोधन ही एक सतत चालू राहणारी प्रक्रिया ठरते.

### **ऐतिहासिक संशोधन पद्धतीचे उद्देश :**

1. भूतकाळातील घटनांची अचूक माहिती प्राप्त करणे ज्यामुळे भविष्य विषयी स्पष्ट दृष्टिकोण मानता येईल.
2. ऐतिहासिक घटनांचे निर्वचन करणे आणि त्याची वर्तमान परिस्थितीत कोणती प्रासंगिकता आहे आणि भविष्यात काय घडू शकेल हे अभ्यासता येईल.
3. ऐतिहासिक संशोधनाच्या ज्ञानाचा माहितीचा आणि निष्कर्षा चा उपयोग इतर सामाजिक शाखांना होतो हे अभ्यासणे.
4. कालबाह्य झालेले विचारप्रवाह स्पष्ट करून त्या वैचारिक प्रभावातून विद्यार्थ्यांना बाहेर काढणे व कालानुरूप त्याच्यावर वैचारिक संस्कार करणे.
5. इतिहास हे शास्त्र आहे आणि या शास्त्रानुसार भूतकाळात घडलेल्या घटनांचे सत्य स्वरूप समजून घेणे हा इतिहास संशोधनाचा उद्देश आहे.

### **इतिहास संशोधन करणाऱ्या संस्था :**

जगातल्या आणि भारतातल्या ही विद्यापीठाच्या इतिहास विभागातून विशिष्ट प्रकारचे संशोधन प्रकल्प हाती घेतले जातात. या प्रकल्पातून निरनिराळी उत्खनने हाती घेतली जातात अनेक नवे पुरावे हाती येतात आणि विशिष्ट टप्प्यावर चा भूतकाळ उलगडता येतो.

### **इतिहास संशोधन करणाऱ्या संस्था :**

1. पूरावत्तीय संचानालय व त्याचे विभाग पुराणवस्तु सर्वेक्षण विभाग.
2. संशोधन पद्धती साठी होणारे संशोधन.
3. इंडीयन हिस्ट्री काँग्रेस व राज्यपातळीवरील इतिहास परिषदा.
3. विद्यापीठ स्तरावरील संशोधन प्रकल्प संघटित प्रयत्न विद्यापीठ अनुदान मंडळाकडून प्रेरित.
4. संशोधन संस्थांचे संशोधन कार्य स्वयंसेवी वृत्तीने प्रेरित.

5. व्यक्तिगत पातळीवरील संशोधन.

6. पुराभिलेखागार व त्याचे विभाग.

### इतिहास संशोधनाचे प्रकार,

इतिहास संशोधन म्हणजे आपल्याला आतापर्यंत अज्ञात अशा इतिहासातले अज्ञात धागे शोधून इतिहासाचे पुनर्रचित्र करणे होय.

#### 1. मूलभूत संशोधन.

मूलभूत संशोधनामुळे अनेक अज्ञात धागे उलगडले जातात गतकालीन वाटचाल स्पष्ट होत जाते. इतिहासात भर टाकली जाते 1922 साली हडप्पा मोहेंजोदडो येथे उत्खनन झाले आणि एका नव्या संस्कृतीचा शोध लागला.

#### 2. विश्लेषणात्मक संशोधन.

या प्रकारात ऐतिहासिक संशोधनाचे पुनर्मूल्यांकन करावे लागते. साधनाची विश्वसनीयता नव्याने तपासली जाते. उपलब्ध माहितीची तर्कशुद्ध मांडणी केली जाते व त्या विश्लेषणातून नवा अर्थ निघतो.

#### 3. सामान्यिकरण/अन्वयार्थ संशोधन.

उपलब्ध माहितीचे विश्लेषण करून त्याचा नव्याने अन्वयार्थ लावून त्यातून काही तत्व बोध होऊ शकतो का याचा शोध घेतला जातो.

### इतिहास संशोधन पद्धती.

इतिहास हे एक सामाजिक शास्त्र असल्याने सामाजिक शास्त्रात प्रचलित असलेल्या सर्व संशोधन पद्धती इतिहास संशोधनात ही उपयुक्त ठरतात. आपण कोणती पद्धती वापरायची संशोधनासाठी निवडलेल्या विषयावर अवलंबून असते.

#### 1. सर्वेक्षण आत्मक पद्धत.

सर्वेक्षण आत्मक जेवढी सविस्तर माहिती असेल तेवढे संशोधन करणे सोपे जाते. मंदिर, लेणी, मज्जित असेल तर त्या वास्तूच्या दिशा कोणत्या या दिशेला तोंड आहे हे समजून नोंदवून घ्यावेच लागते. प्राचीन किंवा मध्ययुगीन इतिहासातील कला, स्थापत्य, शास्त्रीय संशोधन ही पद्धत अवलंबिली जाते हस्तलिखित कागदपत्राचा शोधही असाच सर्वेक्षणातून घेतला जातो गेल्या शतकातील किंवा पन्नास 75 वर्षातील समाज स्थित्यंतरे अभ्यास व्हायची असतील तर सर्वेक्षण अगत्याचे ठरते स्वातंत्र्य चळवळीचा इतिहास स्थानिक पातळीवरील अभ्यासाचा असेल तर सर्वेक्षण पद्धतच उपयुक्त ठरेल.

#### 2. प्रश्नावली पद्धत.

सर्वेक्षणाला पूरक आणि म्हटले तर स्वतंत्र अशी संशोधन पद्धती म्हणजे प्रश्नावली गेल्या 50 75 वर्षांतल्या एखाद्या ऐतिहासिक घटना घटनेचा अभ्यास संशोधन प्रश्नावली पद्धतीने करता येऊ शकतो कारण ती घटना किंवा एखादी चळवळ समक्ष पाहिलेले लोक आजही उपलब्ध असतात अलीकडच्या या इतिहासाचे हे साक्षीदार तर निश्चितच असतात प्रश्नावली पद्धतीतून त्यांच्याकडून माहिती मिळते

संशोधन विषयाची व्याप्ती स्वरूप निश्चित केलेले असणे अगत्याचे ठरते आपल्याला कोणत्या प्रकारची माहिती हवी आहे याची स्पष्ट जाणीव संशोधकाला असावी लागते अशा विषयासाठी केलेल्या प्रश्नावली प्रश्न दुसऱ्या विषयासाठी पूर्णपणे निरर्थक ठरू शकतात आपल्या विषयासाठी ची प्रश्नावली आपणच विचार करून तयार केली पाहिजे.

### **3. प्रत्यक्ष मुलाखत पद्धत.**

इतिहास संशोधनात ही पद्धत फक्त समकालीन इतिहासाच्या संशोधन आतच वापरली जाऊ शकते समकालीन घटनांमध्ये चळवळीमध्ये सहभागी झालेल्या व्यक्तींच्या प्रत्यक्ष भेटीतून अधिक माहिती हाती येऊ शकते प्रश्नावली पद्धतीत ठोकळेबाज माहिती येते तर प्रत्यक्ष मुलाखतीत माणसाला विषयात गुंतवून त्याला खुलवून त्याच्या स्मृती जागृत करीत त्याला बोलत करणे ही संशोधकाची खरी कसोटी असते आपल्यातली संशोधन अभ्यास शमता त्याला जाणवली पाहिजे मुलाखतीच्या रूपाने मिळालेल्या माहितीचे विश्लेषण नातून खऱ्या संशोधन प्रक्रियेला सुरुवात होते.

### **संशोधनाच्या पायऱ्या.**

सामाजिक विज्ञानाच्या संशोधनाच्या इतर पद्धतीपेक्षा ऐतिहासिक संशोधनाची पद्धत वेगळी आहे इतिहासाच्या भिन्न स्वरूपाचे इतर सामाजिक विज्ञान आणि इतिहासात काही बाबतीत फरक आहे असे असले तरी सर्वसामान्य वैज्ञानिक पद्धती ऐतिहासिक संशोधनात सुद्धा वापरली जाते ऐतिहासिक घटनांचे अध्ययन वैज्ञानिक पद्धतीने केले जाते.

### **1. संशोधन विषयाची निवड**

संशोधन प्रक्रियेमध्ये सर्वप्रथम संशोधन समस्या ची निवड करावी लागते त्या समस्येचे ऐतिहासिक विश्लेषण होऊ शकते का? तसेच समस्या अशा प्रकारची असावी की त्याचे वर्तमानाशी संबंधित अध्ययन केले जाऊ शकेल किंवा केवळ ऐतिहासिक अध्ययन शक्य होऊ शकेल उपलब्ध साहित्य अध्ययन आपली योग्यता दूरदर्शिता अंतर्दृष्टी च्या साहाय्याने संशोधन करता अध्ययन विषयाची निवड करतो.

### **2. गृहीत कृत्यांची निर्मिती.**

ऐतिहासिक काळातील घटना परिस्थिती इत्यादी प्रश्नांच्या स्वरूपात विश्लेषण करण्यासाठी गृहीतकृत्ये उपयुक्त असतात गृहीत कृत्ये हे औपचारिक आणि ज्याचे परीक्षण होऊ शकेल असे असू शकत नाही गृहीत कृत्ये मांडताना संशोधक प्रश्नांची निर्मिती करू शकतो त्या प्रश्नांची उत्तरे पुराव्याच्या आधारावर मिळविण्याच्या दृष्टीने संशोधक आपले संशोधन कार्य करू शकतो.

### **3. तथ्याचे संकलन.**

ऐतिहासिक तथ्याचे संकलन करणे कठीण असते म्हणून तर तथ्याचे संकलन करताना अत्यंत सतर्क बाळगली पाहिजे ऐतिहासिक तत्वाचे प्राथमिक आणि द्वितीय अशा दोन प्रकारे ख्रौत आहेत. या दोन प्रकारच्या खोत्रा द्वारे ऐतिहासिक तथ्याचे संकलन केले जाते.

### **4. तथ्याची मीमांसा.**

ज्या साधनाद्वारे तथ्य संकलित करण्यात आली त्या साधनाची वैधता तपासून घेतली पाहिजे ज्या पुराव्याच्या आधारे सत्याचा शोध घेण्याचा प्रयत्न केलेला असतो ते पुरावे काळजीपूर्वक तपासले पाहिजेत.

संशोधन कर्त्याने संकलित केलेल्या माहिती किंवा तथ्याची विश्वसनीयता निश्चित करण्याच्या प्रक्रियेला बाह्य मीमांसा असे म्हणतात तर संकलित केलेली माहिती किंवा तथ्याच्या वैधतेचे मूल्यांकन

करण्याच्या प्रक्रियेला आंतरिक मीमांसा म्हणतात संशोधकाने विश्वसनीयता स्वतंत्रता सत्यता आणि इतर माहिती असलेल्या तर त्याबरोबर ची सामान्य अनुकूलता इत्यादींच्या आधारावरच केले पाहिजे.

### 5. निर्वचन.

तथ्याचे संकलन आणि मासा केल्यानंतर अध्यायन समस्येच्या अनुषंगाने तथ्याचे निर्वचन करावे लागते तर तथ्याचे निर्वचन कार्य अतिशय गुंतागुंतीचे बनते आणि ऐतिहासिक तथ्याच्या किंवा वेगळ्या स्वरूपामुळे विशेष महत्त्व प्राप्त होते ऐतिहासिक संशोधकाला अशी तथ्य स्वीकारावे लागतात की जे परिणामाची स्पष्टपणे संबंधित नाही. ऐतिहासिक संशोधनाचे अंतिम ध्येय आहे हे तथ्यांना स्थापित करणे हे नसून तथ्यांनी सुचवलेला प्रवाह निर्धारित करणे आणि तथ्या मधून अनुमान काढणे हे आहे संशोधकाने घटनांच्या अनुक्रमांक समजून स्पष्टपणे मांडले पाहिजे त्याने उपयोगात आणलेल्या तथ्यांचा अग्र संबंध काळा सहित मांडला पाहिजे त्याचे ध्येय हे केवळ अनेक तथ्याचा संग्रह करण्यापेक्षा संरक्षण आणि निर्वचन हा असला पाहिजे.

### 6. संशोधन अहवाल लेखन.

संशोधनाच्या अहवालामध्ये समस्या कथन किंवा समस्याचे विधान संबंधित साहित्याचे समालोचन साधनांची उद्दिष्टे आणि गृहीतकृत्ये, तथ्याचा स्तोत्र तथ्य संकलन करण्याची पद्धत तथ्या चे वर्गीकरण तथ्याचा क्रमांक तथ्या चे विश्लेषण आणि निर्वचन निष्कर्ष आणि संदर्भ ग्रंथाची सुची या सर्व गोष्टींचा समावेश करणे आवश्यक आहे. ऐतिहासिक संशोधन अहवाल हा तार्किक कालक्रमानुसार आणि प्रकरणाच्या क्रमानुसार सादर केला पाहिजे आव्हान हा रुक्ष आणि आकर्षक नसलेला शोभेचा आणि अलंकारिक नसावा संशोधन अहवाल लेखनाच्या शैलीमध्ये यथार्थता, नियमितता, स्पष्टता आणि महत्त्वता असली पाहिजे.

### निष्कर्ष.

आधुनिक काळात विविध सामाजिक वैज्ञानिकांनी ऐतिहासिक संशोधन पद्धती चा उपयोग करून विविध संस्था आणि समूहाचे अध्ययन करता येते औद्योगिक समाजातील सामाजिक परिवर्तन अविकसित समाजामध्ये औद्योगीकरण याविषयीचे अध्ययन ऐतिहासिक पद्धतीने करण्यात आले आहे भूतकाळ हा केवळ भूतकाळ नसतो तर तो वर्तमान कार्याची किल्ली आहे डॉक्टर बाबासाहेब आंबेडकरांनी भारतातील दलित पीडित शोषित समाजामध्ये जागृती घडून आणण्यासाठी उपदेश दिला होता की ज्यांना आपल्या इतिहास माहीत नाही तो आपला इतिहास घडू शकत नाही भूतकालीन घटनांना क्रमबद्ध स्वरूपात ठेवून त्याचे अध्ययन केले जाते आणि त्या आधारावर काही नियम सामाजिक घटकांकरिता तयार केले जातात वर्तमान अध्याय नाच्या बिडी जर त्याच प्रकारच्या घटना घडत असतील तर त्या नियमाद्वारे त्यास समजून घेण्यास मदत मिळते सम्राट अशोकाच्या काळात कोणती समाज व्यवस्था होती त्याचे अध्ययन करायचे असल्यास इतिहासातून सम्राट अशोकाच्या काळाच्या काळा ची माहिती गोळा करून त्या काळातील समाज व्यवस्था कोणती होती त्याचे अध्ययन करता येते प्राचीन काळापासून तर आज पर्यंत भारतातील वर्णव्यवस्था आणि जाती व्यवस्थेमध्ये कोण कोणते परिवर्तन झाले याचा अभ्यास करण्यासाठी ऐतिहासिक संशोधन पद्धती द्वारे स्पष्ट करता येते एकूणच ऐतिहासिक संशोधनाच्या ज्ञानाचा माहितीचा आणि निष्कर्षा चा उपयोग इतर सामाजिक विज्ञान ना होतो या ज्ञानाचा फायदा मानवी समाजाच्या प्रगती आणि कल्याणासाठी होतो.

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## गौतम बुद्ध और विश्व शांति में उनका दर्शन

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### प्रस्तावना:-

"वसुधैव कुटुंबकम्" की भावना भाने वाला भारत देश सर्वव्यापी विश्व शांति का प्रतीक है। विश्व में अनेक अन्य भी शांति प्रिय देश हैं, पर भारत वासियों की देशभक्ति के प्रति कर्तव्य निष्ठा, उनकी धर्म सौहार्दता, सभ्यता, संस्कृति और दैनिक जीवन में भी शांति भावना झलकती है। इसका ज्वलंत प्रमाण है कि आज तक भारत ने कभी किसी भी कारण से स्वार्थवश किसी भी अन्य देश पर आक्रमण नहीं किया है-अपितु अन्य देशों का भ्रातृपने से स्वागत किया। भारत के प्रयासों से अनेक बार तीसरा विश्व युद्ध होने से बच गया। महात्मा गांधी ने भी परतंत्र भारत को स्वतंत्रता दिलाने के लिए अहिंसा और विश्व शांति का ही अवलंबन लिया था। विश्व शांति का जब जब प्रसंग आया तब तब शांति बनाए रखने में भारत और गौतम बुद्ध की चर्चा करना उचित ही है क्योंकि भारत और बौद्धधर्म का विश्व में अद्वितीय स्थान है।

### महत्त्व:-

इतिहासकारों का यह मानना है कि मोहनजोदड़ो और हड़प्पा विश्व की पहली सभ्यता है जो ईसा पूर्व और ईसा के बाद तक भी शांति प्रियता का प्रतीक रही है। जहां भारत देश में अनेक धर्मों -हिंदू, जैन बौद्ध, सिक्ख आदि का जन्म हुआ, वहीं भारत ने बाहर से आए मुस्लिम और ईसाई धर्म को भी स्वीकार किया है। इससे यह सिद्ध होता है कि भारतीय जनता ने अनेक धर्मों के संस्कार-सभ्यता को स्वीकार करके अपने देश में शांति कायम रखी है। भारत जितना विश्व शांति के लिए अग्रसर रहा है, उतना ही यह भी कटु सत्य है कि कई अन्य देश इस विचारधारा से सहमत नहीं हैं। जिसके फलस्वरूप विश्व में अनेक देशों में अशांति, तनावपूर्ण वातावरण, युद्ध, आतंकवाद जैसी विभिन्न घटनाएं प्रतिदिन बढ़ती हुई- पढ़ने और सुनने में आती रहती हैं।

### उद्देश्य:-

वास्तव में विश्व शांति दिवस '1981 से सितंबर के तीसरे मंगलवार को मनाया जाता रहा है। किंतु 2002 में 21 सितंबर का दिन इसे मनाने के लिए घोषित किया गया था। इस दिन मात्र शांति बनाए रखने का भाषण दे देने से, झांकी निकाल देने से या शांति का प्रतीक सफेद कबूतर उड़ा देने से - विश्व में शांति स्थाई रूप से नहीं रह सकती। इसके लिए मूल 'अहिंसात्मक धार्मिक संस्कार' चाहिए। विश्व शांति सभी देशों के लोगों के बीच उनके भीतर स्वतंत्रता, शांति और खुशी का एक आदर्श है। विश्व शांति पूरी पृथ्वी में अहिंसा स्थापित करने का एक माध्यम है।

महापुरुषों की जननी भारत एक ऐसा देश है जिसने समय-समय पर विश्व शांति बनाए रखने के लिए अनेक महापुरुषों को जन्म दिया है। जिन्होंने अपने जीवन से समस्त मानव जाति को शांति की एक नई राह दिखाई है। उन्हीं में से एक महान विभूति गौतम बुद्ध थे। दुनिया को अपने विचारों से मध्यम मार्ग दिखाने वाले महात्मा बुद्ध भारत के एक महान दार्शनिक, समाज सुधारक और बौद्ध धर्म के संस्थापक थे।

**मूल विषय:-**

"गौतम बुद्ध और उनके दर्शन का विश्व शांति में योगदान"। ऐसे गौतम बुद्ध और बौद्ध दर्शन का जन्म कब और कैसे हुआ यह जानना भी न्याय संगत होगा। अधिकांश इतिहासकारों की यह मान्यता है कि पूर्व वैदिक काल में भारत में बौद्ध धर्म ही था "भारत की खोज" पुस्तक में लेखक विश्वास ने यह पाया कि "मोहनजोदड़ो और हड़प्पा नगरों का धर्म बौद्ध धर्म था, जिसे आर्यों ने नष्ट कर दिया था। उन्होंने उनकी संस्कृति को नष्ट करने के लिए सारे साक्ष्य मिटा दिए। ब्राह्मण धर्म ने अत्यंत क्रूरता पूर्वक बौद्ध धर्म को नष्ट किया। जबकि प्रगतिशील बौद्ध धर्म ने इतनी आसानी से हार नहीं मानी। हिंदू धर्म के मौलिक सिद्धांत बुनियादी रूप से जन विरोधी, उत्पीड़नकारी और भेदभाव मूलक हैं। जबकि बौद्ध धर्म सार्वभौमिक भ्रातृत्व का बहुत ही उदारचित धर्म है।"

**गौतम बुद्ध का जीवन वृत्तांत:-**

- ❖ महात्मा बुद्ध का जन्म लुंबिनी में 563 ईसा पूर्व में वैशाख पूर्णिमा के दिन हुआ था।
  - ❖ युवा अवस्था में ही रोगी व्यक्ति, वृद्ध व्यक्ति और मृत व्यक्ति को देखकर उन्होंने 29 वर्ष की अवस्था में सांसारिक जीवन को छोड़कर सन्यास धारण किया था।
  - ❖ 6 वर्ष की कठोर तपस्या के बाद भी जब उन्हें सच्चे ज्ञान और सुख की प्राप्ति नहीं हुई तब उन्होंने मध्यम मार्ग अपनाकर सत्य की खोज की। जिससे प्रत्येक जीव का दुख दूर हो सके।
  - ❖ 528 ईसा पूर्व में वैशाख पूर्णिमा के दिन बोधगया में एक पीपल वृक्ष के नीचे ध्यान करते हुए उन्हें आत्मबोध मिला।
  - ❖ उन्होंने अपना सर्वप्रथम उपदेश सारनाथ में स्थित पंचवर्गीय भिक्षुओं को देकर 'धर्म चक्र प्रवर्तन' किया।
  - ❖ उन्होंने स्वयं कभी कुछ नहीं लिखा। उनके शिष्य उपदेशों को कंठस्थ करके पाली भाषा में लिख लेते थे और एक पिटारे में सुरक्षित रख देते थे -यही बाद में त्रिपिटक नाम से प्रसिद्ध हुए।
1. विनय पिटक:- बौद्ध मतावलंबियों के लिए व्यवस्था के नियम।
  2. सुत्त पिटक :-बुद्ध के उपदेश सिद्धांत।
  3. अभिधम्म पिटक:- बौद्ध दर्शन से संबंधित।
- ❖ गौतम बुद्ध का 483 ईसा पूर्व कुशीनगर में महापरिनिर्वाण हुआ था।

**बौद्ध धर्म के संप्रदाय:-**

हीनयान, थेरवाद, महायान, वज्रयान ये प्रमुख संप्रदाय हैं। परंतु सभी बौद्ध संप्रदाय बुद्ध के सिद्धांत को ही मानते हैं। दुनिया के 200 से अधिक देशों में बौद्ध अनुयायी हैं। किंतु चीन, जापान, वियतनाम, थाईलैंड, म्यान्मार, भूटान, श्रीलंका, कंबोडिया, मंगोलिया, लाओस, सिंगापुर, दक्षिण कोरिया एवं उत्तर कोरिया समेत कुल 13 देशों में बौद्ध धर्म प्रमुख धर्म है। भारत, नेपाल, अमेरिका, ऑस्ट्रेलिया, इंडोनेशिया, रूस, ब्रूनेई, मलेशिया आदि देशों में भी करोड़ों बौद्ध अनुयायी हैं।

**विश्व शांति में गौतम बुद्ध के दर्शन और शिक्षाओं की उपयोगिता:-** गौतम बुद्ध ने धर्म का जो संदेश दिया था वह कठिन न होकर इतना सरल है कि जिसे जीवन में अपनाकर सरलता से जिया जा सके। बौद्ध धर्म -धर्म नहीं है यह जीवन के सिद्धांतों और नैतिक शिक्षा का अतुलनीय पाठ है- जिसके पालन से विश्व में फैली अशांति को हम आसानी से दूर कर शांतिमय और सुखमय जीवन व्यतीत कर सकते हैं। उनके एक एक अनमोल वचन विश्व की अशांति को दूर करने में चमत्कारी बूटी की तरह कार्य करते हैं।

बौद्ध धर्म तीन मूल शिक्षाओं पर आधारित है जो इस प्रकार हैं --1)प्रत्येक वस्तु अनित्य है। 2)आत्मा की सत्ता नहीं है 3)निर्वाण एकमात्र लक्ष्य है।

+आज विश्व में अशांति का मूल कारण है कि हम इच्छा के अनुकूल सब कुछ बदलना चाहते हैं -चाहे वह परिस्थिति हो, वातावरण हो, लोग हो या लोगों के विचार हों --गौतम बुद्ध के अनुसार जो चीजें जैसी हैं उन्हें वैसी ही देखें। उन्हें भ्रांतियों की उलझन में ना उलझा कर सत्य के अनुकूल स्वीकार करने का प्रयास करना चाहिए।

- उन्होंने प्राणियों के स्तर का मापदंड बुद्धि को न मानकर, मानवता को दिया क्योंकि बौद्ध दर्शन मूलतः नैतिक व्यवस्था में विश्वास करता है। जो न तो ईश्वर वादी है और न ही भौतिकवादी है।
- आज के लोग सुख शांति के लिए विभिन्न कर्मकांड में फंस कर अपना जीवन व्यर्थ कर रहे हैं। उनके लिए बुद्ध ने मनुष्य को ईश्वर वादी एवं अंधविश्वासी कर्मकांडो से दूर रहने का उपदेश दिया।
- बौद्ध दर्शन मानव समाज की सुख शांति व समृद्धि के लिए सफल सिद्ध हुआ। उन्होंने कहा कि मनुष्य को अगर अपने जीवन में खुशियां प्राप्त करनी है तो उसे न तो अपने भूतकाल में उलझना चाहिए और न ही अपने भविष्य की चिंता करनी चाहिए मनुष्य को केवल अपने वर्तमान पर ही ध्यान देना चाहिए।
- गौतम बुद्ध ने कहा कि मनुष्य को अपने क्रोध पर नियंत्रण करना चाहिए क्योंकि क्रोध ऐसा चाकू है जो बिना खून निकाले दूसरे को मार देता है। मनुष्य को अपने जीवन में क्रोध की सजा नहीं मिलती बल्कि मनुष्य को क्रोध से सजा मिलती है।
- गौतम बुद्ध ने जगत के प्राणियों को चार आर्य सत्य बताकर उन्हें सर्वथा दुख से दूर करने का प्रयत्न किया। वे चार आर्य सत्य इस प्रकार हैं-1)दुख 2)दुख समुदय 3)दुख निरोध 4)दुख निरोध गामिनी प्रतिपदा। गौतम बुद्ध के मत में अष्टांगिक मार्ग ही वह मध्यम मार्ग है जिससे दुख का निदान होता है।

**यह अष्टांगिक मार्ग इस प्रकार है:-**

- 1) सम्यक दृष्टि:- चार आर्य सत्य में विश्वास करना।
- 2) सम्यक संकल्प:- मानसिक और नैतिक विकास की प्रतिज्ञा करना।
- 3) सम्यक वाक:- हानिकारक बातें और झूठ न बोलना।
- 4) सम्यक कर्म:- हानिकारक कर्म न करना।
- 5) सम्यक जीविका:- कोई भी स्पष्टतः या अस्पष्टतः हानिकारक व्यापार न करना।
- 6) सम्यक प्रयास:- अपने आप सुधरने की कोशिश करना।
- 7) सम्यक् स्मृति:- स्पष्ट ज्ञान से देखने की मानसिक योग्यता पाने की कोशिश करना।
- 8) सम्यक समाधि:- निर्वाण पाना और स्वयं का गायब होना।

उन्होंने दुख से दूर रहने का उपाय यही बताया कि संसार में कोई भी प्राणी ऐसा नहीं है जिसे दुख न हो इसीलिए दुख में भी सदैव प्रसन्न रहना चाहिए। बौद्ध दर्शन का मूल उद्देश्य दुख को समझना और उस को जड़ से खत्म करना है।

वास्तविकता यह है कि बौद्ध धर्म शैक्षिक मानव जीवन के सामाजिक, सांस्कृतिक, धार्मिक, आर्थिक एवं राजनैतिक क्षेत्रों में लोक कल्याण की शिक्षा देता है।

इस धर्म ने मानव लोक कल्याण की भावना को जन्म दिया और शांति का उपदेश देकर सबसे पहले पंचशील के विषय में अवगत कराया। लोगों को समता, करुणा, प्यार के साथ रहना सिखाया।

**विश्व शांति बनाए रखने के लिए बुद्ध के ये पंचशील सिद्धांत जीवन के प्रति सहज दृष्टिकोण का परिचय देते हैं:-**

1. प्राणी मात्र की हिंसा से विरत रहना।

2. चोरी करने या जो दिया नहीं गया है उसको लेने से विरत रहना।
3. लैंगिक दुराचार या व्यभिचार से विरत रहना।
4. असत्य बोलने से विरत रहना।
5. मादक पदार्थों से विरत रहना।

इन पांचों उपदेशों का अभ्यास करने से हम ध्यान, ज्ञान और दया पा सकते हैं।

क्रोध को प्यार से, बुराई को अच्छाई से, स्वार्थी को उदारता से और झूठे व्यक्ति को सच्चाई से जीता जा सकता है। गौतम बुद्ध ने बाह्य निर्मलता की अपेक्षा आंतरिक निर्मलता पर अधिक बल दिया क्योंकि उनका कहना था कि इंसान के अंदर ही शांति का वास होता है उसे बाहर मत खोजो।

आज विश्व में अशांति का मूल कारण है दूसरों को सही न समझना और अपनी गलती को न सुधारना। जबकि बुद्ध कहते हैं कि हर अनुभव कुछ न कुछ सिखाता है हर अनुभव महत्वपूर्ण है क्योंकि हम अपनी गलतियों से ही सीखते हैं।

### **बौद्ध दर्शन के कई सकारात्मक पहलू हैं- जो विश्व शांति को बनाए रखने में कार्य कर सिद्ध होते हैं :-**

1. उनके दर्शन का मूल विचार है कि 'आत्म दीपो भवः' अर्थात् 'अपने दीपक स्वयं बनो।' इसका तात्पर्य है कि व्यक्ति अपने घर, ऑफिस, कॉलेज आदि जगहों पर अपने जीवन के महत्वपूर्ण फैसले भी स्वयं न लेकर दूसरों की सलाह पर करता है फिर चाहे वह सही हो या गलत हो। व्यक्ति अपने नैतिक और अनैतिक निर्णयों का स्वयं कर्त्ता होता है। बुद्ध का यह उद्देश्य व्यक्ति को व्यक्ति बनने पर बल देता है।
2. बुद्ध के दर्शन का दूसरा प्रमुख विचार मध्यम मार्ग के नाम से जाना जाता है। सूक्ष्म दार्शनिक स्तर पर या लौकिकता के स्तर पर हमें सदा अतिवादी व्यवहार से बचना चाहिए। यह सिद्धांत आज भी उतना ही प्रासंगिक है जितना बुद्ध के समय था। आज दुनिया में तमाम तरह के झगड़े हैं जैसे सांप्रदायिकता, आतंकवाद, नक्सलवाद, नस्लवाद, जातिवाद - सब का मूल कारण मध्यम मार्ग सिद्धांत को न मानना ही है। इस मार्ग को अपनाने से आपस में मेल मिलाप बढ़ता है।
3. बुद्ध का तीसरा प्रमुख विचार संवेदनशीलता है अर्थात् दूसरों के दुखों को अनुभव करने की क्षमता।
4. बुद्ध दर्शन का चौथा प्रमुख विचार है कि वे परलोकवाद की बजाय इहलोकवाद पर अधिक बल देते हैं। उस समय चार्वाक के अलावा लगभग सभी दर्शन परलोक को ही वास्तविक मानते थे। जिसके कारण निरर्थक कर्मकांड और अनुष्ठानों को बढ़ावा मिलता था।
5. विश्व में अशांति का मूल कारण व्यक्ति का अहंकार है। बौद्ध दर्शन व्यक्ति को "मैं" की भावना से ऊपर उठाकर संपूर्ण मानवता की ओर ले जाते हैं।
6. आज विश्व में अशांति का सबसे प्रबल कारण नवीन नवीन इच्छाओं का उत्पन्न होना है। इस उपभोक्तावादी समाज की इच्छाओं की पूर्ति के लिए प्राकृतिक या सामाजिक संसाधनों की आवश्यकता पड़ती है। यदि हमारी इच्छाएं बढ़ती जाएंगी तो प्राकृतिक संसाधन नष्ट होने लगेंगे और सामाजिक संबंधों में भी तनाव उत्पन्न होने लगेगा। इसीलिए बुद्ध के दर्शन अनुसार हमें अपनी इच्छाओं पर नियंत्रण करना चाहिए।
7. बौद्ध धर्म मानव को स्वतंत्र जीवन जीना सिखाता है। यही कारण है कि भारत में जब-जब बौद्ध शासकों का शासन हुआ देश की राजनैतिक और सांस्कृतिक सीमाएं बढ़ती ही गईं। उनके समय में भारत कभी भी परतंत्र नहीं हुआ।

### **समारोह:-**

भगवान बुद्ध ने उस मानवता का संदेश दिया जहां जाति, धर्म और संप्रदाय, राष्ट्र की सीमाएं नहीं होती। बौद्ध धर्म का शांति से अटूट संबंध है। बौद्ध धर्म के इतिहास का एक भी पृष्ठ ऐसा नहीं जो रक्त रंजित हो उनके पास एक ही तलवार है - 'प्रज्ञा की तलवार' और उनका एक ही शत्रु है 'अज्ञान'। बौद्ध धर्म और विश्व शांति

का संबंध कार्य कारण का संबंध है। बौद्ध धर्म से पहले जो जो देश तिब्बत, वर्मा, स्याम, कंबोडिया आदि युद्ध प्रिय देश थे वे सब भी बौद्ध धर्म अपनाने से शांति प्रिय देश हो गए। संभवतः भारत और चीन के अपवादों को छोड़कर एशिया के प्रायः सभी राष्ट्र युद्ध प्रिय ही थे। वहां शांति बौद्ध धर्म के शांतिवादी उपदेशों के प्रभाव स्वरूप ही थी। महात्मा बुद्ध के निर्वाण के बाद भारत तथा अन्य देशों में बड़ी संख्या में स्तूपों का निर्माण हुआ। भारत के मशहूर स्तूपों में सांची, सारनाथ, अमरावती और भरहूत आते हैं जो भगवान बुद्ध के पुनः स्मरण के निमित्त होने के साथ-साथ विश्व शांति और अहिंसा के भी प्रतीक हैं। विश्व शांति की स्थापना में बौद्ध धर्म अतीत में योगदान देने वाला साधन रहा है, वर्तमान में है और आगे भी रहेगा।

### **निष्कर्ष:-**

महात्मा बुद्ध ने ऐसे बहुत से विषयों पर उपदेश दिए, जो मनुष्यों के परम कल्याण के साथ-साथ संपूर्ण विश्व शांति के लिए भी आवश्यक थे। पूरी दुनिया को सत्य, अहिंसा और शांति का संदेश देने वाले महात्मा बुद्ध के उपदेश अनुभव की आग में तप कर सामने आए थे। जो आज भी प्रासंगिक हैं। महात्मा बुद्ध के उपदेश और उनके विचारों को पढ़कर यदि हम उन्हें अपने जीवन में अपनाएं तो अपना जीवन सफल बना सकते हैं। विश्व शांति के लिए भगवान बुद्ध के उपदेशों का अनुसरण करना आवश्यक है। पूरी दुनिया उनके बताए मार्ग पर चलकर विश्व शांति एवं बंधुत्व को बनाए रख सकती है। हम सबको भी विश्व शांति बनाए रखने के लिए भगवान बुद्ध के उपदेशों को आत्मसात करना चाहिए क्योंकि बौद्ध धर्म शांतिमय और सुखमय जीवन बिताने का मार्ग प्रशस्त करता है।

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## नौकरी करणाऱ्या स्त्रियांच्या कौटुंबिक व्यवस्थापनाला हातभार लावण्यासाठी प्लास्टिक मनी कार्ड एक श्रमबचतीचे साधन

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औद्योगिक क्रांतीमुळे भारतातील कुटुंब संस्थेत अमुलाग्र बदल घडून आला आहे व त्यामुळे लोकांचे जीवनमूल्ये, ध्येये, उद्दिष्टे यात बदल झालेला दिसून येतो. नौकरीच्या निमित्त्याने मुले घराबाहेर पडली व विभक्त कुटुंब पद्धती अस्तित्वात आली. मुले नौकरीकरिता छोट्या शहरातून मोठ्या शहरात स्थलांतरित झाले व शहरातील जीवनमान, राहणीमान यानुसार जीवनशैली ठेवण्यासाठी घरातील एकट्या व्यक्तीचे उत्पन्न अपुरे पडू लागले परिणामी बदलत्या वातावरणानुसार जीवनमान जगण्यासाठी किंबहुना घराला आर्थिक हातभार लावण्यासाठी स्त्री नौकरीच्या अथवा व्यवसायाच्या निमित्त्याने घराबाहेर पडली. स्वतःजवळील शिक्षण व अनुभवाच्या आधारे स्त्रियांना नौकरी मिळाली, नौकरी तर मिळाली पण नौकरी व घर असे दोन्ही सांभाळताना स्त्रीला तारेवरची कसरत करावी लागत आहे. बँका, औद्योगिक क्षेत्र, खाजगी नौकरी अशा ठिकाणी आठ-आठ तासांपेक्षा जास्त वेळ दररोज स्त्रीला द्यावे लागतात, अशावेळी स्त्रीला बर्यापैकी पगाराची नौकरी असेल तर ती घरकामासाठी नोकर ठेवू शकते पण बाकी कामांचे काय? जसे, मुलांना सांभाळणे, मुलांचा अभ्यास, याशिवाय घराबाहेरील कामे – किराणा, वस्त्र खरेदी, इलेक्ट्रिक, फोन, पाणि इत्यादींचे बिले भरणे, मुलांची फी भरणे, मुले बाहेरगावी शिकत असल्यास त्यांना पैसे पाठविणे, मुलांच्या शिकवणी वर्गाला भेट देणे, शाळेला व शिकवणी वर्गात पोहोचविणे, शाळांमधील पालक व शिक्षकांच्या सभांना हजार राहणे यासारखी कितीतरी कामे तिला स्वतःलाच करावी लागतात. मग ती नौकरी करणारी असो अथवा नौकरी न करणारी. त्यात ती नौकरी करणारी असल्यास तिला घर व नौकरीचे ठिकाण अशा दोन्ही ठिकाणी तिला वेळेसोबतच शक्ती पण खर्च करावी लागते, अशावेळी तिने कार्यसरलीकरणाच्या मार्गाचा उपयोग केल्यास नक्कीच तिला फायदा होईल.

“वेळ व श्रम कमीत कमी वापरून जास्तीत जास्त काम चांगल्या गुणवत्तेचे करणे म्हणजे कार्यसरलीकरण होय.”

घरांमधील कामांकरिता, ती श्रमबचतीची विविध साधने जसे, वॉशिंग मशिन, मायाक्रोव्हेव्ह ओव्हन, राईस कुकर, एयर फ्रायर, Supar Mop, Robo Mop, मिक्सर Dishwasher वापरून घरामध्ये कार्यसरलीकरण साधू शकते, पण घरातून बाहेर पडल्यावर बाहेरच्या बर्याचशा कामांकरिता श्रमबचतीचे साधन म्हणून तिने जर प्लास्टिक मनी कार्डाचा वापर केल्यास नक्कीच ती बाहेरच्या बर्याचशा कामांमध्ये कार्यसरलीकरण साधून वेळ व शक्ती वाचवू शकते. उत्तम कौटुंबिक व्यवस्थापन साधण्यासाठी कार्यसरलीकरण हा एक मार्ग आहे व त्यासाठी नौकरी किंवा व्यवसाय करणाऱ्या स्त्रीने प्लास्टिक मनी कार्डासोबतच ई-बँकिंगचा उपयोग केल्यास बरीचशी कामे ती बसल्या जागेवरच करू शकते.

कारण प्लास्टिक मनी कार्ड मुळे वेळ व श्रम तर वाचतातच, आणि सोबतच प्लास्टिक मनी कार्डच्या सहाय्याने आर्थिक व्यवहार करताना त्यावर असणार्या डिस्काऊंटचा पण लाभ घेता येईल व थोड्याफार प्रमाणात पैसे पण वाचविता येतील.

सर्वसामान्य स्त्री प्लास्टिक मनी कार्डाचा उपयोग करते पण तो उपयोग फक्त एटीएम मधून पैसे काढण्यासाठीच पण या प्लास्टिक मनी कार्डाचा वापर करून, तिने ऑनलाईन औषधांची खरेदी, वेगवेगळ्या वस्तूंची खरेदी, कपड्यांची खरेदी, वेगवेगळ्या सौंदर्य प्रसाधनांची खरेदी केल्यास त्यावर असणार्या 10 ते 15

टक्के सूटेचा उपभोग घेऊन ती वेळ, श्रम यासोबतच अर्थ या तिन्ही साधनांची बचत केलेल्या या तिन्ही साधनांचा उपयोग ती दुसऱ्या कौटुंबिक कामांसाठी जसे, घरकाम, मुलांचा अभ्यास, मुलांना वेळ देणे व सोबतच स्वतःसाठी फावला वेळही काढून ती स्त्री ताजीतवानी होईल व पुन्हा नव्या जोमाने पुढील दिवसांच्या कामांसाठी सज्ज राहू शकेल.

### **परंतु, यासाठी तिला**

- प्लास्टिक मनी कार्ड म्हणजे काय?
- त्याचे स्वरूप व प्रकार कोणते?
- त्याचा कोठे व कशाप्रकारे वापर करता येतो?
- डिजिटल बँकिंग म्हणजे काय?
- कॅशलेस व्यवहार म्हणजे काय?
- मोबाईल वॉलेट म्हणजे काय?
- यूपीआय म्हणजे काय व ते कसे वापरायचे?

याविषयीची संपूर्ण माहिती असल्यास ती सहजतेने या बहुगुणी प्लास्टिक मनी कार्ड, तसेच डिजिटल बँकिंग, मोबाईल वॉलेटचा उपयोग व यूपीआय इत्यादींचा वापर करून कौटुंबिक व्यवस्थापनात यशस्वीपणे नक्कीच हातभार लावू शकेल.

प्लास्टिक मनी म्हणजे असे चलन की, जे प्लास्टिक कार्डच्या रुपात बनविलेले आहे व ते छापील कागदी नोटांच्या ऐवजी उपयोगात आणल्या जाते. म्हणून त्याला प्लास्टिक मनी कार्ड म्हंटल्या जात असावे. नोटांच्या नंतर चलनामध्ये प्लास्टिक मनी कार्ड मुळेच बदल घडून आलेला आहे. रोख रक्कम न बाळगता आपण आज बरीचशी खरेदी करू शकतो ते डेबिट व क्रेडिट ह्या प्लास्टिक मनी कार्ड मुळेच. आपल्या भारता देशात कागदी चलनाला पर्याय म्हणून बऱ्याच वर्षांपासून प्लास्टिक मनी कार्ड वापरल्या जात आहे, पण कोविड-19 या विषाणूचा प्रादुर्भाव झाल्यापासून म्हणजेच वर्तमान काळात प्लास्टिक मनी कार्डचा वापर मोठ्या प्रमाणात वाढलेला दिसून येत आहे.

अशा या बहुगुणी प्लास्टिक मनी कार्डचे पुढील प्रकार आहेत ,  
प्लास्टिक मनी कार्ड

“मिलेनिया कार्ड – 1) Millennia Credit Card 2) Easy EMI Card 3) Millennia Debit Card  
4) Millennia Prepaid Card

क्रेडिट कार्ड – 1) Infinia Credit Card 2) Diner Club blaBlack Credit Card

डेबिट कार्ड – 1) Millennia Debit Card 2) Easy Shop Imperia Platinum Chip Debit card

प्रीपेड कार्ड – 1) Gift Plus Card 2) E-Gift Plus Card 3) Food Plus Prepaid Card 4) 6) Fast Tag-  
Hassle Free Toll Payment 5) Money Plus Card 6) Apollo Medical Benefit Card

फॉरेक्स कार्ड – 1) Make My Trip Forex Plus Card 2) Regalia Forex Plus Card 3) Multicurrency  
Platinum Forex Plus Chip Card 4) ISIC Student Forex Plus Card

कमर्शियल क्रेडिट कार्ड – 1) Corporate Platinum Credit Card 2) Corporate Premium Credit Card 3)  
Business Corporate Regalia Credit Card 4) Business Corporate Money Back Credit Card”

([www.hdfcbank.com>personal/pay/cards](http://www.hdfcbank.com/personal/pay/cards))

याशिवाय वेगवेगळ्या बँकांचे प्लास्टिक मनी कार्डचे वेगवेगळे प्रकार आहेत. प्रत्येक कार्ड वर त्या त्या कार्ड नुसार वेगवेगळ्या सुविधा दिल्या गेलेल्या आहेत. बँकेच्या वेबसाईट वर त्या त्या बँकेच्या प्लास्टिक कार्ड,

डिजिटल बँकिंग, कॅशलेस व्यवहार व यूपीआय याविषयीची संपूर्ण माहिती उपलब्ध होते व आपण आपल्या सोयीनुसार कॅशलेस व्यवहार करू शकतो.

क्रेडिट व डेबिट कार्ड मधील फरक

#### क्रेडिट कार्ड

- हे कार्ड पोस्टपेड स्वरूपात असते.
- या कार्डाची मर्यादा बँक ठरविते.

- ह्या कार्डचे बिल महिन्याला भरावे लागते.
- प्रत्येक महिन्याला बिल न भरल्यास, बिलाच्या पैशावर व्याज द्यावे लागते.

#### डेबिट कार्ड

- \* हे कार्ड प्रीपेड स्वरूपात असते.
- \* खात्यात जोपर्यंत पैसे असतात तोपर्यंतच हे कार्ड वापरता येते.
- \* ह्या कार्डचे कोणतेही बिल निघत नाही.
- \* ह्या कार्डवर कोणतेच व्याज द्यावे लागत नाही.

#### कॅशलेस व्यवहार

नोव्हेंबर 16 मध्ये झालेल्या नोटबंदीमुळे ५०० व १००० च्या जुन्या नोटांवर बंदी आल्याने बाजारात रोख रकमेची कमतरता निर्माण झाली व या या रोख रकमेच्या कमतरतेतून बाहेर पडण्यासाठी भारताच्या पंतप्रधानांनी कॅशलेस इंडिया चा नारा दिला आणि भारताच्या अर्थव्यवस्थेत बदल घडून आले त्यातीलच एक बदल म्हणजे कॅशलेस व्यवहार होय. या कॅशलेस व्यवहारासाठी विविध पर्याय उपलब्ध आहेत. जसे, प्लास्टिक मनी, ई-वोलेट, ई-बँकिंग, मोबाईल बँकिंग, इत्यादी. भारतातील वाढलेल्या मोबाईल च्या वापरामुळे कॅशलेस व्यवहाराचे सर्व पर्याय उपयोगात आणणे शक्य होत आहे. कॅशलेस व्यवहारात पारदर्शकता असल्याने गैरव्यवहाराला आळा बसून सुरक्षितता वाढणार आहे. चेक ( धनादेश ) वटण्याची वाट बघावी लागणार नाही व पैसे लगेचच हस्तांतरित करता येईल.

#### मोबाईल वोलेट

आपण मोबाईल मध्ये काही पैसे साठवू शकतो व तो पैसा आपण कोठेही पैशाच्या व्यवहारासाठी वापरू शकतो म्हणजेच मोबाईल वोलेट म्हणजे एक प्रकारचे आभासी पाकीटच आहे. याच्या सहाय्याने आपण रिचार्ज, फळभाजी विक्रेता, शिक्षाचे भाडे, पेपरचे बिल, औषधी दुकानाचे बिल इत्यादींकरिता पैसे सहज हस्तांतरित करू शकतो.

पेटीएम, फ्रीचार्ज, मोबिक्रिक इत्यादी मोबाईल वोलेटचे प्रकार उपलब्ध आहेत पण यातील पेटीएम चा वापर सगळ्यात जास्त प्रमाणात होताना दिसून येत आहे.

“पंतप्रधानांनी कॅशलेस इंडिया चा नारा दिल्यानंतर देशातील लहान लहान दुकानदारांनी स्वतःच्या दुकानात स्वाईप मशिन लावली व प्लास्टिक मनी कार्डचा वापर वाढला. नोटबंदीपूर्वी फक्त मोठ्या दुकानदारांकडेच प्लास्टिक मनी कार्ड वापरण्याची सुविधा उपलब्ध होती” (m.patrika.com “नोटबंदी : प्लास्टिक मनी वापरताना नजरचूक झाल्यास दुर्घटना घडू शकते” , सत्यनारायण शुक्ला १० डिसेंबर २०१६)

कॅशलेस व डिजिटल व्यवहाराबाबतची माहिती महिलांनी जाणून घेतल्यास त्या सहजरीत्या कॅशलेस व्यवहारासाठी उपलब्ध असलेल्या सर्व साधनांचा वापर सहजरीत्या करू शकतील म्हणजेच प्लास्टिक मनी या श्रमबचतीच्या साधनाचा वापर करून स्वतःच्या दररोजच्या कामात कार्यसरलीकरणाच्या तत्वाचा वापर करून, जीवनात नेहमीपेक्षा नक्कीच जास्त आनंद निर्माण करू शकतील.

#### संदर्भ सूची:

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३. ([www.hdfcbank.com>personal/pay/cards](http://www.hdfcbank.com/personal/pay/cards))
४. गृह व्यवस्थापन आणि गृहकला, डॉ.क्षमा लिमये, विद्या प्रकाशन
५. गृहव्यवस्थापन, आशा निमकर व क्षमा लिमये



## कांशीराम यांची राष्ट्रवाद संकल्पना

**डॉ. अशोक जाधव**

सहयोगी प्राध्यापक, राज्यशास्त्र विभाग,  
श्रीमती शकुंतलाबाई धाबेकर महाविद्यालय,  
कारंजा लाड, जि. वाशिम. , १०२१६६१००९

### प्रस्तावना:

आधुनिक युग हे राष्ट्र राज्याचे युग आहे. या युगाचा पाया इ.स. 14 व्या शतकापासून रचला गेला असल्याचे मान्य करण्यात येते. इटली चा प्रसिद्ध विचारवंत मॅकेव्हेलीच्या विचारातून राष्ट्रवाद संकल्पना अभ्यासली जावू लागली. त्याचे राष्ट्रवादी विचार 'द प्रिन्स' या सुप्रसिद्ध ग्रंथात आढळतात. इटलीच्या एकीकरणाबाबतची तळमळता त्याच्या विचारातून स्पष्ट होते. पुढे मुसोलिनी, जोसेफ स्टॅलिन, व गॅरिबाल्डीच्या प्रयत्नातून इटली एक सशक्त राष्ट्र म्हणून नावा रूपास आले. या आधारावर इतर राज्यांनी आदर्श डोळ्यासमोर ठेवून आपल्या राज्याला राष्ट्र राज्य बनवण्यास सुरुवात केली. पुढे इतर राज्यांनीही राष्ट्रवादी विचारांचा आदर्श डोळ्यासमोर ठेवून आपल्या राज्यात एकता, देशभक्ती निर्माण करून राज्यासाठी व्यक्तीने आपल्या हिताची पर्वा न करता सर्वस्वी पणास लावावे ही भावना रूजविण्यास सुरुवात केली. अशा भावनेने लोकशाही संपुष्टात येते की, हुकूमशाही निर्माण होते हा भाग वेगळा परंतु जनतेला एकत्र करण्यासाठी मात्र या संकल्पनेचा उपयोग होत आहे. भारतातही राष्ट्रवादी विचारांचा उदय झाला परंतु राष्ट्रवादाचे परिमाण हे व्यक्तीपरत्वे वेगवेगळ्या स्वरूपाचे आहेत. प्रस्तुत शोधनिबंधात बामसेफ, डीएसफोर, तथा बहुजन समाज पार्टी या राजकीय पक्षांचे संस्थापक अध्यक्ष कांशीराम यांच्या राष्ट्रवादी विचारांचे विश्लेषण करण्यात आले आहे.

### राष्ट्रवादाचा आशय:

राष्ट्र ही संकल्पना राज्यशास्त्राशिवाय इतरही मानव्येविद्याशाखेत अभ्यासली जात आहे. विशेषतः 18 व्या शतकात जागतिक स्तरावर राष्ट्र राज्य उदयास येवू लागली. "हॅन कोहनच्या मते, राष्ट्रवाद ही लोकांच्या मनाची स्थिती आहे. राष्ट्रराज्यातील लोकांद्वारे केल्या जाणाऱ्या कृतीच्या अभिव्यक्तीकरणाला आधुनिक काळात राष्ट्रवाद असे म्हटले जाते."<sup>1</sup> या संकल्पनेच्या अर्थाने आपण एखाद्या राज्याला राष्ट्र राज्य म्हणावे की नाही याचे परिमाण ठरले आहे. स्वाभाविकपणे एकाच भूप्रदेशावर राहत असलेल्या लोकांमध्ये एकमेकांविषयी आत्मियतेची भावना निर्माण होवू लागते. या भावनेचा आधार समान वंश, रंग, भाषा, धर्म, जात, सांस्कृतिक वारसा किंवा परंपरा असतो. पिढ्यानुपिढ्या सोबत राहत असल्यामुळे आपण एक आहोत. परकियांनी येवून आपल्यावर शासन करू नये. आपल्यावर आपलेच राज्य असावे. या भावनेतून राष्ट्र राज्य ची संकल्पना उदयास आली. ही भावना एकत्रित करून तिला संघटीत स्वरूप देण्यासाठी एखादा विचारवंत पुढे येतो. आपण राहत असलेल्या भूभागातील लोकांमध्ये वंश, रंग, भाषा, धर्म, जात सांस्कृतिक वारसा किंवा परंपरा या आधारावर लोक एकत्र येतील अशी सैद्धांतिक मांडणी करतो. त्याच्या सैद्धांतिक मांडणीला जनाधार मिळाल्यास त्या भूभागातील लोक एकत्र येतात आणि तो प्रदेश राष्ट्र राज्य म्हणून उदयास येते. साधारण पणे राष्ट्रवाद ही भावना मानसिक स्वरूपाची आहे. राष्ट्र राज्य अधिक भावनिक अस्मिता म्हणजेच राष्ट्रवाद असा अर्थ राष्ट्रवाद या संकल्पनेचा आहे. "राज्य अधिक एकता बरोबर राष्ट्र. राज्य या सार्वभौम सत्तेखाली राहणारा व एकतेची भावना जपणाऱ्या समूहास राष्ट्र म्हणतात."<sup>2</sup>

### भारताच्या राष्ट्रवादाचे ऐतिहासिक अवलोकन:

भारतास एक राष्ट्रराज्य निर्माण करण्यासाठी अनेक अडचणी आहेत. प्रथमतः राष्ट्र निर्माण करणे ही प्रामुख्याने यामधील खरी अडचण आहे. राष्ट्र निर्माण करण्यासाठी समानतेच्या भावनेचा विकास व्हावा ही



प्रामुख्याने पहिली अट असल्यामुळे या अटीच्या पूर्तता करण्यात अडथळे आहेत. भारतीय समाजाचा पाया हा विषमतावादी रचनेवर आधारित असल्यामुळे हा पाया समूळ नष्ट केल्याशिवाय समानतेच्या भावनेचा विकास होवू शकत नाही. तरीही काही विचारप्रवाहांनी भारताला एकत्र कसे करता येईल याबाबतीत आपले विचार मांडले. त्यामुळे भारताच्या बाबतीत राष्ट्रवादाच्या विचारांचे अवलोकन दोन प्रकारातून करता येईल.

### **१. ब्राह्मणी राष्ट्रवादी विचार प्रवाहः**

१९ व्या शतकातील प्रबोधन काळात काही नेत्यांनी राष्ट्रवादाची मांडणी केली. यामध्ये गो. ग. आगरकर, बाळ टिळक, मोहनदास गांधी, प. नेहरू यासह अनेकांचा समावेश होता. त्यांनी परकीय सत्तेचा विरोध करून एकता निर्माण करण्याचा प्रयत्न केला. परंतु त्यांनी भारतातील जातिव्यवस्थेकडे, तिच्यातून निर्माण झालेल्या विषमतेकडे दुर्लक्ष केले. “या प्रवाहाचे प्रमुख वैशिष्ट्ये म्हणजे जातिसंस्था ही भारतीय समाजव्यवस्थेचे अभिन्न अंग आहे व हिच व्यवस्था भारतीयांच्या कल्याणाची आहे. म्हणून तिचा स्वीकार करणे आवश्यक आहे असा हा प्रवाह मानतो. या अंतर्गत काही मतभिन्नताही आहे ती अशी की, जात मूळ स्वरूपात रहावी असा एक मतप्रवाह, तर दुसरीकडे तिच्यामध्ये थोड्याबहुत सुधारणा केल्या पाहिजे असा एक मतप्रवाह यामध्ये दिसून येतो. त्यामुळे जातिसंस्थेच्या शिरोभागी असणारे ब्राह्मणी वर्चस्व व त्याच्या सत्तास्थानाला उपसर्ग होवू न देता ते कसे अबाधित राहिल याचा खटाटोप या संप्रदायाकडून झालेला दिसतो.”<sup>३</sup> भारतीय जनमानसात एकत्वाची भावना निर्माण करण्यात अडसर ठरलेल्या जातिव्यवस्थेच्या समूळ निर्मूलनात त्यांनी जाणीवपूर्वक रस घेतला नाही. त्यांच्या मते आधी परकीय गुलामगिरीतून मुक्तता मिळवावी नंतर भारतीय समाजातील व्याप्त असलेली विषमता दूर करावी. भारतीय समाजातील विषम स्थिती हे वास्तव स्वीकारूनही भारतीय स्वातंत्र्यातील प्रमुख नेत्यांनी परकीय सत्तेचा विरोध करून भारतीय जनमानसात एकतेची भावना निर्माण करण्यात यश मिळविले. परकीय सत्तेच्या अंमलातून मुक्तता मिळविली व स्वशासन, सार्वभौमत्व मिळविले असले तरी एकतेच्या भावनेचा हवा तसा विकास आजपर्यंतही झाला नसल्याचे दिसते. भारतीय समाज भाषा, धर्म, जात, या बाबतीत समान नाही. त्याचप्रमाणे भूप्रदेशाविषयीच्या त्यांच्या अस्मिता वेगवेगळ्या आहे. म्हणून त्यांच्या प्रथम राजकीय सुधारणांना नंतर सामाजिक सुधारणा या बाबतीतच्या मताविषयी सांशकता येते. पुढे याचा सारासार विचार करूनच भारतीय संविधानाची निर्मिती केली. संविधानात कुठल्याही धर्मास, जातीस, भाषेस किंवा प्रदेशास विशेष महत्व दिले नाही. त्यांना समानपणे स्थान देण्यात आले. वरील आधारावर जरी वेगवेगळेपणा असला तरीही विविधतेतून एकता निर्माण करता येवू शकते यासाठी संविधान निर्मात्यांचा हा प्रयत्न असावा असे वाटते.

याहीपेक्षा वेगळा दृष्टीकोन विनायक दामोदर सावरकरांचा होता. त्यांनी राष्ट्रवादी विचारांची मांडणी हिंदू धर्माला घेवून केली. हिंदू धर्मात असलेल्या अस्पृश्यतेसारख्या वैगुण्यावर त्यांनी कार्य केले. अस्पृश्यासोबत सहभोजन, अस्पृश्यांबद्दल सवर्ण हिंदूंची मानसिकता बदलणे हा त्यांच्या कार्यातील एक भाग होता. राष्ट्रवादाच्या निर्मितीकरता धर्माचा आधार होवू शकतो याची प्रखरतेने मांडणी केली. ज्वाज्वल्य हिंदूत्व विचारधारा त्यांनी विकसित केली. नेपोलियनच्या आत्मचरित्रातून हिंदूसमाज बोध घेईल यासाठी त्यांनी त्यांचे आत्मचरित्रही रेखाटले. राष्ट्रवादी विचारांची मांडणी धर्माच्या आधारवरही यशस्वी होवू शकते असा त्यांच्या विश्वास होता. परंतु जातिव्यवस्था समूळ लयाला जावी याबाबतीत कोणत्याच ठोस उपाययोजना अथवा ती ज्यामधून उत्पन्न झाली तिला विरोध दर्शविला नाही. उलट तिचे उदात्तीकरण ते करतात. ब्राह्मणी राष्ट्रवादी विचार प्रवाह हा विषमतेच्या मूलस्थानावर (वर्णव्यवस्था, जातीव्यवस्था) प्रहार करणारा कधीच नव्हता हे या ब्राह्मणी विचार प्रवाहाचे महत्वाचे वैशिष्ट्ये होय.

### **अब्राह्मणी राष्ट्रवादी विचार प्रवाहः**

१९ व्या शतकातील प्रबोधन काळातच या राष्ट्रवादी विचार प्रवाहाचा जन्म झाला. इंग्रजी शासनसत्तेच्या शिक्षण प्रभावाने ब्राह्मणेत्तर लोकांमध्ये शिक्षणाचा अल्पसा प्रसार होवू लागला. त्यामुळे इंग्रजी

आमदनीत इंग्रजांमुळे शिक्षित झालेले ब्राह्मणेत्तर समाजातील विचारवंत पुढे येवू लागले. यामध्ये प्रामुख्याने म. जोतिबा फुले यांचा व त्यांच्या सार्वजनिक सत्यधर्मातील चळवळीत सहभागी असणाऱ्या कार्यकर्त्यांचा समावेश होतो. म. फुले नंतर कोल्हापूर संस्थानचे छत्रपती राजर्षी शाहू महाराज, र. धो. कर्वे तसेच डॉ. बाबासाहेब आंबेडकरांच्या राष्ट्रवादी विचार हे अब्राह्मणी प्रवाहात येतात. हा विचारप्रवाह विषमतेचा प्रचंड विरोध करणारा आहे. या विचारप्रवाहाने विषमतेच्या मूळ स्थानावर अचूक वार करून भारतीय समाज या विषमतेने ग्रस्त होता त्याला संघटीत करण्याचा प्रयत्न करून त्यांच्यात एकतेची भावना निर्माण केली. याबाबतीत ईश्वराने मनुष्यास जन्म घालतांना भेद केला नाही तर तुम्ही यामध्ये भेद करणारे कोण? असा सवाल म. फुल्यांनी निर्माण केलेला दिसतो. भारतीय समाजातील व्याप्त विषमता ही ईश्वरनिर्मित नाही तर काही दृष्ट प्रवृत्तीच्या मूठभर लोकांनी आपल्या स्वार्थासाठी ती निर्माण केली आहे. तसेच या विषमतेला वेद, उपनिषद, पुराणे, स्मृत्या इत्यादींचा काल्पनिक आधार दिला आहे. “अब्राह्मणी जातिसंस्थेच्या अभ्यासकांनी, संशोधकांनी जातिव्यवस्था ही शोषणावर आधारित असून तिचे शोषणप्रधान स्वरूप समोर आणण्याचा प्रयत्न केला तसेच तिचे अधिष्ठान असलेली धर्मव्यवस्था, वर्णव्यवस्था व शास्त्रे यांचा धिक्कार केला सोबतच ही व्यवस्था नाकारणे म्हणजे खऱ्या अर्थाने सामाजिक न्यायाचा पुरस्कार करणे होय. माणूस म्हणून माणसाची प्रतिष्ठा यामुळेच वाढविल्या जावू शकते असा आशावादही यामधून निर्माण करण्यात यश संपादन केलेले आहे. त्यामुळे हा विचारप्रवाह विषमता उत्पन्न करणाऱ्या सर्वाना नाकारतो. केवळ नाकारतच नाही तर त्यांची नव्याने समिक्षा व्हावी याचा आग्रह धरतो”<sup>४</sup> म्हणून स्वातंत्र्याची बेगडी मागणी करणार्यास स्वातंत्र्य मागण्याचा अधिकार नाही असा जोरदार युक्तीवाद या प्रवाहाने उभा करून प्रबोधनाची भूमिका घेतली. जातीच्या आधारावर भारतीय समाज विभागला गेला आहे. जातीच्या श्रेष्ठ कनिष्ठतेच्या भावनेमुळे एकीची भावना निर्माण होत नाही. त्यामुळे ही श्रेष्ठ कनिष्ठतेची भावनाच मुळात चुकीची आहे. याआधारावर अब्राह्मणी राष्ट्रवादी विचार प्रवर्तकांनी एक राष्ट्र निर्माण करण्यासाठी प्रयत्न केला. ज्याचा आधार समतेचा होता.

### कांशीराम यांचा राष्ट्रवाद

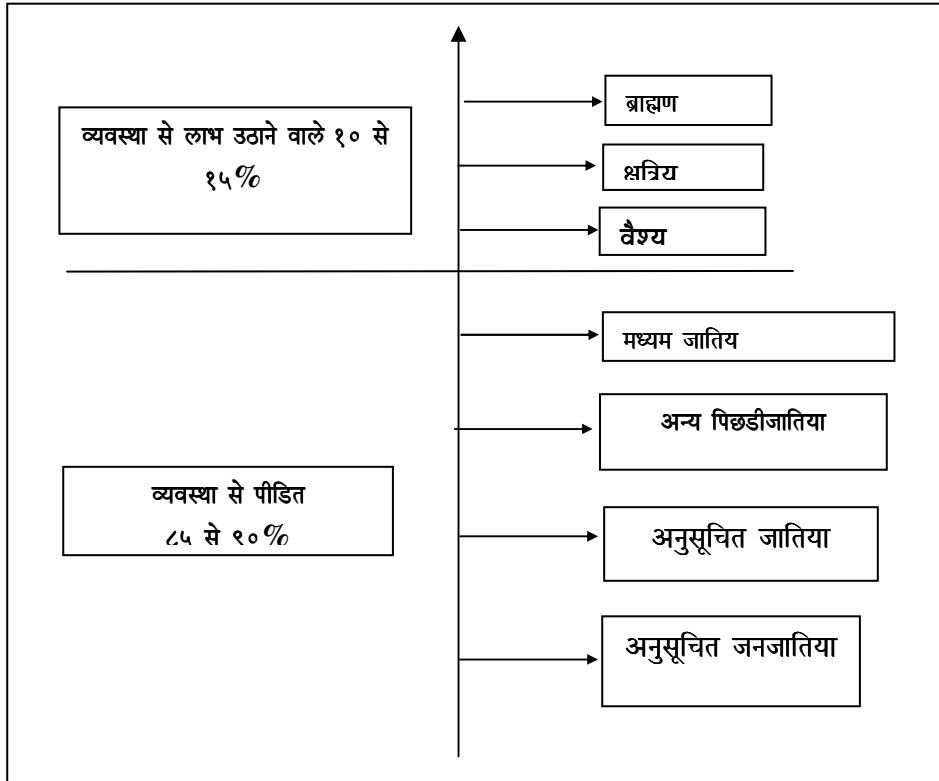
कांशीराम हे मूळ पंजाब राज्यातील रोपड जिल्ह्याच्या खावासपूर गावचे. त्यांचा जन्म 15 मार्च 1934 साली झाला. ते पुणे येथील एक्सप्लोसीव्ह अँड रिसर्च डेव्हलपमेंट येथे सहायक संशोधक या पदावर काम करीत होते. त्यांना आपल्या कर्मचाऱ्याच्या करवी डॉ. बाबासाहेब आंबेडकर कार्याची थोरवी माहिती झाली. त्यांनी डॉ. बाबासाहेब आंबेडकरांच्या जीवनप्रवासाचा अभ्यास केला. सोबतच भारतातील परिवर्तनावादी इतिहासाची ओळख करून घेतली. सामाजिक परिवर्तनासाठी कार्य करणारे फुले, शाहू व आंबेडकरांचे कार्य पुढेही चालविले जाण्याची आवश्यकता आहे याची जाणीव त्यांना झाली आणि त्यांनी आपल्या नोकरीचा राजीनामा देवून या कामासाठी स्वतःला वाहून घेतले. पुढे त्यांनी बामसेफ, ही कर्मचारी संघटना, डीएसफोर ही सामाजिक संघटना तसेच बहुजन समाज पार्टी हा राजकीय पक्ष स्थापन केला. “डॉ. बाबासाहेब आंबेडकर यांच्या चळवळीपासून प्रेरणा घेवून त्यांनी आपल्या सहकाऱ्यांच्या मदतीने मासिके, साप्ताहिके व वृत्तपत्रेही चालविली. यामध्ये प्रामुख्याने ‘दि अनटचेबल इंडिया’ (इंग्रजी), ‘दि ऑप्रेस्ड इंडियन’ (इंग्रजी मासिक), ‘दलित साहित्य’ (गुजराती), ‘बहुजन साहित्य’ (हिंदी) व ‘शोषित साहित्य’ (पंजाबी) ही मासिके तर ‘बहुजन नायक’ (साप्ताहिक मराठी), ‘बहुजन संदेश’ (साप्ताहिक पंजाबी), साप्ताहिके तथा ‘बहुजन टाईम्स’ (हिंदी, मराठी, इंग्रजी) अशी वर्तमानपत्रे चालविली.”<sup>5</sup> 1972 ते 2006 या कालखंडात त्यांनी आपल्या निर्वाणापर्यंत ज्या विचारांचे प्रगटीकरण केले त्यातून त्यांची राष्ट्रवादाची संकल्पना समोर येते.

### बहुजनवादः

प्रचलित भारतीय राजकारणात बहुजनवाद ही संकल्पना प्रसिद्ध करण्याचे श्रेय कांशीराम यांच्या नावावर आहे. त्यांनी भारतीय समाजाची विभागणी दोन गटात केली. अल्पजन समाज व बहुजन समाज अशी

ती विभागणी होय. त्यांच्या विभागणीचा निकष जाती होता. खालील मानचित्रावरून त्यांच्या विभागणीला आणखी चांगले समजून घेता येईल ती याप्रमाणे.

### भारतीय समाजव्यवस्थेचे स्वरूप



(डॉ. जाधव अशोक, उत्तरप्रदेशातील बहुजन समाज पक्षाच्या सत्ताप्राप्तीच्या यशामागील जातीय राजकारणाच्या भूमिकेचे विश्लेषणात्मक अध्ययन, संत गाडगे बाबा अमरावती विद्यापीठ अमरावती, पीएच. डी. शोधप्रबंध, पृ. क्र.75 वरून )

वरील मानचित्रावरून त्यांनी भारतीय समाज व्यवस्थेचे अंतरंग उलगडून दाखविले आहे. ही व्यवस्था विषमतेवर आधारित आहे. या व्यवस्थेचे सामाजिक, आर्थिक, राजकीय,सांस्कृतिक, न्यायिक, लाभ केवळ 15 टक्के लोकांना प्राप्त होतो तर 85 टक्के लोक सामाजिक, आर्थिक, राजकीय,सांस्कृतिक, न्यायिक लाभापासून वंचित आहे. त्यामुळे ही व्यवस्था विषमतावादी आहे. 15 टक्के लोकांना त्यांनी अल्पजन समाजाची उपमा दिली तर 85 टक्के लोकांना बहुजन समाजाची उपमा दिली. बहु म्हणजे जास्त, जन म्हणजे लोक अर्थात बहुजन होय अशी त्यांची धारणा होती. त्यांनी बहुजन समाज एकत्र का येत नाही या प्रश्नाच्या उत्तराचा शोध घेतला असता त्यांच्या लक्षात आले की, 85 टक्के बहुजन समाज हा जातीजातीत विभागला गेला आहे. त्यांनी 85 टक्के समाजाला एकत्र करण्यासाठी बहुजन संकल्पनेची निर्मिती केली. जातीच्या आधारावरून हा समाज एकत्र येवू शकणार नाही म्हणून या समाजाला एकत्र करण्यासाठी, त्यांच्यात एकतेची भावना निर्माण करण्यासाठी बहुजन संकल्पनेचा उपयोग केला. बहुजन समाजातील सर्व जातींचे शोषण होत आहे. या शोषणाचा पाया विद्यमान सामाजिक व्यवस्था आहे. त्यामुळे त्यांनी बहुजन समाजाला याची जाणीव करून दिली की कोण तुमचे शोषण करत आहे. आपले शोषण थांबविण्यासाठी या समाजाने बहुजन या संकल्पनेच्या आधारावर एकत्र यावे आणि आपल्या मुक्तीचा मार्ग शोधावा. संपूर्ण भारतात ही व्यवस्था असल्याने सर्व देशातील लोकांना एकत्र आणण्याचे त्यांचे प्रयत्न राष्ट्रवादी विचाराला पोषक ठरतात. जास्तीत जास्त लोकांना एकतेच्या सूत्रात बांधण्याचा प्रयत्न आपल्या बहुजन संकल्पनेद्वारे ते करतांना दिसतात. 'जिसकी जितनी संख्या भारी उसकी उतनी भागीदारी', 'जाती तोडो, समाज जोडो' असे नारे त्यांनी लोकप्रिय करून देशातील जनतेत एकत्वाची

भावना निर्माण करण्याचा प्रयत्न केला. स्वातंत्र्या नंतरही संविधान, कायदा असूनही हीच व्यवस्था कार्यरत आहे. हीच व्यवस्था कार्यरत असण्याचे कारण संविधानाची अंमलबजावणी करण्याची सत्ता आजही अल्पजन समाजाकडे आहे. अल्पजन समाजाच्या प्रवृत्तीला त्यांनी मनुवाद हा शब्द प्रयोग केला. मनुवाद म्हणजे विषमतेचे समर्थन करणारा असा अर्थ ते सांगतात. त्यांनी अल्पजन समाज करत असलेल्या शोषणाला वाचा फोडली. त्यांना शोषणकर्ते समाजाचा, अल्पजन समाजाचा सूड घेणे असा त्यांच्या विचारांचा आशय मुळीच नव्हता. त्यांनी वारंवार आपल्या भाषणातून शोषणकर्त्या समाजाला विनंती केली. विद्यमान सामाजिक व्यवस्था ही विषमतेवर आधारित असून ही व्यवस्था सर्वांनी मिळून समतावादी केली पाहिजे. ही उभी व्यवस्था आडवी करावी म्हणजेच समता निर्माण होईल. सर्व समाजात एकतेची व बंधुभावाची भावना प्रबळ व्हावी असा त्यांचा हेतू होता. या कार्यासाठी त्यांनी सर्व जातीच्या अल्पजनांच्या लोकांना सोबत घेवून समतेच्या सिद्धांताच्या रुजवतुकीचे कार्य केले. त्यांनी आपल्या राजकीय पक्षाचे टिकिट वाटप करतांना कोणत्याही जातीचा द्वेष केला नाही तर सर्व समाजाला आपल्या राजकीय पक्षाचे आमदार खासदार बनविण्याचा प्रयत्न केला. एवढेच नव्हे तर त्यांनी आपल्या राजकीय पक्षाच्या संघटनेत जातीनिहाय बंधुभाव समित्याही निर्माण केल्या. प्रबळ भारतीय राष्ट्रवादाच्या आड येणाऱ्या जात व्यवस्थेवर परिणाम कारक काम करणारे राजकीय विचारवंत म्हणून त्यांच्या कार्याचा उल्लेख केला जातो. जातीव्यवस्था नष्ट करून समतावादी व्यवस्था लागू करण्यासाठी राजकीय सत्ता महत्वाची आहे असे त्यांचे म्हणणे आहे. त्यामुळे समतावादी व्यवस्थेचा आग्रह धरणाऱ्यांनी शासनकर्ती जमात होण्याच्या दिशेने प्रयत्न केले पाहिजे, संविधानाची अंमलबजावणी करण्याची सत्ता हाती घ्यावी अशी त्यांची भूमिका होती.

#### **निष्कर्ष:**

राष्ट्रवादाचा आशय, भारताच्या संदर्भात राष्ट्रवादाला पुरक व पोषक असलेले कार्य व मांडलेले विचार यावरून कांशीरामांच्या राष्ट्रवादी विचारांचे मूल्यमापन केल्यास ते खऱ्या अर्थाने राष्ट्रवादी ठरतात. राष्ट्रवादाला अडसर ठरणाऱ्या जातिव्यवस्थेचा विरोध त्यांनी केला. जातिव्यवस्थेचे त्यांनी केलेले वर्णनही यथार्थ वाटते. तसेच त्यांनी जातिभेद विसरून समाजात एकतेची भावना विकसित केली. जातिव्यवस्थेचा लाभ मिळविणारा अल्पजन (मनुवादी) समाजालाही समता निर्माण कार्यात सहभागी करून घेतल्यामुळे भारतीय समाजात एकत्वाची भावना निर्माण करण्यात त्यांचे योगदान उल्लेखनीय समजले जाईल. भारतात खऱ्या अर्थाने समाजात एकता निर्माण करण्याचे कार्य अब्राह्मणी विचारप्रवर्तकांनी केलेले आहे. त्यामुळे त्यांचा समावेश अब्राह्मणी विचारप्रवर्तकांत करता येईल. कांशीरामांचे विचार व कार्य हे भारतीय राष्ट्रवादाला नवा चेहरा देण्याचा प्रयत्न असे म्हणता येईल.

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## **दूरदृष्टीचे कार्यक्षम मंत्री: नितीन गडकरी**

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### **प्रस्तावना**

आभाळाएवढी दृष्टी असावी पण जमिनीवर चालत हात सदैव दुर्बलांसाठी, विकासासाठी झटणारे असावेत, नवनिर्माण करीत सर्वसामान्यांच्या आकांक्षाला उतरणारे असावेत तर तोच खरा नेता होईल असे म्हणतात. ह्या सर्व गुणांचा संचय साधणारे राजकीय व्यक्तिमत्त्व म्हणजे केंद्रीय भूपृष्ठ परिवहन मंत्री नितीन गडकरी आहेत. नितीन गडकरी हे नेहमीच दोन तत्त्वावर जोर देतात ते म्हणजे ज्ञानाचे संपत्तीत रूपांतर करणे, कच्च्याचे श्रीमंतीत रूपांतर करणे हे विचार मनात ठेवून ते अनेक नवउपक्रम राबवीत असतात. हे सर्व कार्य करताना ते विचार स्पष्ट करतात की राजकारण हे अंत्योदया साठी करायचे असते.

दिनदयाल उपाध्याय यांनी मांडलेला मानवतावाद आणि विश्वसनीयता याचा मी अनुनय करीत राजकारण करत आहे आणि हे माझे राजकीय कार्य करण्याची प्रेरणा आदर्श आहे ते सांगायला विसरत नाही. राजकारण हे सामाजिक-आर्थिक परिवर्तनाचे साधन आहे. राजकारणाचे कर्तव्य म्हणजे गरीब, वंचित त्यांची सेवा करणे. हे आदर्श विचार त्यांनी उभे केलेल्या मॉडेलमध्ये प्रतिबिंबित झालेले दिसते. कार्यात नाविण्यपणा आणून त्याचे जास्तीत फायदे देशाला, सर्वसामान्य जनतेला करून देणाऱ्या नितीन गडकरी यांचा जन्म 27 मे 1957 रोजी नागपूर येथे शेतकरी कुटुंबात झाला. बालपण नागपूर मध्ये अगदी धार्मिक वातावरणात पूर्ण झाले. लहानपणी सेवाभावाची शिकवण, त्यागाचे धडे, प्रामाणिक कष्टाचे धडे आईची देणगी म्हणता येईल. म्हणूनच कोणतीही राजकीय पार्श्वभूमी नाही, या अगोदर कोणताही राजकीय वारसा नाही, वरदहस्त नाही तरीसुद्धा अभावपिण्या कार्यकर्ता ते यशस्वी केंद्रीय कॅबिनेट मंत्री हा प्रवास सर्वांना चकित करणारा आहे. आणीबाणीच्या काळामध्ये 19 महिने कारागृहात काढल्यानंतर आयुष्यामध्ये कलाटणी मिळाली आणि राजकारणात जाण्याचे पक्के ठरले. आज सर्वात प्रभावशाली मंत्री, कार्यक्षम मंत्री, अज्ञातशत्रू म्हणून नितीन गडकरी यांचे भारतीय राजकारणात नाव समोर आलेले आहे त्यांचा पुढील पणे आढावा घेता येईल.

भारतीय राजकीय वाटचाल आणि त्यातील असामान्य राजकीय नेतृत्वाचा अभ्यास केल्यास आधुनिक भारताच्या शिल्पकारांपैकी एक म्हणजे नितीन गडकरी यांचे नाव घ्यावे लागेल. हे सर्व शक्य झाले ते म्हणजे तळागाळापर्यंत सर्वसामान्यांसाठी समाजकारण करण्याची प्रेरणा. याच बळावर विविध पद भूषवित वाटचाल केलेली दिसून येते.

### **राजकीय वाटचाल**

1981 ला महाविद्यालय विद्यार्थी परिषद सचिव म्हणून निवडणूक लढवली आणि तीच जिंकून आपल्या मधला नेतृत्वाचा गुण ओळखून या पुढे आपले करिअर करायचे राजकीय क्षेत्रात म्हणून भारतीय जनता पार्टी पक्षात कार्य करण्यास सुरुवात केली. सुरुवातीला भारतीय जनता पार्टी युवा मोर्चा 1985 ला अध्यक्ष झाले. 1988 ला नागपूर भाजप मंत्री म्हणून जबाबदारी मिळाली. सर्वप्रथम 1989 ला महाराष्ट्र विधान



परिषदेवर जाण्याची संधी पक्षाने दिली. ती सलग 1989 ते 2014 पर्यंत या सभागृहात आमदार, विरोधी पक्षनेता म्हणून विविध जबाबदाऱ्या निभावल्या. 1995 ते 1999 च्या काळात शिवसेना-भाजपा युतीचे सरकार स्थापन झाल्यानंतर सार्वजनिक बांधकाम मंत्री म्हणून पाच वर्षे महाराष्ट्रात अनेक ऐतिहासिक कामगिरी केलेली दिसते. मुंबई-पुणे पहिला द्रुतगती 1998 चा आव्हान स्वीकारून तयार केलेला रस्ता असो की मुंबईमध्ये 55 उड्डाण पूल निर्माण करून मुंबई चा मानकरी पदवी मिळवणे असो. अशा विविध कामातून आपले कर्तव्य गडकरी यांनी सिद्ध केलेले दिसून येते. हे कार्य पाहून प्रसिद्ध उद्योगपती रतन टाटा यांनी उद्गार काढले आहे “की तुमची कार्यक्षमता आणि जोखीम पत्करण्याचे धाडस त्याचं कौतुक करतो, कदाचित तुम्ही माझ्यापेक्षा अधिक चांगले व्यवसायिक आहेत. यावरून त्यांच्या कार्याची सिद्धता स्पष्ट होताना दिसते. पुढे हा प्रवास अविरतपणे 23 वर्षे विविध भूमिकेतून चालूच आहे.

2009 च्या लोकसभा निवडणूक मध्ये भारतीय जनता पार्टीचा पराभव झाल्यावर नितीन गडकरी यांनी राष्ट्रीय अध्यक्ष म्हणून जबाबदारी निभावली आणि बेरजेचे राजकारण केल्यामुळे त्याचा नक्कीच पक्षाला 2014 च्या निवडणुकीत फायदा झाला. 2014 च्या लोकसभा निवडणुकीमध्ये नागपूर मधून विजयी होऊन सर्वप्रथम केंद्रीय रस्ते, वाहतूक, महामार्ग आणि जहाज बांधणी खाते मिळाले. भारतातील रस्त्याचे जाळे जम्मू काश्मीर ते कन्याकुमारी, आसाम ते गुजरात उभारले जाऊ लागले. पुन्हा 2019 च्या लोकसभा मध्ये निवडून येऊन आज घडीला केंद्रीय रस्ते वाहतूक महामार्ग व लघुउद्योग मंत्री म्हणून यशस्वी कार्यक्षम मंत्री म्हणून जबाबदारी निभावताना दिसून येते. यासाठी मागील दहा वर्षात विविध कार्यांचा आढावा यातून आपणास घेता येईल. विविध कार्यांचा आढावा घेतल्यास चार-पाच दशकांचा अभ्यास केल्यास जे 40 वर्षात रस्ते उभारणी झाली नाही ती 2014 ते 2020 काळात विविध रेकॉर्ड निर्माण करीत जलदगतीने विनाथांबा, अपघात विरहित रस्त्याचे जाळे उभारण्याचे कार्य मंत्री नितीन गडकरी यांनी केलेले दिसून येते. हे रस्ते उभारताना पर्यावरणाचा त्रास होऊ द्यायचा नाही आणि विकास ही साध्य करायचा, प्रकल्प पूर्णत्वास नेण्याचे आणि तेसुद्धा पारदर्शक भ्रष्टाचारमुक्त कार्य करणे हा धडा आज भारतीय राजकारणाला गडकरी यांनी दिला आहे. लघुउद्योग याबाबत विविध निर्णय असो, जहाजबांधणी, नदीस्वच्छता अशा विविध विभागात नाविन्यपूर्ण कार्य करीत आज करोडो रोजगार मिळवून देण्याचे कार्य झाले आहे असे म्हणता येईल. लार्सन अँड टुब्रो लिमिटेड कंपनी म्हणजे भारतातील रस्ते निर्माण करणारी अग्रगण्य कंपनी म्हणून ओळखली जाते. कंपनीचे मुख्य कार्यकारी अधिकारी ए.एम.नाईक हे 2014 ला रस्ते आणि वाहतूक मंत्री नितीन गडकरी यांना भेटले आणि रस्ते प्रकल्पातून कंपनी बाहेर पडण्याचा विचार करत आहे. त्याचे कारण यूपीए सरकारच्या दुसऱ्या कार्यकाळात महामार्ग आणि रस्ते समस्या गंभीर बनल्या की अगदी कंपनीवाले हादरून गेले. विविध प्रकल्पातून बाहेर पडण्यासाठी कंपनी दंड भरण्यास तयार झाली परंतु 2014 ला गडकरी साहेब यांनी विश्वास दिला आणि त्यांनी पुन्हा त्या क्षेत्रात कामगिरी चालू ठेवली. त्याचे कारण म्हणजे प्रकल्पाची कोंडी करणारे अडथळे दूर करून आणि प्रकल्पाला गती देऊन प्रकल्प रुळावर आणण्याचे काम या खात्यांतर्गत होऊ लागली आणि त्याचा परिपाक आज अनेक कंपन्यांच्या वतीने काम करताना दिसतात.

### **रस्ते उभारणीचा विक्रम :**

2014 च्या अगोदर एक वर्षात रोज 11 किलोमीटर पर्यंत रस्ते बांधणी होत होती. तीच 2017 मध्ये 25 किमी रोज होऊ लागली. 2019 ची आकडेवारी पाहिल्यास 30 किमी रोज रस्ते उभारणी होत आहे. नितीन गडकरी यांच्या कार्यकाळामध्ये अनेक रस्ते व परिवहन खात्यात विक्रम होताना दिसत आहेत. एनएचएआयच्या एका कंत्राटदाराने 24 तासात 2580 मीटर लांबीच्या चौपदरी महामार्गासाठी पीक्यूसी ठेवण्याचे विश्वविक्रम तयार केले. 1 फेब्रुवारी 2021 रोजी सकाळी 8 वाजता कामाला प्रारंभ झाला आणि 2 फेब्रुवारी 2021 रोजी सकाळी 8 वाजता काम पूर्ण केले. एकूण 2580 मीटरच्या 4 लेन म्हणजेच जवळपास 10.32 किलोमीटर पुढील सकाळी ८ वाजता रस्ता पूर्ण झाला. मीटररुंदी 48711 चौरस मीटर कॉक्रीटचे

क्षेत्रफळ 24 तासात पूर्ण करण्यात आले. या रस्ते कामाचा केलेला पराक्रम “पटेल इन्फ्रास्ट्रक्चर लिमिटेड” च्या नावावर “इंडिया बुक रेकॉर्ड” आणि “गोल्डन बुक ऑफ वर्ल्ड रेकॉर्ड” या दोन्ही ठिकाणी याचा विक्रमाची नोंद झाली आहे. हा रेकॉर्ड ग्रीनफील्ड दिल्ली-वडोदरा-मुंबई 8 एक्सप्रेसवे प्रकल्पातील एक भाग आहे. आज 2021 ला दररोज तीस किलोमीटर प्रतिदिन गतीने महामार्ग बनताना दिसत आहेत. हे प्रकल्प करताना एक वैशिष्ट्य म्हणजे दोन लाख कोटी रुपये प्रकल्प असेल तर त्यातील एक टक्का खर्च हा झाडासाठी, सौंदर्यासाठी असेल. रस्ते क्षेत्राविषयी बोलायचं झालं तर भारत अभियानांतर्गत 3000 रेल्वे क्रॉसिंगवर क्रॉसिंग पूल बांधून सर्व महामार्ग क्रॉसिंग मुक्त बनवण्यात येणार आहेत. नाविन्यपूर्ण योजना म्हणजे 35 लॉजिस्टिक पार्क उभारणी करत आहेत. त्यात भारतातील सर्वात मोठे व्यवसाय असलेली शहरांसोबत 35 हजार कोटी खर्चून शहराच्या सीमेबाहेर मुख्य रस्त्यावर, उप रस्त्यावर लॉजिस्टिक पार्क मध्ये संबंधित शहरासाठी आवश्यक असलेला माल ट्रक मध्ये चढवणे आणि उतरवणे यात होणार आहे. यामुळे वाहतुकीचा वेळ आणि खर्च वाचणार आहे.

### **FASTag सुविधा :**

देशातील 370 टोलनाका दरम्यान अडथळा मुक्त टोल केंद्र उभारून विनाअडथळा प्रवास करता यावा म्हणून वाहन मालकाने प्रीपेड कार्ड विकत घ्यायचे आणि त्यांना FASTag मिळेल तो वाहनावर लावावा लागेल. आपोआप स्कॅन होऊन गाडी पुढे जाईल. असे नाविन्यपूर्ण प्रकल्प पूर्णत्वास जात आहेत.

### **बुलढाणा पॅटर्न :**

महामार्गाचे कार्य करताना जलक्रांती पुढाकाराने महामार्ग बांधकामासाठी गाव पुरवली जातात. जलक्रांती आता खेड्यामध्ये राबविण्यात येत आहे. या गावाची अर्थव्यवस्था बदलण्याचे श्रेय जलयुक्त संस्थांना पुनर्जीवित करून आणि त्याचबरोबर महामार्गाच्या या जागेसाठी एकत्रित पुरवठा केला जातो. सामान्यता एकूण म्हणजे भूगर्भीय काम किंवा महामार्ग तयार करण्यासाठी लागणारी माती, प्रकल्पांतर्गत तलाव, विहिरी सारख्या वाढलेल्या पाणवठ्यावरून माती काढली जाते. यातून आता 491 किलोमीटर अंतराचे बारा राष्ट्रीय महामार्ग प्रकल्प केले आहेत. नदी, तलाव मधून 2.10 लाख घनमीटर साहित्य काढले आहे. त्याद्वारे बुलढाणा मध्ये 5510 घनमीटर साठवण क्षमता निर्माण झाली आहे. याचा फायदा 5 लाख जनसंख्येला होऊन आज पर्यंत 22800 विहिरी पुनर्भरण होऊन 81 पाणी पुरवठा योजनांचा लाभ झाला आहे. बुलढाणा येथे पाण्याची पातळी 400 मीटर खाली गेली होती. तिथे 1 तास काम करणारे हातपंप आता 12 तास काम करताना दिसत आहेत.

### **ई - वाहनांना चालना :**

नितीन गडकरी हे परिवहन खात्याचे मंत्री बनल्यानंतर अनेक सुधारणा केलेल्या दिसून येतात. त्यातील सर्वात महत्त्वाची सुधारणा म्हणजे ई-रिक्षा, ई-वाहने यांच्या वाढीस चालना देणे. जुना “मोटार वाहन कायदा दुरुस्ती” करून ई-रिक्षांना या कायद्यातून काढून टाकले आणि सहज सोप्या पद्धतीने ई-रिक्षाचालकांना सर्व व्यवहार करता यावे असे तरतुद केली आहे. एवढेच नाही तर केंद्रीय समाजकल्याण, अल्पसंख्यांक मंत्रालयाकडून कर्ज उपलब्ध करून देऊन सर्वसामान्य रिक्षाचालकांच्या हातांना रोजगार दिला आहे. एकूणच या ई-रिक्षामुळे प्रदूषणात कमी होणे, कार्बन डायऑक्साइड, कार्बन मोनॉक्साइड अशा विषाणू पासून होणाऱ्या प्रदूषणात कमी झाली आहे. आणि ई-उर्जा, इथेनॉल, सौर-ऊर्जा यांच्या वापरास प्रेरणा मिळाली याचा फायदाच देशभरात करोडो लोक घेताना दिसतात. त्यामुळे आज महाराष्ट्र, आसाम, दिल्ली, पंजाब इत्यादी राज्यात ई-रिक्षा उत्पादन करणाऱ्या कंपनीत मोठ्या प्रमाणात उत्पादन होऊन खप वाढताना दिसतोय.

विविध रचनात्मक कार्याची चर्चा करताना हे दिसून येईल कि आज केंद्रीय कॅबिनेट मंत्री म्हणून सर्वात कार्यक्षम मंत्री म्हणून जबाबदारी पार पाडताना दिसत आहे. कारण 2014 पूर्वी एका दिवसाला 11 किलोमीटर रस्त्याचे काम पूर्ण होत असे तेच आज 30 किलोमीटर पूर्ण होताना दिसत आहेत. 2014 पूर्वीच्या तुलनेत आज पन्नास टक्के अपघात कमी झालेले आहे. राष्ट्रीय महामार्गाची लांबी 2014 ला 91287 किमी होती. आज डिसेंबर 2019 च्या आकडेवारीनुसार 132500 किमी पर्यंत महामार्गात वाढ झालेली दिसून येते.

### **सामाजिक उपक्रम :**

नितीन गडकरी हे आपल्या नागपूर लोकसभा मतदार संघात विविध सामाजिक उपक्रम राबवताना दिसतात. अनाथ मुलांसाठी चालविण्यात येणाऱ्या एकलशाळा असो कि आदिवासी, अनाथ, अपंग लोकांसाठी गरज बघून मोफत सेवा पुरवणे असो यातूनच त्यांची समाजाप्रती असलेली भावना लक्षात येते. आजपर्यंत मतदारसंघात ७०० च्या वर लोकांचे हृदयाची शस्त्रक्रिया, ६००० हजार च्या वर आतापर्यंत डोळ्यांच्या शस्त्रक्रिया, ज्यांना पाय नव्हते अशा १०० तरुणांना पाय जर्मनीवरून स्वखर्चाने मागून दिले. अशा लोकांच्या चेहऱ्यावरील आनंद हीच मोठी कमाई मानणारे नितीन गडकरी आहेत हेच विविध प्रसंगातून लक्षात येते. नागपूर खासदार क्रीडा महोत्सव, खासदार उद्योग महोत्सव असे विविध महोत्सव सुद्धा आपल्या लोकसभा मतदारसंघांमध्ये राबवून सामाजिक, धार्मिक दरी कमी करण्याचे कार्य नितीन गडकरी अशा माध्यमातून करताना दिसतात.

कोरोना काळातील विचार केला तर त्यामध्ये अग्रक्रमांकावर गडकरी यांनी पुढाकार घेऊन संपूर्ण महाराष्ट्रासाठी अनेक गोष्टीची उपलब्धता करून दिलेली आहे. नितीन गडकरी यांच्याकडे आरोग्य विभागाची जबाबदारी सोपवावी ही मागणी अशा कार्यातून समोर आल्याचे दिसून येते. महाराष्ट्रात कोरोना रुग्णांच्या उपचारासाठी रेमडीसिविरची मागणी पाहून वर्ध्यातील "जेनेटीक लाइफ सायन्सेस कंपनीला" इंजेक्शन बनवण्याची परवानगी मिळवून देऊन महाराष्ट्रासाठी लागणारी गरज तातडीने भागवली. महाराष्ट्राला पडलेली ऑक्सिजनची कमतरता पाहून विशाखापटनम येथील "आयआयएनएल प्राणवायू प्रकल्पातून" 97 मेट्रिक टन द्रव्य ऑक्सिजन उपलब्ध करून दिले. उच्च उद्देश ठेवून कार्य करीत राहणे हेच त्यांच्या कार्याचे गमक आहे म्हणूनच भारतातील रस्ते अमेरिका व युरोप सारखे करण्याचे ध्येय असो, अथवा 40 किलोमीटर रोज रस्ते बांधण्याच्या उद्दिष्ट पाहिल्यास दिसून येते.

भारतात ई-वाहनाला चालना देण्यासाठीचा एक प्रयत्न म्हणजे अमेरिकन कार निर्माती कंपनीने जानेवारी 2019 मध्ये बेंगलोर येथील तुमकुर येथे उभा केलेला प्रकल्प म्हणता येईल. त्यासाठी इंडस्ट्रियल कॉरिडोर बनवण्यात येत असून जवळपास ७७२५ कोटी रुपये यासाठी गुंतवले जाणार आहेत. त्या माध्यमातून 2.8 लाख लोकांना रोजगार मिळणार आहे अशा अनेक प्रकल्पाची माहिती घेता येईल. एकूणच 2014 पासून रस्ते, परिवहन, महामार्ग जहाजबांधणी अशा विविध खात्यांतर्गत भारतामध्ये रोजगार, रस्ते उभारणी, गंगा शुद्धीकरण, जहाजबांधणी, बंदरे अशा खात्यामार्फत नावीन्यपूर्ण उपक्रम राबवून रचनात्मक कार्य, रचनात्मक भारत उभे करण्याचे काम नितीन गडकरी करताना दिसत आहेत.

### **समारोप :**

नितीन गडकरी यांचे राजकीय व सामाजिक कार्य चिकित्सकपणे आढावा घेतल्यास राजकीय, सामाजिक क्षेत्रातील विविध कार्य हे जलद गतीने होताना दिसतात. पारदर्शकपणा, भ्रष्टाचारमुक्त भारत, रोजगार वृद्धी हे उद्दिष्ट ठेवून अविरतपणे कार्य करणारे नितीन गडकरी आहेत असे अभ्यासाअंती दिसून येते. शेतकरी कुटुंबात जन्म घेऊन कसलीही राजकीय पार्श्वभूमी नसताना सामान्य कार्यकर्ता ते आज यशस्वी केंद्रीय कॅबिनेट मंत्री या प्रवासाचा मागोवा घेताना अलीकडील काळातील ठळकपणे बाबी वरीलप्रमाणे मांडता येते.

**संदर्भ :**

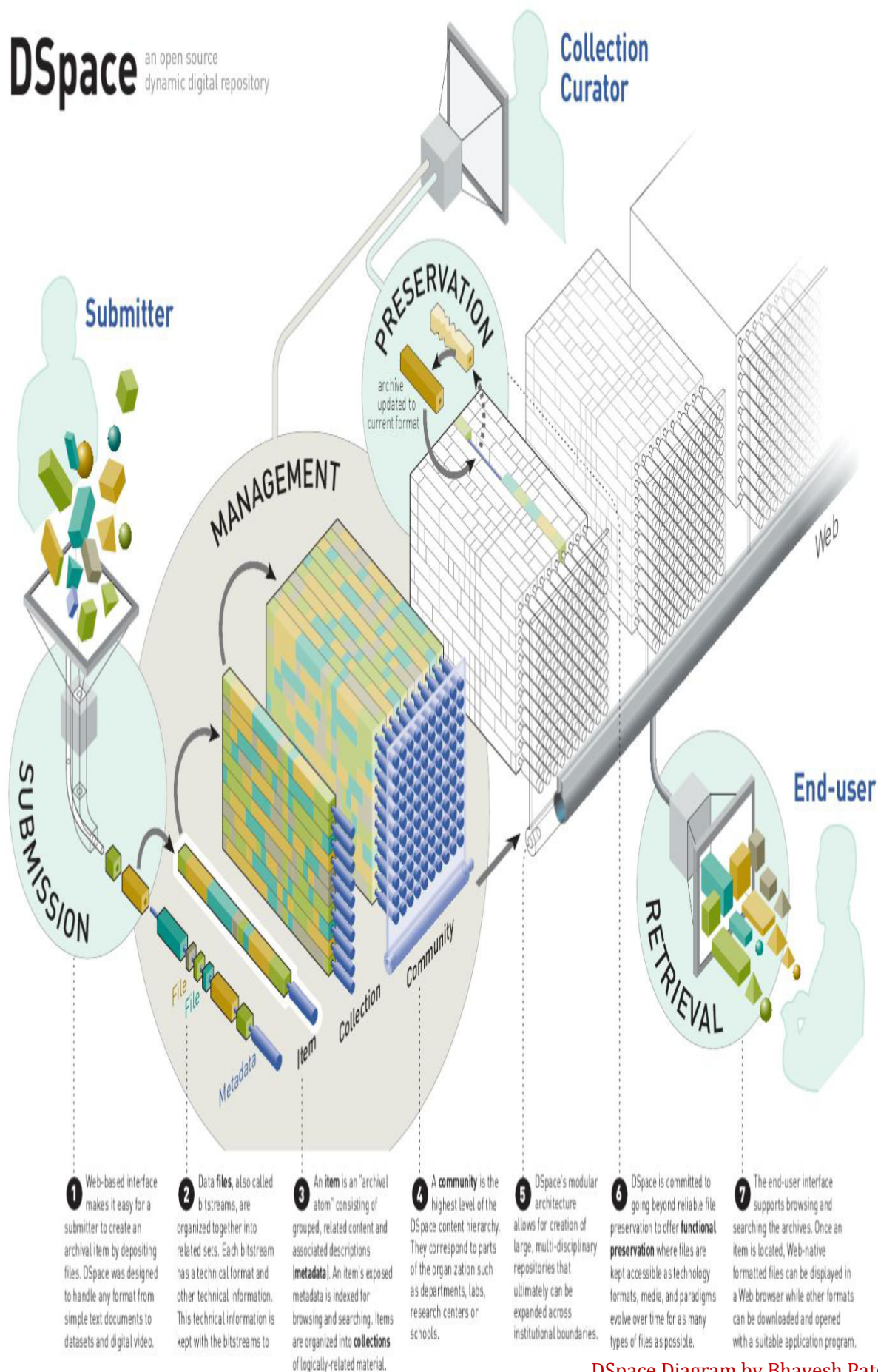
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