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### Editorial.....

It is heartening to note that our journal is able to sustain the enthusiasm and covering various facets of knowledge. It is our hope that IJMER would continue to live up to its fullest expectations savoring the thoughts of the intellectuals associated with its functioning .Our progress is steady and we are in a position now to receive evaluate and publish as many articles as we can. The response from the academicians and scholars is excellent and we are proud to acknowledge this stimulating aspect.

The writers with their rich research experience in the academic fields are contributing excellently and making IJMER march to progress as envisaged. The interdisciplinary topics bring in a spirit of immense participation enabling us to understand the relations in the growing competitive world. Our endeavour will be to keep IJMER as a perfect tool in making all its participants to work to unity with their thoughts and action.

The Editor thanks one and all for their input towards the growth of the **Knowledge Based Society**. All of us together are making continues efforts to make our predictions true in making IJMER, a Journal of Repute

**Dr.K.Victor Babu**  
**Editor-in-Chief**

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**ROLE OF SELF HELP GROUPS IN EMPOWERING WOMEN –  
A STUDY OF MAHABUBNAGAR DISTRICT  
IN TELANGANA STATE**

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**ABSTRACT**

Empowerment of Self Help Groups were rural poor who have volunteered to organise themselves into a group for eradication of poverty for the members. They agree to save regularly and convert their savings into a common fund. The members of the group agree to use this common fund and such other funds that they receive as a group through a common management. The group formation will keep in view the following broad guidelines. Under SGSY, a self-help group may consist of 10 to 20 persons. In the case of minor irrigation, and in the case of disabled persons, this number may be a minimum of five. The group corpus fund should be used to advance loans to the members. The group should develop financial management norms covering the loans sanction procedure, repayment schedule and interest rates. The members in the group meetings should take all the loaning decisions through a particularly decision making process. The Self Help Group programme enhanced the general knowledge and awareness and improved the bargaining capacity of the rural women. This research article to be discussed about the Self Help Groups in Empowering Women of Mahabubnagar District.

**Key Words:** Women Empowerment, Self Help Groups (SHG), Rural Development, Micro Credit, Savings, Employment

**Statement of the Problem**

*“ To awaken the people, it is the women who must be awakened.  
Once she is on move, the family moves, the village moves, the nation  
moves”*

**-- Pandit Jawaharlal Nehru**

According to the 2019 Human Development Report there are 2.7 billion people living in poverty, of whom almost 50 percent are in South Asia. Seventy percent of the poor and female in situation is getting worse, with the number of rural women living in absolute poverty rising by 50 percent as opposed to 30 percent for men over the last two decades. Women, who produced 50 percent food world wide receive only 10 percent of the incomes. Women’s access to ownership of resources is negligible. Even when the

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women own the property, it's control and its use is exercise by the male number of the family. Even if the national indices of development show a rise, the fruits of these developments do not trickle down in equal measure to men and women. Some times, women are victimized by the achievement of so called development specially in the wake of technological progress which makes their skills redundant. The phenomenon of feminization of poverty has been clearly appearing in all the developing countries. India is no exception being a third world country characterized by poverty and unemployment. The Economic Survey 2010-2011 states that, 75 percent of rural population and 54.4 percent of urban population did not have adequate purchasing power to buy food conforming to nutritional adequacy norms. Poverty is not gender neutral and it is gender biased. The official country report for India presented at the Fourth World Conference on women has stated that the women among the extremely poor is disproportionately large and also added that intra-household inequalities are significant. Therefore, it has emphasized the necessity of a special attention for poor women. The causes of women's poverty stem not only from the poverty conditions of the family but also from their subordinate position within the family, the community and the wider economic and political spheres. Moreover, women from low income groups face gender specific causes of disempowerment. Still, the attainment of economic independence by women is identified as a necessary condition for their economic liberation and social participation.

### **Women empowerment**

Women empowerment through self help group constitutes emerging and fast growing trend towards socio economic development of the nation. Self help groups (SHGs) are one of the innovative and much needed schemes both at home and outside and wages are low as compared to males. Further, they are either compelled to work within the confines of the household and if they are working outside they are generally engaged in low paid field activities which to little to enhance their self-esteem and socioeconomic status. Given such a bleak scenario where the status of women in rural areas is even poorer owing to low levels of literacy and other development indicators, the concept of self help groups as a mechanism for poverty alleviation and women empowerment has gained a great deal of attention over the last two decades.

The United Nations Development Fund for Women (UNDFW) includes the following factors in defining women empowerment.

- i) Acquiring knowledge and understanding of gender relations and the ways in which these relations may be changed.
- ii) Developing sense of self-worth, a belief in one's ability to secure desired changes and the right to control one's life.

Women empowerment is a process, by which women gain greater control over material and intellectual resources which will assist them to increase their self reliance and enhance them to assert their independent rights and challenges the ideology of patriarchy and the gender-based discrimination against women. In India from the Firth

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year plan (1974 – 78) onwards there has been a marked shift in the approach to women's issues from welfare to development. In recent years the empowerment of women has been recognised as the central issue in determining status of women.

The National Commission for Women was set up in 1990 to safeguard the rights of women. The 73rd and 74th amendments (1993) to the constitution of India to provide 33 percent reservation of seats in the local bodies of Panchayats and Municipalities for women, laying a strong foundation for their participation in decision making at the local levels. Empowering women is a significant factor for the national development and poverty reduction. Empowerment of women has been recognised as the key route for the development of any society. This is more true in case of agrarian societies where women, have often been neglected and their productive potential has remained untapped. Hence several programmes have been introduced by the central and state governments by recognizing that women empowerment is one of the best strategies for poverty alleviation and for achieving gender equality. One of the powerful approaches to women empowerment is the formation of self-help groups (SHGs) SHG is an effective tool for poverty alleviation and women empowerment in India to accelerate the women entrepreneurship, women's self employment and women empowerment. This concept was successfully implemented in Bangladesh. Self help groups are considered as one of the most significant tools in participation approach for the economic empowerment of women. It is an important institution for improving life of women on various social components. The basic objective of SHG is that it acts as the platform for members to provide space and support to each other. Women participation in self help groups have obviously created great impact upon the life pattern and style of poor women and have empowered them at various levels not only as individuals but also as member of the facility members of the community and the society as whole. The empowerment of women through SHGs would lead benefits not only to the individual women but also for the family and community as a whole through collective action the development. Empowering women is not just for meeting their economic need but also more holistic social development the SHGs empower women and train them to take active part in socio-economic progress of the nation.

Women Empowerment as a concept was introduced at the third International Women's Conference at Nairobi in 1985. The Conference defined – 'Women Empowerment as a redistribution of social power and control of resources in favour of women's control over resources in turn include control both over societal resources like education, employment, and political power and household resources like income, property, health, nutrition and decision making. An important means of Women's Empowerment is economic independence through group activity, if a woman is economically versatile. She can never claim an equal status with men.

As long as she is dependent on others, she is treated as a slave at service of the provider and this very often aggravates her subjectivity to exploitation by the male domination. The same feelings is reflected in the words of Jawaharlal Nehru when he opines— 'freedom depends on economic conditions even more free and self-earning she

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will have to depend on her husband or some one else and dependants are never free. This economic independence is an essential aspect of woman empowerment.

Working in family based occupations. These women were also developing skills in certain economical social activities. Thus augmenting the human capital formation of Indias development economy. The present socio economic situation particular in South Asia and African economics offers very difficult living conditions of the majority population and in particular woman are to put to work at too early age in order to support and supplement the meager family income. One of the major consequences of the process of industrialization and urbanization is growing population of the urban poor in the cities which has not access to the basic facilities of life. They has been shifted decline in the employment rate of woman in organised sector but extensively engaged in the unorganized sector.

Rural women in India constitute a significant portion of the total population of the country and their backwardness is one of the major handicaps in the path of country progress. In the rural society characterized by deep-rooted, age-old sex discrimination, economic oppression and social stratification woman have occupied a place much below the men. Not only in Indian society. It is inferior position of woman can be seen in all the countries in particularly third world country's which is socially. Economically backward, seen in all the countries but the degree of subordination very according to the level of development on the one hand and the ownership of means of production on the other.

### **Present Scenario of Rural Women in Telangana**

Women play a key role in the society that is no generation of the people without the existence of woman. They are the pillars of the society. But social status of woman is being neglected from centuries she has always subordinated to men. The status and dependency of woman in any society is closely connected with their economic position. Therefore, the economic dependence is the main cause for the inferior place of woman in the society. The Economic contribution of woman is related to their status and role in the family and in the society. If woman is economically a parasite, she can never claim on equal status with men.

About more than 70 percent of working woman are agricultural labourers and cultivators. Hence, specific efforts have to be made not only to increase efforts have to be made not only to increase employment opportunities for women labourers, but also to reach house wives and unpaid female family workers with training, credit and other information and support services for productive self employment. In order to benefit that rural women in various fields like social, educational, health, economic and political etc. to integrate them in to the process of development a constant effort was need in various levels that is Central Government, State Governments, Planning Commissions and Governmental Organisations, etc. through various programmes.



The Government of India have introduced several poverty alleviating programmes for improving the economic condition of rural poor in general rural women in particular. IRDP (Integrated Rural Development Programme) is one such largest programme for providing direct assistance to the rural poor including rural women. IRDP is one of the major poverty alleviating programmes (undertaken by the Govt. of India) which follows both employment and income approaches to alleviate the poverty among the rural people. It was started in the year 1978-79 later on extended to all the blocks in the country from 2<sup>nd</sup> October, 1980. The main aim of this programme is to help the identified rural poor families to cross the poverty line by providing subsidy and term credit from the financial institutions and to provide livelihood to the poorest of the poor with the productive resources.

The main target group of this programme consists of small and marginal farmers, agricultural labourers, rural artisans etc. IRDP has introduced several schemes to improve the conditions of the rural poor, but the achievements are far from the goal.

### **Need and Significance of the study**

Ever since independence a number of innovative programmes and policies were implemented for the upliftment of women. There has been a perceptible shift from viewing women from orthodox non-participative to active participative and critical agents for socio-economic and political development. The state government has taken up the issue of women's employment as one of the main agenda items to tackle rural poverty through social mobilization through self help groups (SHG) movement. Our state is the pioneer state to introduce self help groups to achieve self sufficiency and empower social transformation among the rural women. In view of the above it was felt that there is a need for critical examination of the strategies adopted by the Government and to assess the what extent the aims and objectives of the SHGs beneficiaries and also to review the scheme and to suggest policy measures to improve the functioning of SHGs.

### **Area of the study:**

The study was conducted in six villages of Manaboobnagar district of Telangana State. The villages are: 1) Parwathapur, (2) Vishwanthpur of Kondurg Mandal, (3) Mogiligidda, (4) Kandivanam of Farooq Nagar Mandal, (5) Divitipally and (6) Jamisthapur of Mahabubnagar Mandal.

The intention behind the study of the implementation of the women empowerment programmes at gross root level. It is a Six Mandals in Mahabubnagar District of Telangana State, It is selected to the purpose of the study of woman empowerment. The area is one of the rural developing semi-urban area in Mahabubnagar District. The present inquiry confines to the DWCRA groups which are involved in economic and social activity to generate employment and income.

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### **Self Help Groups (SHGs) in Telangana State.**

All the development agencies channelised various poverty alleviation programmes and promoted several thrift and credit groups in Telangana. These groups membership is varied from group to group and the size and decision making process and group action directed towards the social service. These groups attitudinal orientation methods and systems are so designed to mobilise on a large scale for social service including economic sphere in thrift and credit activities. The strategy is synthesized in the form of SHG Bank linkage programme. For this purpose, a comprehensive training strategy for personnel of NGOs was designed to manage the SHG to secure the objectives of the programme. The district administration in Telangana is promote thrift and credit groups under DWCRA and the present SGSY at combined state of Andhra Pradesh, a UNDP Project at grassroots level in the districts of Ananthapur, Mahbubnagar, Kurnool, Adilabad, Chittoor, Srikakulam and Vijayanagaram. The purpose of these projects is to improve the capacities of community based micro-system and their synthesis with other local common interest groups. The SHG concept of NABARD is to create a linkage between SHG and banks. This facilitated the SH groups to expand their economic activity.

After emergency of Telangana, The Government of Telangana has taken-up the theme of women's empowerment as one of the important strategy to tackle the socio-economic conditions of the rural poor. The rural poor women were taken up the savings as a mass movement by the Self Help Groups (SHGs). They have chosen this path as a carrier for their destiny. The state government has taken up the development as an agenda for the upliftment of the rural women through out the state where majority of Women are saving one rupee a day. The state government is consciously making an effort go assist SHGs by providing revolving fund under various programmes. The District Rural Development Agency of different districts in their Social-economic surveys indicated that the self help scheme has helped the rural women to earn additionally for a month ranging from 1500-2900 rupees depending on the economic activities taken up by the SHG members. The majority of the rural women were benefited by taken up the initiatives in improving their socio-economic status by participating in government programmes for their family welfare improves their educational status. The members of the SH group they have improved a lot on environment, health, sanitation and clean drinking water, majority of them are not only creating awareness on environment and nutritional value not only improved their living standards they are educating and promoting the awareness their respective localities. Now, all of them are enjoying fruits of different economic policies.

Special programmes have been designed for training and capacity building of the SHGS. The training programmes are meant for skill development and awareness generation programmes for the members of SH groups. The SH group members were taken out for exposure of SH members for supervising, guiding and for better packaging and to develop marketing skills among the SH members. They were exposed to the best



and relevant technologies displayed at TTDCS (Training and Technology Development Centres) in all districts. The information about their functioning is obtained on a quarterly basis for monitoring' and Evaluation. Well-known agencies like ORG - Marg are associated for evaluation and monitoring of SHGS and to suggest measures for sustainable growth.

The DWCRA bazaars (Market-outlets) are provided the marketing support to the SH groups these DWCRA bazaars are setup in all the districts. Training and Technology Development centres (TTDC) have been established in each district to introduce innovative technologies for the evaluative improvement of products made by the SH groups. The government of Telangana designed the SHGS to cover all the rural poor women under SHGS in the next 4-5years. It is also programmed to cover at least one woman from a BPL (Blow Poverty Line) family as a member of SHG in next two years. So far, all the habitations in the state have at least one SHGS.

The government released Rs.1,00,000 as revolving fund to each SH group for running a viable economic activity. This is in addition to the government of India grant. All the SH groups comes under the "Self Help Linking Scheme" of NABARD. Due to this massive self-help movement, there is a perceptible improvement in the socio-economic status of the rural women. Due to the constant efforts of the government, women have become very active, assertive and are concerned with the issues relating to them and their surroundings.

Under Swarna Jayanthi Gram Swarozgar Yojana (SSGY), the beneficiaries known as Swarozgaries. They can be either individuals or groups. It lays emphasis on the group approach, under which the rural poor are Organised into self help groups. In either case, the list of below poverty line (BPL) households identified through BPL census self-help groups broadly go through three sage of evolution.

1. Group formation
2. Capital formation through the revolving. fund at ""skill"" development
3. Taking up economic activity for income generation

The poor may organise themselves, into small groups upto 20 persons, known as self-help groups (SHGS) to inculcate the habit of thrift and credit operations among themselves. All members of the group should belong to families below poverty line. The group shall not consist of more than one member from the same family. A person should not be a member of more than one group.

SHG is a group of rural poor who have volunteered to organise themselves into a group for eradication of poverty for the members. They agree to save regularly and convert their savings into a common fund. The members of the group agree to use this common fund and such other funds that they receive as a group through a common management. The group formation will keep in view the following broad guidelines. Under SGSY, a self-help group may consist of 10 to 20 persons. In the case of minor

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irrigation, and in the case of disabled persons, this number may be a minimum of five. The group corpus fund should be used to advance loans to the members. The group should develop financial management norms covering the loans sanction procedure, repayment schedule and interest rates. The members in the group meetings should take all the loaning decisions through a particularly decision making process.

**Table 1**  
**RESPONDENTS RESPONSES ABOUT SANCTIONING THE LOANS**

(Caste-wise)

<b>Respondents Caste</b>	<b>SC %</b>	<b>Minority %</b>	<b>OBC %</b>	<b>OC %</b>	<b>Total</b>
YES	06 (60.00)	02 (100.00)	11 (36.66)	5 (62.50)	24 (48.00)
NO	04 (40.00)	--	19 (63.33)	03 (37.50)	26 (52.00)
<b>Total</b>	<b>10 (100.00)</b>	<b>02 (100.00)</b>	<b>19 (100.00)</b>	<b>08 (100.00)</b>	<b>50 (100.00)</b>

Source: Field Study

Out of 50 respondents 24(48%) of the respondents repaid that they have barrowed loans from bank and other agencies among these groups six self help groups 6(25%) of the SC groups taken the loans from various agencies for their group activity. Both the minority self help groups have taken the loans for their group activity, about 11 (45%) of the respondents belongs to OBC category were also taken the loans and remaining 5(20% } of the respondents of OC category of self help groups barrowed the loans for their group activity. Interestingly; half-half the self help groups invested their self money for their group activity from all the caste categories. Even four (40%) SC self help groups did not taken any kind of loan or subsidy for their group activity. Similarly 19(64%) of the respondents from OBC category were also running the group activity with their self money. Three (38% } of OC category were also did not taken any kind of loans from any agencies. However, they are managing with their self money. As per the analysis of the data presented in the table reveals that 50% of the self help groups barrowed money from banks and other allied financial agencies. However, remaining 50% of the self, help groups of sample study were managing with their self money.

Respondents’ responses prior to the self help groups (Caste wise) presented in table-1.

Out of 50 respondents nearly 38(76%) of the respondents were leading a normal life before joining this self help scheme. However, 12(24%) of the respondents were leading a good life. Cutting across different castes, a majority of the respondents from SC and OC categories for leading a good life prior to joining of the self help groups. Now, after the joining, this scheme they are leading a improved life. Interestingly all the 30(100%) of the respondents from OBC category were leading a normal life. But, only after joining these groups, they have improved a lot with the help



of self help groups and Be Corporation's finances, all the members of BC community were benefited to the maximum extent.

Table 2

RESPONDENTS RESPONSES PRIOR TO SH GROUPS

(Caste-wise)

Respondents Caste	Normal %	Good %	Satisfactory %	Total
SC	4 (10.52)	06 (50.00)	--	10 (20.02)
ST	2 (5.26)	--	--	02 (4.00)
OBC	30 (78.94)	--	--	30 (60.00)
OC	2 (5.28)	06 (50.00)	--	08 (16.00)
Others	--	--	--	--
<b>Total</b>	<b>38 (100.00)</b>	<b>12 (100.00)</b>	<b>--</b>	<b>50 (100.00)</b>

Source: Field Study

As per the analysis of the table/all the self help group members prior to the joining of the scheme they were leading a normal life. But only after becoming" members of self help groups. They are leading a improved life with minimum facilities: All the self help groups the members are getting their two square meals and they could able to pay the expenses of the hospitals for their requirements All the self help group members could able to send their wards to the schools and they could able to meet the expenditure shows the improved standard of life. This may be considered as an indicator for the empowerment of rural women.

Table 3

RESPONDENTS RESPONSES PRIOR TO SH GROUPS

(Religion-wise)

Respondents Religion	Below the BPL %	Normal Satisfactory %	Good %	Total
Hindu	38(100.00)	11 (91.66)	--	49 (98.00)
Muslim	--	1 (8.34)	--	01(4.00)
Christian	--	--	--	--
Others	--	--	--	--
<b>Total</b>	<b>38 (100.00)</b>	<b>12 (100.00)</b>	<b>--</b>	<b>50 (100.00)</b>

Source: Field Study



Out of 50 respondents 49 were Hindus, only one respondent belong to minority community. Among the Hindu respondent 38(77.56%) of the respondents, were the living under the belong to poverty line and remaining 11 (22.44%) of the self help groups members are leading of a normal or satisfactory life. In the remaining one member belongs to minority community; who is leading a normal life prior to the starting of individual self help group. Interestingly, out of 50 respondents 38(76%) of the respondents prior to the joining of the self help group are leadingly a life below the poverty line and remaining 12(24%) of the respondents leading a normal life, including a minority women. The respondents are Hindu community include the SC and categories. About two-third of the self help groups ridden with the poverty radian life. There is a tremendous pressure on the sustenance of these members. The proclaimed aims and objectives of self help groups are exactly suitable to these members. The prevailing conditions the district and the state better to worsen. Thanks to the different policies better to the DWCRA and self help programmes they could able to fulfil their basic minimum needs throw this economic programme. Those who were not covered by the DWCRA programme such under privileged and poverty stricken people,' this self help programme is a boon to these women who were in hapless conditions. The identical feature of the scheme is by inculcating savings habit and linked up with group or collective responsibility and make them more sustainable and more confident about themselves, by creating employment opportunities, one the one side and make them to self consciousness about their existence, ultimately the objectives of the self help groups are to make them to stronger one in the society. For this purpose, the multi thronged approach for personality development of the ruler member, once they become members bold enough to contend to face any challenge comes in their rates; the ultimate object of this scheme is nothing short of the empowerment of women. The respondents responses about the subsidies(caste-wise) - are presented in table-4

Table 4
RESPONDENT'S RESPONSES ABOUT THE SUBSIDIES

(Caste-wise)

Table with 7 columns: Respondents Caste, A 10,000%, B 15,000%, C 60,000%, ABC %, AB%, Total. Rows include SC, ST, OBC, OC, Others, and Total.

Source: Field Study



Out of 50 respondents 10(20%) of them are from SC category, 8 self help groups from this category got subsidy the tune of RS.10,000 in the first phase another group along with first phase subsidy, second phase loan secured another group from this category along with subsidy got second and third phase of loans because of this groups performance and commitment prompt payment instalments make this groups to get IIIrd phase of loans for the past 8 years. Among the SC category only one group got subsidy in the first phase but another group along with subsidy got second phase of loans, with this the both self help groups got subsidy and loans. Among OBC category except one self help group remaining 29 groups secured subsidy. However only one group could able to get the along with subsidy, second and third phase of loan secured. All these BC self help groups are recently formed one because of their late formation of self help groups, they are not entitled to get loans. The respondents of OC category all of them are secured subsidies and loans, only one group could able to secure even IIIrd phase of loans.

As per the analysis of the data presented in the table reveals that almost all the self help groups got subsidies and loans in the first phase itself after fulfil in the conditions stipulated therein. Only five self help groups, which were started in the early stages were able to get second and third phase of loans because of their track-record of prompt payment of loan instalment; continuous savings and periodical group meetings prove the worthy ness and commitment of the self help groups to get number of phases of loans for expansion of their group activities. It can be concluded that, almost all the self help groups are eligible to get subsidy and loans, but only thing is majority of the groups from OBC category recently formed obviously, only few self groups secured 2nd and 3rd phase loans are yet to get from the bank other financial agencies.

The respondents' knowledge about the scheme through (Age- wise) presented in the table-5

Table 5  
RESPONDENT’S KNOWLEDGE ABOUT THE SCHEME THROUGH

(Age-wise)

Respondents Caste	AV0%	B Sarpanch %	C Middleman %	D NGO%	E Media %	Total
18-25 Years	04 (10.25)	--	--	--	--	4 (8.00)
26-35 Years	19 (48.71)	--	--	--	--	19 (38.00)
36-45 Years	11 (28.20)	--	10 (100.00)	--	01 (100.00)	22 (44.00)
Above 45 Years	05 (12.82)	--	--	--	--	05 (10.00)
<b>Total</b>	<b>39 (100.00)</b>	<b>--</b>	<b>10 (100.00)</b>	<b>--</b>	<b>01 (100.00)</b>	<b>50 (100.00)</b>

Source: Field Study



Out of 50 respondents majority 39 (78%) of the respondents know the details, aims and objectives of the scheme through village organiser. Who were ever presents in the village informed them about the scheme and its aims and objectives are explained or informed to them. In the beginning very few members come forward to form the self help groups. Majority of the respondents of the sample study were reluctant or hesitant to form these groups because of their poor understanding or ignorance very few members were came to know this scheme through middleman. Only one group of the self help group members through Electronic media. Those who forms prime age group of 26-45 years came to know about this scheme to through village organiser. Only four members from age group 18-25 years came to know that the self help scheme is meant for poor and rural women. Even those who crossed the age group of 45 years were also come to know this scheme through the VO of the village. However 10 respondents from the age group of 36-45 years comes to know about the SHG scheme through middleman again those who are either interacted with the other fellow group members and officials. As per the data presented in the table indicates that know Sarpanches or politicians or NGO's are not informed about the self help scheme. Even though electronic and print media could not able to carry the message of merits of the scheme to the target group who are living in the rural areas. One striking feature of sample study is that though majority of them illiterate after becoming the members of self help groups they have learn the alphabets and they became literates to the extent of reading the news papers and proceedings of the group meetings and notices served by the government and banks they learned simple calculations for the purpose of bank transactions. All these activities have given a great impetus for the enlightenment of rural women.

Respondents responses about the contesting the elections (caste, wise) is presented in table-6.

**Table 6**  
**RESPONDENTS RESPONSES ABOUT THE CONTESTING THE ELECTIONS**  
(Caste-wise)

Respondents Caste	Yes %	No %	Don't know %	Total %
SC	08 (18.88)	02 (33.3)	--	10 (20.00)
ST	02 (4.54)	--	--	02 (4.00)
OBC	29 (65.90)	1 (16.66)	--	30 (60.00)
OC	05 (11.36)	03 (50.00)	--	08 (16.00)
Others	--	--	--	--
<b>Total</b>	<b>44 (100.00)</b>	<b>06(100.00)</b>	<b>--</b>	<b>50 (100.00)</b>

Source: Field Study



As per the above table 6 Out of 50 respondents 44(88%) of the respondents are from all the caste categories positively respondent to the question would you like to contest the election, nearly about 90%' of the respondents cutting across the lines like that if situation warrants are political parties sponsors we will contest. the elections for the sake of women's empowerment and development of the village. Remaining only 6(12%) of the respondents answered negatively for the contesting the elections. Out of 10 self help groups 8(80%) of the SC self help groups expressed their willingness to consistence of the elections. Even both the SC, BC groups were also expressed their readiness the elections. Interesting features of that, almost 97% of the respondents from OBC category expressed their readiness if opportunity come they will Come contest the elections. Out of 8.respo.ndents of OC category 5 of them expressed their willingness for contesting the elections and remaining three members of the respondents given negative reply this question.

As per the analysis of the data presented in this table reveals that majority of respondents reveals that they are ready to contest the elections if situation warrants that, they are ready for the sake of their women's status and rights. All the respondents are from all this communities, cutting across the caste groups are gained confidence to do anything in political spears Generally speaking politics are considered to be a competitive field, where fair sex cannot compete with men folk in politics. The present study's field-data gives a negative picture about the age-old perception about the women cannot compete men with the politics. But the members of self help groups of the sample study reveals about the preparedness of the self help groups members of the sample study gives a total new picture about the awareness of the women. It can be concluded that after becoming the self help groups almost all the respondents of the sample study were enlighten and gained self confidence and Learnt the skills of market and political dynamics and improved a leadership qualities. All of the self help group members claimed that they are ready to lead that any institution or any movement perse. The researcher observed that, they gained this kind of confidence only after they become the members of self help groups. In other wards) self help scheme is helped them to become more vocal, bold and enigmatic to prove their worthiness there calibre and talent any feel including politics.

### **What Need to be done?**

The present research study confirms the one of the hypothesis that poverty, illiteracy, ignorance is root cause for the backwardness in the rural areas. Another finding of the study is that self help programme has attracted and enthused the younger generation. It is also observed that even orthodoxies changed their out look and attitude towards the DWCRA and SH groups by observing the performance of these programmes. All the members of the SH groups are collectively and on equitable basis sharing the responsibilities irrespective of their caste identities.



Another finding is that majority of the respondents are illiterate, even than all of them are interested to join in the SH groups. Hence; there is no correlation between the illiteracy and individual participation in SH groups. The present study confirms the DWCRA and self help groups enhanced the status and empowerment of women. It is also confirmed that rural women by joining in self help groups acquired the bargaining power and marketing skills. A greater number of rural women in Mahabubnagar District were benefited by the joining in Self Help groups, Another finding is that all the members of the SH groups is that, all of them expressed their satisfaction about the training imparted by the DRDA and VELUGU officials cooperation from the bank officials. Majority of the respondents felt that they have improved their economic status with the help of self help programme. They are leading a better quality of life with minimum basic facilities. Their standard of living is an indicator of their empowerment.

### Summing up

Theme of this research article deals with the perceptions of the respondents of the self help groups are analysed and studied the impact of improved socio-economic status on empowerment of rural women. The SH group beneficiaries satisfaction indicates the success story and efficiency of any women development programme. The member beneficiaries of SH groups are key members of any rural development and women welfare network. The SHG programme members possess rural base and bias who come to equip with the given financial potency to invest on their income generating activities in order to avoid the exploitation of the rural money lenders. The government initiated women programmes DWCRA and self help group programmes were successful in achieving the declared objectives mainly eradication of poverty and unemployment of the rural women and empowering the weaker sections women in the rural areas. The SHGs were adopted as a viable alternative to the individual approach focused in earlier programmes. The SH programme enhanced the general knowledge and awareness and improved the bargaining capacity of the rural women. Their economic status has been enormously increased and it indicates that rural women are fully equipped with empowerment in all respects. It can be concluded that, after becoming the members of the self help groups they acquired self confidence and maintaining the self image and esteem on part excellence. Hence, self help groups programmes immensely improved the status and prestige of rural women. Hence, this programmes impact can be seen in the form of empowerment of rural women. I conclude this article with the words of Amartyasen (Noble Laureate and Great Economist) *“It is not merely that more justice must be received by women, but also that social justice can be achieved only through the active agency of women. The suppression of women from participation in social, political and economic rights hearts of the people as a whole, not just women. The emancipation of women is an integral part of social progress, just a woman’s issue”*.

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## AN ANALYSIS OF INDIAN JEWS RETURNING TO JUDAISM

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### **Abstract**

Judaism, a monotheistic religion, developed among the ancient Hebrews. Judaism is characterized by a belief in one transcendent God who revealed himself to Abraham, Moses, and the Hebrew prophets and by a religious life by Scriptures and rabbinic traditions. Judaism is the complex phenomenon of a total way of life for the Jewish people, comprising theology, law, and innumerable cultural traditions.

The first section of this article treats the history of Judaism in the broadest and most complete sense, from the Jewish people's early ancestral beginnings to contemporary times. In the second section, the beliefs, practices, and culture of Judaism are discussed.

**Keywords:** Judaism, Israel, Jewish community, tribe

### **Introduction**

The Jewish community in India is one of many groups that had come from outside the country's modern territorial borders and made India their home. However, what marks the Jews out is their ability to blend into the region's local culture through continuous contact with the natives and then the later foreign visitors. At present, numbering some 6,000 across India, the Jewish Indian identity developed over time. While today this small, tightly integrated group is busy protecting the last remnants of Jewish heritage in the country like the 35-odd synagogues spread across India, some cemeteries, and schools, they are also known to have made significant entrepreneurial and cultural contributions to India's rich history.

India's Jewish community is the fourth-largest Asian Jewish community after Israel, Asian Russia, and Iran. In 1948, at the time of the founding of the State of Israel, India had a Jewish population of approximately 30,000. Since then, some 20,000 have migrated to Israel and several thousand elsewhere, leaving a community of seven to eight thousand, according to the official estimates, most of Bene' Israel origin. No one knows for sure, but the lower figure is perhaps more correct. The number has been stable for several years now since the burst of aliyah following the Six-Day War ceased. It does not diminish because the birth rate replenishes the losses due to emigration. The overwhelming majority of the Jews are still concentrated in Bombay in much the same situation as they were before. Also, there are communities in Calcutta, Delhi, Cochin, Poona, and a few villages in Maharashtra State. There is absolutely no pressure from within India itself for the exodus of the Jews.

India is almost unique among countries of the world in its attitude towards its Jews. There is no known anti-Semitism in India, nor are Jews looked upon as in any

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significant way different from the many Indian minority religions. The character of Indian culture -- its relative placidity, its acceptance of diversity, and its inherent communalism -- have given the Jews a sanctuary the likes of which has never been known in any of the Western world countries. At the same time, Indian Jewry has, perforce, acquired the Indian population's characteristics in general. Their social patterns, psychological factors, and culture all bear the marks of the civilization they have been located for hundreds if not thousands of years.

In terms of the Jewish community organization, most of its institutions other than the synagogue introduced into the city by migrants from the West during the past century and a half -- much more recently of them have survived in a very non-Western society only by a handful of leaders. As a result, the communities can barely support the institutions that exist, and in all likelihood, will be even less able to do so in the future.

### **Jewish philosophy**

The term Jewish philosophy refers to various kinds of reflection engaged in by persons identified as Jews. At times, as in the Middle Ages, this meant any methodical and disciplined thought pursued by Jews, whether on general philosophical subjects or specifically Judaic themes. In other eras, as in modern times, concentration on the latter has been considered a decisive criterion. Philosophers who are Jewish but unconcerned with Judaism or the Jewish heritage and destiny in their thought are not ordinarily classified as Jewish philosophers.

Judaism is, of course, not identical to the Bible. Jewish philosophy must carry on a conversation with Talmud and Midrash, kabbalah, and Jewish philosophy from all ages. This quest for integration is often based on the assumption that there is an underlying continuity to Judaism; it also recognizes that unmediated access to the Bible, abstracted from its canonical form and exegetical history, is an unattainable chimera (see Carmy 1996). The examination of biblical ideas requires the thinker to perceive the continuities between the various biblical statements and the other chambers in Torah's mansion, even while taking careful note of the ruptures. The Bible is the primary source of Jewish philosophical reflection. It indeed warrants philosophical attention, as it supplies rich resources for intelligent analysis and exegesis. Paradoxically, however, the Bible can be appreciated properly by the philosopher only when he or she liberates the Bible from the vocabulary and preoccupations of some subsequent philosophical school—escaping relentless rationalism and avoiding the anachronistic identification of a particular theory with the living data it seeks to capture. As we have seen, "literary" and "philosophical" dimensions of the text are not hermetically sealed off from each other. All ventures at exegesis are condemned to the endless process of trial and error in the effort to situate the work in its context and grasp it in its terms. Only by meeting the Bible on its ground, in terms of its actual contents—as a compendium of divine law, as a narrative of God's rendezvous with humankind and with a singular people, as the drama of humanity's yearning for the creator and God's revelation to humanity—can we acquire the power to interpret the text in the light of later generations' intellectual framework and existential concerns.

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### **History of Judaism**

History provides the key to understanding Judaism, for its simple affirmations appear in early historical narratives. Thus, the Bible reports contemporary events and activities for essentially religious reasons. The biblical authors believed that the divine presence is encountered primarily within history. God's presence is also experienced within the natural realm, but the more immediate or intimate disclosure occurs in human actions. Although other ancient communities also perceived a divine presence in history, the understanding of the ancient Israelites proved to be the most lasting and influential. This particular claim is to have experienced God's presence in human events—and its subsequent development that is the differentiating factor in Jewish thought.

Moreover, the ancient Israelites' entire mode of existence was affected by their belief that they stood in a unique relationship with the divine throughout history. The people of Israel believed that their response to the divine presence in history was central not only for themselves but for all humankind. Furthermore, as a person, God had revealed in a particular encounter, the pattern and structure of communal and individual life to these people. Claiming sovereignty over the people because of his continuing action in history on their behalf, he had established a covenant (berit) with them and required from them obedience to his teaching or law (Torah). This obedience was a further means by which the divine presence was made manifest—expressed in concrete human existence. Thus, the chosen community's corporate life was a summons to the rest of humankind to recognize God's presence, sovereignty, and purpose—the establishment of peace and well-being in the universe and humanity.

Moreover, history disclosed not only God's purpose but also humankind's inability to live in accord with it. Even the chosen community failed in its obligation and had to be summoned back, time and again, to its responsibility by the prophets—the divinely called spokespersons who warned of retribution within history and argued and reargued the case for affirmative human response. Israel's role in the divine economy and thus Israel's particular culpability were dominant themes that sounded against the motif of fulfillment, the ultimate triumph of the divine purpose, and the establishment of divine sovereignty over all humankind.

### **Judaism Beliefs**

Jewish people believe there's only one God who has established a covenant—or special agreement—with them. God communicates to believers through prophets and rewards good deeds while also punishing evil. Most Jews (except a few groups) believe that their Messiah hasn't yet come—but will one day. Jewish people worship in holy places known as synagogues, and their spiritual leaders are called rabbis. The six-pointed Star of David is the symbol of Judaism. Today, there are about 14 million Jews worldwide. Most of them live in the United States and Israel. Traditionally, a person is considered Jewish if his or her mother is Jewish.

### **Torah**

The Jewish sacred text is called the Tanakh or the "Hebrew Bible." It includes the same books as the Old Testament in the Christian Bible, but they're slightly different. The

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Torah—the first five books of the Tanakh—outlines laws for Jews to follow. It's sometimes also referred to as the Pentateuch.

### **Types of Judaism**

There are several sects in Judaism, which include:

**Orthodox Judaism:** Orthodox Jews are typically known for their strict observance of traditional Jewish law and rituals. For instance, most believe Shabbat shouldn't involve working, driving, or handling money.

Orthodox Judaism is a diverse sect that includes several subgroups, including **Hasidic Jews**. This form started in the 18th century in Eastern Europe and held different values than traditional or ultra-Orthodox Judaism. Hasidic Jews emphasize a mystical experience with God that involves direct communion through prayer and worship. Chabad is a well-known Orthodox Jewish, Hasidic movement.

**Reform Judaism:** Reform Judaism is considered a liberal category of the religion that values ethical traditions over strict observance of Jewish laws. Followers promote progressive ideas and adaptation. Most of the Jews living in the United States follow Reform Judaic traditions.

**Conservative Judaism:** Many people consider this form of Judaism somewhere in between Orthodox and Reform Judaism. Typically, conservative Jews honor the traditions of Judaism while allowing for some modernization.

**Reconstructionist Judaism:** Reconstructionism dates back to 1922 when Mordecai Kaplan founded the Society for the Advancement of Judaism. This sect believes that Judaism is a religious civilization that's constantly evolving.

**Humanistic Judaism:** Rabbi Sherwin Wine founded this denomination of Judaism in 1963. Humanistic Jews celebrate Jewish history and culture without an emphasis on God.

While there are various denominations of Judaism, many Jews don't identify with a particular classification and refer to themselves as Jewish.

### **Returned to home**

A "lost" Jewish tribe in India waits patiently for a flight to Israel after lifting a visa ban.

The Bnei Menashe (sons of Menasseh) live in India's northeastern states of Mizoram and Manipur. In 2005, the Chief Rabbi Shlomo Amar recognized them as descendants of the "Ten Lost Tribes of Israel," exiled by the Assyrians in the eighth century BC.

Their emigration to Israel is supported and sponsored by Shavei Israel, a non-profit organization that aims to reconnect "lost and hidden Jews" with Israel's people and state. The group also funds the return of Bnei Anousim of Spain, Portugal, and South America and the hidden Jews of Poland.

Around 2,000 have already moved to Israel, but immigration was halted after the government stopped giving them visas.



In October, the Israeli government cleared the visas of 899 – but between 7,000 to 9,000 wait in India and Myanmar.

### **Skepticism and debate over their ancestry and faith abound in Israel and India.**

The en masse migration to Israel has devastated the state of Indian Jewry. Few Jews remain in India, most of whom are older people not wanting to leave the country of their birth due to the inability to adapt to a foreign, western culture in Israel. Younger people have gone for many reasons, ranging from the desire to move back to the land of Israel to the hopes of finding a better future. The minuscule population of Jews in a heavily populated, independent India put the Indian Jews in a precarious situation. On the one hand, there was a strong pull to move back to the Jewish state of Israel finally.

On the other hand, Indian politics, intermingled with caste and religion, might result in them in a vulnerable position as a minority. The pro-Arab stance of secular Indian parties about Palestine and the Arab world, partially due to the large Muslim presence, further complicated the issue (Egorova). A point to note is that the rise of nationalist Hindu fundamentalism as a response to Islamic expansionism leads both; the Jews and the Hindutva groups to sympathize and form alliances with each other (Egorova). Finally, with the end of Indian Jewry shortly, it is important to rescue the Indian Jewish culture's wealth in the form of various manuscripts, paintings, artifacts, hymns, and poems before they are completely lost.

After Israel's independence in 1948, many Jews left India in the hope of going back home. While most went in the hope of a better lifestyle and prosperity, breaking India's ties was not easy.

In the late 1970s, a few individuals from a small group located in North East India began to research their religious traditions and ancestry. Their research led them to discover an ancestral connection to Israel. This particular group, known as Bnei Menashe or 'sons of Menashe,' are believed to be the descendants of Menashe's lost tribe. In the early 1980s, members of the group contacted an organization in Israel expressing an interest in returning to their ancient homeland.

On the request of this tribe, the chief Rabbis of Israel investigated these people. They found that they still observe Shabbat, maintain Kosher dietary laws, celebrate biblical fests, marry within their tribe, and are clinging to the hope of returning one day to the land of Israel. After almost two decades of their recognition as 'Jews' from one of Israel's lost tribes, they are still struggling to be accepted fully as members of the mainstream Israeli Society.

Their story and struggles are not any different from the Jewish community from Ethiopia, called Beta Israel. Although Beta Israel are large in proportion, they continue to face similar issues such as that of Bnei Menashe Jews. This particular Indian Jewish

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community is termed as 'impure' but continues to face discrimination based on their religious identity and demographic background. Out of almost 11,000 Bnei Menashe Jews, only around 4,000 Jews have been able to immigrate to Israel, while about 7,000 are said to be waiting for immigration to the Jewish state. Bnei Menashe Jews in Israel have been allocated areas of highly unstable lands of West Bank where education, security, and employment remains a major concern. A fair assumption can be made that the Bnei Menashe's spatial segregation in West Bank resulted from their low socio-economic and educational status compared to the larger Israeli society.

Israel's policies addressing immigration, absorption, and diaspora affairs have often placed the Jews from developing countries such as India and Ethiopia in the underdeveloped periphery, where scanty economic and inferior education opportunities have always been a bone of contention. Israel has witnessed several protests by vocal minority groups where demonstrators were found insisting on greater equality and an end to discrimination by the Israeli government and wider Society as a whole. A major question that arises is that are Bnei Menashe Jews like Beta Israel only a tool to fulfill political agendas and boost the Jewish population, especially in the disputed territories of West Bank?

Jews of the Bnei Menashe community left India, hoping to unite with their ancestral homeland and their Jewish brothers and sisters. For them, Israel is more than just a land of 'milk' and 'honey,' but an opportunity to get immersed into the life of a Jewish state. Despite their expectations of a better experience, they have been subjected to discrimination by other Jews in Israel's Society. They are racially discriminated against and often separated from the mainstream Jewry by being categorized as 'Chinese.' They are also religiously determined by other Jews due to the skepticism that still surrounds their claims of a past Jewish connection. Therefore the immigration of a 'non-Halachic' Jewish descent has remained a vexed subject in Israel, with the right-wing refreshing it and the left-wing rejecting it, not only because they believe it would "contribute to further oppression of the Palestinians" but also because they tend to doubt the authenticity of the Bnei Menashe's claim to lost tribe's status.

When Prime Minister Narendra Modi visited Israel in July 2017, several members of the Bnei Menashe community gathered to greet him. Prime Minister Modi appreciated the contribution of Indian Jews to Israel and brought the two societies closer. It was believed that the strategic partnership between India and Israel had reached a new height, and the solution to the issue of Indian Jewish immigration to Israel will be addressed. But unfortunately, the immigration of Bnei Menashe has by far remained too slow. Therefore, several policy analysts have been raising questions on the reluctance of Israeli authorities instead of expediting the process of Bnei Menashe's migration. They claim that the reason behind a slow migration may be their inferior skills and education. It is also believed that even after proving their Jewish identity, they are still considered as the lesser Jewish of all.

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## Reasons for returned home

It took years of struggle for a few thousand Bnei Menashe Jews to settle in Israel, but their living conditions have barely improved. According to a Knesset Research and Information Center report, most Bnei Menashe has been able to find employment quickly. Still, their wages remain meager: at the minimum wage level or below it. The study also discovered that they are more inclined to keep to themselves and not blend within the Israeli Society. Isaac Thangjom, community leader of the Bnei Menashe in Israel, mentioned that "It would not be an understatement to say we are the weakest and most miserable community in Israel." However, the community refrains from raising these issues at the societal levels allegedly because of the fear that it could affect their chances of reuniting with their relatives. This is because Bnei Menashe members are concerned that their relatives will not be accepted as eligible for Israel's immigration list.

After years of barring the Bnei Menashe from immigrating to Israel by the former governments, the Netanyahu government in 2012 passed the long-awaited resolution that restarted the aliyah of the remaining 7,000 Bnei Menashe Jews in India. However, it's already 2020, and only about 4,000 Jews have been able to make aliyah to Israel while 7,000 Bnei Menashe Jews remain in India. The absorption policies for this Indian Jewish community has not reached its potential yet.

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## THE FAIRY TALE OF THE “RIGHT EDUCATION”: DOES IT REALLY EXIST?

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### ABSTRACT

Education is the foundation of society; how it is taught, its values, aims, and methods will shape the students' mindset and impact their lives. Therefore, education has to deserve the full attention and commitment of those who make the laws and policies, researchers and experts. The National Education Policy 2020 (NEP) had for aim to provide a holistic and futuristic education; the following article will be interested in the main issues on the current educational system, the answers of the NEP to them, and a presentation of alternative education.

**Keywords:** National Education, India, Alternative Education...

"But how can we be free to look and learn when our minds from the moment we are born to the moment we die are shaped by a particular culture in the narrow pattern of the 'me'? For centuries we have been conditioned by nationality, caste, class, tradition, religion, language, education, literature, art, custom, convention, the propaganda of all kinds, economic pressure, the food we eat, the climate we live in, our family, our friends, our experiences – every influence you can think of – and therefore our responses to every problem are conditioned."<sup>1</sup>

What is education? How could we talk about it? How to describe it? How can we create and establish it? Is education a global or local mind programming? Could it be really universal? How do we programme people? Why? To which purpose? In which way? According to what principles? In some places, the purpose is to programme Buddhist, Hindus, Jewish, Christian, Muslim citizens; in other, is to programme free thinkers (in the limit of what is admitted as free-thinking, “of course”), and again in other places, the goal is to programme nationalist citizens. It seems like education doesn't care about “Human Beings” or “persons”<sup>2</sup>.

What if it were possible to focus on human beings, honor what they are and what they may be? What if education was not greedy anymore, nor thirsty for development, result-focused, materialistic, or breaker of personalities. What if the purpose was to provide a safe and helpful environment and legislation to honor human beings' inner sparks? What if the purpose was to provide the people with basics and possibilities for their inner fulfillment, pursuing their great potential, and their great “Perhaps”? What if we stop being “second-hand people”<sup>3</sup>? And, instead, start being the best version of ourselves?

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<sup>1</sup>JidduKrishnamurti (1969), «Freedom from the known,» Goodreads, available from: <https://www.goodreads.com/work/quotes/768656-freedom-from-the-known>. (Accessed on 12/09/2020).

<sup>2</sup>Reference to the Personalistic school of thought.



What if education stops to be authoritarian, dogmatic, and indoctrinating? What if it was possible to go to school by, with, and for pleasure to study by passion and love, instead of simply fulfilling an obligation or a duty? What if the school was not anymore a place of competition, hypocrisy, harassment, and pain? What if we stopped acting by automatism? What if we break deep anchored paradigms? What if we start being fully human “beings” instead of being robotic human “doings”? What if it was possible to really break the old patterns? What if it was possible to stop living on the dogmas of dead people? And most importantly, what if we become the captain of our lives?

When we talk about Indian education, there are so many discontents, dissatisfaction among the law and policymakers, and those who have to live under them. From parents to students, the followings issues are currently mentioned:

- The memorization based-education (learning by heart method) instead of critical thinking, reasoning, and analytical methods based-education.
- Lack of scientific material and experimentations within public educational institutions.
- Poor adaptability to the individualized needs of students.
- Lack of practical and efficient English language training, it is current to notice that most of the students, even after completing their 12<sup>th</sup> grade, are not armed with enough confidence and skills to converse in English.
- Most importantly, the lack of participation and public speaking. The mindset of being submitted to the teacher’s sacredness and take his teaching as divine and universal, without any questioning, self-reliance, self-study, or exchange of views, is quite harmful to students’ individuality. It seems like; silence and obedience became the duty of students.

When we look at education policies, we notice that the goal is to make leaders and improve the country's economic situation, but, in fact, how education is shaped doesn't provide any helpful environment to shape leaders. On the contrary, it is based on blind obedience, conformism, and the break of any form of self-expression, self-reliance, and individualism.

If we visit any classroom, whatever the grade, even within colleges and universities, we can easily notice the lack of interactions, exchanges, and dynamism in the class. The lectures are built around one active person (the teacher), and the others are only passive (the students). Maybe it is time to shift from an “obedience” based-education to a “self-reliance” based-education.

- The intense pressure on students to reach the supreme goal of the "perfect grade" (even if it’s mainly based on memorization) and the mindset of neglecting the emotional and psychological needs and well being are quite destructive.

To answer all of the above-mentioned issues, the National Educational Policy 2020 (NEP) aimed to provide a new perspective in education to reach economic and societal improvement and growth quickly.

The NEP's major novelties are:

- The 10+2 system was replaced by 5+3+3+4. This made pre-school (kindergarten) mandatory. Even if the goals are to shape future generations, it seems to be a



development goal-based education instead of holistic welfare education. Still, on the other hand, this may raise the rate of literacy.

- The teacher centric-system was replaced by a student-centric-system, which promotes a liberal and empowering education that works for individualized education based on students' needs, abilities, and preferences.
- Skill-based education, instead of competency-education, may reduce the anchored tendency of memorization in favor of reasoning, critical thinking, and analysis.
- Focus on research, analysis, and innovation, which will improve the educational system's quality and better match the essence of the Higher Educational system's mission, rather than the former information-centric- system.
- Emphasis is done on improving the research abilities and mission of faculties and the increase of the number and quality of patents.
- Vocational training will promote students' self-sufficiency while pursuing their higher education and improve their interest and commitment to their chosen studies. This may increase the quotas of enrollment in higher education and allow students to be financially independent of their parents, allowing them to choose their own field studies. Many students are not allowed by their families to choose the fields of their interest or passion, which may affect them for the rest of their lives. Such situations could be prevented by early financial independence.
- The promotion of technological and digital skills and remote learning makes education available and adaptable to a large public.

The NEP aimed to be futuristic and holistic to lead to fast economic growth; it targeted the main issues on the former educational policies, but, at the same time, it seems that the emphasis is over-focused on the final aim of the policy than on the self-growth of students, freedom, and individuality of students. The pressure, competition, and greed for success and achievement still find a main place within the scheme. Of course, economic growth may be facilitated by such a programme. The literacy level may increase, and the rate of enrolled students in higher education will also rise, but what about students' inner sparks? What about their freedom, their self-reliance, their mental and spiritual autonomy?

India is known to be the host land of much alternative education, an education known to be holistic and especially one that rejects classical education. Alternative schools are the results of many philosophies and the will of manifestation of different goals. Some of the most known alternative schools are:

- Montessori Schools:

Doctor Maria Montessori developed these schools' philosophies due to her observation of children's development as a natural process that needs respect for individuality, liberty, and responsibility. The method of learning is based on:

- Physical development, through the discovery of the body, stimulation of the senses, awareness of their existence, and inquiry development.
  - Intellectual initiation by learning to concentrate and develop the mind's unlimited faculties.
  - Spiritual by acknowledging the children's real self (inner spark) without the interference of authoritarian education.
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- Emotional by learning self-satisfaction, emotional self-sufficiency, and development of emotional intelligence.
- Social through the practice of compassion and help of others.

The method is holistic; it also includes nature study as well as arts and music. Inner and external awareness is developed as per the rhythm of children's learning and their inner nature.

- Krishnamurti Schools:

The Philosopher JidduKrishnamurti initiated a method of education based on his realization of "identification," which separated, shaped, and still shape individuals. He noticed that for a change to happen there was a need for a new generation of humans, which may happen through a holistic education that will answer inherited patterns of fragmentation. His method is based on the following:

- Awakening of intelligence through the cultivation of perception and experienced understanding.
- Through constant questioning, self-knowledge, acknowledgment of the self, the societal conditioning, and especially choosing to don't be affected by it.
- Cultivation of wisdom as a direct consequence of self-knowledge.

The two mentioned philosophies of alternative education are not the only ones, Waldorf, ISTA, and other alternative schools also work for the promotion of a new education for a new generation.

Can we say that what is missing within national education is alternative education? Well, an affirmation may not be the solution, but what will be interesting is to consider major elements of alternative education such as the goal of shaping a new generation of individuals through education, cultivation of individuality, and understanding the concept of free will, self-reliance, self-awareness, self-responsibility, autonomy, holistic education which includes not only the development of an independent intellect, but also of physical, emotional, psychological, and creative skills as well as awareness about the environment and the interconnectedness and responsibility of each being. Pressure and competition also have to be eliminated from education because of the disastrous effects on students' personalities.

If we plant a seed that teaches how to learn, there will not be any need for quantitative or qualitative efforts or policies to enforce any specific learning because an autonomous faculty would have grown within each individual, leading them with abilities, protections, and powers that will shape their lives. A natural flow would have been planted, and this flow will have a life of growth, development, and evolution. When we teach how to learn, there will not be any need for enforcing dogmatic learning. Learning will be like breathing, independent, holistic, and eternal inquiry.

As J. Krishnamurti said: "The purpose of education is not to produce mere scholars, technicians, and job hunters, but integrated men and women who are free of fear; for only between such human beings can there be enduring peace."<sup>4</sup>

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## MARY MCCARTHY'S OLD-FASHIONED DOMESTICITY IN BIRDS OF AMERICA

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### **Abstract**

What was good about the Middle Ages was that everybody had worked: the knight fought, the peasant plowed, and the lady cooked and made simples. Even a cat had a job of catching mice. (198) On the other hand, in a world of modern aimlessness, McCarthy opines, the change could be ushered through reforms in education. Peter thinks that every child, starting in grade school, should be sent to learn a real trade, like shoemaking, under a master shoemaker, instead of fooling around with finger paints or making ceramics. McCarthy here lays stress on bringing changes in the educational system, as technical education is one of the current requirements. Along with vocational educations, Peter contends that education must also cater to the human aesthetic self, as an aesthetic perspective elevates and refines human tastes. Peter is elated to receive an invitation to a Christmas party in Rome. Here, during Christmas vacation Peter takes in as much as he can of frescoes, sculptures, and buildings. Imperial Rome did not interest him greatly, but he liked the early Christian churches, especially Santa Maria in Cosmedin.

**Key Words:** Middle Age, Peasant Plowed, Aimlessness, Reform, Aesthetic, Imperial Rome.

As Nature is a healing force it contributes towards our wellbeing, endowing us with mental peace. McCarthy's depiction of Nature is not just a sensory delight in natural beauty but depicts an environmentalist's concern for the protection of wild life. From the world of plants, McCarthy moves on to describe Peter's interest in animals through a trip to the zoo undertaken by Peter with his friend Silly. Though Silly likes animals he enjoys teasing them. But for Peter it looks cruel and dangerous. Silly teases the swans by tossing peanuts between them until they grow quarrelsome. Peter in a countermove tries to feed the black swan from his hand, and the bird attacks him. In captivity, the process of the birds bonding with human beings is a double-edged sword. Human beings are the source of food, water and life itself, yet also an instrument of threat and death. When birds are rescued and brought to sanctuary, they often have difficulty of trusting their human caregivers. Blood poisoning lands him in the hospital, and a reaction to penicillin nearly kills him. When he regains lucidity his mother is with him. She is on her way to Poland on a tour for the State Department.

As if in some classical tragedy, Kant appears to him in a vision. Peter's moral guide tells him what he already knew, "Nature is dead, mein kind." Peter at first understands him to say that God is dead, the news not so tragic for him. Nature's death is another matter, for he has always depended upon Nature, honouring her moral laws.

Peter not only loves but

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also feels responsible for Nature. As he is living in the city, his connection with Mother Nature is less. He tries to lead a natural life to find some natural life of the mind that would be common to everybody. It is such a moral crisis that McCarthy fears with the encroachment of technology in the modern industrial world. In an interview with Jean Francois Revel, McCarthy voices a similar concern about the future of American society. She contemplates thus: If nature- in the beautiful form that we normally think of it: that is, the outdoors, plants, farms, forests- if all this were to disappear, which it's doing, there'd be nothing stable left to stand on, no ground for ethics. I think we're lost. I'm not an optimist. (Jean Francois Revel, p.115)

Peter's responsibility to Nature includes the plant world. What we receive from Nature and the consolation she is supposed to offer us is the sense of being in the presence of something greater than ourselves- larger and grander. In Paris he takes his plant for a walk once or twice a week, depending on the weather. He even teaches the Italian children to grow plants. Birds are the most visible of Nature's wild creatures, but Peter's story begins and ends with captive birds, the melancholy owl and the violent swan, victims alike of the un-feathered kind. Peter prefers both art and Nature to society, but he honours the bond of common humanity and believes that human beings are also morally bound to Nature.

Perception of the natural law is the moral faculty in man, the regulatory instinct that keeps him in balance with the natural things of the world. But people keep thwarting. The news of bombing brings Peter to despair. He seeks comfort in nature, but the desolation of the zoo only confirms his bereavement. The derelict botanical gardens look like a cemetery, and the vegetable kingdom is further reduced to the curious exhibit. All this makes him conclude that the common mother, Nature, is dead. In fact no regulatory instinct is at work when America dropped death on helpless people in the II World War. To the end of her days Mary McCarthy professed to love Birds of America, as the best of all her novels. In this novel, the author's cherished beliefs and pet crotchets is visible at all places.

The reader first spots them in Rosamund, who is trying her best to provide her son with two brief but perfect idylls at a New England village bearing some resemblance to Stonington, Connecticut. Ready to speak about against the frozen food proliferating in the Rocky Port supermarket, to take a stand against the gaudy zinnias blazing in the village's deteriorating gardens, and to do battle over the new historic plaques gracing its oldest houses, Rosamund wants to give Peter the America of her youth and not some tarted-up version of it: The critic Foster Hirsch, observes : One of the refreshing qualities of Mary McCarthy's novel *Birds of America*, is its adroit sidestepping of the all but inevitable clichés of the Bildungsroman: here is an account of a young man's archetypal passage from adolescence to maturity. Despite his exposure to experience, which confront him with the certain knowledge that this is not the best of all possible worlds, he doesn't deviate from trying to conduct his life according to egalitarian, Kantian ethics.... (Foster Hirsch, p. 328)

Peter's peregrinations have shown him a world reeling with the old burdens of injustice, poverty and violence and none of the old remedies avail. Science is more destructive than creative, as it has contributed in bombing on North Vietnam. But social progress, when it does occur, is destructive, cutting off the old consolations of Nature

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and art and severing connections to the past. Nature is a victim of the busy monster mankind and her condition is grave, but when she dies, human beings die. Human links with Nature are mutually dependent. The relationship between human beings and the environment has varied from the early periods of human settlement on the earth to the present day.

The early human beings considered the environment to be dominant. The human beings were once noble savages who dwelled in harmony and peace with Nature and could have continued to live so, but slowly yet subsequently they have used their intelligence and authority not only to transform the environment for their own progress but also made all kinds of incursions to make it more fragile. Nature, that has nurtured human life is continually exploited by them. The primitive human beings who feared nature's wrath were completely dependent on Nature for their mere survival. Being gifted with intelligence, the power to reason and analyse situation, we subjugated the environment and attained results in our favour.

However, subsequently the activity that started as a means of rational survival has turned irrational in the name of civilization. Summits like Copenhagen and Cancun are in fact a proof that we very well know what we are doing to nature. What is important, however, is that we start acting rather than just acknowledging what is already known. As the ecological situation is a global problem, it is important to have a holistic framework for the optimal function of the system. It is obviously not possible to go back into the primitive era, but a shift in attitude, rather than turning a blind eye to the situation and a controlled use of the available resources can definitely help in sustaining an ecological balance.

To describe the environmental degradations, the novel initially takes us to Rocky Port where Peter and his mother are returning, after a four-year absence, to spend their summer. Peter is disappointed in every turn. It reminds us Wordsworth's poem Tintern Abbey, where Wordsworth returned after five years. In this poem, it is Words Worth who has changed and not the landscape; but when Peter Levi and his mother, returned to Rocky Port the town has changed almost beyond recognition. The story is told entirely from Peter's point of view, although the voice is convincing and the character consistent and likable. The book is seriously flawed. It is about Peter's developing mind. Rosamund's menus and traditions are thematically important, but the lists and catalogues numb the mind. And we wonder whether we must know so much about Paris toilets.

The critic Jay L. Halio comments: In *Birds of America*, McCarthy tried to fit a running political, social and ecological commentary cum satire into the form of a novel that cannot or will not sustain it. At best, it strives to become a contemporary *Candide*, but hardly succeeds, mainly because Peter's innocence is more irksome than it is refreshing. (Jay L. Halio, p.276) The novel is put together carefully. The action begins during the summer of 1964 and runs to 1965. It is set in Rocky Port, Maine, in Paris, and in Rome. The first and the last scenes depend on birds. Peter is every bit engaged by the events of his time – Vietnam, civil rights, pollution etc. Comparison also ties the

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materials together. Thanksgiving Day in Paris recalls a Thanksgiving four years earlier in Rocky Port, and the two Christmas parties, two encounters with policemen, two cities Paris and Rome, even Rome and Rocky Port are set against each other explicitly or implicitly, and the similarities and contrasts help develop the interrelated themes of nature, art, tradition, and morality.

Peter's mentor, Kant, is present at the beginning through his maxims and at the end in Peter's hallucination. Emmanuel Kant thus becomes a structural aid in the novel, tying up all the loose ends. He gives a tight-knitted structure to the novel. In the beginning is Maxims introduce the major themes of the novel. Towards the end, his presence in mere hallucinations, prominence the disillusionment of Peter and an entire generation of sensitive individuals. Once Peter leaves Rocky Port, his story becomes a kind of pilgrim's progress, an intellectual biography in which people and events provide him chiefly with food for thought.

McCarthy as a food purist found American domestic life in the 1960s and 1970s appalling. The trend away from the kitchen toward frozen, prepackaged, and already-cooked food was quite advanced by the time she stated *Birds of America*. Anatole Broyard in his review in the *New York Times*, says, "Miss McCarthy has elected to take us into the kitchen and nursery of her imagination." (627) McCarthy, drew from her own experience in the novel her regret over the disappearance of old-fashioned domesticity, and of much else in America, owing to the improvements of technology. In her essay "A Touch of Nature" she regrets the fact that technology has replaced nature in people's sense of the scale of man. Nature is no longer the human home. It cannot be a coincidence that modern physics, by interfering with Nature, has for the first time posed a threat to the species and perhaps to most other forms of organic life on earth....Technology, originally associated with the civilizing arts of building and weaving, has replaced Nature as the Number One opponent of human society.(212)

McCarthy's novel is criticized by the reviewers for its traditional outlook and its conventional form. Reviewers fault McCarthy for writing a failed realistic novel, with its lists and catalogues of foods and household items, particularly in the Rocky Port section of the novel. The list of things is meant to reflect a more profound resistance to the encroachment of technology on a more natural and ethical past. The mix of realistic form, philosophical content, and satiric point of view lends the novel its compelling complexity. The difficulty with *Birds of America*, is that Mary McCarthy's voice comes through not only Peter's mother, Rosamund, but through Peter as well, making it difficult to distinguish among characters as well as between the characters and the author. For McCarthy, the crisis of the modern novel is related to the loss of nature and the resulting moral crisis of society.

McCarthy's ability to see the limitations of accepted beliefs and her openness to new ideas unable her to critique existing society in hope of improving it. In its interest in art and travel and culture and the general life of the intellect, in its plentiful literary allusions and its references of Eastern boarding schools and Ivy League colleges, and in its concern with radical politics. *Birds of America* bears its author's stamp in incorporating as it does virtually all of the absorptions of previous publications. As such, McCarthy fulfils the satirist's task of moral reform though at

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times scathing humour. No doubt McCarthy has written a probing, sensitive story of change in values, change in society: the decline of quality in life. The moral of the book is that Peter grows up beyond both his mothers, Mother Rosamund and Mother Nature, a moral clinched by the embarrassing last scene of the novel where Peter, in delirium from an infected swan bite, as visited in hospital by a vision of Kant, who tells him, in the final words of the book, "Nature is dead, mein kind." Technology, the Pentagon, and frozen foods are presumably the villains. Hence truth and Nature are the same; both are there, at once outside the human being and in their hearts.

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## RELATION BETWEEN AMYOTROPHIC LATERAL SCLEROSIS AND PRIMARY LATERAL SCLEROSIS

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### **Abstract:**

**Adults with slowly progressive, non-inherited gait disorders may show no abnormalities other than corticospinal tracts.** This is ALS and PLS which can only be proven by autopsy. ALS and PLS are a type of motor neuron diseases. The motor neuron diseases range from disorders that clinically affect upper motor neurons and lower motor neurons. This review is to define the syndrome Amyotrophic lateral sclerosis and Primary lateral Sclerosis that contains features of both PLS and ALS. To define that PLS more likely to become ALS gradually.

**Keywords:**Motor Neuron Disease, ALS, PLS

### **I. INTRODUCTION:**

#### **1.1 MOTOR NEURON DISEASE (MND):**

Motor neuron diseases are a group of progressive rare neurological disorders or neurodegenerative disorders that specifically affect motor neurons and destroy the cells that control voluntary muscles of the body which helps in activities such as walking, breathing and swallowing. Motor neuron diseases affect both children and adults. Adults of age above 40 are more affected than of younger ones. Some of the diseases include Amyotrophic Lateral Sclerosis (ALS), Progressive Bulbar palsy (PBP), Progressive Muscular Atrophy (PMA), Primary Lateral Sclerosis (PLS). The reason for most of them are unknown, but some of them are inherited. Symptoms of MND are first seen at birth or come progressively later in life. Most of them progress with time like muscle weakness in ALS.

#### **1.2 AMYOTROPHIC LATERAL SCLEROSIS (ALS):**

ALS or classical motor neuron disease is idiopathic, neurodegenerative disease which is not same in all the cases. It is also called as Lou Gehrig's disease in US and Canada. Approximately in two thirds of the patients with ALS have spinal form of disease (condition impairing the backbone) with symptoms related to focal muscle weakness, half of the people who suffer from ALS also show cognitive or behavioral changes. But the sensory nerves and Autonomic nervous system are unaffected in most of the cases. Respiratory insufficiency is most common cause of death in ALS patients. Although, once thought on ALS is that it selectively affects voluntary motor function, but now it can be defined as the fatal multi-system disease, as it is affecting multiple cell types in nervous system, affect cognition as well as the movement.

A set of patients perform poorly on cognitive tests related to frontal lobe function. The general symptoms of ALS include muscle weakness, atrophy, muscle spasms, and loss of voluntary movement.



In majority of ALS patient brains, in the earlier stages, no gross abnormalities are found, but the abnormality in precentral gyrus is found. Precentral gyrus is the anatomical location on primary motor cortex, responsible for controlling voluntary motor movement on body's contralateral side. It is gyrus on the surface of posterior frontal lobe.

### **1.3 PRIMARY LATERAL SCLEROSIS (PLS):**

It is an idiopathic motor neuron disorder that affects selectively Upper Motor Neurons (UMN) only. It is also a neurodegenerative disease. Compared to ALS, Primary Lateral Sclerosis is more gradual. Among all the PLS patients, greater than 75% of the patients develop lower motor neuron signs within 4 years of symptom onset. Only 3% of the patients are affected by PLS making it as a rare form of Motor Neuron Disease.

A recent review article pointed out that Primary Lateral Sclerosis is a heterogenous in its clinical presentation, that degeneration is not restricted to Upper Motor Neurons system. It also reviewed that dementia, Parkinson's symptoms may be associated with PLS. The general symptoms of PLS include spasticity, stiffness, decreased balance and coordination, mild weakness, pain and if bulbar region is affected there is a difficulty in swallowing, speaking and emotional liability.

It is slower than Amyotrophic Lateral Sclerosis. During movement, the motor neurons tend to have slower and less variable rates in patients with Amyotrophic Lateral Sclerosis, which may reflect expression of channels that promote stable membrane states. In the beginning stages of ALS, no abnormalities are shown in EMG. In Primary Lateral Sclerosis, the patterns of progression are most commonly seen from side to side and region to region.

The most common symptoms of PLS were stiffness, clumsiness, and mild weakness. It begins most commonly in legs. Upper motor neuron weakness is observed.

## **II. RELATION BETWEEN ALS AND PLS:**

The topic that ALS and Primary Lateral Sclerosis are two separate diseases or simply two points on a continuum of motor neuron degeneration is still debatable. But there are some evidences that PLS may be a branch of ALS but slower and in different method.

Le Forestier have observed that PLS is not limited to only Upper Motor neurons. It is also observed that the patients of PLS were significantly younger than that of the patients of Amyotrophic Lateral Sclerosis.

Studies have also shown that in patients who clinically appear to have pure upper motor neuron symptoms earlier, electrophysiological and muscle biopsy often demonstrated the Lower motor neuron signs later. This indicates that there is a chance that PLS may turn into amyotrophic lateral sclerosis gradually, that is the PLS could represent a subtype within the ALS.

### **2.1 CASE 1:**

An article observed a 54 -year old woman with decrease in gasping power in right hand. Two months later, Gait disturbance due to spasticity of right leg was observed. But the EMG showed no muscle atrophy but the Babinski's sign (This reflex occurs after the

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sole of the foot been firmly stroked. The big toe that moves upward or toward the top surface of foot.) was present on both the legs. MRI showed no abnormalities in the beginning. At the age of 55, there is no evidence of Lower motor neuron signs, but there is a spasticity in the right leg. One month later, EMG showed neurogenic pattern on the tongue and dysphagia in limbs.

At the age of 57, Mild atrophy was observed and MRI showed atrophy in frontal lobe and in anterior part of temporal lobe. Further MRI test revealed the progression in cerebral atrophy. At the age of 60, there is abdominal distension death. The last clinical diagnosis was for ALS. No respiratory symptoms were observed.

#### 2.2 CASE 2:

In another report, they observed a 46 -years healthy right -handed woman. The first symptom was mild left foot drop which caused occasional dripping. EMG and orthopedic examinations showed nothing. Throughout the diagnosis, no respiratory difficulties were found in patient. At the age of 51, there were notable spastic gait and spasticity of left arm. EMG showed no results. After nine years of progression of disease the last clinical diagnosis was PLS.

#### 2.3 CASE 3:

In an article,in another patient of age75, they observed Upper motor neuron signs, pseudobulbar palsy, increased tendon reflexes, Babinski's sign. No lower motor neuron symptoms were identified. After 6 years, mutual connection was lost and MRI showed frontotemporal cerebral atrophy. At age 82, there was a sudden death due to respiratory arrest. Final clinical diagnosis was MND and Primary lateral sclerosis.

The frontotemporal atrophy is common in both ALS and Primary lateral sclerosis. Neuropathologically, neuron loss is severe in motor cortex and degeneration is evident in corticospinal tracts. All the above patients showed progressive upper motor neuron signs. Lower motor signs are appearing later slowly. There is an evidence that a patient developed lower motor neuron signs after several years from onset of symptoms. Another common thing in three patients is that progressive frontotemporal atrophy. Trauma was more commonly encountered in patients with PLS than in patients with Amyotrophic Lateral Sclerosis. Autoimmune disorders were common in Primary Lateral Sclerosis. Bunina bodies (BBs), small eosinophilic intraneuronal inclusions are seen in all the cases.

### III. CONCLUSION:

Even in the patients who clinically appear to have pure upper motor neuron signs, electrophysiological studies and muscle biopsy often demonstrated lower motor neuron symptoms.

One article claimed that the patients had lower ALSFRS-R scores (The ALSFRS-R, Amyotrophic Lateral Sclerosis Functional Rating Scale measures 12 aspects of physical function, ranging from one's ability to swallow and use utensils to climb stairs and breathing, each function is scored from 4 to 0. The total score of 48 being maximum and minimum total score is 0.) These findings suggest that Primary Lateral Sclerosis could represent a subtype within the Amyotrophic Lateral Sclerosis continuum, and over the many cases that start as upper motor neuron disease could progress to Amyotrophic

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Lateral Sclerosis. Some ALS specialists believe that Primary Lateral Sclerosis is continuum of ALS and it may not be a separate disease but a very slow progressing type of ALS. It can also be further investigated in view of immune response in ALS and PLS patients.

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## CONSERVATION OF NATURAL RESOURCES IN ANCIENT INDIA WITH REFERENCE TO VEDAS

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### **Abstract**

Paryavaranam is a Sanskrit word for environment that was prevalent in ancient India. Vedas are universally accepted to be the most precious Indian heritage. The Vedas have Knowledge of all types and the main Vedic views revolve round the concept of nature and life. Vedas contained several references on environmental conservation, including ecological balance, biodiversity and natural resources. This indicates the high level of awareness of the people at that time. The Vedas attach great importance to conservation of natural resources and purity. They persist on safeguarding the habitation, proper afforestation and Non-Pollution. The Vedas glorify the earth as one's mother and advise one not to cause injury to the earth. They proclaim that earth is the bestowed of happiness, sustainer and supporter of all forms of life. The Vedas stress the need for protection and development of forest resources. Human beings have to safeguard the trees. The Vedas assert that the plants and trees are verily the treasures for generations. The Vedas declare that all that is seen is water resources and that they are the nectar conferring happiness to all. With a social objective, they emphasize that the waters are common resources to be used by all. Water is the essence of food. Our Vedas daily remind us that our Rivers, Mountains, Trees, Animals and the Earth deserve respect and dignity. The nature has maintained a status of balance between and among these constituents or elements and living creatures. A disturbance in percentage of any constituent of the environment beyond certain limits disturbs the natural balance and any change in the natural balance causes lots of problems to the living creatures in the universe. Different constituents of the environment exist with set relationships with one another. The relation of human being with environment is very natural as he cannot live without it. From the very beginning of creation he wants to know about it for self protection and benefit.

**Key Words:** Natural Resources, Ancient India, Conservation and Vedas.

### **Introduction:**

The word Environment is derived from the French word "environner" meaning "that which surrounds" or "surrounding circumstances". Hence Environment in simple terms implies all that of which surrounds a person, animal, plant that lives or is operational. It implies both physical (non-living) and biological (living) surroundings. Each living or non-living thing has its own environment in which it is existing. Environment can said to be the summation of all the circumstances that influence the life and development of various living and non-living beings on earth. Nature and its several components are all of complex nature and any intervention made reflects in their way of functioning. Due to tension and high negative energy created by man, the



environment is slowly losing its capabilities in discharging the functions in its predefined way. The awareness worldwide for the urgent need in protecting the environment is reflected from the past 50 yrs or so only after man realized the price he was paying for indiscriminate manipulation of nature. Nature was no longer the reservoir of natural resources. Its air and water got polluted, many species became extinct and many more still are facing extinction. There is major depletion in forest wealth leading to drastic climatic changes because of greenhouse effect.

### **Ancient Indian Literature:**

“Paryavaranam” is a Sanskrit word for environment that was prevalent in ancient India, thousands of year’s before the advent of modern science. Indian civilization has always been an eco-friendly civilization from its ancient days. In Indian consideration, environment is not a physical and lifeless being but a very living and active mechanism and human beings are just one among the various other creatures that inhabit the earth. For the ancient Indians, the Universe was integrated whole and all natural phenomena had a divine origin. There was an all round intense awareness for the need for having the right balance in man-environment interaction. They had great respect for nature and related all things happening in the environment to divinity. They were aware of the fragility of living in the environment if it was not protected. They laid emphasis on adapting to the environment and not changing it. Many principles and guidelines were formulated for an easy interaction between human beings and environment. Ancient Indians learnt to be in symphony with their environmental surroundings right from their formative years. The learning system was in natural surroundings called as Gurukulas which was the dwelling place of teachers or gurus. Guru” is a combination of two words – Gu which means “darkness” and –Ru which implies to dispel”. Thus the Vedic guruwas a dispeller of darkness of both the worlds – that which is inside of man and that which are outside. The student who was accepted in the Gurukula had to stay there through the entire period of his study. In the earlier days, education was given by scholars and learned people known as Gurus and Acharayas. They acted as custodian, counselor, a confidante, an advisor a mentor and father figure for all the students. These Gurukulas served as centres of learning that helped the students in building their character, in creation of societal awareness, in developing a discerning mind to choose the correct values in life, in learning the Vedas. All these were done with living a life integrated with nature and surroundings. As they all lived in the natural environment, conservation and preservation of natural surroundings became a part of their living. The Gurukulas were located in forests and the students experienced environment in its purest yet diversified forms. Ancient environmental awareness can be said to have existed even in the pre-vedic man of the Indus valley civilization which flourished in northern India about 5,000 years ago. This is evident from the archaeological evidence gathered from Harappa and Mohenjo-Daro which were the chief cities of that civilization. They had acute awareness about hygiene and sanitation as evident from their construction of ventilated houses, orderly streets, numerous wells, bathrooms, public baths and covered underground drains. Several tablets found at the site show their love for trees as form of worshipping tree goddesses.

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### **Vedas and Environment:**

Vedas means “knowledge in all forms. The Vedas were passed on from generation to generation orally, finally to be written down in Sanskrit language. This ancient literature encompasses a holistic attitude of the cosmic vision in a poetic way. Unique in its style and rendering, they enshrine a cheerful and blissful assertion of life and nature. Vedas has been nurtured and preserved through oral tradition in a systematic and traditional way. Ancient Indians concept of ecology is found depicted in the various verses in the Vedas. All plants and trees were seen as living and animate beings and each and every verse speaks of their importance and how they should be protected and not harmed.

### **Natural Resources:**

Life on this planet earth depends upon a large number of things and services provided by the nature, which is known as Natural resources. Thus, water, air, soil, minerals, coal, forests, crops and wildlife are all examples of natural resources. There are two parts of the word ‘Resource’ – Re and source. Re means certain duration or again and again while the meaning of source is means. Thus, ‘Resource’ means such source on which we can keep us dependent.

Acc. to P. E. Macnall “Natural resources may be defined as those resources which are provided by nature and which are useful to men”. The natural resources are of two kinds:

(1) Renewable resources which are in exhaustive and can be regenerated within a given span of time e.g. forests, wildlife, wind energy, biomass energy, tidal energy, hydro power etc. Solar energy is also a renewable form of energy as it is an inexhaustible source of energy.

(2) Non-renewable resources which cannot be regenerated e.g. Fossil fuels like coal, petroleum, minerals etc. Once we exhaust these reserves, the same cannot be replenished.

### **Water Resources in Vedas:**

Water (Jal) is considered as a powerful medium for purification and source of energy and is hence used in rituals. There are many verses written on water which shows the importance of water in our lives.

Waters which comes from heaven or those that wander dug from the earth, or flowing free by nature, Bright, purifying, speeding to the Ocean, here let those Waters. Goddesses, protect me. (The Rigveda 07.49.2)

Blest be the streams from hills of snow, sweet be spring Waters unto thee; Sweet is swift running Waters, sweet to thee be Water of the Rains. Sweet unto thee is Waters of the waste and Waters of the pool, Sweet is the Waters dug from earth, to thee, and Waters brought in jars. (Atharvaveda 19.2.1-2)

But over a period of time, we have forgotten the basics and continue to pollute our water resources by diverting industrial waste to lakes, rivers and sea. Even we have not spared the underground water whose level is reducing day-by-day and making it unfit for

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drinking. We need to rethink that whether our actions are right or are we doing good karma?

Water is essential to all forms of life. According to Rig-Veda the water as a part of human environment occurs in five forms:

1. Rain water (Divyah)
2. Natural spring (Sravanti)
3. Wells and canals (Khanitrimah)
4. Lakes (Svayamjah)
5. Rivers (Samudrarthah)

Vedic people knew that rain was the only source to replenish water in rivers to provide clean and safe drinking water for them and for their cattle, horses etc. They also knew that water was essential for growing food grains from soil and for green pastures for their cattle, their precious wealth. Their repeated prayers to Indra, Varuna, Maruts, Agni, Savitri, Prajanya, and so on in Rig-Veda, spread all over the text, for rains make it very evident.

Earth and sky (dyavapriithivi) are referred to as mother and father providing water and food to all living beings (Rig Veda I-164-8).

They had a very clear idea about the water cycle. That the water on earth evaporates resulting in cloud formation and then comes down again in the form of rain was neatly observed (Rig veda I-164-51).

It was observed that rain lasted for four months of the year starting after the Sun started moving southward (June 21) (Rig Veda III-56-4; VI-32-5).

Rivers were known to increase food production (Rig Veda X-43-3).

Independent suktasdescribing gentle and fierce forms, the speed, force, vigor, boisterous noise, expanse, helpfulness are addressed to individual rivers like Sindhu (Rig Veda X-75) and Saraswati (Rig Veda VI-58).

Other rivers mentioned are Ganga, Yamuna, Shutudri, Parushni, Asikni, Marutvridha, Vitasta, Arjikiya, Sushoma, Trishtama, Susartu, Rasa, Shvetya (tributaries of Sindhu), Kubha, Mehatnu, and Gomati (Rig Veda X-75).

Existence of dams on the seven rivers is mentioned (Rig Veda I-32-12).

Occasional rains in the deserts are referred (Rig Veda I-38-7).

There are references to releasing water by breaking a mountain or by removing a boulder (Rig Veda X-68-8).

There is a reference to clean water in ponds for ensuring good health of cows, to produce healthy calves (Rig Veda VI-28-7).

Water from rain, in addition to irrigating farmlands for food grains also resulted in the growth of medicinal plants, which protected human beings and animals from diseases (Rig Veda III-56-4).

Wells for drinking water were known (Rig Veda I-55-8).

Sumps of drinking water for animals are mentioned (Rig Veda X-101-5).

Irrigation from never-drying pits (shallow wells) is mentioned (Rig Veda X-101-6).

Irrigation from canals drawn from rivers suggested (Rig Veda III-33-12).



### Benefits of Water:

Water is seen as a source of happiness and strength also represents splendor(Atharva Veda Samhita iii – 13-5).

Water is also seen as loving like mothers who care for their children. As regards wisdom and happiness, “Since waters are the source of happiness, grant to us to enjoy abundance, and a great and delightful perception”. (Rig Veda 10.9.1).

Water is vaporized by the sun’s rays, while Indra opens a path to bestow upon us wealth; and cherish us with blessings." (Rig Veda 7.47.3-4).

The waters, with their ocean-chief, proceed from the midst of the firmament, purifying (all things), flowing unceasingly; may the divine waters, which the thunder-bearing Lord Indra, showered, sent forth, protect me here (on earth) (Rig Veda 7.49.1-2).

The plants flourish by means of water, by prayer is effectual through water; the essence of water is vigorous through water; purify me with it.” (Rig Veda 10.17.14).

Water has always been highly respected and treated with great reverences and is prayed to grant men procreative power (Rig Veda 10.9.3).

All creatures are born from the waters” (Rig Veda 1.23.16, 10.17.10).

Waters have been considered as the producers of all that is stationary and all that moves” (Rig Veda 6.50.1).

They are also hailed as mothers of all beings (Rig Veda 1.23.10, 6.50.6, 10.17.10).

Waters as friends of man, give full protection to his progenies (Rig Veda Samhita vi-50-7).

Water is like a mother to this world. It is the sovereign of the world. It holds divine wealth, immortality, pious deeds in its possession for the welfare of the living beings” (Rig-Veda X-30-10 to 12).

Water is the basis of all that is good in life. The most beautiful things happen to us because water provides us with vigor” (Rig-Veda X-9-1).

Rivers were known to increase food production (Rig-Veda X-43-3).

Clean and safe water is distinguished from impure and unsafe water (Rig Veda VI-28-7; and IV-57-2).

### Vedic Quotes on Water:

1. This Universe was only water in the beginning.
2. Water and herbs should have no poison.
3. Waters are to be freed from defilement.
4. Water cleanses humanity from the evil of pollution committed by it.
5. Waters have satisfying savior of the honey mixed with splendor.
6. Water bears of all defilements and cleanse people.
7. Waters and plants shall be friendly to people.

### Forest Resources in Vedas:

The Vedic traditions affirm that every village will be complete only when certain categories of forest vegetation or trees (e.g., MahavanShrivan, and Tapovan) are

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preserved in and around its territory of these, Mahavan, or the great natural forest is perhaps equivalent to the 'Protected areas of today; it adjoins the village and provides a place where all species can coexist. Once some of the original forest was cleared, the Vedic culture also necessitated that another kind of forest be established in its place. This is equivalent to today's production forests and it provides the essential goods and services to humans and livestock (e.g., fodder, timber, roots, and herbs, besides maintaining soil fertility, air and water quality as well as providing shelter). Traditionally, these are called Shrivana or the 'forest of prosperity' or 'forest of wealth.' The Shrivana could be in the form of mono specific stands (plantation) or species mixtures (agro forests). The third category of forests is Tapovan, or the 'forest or religion' the home of sages. Being sacred, no animal or tree could be harmed in these forests. This kind of forests is natural and untended, but is specifically set aside as place for the practice or religion. During the Vedic age each village was also responsible through its Panchayat, or committee of five elders, for maintaining the forests in its own territory implicit in this is the concept of participatory forest management, which forms a main component of the forest management paradigm today. Every village also must have a cluster of five great trees Panchavati symbolizing the five primary elements: earth, water, fire, air, and either the totality of everything. According to Varahamithra the shoreline (banks) of the tanks should be shaded (planted) with the mixed stands of *Terminalia arjuna* (arjun), *Ficus benghalensis* (banyan) *mangifera indica* (Mango), *Ficus religiosa* (peepal), *Naucleaorientalis*, *Syzygiumcumini* (Java plum), *Mitragynaparvifolia*, *Borassus flabellifer* (palmyra palm), *Saracaasoka*(Asoka tree), *Madhuca indica* (mahua), *Mimusopselengi* (Spanish cherry). The Hindu idea is that this whole world is a forest. To keep this world as it is we have to keep the world – forest intact. This gave to rise to the concept of cultural landscapes such as sacred forests and groves, sacred corridors, and a verity of ethno forestry practices that mirror the ecosystem like concepts in traditional societies. Vedic period this tradition continued; in addition to considering a landscape as Such as valuable and sacred, individual species and micro units were also treated as sacred examples include the temple forests, monastery forests, sanctified and consecrated trees, the sacred forests, sacred groves, and sacred trees. The Vedic people assimilated new environmental values and the concept of 'sacred groves' form the value system of the original inhabitants of the Indian Subcontinent implying their presumably pre vedic origin. Himalayas since times have been regarded as a vast repository of medicinal plants and other resources.

### **Benefits of Forests:**

Rig Veda mentions "Vanaspathi" tree having thousand branches and as the tree-lord of the forest. Worshipping this tree is a kin to worshipping the entire creation. This is one of reason why most of the Indian temples have sacred trees planted in their premises, and people circumambulate and worship them. Atharvana Veda mentions the medicinal qualities of various herbs. Plants like Tulsi are still considered sacred today. Trees such as parijata, banyan, and peepal (asvattha in Sanskrit) find a special mention. BumiSukta from Atharvana Veda depicts the importance given by our ancients to the panchamahabhutas (five great elements). We get food from our earth and agni (fire or

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energy) is what is present in each and every living and nonliving being, thus the entire creation is conscious.

In Rig-Veda (9/77/2), medicinal trees were worshipped as God for instance Vedic-Rishi (fellow) called the medicinal trees as the giver of peace Somlata is a wild epiphyte in forest that was used in Vedic-society to collect Somrash (liquor) and that Somlata was decided as sacred item and Vedic-fellows worshipped this even in Rig-Veda we can search the location of this Somlata that was at Muzban Mountain

In Yajur-Veda Samhita, we can find out that Ashwattha(*Ficus religiosa*) and Palash (*Butea Monosperma*) trees were dedicated as Sacred trees in respect of its medicinal value and used in Ashwamedhyajnafor burning of logs items and in Vedic society people thought that these two concept of forest-worshipping can be searched as for worshipping to God and here 'Forest' was identified as the term like Banashpati.

### **Vedic Quotes on Afforestation:**

1. One shall not destroy the trees.
2. One shall delight in plants and waters.
3. Plants are mothers and deities.
4. Trees are homes and mansions
5. Gods delight themselves in plants and waters.
6. Let plants be friendly to us.
7. Speech is the voice of the trees, the voice that is heard in the drum, the lute and the flute.
8. Trees are connected with Vishnu.
9. Plants and waters are treasures for generation.

### **Conclusion:**

If we look back into our ancient literature, it provides a good deal of knowledge about each and every aspect of life. We have rich literature inherited by our ancestors. In case of environment conservation we can learn a lot from our ancestors. Dr. Abdul Kalam's words: "ancient India was a knowledge society that contributed a great deal to civilization. We need to recover the status and become a knowledge power. Spirituality must be integrated with education. We should ignite our dormant inner energy and let it guide our lives. The radiance of such minds embarked on constructive endeavor will bring peace, prosperity, and bliss to the nation." In ancient scriptures, the Vedic scholars have not only explained the usefulness of natural resources but also depicted their beauty and charm in their writings. In the present scenario globalization has changed the very nature and quality of the environment. The world has become a global village and efficiently information oriented but environmentally deficient society. There is better lifestyle in the form of power and status all at the expenses of destroying the only liveable planet, i.e., Mother earth. Nature was the vortex around which the people went about doing their jobs in ancient India. To conclude, it would be naive on my part even to suggest that the data from the ancient sources as analysed in the foregoing pages offers any direct and immediate solutions to the present problems

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regarding water security and water scarcity faced by our scientists, ecologists, engineers, political and social thinkers

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## INFLUENCE OF CHANGING SOCIO-ECONOMIC LANDSCAPE ON CONSUMER SOCIALIZATION

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### **Abstract**

*The consumer decision making process is complex and important in determining purchase behavior. Many researches and marketers study in this field to identify how consumer makes purchasing decision. Consumer behavior is influenced by several factors and social class is also one of these factors. The purpose of this study is explaining how social class affects consumer behavior. The purpose of present study was to find out the gender and social class difference on interpersonal influence susceptibility on buying behavior. It was hypothesized that "Female buyers would be more susceptible on interpersonal influence as compare to male buyers. It was also hypothesized that "there would be significant difference between low, middle and high socioeconomic class buyers on susceptibility to interpersonal influences. Sample consisted of 135 (70 female and 65 male in which 51 from lower socioeconomic class, 47 from middle socioeconomic class and 37 were taken from high socioeconomic). The age range of the sample was between 21 to 40 years and education level was at least graduation. The sample was selected from Karachi. Personal data form was administered to gather the demographic information and to find out socioeconomic class. Then a Scale of consumer susceptibility to interpersonal influence (Beardon, Netemeyer, and Teel, 1989) was administered to measure interpersonal influence susceptibility on buying products. After scoring, T-Test and one way ANOVA was applied. The results indicate non significant difference among females and males, but significant difference between low, middle and high socioeconomic class buyers on susceptibility to interpersonal influence and that high socioeconomic class are comparatively more susceptible. Additional findings indicate specific differences in males, females on three socioeconomic classes and overall on different educational level*

Keyword: Consumer Behavior; Consumer; Social class; Social; stratification

### **INTRODUCTION**

The consumer socialization theory suggests that as children grow up and become consumers, their processing of cognitive and social stimuli depends on their age and family structure. Parents and peers as socialization agents and constitute the social environment in which children learn to become consumers. In this research accordingly identified several differences in socialization practices according to children's age-related stages of development and socio-economic contexts that is family structures, member and system in an emerging market context. Also, the peer group has considered as socialization agent under the study and identified how the consumer socialization among children impacted by them.

Children are first exposed to socialization when they accompany their parents to stores, malls and the like. Initially, the children only request to buy their favorite products; however, with the passage of time, they become more assertive of their preferred choices. Until the age of five, they mostly need help of their parents and grandparents and by early years they become independent consumers.

The socialization agents for children are family, peers and media, with family sex role orientation, parental style and communication pattern playing significant roles. In this chapter, the researcher presented the suitable tables with both descriptive and inferential statistical tools to give insights into consumer socializations among children by their parents and peer group. The hypotheses were



constructed to provide evidence whether these select family and peer group variables influences on children's consumer socialization process.

An important determinant of an individual's behavior is other individuals' influence (Bearden et al., 1989); social influence is an important determinant of consumer behavior. This is reflected in models of consumer decision-making that incorporate social norms (Ajzen and Fishbein, 1980) 2 and interpersonal considerations (Miniard and Cohen, 1981) 3 as antecedents of behavioral intentions. Consumer socialization is the process by which people develop consumer-related skills, knowledge, and attitudes (Moschis and Churchill 1978) 4 . Various types of theories (e.g., developmental, social learning, social systems) have been used to explain consumer socialization over an individual's life cycle. Perhaps the most popular theory in communication and advertising research is the social learning model (Moschis and George 1976) 5 , which generally views socialization as an outcome of environmental forces applied to the individual (Bandura 1969) 6 . The individual is viewed as a passive participant in the learning process, and the development of beliefs and attitudes results from the interaction with others. The three main elements of that socialization theory are socialization agents, social structural variables, and outcomes. According to social learning theory, the socialization agents and other social structural variables are instrumental in shaping an individual's attitudes and behaviors (McLeod and O'Keefe 1972) 7 The socialization agents transmit norms, attitudes, and behaviors to the individual and socialization is assumed to take place during the individual's interaction with the agents. Socialization agents may be any person, institution, or organization directly involved with the individual. In the consumer behavior literature they include television advertising parents, school, and peers (Moschis and Churchill 1978) 8 . The social setting within which the interaction of individual and socialization agent takes place is the second important aspect of socialization. The social setting is often defined in terms of social structural variables such as gender, race, and family size (Moschis and Churchill 1978) 8 . The third major element of social learning theory is outcomes. The end result of the socialization process is the acquisition of attitudes and behaviors often referred to as outcomes or consumer skills.

Consumer susceptibility is defined as the need to identify or enhance one's image with significant others through the acquisition and use of products and brands, the willingness to conform to the expectation of the others regarding purchase decision, and services by observing others and /or seek information from others. An important determinant of an individual's behavior is other's influence. Portrayals of products being consumed in social situations and the use of prominent/attractive spokespersons endorsing products is evident of this belief. Models used to explain consumer behaviors frequently include interpersonal influence. These models recognize that consumer behavior cannot be fully understood unless consideration is given to the effect to the interpersonal influence on development of attitudes, norms, values, aspirations and purchase behavior 7 (Stafford and Cohanougher 1977) 12. Early researches (e.g. Allen 1965) 13, which demonstrated that individuals differ in their responses to the social influences. Susceptibility to interpersonal influence appears to be an important individual difference variable for study of consumer behavior, it unfortunately has been neglected as general trait in recent literature. However numerous researches recent articles from psychological and consumer researches have demonstrated the existence of manifest interpersonal influence upon individual differences in decision making process e.g., (Cohen and Golden 1972 14; Kasarjian and Robertson 1981 15; Moscovici 1985 16 ; Sherif 1935 17 ). In consumer researches these studies include the effort of Ford and Ellis (1980) 18, Moschis (1976) 19 , Stafford (1976) 20, and Witt and Bruce (1972) 21. However, most of these investigated the tendencies to conform to group norms or to modify their judgment based upon on other evaluation and did not address the various dimension to interpersonal influences operate in given situation. Only few studies address the dimension of susceptibility to interpersonal influence and its effect on decision making process. In this regards



Deutsch and Gerard (1955) 22, posited that interpersonal influence is manifested through either normative or informational influences.

Brunkrant and Cousineau (1975) 23 defined normative influence as the tendencies to confirm the expectations of others. A consumer research has separated normative influence into value expressive utilitarian influences (Price, Feick, and Higie 1987)24. Value expressiveness reflects the individual's desire to enhance self-image by association with reference group. Value expressiveness is motivated by the individual's desire to enhance or support his or her self concept through referent identification. Value expressive influence operates through the process of identification, which occurs when an individual adopts a behavior or opinion of others because the behavior or opinion is associated with satisfying a self defining relationship (Pierce et al. 1987). Value expressive influence was found to vary across selection decisions of products that differed in consumption conspicuousness and of services that varied regarding consumer preference heterogeneity and referent co orientation (similarity). Utilitarian influences the other type of normative influences mentioned, is reflected in individuals attempt to comply with the expectation of others to achieve rewards or to avoid punishment, and it operates through process of compliance (Burkrant and Cousineau 1975) 23. Compliance occurs when individuals conform to the expectation of others to gain rewards or to avoid punishments mediated by the others. Deutsch and Gerard (1955) 25 defined informational influence as the tendency to accept information from others has evidence about reality. Informational influence may occur in two ways, individual may either search for information from knowledgeable others or make inferences based upon the observation of others (Park and Lessig 1977)26. Informational influence operates through the process of internalization, which occurs if information from others increases the individual knowledge about some aspect of environment. Informational influence has been found to effect consumer decision process regarding product evaluations (Burkrant and Cousineau 1975 27; Cohen and Goldmen 1972)28 and products/brand selections (Bearden and Etzel 1982; Park and Lessig 1977) 29 .

This extends into the realm of purchasing decisions, especially when the individuals are highly concerned with how others view their behavior (Bearden & Rose, 1990)30. In a study by Chen-Yu and Seock (2002)31, both males and females were asked to complete a survey by answering questions about how they shop for clothing. For both male and female adolescents, conformity was found to be a significant motivation to purchase certain clothing (Chen-Yu & Seock, 2002)

#### **OBJECTIVES OF THE STUDY**

- To study the concept of consumer socialization of children in the changing socio-economic scenario;
- To identify the influence of family and peer group on sample children consumer socialization;
- To access the impact of media on children consumer socialization process and shopping behavior pattern;

#### **Method Sample**

Sample of 135 consisting 70 female and 65 male in which 51 from lower socioeconomic class (including 25 male and 21 female), 47 from middle socio economic class (including 24 male and 23 female) and 37 were taken from high socioeconomic (including 16 male and 26 female), was selected general population of Bangalore. The education level of the respondents was at least graduation and their age ranged between 21 to 40 years.

**TABLE 4.1**  
**CONSUMER SOCIALIZATION OF CHILDREN IN GENERAL**

SL. NO.	Statement		Scale (n = 513)					Mean	S D
			SA 5	A 4	N 3	D 2	SD 1		
1	Socialization is a phenomenon; primarily it shapes and develops children's cognitive ability and behaviour as consumers.	n	199	177	99	23	15	<b>4.02</b>	<b>0.918</b>
		%	38.8	34.5	19.3	4.5	2.9		
2	Processes by which young people (i.e., children and adolescents) acquire skills, knowledge, and attitudes relevant to their functioning as consumers in the marketplace.	n	187	179	81	41	25	<b>4.15</b>	<b>0.982</b>
		%	36.5	34.9	15.8	8.0	4.9		
3	Socialization shapes the development of consumerism among the children	n	218	164	95	23	13	<b>4.07</b>	<b>0.944</b>
		%	42.5	32.0	18.5	4.5	2.5		
4	Children are prime purchase decision makers in they help their parents make various market choices.	n	208	198	73	20	14	<b>4.10</b>	<b>0.962</b>
		%	40.5	38.6	14.2	3.9	2.7		
5	Initially, the children only request to buy their favorite products; however, with the passage of time, they become more assertive of their preferred choices	n	241	153	84	23	12	<b>3.90</b>	<b>0.757</b>
		%	47.0	29.8	16.4	4.5	2.3		

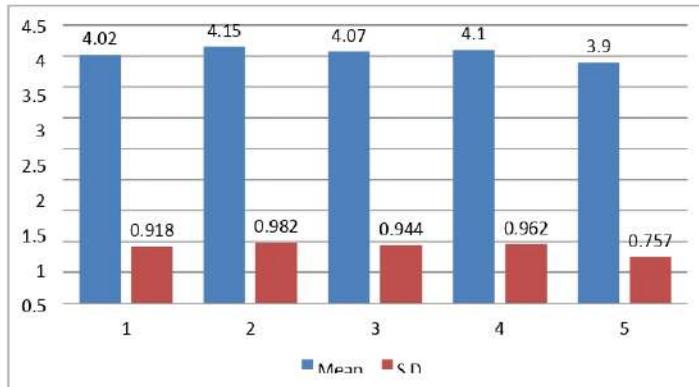
(Source: Field Survey)

**ANALYSIS**

The table 4.1 depicts that socialization is a phenomenon and primarily it shapes and develops children's cognitive ability as consumers (Mean=4.02, SD=0.918). Followed by processes by which children and adolescents acquires skills, knowledge, and attitudes relevant to their functioning as consumers in the marketplace. (Mean=4.15, SD=0.982). The respondents felt that the socialization shapes the development of consumerism among the children. Eventually, the children only request to buy their favorite products; however, with the passage of time, they

become more assertive of their preferred choices (Mean=3.90, SD=0.757).

**FIGURE 4.1**



**CONSUMER SOCIALIZATION OF CHILDREN IN GENERAL**

**INFERENCE**

Socialization of the consumer is the process in which the individual constantly harmonizes himself or herself with the environment by learning or changing new attitudes, values, and current norms. Socialization of the consumer is only possible through the interaction of individual factors (including age, gender, socioeconomic level, life period), socialization factors (including family, school, mass media tools, cultural variation), and learning mechanisms (cognitive development and social learning theory). Thus, learned characteristics such as knowledge, attitudes, and skills, have influence on various manifestations of child consumers and helps harmonization with the environment.

**TABLE 4.2**

**NATURE OF CHILDREN CONSUMER SOCIALIZATION**

SL. NO.	Statement		Scale (n = 513)					Mean	SD
			SA 5	A 4	N 3	D 2	SD 1		
1	Consumer's expectations will increase when they aware of product availability.	n	201	152	78	44	38	3.85	0.867
		%	39.2	29.6	15.2	8.6	7.4		
2	Product quality specification about fast moving consumer goods will be enhanced through socialization	n	222	162	89	22	18	4.07	1.044
		%	43.3	31.6	17.3	4.3	3.5		
	Brands can be identified and	n	207	190	74	23	19		

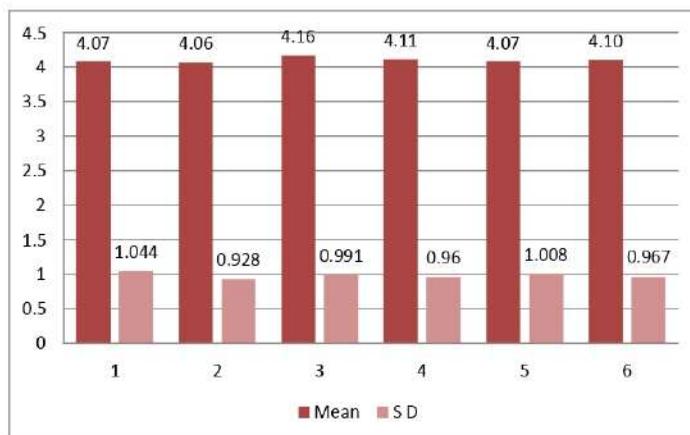
3	preferred by children in their daily life	%	40.4	37.0	14.4	4.5	3.7	<b>4.06</b>	<b>0.928</b>
4	Parent-child relationship enhances the socialization as early as possible.	n	239	165	74	23	12	<b>4.16</b>	<b>0.991</b>
		%	46.6	32.2	14.4	4.5	2.3		
5	Socialization of children boosts up sales of certain fast moving consumer goods.	n	209	195	77	19	13	<b>4.11</b>	<b>0.960</b>
		%	40.7	38.0	15.0	3.7	2.5		
6	It creates huge demand for products and services by children.	n	218	164	95	23	13	<b>4.07</b>	<b>1.008</b>
		%	42.5	32.0	18.5	4.5	2.5		
7	Advertising's persuasive nature increases with the age of the child.	n	208	198	73	20	14	<b>4.10</b>	<b>0.967</b>
		%	40.5	38.6	14.2	3.9	2.7		

(Source: Field Survey)

### ANALYSIS

There are five statements that have been given to sample respondents in connection with nature of consumer socialization among children. The above table portrayed that consumer's expectations will increase when they aware of product availability (Mean=3.85, SD=0.867). The parent-child relationship enhances the socialization as early as possible. (Mean=4.16, SD=0.991). The respondents agreed that the Socialization of children boosts up sales of certain fast moving consumer goods and it creates demand for fast moving consumer goods and services by children. The mean scores and standard deviations stood at 4.11, 4.07 and 0.960 and 1.008 respectively.

**FIGURE 4.2**  
**NATURE OF CHILDREN CONSUMER SOCIALIZATION**



**INFERNCE**

With change times and globalization through the context and content of information have changed but the cultural shifts among children drastically different compared to earlier scenario. Children currently enjoy a priority role in society, which was not noticed in the previous generations. Children are influencers and they direct the purchase through their parents by “Kidfluence”. This phenomenon is globally prevalent, with India including Bengaluru also witnessing the same.

However, with the rise in nuclear families and dual earning couples, increase in divorce rates, increase in single parent households, delayed parenthood, hyper parenting, rise in children TV and Media channels and so on are inducing the children in family decision making to a large extent.

**TABLE 4.3**

**FACTOR INFLUENCING CONSUMER SOCIALIZATION IN CHILDREN**

SL. NO.	Statement		Scale (n = 513)					Mean	SD
			SA 5	A 4	N 3	D 2	SD 1		
1	Children have greater exposure to the global markets	n	205	172	94	28	14	<b>4.03</b>	<b>1.023</b>
		%	40.0	33.5	18.3	5.5	2.7		
2	Rise in disposable income and changing family profile.	n	213	159	91	31	19	<b>4.01</b>	<b>1.081</b>
		%	41.5	31.0	17.7	6.0	3.7		
3	The consumer in India is more modern and urban, with greater buying capacities	n	203	192	96	13	9	<b>4.11</b>	<b>0.915</b>
		%	39.6	37.4	18.7	2.5	1.8		
4	Cultural change in the modern market.	n	199	193	89	21	11	<b>4.07</b>	<b>0.949</b>
		%	38.8	37.6	17.3	4.1	2.1		
5	The Indian consumers have grown to be entirely different in the past two decades (millennial)	n	211	201	67	19	15	<b>4.12</b>	<b>0.969</b>
		%	41.1	39.2	13.1	3.7	2.9		
6	More than 32 percent of the population in India is below	n	189	191	79	39	15	<b>3.97</b>	<b>1.053</b>



	the age of 16 years.	%	36.8	37.2	15.4	7.6	2.9		
7	Rapid growth of technology boosts up socialization of children at the early age.	n	217	157	99	27	13	4.05	1.026
		%	42.3	30.6	19.3	5.3	2.5		
8	Many social and television media available in the modern society for children as well as adolescents.	n	198	172	86	36	21	3.96	1.100
		%	38.6	33.5	16.8	7.0	4.1		

(Source: Field Survey)

ANALYSIS

Now-a-days, children have greater awareness of global market. As people considered as global village everyone can be reached by the marketers. Rise in disposable income and changing family profile from joint to nuclear, physical to virtual it has been changed the entire landscape of consumer socialization of children. The consumers in India is more modern, techno-based, branded and urbanized, with greater buying capacities and economically sound. Cultural transformations in the modern market give route for early socialization among children in the modern market.

One can notice that Indian children have grown and developed entirely unique after becoming a millennial. Even below the age of 16 years children’s population is sound in India compared to other countries. Rapid growth of technology boosts up socialization of children at the early age. Many entertainment, communication and social media are available in the modern society for children as well as for adolescents. The mean score for eight statements responses ranged between 3.96 and 4.12. The standard deviation scores for these responses on a five point scale is registered between 0.915 and 1.100 for the eight statements given to them.

INFERNCE

Children are an enormously powerful medium for relationship building in India. They not only influence markets in terms of the parental decision-making to buy certain kinds of products, they are also future consumers with the booming economy. Indian parents are marching forward in the race of acquiring material possessions for their children which is commonly found in the Indian parent sample. Children now-a-days have been recognized as a powerful segment influencing the family decision making process and hence have received a lot of attention from the marketers, advertisers, and others in fast moving consumer goods sector. The demographic and psychographic profiles of Bangaloreans, expose the significant influence of the educated and affluent parents in empowering their children as more active influencers/consumers.

DISCUSSION

The result shown in table 1 indicates that there is no significant difference (t= 0.48,df=133,P>.05) between male and female to interpersonal susceptibility. This indicates that males and females are almost equally susceptible to interpersonal influence while buying home appliance products. The reason lying in the fact that both are equally affected by the environmental (i.e. social) forces and gender difference is least important in this interplay. Secondly being high involvement products



both the gender takes equally interest while purchasing and the marketing strategies are made in such a way that they target both the gender. Thirdly as we are family oriented society so most of the time purchasing home appliances is a family decision so again only gender becomes less important in this case. Results of table 2 shows that there is significant difference ( $P > 5$ ) that each group are susceptible to interpersonal influence on buying behavior at different levels. While analyzing the difference, there is a significance difference among lower-high and middle-high socioeconomic group, but there is no significant difference in middle-lower group for susceptibility.

As high socioeconomic class have more resources and are status oriented and they pursue for quality products and thus collect more information or seek guidance from those around them, which makes them vulnerable to susceptibility. Resources and constraints" encompass all the ways in which particular life conditions can be differentiated by social class. Any condition that affects a person's place in society, shapes their opportunities, and colors their view of the world could be construed as a resource or constraint (Mayer and Buckley 1970) 57 . Underlying this broad admission is the understanding that all distinctive life conditions can be interpreted (albeit with varying degrees of influence) as resources or constraints, in that they have potential to influence and interact with each other in a holistic way. It will be argued that resources other than money constitute major contributors to the superior quality of life experienced by higher-class groups. Henry (1995) 58 found in higher-class subjects a strong focus on preference for rational logical thinking, and a high value placed on power of the intellect.

These higher-class subjects described themselves as inquisitive and interested in new things, seeking to broaden their minds. Halson and Baron (1994) 59 identified distinctive cognitive styles in problem solving and decision-making, in that higher-class individuals tend to use a more elaborated, rational-analytic style. Ability to pay for goods and services determines the material affluence of one's lifestyle. Modes of thought concentrated within the higher classes, including willingness to take on stressful challenges, achievement motivation, and focus on planning to attain future goals, can be construed as resources that better equip the individual for life's challenges. (Halson and Baron 1994) 59 causes them to pursue and integrate knowledge that can constitute an advantageous tool in the new knowledge economy. Comparatively lower socioeconomic class has tendency not to plan for future (Kohn et al. 1990) 60, and limited social interaction so mainly purchase product on the basis of utility and resources and seek less information which might makes them less susceptible than other socioeconomic class. Table 3 results indicate that females have significant difference among the three socioeconomic classes for the interpersonal influence susceptibility, thus again signifying the contribution of socioeconomic factors among females for interpersonal influence.

Table 4 results indicate that there is only significant difference between males in lower to high socioeconomic class for the interpersonal influence susceptibility, shows that male of low and middle socioeconomic class are almost equally susceptible but difference counts when the gap between the classes increase. Combining both tables 3&4 reflects that gender difference is not playing active role rather socioeconomic status is more significant one. Table 5 results indicate that there is significant difference between respondents having education master-postmaster and bachelor-to postmaster to the interpersonal influence susceptibility, reflects that there is significant difference for susceptibility with increase in education.

Table 4.3 results indicate that there is only significant difference of individuals with graduation education when proceeding from lower-high socioeconomic class. This again depicts the importance of socioeconomic class over education. In addition results indicate that individuals differs with master education in lower-high, and middle-high socioeconomic class for interpersonal influence susceptibility. Individuals with postmaster education in each



socioeconomic class does not differ for the interpersonal influence susceptibility, thus socioeconomic class is less important than education while being at this level of education.

### CONCLUSION

The most revealing outcome of this conceptual paper is the identification of theoretical gaps in the existing body of knowledge relating to consumer socialization. Accordingly the researchers attempt to re visit the prevailing knowledge with regard to socialization of consumers and thereby identified the present findings of the phenomenon. Consequently it is revealed that many studies conducted in the respective field have concerned on the favourable aspect of consumer socialization or in other words they are the desirable outcomes of the socialization process. Another imperative judgment is that the identification of antecedents and the consumer socialization agents being conventional where there are many other significant aspects which are worthwhile to address along with the traditional variables.

With the intention of addressing the above limitations related to the area of consumer socialization, this research paper identifies the significance of studying deviant consumer socialization with special reference to compulsive buying behavior of Sri Lankan consumers. In respect to antecedents of consumer socialization; it is advanced that personality would be an important predictor in the agent – learner interaction process where it is postulated to have significant differences among the socialization agents depending on the personality traits of consumers. Emphasizing on consumer socialization agents, it is proposed that inclusion of social media as an agent in the interaction process will give important insights relating to deviant consumer socialization since social media has become one of the major platforms where many consumer interactions are being taken place. Conclusively this paper contemplates to provide a more cohesive and a holistic view to the phenomenon of deviant consumer socialization via addressing the limitations and gaps in the prevailing body of knowledge.

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## ECONOMICS OF COVID 19: A JOURNEY OF SUSTAINABILITY

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### Abstract

The novel corona virus has now merged slowly and gradually with the lifestyles of the people across the world. The communities have accepted to live with the virus, with due precautions, obedience to regular protocols regarding social distancing, wearing of masks, hygienic practices etc. The development of the vaccine is very near, but very far from the reach of the common masses. The net impact has been devastating on both, the advance as well as the developing economies of the world. There has been both economic as well as social impact. The fall of GDP, employment, production, investments etc. has infact brought the world economy to a halt. Though some of the economies are recovering slowly, but it's a matter of time and patience to get back on the track. It's also believed that there has been failure in the supply chain management even in the countries like United states, France, Italy, United Kingdom and etc which had very good standings/rankings in the health Infrastructure Index. The bailout packages have done some justice, but there has been a great divide in its beneficiaries leading to psychological distress among some people who have been deprived. The corporate world has even started counselling its employees to manage the stress. Globally the gross domestic product fell by 2.5 percent for developing countries, and 1.8 percent for industrial countries. And the recovery will take longer than economists first thought. In June, the International Monetary Fund's (IMF) World Economic Outlook projected global growth at -4.9% in 2020, 1.9 percentage points below the April forecast. The Reserve Bank of India has projected the Indian economy to contract 9.5 per cent in the current fiscal, while the International Monetary Fund (IMF) and World Bank estimates the contraction at 10.3 per cent and 9.6 percent, respectively. The small island countries specially those who were dependant on tourism activities have also got a setback as the increasing restrictive regulations have halted the tourism activities. The current paper has analysed the economic parameters like GDP, inflation rates, interest rates across the countries which has been impacted by the novel corona.

**Keywords:** GDP, covid 19, Package, Inflation, Employment.

### I. Introduction

This novel coronavirus was named Coronavirus Disease 2019 (COVID-19) by WHO in February 2020. The virus is referred to as SARS-CoV-2 and the associated disease is COVID-19. As of 29th October 2020, over 4,504,391 cases have been identified globally in 188 countries with a total of over 1,175,359 fatalities. The impact of the pandemic has been both immediate and has shown the tendencies to damage the economy in the long-run. It shook the economic order and the monetary and the fiscal policies of the world. The loss of the valuable human resource was at the crux. The



contraction of the global GDP plunged many economies in the buffer zone of negative economic growth in 2020 and has further forecasted a slow rise in the growth rates in 2021. Its spread has left the corporate world with counting costs and uncertainties about their recovery. The virus is believed to have started in Wuhan, China in December, 2019. The country took various steps to minimise and prevent the spread, but this policy measures had counter repercussions on the world as China's manufacturing sector controls 1/3rd of global products making it a 'global supply chain'. These have adversely affected the production in other countries with unnecessary delays, resulting into loss of sales and revenue further getting stretched to raw industries & other associations. Every country suffered in its own deficiencies and loopholes. The top ranked countries in Health Infrastructure Index such as United States, China, Italy, United Kingdom, France etc.; proved to be a big fiction with no safeguards to its own citizens from the pandemic. In United States, the Covid-19 pandemic resulted into a rise in unemployment leading to millions of its citizens filing for unemployment benefits. In June, 4 alone, the figures were at 42.6 million (More than the quarter of its working populations), and are expected to rise as the impact of the pandemic on the US labour market worsens. The impact of Ebola, Swine Flu was not that severe as compared to the covid 19.

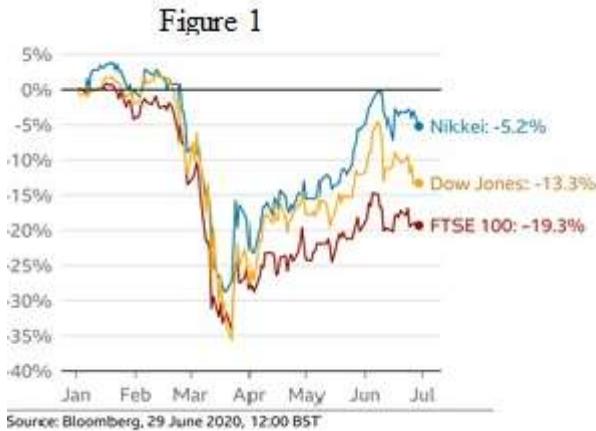
The degree of sustainability has been a big gimmick in terms of various protocols issued by different regions across the world. The purpose in the initial stages was however not to sustain itself, but to survive the phase of the pandemic. There has been different academic scientific research carried out not only on the medicinal inventions, but also on minimising the socio-economics implications. It's a fact that majority of the nations have suffered a lot, the reasons of which are unknown – believed to be a failure in the timely supply chain management of the available resources. The burden of failures was tried to be shifted internationally on China by some nations, with the threat of bans, trade wars etc. The international community became a prisoner in her own prison. Some protagonists tried to colour the virus as a punishment by the almighty. Different theories and dogmas were associated with the increasing deaths associated with the pandemic. The different regions of the world started taking not only preventive measures, but in fact had also started on giving more emphasis on the development of the vaccine at the earliest. Though some countries are on the verge of getting the successful trail of the vaccine, but it will only be a matter of time and patience. Till then, the international community has to fight a battle of not only survival but also sustaining her resources and using it prudently and optimally.

## II. Impact of the Pandemic

The pandemic has adversely affected almost every sector of the world economy. The developed as well as developing economies have come out with different strategies not only to save their economies, but also sustain it in the near future. The impact has been briefly explained in terms of some parameters as follows:

### Share Market

The pandemic has left the share market with a gloomy picture, as already witnessed by lots crashes in the stock markets across the globe. COVID-19 has a negative but short-term impact on stock markets of affected countries and that (ii) the impact of COVID-19 on stock markets has bidirectional spill-over effects between Asian countries and European and American countries(Qing He, 2020). The central banks of some countries

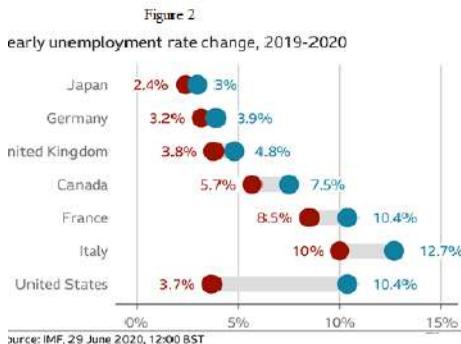


like UK slashed interest rates to make borrowing cheaper and encourage the spending to boost the economy. The world markets have since recovered (as shown in Figure 1) to some extent but the wave of pandemic has been still existing which can bring volatility in the stock markets again. Everything will depend on how quickly the pandemic will be controlled. It should be noted that though the share markets

suffered, but for some pharmaceutical firms like Gilead and Eli Lilly, are seeing positive growth on the stock market. Pfizer has also unexpectedly gained from the coronavirus outbreak. Pfizer's pneumonia vaccine Prevnar 13 has seen an unexpected jump in sales, most probably due to the course of the coronavirus, which in severe cases causes pneumonia with high mortality rates. This increased revenue for Pfizer will be matched and exceeded if its collaboration with BioNTech for a Covid-19 vaccine is successful.

### Unemployment

With no effective demand amidst the spread of the pandemic, the industries were closed, labourers retrenched, income reduced, many countries experienced huge unemployment



in their respective countries. Around 1.6 billion workforce from the informal sector across the world have left with no jobs and there are no signs of getting it back even after recovery. Hundreds of millions of jobs have been put on hold by coronavirus shutdowns around the world. That's been especially true in countries already hit by the pandemic. But other areas, like Africa and much of South America, are suffering from the international economic fallout and are likely to face heightened job losses if the



pandemic strikes further. As per ILO Covid-19 had left almost all 2 billion of them finding it precariously hard to make ends meet. The proportion of people out of work in United States has hit 10.4% (Figure 2), according to the International Monetary Fund (IMF), signalling an end to a decade of expansion for one of the world's largest economies. With the slowdowns of the world two major economies, china and US, everything will depend on how fast the pandemic will be brought under control as it has also not spared the patterns of international trade, which has further facilitated unemployment amidst covid 19. There have been different types of packages, both in kind and cash floated by different countries affected by the pandemic to deal with the unemployment. But there have since been some signs of recovery in the global jobs market. China and France, for example, have seen increases in hiring rates as shutdowns eased, according to networking platform LinkedIn. In India, the CMIE analysis has shown a fall in jobs with the unemployment rate at 8.7% in March 2020, which has been reduced to 6.83% as of on October, 31 2020.

**Recession**

The world both advanced and developing economies are on the verge of going into the phase of recession in the absence of a proper disciplined approach in their policies both internally as well as externally. The IMF has predicted a shrink in the growth of the

<b>Growth Projections (Real GDP Annual %age Change)</b>			
<b>Country</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
United States	1.7	-8	4.8
Germany	0.6	-7.8	5.4
France	1.5	-12.5	7.3
Italy	0.3	-12.8	6.3
Japan	0.7	-5.8	2.4
Canada	1.7	-10.2	6.3
China	6.1	1	8.2
India	4.2	-4.5	6
Russia	1.3	-6.6	4.1
Brazil	1.1	-9.1	3.6
Mexico	-0.3	-10.5	3.3
Saudi Arabia	0.3	-6.8	3.1

Source: IMF, World Economic Outlook, June, 2020

global economy by 3% in 2020 described as the worst since the Great Depression of the 1930s. Table 1 shows the predictions of the economic growth rates for the select countries. The United States real GDP is predicted to change from -8% in 2020 to 4.8% in 2021. This symmetry is the same for other developed nations such as Germany, France, Italy etc. However, in case of China it is projected to be 8.2 % in 2021. India's growth in real GDP however is expected to be

satisfactory at 6%, but is lower than that of china. While all economic downturns have their own idiosyncrasies, the underlying dynamics of this pandemic-induced recession were similar across the world.



Healthcare:

The pandemic of Covid 19 has exposed the preparedness of the health care industry across the globe. It was ill-prepared to tackle a public health emergency at this scale.

**Table 2**

Countries	% of GDP	Active Cases
Japan	21.1	98116
Canada	16.4	224653
Australia	14	27554
United states	13.2	9056277
Turkey	12.8	366208
Beazil	12	5445475
Germany	8.9	474749
China	7	85868
India	6.9	8006348
France	6.1	1198695
Argentina	6	1116609
Italy	4.9	589766
Indonesia	4.4	400483
Russia	4.3	1563976
Saudi arabia	3.4	346047
Mexico	0.7	901268

Source: IMF, World Economic Outlook, June, 2020

The existing state of affairs meant that many industry practices were not robust enough in terms of policies, infrastructure, risk management, sourcing, procurement, or supply chain management. China, the second largest economy in the world, the epicentre of the global healthcare supply chain, medical equipment and drug manufacturing, was also the infectious virus’s place of origin. This made for a bad combination and led to the disruption of a crucial supply chain equilibrium. Healthcare systems across the globe are striving hard to cope with the mismatch in supply and demand,

among other SCM challenges. Global medical supply chains are in a weak state, given manufacturing plant shutdowns that have led to a shortage of drugs, testing kits, and other essential items. Pharmaceutical companies are trying to make peace with this new reality and are looking for solutions that mitigate and eventually prevent recurrences of the COVID-19 outbreak. Governments, hospitals, investors, pharma companies, and related businesses are all working toward fast-tracking clinical trials. There has increase in the financial packages to deal with the covid 19. Most of the countries have spent and are spending on the management of the pandemic. Table 2 gives an illustration of the different financial grants as a percentage of GDP, spent by different countries. Japan has been the most generous country which has spent more than 21% of GDP on the management of pandemic in 2020. India had spent 6.9% of GDP to tackle the corona virus pandemic.

Besides, the various other economic parameters such as the travel and tourism industry, automobiles, consumer goods, Oil and Lubricants etc suffered a lots on the account of Covid 19. The most severe impact however has been on the daily wage earners working in the informal sector of the economy. In rural areas, the livelihoods of especially the self-employed and wage workers are at risk, because agro-food supply chains and markets are being disrupted due to lockdowns and restrictions of movement. Families might resort to negative coping strategies such as distress sale of assets, taking out loans from informal moneylenders, or child labour. Specific groups of workers, including women, youth, children, indigenous people, and migrant workers, who are overrepresented in the informal economy, will experience further exacerbation of their vulnerability. Further, logistical challenges within supply chains, particularly cross-border and domestic restrictions of movement, may lead to disruptions in food supply, undermining informal workers’ food security.<sup>8</sup> Informal food markets play an essential



role in ensuring food security in many countries, both as a source of food and a place for smallholder farmers to sell their products, and their closure will lead to increased food insecurity and poverty. Thus the economy has been going through severe economic crisis which will and is expected to end soon with the hopes of an early vaccine for which the world has pledged billions of dollars.

### **Can there be a way towards Sustainability?**

There exists a great uncertainty around the globe with the virus which can and has started resurging, with localized lockdowns being reinstated. If this worsens and prospects of vaccines deteriorate, the economic cost would be severe leading to further financial crisis. The growing restrictions on trade and investment and rising geopolitical uncertainty could harm the recovery. A co-operative international policy can help to a great extent. Some measures can be adopted for an effective journey towards sustainability in the long run

1. There is a need for international co-operation among the nations. Tremendous progress is being made in developing tests, treatments, and vaccines, but only if countries work closely together will there be enough production and widespread distribution to every part of the world to end this pandemic.
2. Policies must focus aggressively on limiting persistent economic damage from this crisis. There is a need for persistent governmental support of income to households and vulnerable but viable firms
3. As the economy starts recovering there will be need to boost the investment in terms of effective fiscal-monetary management and the reallocation of resources towards the emerging sectors. A rethinking on public green infrastructure investment push in times of low interest rates and high uncertainty can significantly increase jobs and accelerate the recovery while also serving as an initial important step towards reducing carbon emissions.
4. The emerging markets and developing economies have to emphasize more on health care management and support for poor in a prudent and optimal manner. These efforts have to be augmented and facilitated by international grants, aid and if feasible a relief from debt.
5. Lastly, policies should be designed towards a stronger, equitable, and sustainable growth. The global easing of monetary policy while essential for the recovery, should be complemented with measures to prevent build-up of financial risks over the medium term.

Though the countries debt levels have shown an increasing trend, but with an expansionary monetary policy supported by the fiscal discipline, the collapsed economies can emerge in 2021--- Investments in health, digital infrastructure, and green infrastructure and education can help achieve productive, inclusive, and sustainable growth. There is a need to grow and sustain mutually by the members of the global

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community. The policy of international discriminations, politically and economically can only lead the world to a phase of depression and an uneven growth of the global economy. There is a need to re-think towards an international global order post covid-19 by the institutions and the so called the leaders of the global economy in terms of a macroeconomic framework with a significant role for the state in the governance of the private sector of the economy.

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## PUBLIC OPINION ON CRIME MAPPING: A TOOL FOR CRIME INVESTIGATION

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### ABSTRACT

Any type of crime is like a poison to Mankind, The current situation of crimes in India its biggest challenges or task to law enforcement system, yes there are several measures are adopted by our Government but we may find still the numbers of crimes are increasing day by day due to several reasons, as we know crime mapping or cartographic technology are developing in many country for identifying the hotspots and suspicious areas, Using this kind of tools for investigation of crimes in India is still initial stage and one of the major drawback is that it should not fix only to major cities like Bengaluru, Chennai, Mumbai, Kolkata, Delhi etc., and it should be start practicing in every city, that will be helpful for investigator to solve the cases quickly. And crime mapping or cartographic analysis of crime are playing a vital role in crime prevention and detection of criminals.

Present paper trying to say that if our law enforcement system start practicing this kind of geospatial technology for investigating of crime will be helpful for reducing crimes in society and also present paper trying to collect the public opinion on crime mapping in present era.

**Key Words:** Crime mapping, Public opinion on crime mapping, Crime prevention, Geographical Technology, Law Enforcement.



## INTRODUCTION

In the field of criminology the concept of crime mapping began to emerge in the beginning of 18<sup>th</sup> century By Adolphe Quetelet and Andre Michel Guerry *according to them* the Statistical analysis gained the insight of relationship between crime and season. Crime against persons that fall under violent crimes such as rape are more in summer season and crime relating to properties are more in winter season. This law made as a Thermic Law of Crime. As per the Thermic Law of crime certain types of crime are associated with geographical conditions which occur in a particular climate at particular area and no other areas. Crime mapping is also called as Cartographic analysis of Crime. There are many other theories and article are available which focus on crime mapping in crime prevention through Geographical information system.

Cartography or Crime Mapping are play vital role in crime prevention and detention of criminals in a particular area. It will help to understand and identified the crime patterns and hotspots. Such Information can help to law enforcement agencies to assist their subordinate to identify and apprehend the suspects. And it will help systematically helps to maintain Law and Order.And such maps should be reach to public because of awareness about areas and patterns of crimes.

From this kind of study there is a chance for increasing safety index and reducing the crime index in society. This study purely focused on public opinion on crime mapping and present usage of crime mapping for investigation of crime. And also now weather this tool will help to our Law enforcement system.

### Objectives of Study

1. To know the public perception on crime mapping.
2. To find out the importance of crime mapping in present scenario in Karnataka.



## METHODOLOGY

Aim& objective of the study is to know about the Public Opinion on Crime Mapping: A Tool for Crime Investigation to analyze the data exploratory and descriptive research design is adopted in the current study based on the primary dataas well as the secondary sources. Exploring is nothing but trying to explore which information got from the respondent,the data has been explored to assess the actual public opinion on crime mapping.

### **Universe of the Study:**

The present study would be conducted in Belagavi City, Karnataka, India.

**The samples:** 50 Samples are collected for the present study, the samples arecollected from the different areas of the Belagavi city through the convenient sampling or random sampling method.

### **Tools and method of data collection**

**Primary methods:** - Primary source of data is collected from Questionnaires and Opinionnaire with Google forms and printed format of questionnaire through the convenient sampling or random sampling method.

### **Secondary methods:-**

The secondary data being extensively used are as follows:

- i) Books, Journals, Articles, Periodicals, Publications.
- ii) Web Sources.

**Limitation of the study:** For the present study 100 samples are planned to collect due to lockdown researcher unable to collect the 100 samples, even researchers had sent Google link as well as printed format of questionnaire but we get only 50 samples.

**GENERAL DISCUSSION:**

The questionnaire has been carried by enumerate and collected from the respondent and gathered the information. The initial response of the peoples are depressive most of them are not ready for answer the because of unaware and kind of fear wither their name will be came and their reaction of public. Age group of the respondents is 21 to 80 most of them are business man, working women, college teachers, Advocates, are from the different areas of the Belagavi city.

**To know the public perception on crime mapping:**

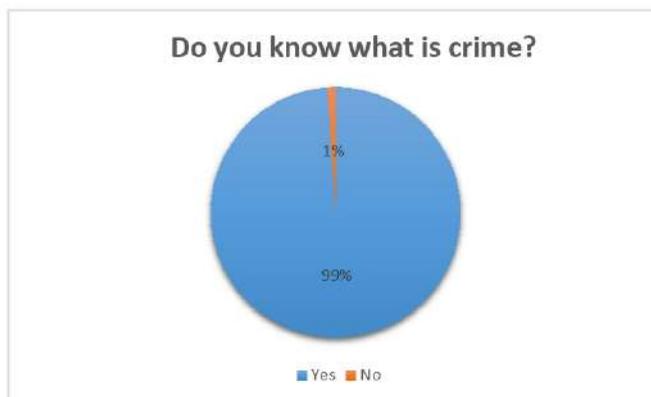
**Analysis of Questionnaires wise**

**Table No 1**

Do you know about what is crime?

SI No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	49	99
02	NO	1	1
03	Don't Know	-	-

**Diagram- 1**



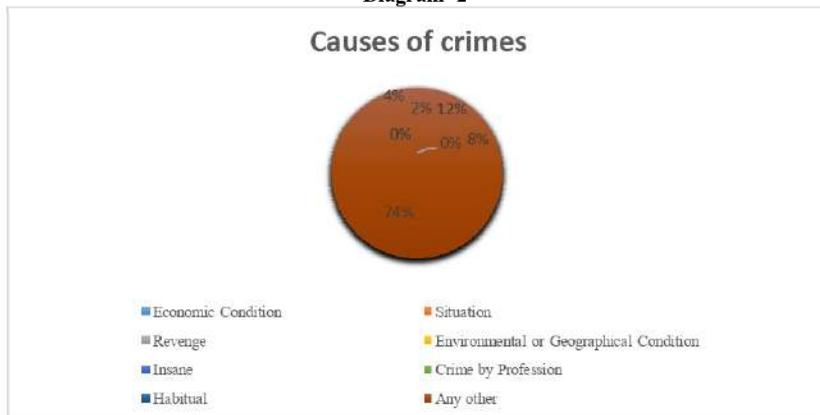
As per our first question the public do they have any knowledge about crime out of 50 samples 49 of them are told that Yes (99%)and 1of them are told that No (1%) Also shown in Pie Diagram1, it indicate that they have knowledge but they are ignoring the issue. They have to talk about such things openly not to ignore or fear.

**Table No 2**

Chose the causes of crimes

Sl.No	Questionnaire Respond Causes of Crimes	No of Respondent	Percentage (%)
01	Economic Condition	6	12
02	Situation	4	8
03	Revenge	37	74
04	Environmental or Geographical Condition	-	0
05	Insane	-	0
06	Crime by Professional.	2	4
07	Habitual	1	2
08	Any Other	-	0

**Diagram- 2**



We asked the people about the chose the causes of crime in that 37 (74%) are chosen that Revenge is caused to commit the crime. And 6 respondent are (12%) are chosen that economic condition are caused to crime, and 4 (8%) are chosen that situation, and 2 respondents are chosen that crime by professional (4%) and rest 1 are chosen Habitual (1%) Majority of the public 74% of crimes are caused by Revenge. Through this we may analyse that they don't have proper awareness about Environmental or Geographical condition related

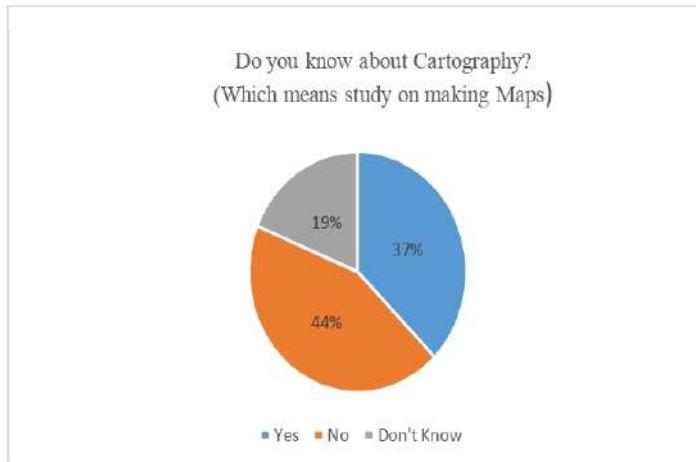
crimes in society. Therefore we have make them aware about Environmental or Geographical related crimes. Also shown in Pie Diagram 2.

**Table No 3**

Do you know about Cartography? (Which means study on making Maps)

Sl No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	18	37
02	NO	21	44
03	Don't Know	11	19

**Diagram 3**



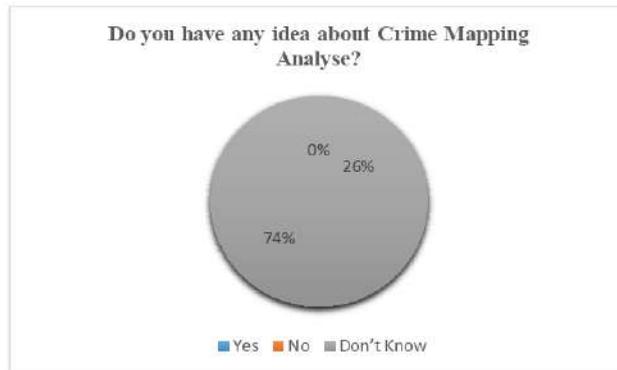
As per the question do you know about Cartography? (Which means study on making Maps), Majority of the response is No 44%, and 37% is Yes rest 19% they have knowledge about Maps and they are not aware about the term cartography, therefore I get less response to Yes.

**Table No 4**

Do you have any idea about Crime Mapping Analyse?

SI No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	13	26
02	NO	37	74
03	Don't Know	-	-

**Diagram 4**



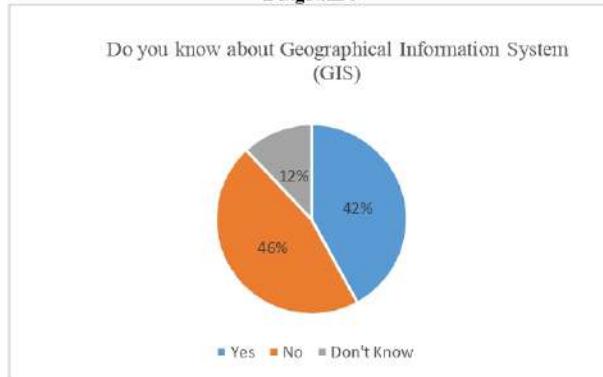
As per the above table no 4, about Crime mapping analyses, Majority of the response is No 74% and 26% of the Response is Yes, those who are chosen the yes they all are advocates and rest other are business man and others.

**Table No 5**

Do you know about Geographical Information System (GIS)?

SI No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	21	42
02	NO	23	46
03	Don't Know	6	12

**Diagram 5**



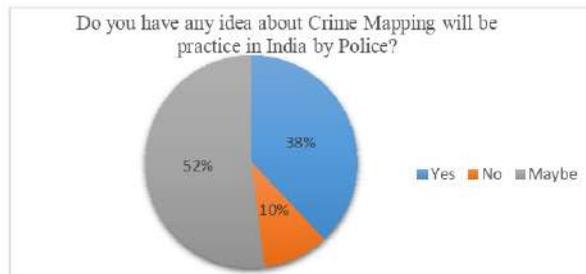
As per the above table no 5, about GIS, Majority of the response is No 46% and 42% of the Response is yes. Rest 12% of response is don't know.

**Table No 6**

Do you have any idea about Crime Mapping will be practice in India by Police?

SI No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	19	38
02	NO	5	10
03	Maybe	26	52

**Diagram 6**



In the question no 6 highest response is about maybe that is 52% and 38% of the response is Yes and 10% of the response is they don't know. This chart shows that public have not proper information about crime mapping.

**Table No 7**

Is it helpful to Identify and Prevent the Crimes in Society?

SI No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	38	76
02	NO	0	0
03	Maybe	12	24

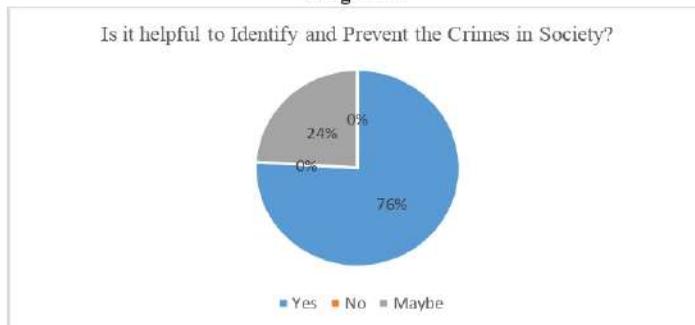
**Diagram 7**

Table no 7 and Diagram 7 shows that 76% of response is Yes and 24% of response is maybe, Through this analyses it indicate that public have belief that crime mapping can be helpful to identify and prevent the crimes in society. Therefore, we may adopt this tool for every city to prevention of crimes in society.

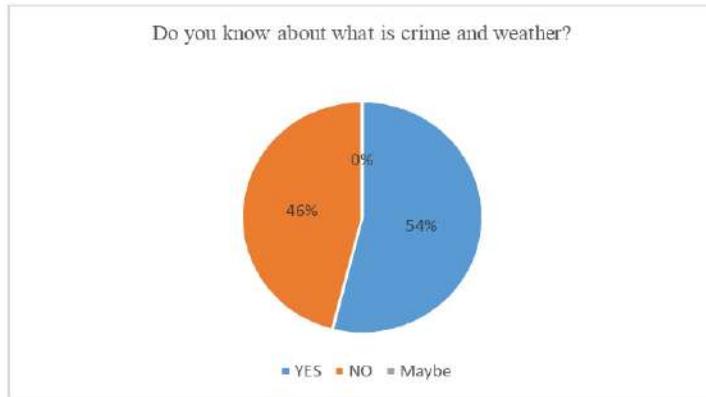
**Table No 8**

Do you know about what is crime and weather?

SI No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	27	54
02	NO	23	46
03	Maybe	-	-

Above table is related to do you know about what is crime and weather? 56% of the public response is Yes and 46% of the response is No, this table clarify that crime and weather have relationship. Shown in diagram no 8.

Diagram 8

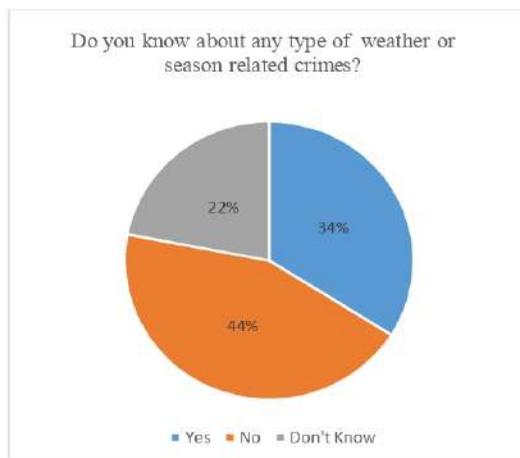


**Table No 9**

Do you know about any type of weather or season related crimes?

Sl No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	17	34
02	NO	22	44
03	Don't Know	11	22

Diagram 9



In the question no 9 researcher wanted to know about public have knowledge about any type of weather or season related crimes?22% of the public response is don't know and 34% of the

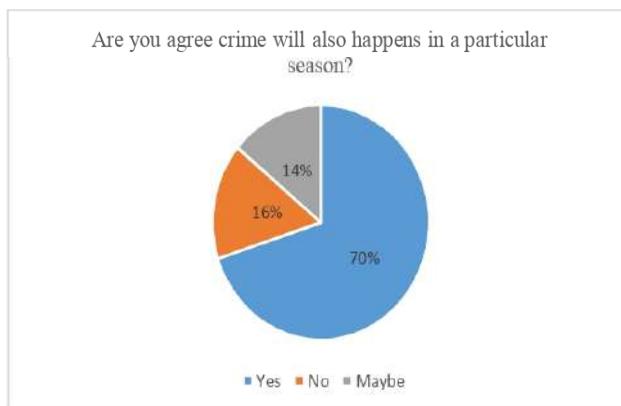
response is Yes and majority of response in this question is No 44%, it indicate that they don't know what type of crimes are takes place in particular season but they have belief crime can take place at a particular season.

**Table No 10**

Are you Agree crime will also happens in a particular season?

Sl No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	35	70
02	NO	8	16
03	Maybe	7	14

**Diagram 10**

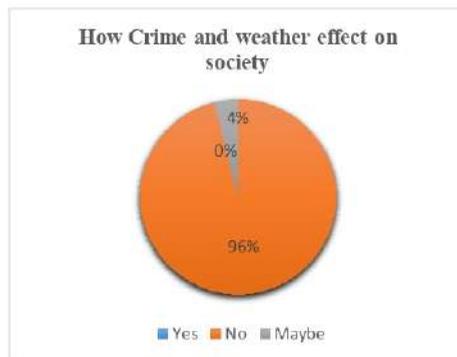


Compare to question no 2 and question no 10 now public are getting idea about Environmental or Geographical conditions. And it can also causes to crime, and highest response of public regarding this question Are you agree crime will also happens in a particular season is 65% of response is Yes and 15% of response is No and 20% of response is Maybe. Also shown in diagram no 10

**Table No 11**

How crime and weather effect on society?

Sl No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	48	96
02	NO	-	-
03	Maybe	2	4

**Diagram 11**

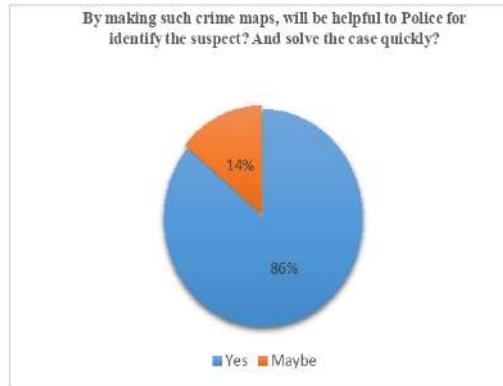
Question No 11 is like an opinion type of question to public, 96% of opinion is general based not any specific like yes its effect very badly, and 4 % of response is maybe, through this question I am not get any proper response as my expectation.

**Table No 12**

By making such crime maps, will be helpful to Police for identify the suspect? And solve the case quickly?

Sl No	Questionnaire Respond	No of Respondent	Percentage (%)
01	YES	43	86
02	NO	-	-
03	Maybe	7	14

**Diagram 12**



By knowing this table no 12. 86% of public accepting that through crime mapping will helps to police for identify the suspect and solve the case quickly.

**To find out the importance of crime mapping in present scenario:**

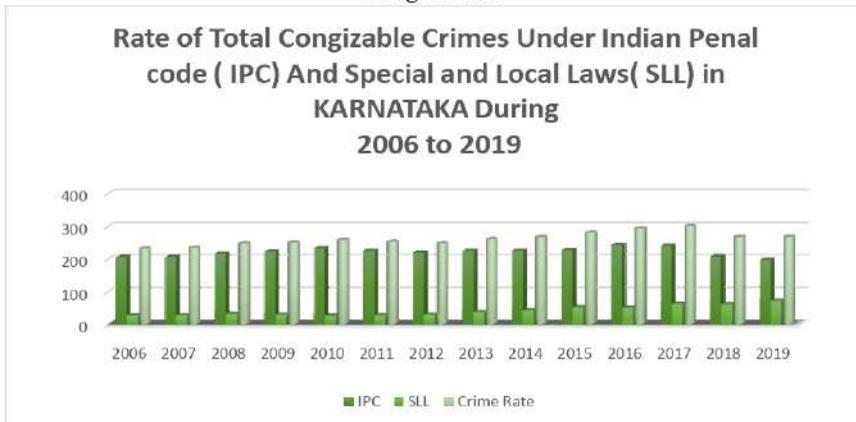
**Table No – 13**

Case Reported & Rate of Total Cognizable Crimes under Indian Penal Code (IPC) and Special and Local Laws (SLL) in KARNATAKA during 2006-19

SL No	Year	Population (in Lakhs)	Incidence			Rate		
			IPC	SLL	Total	IPC	SLL	Total
01	2006*	574.59	117710	15729	133439	205	27	232
02	2007*	584.42	120606	16046	136652	206	27	234
03	2008*	594.46	127540	19651	147191	215	33	248
04	2009*	603.86	134042	17225	151267	222	29	251
05	2010*	611.00	142322	16174	158496	233	26	259
06	2011	611.00	137600	17233	154833	225	28	253
07	2012	611.00	134021	17795	151816	219	29	248
08	2013	611.00	136689	22710	159399	224	37	261
09	2014	611.00	137338	25665	163003	225	42	267
10	2015	611.00	138847	32019	170866	227	52	280
11	2016	611.00	148402	31077	179479	242.9	50.9	293.8
12	2017	611.00	146330	37709	184039	239.49	61.71	301.2
13	2018	611.00	126534	36882	163416	207.9	60.36	267.5
14	2019	611.00	120165	43526	163691	196.67	71.24	267.9

Note: \* 2006 to 2010 – Estimated Mid-Year population (In Lakhs) given for the Year. 2011 to 2019 – Population as per Census 2011. Source: Crime in Karnataka – 2019. (Key Word: Crime Rate during 2006 to 201)

Diagram 13



Source: Crime in Karnataka 2019.

The incidence of crime in the state of KARNATAKA during 2006 to 2019 is presented above in Table No – 13. In the year 2019 total number of crime incidence is 163691, In that total number of IPC crimes 120165 and 43526 are SLL crimes. The ratio of IPC crimes to SLL crimes both total are indicate that both order up downs. Total number cases of crimes are gives an absolute picture of the crime situation in Karnataka. therefor required accurate crime control and crime prevention systems by the State police. Rate of cases of crimes shown on Diagram 13.

#### Findings:

The Present study entitled as Public opinion on Crime Mapping: A Tool for Crime Investigation, With the complete study on available data, findings are public have less awareness about crime mapping and they have to give their proper response as per their views to any kind of study and not shy, fear, ignorance over all study finding that with 50% of public opinion are obey that using crime mapping as a tool for crime investigation. And our Crime Statistics are also indicating that increasing order of crimes in Karnataka, therefor we may adopt crime mapping tool with the help of Geospatial Technologies.

#### Suggestions and Conclusion:

- Start using Geospatial Technologies for crime Investigations.
- More research would be required on crime mapping in selected area.

With this I am going to conclude that crime mapping is one of the best option to Increase safety index and decreases crime index, with the help of crime mapping it is possible to trace,



identify the crime patterns, and areas of criminal act. Prevention is better than Cure. Crime mapping is nothing but a method of crime prevention.

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## A REVIEW OF SOME INNOVATIVE CONCEPTS IN SUPPLY CHAIN MANAGEMENT IN TEXTILES AND FASHION

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### Abstract

The article comprehensively reviews some new concepts in the area of supply chain management in textiles and fashion. The environmental impact of textile supply chain of selected cotton, wool and polyester apparels consumed in Australia was accessed in this study using life cycle assessment methodology. The environmental impact category, climate change was used for this assessment. Climate change is related to the emissions of greenhouse gases to the atmosphere and the reference unit of climate change impact category is kgCO<sub>2</sub>equivalent. The environmental impact of these apparels was then scaled up based on their total consumption in Australia in 2015. Efficiency is one of the most important criteria of performance evaluation in any supply chain management, especially in the fashion retail industry. In the fashion industry, products are characterized by short life cycles and demand uncertainty. Most fast-fashion companies have employed the allocation practice that includes initial allocation and multireplenishment to capture the latest market information. Previous studies focus more on optimizing allocation policies, but overlook the efficiency issue, and the models always tend to be complex and are difficult to understand or apply. In this study, we model the allocation process as a multi-stage system with multiple inputs and outputs.

**Key words:** Life cycle assessment, Sustainability, Garment care behaviour, Fashion retail chain, Allocation performance.



## 1 Introduction

Every manufactured product starts its life cycle from raw material extraction and processing, then it passes through product manufacturing, distribution and use and finally, the cycle ends up with a disposal process. All of the stages of the life cycle of manufactured products have a range of environmental impact variety. Textiles are one of the most important consumable products and the environmental impact from textile products is very significant due to the wide range of use such as fashion, apparel, industrial textiles, geotextiles, agro textiles and hygienic textiles [1]. The textile supply chain is very complex and cannot be expressed within a single sector as it is highly global and decentralised. Therefore, understanding the environmental sustainability is vital in the textile and clothing supply chain.

Efficiency is a primary task in supply chain management (SCM), particularly in the retail industry that includes a large amount of distribution activities and recourses [2]. With efficient SCM, the product quantities and services level could be significantly improved with less cost. Numerous studies explored the issue of supply chain efficiency in different industries. The fashion industry has made great contributions to wealth generation and employment [3]. Over the years, it has been facing an uncertain business environment with more demanding customers. Consequently, the traditional push-model (instead of pull model) supply chains suffered many problems, especially low capability of capturing the latest market information. Contrarily, the fast-fashion companies such as ZARA, H&M, Mango, and so forth yield significant values due to their quick response (QR) strategy [4].

## 2 Application of life cycle evaluation methodology in textile supply chain

According to the North American magazine, Textile World, North Americans are the largest consumer of new textile products and Australians are the second largest consumer of new textile products based on average use per person [5]. Each Australian buys an average of 27 kg new textile products annually and after a certain time they donate or dispose of 23 kg of the textile product through charity organisations or other disposal options. Each North American consumer buys 37 kg and each Western European consumer buys 22 kg textile products annually [6]. The main apparel origin countries for Australia are China, Bangladesh, India, Cambodia, Vietnam and Indonesia according to the import volume [7]. All apparel clothing items imported to Australia are under two harmonised tariff classification 61 (knitted apparel) and 62 (woven apparel). In this study, three apparels produced by three mostly consumed fibres, cotton, polyester and wool were modelled using life cycle assessment (LCA) methodology and the results of this model were scaled up based on the current scenario of the consumption of these three fibres in Australia. Clothing trade data of the year 2015 was used to estimate the quantity of these apparels. Clothing trade data for the year 2015 was collected from UN Comtrade Database [7]. This study aims to build a LCA model of the three apparels to identify the potential impact reduction scenario from clothing consumption. This was done by developing a model of supply chain of these apparels from raw material extraction to end of life stage in Australia.

### LCA methodological phases

Life cycle assessment is a technique to identify the potential environmental impact of any product or process using a systematic set of procedures. Specific procedures and standards are followed to assess the environmental impact of a product or process. LCA consists of four steps according to the standard ISO 14040:2006, Step (1) – goal and scope definition, Step (2) – life cycle inventory (LCI) analysis, Step (3) – life cycle impact assessment (LCIA) and Step (4) – life cycle interpretation, as shown in Figure 1 [8]. The purposes of the LCA study are defined during goal and scope definition. Another part of goal and scope definition is defining the functional unit and system boundaries. The first part of the inventory analysis is defining



process flow chart based on the goal and scope definition. The functional unit is the reference flow materials in the flow chart. In this stage, appropriate data related to the process such as input materials, energy, water, output materials, emissions and waste are collected from the reliable sources. Life cycle impact analysis is followed by the inventory analysis. In the impact assessment stage, the data and information collected during the inventory analysis are processed to measure the contribution of different environmental impact. In the life cycle interpretation step the results are reviewed and identified the significant issues based on the result of LCI and LCIA phases [8].

### ***Goal of the LCA study***

The goal of current LCA study is to provide the environmental impact of climate change of three apparels consumed in Australia. This was performed by the LCA assessment of the baseline scenario of selected apparels, cotton knit shirt, polyester knit shirt and wool sweater. The functional unit of this study was 'use of one kilogram selected apparel over the life time'. Then the results of the functional unit were scaled up based on total consumption of these three apparels in Australia in 2015. This study allows us to understand the environmental significance of different stages of life cycle of different apparels and to identify the potential impact reduction scenario, such as increasing lifetime of clothing, improving consumer laundering behaviour, implementing recycling and selecting fibre type. Sensitivity analysis was performed based on the different parameters used in this study. This LCA study was based on full life cycle of selected apparels. Therefore, the system boundary was considered from cradle to grave. Generally, the life cycle of a clothing product can be divided into four different stages

### ***Allocation***

Some of the manufacturing processes produce co-products along with the main products. In this case, it is required to allocate the environmental burden to the products and co-products. Allocation can be done by economic allocation, mass allocation or by system expansion. Most of the processes within the textile supply chain produce a single product, though some of the processes produce co-products, such as lanolin from wool scouring. Lanolin has a market value to produce other products.

In this case, we considered mass allocation to allocate the impact to the product and co-product from the processes. The recovery amount of lanolin from raw wool is typically less than 10%; hence, mass allocation was made based on the recovery amount [9,10].

This study presented the application of life cycle assessment methodology to assess the environmental impact of textile supply chain from raw material extraction to end of life in terms of climate change impact category. A case study of three selected apparels consumed in Australia was carried out. This study focused on the relative comparison of the environmental

impact of different apparel and different fibres with reduction scenarios. It revealed that the use stage of some specific apparels is a key contributor to the environmental impact throughout the life cycle. From this study, it was demonstrated that the consumer use stage among the textile supply chain for cotton and polyester apparels is the main contributor of the

environmental impact of climate change and the production stages contribute more impact than consumer use stage for wool apparel.

Overall, this LCA assessment suggests that significant activities with less environmental impact, such as, increasing apparel life time, reducing the frequency of wash, avoiding machine dry and use line dry, using full load machine wash and cold water when possible. Another activity related to consumer use stage is disposal option of used apparel. Great

environmental savings can be achieved if consumers donate their used apparel for recycling and reuse as this may prevent or minimise the production of new apparels and other recycled products from the virgin raw material. Apparel manufacturing stages are another dominating contributor to environmental impact throughout the lifecycle [11]. Apparel manufacturing stages are characterised by large and complicated industrial chains which consist of fibre, yarn, fabric and apparel production and all of the stages involved with the use of different chemicals, auxiliaries, energy and water as well as agriculture for raw material production. Energy use is the main contributing factor for life cycle stages. Apart from the baseline scenarios of each apparel, the sensitivity analysis was performed using different parameters on consumer use stage to identify the impact reduction scenario from the life cycle. From the scenario analysis, it can be stated that a reduction of washing machine energy and washing frequency can reduce the impact of CO<sub>2</sub>-e emission around 10 and 33%, respectively. Reducing transport distance can save CO<sub>2</sub>-e emission from transportation stage. Air freight contributes more emission in transportation stages. Further emission reduction can be achieved if supply chain involved only sea freight.

### 3 Application of data envelopment analysis in a fashion retail chain

Typically, the supply of a fast-fashion product is divided into four phases: (1) design, purchase and production, (2) initial allocation, (3) replenishment allocation and (4) clearance [12]. Among the four phases, the initial allocation and multi-replenishment are crucial to meet the latest customer demand.

A typical allocation process in a fashion company in Figure 1.

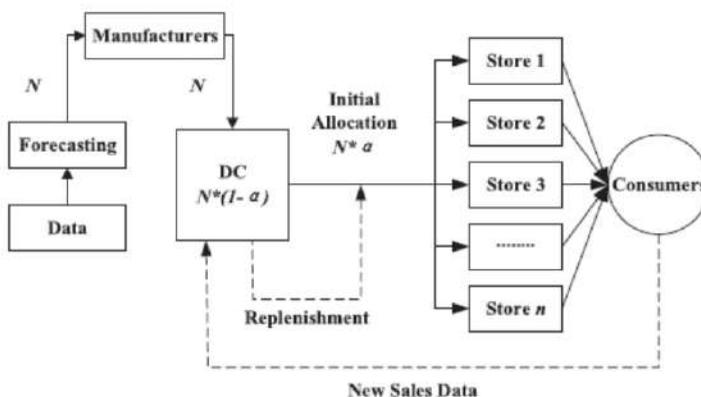


Figure 1 – The allocation schematic of a fast fashion product

It is shown that the company forecasts the total sales first, say,  $N$  units of an item, then places an order of  $N$  units to suppliers. After the order is received and shipped to the distribution center (DC), the company decides the quantities of initial allocation to its retail stores. The total initial allocation among the retail stores is considered as a proportion denoted as  $\alpha$  of total estimated sales, that is,  $N$  units. Meanwhile, the remaining ordered units are held in DC



for future replenishments. During such allocation process, the large initial allocation to retail stores could reduce the lost sales in early stages, whereas more remaining inventory at the DC could increase the replenishment flexibility. Therefore, determining the appropriate initial allocation percentage,  $\alpha$ , is crucial. Note that in this allocation process, the remaining inventory at any stage can be considered as an output of that stage but it becomes the input for the next stage. Thus, we model this allocation process as a multi-stage system in order to evaluate the allocation efficiency of a fashion company. Investigating such efficiency could help companies improve their allocation performance because if the allocation process is inefficient, the company could result in many undesirable outputs such as excess inventory, low sales and low customer service level. Moreover, the demand for any item often differs significantly among retail stores. If the allocation efficiency is not optimal, some stores might incur great lost sales and others might hold too many inventories. In addition, among all the retail stores, some stores can be benchmarked by other stores since the best performers have less unsold units at the end of the selling season. Therefore, this study attempts to investigate the under-researched issue of allocation performance. In fact, some previous studies also investigated the allocation problem [13-15].

However, most studies focus on optimizing allocation policies and the models are too complex for companies to understand. To achieve the goal of assessing allocation efficiency, we adopt Data Envelopment Analysis (DEA), which has been widely used for performance evaluation. However, the studies using DEA to evaluate the performance of retail chains are sparse. Besides, the traditional DEA fails to consider multi-stage performance and undesirable outputs such as inventory [16].

Contrarily, the dynamic network DEA adopted could adequately illustrate the efficiency of the allocation process with multi-stages and desirable and undesirable outputs so that the role of intermediates between stages is observed. In fact, there is a strong argument for permitting certain intermediate, called dual-role factor, to simultaneously play the role of outputs and inputs [17].

Nevertheless, most previous studies did not discuss the inconsistent attributes of dual-role factors. For example, for a factor, it might be an undesirable output at one stage, but a regular input in the next stage. With these considerations, our model considers: (1) multi-stage performance; (2) undesirable outputs; and (3) inconsistent attributes of dual role factors.

To sum up, this study aims at evaluating the allocation performance in the fashion industry. A dynamic network DEA model, called multi-stage efficiency model (MEM) is proposed. We also introduce a traditional DEA model to demonstrate the necessity of the MEM. The empirical data is from a real Canadian fashion company. The remainder of the article is organized as follows.

## 2. Literature review

In this section a brief review of early literature related to allocation optimization in supply chains and DEA models related to retail industry is provided.

### Allocation optimization in supply chains

The retail supply chain has supported a product flow from suppliers to retail stores. These stores are the focal points for customer experience, thus the allocation decision at the distribution center for each store is critically important. A collaborated research has been conducted with ZARA, and presented their allocation decision system that comprises of a forecasting module and an optimization module. The allocation process of ZARA has also been concentrated, but more focus has been on the optimization of replenishment. A model has

been proposed for the quantity determination of initial and replenishment orders [18]. A model has been formulated to explore the trade-off between information acquisition and revenue. For these prior studies, the dynamic optimization models are widely employed, because the replenishment decisions heavily depend on the updated sales information [19]. The cost of replenishment orders has been considered as uncertain and the demand always depends on the selling price [20].

The delivery reliability and cost have been taken into consideration [21]. These studies mainly focused on the replenishment process. Understanding the importance of demand forecasting for allocation decisions utilized the information of test stores to acquire fashion demand [22]. By examining the previous work, we noticed that most studies failed to investigate the optimal proportion of the total orders as the initial allocation and overlooked the efficiency in retail supply chains. Besides, in reality, the sophisticated models in early research are seldom implemented because companies wish to control and plan based on the real time data. It is pointed out that simpler tools have to be sought [23].

### **DEA models and applications in retail issues**

DEA is a nonparametric linear programming methodology to assess the relative efficiency of a set of homogeneous DMUs that apply multiple inputs to produce multiple outputs. Various DEA models have been developed to examine efficiencies on different issues [24-27]. Nevertheless, the studies applying DEA to retail issues are limited. Grewal, Levy, Mehrotra, and Sharma (1999) used DEA to evaluate the performance of a retail chain by considering regional and product assortment decisions [28]. The efficiency of a three-stage production process in a retail chain has been evaluated [29]. A DEA model has been developed in which the DMUs consists of several sub-DMUs [30]. Similarly, the retail efficiency issues have been explored by using various DEA models [31-33]. In general, previous studies mainly focused on the performance evaluation of individual stores or whole supply chains based on the productivity theory. Recently, the feasibility of using DEA to rationalize a retail distribution network has been investigated [34]. Motivated by the early work, it has been aimed at investigating the allocation performance in the fashion industry. In terms of the models in retail issues, most studies adopted traditional single-stage DEA models. However, for problems, such as allocation and production, they have a dynamic network structure. Thus the dynamic network DEA has been explored by some researchers [35-37]. These models not only divide the whole process into several sub-stages, but also consider the intermediates between stages. However, there is not an adequate quantity of studies regarding retail issues on dynamic network DEA. Besides, producing more outputs relative to less inputs is an efficiency criterion in traditional DEA. However, in the real world, the 'good' and 'bad' outputs might be generated simultaneously so that the undesirable outputs should be considered [38,39]. Furthermore, as an intermediate, the inventory between stages is an output for one stage as well as an input for the next stage. In such case, the performance with dual role factors should be considered to present a better criterion [40]. Even if some studies considered dual-role factors, the discussion of the inconsistent attributes of dual-role factors is limited. Therefore, it is aimed to develop a novel dynamic network DEA model to remedy these shortcomings.

### **Proposed DEA model**

This study aims at evaluating the performance of the allocation process in the fashion industry by using dynamic network DEA model, and the model is applied to a real fashion company. With the help of company experts, an apparel item that is a typical fast-fashion product with a lifecycle of 6 weeks was chosen to help assess the efficiency performance



of the company's allocation decisions. During the 6 weeks, the company makes an initial allocation in the first week and then weekly replenishment in the next 5 weeks.

Hence, in our dynamic network DEA model, the initial allocation to the company's retail stores is made in period 1, period 2 has the first replenishment, and the rest four replenishments are in period 3 to 6. However, we noticed that there is a strong correlation between the allocation quantity in the first 2 weeks and product's profitability [41]. Indeed, due to the extremely short life cycle, the first two periods are critical in sales and the demand tends to level out in the later periods. Therefore, instead of evaluating the performances in 6 periods, six periods have been divided into three stages:

(1) initial allocation is made in stage 1;

(2) the first replenishment is carried out in stage 2, and

(3) stage 3 has an aggregated replenishment from period 3 to 6. With such division, the performance of initial allocation and replenishment could be observed from stage 1 and 2, respectively, and the overall multi-stage efficiency could be evaluated from all three stages. The DEA structure of this three-stage process has been determined. Here,  $t$  ( $t=1, 2, 3$ ) represents three stages,  $X_t$  ( $t=1, 2, 3$ ) and  $Y_t$  ( $t=1, 2, 3$ ) are the inputs and outputs of stage  $t$  respectively,  $Z_1$  and  $Z_2$  are the dual-role factors,  $Z_3$  are the outputs in the last stage.

This study evaluates the allocation performance in the fashion retail chain by using multi-stage DEA efficiency model.

The traditional CCR model is also introduced, and the results demonstrated that a systematic and comprehensive multi-stage DEA model is more appropriate. The proposed MEM, which is a dynamic network DEA, considers dual role factors and undesirable outputs. Based on the MEM results, if the company initially shipped around 40 and 30% of total ordered quantity of a product to all retail stores, it would achieve the best efficiency performance. Given that the 40% strategy is more efficient and obtains higher total sales than other allocation strategies, 40% strategy is recommended to be implemented. Besides, the MEM is compared with a simple ratio method [42]. The results show that the MEM could play a complementary role to the common measurement adopted in the retail industry. Moreover, the allocation performance is related to store scale and store location. The stores in relatively small-scale achieve higher efficiency than the stores in relatively large-scale. Thus, companies could enhance the capability of in-store data analysis and demand forecasting in those relatively large-scale stores to improve the allocation efficiency. The stores close to the headquarters are more efficient than the stores far away from the headquarters.

It is suggested that the company strengthen the information exchange between the headquarters and the stores that are far away and improve the local market analysis in those stores. Although the proposed approach could assist companies to make/improve the allocation decisions/policies, it has to be noted that this approach is not designed to find an optimal initial allocation percentage [43]. It focuses on identifying the best percentage among the alternatives under the consideration. It indicates that the proposed DEA model cannot replace the traditional optimization approaches. However, compared to those complex optimization models that require sophisticated techniques, our approach is more user-friendly. Given the limitation of our database, the data of only one representative product X is used. Applying more representative products to validate the optimal initial allocation strategy is required for future work. Besides, more comparisons between the MEM and other previous models are required to further verify the advantages of MEM. Finally, extending the proposed approach to other industries with multi-stage allocation practice is another research direction.

#### 4 Conclusion

The results of the study on environmental impact of textile supply chain of selected cotton, wool and polyester apparel highlight the differences in environmental impact between the



three apparels. This study demonstrates that the main contributor to climate change is the consumer use stage for cotton and polyester apparel whereas wool apparel production process contributes more impact than consumer use stage. Energy use is the main factor of environmental impact. Sensitivity analysis was carried out based on the different parameters used to develop baseline model, such as change of transport from air freight to sea freight; change of transport distance, change of consumer laundering behaviour. Around 10% CO<sub>2</sub> equivalent emission can be reduced from base case by reducing washing machine energy up to 40%. A high efficient washing machine and full load machine wash can save energy and reduce carbon emission. A time-based dynamic network Data Envelopment Analysis (DEA) model, called multi-stage efficiency model (MEM), is developed to evaluate the allocation performance. The MEM considers undesirable outputs, dual role factors (inventory as an output at the end of previous stage and the input at the beginning of the next stage) and the inconsistent attributes of the dual-role factors among the multi-stages. Meanwhile, the traditional DEA model is introduced to demonstrate the MEM is essential to capture the allocation performance. Based on the MEM results, the more appropriate initial allocation strategies identified and the factors affecting allocation performance are discussed. The model is applied to a major Canadian fast-fashion company to validate the effectiveness. This article not only provides valuable managerial insights of supply chain management for fashion companies, but also makes contributions to the industrial application of theoretical OR (operation research) models.

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## ESTIMATION OF GROWTH TRENDS AND DECOMPOSITION ANALYSIS OF OILSEEDS PRODUCTION IN INDIA

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### ABSTRACT

India is the largest producer of oilseeds in the world and the oilseed sector occupies an important position in the country's economy. Oilseeds are second only to food grains in area, production and economic value. India ranks first in the production of groundnuts, second in rapeseed mustard and fifth in Soybean. Hence, a study is carried out to examine the trends in area, irrigated area, production and productivity of oilseeds in India, covering the time period from 1950-51 to 2017-18. Decomposition model has been used to examine the contribution of area, yield and its interaction effect on the production of oilseeds. Data used in the study sourced from agriculture at a glance, 2018 Government of India. For the research time period has been divided in seven sub - periods viz. 1950-51 to 1959-60, 1960-61 to 1969-70, 1970-71 to 1979-80, 1980-81 to 1989-90, 1990-91 to 1999-00, 2000-01 to 2009-10 and 2010-11 to 2017-18.

Findings reveals that compound annual growth rate was positive in area, irrigated area and production (1950-51 to 2009-10). During last period (2017-18) growth rate in area and production was found to be negative. Except the period between 1960-61 to 1969-70, growth trend in productivity was observed to be positive from 1950-51 to 2017-18. Decomposition analysis show that in first three sub periods area effect was the largest contributor in production of oilseeds. After launching technology mission and integrated policy on oilseeds, productivity increased significantly from 532 to 1270 kg/hactares (1980-81 to 2017-18). Thus, yield effect plays a major role in increasing production.

**KEY WORDS:** India, Oilseeds, Area, Irrigated, Production, Productivity, Growth rate, Effect

### INTRODUCTION:

Agriculture plays an important role in India's economy because, farming is less a business than a tradition in the country. Early theoretical literature on the role of agriculture in economic development can be traced to as far back as the 18th century in the writings of physiocrats. Emphasising the trade of agriculture, the physiocrats were inclined to deny the productivity of other economic activities. They concluded that it was only agriculture which produced an economic surplus over cost of production and, therefore, this sector played the most strategic role in economic development.

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Importance of agriculture in economic development was recognised by the classical writers too. It is now believed that Adam Smith's basic growth model refers only to Agricultural sector. Food, according to Adam Smith is the conditional factor in the growth of economy. As a corollary, technological advancement in agriculture will have a multiplier effect on other sectors of the economy (Sadhu, A.N.& and Singh, A.1983).

Nine oilseeds crops are grown all over the country among them Soybean, groundnut, rapeseed mustard, sunflower, sesame, safflowers and Niger are edible oilseeds, castor and linseed are non-edible. Oilseeds are cultivated over 24.65 million hectares of area, producing 31.31million tonnes (2017-18). Majority of the oilseeds are cultivated in rainfed areas (70-72%), therefore the diverse agro-ecological conditions in India is favourable for growing large varieties of oilseed crops. Oilseed crops play the second important role next to cereals within the segments of field crops in the Indian agricultural economy(nfsm.gov.in).The area under oilseed has been increased from 10.73 to 24.65 million hectares (1950-51 to 2017-18). Both production and productivity have registered manifold increase from 5.02 to 31.31million tonnes and 471 to 1270 kg per hectares respectively (1950-51 to 2017-18). The " Yellow Revolution" started for improving productivity in rain-fed areas during early 1990's, could not be continued for a long period. Despite being India is the fourth largest oilseed crop producing country in the world after USA, China and Brazil (nmoop, gov.in). However, productivity remains lower than other oilseed producing countries in the world. The major factor responsible for low productivity is that maximum oilseed crops are grown on marginal lands, which while being mostly rainfed, are lacking in irrigation facilities.

After launching Technology Mission on oilseeds, there has been a progressive growth in area, production and productivity of oilseeds by 4.23 percent, 8.28 percent and 3.89 percent respectively. As a result of concerted effects by TMOP, the production and productivity of oil seeds increased from 10.83to 32.75 million tonnes and 570 to 1168 kg per hectare respectively from 1985-86 to 2013-14.

Post-Liberalisation (1994), import of oilseeds was kept under open general licence, which led to a decline in the oilseed production and show a negative effect on the domestic oilseed economy. Intended for the progress in oilseed's productivity, government has been pursuing several development programs. The concerted efforts of the development programmes reveal significant improvement in annual growth of yield and area, but country is still depending on imports to fulfil its domestic requirement of edible oil.

## **OBJECTIVES:**

This paper aims to identify the trends in area, irrigated area, production and productivity of oilseeds in India from 1950-51 to 2017-18. Decomposition model has been used to examine the effects of area, yield and their interaction on production of oilseeds in the country in the same period.

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**METHODOLOGY:**

The present paper examines the growth trends in area, production, irrigated area and productivity of oilseed in India. Data used in this study is sourced agricultural statistics at a glance, 2018, Directorate of Economics and Statistics (DES), Ministry of Agriculture, Government of India. To identify the trends in area, irrigated area, production and productivity, CAGR has been calculated for 1950 -51to 2017-18. To make comparison overall time period is divided into seven sub periods viz 1950-51to 1959-60(I),1960-61to 1969-70(II),1970-71 to 1979-80(III),1980-81to 1989-90(IV),1990-91-to1999-00 (V),2000-01 to 2009-10(VI)and 2010-11 to 2017-18(VII). The compound growth rates of area, irrigated area, production and productivity of oilseeds are calculated as follows:

$Y=ABt.....$  (1) where Y = area, t = Trend value, A &B are constants

The equation can be written in log form

$\log Y = \log A + \log Bt$

Where

$\log Y=y, \log A= a, \text{ and } \log B= b$

$y = a+bt$

In percent form it can be written as

$CAGR = (\text{antilog } b- 1) * 100$

Decomposition analysis suggested by Palanisami, Paramisivam and Ranganathan (2002) has been used to measure the relative contribution of area, yield and their interaction towards the change in production of oilseeds.

$P_t - P_0 = A_0(Y_t - Y_0) + Y_0(A_t - A_0) + (A_t - A_0)(Y_t - Y_0)$

$\Delta P = A_0\Delta Y + Y_0\Delta A + \Delta A\Delta Y$

Change in production = Yield effect + Area effect + Interaction effect

$\Delta P =$  Change in production

$\Delta Y =$  Change in yield

$\Delta A =$  Change in area

**REVIEW OF LITERATURE:**

Sharma, Hemant and et.al. (2017) in their study examine the growth trends in area production and yield of onion crop in Rajasthan (1984 to 2015). By dividing study period in three categories viz 1984-95,1996 -2005 and2006-2015, employing component analysis model and CAGR, effort has been made to make a comparison in growth rates in different periods. Findings of the study indicates that area, production and yield growth rate of cotton was found to be better in comparison to other crops in



Rajasthan as well as in India (1984 to 2015). The decomposition analysis of growth suggests that except for period 2006-2015, yield effect was the major contributor in onion production in two sub periods viz 1984-95 & 1996-2005 and whole study period in the state. At national level, yield effect plays crucial role in production growth of onion(1984 to 2015).

Jagannath and et. al. (2013), by employing decomposition analysis and CAGR method examines the contribution and growth trends of area and yield on production of Jowar, cotton and Soybean, using data from 1985-86 to 2006-07 in Amravati division of Maharashtra state. Study indicates that in area and production of Jawar 3% compound annual growth rate has been detected during the whole period in all the three districts in Amravati division. Except Akola district, the growth rate of cotton is declining in second period in other two districts in Amravati division. Soybean growth rate is found positive and significant during the whole period in Amravati division. Decomposition analysis examined that area effect was the major influencing factor in increasing production of Jowar, Cotton and Soya bean(1985- 86 to 2006-07).

Patnaik I. et.al. (2015) investigate the causes for high growth rate in agriculture in Gujarat by employing decomposition model(1990- 91 to 2009-10). To make comparison overall period is divided in two sub periods 1990-99 and 2000 to 2010. Findings reveals that price effect has increased from 13 to 23 percent(1990 to 2000) shows increasing impact of price on area under crops. Price area interaction effect which was negative in 1990s turned to positive in 2000-2010. Present analysis clearly shows that with the increase in growth of agriculture sector (2000-10), there's a decline in the yield effect and increase in the price effect.

Viswanatha, R. K. and Kingsly, I.R.T. (2017), examined the growth performance of major oilseeds in different states between 1980 and 2012. The growth rate in area remained positive throughout the period of study. Due to increase in yield the growth rate in production is higher than in area. Instability in the yield of oilseeds was also examined by estimating Coefficient of Variation (CV) in different periods. Technological and other government interventions (1990-00) had reduced CV from 9.32% to 5.82%(1980-81 to 1999-00). In 2000-12 increased (9.15%) CV value shows an increasing trend of instability in the yield of oilseeds. Results have shown the structural shift in the yield performance of oilseeds in major states over the years. On the regional pattern, a clear shift in oilseeds production has been noted from southern states to western states.

Kumar, S.&Singh, S.(2014), described the growth trends in area, production and productivity of sugarcane crop at district and regional level in Haryana. To identify the growth trends, compound annual growth rate has been calculated for 2000-01 to 2009-10. In the state growth rate was found to be negative in area and production 5.94 & 3.5 percent respectively. At regional level Western zone shows highly negative growth rate in comparison to eastern zone in both area and productivity. Almost all the districts

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show a negative growth trend in area. In production only two districts Bhiwani and Karnal show positive growth trend (2000-01 to 2009-10). However, a positive growth trend was identified in productivity in most of the districts in Haryana.

Elumalai, K. (2014) in the study titled "Trends in India's Agricultural Growth and Its Determinants" highlights the impact of variables like area, production, input use and value of output on cropping pattern at national and sub national level (1967-1968 to 2007-2008). The study identifies a remarkable shift from food grains to commercial crops as evident from an 11.62% decline in gross cropped area of food grains. This decline in food grains, largely attributed to fall in GCA of coarse cereals and pulses, was coupled with a significant increase in the GCA of rice and wheat.

Naidu, B. V. et. al. (2014) in their study investigates the growth trends in area, production and productivity in Andhra Pradesh and Chittoor district from 1996-97 to 2011-12. The study identifies a declining trend in area, production and productivity of groundnut and sesame (1996-97 to 2011-12). Yield growth rate of sesame and sunflower shows a better performance than groundnut in Andhra Pradesh. In Chittoor district growth rates of area and production under sunflower was positive (5.31 and 5.89 percent respectively, groundnut and sesame show negative trends (3.23 and 7.60 percent) in area and (2.78 and 2.13 percent) in production. In Chittoor district yield growth rate was found to be positive but not significant.

Gayathri, J. (2018) examines the trends in area, production and yield of groundnut for major producing states of India and for India as a whole, for the period of 2000-01 to 2015-16. At national level growth rate in area, production and yield was identified - 2.22, 1 and 3.26 percent (2000-01 to 2015-16) respectively. Findings reveal that except Madhya Pradesh and Rajasthan, all the states have a negative trend in area; Gujarat, Madhya Pradesh, Rajasthan and Uttar Pradesh show positive growth trend in production; in yield, the growth rate was found to be positive in Gujarat, Maharashtra and Tamil Nadu in the study period.

Kumar, P. & Shekhar, H. (2017) in their research investigate the trends in production, area and yield of rice and wheat in India from 1950-51 to 2015-16. The time period is divided in five intervals namely, 1950-51 to 1966-67, 1967-68 to 1979-80, 1980-81 to 1989-90, 1990-91 to 1999-2000 and 2000-01 to 2015-16. It is evident that growth rate of production and yield of rice was the highest in 1980-81 to 1989-90. Between 1967-68 to 1979-80 growth rate in area, production and yield of wheat was found highest. During 2000-01 to 2015-16 the lowest growth rate was identified in area and production in both crops. Results, illustrates that yield effect (between 1980 to 2000) and area effect (from 1967 to 1980), both play a major role in increasing production in both rice and wheat. Between the period 2000-01 to 2015-16, yield effect in rice and area effect in wheat was a dominating factor in increasing production.

Lokesh (2019) in his research estimates the growth rates in area, production and yield of major crops in Himachal Pradesh (1980-81 to 2015-16). Decomposition model also

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used to analyse the contribution of area, yield and their interaction effect on production in the state. Result shows that area declined and productivity increased in rice crop (1980-81 to 2015-16). Area under wheat decreased in II and III periods and yield increased during whole period. Findings reveals that area in total food grains decreased in II and III periods and yield shows an increasing trend in III sub period. Decomposition analysis shows that in I period, barring barley and pulses, in period II, barring barley, and in III period in all crops yield effect was found to be the largest contributor in production

Konar, A. & Dey, G.(2018) conducted a research in Burdwan district and West Bengal to examine the growth trend in area, production and productivity of Rapeseed – Mustard for a period of 1999-00 to 2010-11. Findings reveals that compound growth rate in area and production was negative 3.50 and 3.53 percent respectively, in productivity the trend was positive (0.05 percent) in Burdwan district (1999-00 to 2010-11). In West Bengal the trend in area, production and productivity were identified positive 0.17, 1.00 and 0.32 percent respectively.

Prajneshu & Chandran K. P. (2005) in their research titled “Computation of compound growth rates in agriculture: Revisited” discussed about the methodology of calculating compound growth rate by using growth model. Logistic model and Gompertz model have been used for calculation of growth rate in food grains. The growth rates with logistic model and gompertz model was estimated 2.36 and 2.38 percent respectively (1980-2001). They suggest that in recent time many software’s have been developed for statistical calculations. So, we can select best model for our research.

Laltonjam Nivedita et. al. (2018) in their study titled “Rice production in India: Decomposition and trend analysis” explores the growth trend and contribution of area, yield and their interaction on rice production (1980 to 2014). Findings reveal that during the study period yield effect was the largest contributor in the growth of production. The compound annual growth rate 0.48, 5 and 4 percent was carried out in area, production and yield of rice respectively (1980 to 2014).

Kumar, K.K. (2007) in study titled “Decomposition Analysis of Agricultural Growth: A Review of Measurement Issues” discusses about the methods of decomposition (additive and multiplicative) in agricultural growth, taking different variables. Study observed that there is no consent on the most appropriate method of decomposition, nevertheless, multiplicative scheme is seeming better in comparison to additive scheme. It eliminates the residual components which did not show significant contribution in any of the study.

**RESULTS:**

TABLE-1

CAGR in Area, Area under irrigation, Production and Productivity in India (1950-51 to 2017-18)				
Year	Area	Production	Productivity	Area under irrigation
1950-51 to 1959-60	<b>2.5**</b>	<b>4.1**</b>	<b>1.56</b>	<b>13.04*</b>
1960-61 to 1969-70	<b>0.397</b>	<b>0.286</b>	<b>-0.117</b>	<b>6.68**</b>
1970-71 to 1979-80	<b>0.398</b>	<b>0.735</b>	<b>0.334</b>	<b>5.31**</b>
1980-81 to 1989-90	<b>2.44*</b>	<b>5.33**</b>	<b>2.95*</b>	<b>4.84**</b>
1990-91 to 1999-00	<b>0.151</b>	<b>2.25</b>	<b>2.09**</b>	<b>0.43</b>
2000-01 to 2009-10	<b>2.45*</b>	<b>5.13**</b>	<b>2.61</b>	<b>2.01</b>
2010-11 to 2017-18	<b>-0.012</b>	<b>-0.005</b>	<b>0.008</b>	<b>0.019</b>

Source: Author’s calculation from data sourced, agricultural statistics at a glance,2018.

FIGURE 1

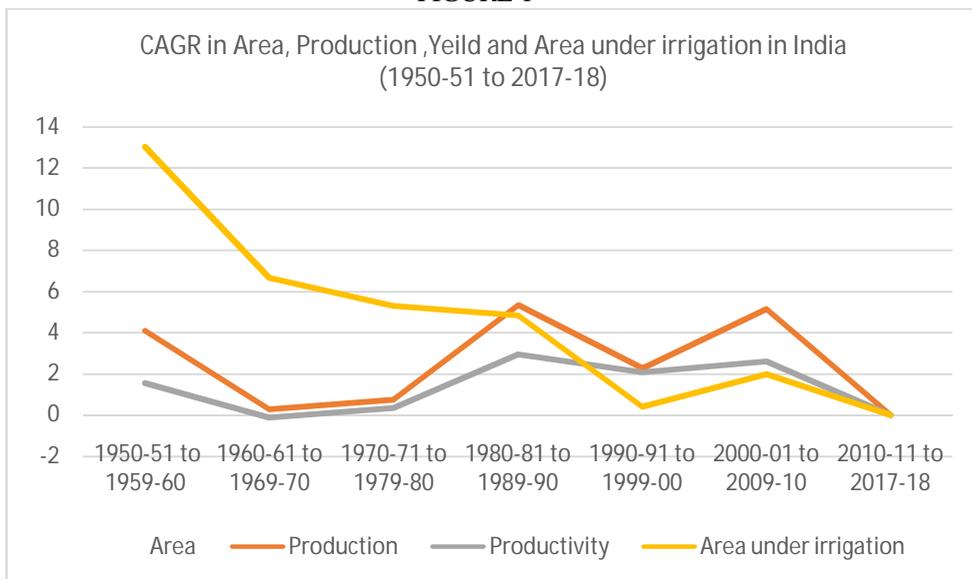


Table-1 and figure- 1 shows the compound growth rate of area, production, productivity and irrigated area during 1950-51 to 2017-18. Growth rate of oilseed production increased significantly at the rate of 4.1 percent per annum which was largely attributed to significant growth in area and irrigated area, 2.5 percent and 13.4 percent respectively and insignificant growth (1.4 percent) in productivity (1950-51 to 1959-60). Results revealed that irrigated area has increased significantly (13.4, 6.68, 5.31 & 4.84 percent) from 1950-51 to 1989-90. After 1990’s growth in irrigated area was identified positive



but insignificant 0.43,2.1 and 0.0193 percent in 1990-91 to 1999-00,2000-01 to 2009-10 and 2010-11 to 2017-18 respectively.

Growth rate in area of total oilseed was found to be positive and significant 2.5, 2.44 & 2.45 percent in1950-51to1959-60,1980-81 to 1989-90 and 2000-01 to 2009-10 respectively. In period 1960 to 1980 it was positive (0.397,0.398 percent) but not significant, the same trend was found in 1990-91 to 1999-00. Area decreased from 27.22 to 24.65 million hectares with negative growth rate of 0.0123 percent (2010-11 to 2017-18).

The growth trend in productivity remain low until1980.The major cause for this being that maximum oilseed crops were grown on marginal lands in rainfed areas. Productivity growth rate was not significant recorded at negative 0.117 percent for period 1960-61 to 1969-70.The Technology Mission on Oilseeds and pulses(1986)and integrated policy on oilseeds (1989) were launchedto support farmers with technology, inputs, review of PDS prices and issues, including detailed research programmes for evolving new high yielding indigenous varieties for different agro-climatic regions.Aimed at reducing the import of oilseeds in the country,productivity increased significantly 2.95 and 2.09 percentfrom1980-81 to 1989-90 and 1990-91 to 1999-00 respectively. During 2000-01 to 2009-10 and 2010-11 to 2017-18 trend was positive but not significant, recorded at 2.61 and 0.008 percent, respectively.

The growth rate of the production of oilseeds was found to be positive from 1950-51 to 2010-11.It was4.1 percentperannumlargely contributed by irrigated area (1950-51 to 1959-60). After launching technology mission growth rate was found to be highest 5.33 percent and 5.1 percent in 1980-81 to 1989-90 and 2000-01to 2009-10 respectively.Growth rate in production was highest in 1980-81 to 1989-90, with significant increase in area, irrigated area and productivity 2.44,4.84and 2.95 percent respectively. In the last period(2010-11 to 2017-18) production decreased from 32.48 to 31.31 million tonnes with a negative growth rate of 0.005 percent.

TABLE-2

Decomposition Analysis of Oilseed Production in India (in %)			
YEAR	Area Effect	Yield Effect	Interaction Effect
1950-51 to 1959-60	110.57	-8.42	-2.53
1960-61 to 1969-70	70.31	27.46	2.08
1970-71 to 1979-80	19.52	-117.8	-2.12
1980-81 to 1989-90	37.63	50.28	14.86
1990-91 to 1999-00	4.03	95.43	0.96
2000-01 to 2009-10	40.12	52.33	7.33
2010-11 to 2017-18	-267.09	179.06	-17.24

Source:Author’s calculation from data sourced, agricultural statistics at a glance,2018.



The source of production growth was divided in area, yield and their interaction effects; analysed individually for seven sub-periods. Results in table-2 revealed that out of total production in 1950-51 to 1959-60 area effect, yield effect and interaction effects were identified 110.57, -8.42 and -2.53 percent respectively. It was observed that from 1950-51 to 1959-60 that production increase was only due to area expansion (110.57%). During 1960-61 to 1969-70, area, yield and interaction effects are positive, 70.31, 27.46 and 2.08%, respectively. The impact of "Yellow Revolution" (1960-61 to 1969-70) was seen in increased productivity (507-to-522 kg/hact.), but major contributor in production of oilseeds was area effect. From 1970-71 to 1979-80 yield effect and interaction effect were found to be negative 117.8 and 2.12 percent respectively, area effect (19.52 percent) plays a major role in increasing Production of oilseeds.

After launching technology mission and integrated policy on oilseeds, productivity increased significantly from 532 to 1270 kg/ hectares (1980-81 to 2017-18). In 1980-81 to 1989-90 area, yield and interaction effect were found to be positive 37.63, 50.28 and 14.86 percent respectively. From the table it is evident that yield effect was the largest contributor in production growth. There was a significant increase in productivity of oilseeds after 1980-81 and Yield effect turn out to be the primary contributor in growth of production. Area, yield and interaction effect were examined 4.03, 95.43 and 0.96 percent respectively (1990-91 to 1999-00). Yield effect was the largest contributor in production growth in this period. During 2000-01 to 2009-10 area and productivity both shows an increasing trend, thus all three effects were positive. Area effect (40.12 percent), yield effect (52.33 percent) and interaction effect (7.33 percent) contributes in production in this period.

In last period (2010-11 to 2017-18), Yield effect was highest (179.06 percent) and the only contributor in production. Area effect and interaction effect was found to be negative 267.09 and 17.24 percent in the same period.

## CONCLUSION:

Indian climate is suitable for the cultivation of oilseed crops, therefore large varieties of oilseeds are cultivated in the country. The area under oilseed has been increased 10.73 to 24.65 million hectares (1950-51 to 2017-18). The production has registered manifold increase from 5.016 to 31.31 million tonnes (2017-18), but productivity is still low as compared to other oilseed producing countries in the world. The major factor responsible for low productivity is that cultivation of crops is done only on marginal lands in rainfed areas, lacking of irrigation facilities. To enhance productivity of oilseeds, government has been pursuing several development programs. After launching Technology Mission on oilseeds, there was a progressive growth in area, production and productivity of oilseeds by 4.23 percent, 8.28 percent and 3.89% respectively.

Bringing the import of oilseed under open general licence proved to have negative effect on the domestic oilseed economy and there was a decline in the oilseed production. As a result of concerted effects by TMOP, the production of oil seeds increases from 108.3 to 324.79 lakh tonnes (1985-86 to 2010-11), due to increase in area as well as productivity



(570 to 1193 kg/hectares). The concerted efforts of the development programmes register significant improvement in annual growth of yield and area under oilseed crops. However, India still import significant proportion of its requirement of edible oil. Thus, there is a large scope to increase the production and yield of oilseeds crop in the country. Government should take necessary steps to provide irrigation facilities, organic fertilizers to oilseed growers to increase production and productivity of this crop in India.

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## CULTURAL AND POLITICAL RELATIONS OF INDIA AND AFGHANISTAN

**Dr. Hemant Kumar Pandey and Mohd. Margub**

### **Introduction**

After the Incumbent Karzai regime, Afghanistan and India were close affiliates. Afghanistan's stability, pluralism and development have grown with an increasing friendship with India. It has helped Afghanistan grow infrastructure, institutionalize capacity building, small construction programmes, funding for food procurement, and train Afghanistan's scholarship students. In 2011, India signed a Strategic Partnership Agreement (SPA) with Afghanistan. Both neighboring countries and Pakistan also have vested interests and core goals in Afghanistan and to protect their interests and preserve stability in the region. Afghanistan has been the target of ethnic and foreign hegemonic Super Power designs. It is of considerable significance to the countries of the Central Asian Republic. India is seeking to expand its presence in Afghanistan, which is very worrying for India, as Pakistan's increasing influence in Afghanistan is a strategic disadvantage for India. The prevalent security problem has heightened distrust between India and Pakistan. Peaceful Afghanistan is very critical for India's development and peace. Both India and Pakistan seek to forge enviable ties with the Government of Afghanistan. There are a lot of ups and downs in the relationship between India and Afghanistan.<sup>i</sup>

The role of India in post-9/11 Afghanistan has been the focus of intense pedantic policy debates, at times bordering on conjecture. On the one hand, India is seen to play a crucial role in restoring the war-torn region, and on the other, India's increasing presence in Afghanistan as a result of its assistance diplomacy is said to have heightened Pakistan's actual or imagined encirclement fears in what it sees as its "strategic backyard." This "zero-sum" regional competition between India and Pakistan, referred to as the "new great game" by Western observers, is seen as a cause of further uncertainty.<sup>ii</sup>

India's interests in post-9/11 Afghanistan have centred on three broad objectives – security concerns, economic interests and regional aspirations. In understanding India's strategic thinking on Afghanistan, it would be useful to locate India's strategic mind within the broad parameters of three schools of thought/paradigms: (1) Realist, (2) Neo-liberal, and (3) Nehruvian-Marxist. The Realist perspective envisions India's aid and development assistance as a useful tool directed at supporting the nascent democratic regime, the strengthening of which denies the space for return of the Taliban to the seat of power. The Neo-liberals prod India to take a more proactive role as a major regional and economic power with ambitions of extending its influence beyond its immediate neighbourhood for tapping enormous energy and trade potential in the region. India has worked towards this objective by reviving the role of Afghanistan as a land bridge, which connects South Asia with energy-rich Central Asia for economic and energy

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interests. By linking stability with greater economic integration, India has been actively promoting greater trade and economic integration of Afghanistan with South Asia through the regional mechanism of South Asian Association of Regional Cooperation (SAARC). The thinkers in the Nehruvian tradition, while arguing against interference in internal affairs, emphasise the need for regional cooperation and restoring “peace and neutrality” in Afghanistan, preferably under the aegis of the United Nations (UN).<sup>iii</sup>

In order to achieve these goals, as suggested by numerous strains of Indian thought, India has embraced "soft power" by reviving its historical, traditional, socio-cultural and civilizational relations with the war-torn region. This creative and encouraging role, which has been well received by the Afghans, has important lessons for the international community in the long-term stability of Afghanistan. However, as the "End Game" debate is gaining steam, if India's priorities and position can be maintained or even extended to protect its core national security issues emanating from the region, it has emerged as a topic of immediate academic and political significance.<sup>iv</sup>

### **The Political and Cultural Connection**

India and Afghanistan have a strong relationship based on historical and cultural links. The relationship is not limited to the governments in New Delhi and Kabul, and has been driven by the historical contacts and exchanges between the people. In recent past, Indo-Afghan relations have been further strengthened by the Strategic Partnership Agreement signed between the two countries in 2011. As Afghanistan is preparing itself for three simultaneous political, security and economic transitions in 2014, India has sought to allay fears about the future by making a long-term commitment to the security and development of Afghanistan. The Strategic Partnership Agreement (SPA) between the two sides provides, inter alia, assistance to help restore Afghanistan's infrastructure and institutions, education and technical assistance to rebuild Afghan indigenous capability in different regions, promote investment in Afghanistan's natural resources, provide duty-free entry to the Indian market for Afghanistan's export goods, As the leading country for the Heart of Asia Process Finance, Trade and Investment CBM, India hosted the Heart of Asia Senior Officials Meeting in New Delhi in January 2014.<sup>v</sup> There is also a high degree of diplomatic interaction with Afghanistan, expressed in a significant number of bilateral high-level visits. Frequent high-level visits have taken place from both sides, including, among others, the Prime Minister in May 2011; the Vice President in March 2014; the Foreign Minister (EAM) in January 2011 and December 2013; the National Security Advisor (NSA) in March 2011 and February 2013; the Special Envoy to PM in Kabul in June 2011 for the meeting of the International Contact Group; the Foreign Secretary in September 2011, and again on June 14 for the Heart of Asia Conference in Kabul, Minister for Steel Shri Beni Prasad Verma in April 2012 for signing a Memorandum of Understanding on cooperation in the iron & steel sector, and by Shri S. Ramadorai, Adviser to the Prime Minister of India in the National Council on Skill Development and Shri M.S. Swaminathan, Chairman of National Farmers Commission.

From the Afghan side, high-level visits to India included a visit by President Hamid Karzai in May 2013, following his state visit in November 2012, when he delivered a

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prestigious Maulana Abul Kalam Azad Memorial, conducted extensive talks with political and business leaders, and oversaw the signing of four MoUs with India. A high-level delegation consisting of Dr. Zalmi Rassoul, then Minister of Foreign Affairs, Mr. Anwar-ul-Haq Ahady, Minister of Trade and Industry, Mr. Omar Zakhilwal, then Minister of Mining, Mr. Wahidullah Shahrani and Mr. Asef Rahimi, Minister of Agriculture, was in Delhi on 28 June 2012 for the Delhi Investment Summit in Afghanistan. The then Foreign Minister, Zalmi Rassoul, also co-chaired the first Partnership Council meeting on 1 May 2012, while the Mining Minister and the Finance Minister were in Hyderabad for the CII Partnership Summit in January 2012. The Upper House of the Afghan Parliament, Meshrano Jirga, also hosted India for a study visit from 11 to 18 February 2013. President Hamid Karzai visited India to attend the inaugural ceremony of Prime Minister Shri Narendra Modi in May 2014.<sup>vi</sup>

### **Economic and Industrial Relation**

India is also aware that peace in Afghanistan can only be achieved if all the major players and countries are interested in its stability, development and prosperity. Thus, through pioneering events such as the Delhi Investment Summit on Afghanistan in June 2012, India has been championing efforts to draw international and trans-regional investment into Afghanistan that provides a viable alternative to the prevailing narrative of extremism and offers job opportunities to its people. Recognizing that the country holds the key to stability in Afghanistan, within the framework of the Heart of Asia Process, India is spearheading commercial trust building steps in the region. Multilaterally, through various forums such as the trilateral Afghanistan-India-US and the trilateral Afghanistan-India-Iran platforms, which aim to put together international partners with diverse worldviews in search of the shared objective of ensuring stability and development in Afghanistan, they helped launch a dialogue on Afghanistan. India has also voiced its support for international Afghanistan cooperation at the UN and at a number of international conferences focusing on Afghanistan's future, including the seminal Tokyo Development Conference in July 2012.<sup>vii</sup>

For 3000 years, India has recognized Afghanistan's preeminence as a nexus of trading routes between northern, southern and west Asia. Bilateral trade, at US\$ 588.3 million for 2012-13 (US\$ 472.5 million for exports and US\$ 115.8 million for imports from India; 19% for exports from Afghanistan), is a modest amount in terms of real possible trade. In March 2003, India and Afghanistan concluded a Preferential Trade Agreement in order to gain trade opportunities, under which India provided significant duty discounts ranging from 50% to 100% for certain categories (38 items) of dried Afghan fruit. In November 2011, India scrapped basic customs duties for all Afghan goods (with the exception of alcohol and tobacco) and allowed them duty-free access to the Indian market. India is one of the key destinations for the export of goods from Afghanistan. By providing a new transit route for Afghanistan to trade with India and the rest of the world, the activity of the Chabahar Port in Iran could significantly increase Afghanistan's exports. In Afghanistan, India is investing as well. A public-private consortium of seven Indian iron ore mining and steel firms, AFISCO, led by SAIL, won a tender for the Hajigak iron ore deposits in December 2011,<sup>viii</sup> with plans to build a steel plant of 3-6 million tons. Company delegations have been coming to Afghanistan on a daily basis since the start of 2013.<sup>ix</sup>

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### **Delhi Investment Summit**

On June 28, 2012, India hosted the Delhi Investment Summit on Afghanistan to help forge cross-country investment alliances in Afghanistan and to present a counter-narrative of Afghanistan's economic prospects. In addition to more than 100 business delegates from Afghanistan and about 160 from India, the event was attended by about 80 delegates from countries in the country and beyond, including China, Pakistan and Iran. The Summit was attended by the Afghan Ministers of Foreign Affairs, Banking, Mining, Trade and Services and Agriculture. The goal of this summit was to draw foreign investment to Afghanistan in the light of new opportunities to be opened up in various sectors of the world. The summit featured presentations by the Government of Afghanistan and others on the business environment and prospects in Afghanistan, as well as panel discussions on cross-cutting concerns and sector-specific issues. The summit was in line with India's long-term commitment to helping the people and government of Afghanistan create a stable, pluralistic, democratic and prosperous Afghanistan. The summit proposed a series of guidelines for unlocking Afghanistan's economic potential and making it an enticing investment destination.<sup>x</sup>

### **India Afghanistan and Cold War**

Most of India's foreign-policy analysts deplore the lack of a "great strategy" as a cause that hampered India's emergence as a major force on the global stage. Contrarily to such assumptions, a brief survey of India's relations with Afghanistan will suggest that there has been a continuous quest for 'the right balance between power and diplomacy, practical and political parameters. As members of the Non-Aligned Movement (NAM), both countries maintained atmospheric neutrality in the Cold War. Afghanistan maintained its independence by adhering to its conventional strategy of bi-Tarafi in its attempts to combat the great rivalry of influence. The signing of the 'Friendship Treaty' in 1950 paved the way for India to establish good relations with King Zahir Shah, the regime that lasted until the late 1970s.<sup>xi</sup>

The Soviet intervention in Afghanistan, which took the Cold War to India on its doorstep, stimulated tremendous diplomatic activity in New Delhi. According to a well-known analyst, in the history of Indian diplomacy, there has never been so much groping for ideas and guidance before. Never before has India embraced foreign policy as an act of sterner preference. There have been significant questions regarding the great confrontation of force and militarization in the region, with the US growing weapons supply to Pakistan. J.N. Dixit, former Indian Ambassador to Afghanistan, said Indian Prime Minister Indira Gandhi, "The concerns regarding the Soviet interference in Afghanistan in December 1979 were offset by the legitimate belief that this intervention had taken place only because Pakistan and Saudi Arabia, backed by the US, were attempting to subvert the vital exercise being conducted by the segment of Afghan society."<sup>xii</sup>

During the Soviet invasion, ensuring peace and prosperity in Afghanistan remained an important foreign policy priority for India. Criticizing foreign forces to jeopardize peace and prosperity in the region, Indian Prime Minister Rajiv Gandhi said at a joint session of the Congress in June 1985, "External involvement and involvement have placed stability, protection and growth in the country at risk. We stand for a diplomatic solution in Afghanistan that guarantees sovereignty, dignity, equality and non-aligned status and

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allows refugees to return to their homes in peace and honor. He said, "India could not remain oblivious to the changes that took the clash of major powers to its doorstep.

As political reconciliation started to take place in Afghanistan, Foreign Minister Abdul Wakil visited New Delhi on 7 February 1987 and briefed Indian politicians, including Prime Minister Rajiv Gandhi, on the national reconciliation process. Three months later, in May 1987, the 8th session of the Indo-Afghan Joint Commission was convened in Kabul. Both countries have agreed to create direct banking agreements, to improve cooperation between trade organizations, and to strengthen industrial cooperation. In addition, India has decided to set up a cultural centre at the Indian Embassy in Kabul. The Government of Afghanistan supported India's position as a significant stakeholder in dispute resolution. On 3 March 1989, the U.N. Ambassador to Afghanistan, Shah Mohammad Dost, said in his speech to the UN news, "India is a leading nation in the region and has a critical stake in what is happening there. It has an important role to play in ensuring that the issues of the country are addressed."<sup>xiii</sup>

Following the Soviet withdrawal from Afghanistan, India continued to support the Soviet-backed Najibullah Government in Afghanistan. On 4 May 1989, Afghan President Dr Najibullah visited India and held talks with Prime Minister Rajiv Gandhi on the Geneva Accords, resulting in calls for the adoption of the Geneva Accords. The agreement on the supply of 2,000 tones of tea packets from India to Afghanistan was concluded during the visit. On 5 September 1989, an agreement on the creation of a Joint Business Council between the Federation of Indian Chambers of Commerce and Industry (FICCI) and the Afghan Chamber of Commerce and Industry (ACCI) was signed with a view to creating an institutional structure for growing trade between India and Afghanistan.<sup>xiv</sup>

Daily high-level trade visits between India and Afghanistan continued during the 1990s. Agreements negotiated between the two countries included collaboration between agricultural organizations, telecommunications and cultural exchanges and the elimination of drug abuse and psychotropic drugs. With a view to restoring the social and economic fiber of war-torn Afghanistan, India has announced a number of new ventures, such as the development of a 300-bed Gynecological and Obstetrics Hospital and additional industrial sheds, along with enhanced collaboration in irrigation, cartography, metrology and tourism.<sup>xv</sup>

The rise in bonhomie between the two countries lasted until the Taliban marched into the Afghan political scene. India closed its diplomatic mission in Kabul in September 1996, when the Taliban took power in the city. As other nations, India did not accept the assertion of power by the Taliban. Just Saudi Arabia, Pakistan and the United Arab Emirates have acknowledged the Taliban regime. After the Taliban strengthened their grasp on Afghanistan, India retained limited contact, mainly with the assistance of the globally recognized Unified Islamic Front (UIF), popularly known as the Northern Alliance.

India retains a brief contact with the Taliban after the hijacking of Indian Airlines Flight IC 814 on 24 December 1999, which landed in Kandahar after arriving from Kathmandu, leaving behind unsavory memories. The following eight-day saga of hostage exchange talks was made dependent on the release to the Taliban of the three Pakistani terrorists imprisoned in Indian jails. The prolonged talks concluded with

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Indian Foreign Minister Jaswant Singh personally transporting the three terrorists in exchange for passengers. By the way, one of the freed jihadists, Maulana Masood Azhar, went on to set up the Jaish-e-Mohammad (JeM). The JeM is said to have been engaged in a variety of militant acts in Jammu and Kashmir and beyond, including an attack on the Indian Parliament in December 2001.<sup>xvi</sup>

### Conclusion

As the international community seems to be in a hurry to put an end to its ominous gambling in Afghanistan, India has a small window of opportunity to allow Afghans to play a leading role in their nation-building efforts. If the stated aim of the transition of power, as set out by the President of Afghanistan, is to be implemented by 2020, there are prospects for India to deepen its level of participation at different levels in the near to medium term. India should extend its role in training the Afghan National Security Force (Army and Police) and Air Force. India could play an encouraging role in the preparation of the officers' corps. With the reintegration process gathering traction, India's experience of developing a counter-insurgency grid in Jammu and Kashmir, and the reintegration of surrendered insurgents, while creating job opportunities, may have some valuable lessons for Afghanistan. It may also help to improve civil-military ties.

India needs to collaborate with the Afghan Government on a long-term restructuring of the political system. Both the public and leaders with other ethnic affiliations are gradually aware of the need for a representative structure with a Democratic Party system to create balanced political orders. The past presidential and parliamentary elections in Afghanistan have demonstrated the need for democratic and constitutional change. The diplomatic impasse following the delay in the opening of the Afghan Parliament does not bode well for the country's long-term stability. India could help to establish a federal strategy focused on its own history of sculpting and balancing central-state relations that embody and accommodate diverse and pluralistic racial, religious, cultural and linguistic identities.

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## WOMEN'S POLITICAL ACTIVISM IN INDIA WITH SPECIAL REFERENCE TO TRIPURA

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### Abstract

Political activism is generally means the use of direct and noticeable action to achieve a result in the political arena. It refers the ways of citizen's participation and involvement in political activities and processes and also the consequences of these acts. Political activism of Indian women can be considered from three dimensions: women's participation in political process; impact of women's participation in political process on society and on status of women; and political attitudes of women and society. In the early 20<sup>th</sup> century, women in India started campaigning for their political rights along with their freedom struggle. The British Ruler allowed women's franchise, but, restricted with severe conditions. Since independence women of India are utilizing their equal rights to vote. Gradually the women's voter turnout has been increased. But political activism of women means not only using the right to vote, but, also participating in decision-making and policy-making at all level. Although the number of women candidates contesting elections to the Lok Sabha increased over the years, still their proportion to male contestants is not encouraging. There are various reasons for the poor participation of women in politics, especially formal political structures. The subordinate status of women in Indian society, lack of proper education, very low economic status, preventive cultural norms, the unequal and unhealthy political environment, the nature of the organizational structure of politics and the process of political succession - all favour men and discourage women from active political participation. Training-cum awareness building programmes may be initiated by the political parties for greater impact on male mentality towards their counterparts, so that women are given enough space to exercise their role in political institutions.

**Key Words:** Political Participation, Activism, women, representation, voter turnout.

### Introduction:

In the view of Harold Lasswell, politics is "who gets what, when, how." Politics is generally understood to deal with representation, policy, position and power in the process of governance. It can be said that politics is the area of shaping, sharing and exercise of powers and involvement of politics is directed towards influencing power channels.

Political activism is generally means the use of direct and noticeable action to achieve a result in the political arena. It refers the ways

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of citizen's participation and involvement in political activities and processes and also the consequences of these acts.

Political activism of Indian women can be considered from three dimensions: a) Women's participation in political process; b) Impact of women's participation in political process on society and on status of women; and c) Political attitudes of women and society.

Political participation refers to the participation of individuals in the political process, which ensures that individuals are able to take part in deciding the common goals of the society and the best ways of achieving these goals. With a wider scope of definition of politics to include every kind of issue of power relations, including those of family and everyday life of survival itself, political participation includes not merely electoral politics and activities of political parties, but, also other social and political movements. That means it also refers broadly to the activities of those not formally empowered to make decisions, including activities intended to influence the attitudes and behaviour of those who have the powers of decision making. In this way, protests and demonstrations against that power are also part of political participation.

According to Herbert Mc Closky "Political participation refers to those voluntary activities by which members of a society share in the selection of rulers and, directly or indirectly, in the formation of public policy. These activities are: casting vote, seeking information, holding discussions, attending meetings, financial contributions to political parties, staging strikes and demonstrations, communicating with the legislators and other leading figures and the like. However, the most active forms of political participation are formal enrolment in a party, canvassing and registering votes, speech writing and speech making, working in campaigns and competing for public and party offices."<sup>1</sup>

Political participation of women needs to be defined in broader terms, not just in terms of women's participation in the electoral administrative processes. It may include support of political groups, communication with legislators, dissemination of political views and opinions among the electorate and other related activities. Political involvement extends the sphere of power relations. It can be considered to include involvement in any form of organized activity that affects, or seeks to affect, existing power relations.

### **Women's active participation in freedom struggle and demand for their political representation in British India:**

The campaign for political representation formed an important part of the Indian Women's movement in early 20<sup>th</sup> century. Women's political Participation in India, chronologically and thematically originated from the *Swadeshi* movement in Bengal (1905–8), which marked the beginning of Indian women's participation in nationalist activities. Movement for women's voting rights in India was not started from perceptions of the needs of women's political participation, but from the influence of certain British women. Thus, the origins of the movement for women's voting rights in India were simulated on the model of Britain and through the work of some British women reformers living in India. The Indian women leaders believed that the enfranchisement of women would mean additional support for social reform

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legislations. There were two phases in the campaign for voting rights. In the first phase from 1917 to 1928, the issues were female enfranchisement and eligibility for entry into the legislature. In the second phase from 1928 to 1937, the issues were relaxation of the terms for enfranchisement and widening women's representation in the legislature. The context of colonial situation in India created two sets of political authorities to whom the women had to appeal-the British government and the nationalist elite, for achieving their electoral demands.

The campaign for political representation formed an important part of Indian women's movement in early 20<sup>th</sup> century. Some prominent women's organizations were emerged at the end of 19<sup>th</sup> century as the Women's Indian Association, The National Council for Women, the All India Women's Conference etc. In 1917, a demand for women's voting right was initiated. A deputation of Indian Women led by Sarojini Naidu presented to British Parliament on the demand for the enfranchisement for women on the basis of equality with men. The Reforms Act 1921 enfranchised a small fraction of Indian people including women, placing some restrictions on them. The right to vote for women was restricted by severe conditions, namely attainment of marital status, property and education and therefore an insignificant minority only could enjoy the voting right.

Although most of the women were deprived of political equality and enfranchisement, women of different communities and all walks of life came out to join the political struggles under the leadership of Gandhiji for obtaining freedom from British rule. They participated in political campaigns, protest marches and demonstrations, constructive work and also for the cause of economic and social justice, working for the removal of untouchability and other forms of social oppression. Women of India participated in large numbers in the Civil Disobedience Movement and the Salt Satyagraha and other popular strikes against British Rule.

The ideas and activities associated with Gandhiji's non-cooperation movement encouraged Indian Women in large scale entry into the public sphere from the seclusion of the democratic arena. Gandhi included a large number of women in his *Satyagraha* campaigns. Mahatma Gandhi declared in 1918: "Woman is the companion of man fitted with equal mental capacities. She has the right to participate in the minutest detail of the activities of men, and she has the same right to freedom and liberty as he..... by sheer force of various custom, even the most ignorant and worthless man has been enjoying superiority over women which he does not deserve and ought not to be have".<sup>2</sup>

His call to women met with an unexpected response and galvanized the mass mobilization of women in active politics. In response to his call women who attended a public meeting for the first time in a gathering convened by Indian National Congress, donated their ornaments to the Tilak Swaral Fund. The non cooperation movement was like a tidal wave sweeping the whole country and drawing into it all sections of the people. Sarala Devi Chaudhurani, Sarojini Naidu, Kamala Devi Chattopadhyay were some of the prominent frontline women freedom fighters. In 1929, championing the rights of women, Gandhi said, "Women must have the vote and an equal legal status, but the problem does not end there. It only commences at the point where women begin to affect the political deliberations of the nation".

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All these brought about a noticeable change in the attitude towards the participation of women in the public and political lives of India. The demand for the universal adult franchise was made in the Karachi Session of the Indian National Congress. The Indian National Congress had taken historic decision of entrusting itself to the political equality of women, regardless of their status and educational qualifications. Due to all these initiatives the Govt. of India Act 1935 included more number of enfranchised Indians and the proportional suffrage rights of women relaxing some of the previous qualifications. The Act enfranchised one woman for every five men enfranchised (Visram, 1992). Despite the women's movements against to reservation of seats on a gender basis, the 1935 Act granted 41 reserved seats for women in the provincial legislatures as well as limited reservations in the central legislature. However, women took advantage of the seats reserved for them in the elections held in 1937, as 80 women won the elections to become legislators. At that point, India had the third highest number of women legislators in the world, after the United States and the Soviet Union <sup>3</sup>.

Independence of India brought the actual liberation and equality. The Constitution pledged the nation to achieving a just society bases on the principles of equality and dignity of the individual, and proclaimed the right to political and legal equality as fundamental rights of all Indians. The Indian Constitution guarantees political equality through the institution of adult franchise. The Article 15 of the Constitution prohibits discrimination on the ground of sex.

#### **Women of Tripura in Indian freedom struggle:**

Tripura was a native state ruled by the *Tripuri* dynasty for several centuries, before independence of India. The *Maharaja* of Tripura did not allow any political activity in the state. As the people of Tripura state were not directly under the British rule; the anti-British attitude was not so much prevalent among the people of Tripura.

But, with the *Swadeshi Movement* in Bengal since 1905 influenced the people of Tripura. The *Swadeshi Movement* in Bengal since 1905 was perhaps the first occasion when Tripura was brought into the arena of people's movements against the British ruler. Along-with the rise of freedom fighter Surya Sen (1893-1934), the rejuvenation of the youths found a sudden spurt and spread over an extensive area including Tripura. Some students of Tripura had been residing at Comilla district of Bengal, for higher studies, come into contact with the revolutionaries of Comilla. Under Surya Sen's influence a student organisation, called 'Chatra Sangha' came into existence in Tripura in 1927. In 1928, 'Bhratri Sangha' a similar organisation was formed in Tripura.<sup>4</sup>

In the galaxy of great women freedom fighters of Tripura, the names of three very young women (Santi Ghosh, Suniti Chowdhury and Pritilata Waddedar) stood out prominently for extraordinary bravery. The Chattagong Armoury raid by Surya Sen (1893-1934) on 18.4.1930 was followed by the murder of the Comilla District Magistrate C.G.B. Stevens (Charles Geoffrey Buckland Stevens) on 14.12.1931 by Santi Ghosh, Suniti Chowdhury; and Pahartali European Club attack on 23 September 1932 by Pritilata Waddedar. Lilabati Nag (=Lila Roy) confidently opened and managed several schools, girl's boarding houses, temples and associations; she was imprisoned

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since 1931 to 1938 and 1942 to 1946 for her nationalist activities by the imperialist British ruler. Prafulla Nalini Brahma was jailed in Stevens's murder case.<sup>5</sup>

### **Women's participation in the democratic process of India after attaining Independence:**

Women of independent India are accorded political equality with men through Article 326 of the Constitution and various provisions of fundamental rights. Article 326 guarantees suffrage to all its citizens who are above 18 years of age. By adopting the principle of universal adult suffrage, the Constitution seeks to establish a democratic republic by giving the adult population direct or indirect share in the decision making machinery of the government.

After independence women took part in the democratic process of India by taking part in the electoral process actively. Committee on the Status of Women in India (CWSI) defined the political status of women as the degree of equality and freedom enjoyed by women in shaping and sharing of power and in the importance given by the society to this role of women. They have used three indicators to test the effectiveness of the instrument of political rights and status to achieve general equality of status. These three indicators are:

1. Participation in political process: the turnout of women voters and the number of women candidates in each election.
2. Political attitudes: the level of awareness, commitment and involvement of women in politics, particularly their autonomy and independence in political action and behaviour.
3. Impact of women in political process: assessment of women's views of their own roles in the political process, and society's attitude to the new roles of women. This is indicated by the success of women candidates at various elections, the efficiency of women's pressure groups, the nature of leadership and women elites in parties and government and effectiveness of campaigns for women's mobilization particularly on issues that directly concern them.

**Women's political activism as electorate:** There is a steady increase in voting percentage since first general election in India (46.6 % in 1962 to 55.6 % in 1999) and also in Tripura. The rate of increase in female participation has been steadily growing, narrowing the gap between male and female participation. In comparison to male voters, female voter participation has been lower in all elections in India. But, interestingly, female voter participation is higher in last two consecutive elections to the Tripura Legislative Assembly, which makes their political involvement significant. The increase in the number of women voters since independence and their eager participation in voting have made almost all political parties pay special attention in organizing and campaigning among women; political parties started organizing regular party forums, cells and front organizations, especially for women. These women's cells not only mobilize and campaign among women and seek their support and membership during elections as well as in normal period, but, quite often take up issues concerning women.

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**Table 1**  
**Women Voter Turnout in Elections to the Lok Sabha in India**

Election to the Lok Sabha	Total turnout (in %)	Men's turnout (in %)	Women's turnout (in %)	Difference in turnout (in %)
1952 (1 <sup>st</sup> )	61.2	-	-	-
1957 (2 <sup>nd</sup> )	62.2	-	-	-
1962 (3 <sup>rd</sup> )	55.4	63.3	46.6	16.7
1967 (4 <sup>th</sup> )	61.3	66.7	55.5	11.2
1971 (5 <sup>th</sup> )	55.3	60.9	49.1	11.8
1977 (6 <sup>th</sup> )	60.5	66.0	54.9	11.1
1980 (7 <sup>th</sup> )	56.9	62.2	51.2	11.0
1984 (8 <sup>th</sup> )	64.0	68.4	59.2	9.2
1989 (9 <sup>th</sup> )	62.0	66.1	57.3	8.8
1991 (10 <sup>th</sup> )	57.0	61.6	51.4	10.2
1996 (11 <sup>th</sup> )	58.0	62.1	53.4	8.7
1998 (12 <sup>th</sup> )	62.0	66.0	58.0	8.0
1999 (13 <sup>th</sup> )	60.0	64.0	55.7	8.3
2004 (14 <sup>th</sup> )	58.8	61.7	53.3	8.4
2009 (15 <sup>th</sup> )	58.2	60.2	55.8	4.4
2014 (16 <sup>th</sup> )	58.2	60.2	55.8	4.4
2019 (17 <sup>th</sup> )	67.4*	67.0	67.2	0.2

Source: Results of elections to the Lok Sabha declared by the Election Commission of India for data of the year 1952-2014 and *Women and Men in India 2019*, for data of 2019.

\*= Transgender voter's turnout is included.

**Table 2**  
**Comparison between Women Voter Turnout in Lok Sabha Elections in India and Tripura State**

Country/State	1989	1991	1996	1998	1999	2004	2009	2014	2019
India	57.3	50.6	53.4	57.9	55.6	53.5	58.21	66.40	67.18
Tripura	81.9	61.6	77.5	80.5	65.1	63.5	84.55	84.72	81.97

Source: Results of Lok Sabha Elections declared by the Election Commission of India

The turnout among women voters of Tripura is higher than that of national average in every election since 1989. Significant rise in the proportion of turnout of women voters from 61.6 percent in 1991 to 84.72 percent in 2014 can be observed in the above table.

**Table 3**  
**Proportional turnout of women compared with men voter in Elections to the Tripura Legislative Assembly**

Source: Election Commission of India report.

Year	Voters			Votes			% of voting		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
1967	NA	NA	666637	NA	NA	432019	NA	NA	71.21
1972	406712	359381	766093	284765	231288	516053	70.02	64.36	67.36
1977	495342	466656	961998	406052	358878	764930	81.97	76.90	79.51
1983	579123	555134	1134257	495281	446504	941785	85.52	80.43	83.03
1988	684596	658470	1343066	590887	560771	1151658	86.31	85.16	85.75
1993	855052	817976	1673028	707725	650519	1358244	82.77	79.53	81.18
1998	893538	833925	1727463	732368	664197	1396565	81.96	79.65	80.84
2003	1000309	931411	1931720	809492	710925	1520417	80.92	76.33	78.71
2008	1038782	999219	2038001	942604	916518	1859122	90.74	91.72	91.22
2013	1201209	1157284	2358493	1089860	1075622	2165482	90.73	92.94	91.82
2018	1311983	1268119	2580113*	1146889	1159086	2305977**	87.42	91.40	89.38***

\*= Including 11 voters of third gender; \*\*= Including 2 voters of third gender; \*\*\*= including 18% vote of third gender.

It reveals from the above table that women's political participation has been gradually increased in Tripura. From the 2nd Assembly Election of Tripura in 1972 to 5<sup>th</sup> Assembly election women's political participation had been increased; but, from 6<sup>th</sup> to 8<sup>th</sup> elections women's voting turnout decreased; again, from 2013 Assembly election voting turnout increased. It is also observed that in last three consecutive Assembly elections of Tripura, women's voting percentage is higher than men voters. So, it is assumed that most of the women electorates of Tripura take interest in electoral politics.

**Representation of women in Parliament and Legislative Assembly in Tripura:** The political activism of women means not only using the right to vote, but, also participating in decision-making and policy-making at all level. The active participation of women in the political sphere is integral to the empowerment of women as well as to the process of national development. Although the number of women candidates contesting elections to the Lok Sabha increased over the years, still their proportion to male contestants is not encouraging. The number of women in Rajya Sabha has decreases over the years. This is mainly due to the patronage practiced by the

political parties to accommodate those not successful in popular electoral contests, as such persons more often are men. The following table shows the percentage of women elected in different elections to The Lok Sabha.

**Table 4**  
**Elected Women in Lok Sabha in India**

Election to the Lok Sabha	Total no. of seats	No. of women candidate elected	% of total
1952 (1 <sup>st</sup> )	489	22	4.4
1957 (2 <sup>nd</sup> )	494	27	5.4
1962 (3 <sup>rd</sup> )	494	34	6.7
1967 (4 <sup>th</sup> )	523	31	5.9
1971 (5 <sup>th</sup> )	521	22	4.4
1977 (6 <sup>th</sup> )	544	19	3.4
1980 (7 <sup>th</sup> )	544	28	5.1
1984 (8 <sup>th</sup> )	544	44	8.1
1989 (9 <sup>th</sup> )	529	28	5.3
1991 (10 <sup>th</sup> )	509	36	7.0
1996 (11 <sup>th</sup> )	541	40*	7.4
1998 (12 <sup>th</sup> )	545	44*	8.0
1999 (13 <sup>th</sup> )	543	48*	8.8
2004 (14 <sup>th</sup> )	543	45*	8.1
2009 (15 <sup>th</sup> )	543	59	10.9
2014 (16 <sup>th</sup> )	543	61	11.2
2019 (17 <sup>th</sup> )	543	78	14.3

Source: Election Commission of India reports.

Note: \* = Included nominated members.

The above table shows that the proportion of women members in Lok Sabha doubled since the first general elections, but, the percentage of women members to the total seat is still less than the world average and falls short of the critical mass required for influencing decisions. The 17<sup>th</sup> Lok Sabha has the highest women elected members, but, still the number is very few in comparison to the male elected members.

**Table 5**  
**Number of Candidates Contested and Elected in the Lok Sabha by Sex in Tripura**

Year	No of Seats	Contested		Elected	
		Male	Female	Male	Female
1977	2	8	-	2	-
1980	2	10	1	2	-
1984	2	10	-	2	-
1989	2	12	-	2	-
1991	2	15	2	1	1
1996	2	18	2	2	-
1998	2	10	1	2	-
1999	2	17	-	2	-
2004	2	6	-	2	-
2009	2	8	9	2	-
2014	2	22	3	2	-

Source: Results of Lok Sabha Elections published by Election Commission of India.



The above table shows that female participation in Lok Sabha has been insignificant in case of Tripura. This scenario of women representation in the Parliament reflects the continuing patriarchal values of the political parties towards the question of political empowerment of women.

Similar trend is observed in case of distribution of ministry in the Central Cabinet and in Council of Ministers. The following table shows the representation of women in the Central Council of Ministers.

Table 6
Representation of Women in the Central Council of Ministers

Table with 8 columns: Year, Number of Ministers (Cabinet Minister, Minister of State, Deputy Minister), Number of Women Ministers (Cabinet Minister, Minister of State, Deputy Minister), and % Women in Council of Ministers. Rows list years from 1985 to 2019.

Source: Women & Men in India-2019.

\*Including Ministers of State with independent charge.

It appears from the above table that not more than 15% women representatives are included in the Central Cabinet with single exception in 2017; whereas, not more than 2.79% women representatives are included as Ministry of state in the Central Council of Ministers, which shows the meagre unsound participation of women in highest decision making body of the largest democratic country – India in the world.

The representation of women in the state legislatures are also continues to be low. High percentage of voting is not only the criteria of political participation. Political participation includes the active involvement and engagement by both women and men

with political procedure along with their representation which affect their lives. The following table shows the women representation in Tripura Legislative Assembly.

**Table 7****Number of Candidates contested and elected in Legislative Assembly by sex in Tripura**

Year	Contested		Elected	
	Male	Female	Male	Female
1967	86	1	30(35%)	-
1972	230	4	60(27%)	-
1977	322	6	59(18%)	1(17%)
1983	195	11	56(29%)	4(36%)
1988	213	07	58(27%)	2(29%)
1993	392	15	59(15%)	1(7%)
1998	249	21	58(23%)	2(10%)
2003	258	18	59(23%)	1(6%)
2008	282	31	57(20%)	3(10%)
2013	234	15	55(24%)	5(33%)

Source: Election Commission of India Report

As shown in the above table, the number of women representatives in Tripura Legislative Assembly remained microscopic for the last four decades. The table also shows the percentages of elected representatives out of the contestants were much lower in the case of women. The negligible representation of women in the Legislative Assembly of the state shows their powerlessness and their subordination to male counterpart in the highest decision making body of the state.

**Participation of women in the business of parliament and the Assemblies:** As the elected representatives of the people, the performance of the Members of Parliament are assessed on the basis of their participation in the proceedings and by the resolution of problems in their respective constituencies both through participation in the decisions in the Parliament and interventions in the field. The low strength of women is often reflected in the level of their participation in the important business of the House concerning financial, legislative and other matters. The intense participation of women members in Parliament is mostly reflected to women issues, not in other national issues.

**Women in Panchayati Raj Institutions:** The 73<sup>rd</sup> and 74<sup>th</sup> Amendments to the Constitution of India passed by the Parliament in 1992 and ratified in 1993, provided for 33% reservation among elected representatives to the local bodies. This has been a major achievement towards the empowerment of women, especially at the grass-root level. In 1994, the Panchayati Raj Act has been introduced. The Act provides a three-tier structure of local self-government in states with a population of not less than twenty lakhs. The policy of reservation for women was not time-bound, nor is the women debarred from seeking elections to unreserved seats. This created a constitutional framework for a great change in the nature of women participation in formal politics.

In Tripura, 50 percent seats in civic bodies (including three-tier Panchayats and Municipal bodies) are reserved for women through passing the Tripura Panchayat (Fifth



Amendment) Bill, 2010 and The Tripura Municipal Bills (Fourth Amendment Bill). These Amendment Acts provided women the much-needed opportunity to effective participation in the decision making process in their locality.

There were doubts at the consultative state prior to the amendments to the Constitution on the adequate availability of experienced capable women for election to the local bodies. But women in large numbers came forward to contest the elections and they proved their capabilities in providing effective governance, though, Most of them, irrespective of social, economic or other status have faced problems of gaining recognition from their peer and bureaucrats.

**Informal political participation of women to influence social system:** Informal political participation can be described as the involvement of women for influencing the existing system in the society by taking part in the struggles, protests, demonstrations etc, but at the same time not being part of formal political structures. Large numbers of women took part in diverse people's movements in India after independence. The presence of women was very conspicuous crucial in people's struggles such as agrarian struggles, struggles related to livelihood and ecological issues, like *Chipko* movement, Anti-price rise movement etc., struggles against oppressive social customs and social evils, such as *dowry*, *devadasi* system etc. The nature and extent of participation of women in these struggles were different, adopting appropriate tactics for each for influencing existing social system.

#### **Barriers to political participation of women:**

In spite of remarkable improvement in political participation of women in India in the last one century, it does not seem good enough to make any significant change in their social status and social liberation. Their low level of political participation in higher decision making bodies makes negligible impact on the political process. Women in India face formidable barriers to equal participation and leadership in the political system, notwithstanding the legal equality. There are various reasons for the poor participation of women in politics, especially formal political structures. The subordinate status of women in Indian society, lack of proper education, very low economic status, preventive cultural norms, the unequal and unhealthy political environment, the nature of the organizational structure of politics and the process of political succession - all favour men and discourage women from active political participation. The apparent conflict between women's domestic and civic roles, a male-dominated party leadership are very doubtful about sharing power with women, lack of political skills among women (the reason for which is rooted in the patriarchal social and cultural set up in society), and multitude of other obstacles contribute to the pitiable and inactive participation of women in politics.

The political attitude of women and men noticeably differ in any society. The level of political awareness and thereby political participation by different sections of society varies from region to region, from class to class, from community to community depending on various factors such as the political culture of the area, the approach of the political parties towards different sections, the quality of local leadership, the form and extent of caste, class and gender based stratification, etc. Our culture often deprives

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women of the self esteem necessary for political leadership. In a culture which values the male more highly than the female, women hardly acquire the confidence and autonomy required to seek power to wield it effectively.<sup>6</sup>

India had some outstanding women leaders, but they can be counted on the fingertips. The vast majority of women who participate in the political system do not or could not perform so actively. This is evident from the minimal participation of women in the business of parliament. The performance of women legislature members in the states is also not much different. This is not because they are not interested or not capable of doing so. But, the larger patriarchal social system that gives a subordinate position to women is reflected in party politics too. Both political parties and women's organizations do not pay adequate attention to their political education and mobilization. The structures of political parties make them male dominated and, in spite of outstanding exceptions, most party men are not free from the prejudices and attitudes of society.<sup>7</sup>

Gender-based division of labour in the family is one of the barriers of political participation of women in India. Unlike other developed countries, Indian women have to bear the full responsibility of household tasks. So, they cannot manage time for political activities. When an activity requires routine, continuous hard work with full dedication, women find it difficult to participate due to lack of supportive family members.

The election of women to various decision-making positions depends on the support, encouragement and nomination given by the political parties. It is a fact that political parties play a great role in promoting the formal political participation of women. Besides socio-cultural factors, lack of interest on the part of major political parties restricts women from active political participation in India.

Considerations of caste, class, religion and family status, etc., which are parochial and essentially patriarchal forces in India, work in favour of men against women. Consequently, women are still left behind on the political process and their political participation remains confined to voting only. So, the number of women in leadership positions at the local, village, district and national level is still not proportionate with their number in India.

The political culture of contemporary Indian society also acts as a deterrent to the political participation of women. The very process of political activities and decision-making become complicated and many a time decisions are made behind the scenes. Violence against women candidates, character assassination and unscrupulous struggles for power has become a serious barrier to the effective and active participation of women.

Nowadays, elections have become extremely expensive. The increased expense of elections is also an important factor that resists women from contesting elections, who are economically dependent on men counterpart.

Political participation requires information, knowledge and exposure to various political experiments, strategies and models. In a country, where the educational status of women, especially status in higher education is low, it cannot be expected to have their fully effective political participation too. An understanding of political policies and strategies requires some training, education, political education and constant interaction.

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Gender equality is a pre requisite for effective participation of women in strengthening the institutional structure of democracy. In India, women are yet to take an effective part in the political process due to lack of information, exposure and knowledge of politics.

### Conclusion:

Conventionally politics is considered the business of men in Indian Society. Women were largely kept behind close door and away from this field. From the early 19<sup>th</sup> century women around the world started raising their voice for equality and their political rights. By the middle of 20<sup>th</sup> century most of the nations of the world acknowledged women's right for political participation and provided constitutional guarantees for securing this right. Women in India began their presence in public activities by taking part in the nationalist movement. After independence they continued their presence in the democratic process. But, majority of them did not show an active presence in formal politics and in decision making bodies. It has been recognized in various national and international forums that politics is the arena of power and decision-making and the active presence of women here will positively change the status of women in society. So, training-cum awareness building programmes may be initiated by the political parties for greater impact on male mentality towards their counterparts, so that women are given enough space to exercise their role in political institutions. Economic independence is a pre-condition for political activism of women. Elected women representatives have to depend on their husbands or other male members of the family for their living and pocket money. In such a situation, it is difficult for women, mostly coming from the dependent and marginalized sections of the society, to perform their political responsibilities effectively. Hence, means of livelihood should be ensured for them. Honorarium and sitting allowance of elective representatives in grass-root level may be increased.

### End note:

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**A STUDY OF SPIRITUAL INTELLIGENCE AND ANXIETY AS A  
PREDICTORS OF ACADEMIC ACHIEVEMENT AMONG B. ED. TEACHERS  
TRAINEES**

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Education is as old as mankind and is concern of all living beings. Due to the explosion of knowledge, multiplicity and specialisation of occupations, scientific and technical advancement, the role of education has been more crucial nowadays. There is an increasing demand that the present system of education should be geared towards efficiency and the process of acculturation. Schools and teachers are the crucial agents for bringing out the desirable changes in the system. Aristotle declared that educated men are as much superior to uneducated as the living are to the dead. That's why psychologists and educationist to do new experiments to enhance human knowledge and development. In formal sector of education we usually measure the level of education attained by the child through his academic achievement. Academic achievement is related with the understanding of the concepts taught in the schools or in any subject, assessed by examination marks. It is the status or level of a person's skills, the range and depth of his knowledge in a designated area of learning or behavior.

Teaching is an important part of the process of Education. Teaching has been one of the oldest and most respected Professions in the world. When a systematically, the organized human society came into existence, the need to mold its children on proper lines arose requiring persons who could perform this role, that is Teacher The talk of shaping the future citizens is a noble one and so the teacher has always occupied a place of honor and reference in the Indian Society over the ages. The preparation of Teachers has changed with the passage of time and with the changes in expectations of the Society. The quality of a nation depends upon the quality of its citizens, the quality of citizens depends upon the quality of their education and the quality of education depends upon the quality of teachers and the quality of teachers upon the quality of teacher education and teacher training among many other factors.

Achievement encompasses the ability and performance of the student, it is multidimensional, it reflects the whole child, and it is not tied to a single instance, but occurs through time and levels through the life of a pupil in school and in the postsecondary and working life. Academic achievement can be defined as the degree or level of competence attained in scholastic and academic work. This is the skill revealed in the school subjects in which the students have been instructed. It is directly related to the growth and development of students in educational situations, where learning and

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teaching are intended to continue. Academic achievement refers to the student's numerical scores, which measure the student's degree of adaptation to school work and the educational system.

Anxiety is diffuse apprehension differing from fear in its vagueness and objectives senses and as a state that is associated with feeling of uncertainty, helplessness and threat to core or essence of personality. A teacher's life has two facets: socio-personal life and vocational or professional life. In his personal life, he has to play the role of a son, husband, father, brother, friend, tenant, customer, borrower, and many other such like roles simultaneously. While playing these varied roles, he may experience discords and dissensions in his family life, his relations with other persons may be painfully annoying, his psychological and other needs may remain unfulfilled. Thus, being a lowly soul and down trodden creature of this earth, he too has to experience pangs of anxiety which in turn lead to teacher burnout.

Spiritual Intelligence is about the growth of the human being. It is about moving on in life. About having a direction in life and being too able to heal ourselves of all the resentment we carry, it is thinking of ourselves as an expression of a higher reality. It is also about how we look at the resources available to us. We realize that nature is not meant to be exploited. Ultimately, we discover freedom from our sense of limitation as human being and attain Moksha. Spiritual Intelligence is the ability to act with wisdom and companion while maintaining inner and outer peace (equanimity), regardless of the circumstances. Spiritual Intelligence is an innate human intelligence but like any intelligence it must be developed.

*Sharma, Indira and Upadhyaya, Ajit, (2018)* revealed that there is a positive and significant impact of Spiritual intelligence and Emotional Intelligence on Learning and curiosity had a mediating effect. *Bozorgi, Mahdi Dasht, (2016)* results of stepwise regression analysis, problem-focused and emotion-focused coping strategies and spiritual intelligence could significantly predict 14% of mental health variance. *Singh, (2011)* revealed that Girls had significantly higher level of Spiritual Intelligence and Altruism than boys and boys had significantly higher level of Academic Achievement than girls. *Prima et al., (2010)* showed that there was a significant correlation of high level anxiety and low academic performance among engineering students, with significant correlation ( $p=0.000$ ) and the correlation coefficient is small with  $r=-.264$ . *Animasahun, (2008)* indicate that there is significant joint contribution of the independent variables to conflict resolution behaviour i.e. spiritual intelligence and creativity are relevant predictors of conflict resolution behaviour out of which Emotional intelligence had the greatest contribution followed by Spiritual intelligence and Creativity while Self-efficacy has the lowest contribution. *Sharma, (2005)* found male anxious students achieve higher academic attainment scores than the male non-anxious students of the same level and same stream and female anxious students in general, tend to achieve higher academic attainment scores than their non-anxious counterparts. *Murthy, Krishna, (2000)* indicates that there is a negative relationship between test anxiety and achievements in history.

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Quality of teachers is the most important and decisive factor influencing student outcomes in every aspect. Teacher education plays a key role in determining the quality of teachers. Teacher education refers to the policies and procedures designed to equip prospective teachers with the knowledge, attitudes, behaviours and skills they require to perform their tasks effectively in the classroom, school and wider community. It is a programme that is related to the development of teacher proficiency and competence that would enable and empower the teacher to meet the requirements of the profession and face the challenges therein. The nature of this professional course is that it aims at bringing about certain attitudinal changes for those who undergo this programme. And who undergoes this programme is termed as student-teacher/teacher-trainees/pupilteachers. In this study the term “student-teacher” has been used. Spiritual intelligence and little amount anxiety important for mature leadership. A teacher is a leader in his class; he guides his students through the journey of knowledge so he must possess spiritual intelligence. National Curriculum Framework, (2005) gave importance to the role of teacher education in order to develop an effective teacher. It is evident from the studies that a teacher education program focused on nurturing spiritual intelligence, and anxiety teacher’s trainees will be very useful. Development of any such program will require relevant research evidence for the role of these variables in developing an effective humane teacher. It is pertinent to study the correlation between these variables as well as to study contribution of these variables in the academic achievement of teacher’s trainees during a pre-service teacher training programme.

## OBJECTIVES

1. To study the relationship between Academic Achievement and Spiritual Intelligence of B. Ed. Teachers Trainees.
2. To study the relationship between Academic Achievement Spiritual Intelligence and Anxiety of B. Ed. Teachers Trainees.
3. To study the relationship between Spiritual Intelligence and Anxiety of B. Ed. Teachers Trainees.
4. To find out the extent to which Spiritual Intelligence and Anxiety contribute to the prediction of Academic Achievement among B. Ed. Teachers Trainees.

## HYPOTHESES

1. There is no significant relationship between Academic Achievement and Spiritual Intelligence of B. Ed. Teachers Trainees.
  2. There is no significant relationship between Academic Achievement and Anxiety of B. Ed. Teachers Trainees.
  3. There is no significant relationship between Spiritual Intelligence and Anxiety of B. Ed. Teachers Trainees.
  4. Spiritual Intelligence and Anxiety do not contribute to the prediction of Academic Achievement among B. Ed. Teachers Trainees.
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## METHODOLOGY

In this study field survey method of Descriptive research was used. The population of the present study consists of the Teachers Trainees of B. Ed. class of Prayagraj District. Simple random sampling method was used for data collection. From the above population a sample of 100 B. Ed. Teachers Trainees from different colleges of Prayagraj has been selected. To know Spiritual Intelligence, Anxiety and Academic Achievement of B. Ed. Teachers different standardized tools namely; Spiritual Intelligence test constructed by *K.S. Misra*, Anxiety test by *R.L. Bhardwaj* and Academic Achievement test by researcher were used. To analyze the data the method of Product Moment Correlation and Multiple Regression Analysis were used.

## ANALYSIS OF DATA

**Hypothesis No. 1-** There is no significant relationship between Academic Achievement and Spiritual Intelligence of B. Ed. Teachers Trainees.

**Table No. 1-** The correlation is established between Academic Achievement and Spiritual Intelligence with the help of Product Moment Correlation.

No. of Students	Degree of freedom	Value of .05 level	Value at .01 level	r	Significance level
100	98	0.195	0.164	0.303	Significant

**Hypothesis No. 2-** There is no significant relationship between Academic Achievement and Anxiety of B. Ed. Teachers Trainees.

**Table No. 2-** The correlation is established between Academic Achievement and Spiritual Intelligence with the help of Product Moment Correlation.

No. of Students	Degree of freedom	Value of .05 level	Value at .01 level	r	Significance level
100	98	0.195	0.164	0.056	Significant

**Hypothesis No. 3-** There is no significant relationship between Spiritual Intelligence and Anxiety of B. Ed. Teachers Trainees.

**Table No. 3-** The correlation is established Spiritual Intelligence and Anxiety with the help of Product Moment Correlation.

No. of Students	Degree of freedom	Value of .05 level	Value at .01 level	r	Significance level
100	98	0.195	0.164	0.020	Significant

**Hypothesis No. 4-** Spiritual Intelligence and Anxiety do not contribute to the prediction of Academic Achievement among B. Ed. Teachers Trainees.

**Table No. 4-** Multiple Regression Analysis of B. Ed. Teachers Trainees.

Mean	SD	Variable	Multiple Correlation		
			X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>
463.42	25.46	X <sub>1</sub>	-	0.303	0.056
169.31	7.07	X <sub>2</sub>	0.303	-	0.020
31.06	12.02	X <sub>3</sub>	0.056	0.020	-

X<sub>1</sub>= Academic Achievement

X<sub>2</sub>= Spiritual Intelligence

X<sub>3</sub>= Anxiety

*Calculation of Multiple Correlation Coefficient, Beta Coefficient, B-Coefficient and Constants*

Variable	M <sub>i</sub>	S <sub>i</sub>	β <sub>i</sub>	γ1 <sub>i</sub>	β <sub>i</sub> γ1 <sub>i</sub>	S <sub>1</sub> / S <sub>i</sub>	b <sub>i</sub>	M <sub>i</sub> * b <sub>i</sub>
X <sub>2</sub>	169.31	7.07	0.699	0.303	0.211	3.60	2.51	424.96
X <sub>3</sub>	31.06	12.02	0.168	0.056	0.009	2.12	0.356	11.05

$$R^2 = \sum \beta_i \gamma_{1i} = 0.219$$

**Regression coefficient**  $R = \sqrt{R^2} = 0.467$   
27.40

**Predictive coefficient**  $E = 1 - \sqrt{1 - R^2} = 0.116$

**Regression Equation,**

$$X_1 = b_2 X_2 + b_3 X_3$$

$$X_1 = 3.60 X_2 + 2.12 X_3 + 27.40$$

Where,  $b_i = \beta_i * (S_1 / S_i)$

$$\sum M_i * b_i = 436.01$$

$$K = M_1 - \sum M_i * b_i =$$

## FINDINGS

1. According to the table number 1 it is clear that the value of correlation coefficient 0.303 is significant at .05 and .01 level that means the null hypothesis is rejected. It shows that there is significant positive correlation between Academic Achievement and Spiritual Intelligence of B. Ed. Teachers Trainees.
2. According to the table number 2 it is clear that the value of correlation coefficient 0.056 is not significant at .05 and .01 level that means the null hypothesis is accepted. It shows that there is no correlation between Academic Achievement and Anxiety of B. Ed. Teachers Trainees.
3. According to the table number 3 it is clear that the value of correlation coefficient 0.020 is not significant at .05 and .01 level that means the null hypothesis is accepted. It shows that there is no correlation between Spiritual Intelligence and Anxiety of B. Ed. Teachers Trainees.



4. According to the table number 4 it is clear that the value of Regression coefficient 0.467 is significant at .05 (table value 0.241) and .01 level (table value 0.297) and df (100, 2) that means the null hypothesis is rejected. It shows that Spiritual Intelligence and Anxiety contribute to the prediction of Academic Achievement among B. Ed. Teachers Trainees.

## CONCLUSION

Academic Achievement has been found to be positively related to Spiritual Intelligence and Anxiety. The obtained values of the Regression Weights calculated from the scores of B. Ed. Teachers Trainees in the test came to be 3.60 and 2.12 for the Spiritual Intelligence and Anxiety respectively. The value of Predictive coefficient (E) is come to be 0.116 from the value of multiple correlation  $R^2$  that is 0.219. Therefore, 11.6 percent of variance can be explained on the basis of Spiritual Intelligence and Anxiety in the contribution of Academic Achievement of B. Ed. Teachers Trainees. The Spiritual Intelligence appears to be making maximum contribution to the success in Academic Achievement among B. Ed. Teachers Trainees. The Anxiety is also making positive contribution to the success but its amount is less in comparison to Spiritual Intelligence. Spiritual Intelligence and Anxiety emerged as predictors of Academic Achievement in the study.

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## CUSTOMER PERCEPTION ON THE USAGE OF ATM- A STUDY WITH REFERENCE TO MANGALORE CITY

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### Abstract

In today's world technology plays a vital role. People prefer technology rather than traditional method. Even in banking field as well people need the help of technology. In this scenario E-Banking plays a very important role. There are different E-Banking modes such as ATM, credit card, smart card, RTGS, NEFT, Google pay and so on. In my study I have considered ATM. It is a card which is used to withdraw money, deposit money and to do other banking transactions. In this paper, the researcher is considered the view points of the 50 respondents who belong to Mangalore city. The main objective of the paper is to identify the customer's perception towards the usage of ATM.

**Key words** – ATM, Perception, Problems.

### 1.0 Introduction

This paper highlights the customer perception on the usage of ATM services. In today's technological world, people prefer modern technology rather than traditional banking system. People prefer E-Banking devices to do banking transactions. There are different E-Banking services, but in this paper the researcher is highlighting the usage of ATM. ATM is an Automatic Teller Machine, with the help of ATM one can deposit money, withdraw money, update his pass books, make bill payment, change his PIN numbers, give request for cheque book, view his mini statements, updating mobile numbers and so on. ATM provides a lot of benefits to the users, but it is not free from loopholes. The major problems from ATM's are server issues, security problems, cash cannot be available all the time, lack of knowledge, technical issues, fear of frauds and many more.

### 1.1 Objectives

The objectives of the study are as follows;

- To study about ATM services
- To identify the benefits of ATM services
- To know the challenges faced by the customers from ATM services.

### 1.2 Methodology

This study was undertaken based on primary and secondary data. The primary data was collected from structured questionnaire method and personally interview method. Secondary data was collected from books, magazines and reputed journals. Random sampling method was used to collect the information from the respondents. The statistical tools used for the study are percentage method and mean.



### 1.3 Statement of the problem

In the present scenario technology plays a very important role. Due to the busy schedule people prefer online banking transactions rather than traditional method. 90% of the customers are having ATM cards and they prefer to use ATM's. Hence it is very important to study the customer perception on the usage of ATM services.

### 1.4 Data Analysis and Interpretation

**Table 1: Demographic profile of the respondents.**

Particulars	No of respondents	Percentages
<b>A. GENDER</b>		
Male	5	20%
Female	20	80%
Total	25	100%
<b>B. Marital status</b>		
Single	10	40%
Married	15	60%
Total	25	100%
<b>C. Educational Qualification</b>		
Degree	16	64%
PG	5	20%
Others	4	16%
Total	25	100%
<b>D. Occupation</b>		
Salaried	17	68%
Profession	5	20%
Others	3	12%
Total	25	100%

Source: Primary Data

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From the study it is clear that 80% of the respondents are females, 60% of the respondents are married, 64% of the respondents are degree holders and 68% of the respondents are salaried people.

### 1.5 Survey questionnaire

**Table 2: From how long your using ATM services?**

Particulars	No of respondents	Percentages
Less than a year	Nil	Nil
1 to 5 years	9	36%
5 to 10 years	6	24%
More than 10 years	10	40%
Total	25	100%

**Source: Primary data**

Study shows that 40% of the respondents are using ATM services from more than 10 years, 24% from 5 to 10 years and 36% of the respondents are using from 1 to 5 years.

**Table 3: what are the different transactions you do through ATM?**

Particulars	No of respondents
Cash withdrawal	25
Cash deposit	14
Pass book entry	18
Bill payment	25

**Source: Primary data**

Study shows that all the 25 respondents uses ATM for cash withdrawal and bill payment purpose, 14 respondents uses for cash deposit and 18 respondents uses ATM for pass book entry. Which shows that cash withdrawal and bill payment services are popular compared to other services.



**Table 4:Perceptional factors towards the customers to use ATM services**

Particular	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean
Convenience	20	5	--	--	--	4.8
Time saver	17	8	--	--	--	4.68
24 hours service	20	5	--	--	--	4.8
Fast service	22	3	--	--	--	4.88
Easy to use	18	7	--	--	--	4.72
Availability of services during holidays	17	8	--	--	--	4.68
No need of carrying cash	19	6	--	--	--	4.76
Increases the prestige	21	4	--	--	--	4.84

**Source: Primary data**

From the data it is clear that, respondents are strongly agreed towards the Perceptional factors like convenience, time saver, 24 hours service, fast service, easy to use, availability of services during holidays, no need of carrying cash and increases the prestige.

**Table 5: Problems faced by the customers from ATM services**

Particular	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean
Annual fees	20	5	--	--	--	4.8
Risky to share debit card details	19	6	--	--	--	4.76
Server problems	25	--	--	--	--	5
Security issues	22	3	--	--	--	4.88
Cash cannot be available	18	7	--	--	--	4.72
Fear of hackers	10	13	2	--	--	4.32
Breakdown of machines	21	4	--	--	--	4.84
Limited number of free transactions	25	--	--	--	--	5

**Source: Primary data**



As per the data, the respondents are strongly agreed towards the following problems from ATM services and the mean values are, annual fee(4.8), risky to share debit card details (4.76), server problems (5), security issues (4.88), cash cannot be available (4.72),fear of hackers (4.32), breakdown of machines (4.84) and limited number of free transactions (5).

**Table 6: would you like to use ATM services in Future.**

Particulars	No of respondents	Percentages
Yes	25	100
No	0	0
Total	25	100

Source: Primary data

As per the data all the 25 respondents would like to use ATM services in the future as well. Even though there are some problems, the respondents would like to continue with the existing system. This shows that, the benefits are more compared with the limitations.

### 1.6 Suggestions

- The number of free transactions should be increased, so that customers can get the ATM services in a better way.
- Customers are having the fear of hackers; hence the banking system should give awareness to the customers, not to share their banking details, pin numbers and so on.
- Most of the time customer faces the problems of server issues, non-availability of cash, breakdown of machines, hence the bank needs to take serious steps to tackle these problems.
- In every ATM, one instructor should be appointed, so that he can give proper guidance to those customers, who are not able to use the system in a proper way.

### 1.7 Conclusion

This paper highlights the customer perception on the usage of ATM services. The study shows that, ATM services provides lot of benefits to the users, but it is not free from demerits. If the bank takes proper steps at the right time, these problems can be easily tackled. The study also tells that all the 25 respondents would like to continue with the ATM services. Hence, we can conclude that ATM service is one of the wonderful technologies in the banking field.

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## TO DETERMINE THE PROFITABILITY ANALYSIS OF A SELECTED STEEL COMPANIES IN INDIA

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### ABSTRACT

Profitability places an important role in the business sector. If there is no profit in the business means it can't be run for future at the same time measuring profitability is most important to maximize the profitability in the business. In this study focused on the profitability analysis of the selected steel companies in India the companies are Tata Steel Ltd, JSW Steel Ltd, steel Authority of India Ltd, Jindal Steel and Power Ltd and Essar Steel India Ltd. The data's are taken five years (2019-2020 to 2015-2016). The financial ratios are used in this study the ratios like Operating Profit Margin, Gross Profit Margin, Cash Profit Margin, Net Profit Margin, Return on Capital Employed and Return on Net Worth. The statistical tools like mean, standard deviation and variance are used to analyze the selected steel companies in India. The result showing that the mean values are good in ESI & JSW and other companies have to concentrate in their financial performance.

### INTRODUCTION

In a business can be a successful person has to be in both profitability and growth are important and necessary for a company to survive and remain attractive to investors and analysts. Profitability we can say critical to a company's existence, but growth is crucial to long-term survival. A company's net profit is the revenue after all the expenses related to the manufacture of the company, production of the company, and selling or distribution of products are deducted. We can say Profit is "money in the bank." It comes directly to the owners of a company or shareholders, or it is reinvested to the company. Profitability is the primary goal, and with a company that does not initially have investors or financing, also profit may be the corporation's only capital. If there is no without sufficient capital or the financial resources used to sustain and run a company, business failure is imminent. At the same time no business can survive for a significant amount of time without making a profit, though measuring a company's profitability, both current and future, is critical in evaluating the company<sup>1</sup>.

1. Investopedia - <https://www.investopedia.com/>

### PROFILE OF THE SELECTED STEEL COMPANIES IN INDIA

#### Tata Steel Ltd

Tata Steel was established in India in 1907 Owned by Tata Group. The companies crude steel capacity across Indian operations is nearly 19 MnTPA and also second-largest

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steel producer in Europe with a crude steel production capacity of over 12.1 MnTPA. Total Sales: Rs 1,60,769 Cr.Total Capacity of the Tata steel : 34 MnTPA,Tata steel Capacity in India: 19.4 MnTPA and Tata steel Capacity Overseas: 14.6 MnTPA.

#### **JSW Steel Ltd**

JSW Steel is a flagship company of the JSW Group and also second-largest steel companies of India. The Company has a steel making capacity of 18 MnTPA. Ranked 7 th amongst Top 34 World Class Steelmakers by World Steel Dynamics. It has a large scale presence in both India and international.JSW Steel Total Sales: Rs 84,050 Cr.andJSW Steel Total Capacity: 18 MnTPA .

#### **Steel Authority of India Ltd**

Steel Authority of India Limited (SAIL) is a Government steel-making company in India and it is one of the seven Maharatna's of the country's Central Public Sector Enterprises and it also Government steel companies in India. This company is third in the list of top 10 steel companies in India based on the revenue.Steel Authority of India Total Sales: Rs 57,496 Cr, Steel Authority of India Total Capacity: 21 MnTPA .

#### **Jindal Steel and Power ltd**

a part of the USD 22 billion diversified O. P. Jindal Group, is a leading Indian Steel manufacturer and Power producer. The company is fifth in the list of top 10 steel companies in India based on turnover.JSPL's business operations span across the states of Chhattisgarh, Odisha, and Jharkhand in India, where it operates some of India's most advanced steel manufacturing and power generation capacities of a global scale.Jindal Steel and Power ltd Total Sales: Rs 39,652 Cr.,Jindal Steel and Power ltd Total Capacity: 11 MnTPA,Jindal Steel and Power ltd Capacity in India: 8.6 MnTPAand Jindal Steel and Power ltd Capacity in Oman: 2.4 MnTPA .

#### **Essar Steel India Ltd**

Essar Steel is known for its high quality of flat steel products. The company focuses on high value-added grade steels and has developed over 300 grades of flat steel for different applications. Essar Steel is a 10 MTPA integrated steel producer.It caters to a wide section of industry segments that include auto, shipbuilding, white and yellow goods, general engineering, power plants, hydrocarbon industry, pipe making, defense among others. The company is fourth in the list of top 10 steel companies in India based on the total sales.it has Essar Steel Total Capacity: 10 MnTPA.

### **REVIEW OF LITERATURE**

**Dr. M. Nirmala, K. Pavithra** In their studies on “Financial Performance Of Cement Companies In India With Reference To Ramco Cement Limited And Birla Corporation Cement Limited- A Comparative Analysis” to analyze the researchers about the financial performance of the companies. By using statistical analysis like correlation the result of the selected companies showing that Birla Corporation Limited is little higher compare to the Ramco Cement Company.

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**Pavithra.K ,Dr.M.Nirmala** in their studies on “Profitability Analysis Of Ultra Tech Cement Ltd (Ultc.Ns) In India” the researchers analyze ultra tech cement limited and used statistical tools and find out the result like that Independent variables are not significant to the Net profit ratio. The company has to concentrate on the gross profit and return on capital employed for future financial process.

**Dr.M.krishnamoorthi , Dr.M.Ramesh** in his study on “a study on profitability analysis of selected steel companies in India” the researcher taken five companies for sample in the steel industries and six years data’s are taken in his study and used statistical tools. The result of this study is to there is no significant difference in ROI of SAI, TATA, bhushan, visa &JSW.

### **OBJECTIES OF THE STUDY**

1. To analyze the profitability position of the selected steel companies in India
2. To compare the financial performance of the selected steel companies in India
3. To give suitable suggestions to improve the company’s performance

### **RESEARCH METHODOLOGY**

In this study data’s are taken from secondary data in money control website and the period of the study is 2019-2020 five years. Various financial ratios are used in this study. Profitability ratios are Operating Profit Margin, Gross Profit Margin, Cash Profit Margin, Net Profit Margin, Return on Capital Employed and Return on Net Worth. Statistical tools like mean, standard deviation and variance are also used in this study.

### **ANALYSIS AND INTERPRETATION**

**TABLE 1: OPERATING PROFIT MARGIN&GROSS PROFIT MARGIN FOR SELECTED STEEL COMPANIES IN INDIA**

Company/Year	OPERATING PROFIT MARGIN					GROSS PROFIT MARGIN				
	TATA	JSW	SAI	JSP	ESI	TATA	JSW	SAI	JSP	ESI
2019-2020	-0.22	19.47	16.54	22.02	21.44	-9.13	13.99	10.45	13.30	14.37
2018-2019	14.58	23.98	14.53	21.70	21.93	13.41	19.55	9.48	13.38	14.81
2017-2018	22.83	21.14	8.02	23.28	24.75	21.29	16.44	2.69	12.09	17.82
2016-2017	11.06	22.07	0.08	20.95	24.23	8.77	16.29	-5.94	6.19	19.28
2015-2016	3.89	17.35	-7.42	19.22	31.96	1.64	9.59	-13.57	2.30	24.52
MEAN	49.028	90.13	37.686	91.794	98.74	34.66	68.18	13.96	45.42	71.18
SD	9.049	2.52	10.03	1.49	4.216	11.58	3.69	10.29	4.97	11.58
VARIANCE	81.89	6.37	100.61	2.23	17.77	134.28	13.64	105.95	24.74	16.85

The above table operating profit margin showing mean value is highest in ESI Company and least mean value in SAI Company. The standard deviation highest in SAI and lowest in JSW and the variance high inSAI Company limited and Gross profit margin showing mean value is highest in ESI Company and least mean value in SAI Company. The standard deviation highest in TATA & ESI and lowest in JSW and the variance high in TATA Company limited.

**TABLE 2: CASH PROFIT MARGIN&NET PROFIT MARGIN FOR SELECTED STEEL COMPANIES IN INDIA**

CASH PROFIT MARGIN						NET PROFIT MARGIN				
Company/Year	TATA	JSW	SAI	JSP	ESI	TATA	JSW	SAI	JSP	ESI
2019-2020	-5.75	15.59	10.45	11.07	14.06	-14.79	8.23	3.27	2.35	1.56
2018-2019	12.94	14.87	8.81	12.41	10.44	12.53	10.52	3.25	-0.94	3.96
2017-2018	18.16	12.13	4.40	11.08	13.10	17.60	7.11	-0.83	-2.11	5.35
2016-2017	12.03	12.56	0.14	7.62	16.30	10.54	6.84	-6.37	-7.12	8.54
2015-2016	7.15	13.98	-4.08	5.73	16.13	5.37	-9.61	-	-	9.67
MEAN	38.81	57.94	22.98	43.32	57.12	26.95	30.77	-2.73	-	21.34
SD	9.07	1.47	6.02	2.79	2.41	12.55	8.08	6.00	5.34	3.31
VARIANCE	82.38	2.17	36.26	7.78	5.82	157.53	65.36	36.08	28.54	11.01

The above table cash profit margin showing mean value is highest in JSW &ESI Company and least mean value in SAI Company. The standard deviation highest in TATA and lowest in JSW and the variance high in TATA Company limited and net profit margin showing mean value is highest in JSW Company and has negative mean value in SAI & JSP Company. The standard deviation highest in TATA and lowest in ESI and the variance high in TATA Company limited.

**TABLE 3: RETURN ON CAPITAL EMPLOYED&RETURN ON NET WORTH FOR SELECTED STEEL COMPANIES IN INDIA**

RETURN ON CAPITAL EMPLOYED						RETURN ON NET WORTH				
Company/Year	TATA	JSW	SAI	JSP	ESI	TATA	JSW	SAI	JSP	ESI
2019-2020	-4.97	11.39	8.16	8.96	15.01	-25.60	13.79	5.08	2.60	3.94
2018-2019	17.60	22.81	8.64	9.27	15.21	11.47	23.27	5.71	-1.16	9.09
2017-2018	21.63	18.27	2.62	4.67	12.54	14.27	16.57	-1.34	-1.58	9.77
2016-2017	9.93	15.30	-2.81	1.88	8.73	6.79	14.84	-7.86	-4.53	13.15
2015-2016	5.83	7.29	-6.51	0.67	23.81	3.81	-17.29	-10.25	-6.14	34.22
MEAN	45.35	69.22	15.30	24.91	56.25	7.69	65.012	-0.46	-5.89	42.79
SD	10.42	6.00	6.67	3.95	5.54	16.03	15.82	7.28	3.37	11.75
VARIANCE	108.62	36.06	44.49	15.61	30.75	257.02	250.37	53.01	11.36	138.2

The above table return on capital employed showing mean value is highest in JSW Company and least mean value in SAI Company. The standard deviation highest in TATA and lowest in JSP and the variance high in TATA Company limited and return on net worth showing mean value is highest in JSW Company and has negative least



mean value in SAI & JSP Company. The standard deviation highest in TATA and lowest in JSP and the variance high in TATA Company limited.

### **RECOMMENDATION**

In this Study focused on selected steel companies in India. The data's taken in this study are 2019-2020 to 2015-2016 five years period. By using the statistical tools like mean, standard deviation and variation showing the result like the mean values are good in ESI & JSW and other companies have to concentrate in their financial performance. There is also have negative value in SAI and JSP these both companies have to concentrate in all level of performance in the business sector.

### **CONCLUSION**

Profitability analysis is a most important and needed one in the business. In this study profitability ratios are taken to analyze the selected five steel companies in India. By using statistical analysis the result showing only two companies performance are good in their field others have to concentrate in their financial sectors. Due to covid-19 companies performance level showing negative in the year 2019-2020.

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## सिन्धुराजवध महाकाव्यगत वीर अभिमन्यु – एक वीर योद्धा

अमित कुमार

शोधकर्ता

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### भूमिका -

भारतीय संस्कृति विश्व की सर्वप्राचीन एवं सर्वश्रेष्ठ संस्कृति है, जैसा कि कहा गया है – सा प्रथमा संस्कृति विश्ववारा।<sup>1</sup> भारतीय संस्कृति को प्रफुल्लित एवं पल्लवित करने में हमारे ऋषियों-मुनियों का महद् योगदान रहा है। इन्होंने अपने ज्ञान-तप-यज्ञादि जैसी अलौकिक क्रियाओं द्वारा न केवल भारतभूमि को अलंकृत किया अपितु ये सम्पूर्ण विश्व को अपने ज्ञानरूपी चक्षु द्वारा प्रकाशित कर गये तथा इन ऋषियों का परम ध्येय ही यही था –

सर्वे भवन्तु सुखिनः सर्वे सन्तु निरामयाः

सर्वे भद्राणि पश्यन्तु मा कश्चिद् दुःखभागभवेत्।।

यही कारण है कि आज सम्पूर्ण विश्व में भारतीय संस्कृति को किसी न किसी रूप में देखा जाता है। इसका मूल कारण हमारे ऋषि ही हैं जिन्होंने अपने ज्ञानरूपी चक्षु के द्वारा वेद-आरण्यक-ब्राह्मण-उपनिषद जैसे ग्रन्थों की रचना करके हमें सद्मार्ग पर चलने तथा तत्त्वज्ञान को प्राप्त करने का अमूल्य अवसर दिया। अतः ऋषियों को मन्त्रद्रष्टा कहा गया है ऋषयः मन्त्रद्रष्टारः।<sup>2</sup> वेदों को ज्ञान का भण्डार तथा धर्म का मूल माना गया है यथोक्तं - वेदोऽखिलो धर्ममूलम्।<sup>3</sup> क्योंकि इसमें न केवल यज्ञ सम्बन्धी मन्त्र हैं अपितु समस्त ज्ञान-विज्ञान के विषय भी समाहित हुए हैं। अतः वेद को सर्वज्ञानमयो हि सः<sup>4</sup> कहा गया है।

वैदिक साहित्य के पश्चाद् लौकिक साहित्य का उद्भव व विकास हुआ। वेदों के उपरान्त रामायण, महाभारत जैसे लौकिक ग्रन्थों का प्रणयन किया गया। वेदोक्त ज्ञान की बहती हुई पयस्विनी महाभारत में समाहित हो विशाल सागर बन गयी। जिसकी गहराई में जाने मात्र से संगीत, साहित्य, कला, विज्ञान तथा ज्ञान के अनेक स्रोत प्राप्त होते हैं, जिसके कारण महाभारत भी पञ्चम वेद के रूप में जाना गया अथवा यूँ कहे कि ज्ञान का विश्वकोष बन गया। तभी महाभारतकार ने कहा है –



### यदिहास्ति तदन्यत्र यन्नेहास्ति न तत् क्वचित्<sup>5</sup>

अर्थात् जो भी ज्ञान-विज्ञान व विषय वस्तु इस महाकाव्य में है वह इस संसार में और जो इस महाकाव्य में नहीं वह अन्यत्र भी नहीं है।

महार्षि वेदव्यास द्वारा प्रणीत महाभारत का वर्णन अतुलनीय है। महाभारत युद्धकथा के एक अंश का ही विस्तृत रूप सिन्धुराजवध महाकाव्य है। कथा यह है कि जब सात वीर मिलकर निशस्त्र अर्जुन के पुत्र वीर अभिमन्यु की हत्या कर देते हैं तब अर्जुन के द्वारा पुत्रवध के मूल कारण जयद्रथ को मारने के लिए लिया गया वह कठोर प्रतिज्ञा संकल्प ही इस महाकाव्य की आधारभूमि बन गई।

#### सिन्धुराजवध महाकाव्य का परिचय –

सिन्धुराजवध महाकाव्य के रचयिता डॉ. गोस्वामी बलभद्रप्रसाद शास्त्री हैं। इस महाकाव्य में पन्द्रह सर्ग हैं। महाकाव्य के लक्षण के अनुसार यह ग्रन्थ भी छन्द, अलंकार, गुण व रस से ओत-प्रोत है जिसकी कथावस्तु महाभारत से लिया गया है। इसमें जो पद्यों की रचना है उसकी शैली से ही मन अभिभूत हो जाता है। इसका कारण इसमें प्रयुक्त छन्द, अलंकार, गुण और रीति हैं। ये सब इस काव्य को महाकाव्य के श्रेणी में ले जाते हैं।

प्रकृत महाकाव्य में निहित रसों में भी वीर, श्रृंगार व करुण रसों को समाहित किया गया है। जिसमें प्रधान वीर रस है जो कि अंगी रस के नाम से भी जाना जाता है व अन्य रसों को अंग रस के नाम से समझा जाता है। छन्द के रूप में भी बहुत से छन्द जैसे मन्दाक्रान्ता, अनुष्टुप्, शार्दूलविक्रीडित, द्रुतविलम्बित, वंशस्थ आदि छन्दों का समायोजन किया गया है।

ये रस, छन्द और अलंकार उक्त काव्य को एक अद्भूत शक्ति प्रदान करते हुए प्रकृत महाकाव्य के काव्यत्व धर्म को प्रतिपादित करते हैं। क्योंकि ये ही पद्य, गद्य व काव्य को महाकाव्य के श्रेणी तक पहुँचाने में सहयोगी होते हैं।

कवि द्वारा इस महाकाव्य में अर्जुन द्वारा पुत्रशोक में सिन्धुनरेश जयद्रथ के वध का चित्रण किया गया है। अभिमन्यु, अर्जुन और सुभद्रा के पुत्ररत्न हैं जो वीरों में भी महावीर के रूप में प्रतीत होते हैं। प्रस्तुत महाकाव्य में लेखक ने उन्हें प्रमुख पात्र के रूप में चित्रित किया है। उनकी चारित्रिक विशेषताएँ इस प्रकार हैं –



## शूरवीर –

यथा यह सर्वविदित है कि आचार्य द्रोण के परामर्शानुसार अर्जुन को रणभूमि में कौरवों से युद्ध के लिए ललकारते हुए कहीं दूर ले जाना तथा इस समय चक्रव्यूह रचकर पाण्डवों को बन्दी बना लेना। उस समय अर्जुन के अलावा पाण्डवों में से किसी भी वीर को चक्रव्यूह भेदन की विद्या नहीं आती थी। ऐसे में धर्मराज युधिष्ठिर को अगर बन्दी बना लिया जाता तो पाण्डव युद्ध में हार जाते व अधर्म की जीत हो जाती। इसी समय वीर अभिमन्यु को पता चलता है कि पिताश्री अर्जुन पाण्डवों से दूर हैं तथा चारों पाण्डव आचार्य द्रोण के चक्रव्यूह के जाल में फंसे हुए हैं, तब अभिमन्यु युधिष्ठिर से आज्ञा लेकर रणभूमि में चलते हैं। युद्ध में जाते समय उस वीर के हाथ में कौरवों के नाश के लिए उठाया हुआ धनुष ऐसा प्रतीत हो रहा था मानों वज्रपात से पहले आकाश में बढ़ती हुई बिजली की लहर हो।

उसकी पीठ पर बँधे हुए तुणीर में नीचे की ओर मुख करके उल्टे लटके हुए पैंने वाण मानों अचूक सिद्धि की प्राप्ति के लिए तपस्या कर रहे हों तथा शत्रु समूह को आतंकित करने वाली, प्यास से व्याकुल, नीचे को मुख किए युद्ध में शत्रु के रक्त पीने की प्रतीक्षा करती हुई, यमराज के जीभ के समान उसकी कमर पर बंधी तलवार शोभित हो रही थी।<sup>6</sup>

वास्तविक शूरवीर वही होता है जिसकी वीरता की स्तुति शत्रु भी करते हैं। अभिमन्यु को रणभूमि में जाते देख शत्रु आपस में घबरा उठते हैं जिसका वर्णन कवि ने इस प्रकार किया है –

शौर्यप्रभाञ्चिततनुः किमु कार्तिकेयः

किम्वागतो रविरयं धरणीतलेऽस्मिन्।

आस्फारयन् धनुरगान्मदनोऽथवा किं

सेना द्विषां तमवलोक्य पराममर्शा।<sup>7</sup>

अर्थात् अभिमन्यु को देखकर शत्रु आपस में परामर्श कर रही थी कि यह क्या शौर्य से भ्राजमान स्वयं कार्तिकेय आ गये हैं या सूर्य ही पृथिवी पर उतार आया है अथवा धनुष फटकारता हुआ कामदेव ही रणभूमि में आ गया है। इस प्रकार वह अभिमन्यु रणभूमि में पाण्डवों की सेना को परास्त करते हुए जयद्रथ को देखा तथा तेजी से उसके पास पहुँच कर जयद्रथ के सारथी के साथ उसके रथ की ध्वजा को भी काट दिया। पुनः तत्काल अपने अमोघ



वाणों से उसका धनुष काट कर अपनी शक्ति से जयद्रथ को रथ विहीन कर शत्रु द्वारा बनाये गये चक्रव्यूह का भेदन कर उसके अन्दर ऐसा प्रवेश किया जैसे हाथियों के समूह में कोई सिंह प्रवेश कर जाता है। इस प्रकार वह अभिमन्यु महावीर था।

### कुशल योद्धा –

अभिमन्यु कुशल योद्धा के रूप में जाने गये हैं। चक्रव्यूह में जब कौरव अभिमन्यु को परास्त करने में पराजित रहे तब उन्होंने कुटील नीति अपनायी जो यह है कि सभी मिलकर उससे युद्ध करें तब अभिमन्यु आचार्य द्रोण, कुलगुरु कृपाचार्य, महारथी कर्ण व अन्य महारथियों को युद्ध नीति के बारे में सभी धिक्कारते हैं।

चक्रव्यूह का ज्ञान बताकर वे युधिष्ठिर को समझाते हुए कहते हैं कि कौरवों ने जिस चक्रव्यूह को बलशालियों से भी अभेद्य समझा है, वह जन्म से ही मेरी बुद्धि में स्थित है।

चक्रं कुचक्रमवलोक्य रिपोर्मनस्विन् मा गा भयं विकलतामिह तां जहीहि।

यद् दुर्जनैरवगतं बलिनामसाध्यं तज्जन्मतो निखिलमर्थगतं मतो मे॥<sup>8</sup>

कुशल योद्धा वही होता है जो आपात स्थिति में भी शत्रु से डटे रहे अर्थात् युद्ध से पीछे होकर न भाग जावे। ठीक इस प्रकार युद्धभूमि में जब कौरव अभिमन्यु के धनुष, गदा और रथ नष्ट कर देते हैं तब उस विषम परिस्थिति में अभिमन्यु रथ के पहिए को उठाकर दुर्योधन पर प्रहार करते हैं। यथा –

कृपाणमुष्टिं च विमुच्य निर्भयो बलेन वीरः प्रतनां विकम्पयन्।

प्रहर्तुमासन्नगतं सुयोधनं वृहद्रथाङ्गं तरसोज्जहार सः॥<sup>9</sup>

### ज्ञानवान् –

अभिमन्यु ज्ञानवान् व युद्ध के नियमों के ज्ञाता थे। उनको इस परिवर्तिनी संसार का अन्तिम रहस्य मृत्यु के बारे में पता था, अतः वे युद्ध से घबराते नहीं थे। अभिमन्यु के मुख से निकले हुए वचनों का वर्णन करते हुए कवि ने कहा है कि जिस प्रकार इस संसार में पेड़ कटते रहते हैं फिर बढ़ते रहते हैं ठीक उसी प्रकार मनुष्य जन्म होता है कर्म के पश्चात् पुनः वह मर



जाता है। प्राणधारी जीव का तो मरण निश्चित है और मृतक का जन्म भी उसी प्रकार तय है। प्रकृति के इस अनिवार्य बन्धन से कभी कोई कैसे मुक्त हो सकता है।

अभिमन्यु युद्धभूमि के नियमों को भलीभाँति जानते थे। वे शस्त्र रहित दुःशासनको युद्धभूमि में मारने से मना कर देते हैं। यथा –

स्मरन् पितृव्येन कृतां प्रतिश्रुतिं बाहूरुभङ्गेन कचोपसंहृतिम्।

निरस्त्रमालक्ष्यगतं गतायुषं सुयोधनं मा स्म करोह यमातिथिम्।<sup>10</sup>

आत्मविश्वासी –

अभिमन्यु आत्मविश्वासी हैं। अपने पिता अर्जुन के त्रिगत राजाओं के साथ युद्ध करने चले जाने पर कौरवों के नष्ट करने के लिए अपनी शान्ति को ही पर्याप्त मानते हैं। उनके आत्मविश्वासी होने का उल्लेख निम्न पंक्तियों में दर्शनीय है –

याते त्रिगर्तान् पितरिच्छलेन दुर्योधनो दुर्णयमातनोति।

तदेनमुन्मूलयितुं मदीयाः शिखिप्रभावा विशिखा जयन्तु।<sup>11</sup>

नीतिवान् -

अभिमन्यु एक सच्चे उपदेशक की भाँति नीतिवान् थे। वे युद्ध के नीतियों का मर्मज्ञ विद्वान् थे। युद्ध के समय में किन किन परस्थितियों में किस प्रकार से दृढ़प्रतिज्ञ होकर युद्ध करना चाहिए, यह सब उनको विदित था। अभिमन्यु के नीतिवान् होने के सन्दर्भ कवि का वर्णन इस प्रकार है – जब चक्रव्यूह में अभिमन्यु सात वीरों के मध्य अकेले ही युद्ध में लड़ रहे थे तो वे प्राण की भिक्षा माँगकर अपने को बचा सकते थे परन्तु ऐसा नहीं किया क्योंकि जब मृत्यु अत्यन्त भयंकर मुख फैला कर चारों और शत्रु मित्र और बान्धवों को निगल रही है तो ऐसी दशा में मोह का परित्याग कर नीतिवान् पुरुषों को युद्ध में अपने प्राणों के द्वारा उत्तम यश का चयन करना चाहिए।

नीतिवान् अभिमन्यु के मुख से नीतियुक्त वाणी का उल्लेख करते हुए कवि ने कहा - जब देश विजय गर्व से उद्धत किसी अन्यायी के आक्रमण द्वारा पराजित हो रहा हो तब अपनी



मातृभूमि की दीन दशा को देखकर हरेक वीर युवक को युद्ध में संलग्न हो जाना चाहिए। और भी कहा कि -

प्रजामनोरञ्जनमाचिकीर्षुः कृपाणधाराव्रतमातनोति।

चुम्बन् मुखेनाग्निशिखां प्रदीप्तो निशं प्रकाशेन परिष्करोति।<sup>12</sup>

अर्थात् जो प्रजा को प्रसन्न रखना चाहता है, वह राजा सदैव तलवार की धार का व्रत रखता है। दीपक मुख से अग्नि शिखा का चुम्बन करता हुआ ही रात को प्रकाशित कर पाता है। इस प्रकार कवि ने अभिमन्यु के नीतिवान् होने के अन्य कई स्थलों पर भी वर्णन किया है।

आदर्शपति -

सामान्यतया आदर्श पति वह माना जाता है, जिसकी पत्नी सदैव हर परिस्थिति में साथ रहती हो। प्रस्तुत महाकाव्य में अभिमन्यु को आदर्श पति के रूप में चित्रित किया गया है। अर्थात् अभिमन्यु की पत्नी उत्तरा का साथ होना आवश्यक प्रतीत होता है। जिस प्रकार रामायण में राम के साथ सदैव अपितु वनवास में सीता राम के साथ थी। अतः राम भी आदर्श पति के रूप में माने जाते हैं। सीता की भाँति उत्तरा का भी वर्णन इस महाकाव्य में समाहित हुआ है -

अभिमन्यु को युद्ध में जाते हुए देख कहती है कि आर्य नारी वही होती है जो सुख हो अथवा दुःख, किसी भी परिस्थिति में अपने पति का उसी प्रकार अनुसरण करती हो जिस प्रकार चन्द्रिका चन्द्रमा का, निशा दिवस का और छाया विम्ब का अनुसरण करती है। अतः मैं भी आपके साथ युद्ध में जाने को तत्पर हूँ। जब अभिमन्यु उत्तरा को सान्त्वना देते हुए कहते हैं कि युद्ध से जल्द ही लौट आऊँगा तब पत्नी रूपी शक्ति को उत्तरा कहती है कि -

लतेव वृक्षं वनिता विलासे सुखाश्रितापत्तिमहान्धवाते।

समागते मञ्जुलबाहुवल्ली बलान्वितं वै पुरुषं करोति।<sup>13</sup>

अर्थात् जिस प्रकार लता वृक्ष का सहारा लेकर अपने सुख के दिनों को व्यतीत करती है पर तूफान के आ जाने पर वह अपनी कोमल बल्लरियों से वृक्ष को जकड़कर उसे गिरने से बचा लेती है ठीक उसी प्रकार नारी सुख के दिनों में पुरुष पर आश्रित रहती हैं पर विपत्ति आने पर अपना सहारा देकर पुरुष को बल प्रदान कर देती है ताकि वह आपदाओं से लड़ सके।



अभिमन्यु उत्तरा की भावनाओं का आदर करते हैं। वे अपने भावों को व्यक्त करते हुए कहते हैं कि इस देश में कौन भला उस पुरुष पर विजय प्राप्त करने का उत्साह कर सकता है, कौन उसके यश को नीचे गिरा सकता है, जिसकी अर्धाङ्गिनी भी साक्षात् भवानी के समान युद्ध में शत्रुओं को पराजित करने में समर्थ होती है।

को नाम तं जेतुमिहोत्सहेत को नाम तत्कीर्तिमधो नयेत।

यस्याङ्गनाप्यत्र भवाङ्गनेव रणे रिपून् धर्षियतुं प्रशक्ता।<sup>14</sup>

निष्कर्ष -

अतः स्पष्ट है कि सिन्धुराजवधम् महाकाव्य में चित्रित वीर अभिमन्यु धीरोदात्त कोटि के नायक हैं। अभिमन्यु तेजस्वी, शूरवीर, कुशल योद्धा, आत्मविश्वासी, सदाचारी, भाग्यवादी, यशस्वी, मनस्वी तथा आदर्श पति भी हैं। अभिमन्यु अद्वितीय व्यक्तित्व के धनी हैं, जिन्होंने महाभारत युद्ध में धर्म की विजयी सिद्ध करने में अद्वितीय योगदान दिया है, इस प्रकार अभिमन्यु महाकाव्योचित गरिमा से सर्वथा सम्पन्न हैं।

<sup>1</sup> यजुर्वेद - 7.14

<sup>2</sup> ऋग्वेद - 70.71.3

<sup>3</sup> मनुस्मृति - 2.6

<sup>4</sup> वही - 2.7

<sup>5</sup> महाभारत, आदिपर्व - 62,23

<sup>6</sup> सि.व - 6.5

<sup>7</sup> वही - 6.10

<sup>8</sup> वही - 4.9

<sup>9</sup> सि.व - 7.48

<sup>10</sup> वही - 6.42

<sup>11</sup> वही - 4.20

<sup>12</sup> वही - 4.37

<sup>13</sup> वही - 5.21

<sup>14</sup> सि.व - 5.28



## ISLAMIZATION IN BENGAL: A CRITICAL REAPPRAISAL OF THE THEORIES OF CONVERSION TO ISLAM

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### **Abstract:**

The origin of Muslim society in Bengal, comprising present day state of West Bengal and Bangladesh, has been viewed from various perspectives. Numerous scholars have been trying to explain the phenomenon of Islamization in Bengal which is broadly categorized under the banner of theory of Religion of Swords, Immigrations Theory, theory of Political patronage, Social Liberation theory etc. Therefore, an attempt has been made here to analyse the major theories of conversion to Islam in Bengal. On the basis on these theories with the examination of gradual evolution of Muslim society in medieval Bengal, this paper also discussed the nature of Islamization in Bengal.

**Keywords:** Islamization, Bengal, Muslim, Islam, Conversion

### **Introduction:**

Bengal as one of the veritable provinces of India its society, economy, language, culture, geography, climate and so on continues to attract a great deal of scholarly attention cutting across its time framework. Depending upon the political as well as climatic condition of the time, the seat of government was always kept on changing. In 1204 Bakhtiyar Khalji made a formal conquest of Bengal by defeating Sena ruler Lakshman Sena and made Lakhnauti his seat of Government. Later Lakhnauti was identified with Gaur, a city located on the west of river Ganga. For a long period of time Gaur had been the capital of Bengal Sultanate. In 1333 onwards the power was shifted to the city 18 miles north of Gaur, popularly known as Hazrat Pandua. Subsequently other cities like Ekdala, Tanda also emerged as the capital of Bengal. Under the Mughals Gaur, Rajmahal, Tanda and finally Dhaka emerged as the capital city of Bengal at different point of time. The main cause of this transfer of capital is assigned to the changes in the river beds as in courses of centuries the river system of Bengal underwent a profound change. Besides, the visitation of plague, fierce floods, inundation added by human vandalism also referred to this frequent transfer of capital. It should be noted that there was an inherent tendency of ruling dynasty in Bengal to assert their political independence from the Sultanate of Delhi and appeared to be quite successful in retaining the independent status for a long period of time which in turn help in developing a culture that is integrated to the local culture. The same was the case with the Mughal governors of Bengal, nominally under the imperial regime but acted as independent. The huge distance of Bengal from Delhi was one of the factors which



made possible to retain their independent status. This political isolation from the centre shaped the composition of Muslim society in medieval Bengal.

There is a general agreement among the historians of South Asia that Bengal came into contact with Islam much before the direct political conquest by the Turk-Afghan rulers in the first half of the thirteenth century. This contact had been taken place in different socio-political context with the long distance traders, raiders and plunderers as well as administrators. B.D. Chattopadhyaya has drawn our attention to what was the general attitude of Indians towards the newcomers chiefly Muslims covering the period from eighth to fourteenth century mainly based upon the contemporary Sanskrit epigraphic and literary text ( Chattopadhyaya, 2017).

However, there have been numerous attempts to explain the phenomenon of Islamization in Bengal. In the inception it was generally believed that Islam was the religion of sword, it spread by the conquerors with the sword in one hand and Quran on the other. But recently such interpretations have been challenged by the historians with a view that such theory seems to have confused the conversion to Islam with the expansion of political power in different parts of country. Peter Hardy tried to argue that those who tended to write of the use of force in conversion failed to “define their understanding either of ‘force’ or ‘of conversion’” (Hardy, 1977). To statesmen like Abu A. Ghuznavi and Fuzli Rubbee, the majority of the Muslims in this country are of foreign extraction. In support of this argument Ghuznavi cited some example, namely, Muslim settlements before Turkish conquest, various land grants to foreigners, practice of polygamy and widow remarriage, and the absence of caste system among Muslims or institutionalized celibacy (Eaton, Rise of Islam and the Bengal Frontier, 1204-1765, 1994, p. 75). Fuzli Rubbee, in his work *The Origin of the Musalmans of Bengal*, also elaborated upon the traditionally recognized factor that the majority of the Muslim population were fled from the fear of “persecution and violation of some of the kings of Iran, had come from that country to Bengal by the way of sea and settled here, and their descendants have ever since continued to reside in this country.” (Rubbee, 1895, p. 42)

However, it must be noted that Ghuznavi and Rubbee were sought to write on the origin of a Muslim society in Bengal in response to the conclusion drawn by H. Beverly and H.H. Risley that the majority of Bengali Muslim society are consisting of the lower strata of Hindu community mainly from Chandals, Pods, Rajbansis etc on the basis of the Census Report of Bengal of 1872. The view held by people like Ghuznavi and Rubbee is a popular expression of a Muslim social cleavage that emerged between a class of people associated with the ruling class termed as *ashraf* and the natives of Bengal who gradually absorbed into the fold of Islam known as *atraf*, the process of which had started in the first half of the thirteenth century. The *ashraf* or the Muslim aristocratic classes claimed their descendant from beyond the Khyber or at least from beyond Bengal, who accompanied with the Turk-Afghan and the Mughal chieftains mainly consisting of long distance traders, administrators, soldiers, orthodox *mullas and Maulvis*, and literati, who sought to cultivate Perso-Islamic culture and adopted Arabic, Persian and Urdu as a language of literature. (Eaton, Who are the Bengal Muslims?)

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Conversion and Islamization in Bengal, 2003). Being associated with ruling hierarchy, the *ashraf* class always hold crucial position in political and administrative affairs. They were primarily urban dwellers, living in cities like Gaur, Pandua, Sonargaon, Satgaon, Chittagong tended to keep themselves away from the rural inhabitants. The contemporary Persian and European sources can be cited as an example in this regard. Ihtimam Khan, chief naval officer of Islam Khan, governor of Bengal mainly credited with the prime consolidator of Mughal rule in Bengal, on an occasion expressed his discontent in front of his son that “Islam Khan is behaving with us as he would behave with the natives.” (Nathan, 1936, p. 1.51) A European observer Fray Sebastien Manrique described the Bengal’s population as consisted of three groups, namely, the Portuguese, the Moors, and the natives of the country (Eaton, Who are the Bengal Muslims? Conversion and Islamization in Bengal, 2003, p. 252). Apart from this a crucial feature of *ashraf* Muslims in the region of Bengal was their indifferent attitude towards the natives or non-Muslim populations regarding conversion. In other words, *ashraf* Muslims were not in favour of conversion of natives of Bengal to Islam and considered it a punishable offence. Islam Khan punished one of his officers Tuqman Khan for Raghu Ray’s conversion to Islam, son of a *zamindar* of Shahzadpur Raja Ray and at the same time for making him personal servant in defeating Raja Ray in a battle. Mirza Nathan wrote “Islam Khan and other officers of State were annoyed” by this affair and punished Tuqman Khan by transferring him from his *jagir*. (Nathan, 1936, p. 1.32) Thus, the recognition of the *ashraf* Muslims as a “social category” distinct from the natives of Bengal is evident in the accounts of the contemporaries. Therefore, the propounders of the immigration theory seems to represent the taste of *ashraf* classes urban elite and thought of viewing their association with the Muslims of local origin as insulting, the view particularly expressed by Fuzli Rubbee who found a staunch support in the writing of M. A. Rahim, justifying the accusation of Risley’s “definite intention of lowering the prestige of Muslims of Bengal.” (Rahim, 1959, p. 56) Even former criticized the later on ground that the nose examination of lower class Muslim jail convicts numbering one hundred and eighty five were although corresponding to the nasal examination of lower section of Hindu society, “can never represent the physical characteristics of all Muslim community”, thus, refuted altogether the anthropomorphic examination conducted by Risley. (Rahim, 1959, p. 58) In fact, M. A. Rahim, recognizing the foreign origin of Bengal Muslims as one factor, also talked about the conversion of upper class educated and enlightened Hindus, mainly Brahmans and Kayasthas, because of social intimacy and matrimonial relationship with the ruling classes who were Muslims; and at the same time attracted by the superior ideals of Islam, voluntarily accepted Islam. (Rahim, 1959, pp. 55-71) The similar process, in his opinion, was also in current with the bulk of the Buddhist, mostly Kshatriyas or Kayasthas, “who flocked to Islam to escape from the persecution of the Brahmanical Hindu society. (Rahim, 1959, p. 68) Nevertheless, Rahim’s analysis of upper class conversion of Hindus and Buddhists on the basis of the ideals of Islamic social equality seems to be based on weak ground as Muslims at that time were rather more concerned with the ideals of Islamic monotheism as opposed to Hindu polytheism and not of Islamic social equality as opposed to Hindu caste system. (Friedman, 1975) However, Richard Eaton has argued that the indigenous population of especially East Bengal and

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Punjab had not, at the time of their contact with Islam, been integrated into the Hindu social system. These Muslim converts in East Bengal were mainly derived from Rajbansi, Pod, Chandal, Koch, or other indigenous group which had no or lightest contact with the Hindu religious or caste structure. (Eaton, Who are the Bengal Muslims? Conversion and Islamization in Bengal, 2003). Therefore, apparently the gap in the social and cultural world of the Muslims of Bengal in terms of *ashraf* and *atraf* although originated with the establishment of Persianate political culture, seems to have been given birth to such theory of Muslim Immigrations. The above theory partly explain the process of Islamization but in the urban cities or where there is high concentration of political power, it can't explain the preponderance of bulk of the Muslim population who were dwelling in the remote areas far from the capital of Sultanate and the Mughal governors. In other words, the regions which recorded greater preponderance of Muslim population lay on the fringes of Indo-Muslim rule; and in contrary to that, where the centre of power was located, recorded Muslim population were less in comparison to the fringes areas.

In 1959 there has been an attempt at comparatively a more fundamental examination regarding the expansion of Muslim society in Bengal. Abdul Karim has sought to explain the role of Sultan in facilitating the growth of a Muslim society in Bengal. The erection of mosques, construction of madrasahs, promotion of Islamic spirit, patronising Muslim scholars and sufis, cultivation of learning by some of the Sultans and their officers, and benevolent activities of the Sultans were some of the instances had been taken on the part of the Sultans (Karim, 1959, pp. 39-61) . Apart from this Karim emphasized on the contribution of Muslim *ulema* (scholars) and *mashaikhs* (spiritual guides) in yielding of a Muslim society in Bengal (Karim, 1959, pp. 62-124). However, the role of Sultan and his officers alone in growth of a Muslim society in Bengal can't be over emphasized as the construction of mosque, madrasah, patronization of Muslim scholars and Islamic learning solely confined to the capitals or surrounding and rather these are the indication of expansion of political authority and symbol of sovereignty. The location of these mosques and madrasahs in cities like Gaur, Pandua, Bagerhat, Triveni directly patronized by the Bengal Sultans is an indication of this view. In spite of this the benevolent activities on the part of Sultan e.g. the construction of dykes to protect the city and suburbs from inundations; and the construction of roads may indicate the significant impact on the indigenous people yet it failed to explain the growth of a Muslim society in a massive form.

However, the subsequent decades witnessed a series of systematic scholarship which goes into a deeper understanding of socio-cultural changes, distribution of demographic population as well as ecological and environmental changes which, in their findings, shapes the composition of Muslim society in Bengal. Asim Roy's work *The Islamic Syncretistic Tradition in Bengal* in this context is monumental and made a departure from the previous writings not only because it studied in great detail the social composition and demographic pattern of Bengali Muslim society, but it also brought into light a rich corpus of sources hitherto had not been used by other scholars. Roy identified the rural character of Islam in Bengal, similar to that of Risley, although

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criticised the later for the “extreme paucity of data and the lack of adequate scientific method and equipment” in anthropomorphic examination, however, at the same time acknowledged him for “set in motion a process of investigation” which subsequently gave birth to many such examination e.g. P.C. Mahalanobis, B.S. Guha and others (Roy, 1983, p. 27). A collective effort of anthropologist, D.N. Majumdar, and a statistician, C. R. Rao, published under the title *Race Elements in Bengal: A Quantitative Study* and serological data collected by the former have given the conclusion of looking “among the tribal and scheduled caste non-Muslim groups of Bengal for a possible origin of Muslim population of Bengal” because of the resemblances in the nasal height and the prevalence of same blood group noticed among the tribal and the population of Bengal with lower class origin; in contrast to the wide disparities in the above examination with Muslims of Uttar Pradesh as well as with the Muslims of Middle and Near East (Roy, 1983, pp. 27-28). Moreover, the theory of local conversion seems to hold strong ground in the prevalence of similar customs and practices among the Muslims and the non-Muslim populations of rural Bengal. Roy quoted an early-nineteenth century British traveller Mrs. Belnos who noticed in the villages of Bengal where the Muslims were born and bred, the prevalence of similar manners, language and dress of the “Bengallis” (Roy, 1983, p. 29). In the construction of religious institutions like mosques and shrines, the imitation of indigenous form of architecture, namely, thatched and bamboo were also noticed especially in the formative period (Eaton, Islam in Bengal, 1984). In addition, there were common usage of Hindu names and titles among the Muslims such as Kali Shaikh, Kalachand Shaikh, Braja Mandal or Gopal Mandal etc (Roy, 1983, pp. 29-30). However, for a possible explanation of the massification of Islam among the socially unprivileged group, Roy sought to look into the changes occurred in the river system through the courses of centuries which resulted in “a gradual shift in the location of fertile soil from the moribund west of the delta to its mature and active eastern and southern parts” of Bengal (Mukherjee, 1938, pp. 7-8). Consequently, this coveted land attracted “the aboriginals and pioneer agriculturists and settlers from old fertile beds of the delta to the new ones.” This with the recurrent occurring of natural calamities like floods, inundations, storms, catastrophic cyclone lead them to develop the cult of various gods or goddess which was further added by some other adversaries such as snakes, tigers, crocodiles etc. This particular phenomenon with the coming of Islam was arrested by the *Pirs* or spiritual guides whose roles were multifarious and in Roy’s categorization they were “historical and legendary *pirs*, real and fictitious *pirs*, universal and local *pirs*, and old and contemporary ones.” In addition, there were “warrior-pir or martyr-pir” whose roles seems to fought battle against infidel local chiefs. The development of cult of *pirs* was associated with the clearing of forest and the expansion of agriculture in the eastern parts of Bengal delta. Apart from this, the institutions attached with them namely the *pir’s* hospice (*astanah or khanqah*) or his tomb (*dargah or mazar*) played a role which appeared no less significant. Therefore, it would not be an unjust to say that they provide the local population with material and spiritual back up. To quote Roy, “No one would enter the forest, and no crew would sail through the district, without first of all making offerings at one of the shrines.” (Roy, 1983, pp. 43-57). Thus, sphere of influence of these forces on the local population seems to be massive and gradually they used to absorb into the fold of Islam as their pioneers were

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mostly Muslims. Nevertheless, the indigenous and local origin of Muslim masses in Bengal was an important determining factor of the nature of Islamization which, in Roy's opinion, was "the Islamic syncretistic tradition", a tradition which emerged as a result of an interaction between 'an intrusive religion and an indigenous culture' (Roy, 1983, pp. 249-253). Therefore, it would not be an exaggeration to say that the majority of the Muslims of Bengal were of local origin and with the gradual diffusion of Islamic ideals by a band of *pirs* or spiritual leaders and by "Bengali Muslim Cultural Mediators" who knowing both the scriptural and the vernacular language helped to disseminate the basic tenets of Islam, came to associate with an identity as Bengali Muslims or Muslims of Bengal.

Indeed, Roy's argument is supported by the findings of Richard M. Eaton who provide us an optimum range of source materials on the shaping of Bengali Muslims identity over the centuries especially from the thirteenth to the eighteenth century. Eaton tended to view the phenomenon of Islamization, like Asim Roy, in the changes occurred in the river course in which entire river system of Bengal delta undergone a profound change. The river Ganga shifted its courses from Western part of Bengal through Bhagirathi-Hoogly channel into the Eastern part which linked up Ganges with Padma-Meghna river system (Eaton, Rise of Islam and the Bengal Frontier, 1204-1765, 1994, pp. 117-120). This eastward migration of Ganges had a profound effect because during the annual flooding large body of Ganges silt also migrated to the East and deposited it along the large river beds which favoured to develop the rice culture in the adjoining areas. The geographical changes had coincided with the political and cultural conquest of Bengal by the Mughal Empire in the last quarter of the sixteenth century which is resulted in firm establishment of Bengal's connection with North India in particular and with world economy in general (Eaton, Rise of Islam and the Bengal Frontier, 1204-1765, 1994, p. 123). The connection of Bengal with North India attracted a band of *pirs* historical or legendary whose task was to guide the aborigines, who had taken the agriculture as their profession erstwhile attached with hunting, fishing, and slash-and-burn culture (*jhum*), in clearing the forests and jungles (Eaton, Rise of Islam and the Bengal Frontier, 1204-1765, 1994, pp. 123-126). The various contemporary and near contemporary local traditions composed in memory of these *pirs*, given them credit for cutting the forest and paved the way for rice cultivation, converting local population to Islam, and constructing many roads and mosques in the areas (Eaton, Rise of Islam and the Bengal Frontier, 1204-1765, 1994). In other words, the diffusion of Islam in rural Bengal can be seen with the diffusion of agricultural community who were often led by the Muslim charismatic leaders or *pirs*. This process was further accelerated by the Mughal governors who had given land grants to the local magnets to make them worthy of cultivation which is supported by the revenue demand from 1595 to 1659 for northeast and southeastern portion of ecologically active part of Bengal delta which was increased by 97% and 117% respectively (Moosvi, 1987). These landed magnets as a reward for Mughal support and authorization over the land required to "built primitive mosques of bamboo and thatching" which served as a nucleus for the newly converted Muslim agricultural community (Eaton, Shrines, Cultivators, and Muslim 'Conversion' in Punjab and Bengal, 1300-1700, 2009). Prior to the arrival of Islam, the non-

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agricultural fishermen, hunters, and slash-and-burn farming community had not yet integrated to the Hindu socio-religious beliefs and customs, as Eaton has argued. Instead they were the believers of varied indigenous local agents such as Manasa, Chandi, Satya Pir, Dharma or Daksin Ray (Eaton, Rise of Islam and the Bengal Frontier, 1204-1765, 1994, p. 126) and with the coming of Islam various Islamic superhuman agencies came to associate with indigenous local agents (Eaton, Shrines, Cultivators, and Muslim 'Conversion' in Punjab and Bengal, 1300-1700, 2009). Subsequently, the appearance of "Bengali Muslim Cultural Mediators" make a ground for the dissemination of basic tenets of Islam to the local convert who over the century displaced the indigenous superhuman agents with the Islamic one. This is how a predominantly non-agrarian semi-nomadic forest dwelling community with the twin process of peasantisation and Islamization came to be transformed into an agricultural Muslim community.

The phenomenon of mass conversion, thus, to a considerable extent held a strong ground which is a combined effort of natural, economic and socio-cultural change coincided with the political one. Nevertheless, there is spate of debate whether it would be just to use the word 'conversion' to explain the massification of Islam in certain areas of Bengal? The term 'conversion' connotes the self conscious change of one's religion or beliefs. In other words, it is a change of inner life in spiritual sense and in the social sense "moving out from one community to another," or "shifting of camps (Eaton, Rise of Islam and the Bengal Frontier, 1204-1765, 1994)." Therefore it is rather a question of spiritual experience which is lacked (if not absence) in the initial phase of Bengali Muslims encounter with Islam. 'Conversion' also meant the acceptance of one's religious belief by rejecting others and in the context of Bengal it is neither involving acceptance of one religious belief nor rejection of other. The Muslims of Eastern delta were less integrated into the literate traditions of the Brahmins as opposed to the idea that mental background of Muslims of Bengal was more Hindu than Muslim (Sarkar, 1973, p. 33). Hence, the question of rejection of a belief is less convincing. On the other hand, a predominantly forest-dwelling people, consciously or unconsciously, with the process of peasantisation absorbed into the fold of Islam by the charismatic leaders, a process which later on by the "Cultural Mediator" facilitated to develop a Muslim society in Bengal. Therefore, there was no immediate acceptance of Islam, rather it was gradual absorption. Eaton tended to view the phenomenon in twin process of "accretion and reform" where accretion stand for the addition of Islamic elements into the existing stock of beliefs and practices which entail no Muslim communal exclusiveness or even distinctiveness; and reform dimension perceived community as socially distinct where Islam representing as a world religion, displaced indigenous elements as non-Islamic. The later process started in the subsequent centuries when the diffusion of Islamic knowledge taking ground (Eaton, Approches to the Study of Conversion to Islam in India, 1987). Consequently, the conversion to Islam in Bengal in the immediate context was rather a change of fellowship than a change in the spiritual sense though later may experience in time.



### Conclusion:

Therefore, it can be emanated from the above discussion that Islamization in Bengal is a complex phenomenon, a single theory is not sufficient enough to describe the growth of a Muslim population, the nature of Islamization and so on. The forceful conversion might have occurred in the period under review but at the same time it is necessary also to understand whether it was considered by the concerned ruler as a religious duty to propagate Islam in any or every possible way or they habitually acted to make such conversion. The Muslim immigrants consisted of long distance traders, administrators, poets, *mullas* and *maulvis* mostly from north India and Central Asia continued to arrive throughout the period of Turk-Afghan and Mughal rule in Bengal. The patronization of poets, sufis, various Islamic institutions by the Imperial government appeared to have help in yielding of a Muslim population in Bengal, a population which could be reliable on a distant land and on whose foundation they could operate a region previously unknown to them, yet the sphere of influences of these forces were limited to a certain section of society. Therefore throughout the Bengal Sultanate the dissemination of Islam was confined to the expansion of political authority and solely spread among the urban elites and among the classes of people either of administrative linkage or royal connection. The rural inhabitants of Southern and Eastern Delta, contained one of the largest Muslim population in the world, dwelling very far from the centre of political activity, had hardly any influence either of Brahmanic Hinduism or Persianized Islamic culture. It is because of the ecological changes coincided with political development that connected Eastern Bengal with the world outside. This indigenous population erstwhile associated with fishing, hunting, slash-and-burn culture (*jhum*) took agriculture as their profession by clearing the jungle with the help of forest pioneers who were mostly Muslims. By this twin process of peasantization and Islamization, a Muslim society was born quite different from the Muslims of north India or anywhere else. This large section of semi-nomadic Muslim society in rural Bengal gradually transformed into an agrarian community, thus identified with the culture of plough. Therefore, it would not be wrong to apply Richard Eaton's argument in the context of Bengal that Islam in India may properly be termed more a religion of the plough than a religion of the sword.

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## VIBRATION BASED DAMAGE DETECTION OF A CANTILEVER BEAM AN OPTIMIZATION – APPROACH

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**Abstract:** Damage can be analyzed through visual inspection or localized experimental methods such as acoustic emission, ultrasonic, X-ray, eddy-current, radiography, thermal and magnetic field methods. These methods require a prior knowledge of the vicinity of the damage and the portion of the structure being inspected should be readily accessible. Furthermore, if a crack is hidden deep within the structure such as in case of submerged structural member, it may not be detected by these localized methods. Subjected to such limitations, researchers have focused on indirect approach which can be applied to the structure on a global level and within a smaller time frame. In general the natural frequencies are decreased in damaged structure due to reduction in stiffness. Vibration based damage detection is one of the techniques which has been widely accepted for fault diagnosis in different mechanical systems. The vibrational data is acquired by developing a code in MATLAB software using Finite Element Method (FEM). The dynamic response can help in understanding the present status of a system either by comparing it with their reference values (i.e. dynamic response of undamaged member) or by formulating residual functions because there is a change in dynamic response as a result of change in stiffness and mass. The present study focused on the identification of damage severity and location by using artificial intelligence model based method, such as neural network technique, have been designed using the computed vibration data for damage detection in structural members, which are having no crack and single crack.

**Keywords:** Dynamic response, Crack, Cantilever beam, FEM, ANN

### 1. Introduction

For non-destructive testing of mechanical systems, it is necessary to know the dynamic response of the system such as natural frequencies and mode shapes. The natural frequencies and mode shapes can be directly used to predict the nature of the damage existing within the system. Because of the high sensitivity of these two parameters, damage alters the frequencies of the structures even with small change in stiffness and mass of the system.



Damodar maity and Asish saha [1] discussed about damage to structures may occur as a result of normal operations, accidents, deterioration or several natural events such as earthquakes and storms. Most often the extent and location of damage may be determined through visual inspection. However, in some cases this may not be feasible. Basic strategy applied in this study is to train a neural network to recognize the behavior of the undamaged structure as well as of the structure with various possible damaged states. They developed a code for structural response of damage this structural response (i.e., displacement, stress) is given as input to neural networks and got less when compared with theoretical values. S.J.S. Hakim and H. Abdul Razak [2] said that modal parameters consists of natural frequencies, mode shapes, and damping ratios which are functions of the physical features of the structure such as mass, damping, and stiffness. Therefore any changes in the physical features will cause changes in the modal parameters. Damage is assessed via changes in the dynamic characteristics or response of structures. Therefore any changes in the physical features will cause changes in the modal parameters. Damage is assessed via changes in the dynamic characteristics or response of structures. Norhisham Bakhary, Hong Hao and Andrew J. Deeks [3] concluded that a sub structuring technique is employed together with a multistage ANN to detect local damage in structures. A comparison with the conventional technique demonstrated the efficiency and reliability of the proposed approach. This study also demonstrated that using a one-stage ANN model for damage detection of large structures requires excessive computational time and a large amount of computer memory. The proposed approach is effective in reducing the size of the required ANN models, and as a result the computational effort can be reduced substantially. The results show that by dividing the full structure into substructures and analyzing each substructure independently, local damage can be better identified. Yamuna and K.Sambasivarao [4] said the importance of the beam and its engineering applications is obvious, and it undergoes different kinds of loading. Such loading may cause cracks in the beam. Crack depth and location are the main parameters for the vibration analysis of such beams. These cracks and their locations effect on the shapes and values of the beam frequency. So it becomes very important to monitor the changes in the response parameters of the beam to access structural integrity, performance and safety. It can be found that at symmetric positions of the crack position of the beam the lowest fundamental frequencies have almost equal value. Mr. Vikram, S. Yendhe, Prof.V.L. Kadlag and Prof.R.S Shelke [5] discussed about Cracks in vibrating system can lead to a sudden and total failure from which recovery is impossible. This results in change in the physical characteristics of a structure which in turn changes its dynamic response. Therefore



there is need to know dynamics of cracked components. Depth of the crack and its location from fixed end are the main parameters for the vibration analysis. Firstly determination of natural frequency of different modes of vibration is done for undamaged beam. It has been observed that the change in frequencies is not only a function of crack depth and crack location but also of the mode number. When the crack location is constant but the crack depth increases, the natural frequency of the beam decreases. When the crack depth is kept constant by varying crack location, beam natural frequencies of first, second and third modes are also varies. Zang C and M. Imregum [6] said that novel approach to detect structural damage based on combining Independent Component Analysis (ICA) extraction of time domain data and Artificial Neural Networks. The vibration features represented by the mixing matrix provide the relationship between the measured vibration response and the independent components and are then employed to build the simplified neural network model for damage detection. Mixing matrix encodes the dynamic characteristics of the structure and the effect of damage to enable structural damage detection using a neural network from the measured time domain data. Such a route has the advantage of reducing not only the size of the 'measured' data set but also provides robustness to noise contamination. Furthermore, higher order statistics are available that may be useful for damage identification. A major benefit of the technique is that it requires the vibration response to be measured but not the excitation force, and this feature is very useful for on-line industrial Applications. The multiple layer preceptor neural network, trained using an error back propagation algorithm is demonstrated to be effective for damage detection. Yong-Ying Jiang, Bing Li, Zhou-Suo Zhang, and Xue-Feng Chen [7] said that wavelet transform is applied to decompose the mode shapes of beam structures. To improve the sensitivity of location detection, fractal dimension estimation method is employed to analyze detailed signal of the mode shape. For comparison purpose, curvature mode shape based method is also used to identify the crack locations. Hong Hao, M. ASCE, and Yong Xia [8] discussed vibration-based methods are being rapidly applied to detect structural damage. The usual approaches incorporate sensitivity analysis and the optimization algorithm to minimize the discrepancies between the measured vibration data and the analytical data. Three different criteria are considered, namely, the frequency changes, the mode shape changes and a combination of the two. A method directly comparing the measured frequencies and mode shapes before and after damage is proposed to detect structural damage in this paper. The technique does not seek to tune the analytical FE model to obtain an improved one in the undamaged and damaged state. Mohammad-Taghi Vakil-Baghmisheh, Mansour Peimani, Morteza Homayoun Sadeghi and Mir Mohammad



Ettefagh [9] said that our method utilizes genetic algorithms to monitor the possible changes in the natural frequencies of the structure. The identification of the crack location and depth in the cantilever beam is formulated as an optimization problem, Binary Genetic Algorithms and Continuous Genetic Algorithms (BGA, CGA) are used to find the optimal location and depth by minimizing the cost function which is based on the difference of measured and calculated natural frequencies. I. Friswell, J.E.T. Penny and S.D. Garvery [10] said that for damage location or site Eigen sensitivity method is used to optimize the damage extent. A combined algorithm and Eigen sensitivity method has been used to identify the location and magnitude of damage from vibration data. Their method gave nearer results when compared with theoretical values. Srinivas, B.S.N. Murthy and S.H. Yang [11] explained in rotating blades damage of blade is characterized by relatively high amplitudes of response due to a local reduction in stiffness factors. An explicit relation between the amplitudes of response and stiffness reduction coefficients can be conveniently developed, amplitudes along various points in a harmonically excited blade with modal data. Ananda Rao, J. Srinivas and B.S.N. Murthy [12] said that damage takes several forms like a pin hole, partial damage in spring, or a microscopic crack in a element. For a idealized model of system after damage suffers a reduction in stiffness while mass and damping terms remain same in this regard inverse approach can be followed for predicting loss of stiffness corresponding to a given time domain response using an optimization formulation. Sarat Chandra Menda and Pushpa Ratnam Raju Jalli [13] discussed that the natural frequencies values obtained from all these approaches are observed and the final conclusions are drawn. With increase in crack depth there is a decrease in natural frequency. In a cantilever beam when the distance of crack from fixed end is increased there is an increase in natural frequency. The natural frequency of the cracked beam decreases with increase the crack depth. When the crack depth is kept constant by varying crack location of the cantilever beam, it's natural frequencies also vary. Kamil Aydin and Ozgur K [14] in their study said that the first four frequencies of free vibration are predicted based on beam properties by the network. Showing the effectiveness of the neural network in predicting the vibration frequencies, then the second part of the study is carried out. At this stage of the inverse problem, the frequencies and mode shape rotation deviations in addition to beam properties are used as input to the networks to determine the crack parameters. Different hidden nodes, epochs and spread values are tried to find the optimal Neural Networks that give the lowest error estimates. The trained model can be used in health monitoring of beam-like structures as a non-destructive crack identification procedure. Although it is very hard to accumulate



such large number of input data, the developed network should be tested using the real measurement cases. P. Das [15] discussed in his work that performances of the ANN model are presented based on statistical parameters like correlation coefficient, coefficient of efficiency, root mean square error and over fitting ratio. The correlation coefficient (R) and root means square errors (RMSE) are mostly used statistical performance criteria for evaluation of ANN models. It is recommended that there exists a strong correlation between observed and predicted values when R is greater than 0.8. Lokesh Kondru and M R Narasinga rao [16] In Cantilever Beams when dynamic loading is applied that is varying the load with respect to time, which may result in cracks. A method for identifying crack parameters (crack depth and its location) in a cantilever beam using Neural Networks has been attempted in their work. Parametric studies have been carried out using ANSYS Software to evaluate modal parameters (natural frequencies) for different crack parameters. The identification procedure presented in this study is believed to provide a useful tool for detection of crack in a beam. Guru Prasad Khuntia and Dhirendranath Thatoi [17] said that inverse problems are extensively used for identification of crack in large structures (such as bridges), which may lead to premature damage. Their study has presented a method for estimating the damage intensities of bridge like structures using a back propagation based artificial intelligence techniques. It is observed that the presence of crack results in change of natural frequency and alters beam response patterns. As it was observed that the predicted results of Neural Network technique are reasonably adequate and in agreement with the theoretical result, the developed models can be efficiently used for crack detection problems. Mehrjoo, N. Khaji, H. Moharrami and A. Bahreininejad [18] discussed that for inverse problems like structural identification of large structures (such as bridges) where in measured data are expected to be imprecise and often incomplete, ANN may hold greater promise. Their study presents a method for estimating the damage intensities of joints for truss bridge structures using a back-propagation based Neural Network. This approach is very attractive for on-line or real time damage diagnosis of structures in the framework of structural health monitoring. M Maurya, R Mishra, I Panigrahi [19] explained about In ANN modeling, networks can be built directly from experimental data using its self-organizing capabilities which is the main advantage of using ANN. ANN can be used to predict multiple cracks along with their location and severity in a cantilever beam with good accuracy. The average error percentage of the testing data is approximately 0.5% which shows that the current method used can be applied for detection of damages. Aakanksha Mohanrao Garud, Prof. V. G. Bhamre [20] said that this study is based on the concept that natural frequency is inversely proportional to the mass of



the structure. Thus to regulate the proper condition of structure, periodical frequency measurement is necessary. The crack depth and natural frequency are inversely proportional to each other while the crack location is kept constant. While keeping the depth of crack constant natural frequency decreases with increase in crack location from the cantilever end. As cross section of square beam have same cross and longitudinal frequency, it is suitable to consider rectangular cross section beams since they have larger transverse frequency than longitudinal. It is obvious that the vibration behavior of the beams is very sensitive to the crack location, crack depth and mode number. The direction of crack does not affect the natural frequency. Crack with larger crack to depth ratio imparts greater reductions in natural frequency than that of the smaller.

## 2. Mathematical Background

The governing equation of motion of a beam having  $n$  degrees of freedom for forced vibration can be written as

$$M \ddot{x}(t) + C \dot{x}(t) + K x(t) = F(t) \quad (1)$$

Where  $[M]$ ,  $[C]$  and  $[K]$  are mass, damping and stiffness matrices of the system,  $\{x(t)\}$  is displacement vector, and  $F(t)$  is applied load vector. Neglecting damping and force in Eq.(1) for a free undamped vibration problem. The required characteristic equation can be derived from Eq. (1) as follows

$$[K - \lambda_i M] \phi_i = 0 \quad (2)$$

Where  $[K]$  and  $[M]$  are the global stiffness and mass matrix,  $\lambda_i$  and  $\phi_i$  are the  $i$ th mode eigenvalue and eigenvector respectively.

## 4. Results and Discussions

In the present investigation optimization technique of different philosophies, exclusively Artificial Neural Network (ANN) is utilized in order to achieve the optimum results in the damage detection. Artificial Neural Networks (ANN) have been developed as generalizations of mathematical models of biological nervous systems. Neural networks have recently emerged as a potential area of research and have been applied in diversified areas such as speech processing, pattern recognition, nonlinear model fitting etc. The neural network is defined as an inter-connected assembly of simple processing elements, units or nodes whose functioning is loosely based on the biological neuron. The neural network



successfully applied in structural damage detection mainly based on the following two aspects, first one is the neural network of prior knowledge demand easing with the ability of self-learning, self-adaption, association, memory and pattern matching and other aspect is the neural network has the ability to filter out the noise and to draw the correct conclusion in the case of noise. The trained neural network will then have the ability to identify the presence, location and the extent of damage in structural systems [2]. Some advantages of ANN in damage identification over the traditional damage assessment approaches are as follows the trained ANN using given data have the ability to identify damage reliably even when trained with incomplete data. When ANN is properly and completely trained the speed of damage identification is relatively high and numerical simulations do not need to be constructed. ANN is more robust over the noise and uncertainties. Any vibration parameters can be selected as inputs of ANN without increasing the neural network training complexity. The trained neural network can work effectively in a noisy environment, the ability to filter out noise makes it especially suitable for on-line damage detection and structural health monitoring for structures [3].

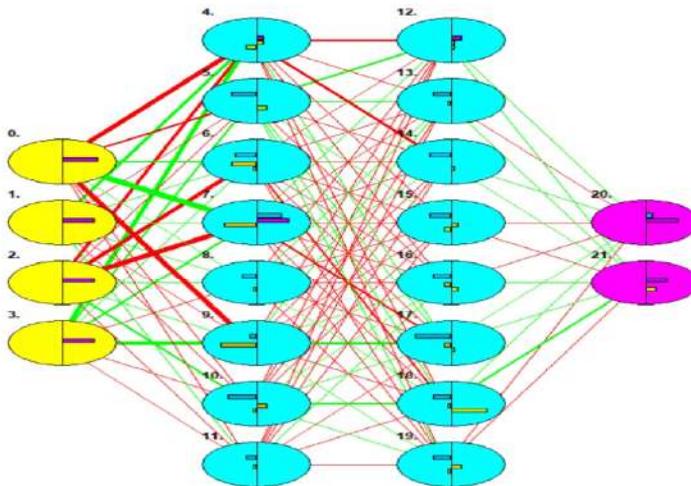
#### **Estimation of Damage in Cantilever Beam Using Artificial Neural Network**

This section introduces a feed forward multilayer neural network with back propagation technique for damage detection in mechanical systems. In present task, Artificial Neural Network (ANN) model is used to estimate the damage. The proposed neural network model has been designed with input and output parameters. When input data is adjusted to designate shape it is divided into three sets which include training set (learning) for creating the model, validation set for verifying the model and the testing set for testing the usability of the model.

The Easy NN plus v.14.0 software from neural planner software was used to setup and train a neural network aiming at an estimation of the location and extent of damage. This network software uses feed-forward back-propagation algorithm for training the networks. Initially a network with three layers which include input, output and one hidden layer was constructed. This network gave significant errors. Hence another hidden layer is introduced.

Now the architecture of ANN becomes multilayer, those are input layer, hidden layers and the output layer. The number of input nodes in the input layer can be easily determined because the number of nodes in the input layer is equal to the number of inputs that would be feed into the network. However, while constructing the network the number of neurons or nodes in each hidden layer was varied from 5 to 13 with an increment of two in each step.

The learning rate and momentum were optimized by trial and error method at 0.7 and 0.8 respectively. The training was stopped when the minimum error in the testing set was achieved. The main network parameters (the number of nodes in the hidden layer, the learning rates and the learning momentum) have been optimized by a trial and error process. In this optimization process the network was regularly tested against the validation data to avoid over fitting of data. In the course of training the network, the software itself randomly selects the weights of network connections. The proposed Artificial Neural Network (ANN) technique utilizes the dynamic response to detect location and extent of damage in cantilever beam, few results are presented.



The architecture of ANN becomes four layers, those are: input layer, two hidden layers and the output layer. The number of input nodes in the input layer can be easily determined because the number of nodes in the input layer is equal to the number of inputs that would be feed into the network. The input layer has four nodes (first four frequencies) and the output has two nodes i.e. crack depth, crack location. However while constructing the network the number of neurons or nodes in each hidden layer was varied from 5 to 13 with an increment of two in each step. The

learning rate and momentum were optimized by trial and error method at 0.6 and 0.8 respectively. With the available data sets the network is optimized to (4-8-8-2) architecture shown in Fig.4.4 and is trained with learning data sets, model is validated, and tested. It was

observed that the network with two hidden layers with eight nodes in first hidden layer and eight nodes in second hidden layer is giving the best prediction performance after 12400 learning cycles or iterations and the learning graph shown in Fig.4.5.

The main network parameters (the number of nodes in the hidden layer, the learning rates and the learning momentum) have been optimized by a trial and error process. In this optimization process the network was regularly tested against the validation data to avoid over fitting of data. In the course of training the network, the software itself randomly selects the weights of network connections.

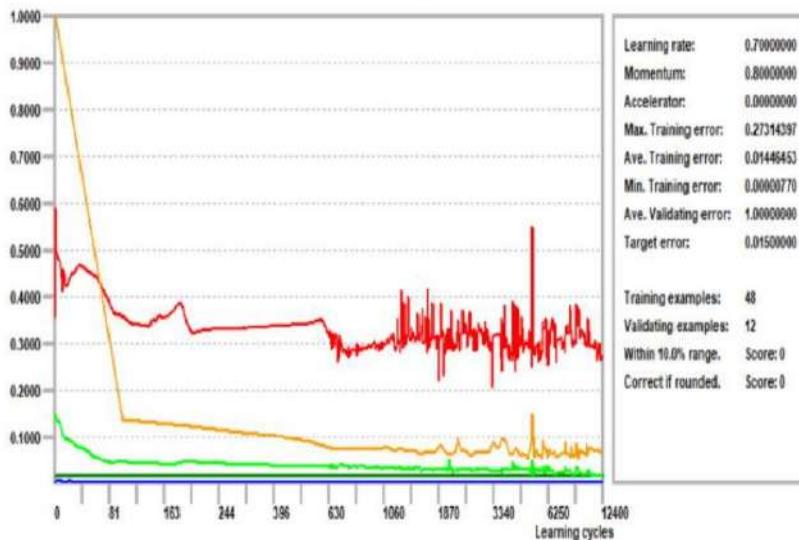
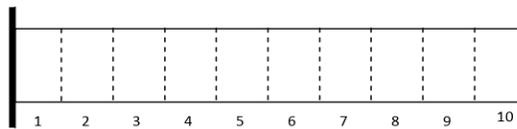


Fig.4.5 ANN Learning Progress Graph

The neural network was trained with 48 out of 60 data sets and validated with 12 data sets. The network model is tested with 12 data sets are randomly selected from overall data sets. The optimal amount of data for training is completely solution dependent. Fig. 4.5 shows the learning graph.

The trained ANN was used to predict the damage and depth of crack. It was found that there is an agreement between actual values and predicted values. The predicted values are shown in Table 4.3.

Cantilever beam is a common structural member in various engineering applications. The first case i.e., considered is a cantilever beam, which is discretized using 10 bi-dimensional Euler-Bernoulli beam elements. This leads to a finite element model containing 20 degrees of freedom (10 translations and 10 rotations). The beam is depicted in Fig. 5.1. Properties of the beam chosen are as follows: Modulus of elasticity,  $E = 207 \text{ GPa}$ , cross sectional area,  $A = 1.5 \times 10^{-4} \text{ m}^2$ , moment of inertia,  $I = 4.5 \times 10^{-10} \text{ m}^4$ , density,  $\rho = 7800 \text{ kg/m}^3$  and total length of the beam,  $l = 0.385\text{m}$ . Now finite element analysis is performed to solve the eigenproblem of damaged and undamaged cantilever beam with and without fluid interaction



**Table 4.3: Predicted Location and Extent of Damage.** Figure 1 Cantilever Beam

S.No	Modes	Frequency (Hz)	Actual Values		Predicted Values	
			Location (mm)	Depth of Cut (mm)	Location (mm)	Depth of Cut (mm)
1	1	12.1503	98.4	1	105.5173	1.0062
	2	77.0363				
	3	216.0249				
	4	422.2010				
2	1	12.3105	688.8	1	671.9606	1.0074
	2	76.5667				
	3	214.1103				
	4	423.5337				
3	1	11.948	98.4	2	105.0515	1.663
	2	76.8335				
	3	215.7653				
	4	420.0266				
4	1	12.2990	688.8	2	688.3175	1.9945
	2	75.7837				
	3	211.6339				
	4	422.9195				
5	1	11.7021	98.4	3	98.8261	2.9942
	2	76.5912				
	3	215.4353				
	4	417.3981				
6	1	12.2842	688.8	3	688.2262	2.9901
	2	74.8081				
	3	208.7330				
	4	422.1378				



## Conclusions

In this paper, a finite element formulation was adopted and then a computer code was developed for calculating and simulating cracks in the cantilever beam. If the crack is considered on the cantilever beam, the frequencies of the beam are reduced. With the same crack depth, the frequency reduction value of multiple cracks is lower than that of single crack. A procedure has been formulated to estimate the damage in mechanical systems using vibrational data with optimization technique; namely Artificial Neural Network (ANN). Under damaged conditions, it was observed that the mass and damping vary slightly compared to the variation of stiffness of the system. The dynamic response (i.e. natural frequencies) has been obtained at various conditions by using Finite Element Method through MatLab programming. It was observed that the natural frequencies decreases with increase in the depth of crack. Moreover the natural frequency varies with varying the location of crack. In this investigation, frequency values are input parameters in Artificial Neural Network to detect the location and extent of damage as output for cantilever beam with different conditions. It was felt that the Artificial Neural Network is simple and comfortable in detecting damage because the dynamic response can be used directly in ANN without writing any sub-program in MatLab to predict the damage.

## Future Scope

The damage detection can be done for multiple cracks at various locations. By increasing input variables the accuracy of identifying the damage and its location increases. It can be done with different examples of structural elements along with its working conditions for better identification. This technique may be used for fluid interacted structural members also.

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## CONSTRUCTION AND MAINTENANCE OF IRRIGATION WORKS UNDER RAYAS OF VIJAYANAGARA IN ANDHRADESA 1336-1600 AD

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### Abstract

The Vijayanagara Rulers, like the earlier South Indian rulers, realized that the prosperity of their State depends upon an efficient Agrarian economy. They took all the possible measures to maintain the previous water sources and took steps to construct new irrigational works in all parts of the kingdom to supply water to Agriculture lands. The Vijayanagara rulers and their officials constructed some major irrigation works like Tanks and the dams across rivers to regulate their water flow and artificial reservoirs to store water. Inscriptions of Sangama, Saluva, Tuluva, and Araviti rulers are containing interesting information about the state of irrigational works under the Rayas. Similarly, the native works and foreign accounts of the Vijayanagara period are also throwing light on the condition and nature of irrigation works under Vijayanagara Rulers. This research article to be discussed about the construction and Maintenance of Irrigation Works of Vijayanagara.

**Key Words:**Water Resources, Krishnadeva Raya, Irrigation Development, Religious Merits, Tanks and Resources, productive Resources

### Statement of the Problem

Of course, with agriculture came the first big civilizations, the first cities built of mud and brick, the first empires. And it was the administrators of these empires who began hiring people to keep track of the wheat and sheep and wine that was owed and the taxes that was owed on them by making marks; marks on clay in that time.

**Howard Rheingold**

American Historian and Philosopher

In this article, the researcher argues that Constructions and Maintenance of Irrigation Works under Vijayanagaras may have played a major role in the growth and emergence of the Vijayanagara Empire as a dominant regime in Deccan India during 13th–16th century AD. We show that the European discovery of India offered an as yet, unrealized market and value for the natural resources of the Vijaya-nagara Empire,



which contributed to their economy to purchase military power. This resulted in a meteoric growth of the Empire. We also trace that the eventual loss of ownership on, and a consequent reduction in the barter value of, the very natural resources that contributed to its growth resulted in its decline. As an extension of this ex-ample, we argue that natural resources could have played a major role in the growth and establishment of several other great empires of human history.

The Vijayanagara Empire took birth around AD 1333 at Anegondhi along the banks of the Thunga-Bhadra River near the present Hospet, Bellary District, Karnataka. Two brothers, Hakka and Bukka, established the kingdom with the blessings of a sage called Vidhyaranya. The empire gradually spread to cover the entire Deccan India and reached its nadir during the reign of the Telugu-speaking king, Krishnadevaraya (1505–40) from the Tulu dynasty of Karnataka. During his regime, the capital at Hampi and the empire saw enormous growth. Even to date relics at Hampi depict the glory it had once attained. The splendour and richness of the empire became so well known all over the world that it attracted a large number of scholars, travellers, merchants and visitors from far-off places such as China, Arabia and Europe. The impressions of the glory of this empire, left behind in a wealth of material written by these scholars and travellers, have helped in the reconstruction of the history.

Krishnadevaraya laid down his crown during the late 1530s and almost 35 years later, the empire fought its last and famous war with the Moghuls under the leadership of Ramaraya, the son-in-law of Krishnadevaraya. Though for political and legal reasons, Ramaraya was not the de facto king but only the chief minister, he literally ruled the entire kingdom with the puppet king Sadashiva at the forefront. The war he fought and lost at Rakkasathangadi or Talikota signified the decline of the Vijayanagara Empire because, despite a few subsequent efforts, the kingdom never bounced back to the glory it once had.

The Vijayanagara Rulers, like the earlier South Indian rulers, realized that the prosperity of their State depends upon an efficient Agrarian economy. They took all the possible measures to maintain the previous water sources and took steps to construct new irrigational works in all parts of the kingdom to supply water to Agriculture lands. The Vijayanagara rulers and their officials constructed some major irrigation works like Tanks and the dams across rivers to regulate their water flow and artificial reservoirs to store water. Inscriptions of Sangama, Saluvas, Tuluva, and Araviti rulers are containing interesting information about the state of irrigational works under the Rayas. Similarly, the native works and foreign<sup>3</sup> accounts of the Vijayanagara period are also throwing light on the condition and nature of irrigation works under Vijayanagara Rulers.

The primary objective of the present research paper is to identify the steps taken by Rayas of Vijayanagara to construct a large number of Tanks, Canals during their period. Secondly, the measures are taken up by them to maintain them and how their activity increased the land revenue and made the position of peasants of Andhradesa comfortable than in an earlier period. This paper is prepared based on

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information culled from Telugu inscriptions and literature of the present period, Krishnadeva Raya the most illustrious among the Vijayanagara rulers recognized their importance and advocated that the empire of a ruler is too small to be expanded, the tanks and other irrigation works within the State should be improved so that prosperity could increase.

During the tenure of the present study, the Andhradesa presently covered was mostly dependent on rainfall for irrigation except the limited area covered by Krishna and Penna rivers. The Rayalaseema region was an area, being devoid of perennial rivers, a low rainfall region. This is made into a drought-prone one. These conditions brought forth the necessity all the more for providing man-made irrigation facilities. During the Vijayanagara period besides rulers, State officials, private people, and institutions were initiated and encouraged to take up the construction of irrigation works. Special "Dasavanda" and "KattuKondage" grants are issued by rulers to such energetic and enterprising men. The spiritual interest of some people also gave a new boom to irrigational works. Construction of a tank or a well or a reservoir was considered as one of the 'SAPTASANTANAS' or the seven acts productive of religious merits.

Table -1  
Names of some of the important irrigation works constructed by Vijayanagara rulers in Andhradesa.

Sl. No .	Name of the Irrigation Work / Year of Construction	Name of the Ruler/ Dynasty/Minister/ Officer	Place of Location	Source
1	Bhukkal Raya Samudram 1364 CE	Ruler Bukkar-I ChikkaAnantrasaUdaiai Minister	Anantapur	S.I.1 Vol.XVI No.63
2	Porumamilla Tank 1369CE	Bukka-I BhaskaraBhksaraBhavarud a Son & Governor of Udayagiri	BadvelTaluq Kadapa	E.I. Vol XIV.No.4. Inspiration of Kadapa District
3	Kamalapuram Tank 1386 CE	Devaraya – I	Kamalapuram	Kadapa District Inspiration Vol.II, No. 19
4	Markapuram Tank 1441 CE	Devaraya – II Mallaya Mantri	Kurnool	S.I. I Vol. XVI No. 33
5	Atukuru Tank 1516 CE	NaddinadlaAppa, Brother-in-law of SaluvaTimmarasu	Guntur	E.I. Vol. IVI No. 12
6	Gopinath Samudra 1518 CE	Krishnadeva Raya	Guntur	S.I.I Vol.IV. No. 702, S.I.L Vol. XVI, No.121
7	Kondasamudra and Srimmannarayana Samudra 1554 CE.	Aliyaramaraya and his agent HariharanandhaPeddayya	SirvelTaluq Kurnool	S.I.I. Vo. XVI, No. 199.



## **Irrigated agriculture**

Vijayanagara rulers were known for enhancing the agricultural area under irrigation. In fact, during the establishment of the capital, irrigated land was offered free of tax for a specified period of time, so that the farmers could settle down and cultivate grains much needed for the capital's settlers. It is likely that this strategy also may have substantially contributed to the stable growth of the empire (we thank Madhav Gadgil for bringing this possibility to our notice). However, it is interesting to note that at least some of the major irrigation projects were built with technical help from the Europeans (from the chronicles of Nuniz; Krishnadevaraya also built a lake for water, which lies between two lofty serras. Since he had no means in the country for making it, ...he sent a messenger to Goa to ask the Governor to send some Portuguese masons. The Governor sent Joao della Ponte, a great worker with stones, ...he told the king...to have the lime prepared, at which the king laughed for in his country when they built a house they did not know how to use lime. Authors note: K.N.G. has surveyed the area around Hampi and one tank that fits this description is Bukka Raya Kere). Nuniz writes: 'By means of this... they irrigated rice field and gardens...he gave the people the lands which are irrigated by this water free for nine years until they had made their improvements'. Thus the arrival of the Europeans also al-tered the use of natural resources such as water and land, which may have certainly contributed to the growth of the Empire.

## **Distribution of natural resources of the Vijayanagara Empire**

Thus the distribution of the three groups of natural re-sources, viz. sandalwood, spices and diamonds, appears to have shaped the geographic spread, economic growth and military dominance of the Vijayanagara Empire in South India. While it may be difficult to un-equivocally establish that expansion of the regime was primarily to gain access to these resources, it is unlikely that the rulers were not aware of the value of these re-sources. Irrespective of whether or not the invasion was prompted mainly by these resources, it is highly likely that they did contribute to the growth of the regime as a dominant empire in the region. It is also tempting to propose that the surprisingly dangerous expedition of Krishnadevaraya to the eastern parts, viz. Orissa and Telangana, was prompted by the availability of red sanders. While historians interpret this risky venture as a foolish attempt to feed his ego, considering that red sanders or 'rakthachandana' (*Pterocarpussantalinus*), one of the highly valued trees of the times, was abundantly available in these areas, it is not surprising that the king's motive lay in the economic benefits. In fact, on his return he celebrated his victory by bathing the deity at Tirupathi in gold coins!

## **Distribution of Irrigation – Resource of Vijaya Nagar Empire**

An inscription<sup>6</sup> coming from Arsikeretaluq in Karnatic, dated A.D. 1343 of First Sangama Ruler Harihara-I, records that Bhayanna, son of Padmanabha of the Soma Vamsha, established in Hirya-Gandari-Stala the village of Mangapura in the name

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of his mother, and constructed a tank called 'Manga Samudra'. He repaired HiryaGandaragrahara at the southern sluice of that tank so that a channel could be brought to the old tank. It is evident from this that even from the beginning of the rule of the Rayas extended encouragement to their subjects in constructing tanks and the subjects proved themselves adept not only in constructing them but also in maintaining them properly. Bukka-I, the successor of Harihara-I followed the policy. An inscription<sup>7</sup> dated 1364 A.D. from Anathapur taluq records the construction of a great reservoir called the 'Bukka Raya Samudram' by *ChikkaAnantarasaUdaiyar*, the Minister of Bukka Raya-I, A Telugu manuscript translated by Mr. C.P. Brown and published in English under the title of "Wars of the Rajahs", relates the story of its construction and of the sacrifice of a girl which accompanied the erection of the embankment<sup>8</sup>. Another inscription dated 1369 A.D. from Badvel taluq in Cuddapah district records the construction of a huge tank at 'Porumamilla' by Bhaskara, son of Bukka-I and Governor of Udayagiri Rajya<sup>9</sup>. The tank has many sluices and the record further states that 1000 men were employed in the work, a hundred carts were used for getting stones for the walls which formed part of the masonry work and that it took two years to complete this work. The dam was 5,000 'rekha, dandas long, eight 'rekha' wide and seven high. The tank is situated to the south of Sirsailam, two yojanas to the east of Ahobila, to the North of Siddhavatha and the west of Udayagiri and situated as in the '*SakilaDesa*'.

The inscription also enumerates the essential features in the selection of the site for the construction of a good tank as specified in the Sastras as well as the six faults (Dosas) that should be avoided. This tank (Porumamilla tank) was constructed following these rules between the mountain in hard clay soil to catch the rainwater from the surrounding mountains, and this tank irrigated large tracts of arable fields around.

### **Development of Irrigation**

According to an inscription<sup>10</sup> dated C.E. 1386 from 'Kamalapuram' taluq in Cuddapah district, Devaraya-I (1406-1422) encouraged common man to construct works of irrigation. The inscription markedly refers to Harihara-II son Devaraya, who had been appointed as Governor of the Udayagiri Rajya in A.D. 1370. He was probably the initiator of the 'Dasvanda System'. The Dasavanda grant might consist of wet and dry fields. For the construction of a tank, the extent of land offered as remuneration was big. Thus during the reign of Sadashiva Raya (1543-1570 CE) ParamkuravamSathagopajiyya, the trustee of the temple, HariharandhuniPeddayya, the agent of Mahamandaleshwara Aliya Ramappayya and the Adhikamvaru gave to MahamandaleshwaraAvibhalaraju, a Dasavandha grant of land in the village Pedakallu for constructing the huge tank 'Konasamudram' alias SrimannarayanaSamudram in the North-east of Alamuru. This is known to us from an inscription dated in Saka 1477 corresponding to A.D. 1554 Sirvel taluq in Kurnool district<sup>11</sup>. During Vijayanagara period rulers, officials constructed works of irrigation and dedicated them to the deities. An inscription<sup>12</sup> of Devaraya-II coming from *Markapur taluq* in Kurnool district, dated 1441 A.D. clearly states that 'Mallaya Mantri' son of 'Timmaya Mantri' constructed a tank and granted some land in Mainadanapadu

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for a flower garden to the deity Tripurantaku. During the period of Achyutadeva Raya (1530-1542 A.D.) his brother-in-law Peda Tirumala Raya, built a tank and a garden lay near it and granted both of them to the deity Gopinatha of Velupalem in Kondavidu. The above information is supported by an inscription dated 1530 A.D., from Sattennapallitaluq in Guntur District<sup>13</sup>. Krishnadevara Raya was a ruler who sought the welfare of his people. From an inscription<sup>14</sup> dated saka 1438, corresponding to A.D. 1516, from Hospet in Carnatica, we come to know that Ranganatha Dikshitha, the purohita of the king, received a manya (tax free) village from the king and caused there in the construction of a huge tank called "Nagasamudram", after the name of Nagaladevi, the mother of the king.

### Irrigation and Tanks for Agriculture

The Portuguese Chronicler Domingo Paes gave a detailed account of the construction of a big tank by Krishnadevaraya near his capital to supply water to agriculture and drinking water to the new city of '*Nagalapura*' founded by him. This tank was built at the mouth of two hills "so that all the water, comes from either one side or the other collect there; and besides this water comes to it from more than three leagues by pipes which run along with the lower parts of the range outside. This water is brought from a lake which itself overflows into a river. This tank was connected by certain pipes to irrigate the gardens and rice fields around. Referring to the construction of the same tank, Nulviz writes that the emperor was assisted in the work by a Portuguese worker Joao-della-ponte an expert in stone work.

RayasamKondamarusayya, the Minister of Krishnadevaraya constructed two tanks namely '*Timmasamudra*' and '*Kondasamudra*' in the Kondavidu Province. '*Anantarasa*' Minister of Bukka-I, got a tank by name '*Bukkaraya Samudra*' excavated in Anantapur in A.D. 1364. An inscription from Vemalurapdu in Guntur district, dated in A.D. 1530, records that SalakarajuPedaTirmalayyadeva Maharaja got a tank constructed and a garden laid near it which he donated them to God Gopinatha of Velupalem in Kondavidu.

Whenever the new villages were founded or temples were built water source was also provided by rulers. The Mangalagiri pillar inscripton of Krishnadevaraya describes such grants of Nadindla-Appa, Son-in-law of prime minister SaluvaThimmarasu and the Governor of Vinukonda, Gutti and Amaravathi Simas. In A.D. 1517, he founded a village named '*Appapura*', supplied it with a tank, and granted it to the temple of Gopinatha of Vinukonda. In the year A.D. 1518, RenturiChittanarusu, the agent of PradhaniSaluvaThimmarasu constructed a tank in the village '*Pedakakani*' and also got another dug and donated to the local deity by his wife Tirumalamba<sup>21</sup>. Another instance of a lady making a grant of the tank could be known from an inscription at Vankayalapdu in Guntur district. '*Chinnamamba*', wife of the chief Prataparayalu and sister of '*Ramayamantri Bacha*' Chief Minister of king Achyutaraya constructed the tank known as '*Gopinatha Samudra*'.



During Vijayanagara times also as in earlier times not only State but private individuals, temples took interest in the construction of irrigation works. According to an inscription of the Sangama period, dated A.D. 1441, one Mallanarya of Udayagiri constructed a tank at the village 'Mandanupati' at the instance of pontiff Bhiksavrithi<sup>23</sup>.

### Vijayanagar Empire – Irrigation Development

As the Vijayanagara Empire was very vast the tank irrigation was not enough for agriculture. As a result the rulers also tried to develop artificial water sources (Canals) and Channels were also built to supply the water to agricultural fields. Wells were also dug for irrigation and we find the reference in a few inscriptions of the period to the construction of dams across the rivers to divert the water into feeder channels thereby facilitating irrigation. An inscription from '*Tripuranatakam*' in Kurnool district of Harihara-II's time records the formation of '*DevarayaNadi*' by connecting the streams Gandavati and Pulleru by BhikshavrithiSiddayadevayya for the merit of Viradevaraya, son of Harihara. PenugondaViramma, brother of Virupanna, the talar of Vijayanagara dug up a spring and irrigation channel called Nutuna Tungabhadra at the village Mondya, Another inscription of AchyutadevaMaharaya times dated A.D. 1538, states that *Viranna Nayaka* got a spring dug with an irrigation channel in Gorrepalli and the lands watered by it were granted to the local temple.

Besides tanks and channels, wells also played a key role in supplying water to agricultural fields. Wells were generally dug in garden lands to provide it with constant water supply. In A.D. 1408, during the reign of Devaraya-I, Pinnayadeva Maharaja established God Bhairava at Pemtapadu in Cuddapah district, dug a well, planted a garden and granted it to the deity.

Vijayanagara Rulers not only took a keen interest in the construction, digging of new tanks, wells, and channels, but they also took great care for the maintenance and repair of irrigation works. They made special arrangements in the form of Dasavanda or KattuKodage grants in the form of tax-free lands to individuals and people who had played a key role in the maintenance and repairs of irrigational works. A series of epigraphs from Kamalapuramtalug (Cuddapah district) dated A.D. 1386 of Devaraya-I, Nandikotkurtalug (Kurnool district) dated A.D. 1567 of Sadashivaraya contains references about 'Dasavanda' grants made by Vijayanagara rulers and their officials to maintain irrigational works. An inscription from Shimoga district states that "a ruined family, a breached tank or pond, a fallen kingdom, whomsoever restores or repairs a damaged temple acquires merit four-fold of that which occurred from them at first". Besides Dasavand grants, for the upkeep of tanks and channels, Vijayanagara rulers and individuals made arrangements in different forms. In several parts of Karnataka, a Cart was permanently maintained by the builder of the tank, or the state, or the villagers themselves, to remove silt from tank beds. Another inscription from Channapattanatalug in Karnataka, which is dated A.D. 1513 of Krishnadevaraya's time, clearly states that king's officer KenchaSomannaVodeyar, granted the village MelaniHosahalli in Kadalursthala to provide for the upkeep of the big tank of "Kadalur" Channapattana

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Sima, and it was ordered that six carts be kept, four for the Kadalur tank and two carts for the Mogehalli tank for putting earth on the bunds every year and for maintaining it in good order.

### Summing Up

While the history of Easter Island teaches us that we cannot afford to be indiscriminate in using our natural re-sources, it is also important to learn that we cannot be discriminative in applying its lessons. Easter Island is a completely isolated piece of land amidst the ocean, just as our planet is in the universe. Hence lessons from the ecological disaster on Easter Island are to be practised uniformly by all humans who share this planet 'island'. The lesson is clear: Do not overeat! Unfortunately the distribution of per-capita 'eating' of our irrigation resources is highly non-uniform across countries and seems to correlate well with the intensity of preaching of sustainable use of resources (and correlated positively unfortunately). The over-consumption or over-usurpation of resources by the First World would obviously affect the survival of the entire humanity. If we need to avoid an ecological disaster in the planet, lessons should be learnt immediately. Thus the above study provides a clear idea of how the State and private individuals worked very hard to develop and maintain irrigational works during the Vijayanagara age in all parts of the empire. Aspiration of the all masses of Telangana. After the formation of Telangana State in June 2014, the Telangana Rashtra Samithi government realized the need of reviving, the old tank and reservoirs of Kakatiya and Qutbshahi times. It has launched a new program called 'Mission Kakatiya' to renovate the old tanks lakes etc., to provide a water source to agriculture.

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## MORAL VALUE- AN UNAVOIDABLE PART OF MODERN EDUCATION

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**Abstract:** Schools have long been seen as institutions for preparing children for life, both academically and as moral agents in society. In order to become capable and moral citizens, children need to be provided with opportunities to learn moral values. However, little is known about how teachers enact social and moral values programs in the classroom. The aim of this article is to investigate the moral education of the children with a critical attention paid to the allocation of responsibility. The paper tried to answer the question: ‘Who gives the child his moral education, is it a collective responsibility or the sole responsibility of an institution’? The answer is that It’s not only teachers in schools that can impart moral education to the children, but that the parents also play an exigent role in making the children aware of the importance of leading life ethically.

**Keywords:** Children, Modern Education, Moral Values, Parents, Teachers.

### **Introduction:**

According to Jerry Springer: “we are all born as empty vessels which can be shaped by moral values.”The increase use of technology and cyberspace has become driving tool in shaping the behavior and social well-being of people. Human are highly mesmerized by the technological revolutions, which has not only improved global interaction, but has also raised unethical practices.

Today, there is a gradual moral decline in society’s and humankind’s values. Wars ravage nations, indifference marks general human relations, love refers more to the body than to the mind, and redeeming the society of evils that stalk it is more of a vision of the future than an immediate need. It is time that educators stepped in and made efforts to rekindle the desire of human beings to develop personal, social, and professional moral values. Today, there is a need to re-introduce the subject of moral values in the curriculum of Indian students, especially in the higher education sector, since society seems to have lost much of its faith in the ethical values of humanity.

Moral values are guiding principles of life. They are responsible for the all-round development of an individual. Values reflect one’s personality, his attitude, behavior, his mission and vision. Values are backbone of any personality, religion, society or a nation. Moral values can bring in peace of mind, joyful environment, better quality of life, sustainability, harmony in the global society. Country like India has a tradition of moral values and its education at various stages. Being a diversified country in religion as well as geographical region moral education in India was basically through religious talks or otherwise.

### **Objectives of The Study:**

- To study the need of Moral Values.
- To identify the role of education and parents to inculcate Moral Values in modern education system.



### Literature Review:

Lawrence Kohlberg (1975) built on Piaget's early work regarding children's construction of morality. Using a method similar to Piaget's stages of child development, Kohlberg suggested a theory of moral reasoning based on three levels and six stages, whereby children progress through preconventional (based on personal needs and others' rules), conventional (based on others' approval, expectations, or values), and postconventional moral reasoning (based on social contracts and individual principles). Kohlberg's theory has been the basis for a number of programs aimed at moral education. His ideas, coming on the heels of the social justice movement, led to moral development becoming—a major topic in psychological textbooks and found its way into the school in many guises, such as 'value clarification' curriculums [sic] (Elkind, 2001, p. 12). Like Piaget's work, Kohlberg's theory is often used as a basis of argument for morality education in schools.

Tigay, H.Z. quoted in Smetana (2004) on the other hand in addition to the roles of schools and parents in the moral development of the child has also emphasized the role of religious institutions. Tigay in fact is of the opinion that the religious bodies have a major part to play in the moral education of the child than any of the other agents.

According to Frankena (1973) and Armon (1984, 1993), moral values can be divided into five categories, the deontic, teleological, aretaic, intrinsic, and extrinsic. Deontic values are concerned with the moral right—issues of justice, fairness, rights, and responsibilities. Most educational institutions have structures in place that explicitly address issues that involve the moral right, at least in terms of the obligations and rights of students, faculty, and staff. Teleological values relate to issues of moral good, or concern over the welfare of others. These are often not explicitly addressed within American schools, though services such as school lunch programs, student counseling, and immunization drives are expressions of the moral good. Aretaic values involve judgments about the moral worth of individuals and institutions.

Eisenberg (1999) focused his dissertation research "The search for integrity: A leadership impact study" on integrity. He considered integrity to be a unique individual characteristic because it is one of the few personality variables required of every person. Integrity is an ethical value that plays a fundamental role in leadership and integrates other values such as trust, honesty, truthfulness, rightness, role modeling, the value of wholeness, and others. Eisenberg goes even further when he says that in any organization, integrity is necessary from each member of the organization, independent of the position, hierarchy, status or title.

Cummings & Harlow (2000) speak for many cognitive development lists when they say: "Piaget's constructivist theory of the development of moral reasoning holds promise as a foundation for formal education" The Piagetian model of moral education includes teaching core values, but goes beyond this to encourage children to question authority and to promote the dialogue and interaction that will help them discover mutual respect and autonomy (Cummings & Harlow, 2000). Piaget's views are widely used to argue for morality education in public schools.

### Methodology:

This is a qualitative study. This paper is basically descriptive and analytical in nature. Here an attempt has been made to analyze the place and importance of moral

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values in modern education system. This study has been done on the basis of secondary sources of data like books, research journals, newspaper articles, online blogs etc. Collected data was analyzed qualitatively.

### **Moral Value:**

Moral values are set of some precious values which helps us in becoming a good human being these values involve a lot of factors like morality, respecting others, helping others, loving others etc. The concept of morality has been variously defined by philosophers and psychologist but in common terms it can be interpreted to mean a person's or society's view of what is perceived to be the highest good. Such a view is based on a set of principles, ideas and norms that are used to distinguish between right and wrong. Though the notion what is good and what constitutes happiness has a definite cultural bias, morality generally refers to attitudes and predispositions that foster respect, responsibility, integrity and honesty. Lickona (1996) argue that respect and responsibility are the two core components of morality from which any other principle derives. The term respect includes two aspects, which are respect of oneself and respect for others (their beliefs, opinions and culture). Responsibility involves an acceptance for one's own life and deeds and the commitment to the welfare of the society generally through an active participation in the socio-economic, political, cultural activities of the community.

Morality is viewed as the system of rules that regulate the social interactions and social relationships of individuals within societies and is based on concepts of welfare (harm), trust, justice (comparative treatment and distribution) and rights (Smetana 1999). This is how humans determine their actions based on their cognitive abilities to interpret a social situation. Issues of reasoning, problem solving skills, self-control and adaptability are components in exhibiting key components of the moral process.

### **Why Moral Values for Pupils?**

As parents and educators, we should all advocate the teaching of moral values in our schools for the following reasons:

1. Knowledge gained in school is only one goal of education. The primary goals of education should be enabling students to gain knowledge and moral values. Our kids will need both in preparing themselves to be good parents and citizens in society.
  2. If all parents were teaching their children moral values in the home, it would not be necessary for the schools to do this work, the sad fact is that a lot of kids are not learning from their parents the difference between right and wrong. This is because most mothers and fathers in their busy work days spend only a few hours with their children. In many families there is only one parent and no other role models for kids to follow.
  3. Every day students are exposed to violence, dishonesty, and other social problems in the media and the real world. How many times have we heard about school shootings? What about other times when students are caught cheating on exams? Then, too, we read about bullying in school and fights between gangs. If moral values were taught in schools, we would have fewer of these problems.
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4. Unfortunately, many of the role models of young people are setting bad examples. These bad examples range from sexual promiscuity, degrading of women, advocacy of violence, and the condoning of dishonesty in order to succeed.
5. There is an increasing moral complexity in the contemporary world, and pupils are expected to face more complicated decision-making situations about issues involving values. They should be helped in developing the ability to make proper choices in such situations.

#### **Moral Value and The Educational Institution:**

In Moral Education of the child educational institutions are strategically placed to make children and youth with learning experiences which relate, as far as possible, to the challenges of their everyday lives and by so doing play their appropriate role as exemplars of values and moral action. For this to be possible, institutions must act out of a fundamental understanding of the multiplicity of factors which influence the development of children and youth. They must focus on working with all social action groups with viable programs which cater to children and youth and this should include parents and community groups. School rules and regulations, teaching and other staff relationships must be infused with democratic principles and the quality of the physical environment must be shaped deliberately to continually and consistently provide opportunities that support and reinforce the adoption of positive values within the school, the family and the nation. The role of school is also to provide an environment, which challenges the moral reasoning of children, and force them to see contradictions in their reasoning.

#### **Moral Value and the Teacher:**

Teacher through positive approach need to make the youth of India realizes that they are the future of India. Teachers need to teach how lack of humanism and less consideration for the society and colleagues due to lust of money and only enjoying the pleasure of materialistic life would dangerous for India's development. Teaching moral values in personality development classes can promote individual and social welfare, love, peace, good will and understanding.

Role of the teachers in institution of higher education in inculcating values among students becomes important, as education is a forceful tool for the civilization of social and moral values. The teachers have to reflect the value of honesty, integrity, compassion and justice in his own behavior. The teacher should possess the core values like honesty, transparency, sincerity, truthfulness, secular outlook, scientific temperament, emotional balance of commandership and compassion and position positive thinking. A teacher should try to create awareness about rights and responsibilities of being a good citizen. It is the teacher's personality that makes the deepest impression on a student. A teacher should never humiliate the student but encourage the young ones by making positive comments, constructive criticism and appreciation.

A teacher should learn the art of shaping students' character. He should help him to develop moral values, good habits and thinking skills. Students interact with his teacher in institution and understand the values like friendship, brotherhood, nonviolence, peace etc. Moral education cannot be given by book only. One needs an

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example in order to develop faith in moral principles. Teachers are the role models for the renewal and improvement of moral behavior. A teacher should appreciate the importance of understanding the factors and contexts which are influencing the behavior, choices, life styles, health and welfare of students and their families. A teacher should help students to acquire and practice specific skills that support positive values. He should implement appropriate evaluation strategies to monitor progress made by students towards acquiring positive values. Students often idealize their teachers watch them closely and also try to emulate their behavior. Students may view their teachers as authorities on subjects and their advice on many issues related to character and values. Teachers are responsible for the teaching honesty, dedication and right behavior.

### **Moral value and the Curriculum:**

Curriculum design is a specialized aspect of curriculum development dealing with the preparation of curriculum plans and materials for use potentially by any students or teachers of a given description. In most studies on teaching strategies for curriculum-oriented moral education we found the following elements: problem-based learning, working in groups, discussions, and using subject topics incorporating moral issues, dilemmas and values.

Frequently, a problem-based instructional design is chosen. What has been learnt must be meaningful in the context of students' personal objectives and they must be able to connect the learning content with their prior knowledge. Many morals and values education curricula have tended to change by accretion with units of the curriculum centered on specific values or principles.

In a situation where there is obviously an overloading of the curriculum in schools, teachers find themselves constantly trying to keep up with new knowledge or the reinterpretation of old ones, and the even more difficult situation of trying to find connections between seemingly separate and specialized bits and pieces of knowledge. The design of the curriculum reflects the concepts outlined in the conceptual framework and implications for the roles of schools, families, NGOs, and teachers. It also attempts to respond to the concerns about the degree of effectiveness of traditional approaches to the teaching of morals and values. To do this effectively, there is a deliberate shift away in this document away from the traditional approaches to the organization of the curriculum.

### **Moral Value and the Parent:**

1. The parents ought to be ideal role models for their children. They must not resort to double standards (mismatch between preaching and doing) at home.
2. 'Mother' being the 'first teacher' of the child ought to discharge her duties meticulously both through her words and her actions.
- 3.

3) Parents ought to keep a watchful eye on the activities of their wards. Constructive feedback should be given and corrective measures need to be taken whenever and wherever required.



4) Parents should keep in touch with school teachers / principal apropos the progress and behavior pattern of their wards. They may give their constructive feedback to the teachers as well as welcome constructive feedback given to them by the teacher (s) of any.

5) Parents should devote at least sometime daily telling the importance of moral values to their wards by means of fables, moral stories, anecdotes, etc.

6) Parents should not generally condemn their wards. Things may be got done through love and affection.

7) Parents should duly appreciate and aptly reinforce the endeavors of their wards as this would give their children a sense of pride, recognition and belongingness.

#### **Conclusion:**

The present study clearly established that the school has a definite and inevitable role to play in providing moral education in a multicultural society. However, this role has constantly evolved over time and the manner in which moral education was carried out previously no longer caters to the expectations and aspirations of all stakeholders. With rapid technological, economic and cultural change, schools will have to develop a variety of means to morally stimulate adolescents and make them committed to moral action. The success of our nation's endeavor to educate our young people in the democratic tradition that respects and nurtures the cultural diversity we have inherited hinges precariously on our ability to transmit this rich moral heritage and our common moral solutions to the future generation. It requires of us adults to display the imagination, resourcefulness and creativity to stimulate young people into the ongoing process of moral action and reflection. Our schools have thus to be restructured afresh, its partnership with parents, inspectors, nongovernmental organizations revived and our traditional and teacher centered approach reconsidered in a bid to ensure currency and relevance in our moral education programs.

In the present time moral degeneration are occurred. The main causes of value degeneration are: -

- Lack of respect for the sanctity of human life.
- Breakdown of parental control of children in families.
- Lack of respect for authority seen through the brazen breaking of the law and total disregard for rules and regulations.
- Crime and corruption.
- Abuse of alcohol and drugs.
- Abuse of women and children and other vulnerable members of society.
- Lack of respect for other people and property.

To solve all these type problems, it is necessary to know the main causes of the above problems. We know today children are tomorrow's citizens. If we give good education to the present-day children, the future of the next generations will be well. My opinion education is the solution for all types of the problems. Now we are living in the modern century. If we use science and technology in the proper way it is not difficult for us to solve all the problems of the non-moral and value things. The main object of the study is to inculcate moral and value-based education in schools and colleges and to know the attitude of intermediate students towards moral education.

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## PEDAL OPERATED WASH BASIN

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### ABSTRACT

This paper presents the concept of “APPLICATION OF RACK & PINION IN PEDDLE OPERATED WATER TAP” mainly carried out for saving excess uses of water in some basic activities like hand washing, shaving, washing utensils etc. the water is using with high rate in every field of works. So the universe has major problems of water crises in these days, which is gradually increases with the time. This problem will be main cause for disappearing of human races, animals, trees etc.

Today some ideas is in demand but these ideas is very expensive. These ideas is not affordable by every person. People wants save water in low effort in minimum expenditure. So in this project named as APPLICATION OF RACK & PINION IN PEDDLE OPERATED WATER TAP is used to operate the water tap for some basic activities like hand washing, brushing, shaving washing utensils etc. In above activities we can save the excess water by pressing and depressing to peddle with the help of RACK & PINION over the water tap. This project is very cheap and the maintenance cost is also very low.

This project works on the rack and pinion principal which means “the translation motion of the rack is transfer into the rotary motion of the pinion”. In this project, the peddle is bounded with the springs and one springs is attached with peddle. When peddle press the spring allow to rack to moves up and then pinion rotates, and when it depresses then system takes its original position.

### I. INTRODUCTION

My Research describes the design of a “APPLICATION OF RACK & PINION IN PEDDLE OPERATED WATER TAP” which is based on the concept of rack and pinion principal, to avoid the excess uses of water in some basic activities like hand washing, shaving, washing utensils, etc. I have worked on the same project at my college presenting a synopsis showing its basic construction & working. The project work subject is one, in which actually we are learning the theoretical concepts in practical way. Also the practical experience is one of the aim of this subject. To solve water crises problem, this project play a vital role on the earth.

### II. ELEMENTS OF THE PROJECT

THERE are many elements uses in this project. These elements are

#### 1. Watertank

Water tank is used for collecting the water as a water source for the water tap. This tank is made of plastic. It is cylindrical in shape and closed from the bottom. The capacity of the water tank is 5 litre.



## 2. Spring

The spring is an object that stores mechanical energy when it is loaded and releases this energy when it is unloaded. Tension springs are tightly wound coils that are designed to operate with tension. The spring stretches to a specific length as the load/force is applied to it. In an unloaded position, the loops of the spring are touching, with either a loop or hook attached at one end, and it is when this attachment is directed with force that the spring stretches. When these components are pulled apart, usually from either side, the spring tries to hold itself together, causing the springing action, until the force is stopped and it can return to its original form. The spring material is GALVANIZED IRON. The spring obeys HOOKES LAW, which states that "the force with which the spring pushes back is linearly proportional to the distance from its equilibrium length."

$$F = -kx$$

Where--

x is the displacement vector--- the distance and direction the spring deformed from its equilibrium length.

F is the resultant force factor--- the magnitude and direction of the restoring force the spring exerts.

k is the spring constant which depends upon spring material (i.e. galvanized iron.).



### 3. Nozzle

A nozzle is a device designed to control the direction or characteristics of a fluid flow (especially to increase velocity) as it exits (or enters) an enclosed chamber or pipe.

A nozzle is often a hard tube of varying cross sectional area and hollow, and it can be used to direct or modify the flow of a fluid (liquid or gas). Nozzles are frequently used to control the rate of flow, speed, direction, mass, shape, and/or the pressure of the stream that emerges from them. In a nozzle, the velocity of fluid increases at the expense of its pressure energy. The material of the nozzle is stainless steel.



### 4. Rack & pinion

A rack and pinion is a type of linear actuator that comprises a pair of gears which convert rotational motion into linear motion and its vice versa. A circular gear called "the pinion" engages teeth on a linear "gear" bar called "the rack"; rotational motion applied to the pinion causes the rack to move relative to the pinion, thereby translating the rotational motion of the pinion into linear motion.

For every pair of conjugate involute profile, there is a basic rack. This basic rack is the profile of the conjugate gear of infinite pitch radius (i.e. a toothed straight edge)

Rack and pinion combinations are often used as part of a simple linear actuator, where the rotation of a shaft powered by hand or by a motor is converted to linear motion.

The rack carries the full load of the actuator directly and so the driving pinion is usually small, so that the gear ratio reduces the torque required. This force, thus torque, may still be substantial and so it is common for there to be a reduction gear immediately before this by either a gear or worm gear reduction. Rack gears have a higher ratio, thus require a greater driving torque, than screw actuators.

In this project when pressure applied on peddle then it transfer to spring that attached bottom of the rack, and then rack moves and along with pinion also rotates.

### 5. Frame

The frame of the setup for the peddle operated tap consist of 3 straight rod which are welded with the 3 circular rings. The top ring is the base of water tank, the middle ring is the base of the basin and the bottom ring is used for better support.

### 6. Angle valve

Angle valve is structured so that the centre line of the entrance and exit of the fluid intersect perpendicularly. In general , the horizontal line is the entrance and the vertical line is the exit. A manually operated valve with its outlet opening oriented at right angle to its inlet opening used for regulating the flow of a fluid in a pipe.



### III. WORKING PRINCIPAL

The principal is cited below

- In this Project peddle is connected to a tensile spring and upper end of the spring is connected to rack bar.
- When pedal press down the spring pushes to the rack bar upward.
- When the rack bar goes upside also the pinion rotates and it open to tap and allow flowing the water in washbasin.
- When we left the pedal; pedal attached to spring compresses and rack and rack bar comes to its original position i.e. down side and the tap closes.

### IV. ANALYSIS/TESTING

In normal conventional tap, the amount of water used during one time washing hands is 800 ml.

In our project the amount of water used in same activity is 300ml.

HENCE the amount of water is saved by our project is 500ml.

### V. CONCLUSION

The project is inexpensive and easy to build if it will be adopted into the commonly. We recognized the water crises problem and designed the idea from which we can save the water, save the earth, save the life.

### VI. FUTURE SCOPE

- Used in hotels
- Used in restaurants
- Used in homes

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**TERRACOTTA BULL FIGURINES IN EARLY ANDHRADESA  
(upto 6<sup>th</sup> Century CE)**

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The antiquity of terracotta figurines could be pushed a regular manufacturing of terracotta started from the pre- Harappan habitation and supply invaluable information for the study of life and culture of the contemporary people. These figurines are excellent indicators of cross-cultural exchange because they reflect the technical proficiency of artisans and the taste, trends, and orientations. In the north-western part of the South Asian sub-continent, productions and use of terracotta figurines became prominent in Baluchistan during the late fourth millennium BCE and continued to the early third millennium BCE. Making of variety of animal figurines became popular during the late fourth millennium BCE. Humped bulls and sheep were the main subjects to be depicted suggesting that they most probably were selected for their close relationships to the human life as major livestock<sup>1</sup>. In North Baluchistan, the valley of the river Zhob and in the south a site of Kuli, in Markan coast yielded a quite good number of terracotta animal figurines including bulls<sup>2</sup>. In India, terracotta figurines have a long history since the Neolithic times to the historical period. Numerous terracotta bull figurines were discovered from different Harappan sites. In the pre-Indus and Indus cultures, the bull seemed to be an object of veneration as reflected in innumerable terracotta figurines<sup>3</sup> and seals depicting humped, short horned hump less bulls, wild bison and buffalo etc. The early Indian literature, both religious and secular, emphasized the importance of bull and its significant role in Indian religion and society.

One of the least expected and most exciting products of the Archaeological excavations was the recovery of number of terracotta figurines from the Neolithic levels in South India. In South India, archaeologists have observed that the earliest use of clay was made by the Neolithic folks who for all practical purposes were the first people to settle down as agriculturists cultivating land and raising herds of animals. A careful study of clay materials helps one to identify the different cultural groups and their origin, extent of their spread and also to some extent their influence on one another. From the Neolithic times onwards, man was steadily increasing his dexterity in making earthen objects first by hand and then by using mould. The figurines making thus become an important hall mark of civilization associated as it was with the knowledge of Art and techniques. The study of the material culture of an ancient civilization would necessary involve the study of figurines.

Terracotta bulls in neolithic period, first collected by Foote (1914) at Maski<sup>4</sup> in Karnataka. The large number of handmade figurines of bull appeared in the Neolithic culture of South India in Piklihal<sup>5</sup> excavations (1952). The Kurugodu<sup>6</sup> (Karnataka) excavations (2010 & 2011) brought to light terracotta figurines viz., human figurines like male and female, animal figurines like a large number of humped bulls (including one slipped), dog and bird figurines belongs to Period Ib: Neolithic (C.1800-1200 BCE).



The terracotta bull figurines have been found at Mahuri and bullock found at Nadubetta appeared in the prehistoric specimen in Tamilnadu<sup>7</sup>.

The diverse range of iconographic elements and manufacturing technologies can be seen in the history of terracotta figurines in Andhradesa reflecting socio-cultural changes through time. The plenty of Terracotta figurines found in all over Andhradesa. The discoveries include Human figurines in large number and followed by Animal and Bird figurines. Among the animal figurines, bulls are continuously present the most favored one, but diverse varieties of animals were also represented, such as Horse, Elephant, Goat, Buffalo, monkey and etc. In this connection the main objective in this presentation is to highlight the bull type of figurines which are unearthed by the archaeologists in the sites of Andhradesa and their socio-cultural relevance.

Bull is the most favored category animal figurine continuously present in the terracotta art of Andhradesa. The earliest datable bull figurines were found at Palavoy (Ananthapuramu) and Veerapuram (Kurnool) at Neolithic levels and at Ramapuram (Kurnool) and Chinnamarur (Mahabubnagar) in late neolithic levels. The bulls were also found at, Vaddamanu, Peddabankur, Dhulikatta, Kondapur, Kandi, Nagarjunakonda, Dharanikota, Yeleswaram, Indoor, Sankaram hills, Pavuralakonda, Jujuru, and others belonged to megalithic and early historic periods. Among these places large number of bull figurines were discovered in Nagarjunakonda valley and followed by Yeleswaram and Veerapuram. Majority of the bull figurines recovered from the above sites were preserved in the museums and few selected bulls are in display. It is evident from the above that there are 51 bull figurines with variant features are preserved in the museums of Andhradesa. These figurines were found well established cultural sequences in different forms and techniques belonged to different phases. It is also evident that the bull figurines were noticed in 16 historical places of Andhradesa which shows its wide popularity.

These figurines are grouped into two phases viz., Prehistoric and Early historic phase for understanding its antiquity and popularity.

The neolithic culture of the South India was largely based upon pastoralism. The Indian humped cattle are found to have the same most common characteristics which domestic species possess. The fragmentary bull figurines were first appeared in the Neolithic sites of Andhradesa. It is very difficult to trace their characteristic features. The Palavoy<sup>08</sup> excavation brought to light 127 unbaked clay objects in neolithic levels. They are irregular in shape. Several of them are elongated flattish, sometimes round with knob-like projections. One bull figurine discovered at surface level at Palavoy<sup>09</sup> measures 9.1 cm. It is known that handmade figurines of bull appeared in the Neolithic culture in South India at Piklihal, Kotal Nihang, Bara etc. The bull figurines found in Andhradesa are crudely handmade with a small hump, long faces and slightly curved nose. It seems that the hump appears to have been separately made and luted on. Veerapuram excavation revealed terracotta figurines were Period I (Neolithic B: 1500-1300 BCE), they include a few fragments of terracotta bulls<sup>10</sup> with horns. The late Neolithic or Chalcolithic levels of Ramapuram yielded bull heads, probably attached to pots, but unfortunately no such types of pots were found at the site. Another noteworthy characteristic of Terracotta bulls discovered from Ramapuram bears red bands painted on the body. Similar types of figurines were noticed in Indian subcontinent from Kuli-

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Zohab region. The bull figurine found at Chinnamarur belonged to Neolithic period is without hump, slightly curved projected long horns, head and legs are broken. The features of projection horns and without hump resemble the terracotta seals of Harappa and Mohenjadar<sup>11</sup>. In neolithic period bulls appeared in limited numbers and them also made in crude varieties uneven shapes, except red banded bull from Ramapuram. However, the noteworthy point to state here is both the humped bulls and bull without hump were appeared in the neolithic period in Andhradesa. The bull figurines noticed from Ramapuram belonged to megalithic habitation probably attached to other objects. Crude and archaic forms of bulls were the main category in use during the Neolithic times. These bull figurines are made by handmade technique; crude type of figurines and very small in size, except painted bull, remaining all undecorated figurines. The pre historic burial context didn't yield any terracotta bull figurine so far in this region.

The distribution of the Archaeological sites revealed terracotta figurines appear to have increased considerably during the early historical period. During this period the terracotta craft developed in accordance with the aesthetic value of the society. Introduction of mould was an innovation, which could produce large number of artistic compositions in very short duration and long productions. The double moulded by two piece moulds and the core would be roughly for hollowed even firing helping before joining the components at the seam to form the full figurine. The double molded sumptuous and hollow figurines are attested examples of the Satavahana art and followed by Ikshvakus and Vishnukundins in this region. In this region two types of bull figurines are noticed viz., Archaic and Moulded figurines.

The bull figurines noticed in early Satavahana levels at Peddabankur include horns, hump, snout, eyes and tail. The fore legs are pointed masses and rare legs are broken. One figurine shows nose as pointed shape<sup>12</sup>. The similar features are also found in the bull figurine at Dhulikatta which included stout legs and robust body. The hump less bull was found at Kotilingala however features not clear. The main features of the bull figurines of Veerapuram belonged to early historic phase are with hump prominent, legs pointed and elongated neck. A good example of terracotta standing bull figurine noticed from Kondapur<sup>13</sup> yielded hump, eyes, ears, mouth, short and thick horns clearly depicted; highly decorated neck ornaments, anklets, aperture between the legs and bull standing on pedestal. The important points to mention here good number of bull pendants were recovered from Kondapur. Here in all the bull pendants perforation of hole was made in the bottom of the figurine. The bull is decorated with neck ornament (probably belt) and seated on rounded pedestal. Similar bull pendant also noticed at Kyetur. Veerapuram also revealed the bull figurines in early historic level. The terracotta figurines bull and a model of Ganesa figurine found at Period III (Early historic) corresponding to the brick temples<sup>14</sup>. The temples are saivite in nature. Possibly they show the earliest evidence of linga worship. Here, another noteworthy find is noticed in the form of Ganesa also earlier representation. The horns of bull figurines were noticed at Vaddamanu;Dharanikota, Pavuralakonda and Jujjuru. The Vaddamanu<sup>15</sup>excavation brought to light 36 terracotta figurines belongs from CE 100 - CE 600. The figurines are classified into two types of figurines viz., Human figurines (28) and Animal figurines (08). The animal figurines include bull, elephant, ram, lion and ass were found and except the two moulded specimens the rest are hand modelled.

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Here, the full form of bull figurine is not found, only the horn of bull noticed in two numbers in handmade technique. Apart from one moulded leg part may be bull or horse also noticed here. Another noteworthy animal figurine is Ass. The Sankaram hills<sup>16</sup> brought to light small terracotta figurines such as bull, ram's head, female figure without head, goat and female bust. Only one bull figurine noticed without hump made in handmade technique and undecorated. Kandi, Indoor, Pavuralakonda and Jujjuru also revealed bull type of figurines in early historic levels.

The historical places such as Nagarjunakonda and Yeleswaram in the vicinity of Krishna valley exposed huge number of animal figurines. The large number of bull figurines with variant style and characteristic features were discovered in Nagarjunakonda valley<sup>17</sup> Bull figurines with or without hump which was recovered from 12 different sites of Nagarjunakonda valley only one specimen was made of handmade technique, two specimens are single mould and the remaining are double moulded hollow type. They reveal the entire progress of terracotta manufacture technology in the valley. The height of the figurines is range in between 2 to 7 cm. The most of the figurines noticed from here are obliterated All the bull figurines are standing position with pedestal, except two seated bull figurines. Only one figurine belongs to crude variety. The Yeleswaram<sup>18</sup> excavation also revealed large number of bull figurines. The handmade wearing neck belt without design legs and horns are broken, and the other bull head seems to luted from storage jar, having chain with hanging bells in neck, mouth, ears, nose and horns are thoroughly described are noteworthy. The significant feature is bull also depicted besides Uma in standing position. The double mould figurines similar to Nagarjunakonda bull figurines.

The mythological association of the bull and its importance in human life are known. A close analysis of these bull figurines shows that most of the bulls are humped bulls. Majority of the bull are standing in nature, rarely depicted with seated position. The body of the bulls is also found decorated with Neck belts in some cases bulls are decorated with ornaments not only for neck, but also up to half of the body suggest that bull worship. This type of decoration of the bulls also noticed in a fine lime stone life size bull recovered from Amaralingeswara temple, Amaravati<sup>19</sup>. Interestingly, large numbers of decorated bull pendants also recovered in Kondapur also strongly suggest the practice of bull cult. In this region, bull is worshiped (*Kanuma* festival) even today, especially day after *Sankranti* festival occurring in the month of January. A comparative analysis of bull figurines produced in different places of the region show that technique, treatment, style and characteristics are vary. The bull also depicted besides Uma in standing position and also decorated with a belled neck-strap<sup>20</sup> at Yeleswaram in religious context.

The mythological association of the bull and its importance in human life are known. These particularly examples are bull had been domesticated by these people who must have had high esteem for them, and hence must have worshipped them. In supports of the above view, bull worship clear that was the main faith which flourished in the region and practiced by early historic people in this region. Bull representation is an important theme in the terracotta animal forms of Andhradesa. Bull representation practiced in the terracotta art in the early culture of Andhradesa from Neolithic 6<sup>th</sup> century CE. It shows that the figure of bull predominated in these sites in different

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places of the region show that technique, treatment, style and characteristics are varied. The bull festival (Kanuma) next day of Sankranthi celebrated every year shows the importance of bull in this region. The folk religious culture there, perhaps, included the bull betting, racing and fighting which continue till date.

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## MARY MCCARTHY'S *THE GROUP*: A NOVEL OF RELATIONSHIPS

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### **Abstract**

McCarthy, the pioneer of the campus novel, was well known through *The Groves of Academe* that came out in 1952. It is noteworthy that McCarthy herself was an academician who taught at various colleges and universities. She was, therefore, fairly well qualified to attempt this genre. By all standards she was a bright and sharp intellectual who also belonged to a group called New York intellectuals. Her biographer Francis Kiernan pays her tribute: "She was a great heroine to many young women of my age. She was heroine for her independence and her courage in speaking out in defense of lost causes and for her ability to combine great personal glamour with a ferocious intelligence" (Stwertka, 111-113).

**Key Words:** Relationship, Socialization, Progressive, Group, Superficial, Society.

*The Group* is a novel about relationships: relationships that women have with one another, relationships they have with men, and their relationship to society. Some of the women work get married and travel, and others do not. Some of them are more appreciated members of the group and society perhaps than others, although they all come from the same educational "starting point." The reasons for these differences can be traced to the socialization processes that the characters go through. The lives of the women are often described tinged with competition for social status and fear of being deviant in a negative way – although at the same time all of them wish to be progressive and different from their mothers. Donohue describes the characters: "The women of *The Group* compete with each other for that gets the best life, the best man, and their juggling of allegiances at Vassar is merely a precursor to their lives; their 'friendship' is superficial" (Carlo, 98). This is a rather starkly absolute statement, but at least partly true: the need to be an accepted and respected member of society sometimes does surpass the importance of friendships for them.

Although the novel starts in medias res with Mulcahy receiving a letter from the college president Maynard Hoar, the opening chapter, in fact, brings in to focus the crux of the plot: A letter pertaining the expiry of contract with Mulcahy as an instructor in the literature department. But the background information about the college, its liberal academic programmes, its faculty and campus is provided by the author in the fourth chapter entitled "Ancient History." Indeed the chapter focuses on the reality of liberal education in America in the 1950s. And the way the facts about the college as well as liberal education are presented and analysed stands as a proof of McCarthy's satirical acumen. With its emphasis on progressive education Jocelyn comes up for satirical attack. Its student were "to specialize neither in verse writing, nor in the poetic theatre, nor in the techniques of co-operative living—they were simply to be free, spontaneous, and co-education" (ibid, 115). It is not surprising that the quality and

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merit of the students at the campus reflected poorly on its faculty, that is the teaching staff. Despite a high tuition and other screening devices despite a picturesque campus .... Perhaps the educational factor, perhaps the once advertised freedom, had worked to give the college a peculiarly plebeian and subversive tone, like that of a big-city high-school. The satirical gibe becomes a bit more edged in the following quote from the novel. "After six months of Jocelyn, they felt that they had "seen through" life, through all attempts to educate and improve them, through Love, Poetry, Philosophy, fame and were here, it would seem, through some sort of coercion, live a drafted army." This evidently disproves the wish rhetoric of liberal education, its advocates and practitioners. Even the faculty hardly stands true to the parameters laid down in the programme of liberal higher education in America in general, and Jocelyn in particular. McCarthy has honestly depicted the faculty: And over the management of these students, the faculty, equally heterogeneous, would within the year, become embroiled, with each other, with the student-body, or with the president or trustees. For the chaos and unwarranted freedom the teachers were as much responsible as the students themselves, because: No truly great question had ever agitated the campus since. The original days of the founder, but the ordinary trivia of college life were here blown up, according to critics, out of all proportion. Nobody was surprised or embarrassed whenever a scandal rose up, as the campus was a fertile ground that yielded scandals of all sorts off and on. Besides this the college was in a continual hot water financially. Only the bursar seriously worried about balancing the budget, and his worries were accepted tolerantly this was his metier. The faculty now took it for granted that fresh students would appear every fall out of nowhere. Indifference towards work and profession was at least partially common in both the students and the teachers. It was largely due to the absence of pressure from without, the unconcern of parents and inertia of alumni group, which produced at the same time an opposite and corrective tendency. However, the faculty contained a strong and permanent minority of principled dissenters, men and women whose personal austerities and ethical drives had made them unacceptable to the run of college presidents and who had found the freedom of Jocelyn both congenial and inspiring. The teaching community at Jocelyn was a curious mixture of Irreconcilables, to whom questioning was passion.

Jocelyn campus was thick with the air of progressive orthodoxy, which rarely found any material shape among the faculty members, as they were orthodox as well as progressive—a contradiction like other ones. Those who did not subscribe to any item of the progressive creed tended nevertheless to take sides with one faction or another for temperamental reasons. "The faculty was torn apart, some-times on very trivial matters. An unresolved quarrel between the sciences and the humanities was at the bottom of every controversy, each claiming against the other the truer progressive orthodoxy" (Barrett, 40). Nothing would flatly and easily bring out the bewildering diversity of opinions and ideas than the discussion which took place every fall. The subject of this discussion was very crucial to the students and teachers alike. It was period of four weeks spent by the student away from the College in factory laboratory, newspaper plant publishing firm or settlement house. This programme was aimed at testing the ability of the student; they could learn through doing work and thus be self-reliant. The nature of the success of the field-period was the measure of the success of college.

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There were two opinions in the faculty about the usefulness of this programme. Especially the poor students came across, suffered a lot. For many authentic and sometimes fabricated reasons the regressive party ironically called “pure scholars” in the faculty would claim that the field-period had lost its viability and therefore ought to be abolished.

On the other hand the progressive side had two fractions: moderates and extremists. The extremists found nothing to criticize on this core. Either a return to first principle to or no field period at all was the slogan that governed their voting. Here they were in conflict with the moderate their own tendency, who felt obliged to defend the field period against this two pronged attack. Apart from these, the number of fence sitters or self-serving teachers accounted for the majority in voting in favour of the vacation granted during the field period. This majority consisted of the less scrupulous of both sides and they voted shamelessly for motion that would save their precious vacation. This obviously exposes the hollowness, prevailing in the teaching community. Even the most principled and devoted teachers at Jocelyn were averse in articulating their manifest position to the field-period programme. In addition to this, Jocelyn professed the rhetoric of individual instruction, with a faculty of forty one persons and a student body of 282—a ratio of one teacher to every 6.9 students, which made possible the practice of individual instruction. Like the field period individual instruction also faced an undercover negative campaign, with Mulcahy as the kingpin. In the individual instruction programme the students was supposed to spend one hour a week with a tutor in his major field, this tutorial hour being the center of his education, accounting, theoretically, for one-fourth of his academic work and requiring a minimum of eight hours of preparation. In practice both the student and teacher found this matter complicated and almost useless because “in principle, the choice of subject within the field was left entirely up to the student. Within the realm of his major interest, he was at liberty to select any writer, period, movement, or phenomenon that struck his personal fancy.” This unbridled freedom of choice in academic activities rendered the ideal of individual instruction highly comic and inadequate. It also amounts to an ironic exposure of intellectual pretence on the part of students and teachers as well (Stock, 25-27).

Jocelyn campus finds elaborate space in the novel and serves as a fitting ground for attack on the faculty and their lapses. With the exceptions of some teachers like Ms. Domna Reznev Jocelyn proved to be a happy place for its faculty. The very lack of organization amounted to a blatant mockery of academic ideals at Jocelyn. McCarthy has given a satirical punch to the entire academic community: It was the faculty, paradoxically, that profited most from Jocelyn’s untrammelled and individualistic arrangements, the students being on the whole too disorderly or lazy or ill trained to carry anything very far without the spur of discipline. Thus, Jocelyn was mostly a “lotus-land” for the faculty. It was full of continuous factional disputes and ideological scandals which were a form of spiritual luxury that satisfies the higher cravings for polemic, gossip, and back biting without taking the baser shapes, so noticeable in the larger universities, of personal competition and envy. Here living was cheap and salary range was not great. The headships of the department were nominal, falling by common consent, to the member with the greatest test for paper work. However, the competition,

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stereotyped in nature, was centered on tutees. Among the faculty the more ambitious teachers, as everywhere, vied for the better students, partly because these were more interesting and also easier to teach, partly because of vanity, and partly from the more insidious egotism of the Potter's Hand, the desire to shape and mold the better-than common clay and breathe one's own ghostly life into it – "the teacher's besetting temptation" (McKenzie, 59-60).

On the other hand there were certain good-natured and easy going teachers who preferred the inferior student. A shift in focus from this to the salary of faculty is imperative at this point. The salary-scale here was significant. It ranged from three thousand to 5000 a year. Although it was not much, it was adequate to the needs of the creative people who as in most progressive colleges formed the majority of the faculty and had other means of income. The faculty included instructors largely unmarried and professors with settled family. It is interesting that even such an instructor as Henry Mulcahy, "tortured by debt, doctor bills, coal bills, small personal loans never paid back, four children outgrowing their clothes, patches, darns, tears, the threatening letters of a collection- agency, knew himself well off here in comparison to many an instructor at state university or endowed private college" (McCarthy, 35).

Thus, Jocelyn followed the progressive pattern of offering a reasonable security to those in its lowest rank, while holding out few prospects of advancement at the top level. In fact heterogeneity and this order marked at Jocelyn which had been able to recruit "a faculty of poets, sculptors, critics, composers, painters, scene designers, and so on, without academic experience and without, also, academic ambitions of careerist sort as well as beginners in history, science, or philosophy fired with the love of subject and impatient of graduate-school norms; plus a certain number, of seasoned non-conformists and dissenters, sexual deviants, featherbedders, alcoholics, imposters." Among these professors and academics, those in the literature department especially happen to be in the limelight of the plot which centers on Henry Mulcahy. The voice of Mulcahy, McCarthy satirizes the academic community. The background is the McCarthy era during which communist and their sympathizers were being investigated and persecuted. From the foregoing description of Jocelyn, its so-called liberal atmosphere, its faculty along with the students, it becomes evident that the novelist has constructed a world where values are inverted. The thematic thrust of the novel is simply this: the apparent firing of a man for the communist past elevates him to the stature of a martyr. The main character, Henry Mulcahy, is a despicable man by most standards, who subverts truth in order to retain his position as a member of the faculty of Jocelyn College. Opposing him is the president of the school, Maynard Hoar, liberal, honest, good-looking, who tries to fire Mulcahy for his academic incompetence. Surprising though it may seem, McCarthy has rendered this brief plot into a hilariously satirical campus novel. By all standards the skill involved in the creation of such a satirical comedy establishes the superiority of her excellent fictional masterstrokes. Almost all the satirical portraits in the novel lead one to an experience of amazement and amusement together. While selecting the plot, characters and the locale of her novel, McCarthy had a specific target in mind: the satirical exposure of academic pretence and hypocrisy. She has explained why she started with this particular plot and why she singled out a humbug professor such as Mulcahy: "The plot and this figure:

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there cannot be the plot without this figure of the impossible individual, the unemployable professor and his campaign for justice” said McCarthy. “Justice, but in quotes, you know, and serious in a way. What is justice for the unemployable person? That was conceived from the beginning as a plot: the whole idea of the reversal at the end, when Mulcahy is triumphant and the president is about to lose his job or quit, when the worm turns and is triumphant. I did not see exactly what would happen in between; the more minute details were not worked out. But I did see that there would be his campaign for reinstatement; and then his secret would be discovered. In this case that he had not been a communist” (ibid, 59)

The way this novel unfolds the plot evokes irony from the very outset. The opening chapter entitled “An unexpected letter” encapsulates the central figure’s crisis which surfaces in the form of a letter from the college’s president, Maynard Hoar to Mulcahy. The letter conveys to him the expiry of his teaching contract there. The plain truth was that Mulcahy was dismissed but he was not the one to give up so easily. With the notorious reputation of being the cleverest man in faculty he began to devise ways and means to get out of this mesh. Before making any concrete moves, Mulcahy sets out to exhaust all the potentiality of his devious intellect. Through a series of introspection and flashbacks, which oblige him to feel pity and contempt for himself and in turn induce a bitter contempt towards Maynard Hoar, he suddenly decides to refuse to be fired for which his much noticed demerits of incoherence and illogic gave him the strength of his position. As a professor of literature he banks on his imagination to overcome the crisis. Ironically enough, his imagination enables him to concoct the story of his wife’s allegedly secret illness and his past affiliations with the communist party. Once Mulcahy has cooked up the story, his next move is to seek someone in the department who could rally support to his cause and thus help him get through the present imbroglio. No wonder he tracks down his safest and nearest target, Miss Domna Reznev. She could lend him a double support-as a colleague and a family-friend.

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## SOFT SKILLS: KEY TO ACHIEVE HUMAN EXCELLENCE IN 21<sup>ST</sup> CENTURY: SOME INSIGHTFUL THOUGHTS

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### ABSTRACT

Education is considered as an instrument par excellence for facilitating sustainable national development and enabling global competitiveness. According to Toland, (2011) “education empowers people to compete favorably with the best of the world; and it has longstanding and abiding connection with the economy.” An adequate supply of skilled graduates into the labor market, particularly, bolsters a nation’s ability to position itself comfortably against its global competitors and enhances its capacity many fold for innovation and enterprise. Due to steady increase of global socio-economic challenges, nations are investing substantially in education for producing highly confident, self-reliant, competent and thoroughly skilled graduates. There is a renewed focus on development of technical and functional skills as well as work-related competency among the youth both within and outside the educational institution systems. Education columnists like Parker and Dixon stated that stakeholders in education, including the employers of labor, are deeply concerned about the students’ acquisition of skills relevant to today’s world of work. It has dawned on the minds of both the policy-makers and the stakeholders that mere acquisition of necessary subject-specific skills by the students does not keep them in good stead and are not sufficient for them for recruitments. The employers are expressing gross dissatisfaction with present day graduates’ overall work-related skills and preparedness for jobs for which they are being recruited. The absence of soft skills teaching and training in the curricula of schools and colleges is quite conspicuous and glaring. This has resulted in inadequacy of job related skills on the part of the young students. Added to this, the incumbents and the employers are desperately dissatisfied with the kind of education system which is lacking the system of making the students competent enough with either soft skills in bided by birth or being imparted in the current educational systems at all level. Soft skills are felt for as they enhance the students’ social or behavioural skills which ensure for their human excellence both at personal and professional level. The present paper highlights such realities.

### Soft skills: Order of the day and need of the hour:

Soft skills have been a subject of accelerating interest in lifelong learning for more than one reason. Kechagias (2011) stated that “the possession of soft skills, the intra- and inter-personal skills essential for personal development, social participation and workplace success” is strongly associated with life and employment success. The

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analysis of soft skills is generating an increasing concern and there is a growing demand for their inclusion in education and training, and especially in the provision of systems such as mentoring and specialist programmes and courses to develop soft skills. Weedon and Tett (2013) in their study suggested that there is no need of specific programmes in developing soft skills, but what is required is a more coordinated and sustained effort to develop soft skills, one that includes reward and reinforcement in the real fields where soft skills are to be exercised. They concluded that the necessity of a coordinated and sustained effort is also consistent with the scholars in the workplace that have been commenting and demanding. Illeris (2011) stated unequivocally that lifelong learning and competence development, which apart from others also included soft skills. Education, undoubtedly, is one of the most powerful and potent agencies in developing appropriate and much needed skills for individuals and in determining the future of both the people, corporate sector and in a wider context for nation.

### **Soft Skills:**

Soft Skills refers to personality traits, social graces, facility with language, personal habits, friendliness and an optimistic view about himself/herself and others. These skills are essentially people skills – the non-technical, intangible, and personality specific skills. These skills sometimes can also be called social skills, behavioural skills and emotional skills and in brief the life skills. These skills determine one's strengths, as a leader, listener, negotiator and conflict mediator and importantly an individual's personal and professional growth and development.

### **Emerging need for soft skills:**

Soft Skills enable an individual to imbibe a powerful and pleasing personality. It facilitates an individual to make a mark and do everyday activities to the best of his abilities for reaching his objectives and goals. These skills are expected to be of much utility in everyday tasks and activities, irrespective of their size, big or small.

A soft skill has been there for ages, since the advent of human interaction.

Soft skills have been in existence ever since interaction and communication have started in the human community. People have learnt them after being witness to the success of other individuals who had soft skills. Till a decade ago, people did not talk about soft skills explicitly. In spite of the fact that the people belonging to the management in organisation appreciated the importance of soft skills, they never chose to give weightage of respect that the soft skills demanded. However, a change has been witnessed regarding the importance of soft skills and people have started taking into cognizance the salience of soft skills.

All industries, regardless of the character, have come to acknowledge the fact that soft skills are as important and necessary as traditional hard skills. It is to be borne in mind that soft skills a very great extent complement hard skills. However, it is imperative to remember that **soft skills** are no replacement for hard skills. Soft skills not only play a very important in determining the in personal life but also a professional life. Companies have been busy explicitly acknowledging the fact that they would

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procure people with definite hard skills but were not the position to find people who were endowed with good soft skills.

It has been reported through the National Employers Skills Survey which was conducted in 2014, that the employers regarded shortage in soft skills which apart from others included teamwork, communication, responsiveness and customer handling skills as for more vital and crucial than the technical or hard skills. Poor soft skills tend to create a very image and impression about the job seeker in the minds of the employers at the time of recruitment and many graduates who have sound knowledge of their domain and technical skills are excluded from being selected for the employment. (Pauw and et al, 2006).

Soft skills play a very defining role in shaping human personality The dream of any educator is that the graduates who are pursuing their education in the tertiary educational institutions, apart from being experts in their chosen domain area , must also be matured personalities who possess a well-balanced and around off education. This can be achieved only if the students imbue soft skills.

Soft skills play a very salient role in providing an individual with a very pleasing and coherent personality. They complement hard skills, apart from making an individual imbibe social competence. Hard skills and soft skills glue together meet the technical requirement of any job profile. Hence, hard skills and soft skills stand on the same pedestal but the soft skills should not be put to a bad use for camouflaging an individual's lack of expertise in his domain area.

### **Soft Skills Typology:**

Today, the society is very complex with quick access to information, rapidly changing digital tools, and the ability to collaborate on a global scale. To learn effectively and live productively in the 21<sup>st</sup> century, it is essential for today's students to develop set of skills more so soft, social or life skills.

Soft skills can be stated to incorporate all aspects of generic skills that include the cognitive elements associated with non-academic skills. Soft skills are recognized to be the most critical skills in the current global job market especially in a fast moving era of technology. The refocuses of education which is one trust of education for sustainability also relates the importance of these so-called soft skills.

The following are the important soft skills that are to be developed among the students in all institutions especially of higher learning. They include-

- i. Communicative skills.
- ii. Thinking and problem solving skills.
- iii. Teaming skills.
- iv. The skill of Life-long learning and Information Management skills.
- v. Entrepreneurial skills.
- vi. The skills of being ethical and maintain professionalism.
- vii. Leading skills.



### **(i) Communicative Skills**

The communicative skills includes effective communication in both the national language and English language in different contexts and with different people. Today, Communicative skills are an essential part in any system of education either in higher education or lower education. Basic education or primary education is mandatory and it focuses on reading, writing and ciphering in many countries. People acquire knowledge of skills to read books, write letters, figure accounts and develop skills necessary to fulfill their expected roles in their households and community. The absence of good communicative skills somehow or rather has an influence on the poor presentation of their views and decisions made to gain other's confidence and respect. Communicative skills have also been greatly emphasized in the reorientation of basic education for Education for Sustainable Development (ESD) which stresses on the ability to communicate effectively both in oral and writing. In the days to come, communicative skills will be found wanting human capital. The incompetence of the future graduates to master both languages is a set-back to a lot of potential development and advancement of the country. Thus, it is a good time to restructure the curriculum of higher institutions focusing on communicative skills among the students. The following sub-skills include the Skills of Speaking, Presentation, Negotiation, Nonverbal communication, Listening and empathizing, Persuasion, Public Speaking, Storytelling, and Written Communication, etc.

### **(ii) Critical thinking and problem solving skills**

These skills include the ability to think creatively, innovatively, critically, and analytically. They also involve the ability to apply knowledge and understanding to new and different problems clearly. For Education for Sustainable Development (ESD) to be successful, it must provide practical skills to people so that they will enable to continue learning after they leave school, to have a sustainable livelihood and to live sustainable lives. The critical thinking skills, skills to organize, skills to formulate questions, interpret data and information, and the ability to analyze issues that confront communities are greatly addressed in the reorientation of basic education in ESD. The under mentioned are some of the examples of skills that comply with ESD and some of these skills are similar to the soft skills being emphasized in the curriculum of higher education. The ability to think about systems of both natural and social sciences.

- (i) The proficiency to think in time-to forecast, to think ahead, and to plan.
- (ii) The talent to think critically about value issues.
- (iii) The capacity to separate number, quantity, quality and values.

### **(iii) Teaming skills work place**

Teamwork is the indispensable skill required at every point in the process of development of one's career. This skill involves ability to work together with people from different social cultural background to achieve a common goal. Students must understand the importance of unity. Students are exhorted to play their role in the group and to respect opinions and attitudes of others in the group. In addition to the responsible of the group's decision, they are also expected to contribute to the group's plan and coordinate the group's effort. This skill is as a portion of ESD as stated in the reorientation of basic education: the ability to work cooperatively with other people. If

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team work skill is attained by the future human capital that can assure the future generation to collaborate ideas and cooperate a taskforce towards the well-being of the nation. These skills primarily include the skill of Team Player, Collaborative, Empathetic, Influential, Networking Skills, Interpersonal Skills and Knowledge to deal with erratic personalities, etc.

**(iv) Life-long learning and management of information**

Life-Long Learning and Management of Information skill have an exertion to learn to be self-regulated learning in acquiring skills and new knowledge. The criteria of this soft skill is to find out and manage relevant information from various sources. In addition to this, students are also expected to develop an inquiry mind and yearn for knowledge. As stated earlier, these characteristics are equally important in Education for Sustainable Development (ESD) in order for an individual to be media literate and consumer knowledgeable. Thus, the Life-long learning will enable individuals to accumulate as much knowledge and skills over the years.

**(v) Entrepreneurial skills**

The capability to pursue potential opportunities and ability to foresee and face the calculated threats and risks. It also includes being creative and innovative in activities related to personal and professional. This skill can help especially to design and plan business propositions and the ability to be self-employed. This skill can in somewhat contribute to the society if the proper training and practice is done for a good purpose.

**(vi) The skill of being ethical, moral bound and maintain professionalism**

These skills are under the category of soft skills which will help in practicing a high moral standard in professional tasks and social interaction. This skill also involves the ability to analyze ethical problems and make problem solving decisions. Another criteria of these soft skill is having a sense of responsibility towards society.

**(vii) Leading skills**

Leadership skills include abilities to lead in various activities and tasks. This skill is also important to lead a team, in discussion and make decision and work for the benefit of the society and keeping aside the personal viewpoints, biases, and conflicts.

**Conclusion**

In a succinctly, Soft Skills are very essential to enhance the prospective employee's employability and enhancing personal efficiency and excellence. Soft Skills need to be developed among the young students to make them talented to meet the demands of the current job market. These soft skills are to be incorporated in the syllabus at college level to make the students proficient. This will surely help students in increasing their employability skills and it will make them execute the assigned works efficiently in any institution after the selection process. Mere academic abilities are not enough. What is essential is something beyond academics such as soft skills including communication skills, interpersonal skills, negotiation skills, problem solving skills. It is rightly said that there is a need to clap with both hands to get the results.



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## ACADEMIC ACHIEVEMENT OF X GRADE STUDENTS IN THE SUBJECT OF MATHEMATICS IN THE DISTRICT OF SRIKAKULAM

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### ABSTRACT:

Grade X is the final grade for general education in India. At the end of this grade students have three options. To join the preparatory class or to join vocational and technical training institutions or to terminate schooling if not competent for the options. The study of student's academic achievement helps the government of Andhra Pradesh to know the status of their students when compared with the other competitive states and to make all the necessary efforts to be competitive. In sharing the limited resources allocated to them. Knowledge of student's academic achievement which is dealt in this study is therefore highly valuable for policy makers at the national and regional levels.

### 1. INTRODUCTION:

The present study "Academic Achievement of X Grade Students in The Subject of Mathematics in the District of Srikakulam", is valuable to serve as a feedback for the effectiveness of the grade X mathematics curriculum in A.P. The knowledge of student's academic achievement enables policy makers of the curriculum so as to attain better results than before.

Measuring what and how students learn is an important building block in the process of strengthening and improving schools. Student's academic achievement in mathematics is valuable indicators of student's performance and a good source of information for teachers, students, parents and administrators and policy makers. Indicators of student's knowledge, skills and ability.

The study focused on core subjects in India like mathematics. Mathematics is the cradle of all creations, without which the world cannot move an inch. Be it a cook or a farmer a carpenter or a mechanic, a shopkeeper or a doctor, an engineer or a scientist, everyone needs mathematics in their day-to-day life. Even insects use mathematics in their everyday life for existence.

The study is undertaken with a view to assess the academic performance of the X grade students in the subjects of Mathematics and their relationship.

Moreover mathematics are compulsory subjects in India. Achievement in these subjects at large determines whether students would be promoted to preparatory program for joining colleges' universities or technical and vocational training institutes. Since secondary schools in



the country are with similar inputs but different students background such study is highly useful for decision makers to ensure similar standards.

## 2. OBJECTIVES OF THE STUDY:

- 1) To study and identify the difference between boys and girls in learning mathematics of X grade students.
- 2) To study the impact of demographical variables like gender, age, community, parental occupation and income on the academic achievement of students.
- 3) To compare the achievement level of X grade students in mathematics, in various types of schools like rural-urban, residential – nonresidential and private management – government management.
- 4) To find out the influence of the socio economic and parental educational background on the learning of mathematics.
- 5) To suggest measures for improvement of learning mathematics of X grade students.

## Hypotheses of the present study:

- 1) There will be no significant difference between boys and girls students' achievement in mathematics subjects of x grade students in secondary school of Srikakulam district.
- 2) There will be no significant difference among the students achievement basing on their type of school, in mathematics subjects of X grade in secondary schools of Srikakulam district.
- 3) There will be no significant difference among the X grade students academic achievement basing on their parental occupation in mathematics subjects in secondary school of Srikakulam district.

## 3. REVIEW OF RELATED LITERATURE:

**Eswari N (2018)** undertook an investigation entitled “ Effectiveness of teaching mathematics” An approach an how to reach mathematics by integrating meaningful technology to faster the learning process specifically the focuses on how the integration of multimedia based teaching a great advantage of multimedia lesson is particularly in student accesses knowledge and information through T.V. digital media cable network ,internet and social media, the use of technology in education has grown rapidly in recent years mathematical is universal in senses that other fields of human thought are not it fields useful application in business, industry ,music ,history ,scholarships, politics sports medicine agriculture and engineering and the social and natural sciences “the rapid growth of multimedia technology over the last decade has brought fundamental changes to educational system it will create suitable learning context which enable learner to control the learning environment.

**Kaur Harjinder ,sankhiananurag (2017)** conducted a study entitled “Effect of activity based method on achievement motivation and academic achievement in mathematics at



secondary level” The present study was conducted to examine the effect of the activity based method in mathematics on achievement motivation and academic achievement. The sample compared of 60 students of ix class studying in private senior secondary school of ambase city Punjab. the tools used for conducting the present study were deomohan achievement motivation scale (n-ach) - (1985)self-prepared modules of mathematics for selected five topics of ix t grade and self-prepared pre-post achievement test of mathematics .the findings reveled that students taught mathematics through activity based method differ significantly, in achievement motivation as compared to the control group (traditional teaching method) results also show that the students taught mathematics through activity based method differ significantly in academic achievement as compared to the control group (traditional teaching method).

**Ali Mohmood (2016)** Conducted A Study On “A Study Of Secondary School Students Attitude Towards Mathematics In Relation To Their Achievement And Professional Choices” The study explores the attitude of secondary school students towards mathematics in relation to their achievement and professional choices. The descriptive survey research method was used for the study, the sample consisted of 120 students there 60 girls and 60 boys from A.M.U girls high school and S.T.S High school respectively. The sample was drawn by stratified random sampling. For the collection of data researcher used the occupation aspiration scale developed by haler and miller (1967) and mathematics attitude scale prepared by the investigator. The findings of the study revealed that (I)thereexit a favorable attitude of secondary school girls and boys towards mathematics .(II)students having high achievement scores have a positive attitude towards mathematics.(iii) students having positive attitude towards mathematics go for mathematics related professions .(iv) there is no significant difference in the attitude of science and arts stream of secondary school girls and boys.

#### 4. RESEARCHMETHODOLOGY:

The purpose of this study was to examine the academic achievement of X grade students in the subjects mathematics at Srikakulam district, A.P. with respect to gender, age, family income, parental educational background and the type of school; The present study used survey method of data collection and it includes both quantitative and qualitative research method .The quantitative research method focused on achievement tests and open ended questionnaires; whereas the qualitative research method focused on interview and document analysis. Therefore, this chapter explained about the population, the subject of the study, sampling method, general information about the simples, specific information about the respondents, variables, instruments of data collection, procedure of data collection and methods for analyzing data.

##### 4.1 Population:

The population for this consists of all government and private schools of X grade students and their academic achievement in the subject mathematics. There are a total of 19 Mandalas, 241 government and 149 private secondary schools. The names of Mandalas and number of government and private schools in each of the mandal are as follows



S.No.	Name of the Mandal	No. of Govt. schools (Mandal)	No. of private schools (Mandal)
1.	Polaki	12	6
2.	Ranastalam	15	7
3.	Santhakaviti	10	5
4.	Seethampeta	17	1
5.	Tekkali	13	11
6.	Veeragattam	12	5
7.	Vangara	10	1
8.	Srikakulam	22	45
9.	Sarubujjali	9	1
10.	Santabommali	11	1
11.	Rajam	8	17
12.	Pathapatnam	12	12
13.	Narasannapeta	12	12
14.	Mandasa	19	3
15.	Kotturu	9	5
16.	Hiramandalam	7	2
17.	Kanchali	13	2
18.	Etcherla	16	3
19.	Amadalavalasa	14	10
<b>Total</b>		241	149

The population comprises of sex, age, income, educational background and locations. These population groups have heterogeneous in nature can be assigned randomly at different schools and sections. In each classroom settings all the above groups of variables exist.

#### 4.2 Subject of the study;

The subject of the study were of X grade students academic achievement in mathematics at secondary schools of Srikakulam district. This study will be conducted by survey method. The participants of the study were based on gender (m/f) family income (poor, unsatisfactory, average, high, and very high income) family educational background (illiterate, literate elementary, high school, diploma and degree and above level) and the type of school.



### 4.3 Sampling Method

Since the number of X grade students in Srikakulam district are very large, i.e 38 mandals 470 government schools, and 161 private schools. Out of the total 613 schools. The researcher selects 04 mandals, from each mandal 04 schools total covers to 16schools.

The Eight Mandalas Are the Followings.

S.No.	Name of the Mandal	No. of government schools	No. of private schools
1.	Amadalavalasa	2	2
2.	Veeragatam	2	2
3.	Tekkali	2	2
4.	Kotabommali	2	2
<b>TOTAL(32)</b>		<b>08</b>	<b>08</b>

In order to collect the data from the selected sample, the following tools are constructed

- 1) Questionnaires
- 2) Standardtests

### 4.4 Statistical Treatment;

Mean, Median, Mode, Standard deviation correlation T-test and F-test are to be conducted.

### 4.5 Variables of the study;

- 1) Gender: Both boys and girls of X grade students.
- 2) Family Income: poor, unsatisfactory, average, high and very high income.
- 3) Family Educational Background: illiterate, literate, elementary, high school, diploma and degree and abovelevel.
- 4) Type of school: Based on the type of institution, the schools are classified asfollows.
  - a) Government,
  - b) Private
  - c) Residential
  - d) Non-residential
- 5) Locality of the school: The schools are classified into two groups based on their location.
  - a) Urban: The schools, which are situating in mandal, headquarter.
  - b) Rural: The schools, which are situated outside the mandal headquarters (surrounding area).
- 6) Caste/Community: SC, ST, BC, OC and others.



#### 4.6 Instruments:

A four alternative answers multiple choice tests were constructed in mathematics from the broad content area of the secondary school level curriculum, to know the achievement in mathematics in the areas of the topics arithmetic, algebra, straight lines, trigonometry, sets, progressions, mensuration. Probability, statistics, reasoning and also basics of the mathematics.

#### 5. RELEVANCE AND ANTICIPATED OUTCOMES

The present study compared x grade students achievement in mathematics in the Srikakulam district of Andhra Pradesh; from 19 mandals 500 students will participate In the study the dependent variables were achievement in mathematics the independent variable were gender parental educational level, income and occupation, community, students interest and attitudes towards mathematics and often the students were engaged in doing mathematics assignments.

- This part covers highlights the key results of the study major findings of the study and suggest in the areas in future research.
- Whether there is any significant impact of the demographical variables like gender, age, community, occupation and income on the achievement of mathematics.
- Whether there is any significant impact of type of school and locality on the academic achievement in both the subjects Mathematics.
- Whether there is any significant impact of Scheduled, backward and other community students in their learning approach.
- Whether parental Education any significant impact on the level of academic achievement in Mathematics.
- Whether type of school i.e. residential and non-residential setup any significant impact on the academic achievement of the X grade students.

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## FUNCTIONAL SKILLS TRAINING TO PRIMARY LEVEL INTELLECTUALLY DISABLED CHILDREN

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### ABSTRACT

Intellectual disability as a departure from adequacy in intellectual, social, medical, educational, and psychological areas has generated a venerable history of concern. Not all the history has been a tribute to man's capacity for humanitarian accommodation, but the present era is a wondrous improvement over the past records. Studies conducted in this area by Narayananand Ajith (1991), Bidwell and Rehfeldt (2004) Chiang & Lee (2017), Fidan, Nuray and Bülent(2018) revealed that systematic skill training of intellectually disabled children can enhance the level of attainment of life skills including personal and social skills. The present study is useful in collecting details about the needs, requirements and level of attainment of life skills by intellectually disabled children. Instructional material prepared by the investigator and findings of the study can be used for planning curriculum packages and support materials for intellectually disabled children. Findings related to attainment of different components of life skills can also be used to develop suitable schemes and programs for promoting the attainment of life skills of intellectually disabled children.

**Key Words:** Intellectually Disabled, Life Skill, Meal time Skill, training, Primary Level

The persons with disabilities deserve proper care, protection, training, employment and rehabilitation. Accurate and dependable data relating to the disabled population, type of disabilities, onset of disability, possible causes of disabilities, rural and urban population, their economics status, etc. are highly essential for proper planning, framing of policies, and developing programs in a focused manner at State and Local level.

There is a common concern that disabled persons are among the most excluded ones in the development process of the country. For an effective and efficient policy intervention to improve the lots of the disabled persons, it is of utmost importance to get a clear idea about the different dimensions of disability. Although government and the public sector would have to play a key role in this endeavor, it may be neither feasible, nor desirable for them to do it all. Further, there is wide heterogeneity in the situation and the policy requirements of different groups of disabled persons in India. There are major differences in social attitudes to different types of disability, coupled with variations due to gender, class, place of residence (rural / urban) etc.

Wagner et al (1993) collected data on how well curricular efforts are developing everyday living skills across disability areas; it is startling to note that a substantial percentage of this group, as perceived by parents, do not demonstrate adequate functional abilities in areas of functional intellectual skills(32.8%), self care skills (67.4%) community living skills (29.4%). Most professionals would agree that the above skills are important for dealing successfully with demands of life.

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Okoko (1998) observed that every good curriculum for learners with intellectual disability should contain Life skills. Studies conducted on the effect of life skill intervention on intellectually disabled children reveals that developing life skills have produced the following effects: lessened violent behavior, increased pro social behavior, decreased negative self destructive behavior, increased ability to plan ahead and choose effective solutions to problems, improved self image, self awareness, social and emotional adjustment, increased acquisition of knowledge, improved class room behavior, gains in self control and handling of inter personal problems and coping with anxiety, and improved constructive conflict resolution with peers, impulse control and popularity.

Intellectual Developmental Disorder / Intellectual disability as a departure from adequacy in intellectual, social, medical, educational, and psychological areas has generated a venerable history of concern. Intellectual disability begins in childhood or adolescence before the age of 18. In most cases, it persists throughout their life. A diagnosis of intellectual disability is made if an individual has remarkable limitations in two or more adaptive skill areas, as well as an intellectual functioning level below average. Intellectual functioning level is defined by standardized tests that measure the ability to reason in terms of mental age intelligence quotient (Sadock & Sadock, 2003).

Life Skills are home and community living techniques that allow individuals to deal with, current and future day to day demands and responsibilities. These skills enable the individual to learn to be responsible and independent. The skills are; personal care and hygiene, clothing-dressing, shoe and shoe care, laundry process, transportation, food preparation and eating, money, job skills, home and kitchen management, time management, leisure and recreation.

The skills must be developed in whatever the setting, whether home or school, for independence. Development of such skills may assist learners with intellectual disability to increase autonomy, co dependence and nurturing problem solving in house, school and whole community at large (Lombardi, 2011).

Life skills for students with intellectual disability are very important and valuable for them to get in education. This skills education program is part of the skills training life (life skill) for them. With this provision is expected they will be able to live independently by not / less dependent on others. This skill training focuses on the various skills to produce a product in the form of real objects that are beneficial to life. By learning the various skills expected, children with special needs can gain a perceptual experience, appreciative experience, and creative experience. The success of program would require cooperation from various parties such as family (parents), teachers, and society as a whole.

Education of disabled children mostly aims at occupational adequacy, social competence and personal adequacy. The second aim is to make social contacts which will develop social adequacy. The third aim is personal adequacy which will train them to look after their own physical needs, personal cleanliness such as eating, toileting, bathing, dressing, grooming etc. The early years of intellectually disabled children are tremendously important to teach various skills. The teachers and parents can do a lot in helping the child to learn self-help skills and good habits to enable him to look after himself. As the child grows older they should learn to take responsibilities in different

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household chores which will make him independent. The disabled child must grow in the LAP-Love, Acceptance and Patience. S/he requires love, much time and attention.

**SAMPLE**

The sample comprised of 126 Intellectually Disabled Children (primary level) from 42 special educational institutes. The experimental study was conducted on a sample of 33 primary level Intellectually Disabled Children selected from three special educational institutes of Thiruvananthapuram District which comprises of 16 boys and 17 girls.

**TOOL USED FOR THE STUDY**

**LIFE SKILL ASSESSMENT CHECKLIST FOR ASSESSING THE ATTAINMENT OF LIFE SKILLS BY INTELLECTUALLY DISABLED CHILDREN**

The investigator adopted Life Skill Assessment checklist from Functional Assessment Check list for Intellectually Disabled Children prepared by Myreddi, Narayanan, Sumalini, Salim, Padma (2004) prepared for National Institute for Empowerment of Person with Disabilities (DIVYANGJAN).

**STATISTICAL TECHNIQUES USED FOR THE STUDY**

- i. Wilcoxon Matched Pairs Signed Rank Test

**COMPARISON OF ATTAINMENT OF DIFFERENT COMPONENTS OF MEAL TIME SKILLS (PRE AND POST ASSESSMENT SCORES) BY INTELLECUALLY DISABLED CHILDREN**

The details regarding the analysis of comparison of attainment of different components of Meal Time skills Drinking water and Feeding using Fingers (pre and post assessment scores) (using Wilcoxon matched pairs signed rank test) by Intellectually Disabled Children are given below under appropriate heads.

**i. Drinking Water**

The details regarding Wilcoxon matched pairs signed rank test of attainment of skill in **Drinking water**by Intellectually Disabled Children are given in Table 1.

Table 1

*Wilcoxon matched pairs signed rank test between median scores (pre and post assessment scores): attainment of skills- Drinking waterby Intellectually Disabled Children.*

Assessment	N	Mean	SD	Minimum	Maximum	Median	z-value (p-value)
Pre Assessment	33	2.30	1.104	1	5	2.30	-4.99
Post Assessment	33	4.73	.674	2	5	4.73	(<.01)

It is observed from the Table 1 that in the Pre Assessment, the mean score is 2.30 and median is 2. In the Post Assessment, the mean score is 4.73 and median is 5. Also, the first quartile shifted from 1.50 to 5 and third quartile from 3 to 5. It indicates, about



70% completed the task **drinking water** with the help of clue and about 60% completed the task independently. The Wilcoxon Matched Pairs Signed Rank Test between pre and post assessment scores shows that scores of post and pre assessment differ significantly at 0.01 level ( $z = -4.99, p < .01$ ). Median score of the post Assessment score is significantly higher than that of pre assessment.

**ii. Feeding Using Fingers**

The details about the descriptive and differential analysis intellectually Disabled attainment in components of **Feeding using fingers** by Intellectually Disabled Children are given in Table 2.

Table 2

*Wilcoxon matched pairs signed rank test between median scores (pre and post assessment scores): attainment of skills- Feeding using fingers by Intellectually Disabled Children.*

Assessment	N	Mean	SD	Minimum	Maximum	Median	z-value (p-value)
Pre Assessment	33	2.30	.984	1	5	2.00	-5.0 (<.01)
Post Assessment	33	4.67	.777	2	5	5.00	

It is seen from the Table 2 that in the Pre Assessment, the mean score is 2.30 and median is 2. In the Post Assessment, the mean score is 4.67 and median is 5. Also, the first quartile shifted from 2 to 5 and third quartile from 3 to 5. It indicates, about 60% completed the task **feeding using fingers** with the help of clue and about 60% completed the task independently. The Wilcoxon Matched Pairs Signed Rank Test between pre and post assessment scores shows that scores of post and pre assessment differ significantly at 0.01 level ( $z = -5.0, p < .01$ ). Median score of the post Assessment score is significantly higher than that of pre assessment.

Findings can be used to develop suitable curricular materials for Intellectually Disabled Children. It can be used to provide remedial measures to overcome difficulties experienced by teachers in training life skills and can make learning process simple, interesting and meaningful. Curricular planners can utilize the findings of the study for preparing suitable resource materials, handbook and learning supplements for training life skills to Intellectually Disabled children. Teachers can use the Instructional Material and other findings in their class room practice to make the teaching learning process more meaningful.

Findings related to attainment of different components of life skills can be used to develop suitable materials, programs, packages etc. for promoting the level of attainment of life skills of Intellectually Disabled Children.

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**ATTITUDE OF GRADUATING STUDENT-TEACHERS TOWARDS TEACHING PROFESSION: A STUDY IN GILGEL BELES COLLEGE OF TEACHERS EDUCATION**

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**Abstract**

This study attempts to assess the attitude of graduating student-teachers towards teaching profession, identifying to whether there are factors that hinder the development of student-teachers' attitude towards the profession and as well as possible strategies to alleviate the challenging factors. To this end, 180 graduating student-teachers, 23 teacher educators, eight classroom representatives of the graduating student-teachers and three student councils were participated in the study. Two instruments with multiple sources were used in the data collection in the following order: questionnaire for sample graduating student-teachers, for teacher educators teaching the graduating student-teachers the last semester, focused group discussion with the graduating student-teachers' classroom representatives and council members. To analyze the collected data percentage, mean score, standard deviation and one sample t-test were used. Then, the study implied that graduating student-teachers showed positive attitude towards teaching profession. factors challenging the development of student-teachers' attitude towards teaching profession attributed to: not well adapted curriculum/lack consistency with school curriculum /, society's poor concept about teaching profession, considering teaching as not secured profession, low salary & poor incentives, the role model teacher educators number being very few in the institution, shortage of resources, candidates' missing stream of interest and skill gap among some teacher educators. Based on the findings, recommendations which may help to alleviate or minimize the effects of barriers like: creating continuous awareness among trainees and at large the society about the profession, enabling candidates to choose department of interest, reconsidering of about salary increment and incentives, offering a curriculum that enhances trainees attitude towards the profession, rewarding hard workers and building the capacity of inadequate teacher educators and recruiting efficient and interested candidates could be a pre-requisite for maximizing positive attitude towards teaching profession.

**Key words:** Graduating, Profession, Attitude, Student-teachers, Teacher educator, Pre-service training, Experience

**Introduction**

Education means a practice, formal or informal which helps to develop the potentialities of human being including their knowledge, capabilities, behavioral patterns and values. The fact is that development of a nation always relies on knowledge acquired through education and its practical implications. Considering any effective education system or educator, effective instructional strategies with efficient and high potentials in which the contents be delivered are the main pillars of quality education system. In this context, the teachers have more responsibilities in shaping and building the mental characters of students (Chakraborty&Mondal, 2014). Hence, to produce such responsible student-teachers' going to be a teacher in the future, the roles of the teacher education institutions are very crucial. In this regard, literature informs us that in most of the developed and less developed countries seems Ethiopia, teacher education refers to a process of education and development, in which student-teachers go through as they prepare to enter the classroom for the first time in their role as teachers. It is normally assumed that initial teacher training satisfies both the theoretical and practical needs of the teaching environment; that a teacher who comes from training will know how to handle with the practical management and organization of instruction in the classroom, as well as the theoretical aspects of child



development and learning. The philosophy of teacher education starts with the problem of trainee entrants initially, but also concerns itself with their expected roles, their educative process, expected professional standing, and with the processes of activities encompassing the two major disciplines, pedagogy and psychology along with the development of the personalities of the student-teachers (Yogesh and Nath, 2008).

Basically, Pre-service or initial teacher education and training refers to all programs that aim to prepare student-teachers to enter the profession, whether these programs concern subject-specific learning or teacher training curricula (Irving, 1999). In other words, the concept of pre-service training refers to the process in which student-teachers grow up professionally, through involvement in practical training, knowledge construction and behavior acquisition (Mule, 2006) with a balanced combination of theory and practice (Brian, 2007 in Ahmed, 2009).

But, according to Koksal(2013), in fact, teachers are greatly the key elements of maximizing the quality of education, improving schools and successfully implementing curricula. In addition, teachers are the people who raise individuals that shape the future of a country. Therefore, there are qualities that teachers who have a role in the education and character development of children need. Every country has standards which specify the qualities that teachers should have and aims to equip pre-service teachers with these standards throughout their training.

As the same author in the preceding paragraph, it is expected to be higher relationship amongst teacher competencies and attitudes, because if individuals have knowledge, understanding and skills about teaching, they expected to have high attitudes about teaching profession. So, the author is concluding that general competencies and attitudes are essential to enhance the quality of student-teachers which in turn improves the attitude of student-teachers towards teaching profession.

In addition, Chakraborty & Mondal (2014) argue that the lion's share is for teachers; as they are the persons who could develop and mould the learners as good citizens. They should develop higher attitude towards teaching profession, do extremely well in their academic performance and enhance lifelong skills to face in future.

According to Durak (2016):

Teachers attitude towards occupation indicate that they love their profession; they are attached to it; they reach the awareness that their work is important and necessary for society; and they believe that they have to improve themselves because of it [1]. Attitudes of teachers towards their occupation also have an important influence on their performance [2]. Positive attitude towards the teaching profession will ensure the coherence of behaviors emotions when pre-service student-teachers start to perform their duty; and will positively affect all the factors related to teaching [3]. Knowing the attitudes of student-teachers towards their profession will help their trainers to address them during prevocational training [4].

Conceptually, Professional attitude means a person's feelings, behaviors and commitment to the profession. If the teacher is committed and has positive attitude then it is sure that his/her performance will be better and his/her effort will be fruitful. Richarson (2003) narrated that education is a nation building activity. The quality of education depends upon ability and efficiency of teachers. If the teachers are well trained, motivated and committed with their profession, learning will be enhanced. That is the major role that teacher training institutions expected to play in equipping student-teachers with demanded capacity.

Therefore, Chakraborty & Mondal( 2014) indicate that favorable attitude of teachers towards their profession is a pre-requisite for effective school system. According to the authors:

If a teacher will lose belief in their profession and its contribution in making of the mankind and causing steps forward in the society; if the admiration of the 'noblest of all' profession is not acknowledged and respected by the teachers, then their job



satisfaction level will go down and the high position of teaching community will also be lesser.

In order to be successful in teaching profession, it is true that one needs to love the profession and performs it willingly. The training to which the student-teachers are exposed aimed at improving their competencies in teaching. The rise in the prospective teachers' competency level contributed to a rise in their attitudes towards teaching profession. Accordingly, the more competent the student-teacher is, the higher attitude s/he establishes towards teaching profession. Moreover, still the attitudes of student-teachers, at all levels, can be affected by other factors such as experience, training, skill development. And, researchers are informing that more studies should be made on the attitudes towards teaching profession and according to the results to be obtained, education environments should be reorganized and improved to bring the required objectives. Finally, a healthy and effective instructional process should be established between the student-teachers who are the future teachers and instructors. The profession should be improved in terms of theoretical, social and cultural aspects for an increased interest in the profession and higher attitude.

Devi (2005) found that success in teaching field depends upon two prime factors: attitude towards profession and job satisfaction. Suja (2007) also confirmed similar findings. According to him, attitude towards profession, interest in profession and teaching experience influence job commitment of the teacher. Mathai (1992 in Suja, 2007) in his study emphasized that attitude towards the profession and success in teaching is correlated to each other. In another study, Cornelius (2000) revealed that effectiveness, attitude towards teaching and academic achievement of student-teachers cast impression on their competence. Gynanduru and Kumar (2007) established that over achievers and average achievers possess more favorable attitude towards teaching in comparison to under achievers. So, quality education for all children is not only depending upon merely trained and expected to have the imparted knowledge, skills/competencies of a teacher, but it also necessary that they should have real interest and positive attitude towards the teaching profession. According to Chakraborty & Mondal( 2014), the training to which the student-teachers were exposed aimed at improving their competencies in teaching. The rise in the student-teachers' competency level contributed to a rise in their attitudes towards teaching.

Hence, the authors agree that the training of the student-teachers expected to increase their attitude towards teaching profession. Teaching is incredibly rewarding when individuals have worked diligently with success in reaching students and allowing them to reach their potential growth. Thus, teaching is an activity that includes the student and teacher interaction in the class that is necessary to make him/her aware about the aspects of teaching, and lead students towards the perfection in teaching environment(Sarita, 2014).

According to the same author above, the teacher's roles and responsibilities have found extension outside the classroom to improve the pupils' holistic environment. Because the changing time have added new dimension to this profession, which requires specified competencies and right attitude. Behavior, attitude and interest of teacher help in shaping the personality of the student (Anastasi, 1957);(Bhargava and Pathy 2014).Therefore, to reach the goal, the role of the teacher is very significant and vital in imparting good education(Rakesh&Kiran, 2016)

Realities told us that teachers have been honored as builders of the nation since ancient times. Scholars namely Vijayavardhini and Sivakumar (2014) describe that teachers were treated as the real architects of the nation. According to the same author, the greatness of any country does not depend on lofty buildings, gigantic constructive and huge army force, but on the quality of the people. And, this quality is built by the teachers, who impart the right knowledge to their society in general to students in particular. Teacher plays a vital role in shaping the future citizens by paying much attention on the young generation. Therefore the teachers in the educational system

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should be recognized by everyone in the society. In this occasion the quality of teacher is essential.

But, there are adverse factors which influence the quality of teacher in his/her education in the teacher training institutions. Teacher training institutions are playing a significant role in not only preparing future teachers, but who promoting quality teachers. But, according to Vijayavardhini and Sivakumar (2014), unfortunately due to several factors in the teacher educational institutions, the quality is deteriorating day by day. In this context the teacher education has been criticized intensively for not being able to perform its role effectively. There are scholars complaining that the present teacher education system in some countries have remained in poor system. The teacher is the most important agent in any educational program. For the above authors, it is the teacher who is mainly responsible for implementation of educational process at any stage. This shown that it is crucial to invest in the preparation of teachers, so that the future of a nation is secure. However, still there are research reports that teacher education in some developing countries is charged that it is doing too little to prepare student-teachers for public schools, arguing that teacher education programs lack consistency with school curriculum, inadequate resources, low admission standards, and with inadequate quality (Levine, 2006). Therefore, primary teachers have been insufficiently understanding and mastering the school content and methodologies.

And also, the quality of teacher training programs has a disparity as the institutions lack harmony with the school system and need to improve by revising the curriculum according to the needs of changing situations and the demands of the modern world (Ahmed, 2009). There has been also significant quantitative expansion in terms of number of training institutions established over a period of time, due to the large increase in population, and numbers of teachers being trained in these institutions and this quantitative expansion challenging the quality aspect of the institutions' education (Ahmed, 2012).

Similarly, Pncholi & Bharwad(2015) explain that in some nations, today, the socio-economic status and the professional of teachers is low. Specially, at the primary level it falls much below the standard, even if, many efforts have been made to improve it. Attributed factors are; low salary payment, low respect of the society to the profession etc. As the result, young generation is not attracted towards teaching profession. With no doubt, the quality of education as an academic study must be raised which can be one of the influential for school teaching to emerge as a profession that equally noble with other professions like health, law, agronomy etc. Unless, teaching attains the status of high profession and teachers as professionals, it is painful to ignore this, the father of all professions in which subsequently could adversely affect national development.

This is why here it is necessary to know what the attitudes of student-teachers towards teaching profession are. Having in mind the aforesaid scholars' arguments, or information obtained from various studies, informal rumors also uncover that graduating student-teachers of GBCTE are seem not showing a good attitude towards teaching profession, despite the fact that which declares their readiness to be graduated. Therefore keeping in view of the seriousness of the problem, the researcher felt it is very much essential to assess the attitude of the graduating student-teachers of GBCTE of 2018 towards their teaching profession or the attitude of those who have been completing their given training for three years that equip them be a teacher and who are going to prepare the future citizens. Thus, the study attempted to answer the following basic questions:

- ❖ To what extent is the attitude of the graduating student-teachers towards teaching profession?
- ❖ What are major factors affecting attitude of the student-teachers towards teaching profession?( if any)
- ❖ What are the strategies for improving the attitude of the student teachers towards teaching profession? ( if any)



The general objective of this research is to ascertain the attitude of the graduating student-teachers (2018) in Gilgel Beles College of Teachers Education towards teaching profession. Specifically, the study sought to:

- ❖ investigate the attitude of the graduating student teachers towards teaching profession.
- ❖ identify the factors which adversely affect the development of attitude of student-teachers towards teaching profession .
- ❖ suggest possible strategies to improve the development of attitude of student-teachers towards teaching profession

### Materials and methods

The target population of the study was Gilgel Beles College of all third year (graduating) regular student-teachers during the second semester of 2018 academic year. The college consists of **308** graduating student-teachers at regular base which attending totally in eight different sections. All sections were selected using comprehensive sampling method. Available student-teachers from each class, and with the total of 200 (64.94%) were selected using convenience sampling method to minimize time wastage. And these student-teachers were responsible to fill questionnaires. This method is preferred due to two different reasons that are to make the sample representative and easily to implement. From the questions distributed to graduating student-teachers, three question papers were not returned and from returned, 17 of them were not analyzed because of not properly filled. And then, on the other time **11** student-teachers were selected using judgmental sampling method for focused group discussion, one student representative from each department/section/ and three student-teachers who were working in the College as a student council. Similarly, 23 teacher educators were selected using judgmental sampling i.e. teaching graduating student-teachers during the semester of this data was collected, to obtain further information. Here, purposeful sampling is preferred assuming that these student-teachers and teacher educators may have more information about the attitudes of student-teachers towards teaching profession (Yalew Endawok, 2008), and to support the validity data which was collected through questionnaire. Being harmonized with rules suggested by Yin (1994), which witnessed that to construct validity of, for instance, an assessment study can be maintained by using multiple source of information and by establishing chain of evidences. Accordingly, the researcher has used two instruments for collecting relevant data for the study. The instruments were questionnaire and Focused Group Discussion.

The two likert scale questionnaires were adapted from standardized questionnaire on teacher effectiveness from Mishra (no date), and open-ended questions and focused group discussion questions were extracted from the review of related literature by the researcher. In such a case, indeed, an instrument can be judged for its content validity by individuals who can be expected to render an intelligent judgment for the adequacy of the instrument (Fraenkel & Wallen, 2000 cited in Adula. 2008), hence, to ensure the validity of the data gathering tools two members from professional studies department were discussed and commented on the instruments before the pilot testing, accordingly two more questions were added specifically in open-ended and focused group discussion questions. At the same time, two lecturers from language department of the same college were offered professional comments related to language on the same instruments.

After screening the items, Teacher educators' and student-teachers' likert scale instruments were pilot tested. The pilot test was conducted on graduating extension student-teachers on randomly selected ones and on teacher educators on those who were not teaching graduating student-teachers for the semester when this data was collected. Because, it was logical coinciding that the researcher determined to conduct pilot test where similar subject was found. Finally, Spearman-Brown prophecy formula was used to calculate the reliability of each item in the sets of the questionnaires. Thus, the reliability for set of questions offered to graduating student-teachers

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was found to be 0.814, for teacher educators found to be 0.943. As the result fortunately, no items that seem vague and lack clarity. All of the reliability coefficient can be regarded as reliable.

In order to measure the attitude of student-teachers, 19 closed-ended items of four point Likert scale questions which was made of positive and negative questions for graduating student-teachers, and 12 closed-ended items of four point Likert scale questions which was made of positive and negative questions for teacher educators teaching the graduating student-teachers during the semester, and three open-ended questions for each group were employed that designed based on the idea that consolidating four point Likert scale questions. The questionnaires were supposed to obtain information to assess student-teachers attitude mainly focusing on their teaching profession.

Concerning the items based on likert scales, the researcher use direct scoring for positive items and reversed scoring for negative items. In the cause of positively worded items strongly agree, agree, disagree and strongly disagree will be scored as 4, 3, 2 and 1 respectively. For negatively worded items, strongly agree, agree, disagree, strongly disagree will be scored as 1, 2, 3 and 4 respectively. And, if any factors that could affect the development of their attitude towards teaching profession and any strategy that could enhance the positive attitude of student-teachers' towards teaching profession were asked using open ended questions to obtain further information.

Apart from the data gathered through the questionnaires, focused-group discussion was held to one group where the group consists of 11 student-teachers who were selected purposefully as explained before. According to Yalaw Endawok (2006), focused group discussion need to be held with subjects those who considered as who may have better information about the issue, and at a time up-to about 12 participants could be involved. The focused group discussion was conducted on the ground that the group situation may reduce the influence of the interviewer on the research subjects by tilting the balance of power toward the group. Focused group emphasizes the collective, rather than the individual; they foster free expression of ideas and encourage the members of the group to speak up- Denzin (1996) and Frey and Fontana (1993) in Bedada (2002) as cited in (Badada, 2008)

In the process of testing the instruments and collecting data for the final study, the following procedures were followed. To avoid language barriers, language instructors translated the questionnaire into Amharic language.

The questionnaire was administered by researcher to class representatives by clarifying if any vague points there and if additional explanations are there regarding on how to respond is required

The focused group-discussion was held with one group. A group was formed incorporating class representatives and student-teachers' council so as to get more information. The focused group-discussion was led by researcher and other well informed assistant to write the discussed ideas in addition to the researcher. The next step was setting some points for discussion related to whether the graduating student-teachers developed positive attitude towards teaching profession, factors i.e any factor that could affect the development of attitude of their teaching profession and strategies to improve their attitude during their pre-service training. This is to manage the discussion easily and to control disparity in the issues raised by the researcher. The focused group-discussion leader were facilitated and encouraged all group members to discuss freely whether the graduating student-teachers developed the attitude towards teaching profession and about any factors that they think could affect the development of their attitude towards teaching profession, and strategies to improve the development of attitude of student-teachers towards teaching profession during pre-service training.

The focused group-discussions was arranged in the morning because of that the area as well the season was very hot, in such a way that the group would not get tired and then also reasonable time was considered, not too long for fear of fatigue.

Data that was drawn from the questionnaire about attitude of student-teachers towards teaching profession was analyzed using percentage, Mean, Standard Deviation and in addition, whether

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attitude of student-teachers is significantly different from average, one sample t-test was employed. The data that was generated through focused-group discussion and open ended questions were analyzed through word description and narration. Finally, summary of data from all sources and instruments discussed all together. Then conclusion and recommendations were drawn.

**Results**

The results obtained through questionnaire and Focused Group Discussion from the two sources (teacher educators and graduating student-teachers of 2018) were presented and analyzed quantitatively and qualitatively. The results regarding graduating student-teachers’ self rating and teacher educators’ perception about attitude of graduating student-teachers towards teaching profession, challenges or factors inhibiting the student-teachers’ from developing positive attitude towards teaching profession during college training, and possible solutions for challenges were presented consecutively as the following.

**Table 1: Results of One Sample t-Test for Attitude of Graduating Student-teachers towards Teaching Profession / Self-Rating Report/**

variable	N	Expected mean, $\mu$	Observed mean, X	SD	t-observed	df	P-value
Attitude	180	47.500	58.222	6.549	21.971	179	< 0.05

The mean score of measured value of attitude of the graduating student-teachers towards teaching profession was significantly higher than the expected mean ( $t = 21.971, p < 0.05$ ). As clearly indicated in the table (see table, 1), observed mean ( $X = 58.222$ ) was significantly greater than expected mean ( $\mu = 47.5$ ). This illustrates that the graduating student-teachers have better attitude towards teaching profession as the graduating students self-rating report

**Table 2: Results of One Sample t-Test of teacher educators’ Perception about Attitude of Graduating Student-Teachers towards Teaching Profession**

Variable	N	Expected mean, $\mu$	Observed mean, X	SD	t-observed	df	P-value
Attitude	23	30	31.087	7.336	0.710	22	$p < 0.05$

Table 2, illustrated that the mean score of the measured value of teacher educators’ perception of about attitudes of graduating student-teachers towards teaching profession has no statistically significant difference with expected average ( $t = 0.710, P < 0.05$ ). The observed mean ( $X = 31.087$ ) has no statistically significant difference with expected mean ( $\mu = 30$ ). This shows that, according to teacher educators’ perception, the graduating student- teachers have average positive attitude towards teaching profession

**Teacher-educators’ Response on Open Ended Question**

Initially, teacher-educators were requested to forward their witness about the graduating student-teachers seem to developed positive attitude towards teaching profession during their pre-service training, and the respondent teacher-educators, 12(52.17%) believed that the graduating student-teachers developed the favorable attitude, unlike 11(47.83%) of respondents that not agree.

In line with abovementioned notion, the respondent teacher-educators who have been denying about the issue that as the graduating student-teachers yet not developed the required attitude towards the profession, setting preconditions as factors affecting the development of student-teachers’ positive attitude towards teaching profession during training, accordingly, they reported that: The student-teachers seem to have low attitude towards teaching profession and seem poorly prepared to be qualified teachers.



The major factors raised by respondents were: some student-teachers were not enjoying some newly introduced curriculum modalities, for instance integrated science, generalist etc., and Societies' poor respect towards teaching profession because of lack of awareness, considering teaching profession not as secured, but as a bridge to other professions, low salary payments, lack of incentives, since teaching needs extensive preparation, reasoning as challenge of work overload, no significant number of role models of teacher educators in the college, factors inhibiting potential recruitment of candidates, giving no due attention to the profession from governments and other concerned bodies.

Similarly, the same respondents were requested to forward solutions that could improve the positive attitude of student-teachers during their pre-service training, and they replied that continuous creating awareness among trainees about that teaching is a noble profession working on to improve attitude of society towards teaching profession to make it respected, recruitment should be based on interest and performance of candidates, department selection need to be according to interest of the candidates, salary increment and other incentives, for instance, house allowance, hardship payment and etc, need to be reconsidered, inculcating a curriculum that enhances positive attitude towards teaching profession, as a course, are some of suggested strategies by the subjects.

#### **Graduating Student-Teachers' Response on Open-Ended Questions**

Graduating student-teachers were requested that why they preferred to be a teacher, some respondents' reasons were seeing teaching socially worthwhile and important job and considering teaching as: 44(24.4%) reported that as a means of acquiring wisdom, 19(10.64) as a means of educating self, 72(40.32%) wish to educate others, nine(5.04%) enjoying being a teacher, two(1.12%) challenging nature of the job /enjoyed working/, two(1.12%) a means of change for a society, eight(4.48%) a base of all professions.

Other respondents' reasons were referred to economic, conditions of service and social status. Accordingly, they reported that teaching is: 19(10.64%) of them reported that preferable than other jobs/prestigious and respected/. Three (1.68%) easier to find teaching vacancy, and the rest forwarded that better job security, good career prospect/teachers' career structure/, favored profession in the society, for supporting self and family, having opportunity for continuing education were reported by respondents.

In addition, others attributing to making their career choice to under the influence of family and or guardians, conditions/lack of other alternatives/, not were successful in ESLCE enforced them to join the institution, and this resulted them seem yet not ready to develop the required attitude towards the profession.

Furthermore, the graduating student-teachers also were requested if they had professional life to choose over again, and most of them reported that they choose again the teaching profession, by reasoning that teaching: 41(22.96%) attributing that a means of acquiring knowledge, 21(11.76%) of them as a wish to educate others, five (2.8%) for the respect gained from society, 20(11.2%) having opportunity for continuing education, two (1.12%) easier to find vacancy, 13(7.28) more preferring teaching than other professions, three (1.68) challenging nature of the job/enjoyed working/., five (2.8%) secularity, eight (4.48%) father of all professions. In addition, the rest reported that as: a prestigious and respected profession, enjoy being with children, the experience obtained during training, Better job security, opportunity of regularly exposure to new ideas, having no idea about other professions, encouraged them to come to such decisions.

However, some respondents reported that they are not sure to choose again even if they are given the chance to choose again, because of fear of that, nine (5.04%) challenges due to work overload, two (1.2%) low salary payments, and others reasoning that poor incentive, nothing less attractive than teaching profession, no due emphasis is given to the profession were factors reported by the respondents.



In addition, to obtain more insight about whether the graduating student-teachers developed positive attitude towards teaching profession during their pre-service training were requested and they reported that four(2.24%) built the capacity to develop positive attitude towards the profession, interested in teaching profession than unlike before, six (3.36%) enjoying the profession after wards, feeling lucky being a teacher, five (2.8%) considering teaching as an attractive profession, 81(45.36%) the experience obtained in college making them to enjoy the profession,

Consequently, a 10(5.6%) of respondents reported that before they join the institution they already have positive attitude, and now as the result of training their attitude is more enhanced. But very few others denied because of some factors, for instance, three (1.68%) of them finding no the expected capacity is developed, and for others, un-developed conducive environment of the college challenged them to develop the required attitude towards the profession.

### **Graduating Student-Teachers' Response on FGD**

Data obtained from FGD question, 'perception of participants about the attitude of graduating student-teachers' towards teaching profession as replied by student-teacher respondents, majority of participants seem to believe that graduating student-teachers seem developed positive attitude towards teaching profession, and they were offering the following justifications, for instance, the opportunities of Upgrading, a teacher is competent for any position because of experience s/he obtains from the profession, it is avenge to compensate for unsuccessful of national examination.

Furthermore, FDGP<sub>10</sub> excitedly reporting that those who being educated with their mother tongue enthusiastically have developed positive attitude towards the profession than the other departments because of that they able easily manage the language and learning with no any difficulty.

However, FGDP<sub>7</sub> and FGDP<sub>12</sub> not agree with the aforesaid report, because of rumors they hearing from the trainees, that is for the fear of low salary payments and poor incentives and challenges of work overload, because of that teaching demands extensive preparation, as the result, they seem not happy with the profession.

Graduating Student-teachers also were requested that whether how far it is possible to develop the student-teachers' positive attitude towards teaching profession in the teacher-education institution, and almost all respondents replied that it is definitely possible, and they provided evidences as referring themselves. However, they uncovered that some factors that could challenge the development of the attitude up to optimum are, for instance, resource constraint, missing stream of interest, inadequate performance of some teacher-educators. In line with aforesaid report, FGDP<sub>14</sub>, blames that there are some few teacher-educators yet not effectively discharging their responsibilities as intended because of casual manner or inadequacy. Similarly, FGDP<sub>7</sub>, surprisingly stressed that the existence of some teacher-educators being involved in undeserved disreputable, as committing sexual harassment and engaged in score pollution by practicing that improving test performance without concurrently increasing actual mastery of the content tested for their purpose of personal interest, and this in turn imposing negative attitude upon the trainees and this disreputable also eroding-out the attitude of student-teachers they have for the profession.

In response to FGD question addressing about the teacher education institution's role to develop the demanded positive attitude towards teaching profession among student-teachers, were reported as following:

- Conducting researches to identify gaps and attempting to alleviate the problems
- Encouraging those hard-worker teacher-educators and building the capacity of inadequate teacher-educators
- Candidates recruitment need to be based on reasonable ESLCE result and performance



- There should be continuous follow-up and support by stream heads to fill some gaps observed on some teacher-educators.

Finally, with regard to FGD question the subjects were requested as whether the experience that graduating student-teachers acquired from the institution have made them developed positive attitude towards the profession, was responded as, for instance, besides the courses of major subject area, specially, methods of teaching, assessment courses, learners psychology, school and classroom management and other supportive courses seem helped them to build up the demanding attitude towards the profession.

### Discussions

In general, the result of the study shows the mean score of measure value of about the attitude of the graduating student-teachers towards teaching profession was significantly higher than the expected mean (see table, 1). This indicates that the graduating student-teachers have better attitude towards teaching profession, as the graduating student-teachers self-rating report. Though the result seems unexpected, it is consistent with the results reported by other researchers. For instance, Srivastava (1989) cited in Bhargava and pethy(2014), found that favorable attitude of student-teachers are formed at the end of teacher training program. Yadav(1992) cited in the same authors depicted that pre-service training had a significant influence on the student-teachers self-concept, social maturity and attitude towards teaching profession.

The results also supported the findings of (Mehmood, et al., 2015), which indicates that prospective teachers showed very positive attitude towards teaching profession in his research. Data obtained from the teacher-educators, though indicated no significant difference in the mean, the graduating student-teachers' attitude towards teaching profession, average attitude was observed (see table, 2). This reveals that the result obtained from graduating student- teachers self-rating report with the result of teacher educators was considerably similar. And, the teacher educators' open-ended results similarly assuring that average percent of the respondent teacher-educators 12(52.17%) believed that the graduating student-teachers developed favorable attitude towards teaching profession. However, yet another group, almost average percent of teacher educator respondents 11(47.83%) were denying that the aforesaid idea, by listing factors inhibiting the development of favorable attitude towards the profession. These were: Some student-teachers were not enjoying some newly introduced curriculum modalities, for instance integrated science, generalist, and thelike streams imposed fear up on student-teachers because of absence of one specialization area, expecting to teach more than three subjects when they join actual school and mostly vacancies demand for specialization. Societies' poor respect towards teaching profession because of lack of awareness, considering teaching profession not as secured, but as a bridge to other professions, low salary payments, lack of incentives, as teaching needs extensive preparation, reasoning challenges of work over-load, no significant number of role models of teacher educators in the college. Boldly, Arseven et al.,(2016) recommending that teacher educators should help student-teachers to acquire some behavior by becoming role models with their knowledge, attitudes, behaviors, and personalities. And also, initially, factors inhibiting potential recruitment of candidates were challenges reported by respondents.

In the same way, during FGD also resource constraint, missing stream of interest, and inadequate devotion of some teacher educators were reported by respondent of graduating student-teachers. Supporting the preceding idea, FGDP<sub>7</sub>, and FGDP<sub>12</sub> were complaining about low salary, poor incentives, challenges of work overload are some factors could inhibit the development of positive attitude towards the profession. similarly, FGDP<sub>14</sub>, in the focused group discussion expressing his fear that some few teacher educators yet not adequately carrying-out their responsibilities as intended, seems because of casual manner and or inadequacy (skill gap).

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Furthermore, FGDP<sub>7</sub> exposed that some teacher educators, for the purpose of their personal interest/sexual harassment/engaged in score pollution by practicing that improving test performance without mastery of the content tested, such and alike harassments are factors make declining the student-teachers' attitude towards the profession according to their report. In addition, Ahmed(2012) in his research finding mentioned that very low level of resource base, lack of financial capacity, and according to (Chakraborty and Mondal,2014), the poor experience and inadequate training skill declines the development of attitude of student-teachers towards teaching profession.

The preference of teaching profession by student-teachers was attributed to teaching is that: some respondents' reasons were seeing teaching socially worthwhile and important job and considering teaching as: a means of acquiring wisdom, a means of educating self, wish to educate others, enjoying being a teacher, challenging nature of the job /enjoyed working/, a means of change for a society, a base of all professions.

Other respondents' reasons were referred to economic, conditions of service and social status. Accordingly, they reported that teaching is: preferable than other jobs/prestigious and respected/. easier to find teaching vacancy, and the rest forwarded that better job security, good career prospect/teachers' career structure/, favored profession in the society, for supporting self and family, having opportunity for continuing education were reported by respondents.

In addition, others attributing to making their career choice to under the influence of family and or guardians, conditions/lack of other alternatives/, not were successful in ESLCE enforced them to join the institution, and this resulted them seem yet not ready to develop the required attitude towards the profession.

In line with preceding notion, (Ozcan and Balyer, 2014), revealed in their research finding that student-teachers' reason to prefer teaching profession as a career that: because of altruistic-intrinsic, such as teaching is meaning full, enjoying being with children, wish to help others, challenging nature of the job, enjoy being with teenagers, like working in the school environment, fitting one's personality, wish to teach the subject, having opportunity for continuing education. Because of extrinsic, such as higher salary, good working hours, more holidays, high social status, good career prospects, government's high regard for education, easier to find teaching vacancy. And also it is influenced by others, for instance by peer, family member, the mass media, teachers, religious belief.

Although teacher education and training in GBCTE seems under strong criticisms by education officials and other stakeholders, however, it has been supplying a massive trained human resource despite of scarce and limited resource. Whatever the problems, this teacher education institution has an important role by developing a professional force of primary and preprimary teachers.

Basically, teacher education institutions should able to develop attitude and skills which enhances the student-teachers performance as in turn enables them to develop their attitude towards teaching profession. In order to improve the attitude of student-teachers towards teaching profession, the teacher education institutions and other stakeholders should design strategies and implement them effectively.

Data obtained from the graduating student-teachers with open-ended question informed that a very great number of student-teacher respondents reported that the experience they obtained during their pre-service training considerably enhanced their attitude towards teaching profession. In addition, continuous creating awareness among trainees about that teaching is the father of all professions, working on to improve attitude of society towards teaching profession to make it respected, recruitment should be based on interest and performance of candidates, department selection need to be according to interest of the candidates, salary increment and other incentives, for instance, house allowance, hardship payment and etc, need to be reconsidered and inculcating a curriculum that enhances positive attitude towards teaching profession, as a course, are some of suggested strategies by the subjects.



In the FGD , conducting researches to identify gaps and attempting to alleviate the problems: encouraging those hard-worker teacher-educators and building the capacity of inadequate teacher-educators, candidates recruitment should be based on reasonable ESLCE result and performance, there should be continuous follow-up and support by stream heads to fill some gaps observed on some teacher-educators were well discussed strategy agendas.

According to Chakraborty and Mondal (2014), one needs to love the profession and performs it willingly. The training to which student-teachers be exposed aiming at improving their competencies in teaching, accordingly the more competent the student-teacher is the higher attitude s/he establishes towards the teaching profession. Hence, to bring the required demand, based on the obtained research results, education environment should be reorganized. A healthy and useful communication process should be established among student-teachers. Finally, the profession should be improved in terms of theoretical, social and cultural aspects for an increased interest in the profession and higher attitude.

Generally, Ahmed (2012) recommends that improving the teacher education system and well being of the program is not the out-come of a mysterious process; it could be achieved giving due consideration, for instance, by MoE, REB, regional government and other stake holders due giving priority to solve the emergent issues proposed by researches.

The results of this study disclosed that the graduating student-teachers have positive attitude towards teaching profession. Indeed, major factors inhibiting the development of positive attitude towards teaching profession during their pre-service years, up-to optimum: not well adapted curriculum/ for instance, integrated science, generalist like streams imposed fear up on student-teachers because of absence of one specialization area, expecting to teach more than three subjects when they join actual school and mostly teaching vacancies demand for specialization. society's poor concept about teaching profession, considering teaching as not secured profession, low salary & poor incentives, the role model teacher educators number being very few in the institution, shortage of resources, candidates' missing stream of interest and skill gap among some teacher educators.

Ultimately, the graduating student-teachers' reasoning for to choose the profession were attributed to altruistic-intrinsic, extrinsic and being influenced by others. Bearing in mind the forwarded reasons and based on the findings creating continuous awareness among trainees and at large the society about the profession, enabling candidates to choose department of interest, reconsidering of about salary increment and incentives, offering a curriculum that enhances trainees attitude towards the profession, rewarding hard workers and building the capacity of inadequate teacher educators and recruiting efficient and interested candidates could be a pre-requisite for maximizing positive attitude towards teaching profession.

### **Recommendations**

Based on the findings of the study, the following recommendations could be made.

- The institution and department heads should design continuous follow-up system to make devoted those poorly performing teacher educators
  - The institution should design awareness raising programs periodically among trainees as the form of debate, workshop, panel discussion, drama , etc to enhance positive attitude of trainees' towards teaching profession.
  - The institution should consolidate in-service training like: ELIC, ICT, HDP and its continuation CPD to enhance teacher educators' adequacy.
  - The REB and the institution should work together in collaboration to recruit efficient and interested candidates.
  - The adequate allocation of resources for input needs to be home work for REB
  - Department choice should be determined by individual candidate
  - Rewarding efficient teacher educators should be practiced
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- A curriculum course that advocates about nobility of teaching profession should be designed by MoE and be implemented
- The student-teachers attitude should be assessed eventually to determine any gap.
- Researches in the future may use deep observation and other in-depth data collection methods to investigate contributing conditions to better understand the problem and to examine success ways of change.

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## “A STUDY ON GREEN BUILDING MATERIALS IN RESIDENTIAL AT CHENNAI CITY”

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### **ABSTRACT:**

Green building is defined as design and construction methods utilized to minimize environmental impact (Singh, 2010). Green building materials are the materials that have the minimum load on the earth environment and produce no harm to the human health in the process of raw material acquirement, product manufacturing, application as well as the cycle of generation and the benefit of reuse (Pulselli, 2007). The main objective of the study is to know about the recent trends and advancement in green building materials which are available in the market in Chennai city. For the present study, purposive random sampling method with interview schedule was adopted. The benefits of using green building materials will reduce waste and have improved occupant health productivity. There is a lack of information about the green building materials and hence awareness should be given clearly about the green building materials among the common people and also to the younger generation to implement them in future & thereby to avoid the global issues and to save our environment.

**Keywords:** Green Building Materials, Sustainability, Environmental Design

### **INTRODUCTION:**

Materials are the essential components of building construction. The concept of green building material was advocated at the first international symposium on materials science & technology in 1988, wherein the green refers to the level of the contribution to the sustainable environmental development (Pulselli, 2007). The design of green buildings should begin with the selection and use of eco-friendly materials with related or better features than traditional building materials. However, with sustainability as a crucial issue in the last decades, the building sector, directly or indirectly cause a considerable portion in deterioration of the environment. The contribution to sustainable development can be done by finding more eco-friendly methods of construction of the building (Rampage, 2007). Building materials typically considered to be ‘green’ include lumber rapidly renewable plant materials like bamboo, insulating concrete forms, dimension stone, recycled stone, recycled metal, and other products that are non-toxic, reusable, renewable, and recyclable. Green building materials are used to reduce waste, water and materials used during construction. Well-designed building also helps to reduce the amount of waste generated by the occupants as well, by providing on site solution such as compost bins to reduce matter going to landfills(Reddy, 2009). The purpose of this paper is to highlight how green building material can contribute to lessen the impact of environmental degradation, and generate healthy buildings which can be sustainable to the occupant as well as our environment.



### **NEED FOR THE STUDY:**

Researchers have done lot of study on green building materials based on eco-friendly aspects, energy resource material and other concepts. The utilitarian aspects of these green building materials are not done in detail. The study on the usage aspects of these green building materials would be a step to save the mother earth by minimizing the hazardous effects like waste generation, pollution, etc.

### **OBJECTIVES:**

- To study the different types of green materials.
- To determine the green materials used in Chennai city.
- To give knowledge to the society by educate them to use green materials.

### **SCOPE OF THE STUDY:**

The study was conducted to determine the qualitative and quantitative values of the green building materials which reduce waste in construction industry. Moreover the study was extended to analyse the benefits of environment friendly materials. For this purpose a perusal of relevant literature was undertaken.

### **REVIEW OF LITERATURE:**

Green building is the practice of increasing efficiency with which buildings use resources - energy, water and materials, while reducing building impact on human health and the environment (Shukla, 2014).

Green building materials are defined as the waste reduction form of materials that are domestically created and sourced to decrease transportation cost and Carbon-dioxide emissions. They consist of recyclable materials possessing properties such as lower environmental effect, thermally effective and need less energy than conventional materials. They make use of renewable resources, lower in harmful emissions and economically sustainable (Tukur, 2004).

The Green building materials has the following five basic properties:

- ❖ The production of green building materials involves minimal use of natural resources and maximum use of tailing, waste residue, garbage and liquid wastes. The consumption of mineral resource & coal, oil, natural gas and other non-renewable resources is reduced.
- ❖ Low-energy manufacturing process and production technology without environmental pollution are used so that waste is reduced in its production process or the waste to pollute the environment is not produced in order to reduce the environmental load.
- ❖ In the product preparation of production process, formaldehyde, halide solvent or aromatic hydrocarbons are not used; the products shall not contain mercury and its compounds; pigments and additives containing metals such as lead, cadmium, chromium and its compounds are also not allowed to use.
- ❖ The product is designed by the purpose of improvement of the production environment and quality of life. In other words, products should be beneficial to the



human health and have multiple functions such as antibiosis, sterilization, mould roofs, thermal insulation, fire prevention, humidity, anti-radiation, anti-static, etc.

- ❖ The products can be recycled or reused. A large number of the industrial and agricultural production waste and municipal solid waste are used as much as possible, construction waste is recycled and produced in to building materials by recycling. It has higher use efficiency to improve the service life of the buildings (Weiqin, 2014).

#### **Selection Criteria of Green Building Materials:**

- Resource Efficiency.
- Indoor Air Quality.
- Energy Efficiency.
- Water Conservation.
- Affordability.

#### **Types of Green Building Materials Used in Chennai:**

- Fly ash
- Rammed earth
- Timbercrete
- Ferrock
- Wood
- Bamboo
- Stone

#### **METHODOLOGY:**

For the present study, purposive random sampling method was adopted. A purposive random sample is a non-probability sample that is selected based on characteristics of a population and the objective of the study. It is also known as judgmental, selective or subjective sampling (Ashley 2017). Sampling methods refers to the rules and procedures by which some elements of the population are included in the sample. The sample was selected from diverse regions in Chennai city. The sample size was 70, comprising of 30 builders and 40 consumers, were chosen for the study. The main tool used for collecting data was questionnaire. The questionnaire is one where list of questions are properly selected and arranged pertaining to the investigation (Gupta, 1993). The data collected from the respondents were edited, coded, classified, tabulated and analysed statistically by employing parametric statistical tests namely t-test and Anova test. An intervention program was conducted for the younger generation of Interior Design department to give awareness about green building materials after gaining the knowledge about it from the builders and in many books and journals. The awareness program covered with the topics which include the concept of Green building, its need and importance in today's context and types of Green building materials which give benefit to the environment, their manufacturing process, selection criteria and cost effectiveness were also discussed.

#### **RESULTS AND DISCUSSION:**

##### **General opinion about green building materials:**

The general opinion about green building materials has been discussed in the below Table-1.

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**Table – 1 General opinion about Green building materials**

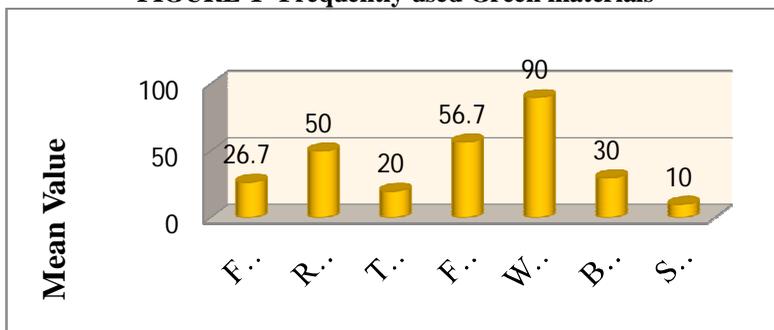
General opinion on Green Materials	Residents N = 40	
	N	%
Aware of the term	40	100
Good at addressing environmental aspects	36	90
Durable	27	67.5
Easy to maintain	24	60
Made of recyclable materials	13	32.5
Resale Value	40	100
Reduce waste	9	22.5

Among the respondents cent percent were aware of green building materials and 90 percent were considering these materials were good at addressing environmental aspects. 67.5 and 60 percent of the respondents recorded that the green building materials were possessing the properties like durable and easy to maintain respectively. Below 35 percent of the respondents considered green building materials are efficient in reducing waste. From the data all the respondents are aware of green building materials, but there is a lack of knowledge about the benefits of these materials. It is evident from the data that only few respondents consider the green building materials as a means of waste reduction. According to Rampage, 2009 the opinions about green building material to the residents have lack of information about the benefits of these materials.

**Frequently used green building materials:**

The data regarding frequently used green building materials by the builders has been discussed in the below Figure-1.

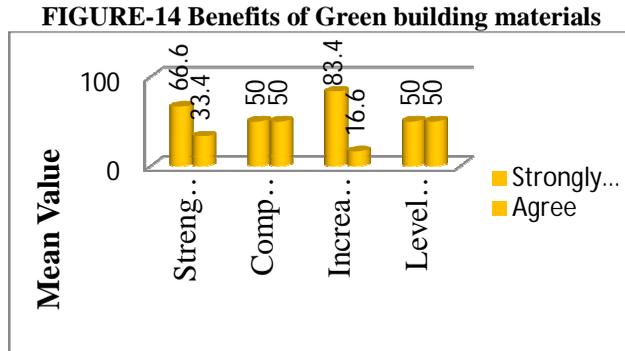
**FIGURE-1 -Frequently used Green materials**



Majority of the respondent in the builders considered wood as frequently used material with the percent of 90, 56.7 percent for Ferrock, 50 percent for Rammed earth and other materials such as Flyash, Timbercrete, Bamboo and Stone are less than the percent of Thirty five. According to (Bakhom, 2015) the frequently used materials in green building which has the benefit for health in the future that includes a focus on ecosystem and indoor health in order to evaluate the sustainability of each material.

**Benefits of green building materials:**

The data regarding the benefits of green building materials has been discussed in the below Figure-2



66.6 percent of builders responded that it will strengthen the company’s image and the remaining percent of 33.4 are partially agreed. Equal percent of 50 considered that by using green building materials the company image will increase. The resale value for green building materials have been strongly agreed with the percent of 83.4 and partially agreed with the percent 16.6. The level of encouragement has been strongly agreed with 50 percent. According to (Spiegel, 1999) the benefits of using green building materials will reduce waste and have improved occupant health productivity. It has the benefit on environmental impacts associated with the reuse and recycle form of construction (Spiegel, 1999).

**Level of satisfaction in using green building materials:**

The data regarding the level of satisfaction in using green building materials which has been discussed in the below Table-2.

In the level of satisfaction the majority of the respondents considered that green building materials are partially satisfied with the percent of 67.5 fully satisfied with the percent of 32.5 and it is concluded that green building materials has the satisfaction level in using it. Due to the properties of green building materials like low maintenance and durability it satisfied majority of the respondents after construction. According to (Baacke, 2014) by using green building materials for the construction purpose it increases the level of satisfaction.

**Table – 2 Level of satisfaction in using Green Materials**

Level of satisfaction	Residents N = 40	
	N	%
Fully Satisfied	13	32.5
Partially Satisfied	27	67.5

**Intervention Program -Awareness on Green Building Materials**

The survey results showed that the respondents of non-practitioners were unaware of the benefits of green building materials. Hence an awareness program regarding the benefits of green building materials was planned with the following objectives:

- To create awareness on the benefits of green building materials.

- To help them to understand the concept of green building materials in construction industry.
- To help them to practice green building materials by understanding its benefits.

The residents were approached in their flats and apartments & common place, and the objective of the program was explained to them. Various benefits and practice methods was also discussed with them. Also intervention program was conducted for younger generation from the department of Interior Design field to give awareness about green building materials with the belief that it will be implemented by them in future.

### **Implementing green building materials in residence achieved by the awareness given:**

The green building materials are implemented in a residence at Old Washermenpet, Chennai after the awareness which has been given to the owner by the researcher. By using these green building materials more benefits attained in compare to normal building materials. After the implementation it has been proved that the green building materials are environment friendly materials; they absorb the dust particles in the pollution; they are considered as strongest material for the building construction and suitable for all the climatic condition. The owner of the residence conveyed that she has acquired more benefits by using green building materials for his house in compare to normal building materials.



### **SUMMARY AND CONCLUSION:**

Green building materials are the essential components of building construction.

From this study, it has been concluded that the implementation of green building materials is financially healthy, cost effective and most importantly which they are environmentally responsible materials and resource-efficient throughout a building life-cycle. Hence people need to adopt the given materials in their building. In today's context, the need for green building materials is important to protect environment, because the construction industry has a great impact on the environment which includes waste generation, pollution and global warming. Due to lack of information and limited



options in the market the green building materials are not widely used in Chennai city. It is finally concluded and proved that green building materials are eco-friendly and gives more benefits which can be shortly termed as 3R's – Reduce, Reuse and Recycle. The benefits of using green building material for construction is to save environment and to bring out the sustainability.

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## **BRAND PREFERENCES OF BROADBAND SERVICES A STUDY WITH REFERENCE TO COLLEGE TEACHING FACULTIES IN COIMBATORE DISTRICT**

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### **Introduction:**

Introduction globally, broadband and mobile has revolutionized opportunities for all. It has started facilitating the health, education, and financial services companies including banks in offering value-added services to its existing customers and has begun to reach a large unbanked population to provide basic financial services. India being the large mobile penetration country and being the third largest Internet user in the world, its mobile value-added services is expected to reach US\$9.5billion in 2015, from US\$4.9billion in 2012.

Internet usage is rapidly growing in urban areas like cosmopolitan cities, semi-urban areas in India. Implementation of I-enabled services by Governmental agencies, educational institutions and commercial sector force users of these services to adopt superior internet access to facilities like: broadband, WiMax in the place of traditional dial-up access.

Over the last few years, the number of broadband subscribers in India has shown a steady growth of over 6.8 million. The proportion of broadband subscribers amongst a base of internet subscribers has grown from a mere 3 per cent in March 2005 to over 40 per cent in September 2008. The number of broadband subscribers reached 5.5crore at the end of December, 2013. However, the growth rate is still too low to enable India to meet the broadband target of 2crore by 2010 set by Government of India in its Broadband Policy 2004. Wireless broadband service, including mobile internet, dominated broadband numbers with over 4crore connections.

Fixed line broadband user base stood at 1.45 crore. On the other hand, till 2004, the broadband market in India is dominated by two telecom public sector companies, viz. BSNL (Bharat Sanchar Nigam Limited) and MTNL (Mahanagar Telephone Nigam Limited). Their market shares are witnessing sharp decline due to entry of many private players since the beginning of the year 2005, like: Reliance, Tata Teleservices, etc.

India is also witnessing keen price war among the broadband service providers and thereby it has leads to increase in broadband penetration in recent years. Major beneficiaries of broadband internet services are health, education, transport and banking sectors.

In India, BSNL a Public Sector Undertaking (PSU) is the dominant player in broadband segment of telecommunication. Broadband user adoption is affected by attitudinal constructs (relative advantage, utilitarian outcomes, hedonic outcomes, social

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outcomes and service quality), which represent consumers' favourable or unfavourable evaluations of the behaviour during the adoption of broadband services and control constructs (like: knowledge, self-efficacy, perceived ease of use, perceived ease of subscribing broadband, cost, declining cost, facilitating conditions resources and perceived lack of needs), which represent the perceived control over the personal or external factors that may facilitate or constrain the behavioral performance of consumers.

With the fast growing broadband market and rising market competition, broadband service operators are facing serious challenges in business sustainability i.e., in a fast-changing multi-technology and network environment in earning and retaining customers.

Thus, it is essential that broadband internet service operators need to respond promptly to their consumers' need and demand, especially with every changing technology. This is strategically important for the service providers to retain their consumers satisfied and also to reduce their operational expenditure. As a result, Broadband operators will have opportunity of offering advanced service to improve customer satisfaction both in urban and rural regions of India.

When it comes to brand choice, it is affected by social as well as utility needs and other factors. As a consequence of rising importance of consumer's perception in broadband business and the recent development of information and technology business the researcher strongly believes that there is a scope for detailed research that can focus on analyzing consumers' perception towards their broadband service providers in India. This empirical research work is purely focused on the broadband service users i.e., consumers at Coimbatore District in Tamilnadu.

### **Prelude**

The role of high-speed broadband in transforming the livelihoods of millions can hardly be over-emphasized. Various countries across the world have recognized this potential and have been actively investing in broadband infrastructure as part of the National Agenda. India's telecom sector has created history with its phenomenal growth story and there is no reason why broadband growth would not follow a similar trajectory. The potential of connecting the relatively under-connected rural areas is especially high. The Government of India has taken a commendable step by commissioning the National Optic Fiber Network with an investment of Rs.21,000 crore. The National Optical Fiber Network (NOFN) will connect 2,50,000 Gram Panchayats with a maximum speed of 100 Mbps. Such high-speed Internet access can not only extend connection to the bottom of the pyramid, but also generate skills and employment, thereby delivering empowerment to the rural population. The transformation possibilities are endless. It is now imperative to deliberate on how to create compelling services using this national asset – services that will touch the lives of nearly 90crore rural Indians and empower them socially and financially.

### **Growth of Telecom Industry in India**

Over the past decade, Indian telecom industry has witnessed many positive developments. India has attained the second largest subscriber network after China with

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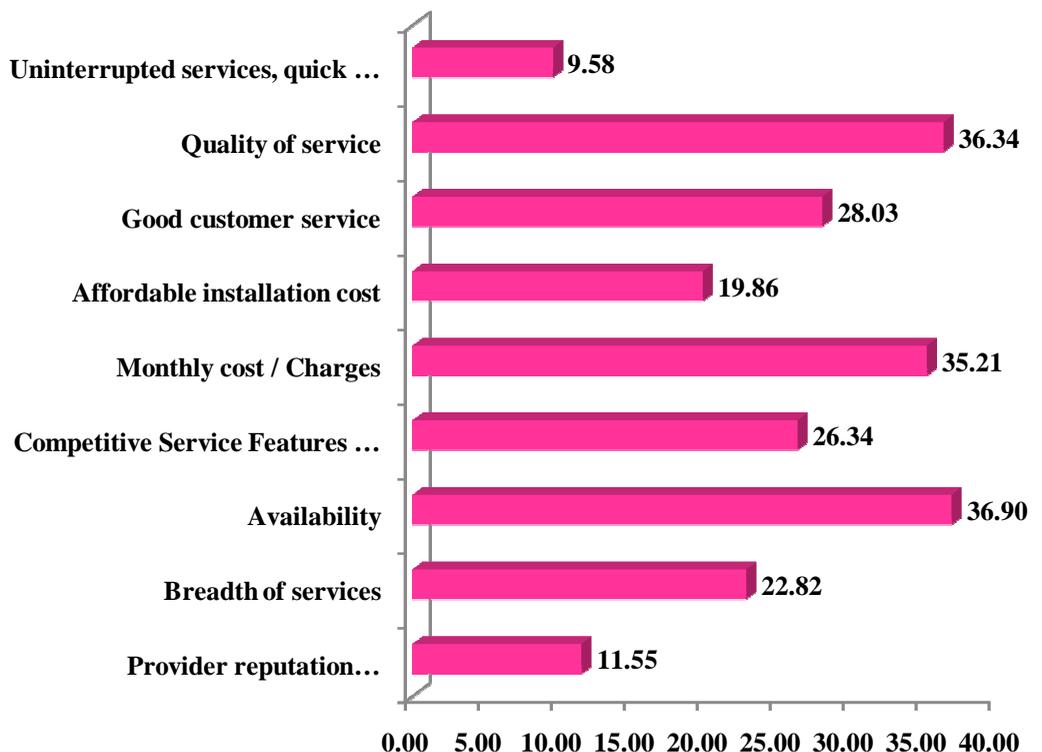


the total number of subscribers scaling up to about 900 million and claiming an urban teledensity in excess of 140 and rural tele-density of 40. With an estimated base of 67 million smart phone users in 2013, India also ranks fifth amongst the top countries in this category.

With an increasing smart phone penetration in the country, subscribers accessing internet through mobile devices stand at 176.50 million. India has achieved a lot in telecom in terms of accessibility and connectivity throughout the country. However, lack of quality, healthcare and education and non availability of banking to masses have been major hurdles in inclusive socio-economic growth of the country.

Since mid-2000, online and telephone services have become a mainstay of many sectors and most of them have incorporated these into their core services; thus reducing the cost of physical infrastructure, increasing reach and transforming the delivery of services. Advanced contemporary offerings like tele-presence, e-learning, telemedicine and direct banking are changing the business paradigms across industries and helping to bring down the carbon footprint.

**HIGHER EDUCATION TEACHERS' OPINION ON THE BROADBAND SERVICE PROVIDER SELECTION CRITERION**





**HIGHER EDUCATION TEACHERS' OPINION ON THE BROADBAND SERVICE PROVIDER SELECTION CRITERION**

Broadband Service Provider	TATA			Vodafone			MTS			Tikona		
	Sum	Mean	Rank	Sum	Mean	Rank	Sum	Mean	Rank	Sum	Mean	Rank
Provider reputation / brand reputation	0	0.00	-	6	0.10	7	0	0.00	-	42	3.82	2
Breadth of services	65	1.27	5	54	0.89	4	0	0.00	-	42	3.82	2
Availability	288	5.65	1	180	2.95	1	126	6.30	1	42	3.82	2
Competitive service features (technical competency)	114	2.24	4	120	1.97	2	0	0.00	-	42	3.82	2
Monthly cost / charges	176	3.45	2	77	1.26	3	0	0.00	-	99	9.00	1
Affordable installation cost	140	2.75	3	6	0.10	7	0	0.00	-	42	3.82	2
Good customer service	65	1.27	5	28	0.46	6	48	2.40	2	42	3.82	2
Quality of service	65	1.27	5	40	0.66	5	48	2.40	2	42	3.82	2
Uninterrupted services, quick connectivity, speed etc.,	22	0.43	8	0	0.00	-	12	0.60	4	88	8.00	1

Demographic and Occupational Status of the Higher Education Teachers in Coimbatore District From the empirical data analysis it has been observed that 64.60 per cent of the higher education teachers are found to be female, 67 per cent of the respondents are aged between 26-35 years and 70.70 per cent of the higher education teachers in Coimbatore district are found to be M. Phil., degree holders. It has also been found that most i.e. 98.60 per cent of the teaching faculties in Coimbatore district are working in self-financing colleges and 40.14 per cent of the higher education teachers earn below Rs. 20000 per month. ii. Broadband Usage by the College Teachers' The empirical findings of the study revealed that 37.61 per cent of the higher education teachers have reasonable knowledge on broadband services. The results of the ANOVA



test complementing the above conclusion by revealing that there exists a close association between the demographic and occupational status of the higher education teachers and their awareness towards broadband usage. Similarly, the elaborate data analysis indicates that 50.56 per cent of the college teaching faculties reside in urban area.

A batch of 37.60 per cent of the college teaching faculties are using BSNL broadband service and 34.23 per cent of the higher education teachers spend between Rs.501 to Rs.1000 per month for broadband connection. Further, it has been found that 69.44 per cent of the sample subjects have said that they use broadband services for education purposes, 47.30 per cent of the respondents have opined that they have been using broadband services since 2008 and majority i.e. 67.00 per cent of college teaching faculties have installed single user broadband connection through their computers.

This empirical finding of the study is supported with the calculated results of Wilcoxon on 'w' test, which indicates that Broadband application usage among the higher education teachers differs according to their demographic and occupational status.

It has been clearly observed that 51.41 per cent of respondents have adopted 3G wireless connection for accessing the internet, 55.20 per cent of higher the education teachers are using private ISP (Internet Service Provision) and 56.90 per cent of the respondents have installed moderate speed internet service.

From the empirical data analysis it has been observed that 53.80 per cent of the higher education teachers feel that the broadband services are highly useful for accessing new resources as it is updated from time to time.

Higher Education Teachers' Perception towards Broadband Services It has been found that 36.90 per cent of the respondents have opined that they select broadband service provider based on their instant availability in the market. Thus, the empirical results of Paired 't' test reveal that the reason stated by the higher education teachers for broadband service provider selection differs from one brand to other branded service providers. The study found that 58 per cent (mean score of 2.88) of the higher education teachers are inspired by the responsiveness feature of particular broadband service provider.

The study inferred that 43.11 per cent (mean score of 3.88) of the higher education teachers prefer BSNL brand for its service quality. Followed by, 42.44 per cent (mean score of 3.82) of the sample subjects choose Airtel service for its availability and 47.33 per cent (mean score of 4.26) of the respondents prefer Reliance as it offers good customer service. Subsequently, 62.77 per cent (mean score of 5.65) of the sample subjects prefer TATA brand 204 as it is easily available. Further, it has been observed that 32.77 per cent (mean score of 2.95) of the respondents are using Vodafone brand for its resource availability. Similarly, 70 per cent (mean score of 6.30) of the sample populations' have said that they prefer MTS brand as it is easily available in the market. It has been also found that almost 100 per cent (mean score of 9) of the respondents are inspired by the features such as uninterrupted services, quick connectivity, speed etc., of Tikona brand. The descriptive data analysis result duly matches with the statistical findings: The results of Multiple Regression model infers that the higher education teachers' perception of broadband usage differs from one brand to other branded service providers.

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Multiple Regression Analysis indicated out of twelve variables tested seven were found to be significantly influencing factors, they are: Technical Competency, Security Issues, Functional Qualities, Accessibility, Communication, and Courtesy and Future usage. Another, the results of Multiple Regression model reveal that there exists a close association between the higher education teachers' perception of broadband usage and the application used by them.

Multiple Regression Analysis indicated that out of twelve variables tested seven were found to be significantly influencing factors, they are: Technical Qualities, Technical Competency, Staff Skills & Competency, Responsiveness, Accessibility, Communication and Future usage. Similarly, the result of Independent 't' test declared that there exist differences in the higher education teachers' perception towards public and private broadband service providers.

Broadband has become a key priority of the 21st Century, and its transformation power as an enabler for economic and social growth makes it an essential tool for empowering people, creating an environment that nurtures the technological and service innovation, and triggering positive change in business processes as well as in society as a whole.

Moreover, it has also been inferred that the selection of the service providers and the nature of service facilities offered by them greatly influence broadband internet service usage pattern among the sample population in the study region and their level of satisfaction also determined by these features. In short, high broadband speed internet connection is essential pre-requisite to widespread education and for enhancing teacher's quality.

It is suggested to the broadband service providers to offer higher education teacher-centric services for enhancing their usage, also for realizing more market share, be competitive and to realize more profit.

### **Conclusion:**

Broadband has become a key priority of the 21st Century, and its transformation power as an enabler for economic and social growth makes it an essential tool for empowering people, creating an environment that nurtures the technological and service innovation, and triggering positive change in business processes as well as in society as a whole. Increased adoption and use of broadband in the next decade and beyond will be driven by the extent to which broadband-supported services and applications are not only made available to, but are also relevant and affordable for consumers.

This study concludes that there exist higher digital divides among the college teachers in the adoption of the broadband internet services. The socio-economic status of individual teachers like: their gender, age, educational qualification, nature of the institution where they are currently working greatly influence their adoption of broadband internet services. Moreover, it has also been inferred that the selection of the service providers and the nature of service facilities offered by them greatly influence broadband internet service usage pattern among the sample population in the study region and their level of satisfaction also determined by these features. In short, high broadband speed internet connection is essential pre-requisite to widespread education

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and for enhancing teacher's quality. It is suggested to the broadband service providers to offer higher education teacher-centric services for enhancing their usage, also for realising more market share, be competitive and to realise more profit.

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## RAINFALL DISTRIBUTION TREND AND FREQUENCY IN JORHAT DISTRICT

Dr. Chandrawati Kumari

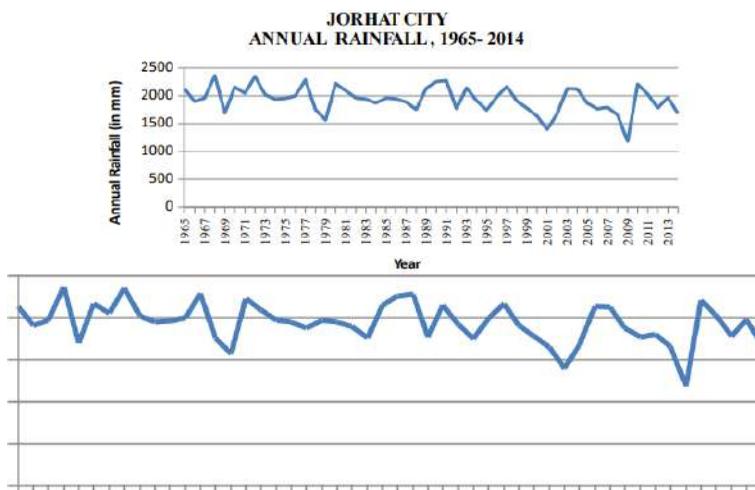
### Abstract

The first phase in several hydrological programmes, such as urban drainage system construction, is the analysis of rainfall events (Kanikar et al., 2013). In particular, recognising the distribution of rainfall in time and space is crucial for a better evaluation of the urban drainage system. The most relevant contribution to runoff computations is indeed the rainfall details (UNESCO, 1987). The corresponding findings can be obtained by introducing different extraction methods and evaluating rainfall data, which involves rainfall trend from annual data for different years, rainfall frequency analysis, intensity analysis, runoff coefficient determination. Therefore, annual rainfall data for 50 years (1965-2014) was collected from Tocklai meteorological station, Jorhat and hourly monsoon month rainfall strength data for 7 years (2000-2006) were collected from the Indian Meteorological Department, Guwahati, for the usage of these studies.

**Key Words:** Rainfall, Distribution, Space, Evaluation, Drainage, Intensity

### Introduction

Where the annual rainfall of Jorhat is found to be 193.35 cm, rainfall for a period of 50 years between 1965-2014 is measured. A fluctuating trend for the given time is seen in the rainfall pattern in Fig. 4.1. 4.1. The cumulative rainfall above 2000 mm, i.e. 200 cm, is recorded for 18 years out of 50 years, although the rainfall is less than 1500 mm, i.e. 150 cm, for two years only, i.e. 2001 and 2009, and the total annual rainfall for the remaining years ranges between 1500 mm and 2000 mm. The maximum rainfall over these 50 years was in 1968 with an annual rainfall of 2360.1 mm, while the lowest rainfall was in 2009 with 1184.4 annual rainfall (Fig. 4.1). Annual precipitation has declined at a marginally substantial pace throughout the last 50 years (Fig.1). Since 1990, severe incidents were shown to be increasing (Pandey, 2014).



Source: Tocklai Tea Research Institute, Jorhat

Fig. 1 Annual rainfall of Jorhat city, 1965-2014

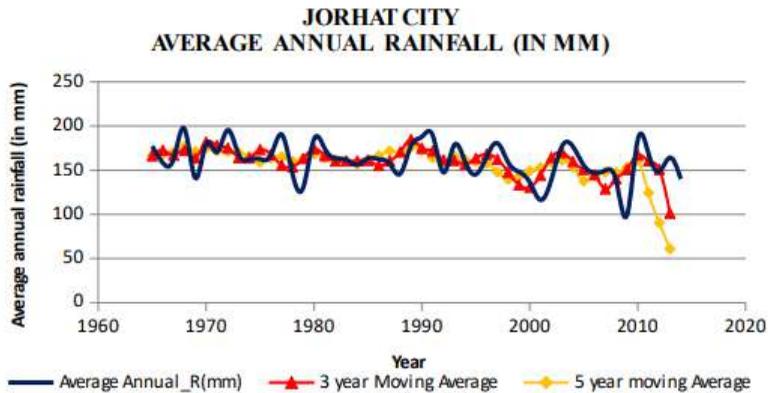


Fig. 2 Average annual rainfall with 3 year and 5 year moving average or 50 years of Annual rainfall, a 3 year and 5 year moving average is determined to have a more precise trend of average annual rainfall for the period 1965-2014. For both the 3 year and 5 year moving average, it shows fluctuating trend over the years showing a slight decrease in rate (Fig. 2).

Also, assessing the monsoon period (May, June, July, August and September) rainfall for the 50 years, it shows considerable amount of rainfall over the years ranging from 1000mm to above 1800 mm of rainfall (Fig. 3). It is observed that the monsoon rainfall for the stated period contributes about 76% of the annual rainfall.

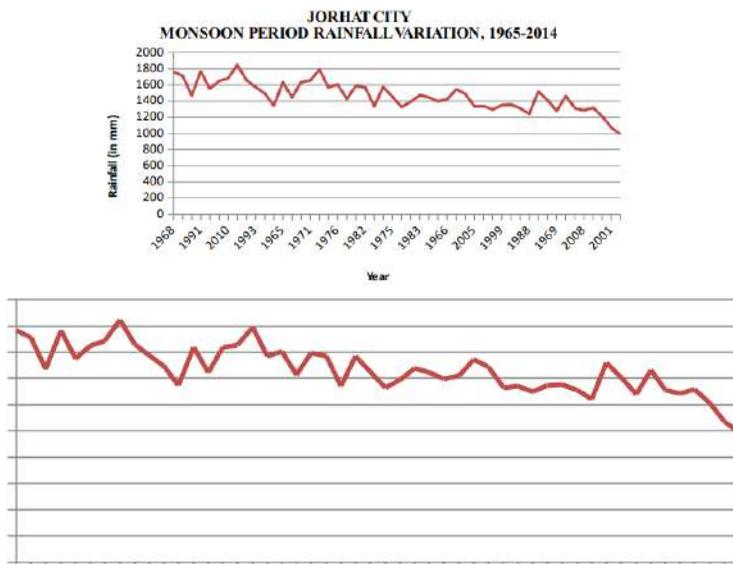


Fig. 3 Rainfall variation for monsoon period, 1965-2014

Observing the monthly average of rainfall for the period (1965-2014) the highest rainfall occurs in the month of July with 369.98 mm and the lowest is found to be in the month of January with 19.26 mm of rainfall (Fig..4).

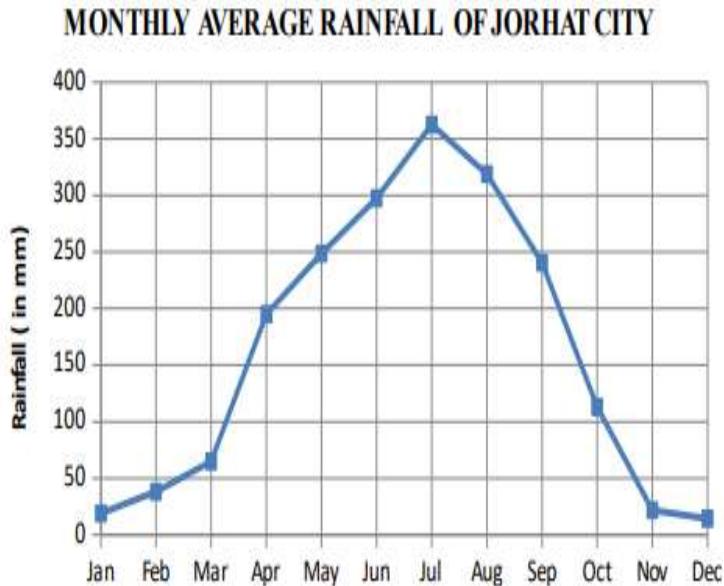


Fig. 4 Monthly average rainfall of Jorhat city, 1965-2014

The monthly trend of the data for fifty years as seen in Fig. 4. It can be further interpreted that the highest annual monthly rainfall occurs mostly from May to September, accounting for approximately 75.91 percent of the overall monthly rainfall amount, which specifically indicates that rainfall events are concentrated predominantly throughout this time of the year, while the other months contribute 24.09 percent. This rainfall data indicates a normal monsoon characteristic.

#### Rainfall frequency analysis

Rainfall Frequency Analysis (RFA) predicts that the likelihood and return time or recurrence interval (RI) are surpassed by rainfall. RFA is focused either on a location (at-site analysis) or several sites (regional analysis) on an annual maximum sequence (Vivekananda, 2012). In reality, the abstracted annual rainfall for 50 years is rated and probabilities are allocated using different plotting location formulas to measure rainfall frequency analysis (Chow, 1964). The Weibull formula is generally suggested for annual rainfall.

Shaped as:  $P = m/(N+ 1)$

Where P is the likelihood, the rank is m, and in years, N is the record period.

The rainfall frequency analysis is developed (Annexure III, F) for 50 years using the above formula and is plotted on a probability paper. The odds (or return periods) are

plotted on the logarithmic scale of the x-axis and on the log scale of the rainfall quantities (or intensities) on the y-axis.

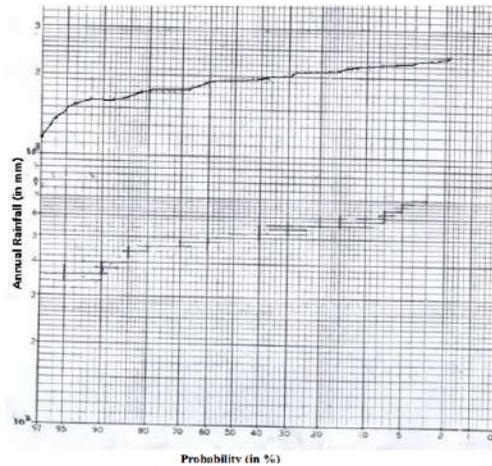
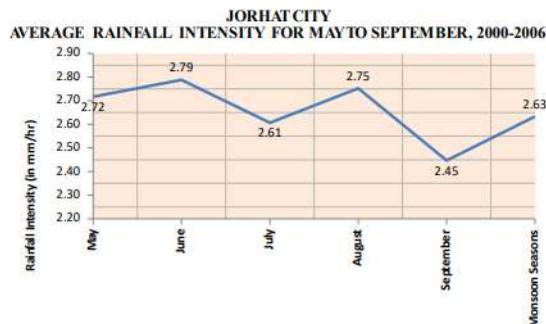


Fig. 5 Rainfall frequency analysis of Jorhat city, 1965-2014

The probability graph in Fig. 5 indicates that the annual rainfall with a probability of 30% of exceedence is 2000 mm i.e. on average 30 % of time(return period is 3 years) annual rain of 2000 mm would be equaled or exceeded. While a probability exceedence of 10% the corresponding value of the yearly rainfall is 2300mm with a return period of 25 to 50years. The probability level of 80 % of exceedence is 1500mm with a return period of period of one year which indicates that this amount of rainfall is the most frequent in the region.

#### 4.3 Rainfall intensity analysis

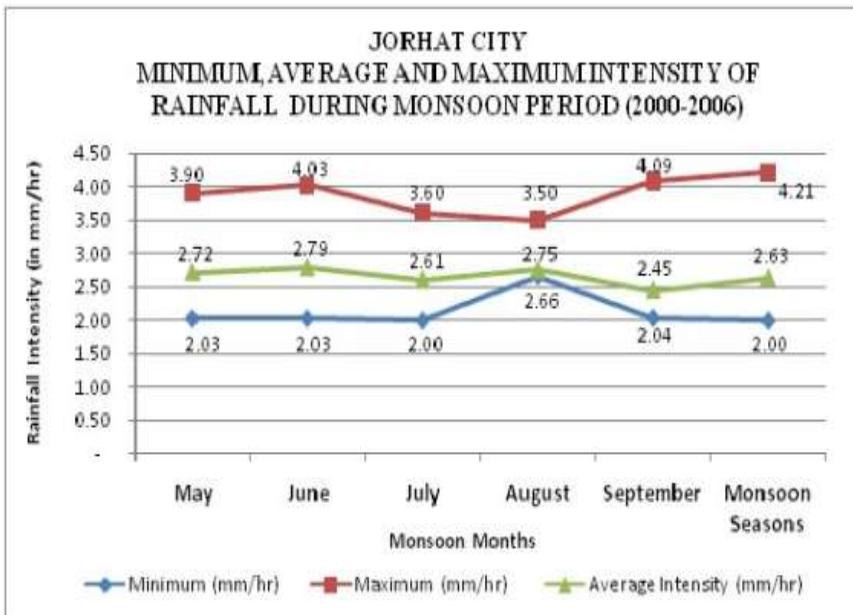
Rainfall intensity is obtained by the ratio of the total amount of rain fall during a given period to the duration of the period and is expressed usually as mm per hour. Rainfall data for the period 2000-2006 have been used, because since last decades, Jorhat have been experiencing inundation frequently. Also, rainfall frequency and intensity are connected, as rare events (greater return periods) tend to have higher intensities (for a given duration) (UNESCO, 1987).



Source: Indian Meteorological Department, Guwahati

Fig. 6 Rainfall intensity for the monsoon period, Jorhat, 2000-2006

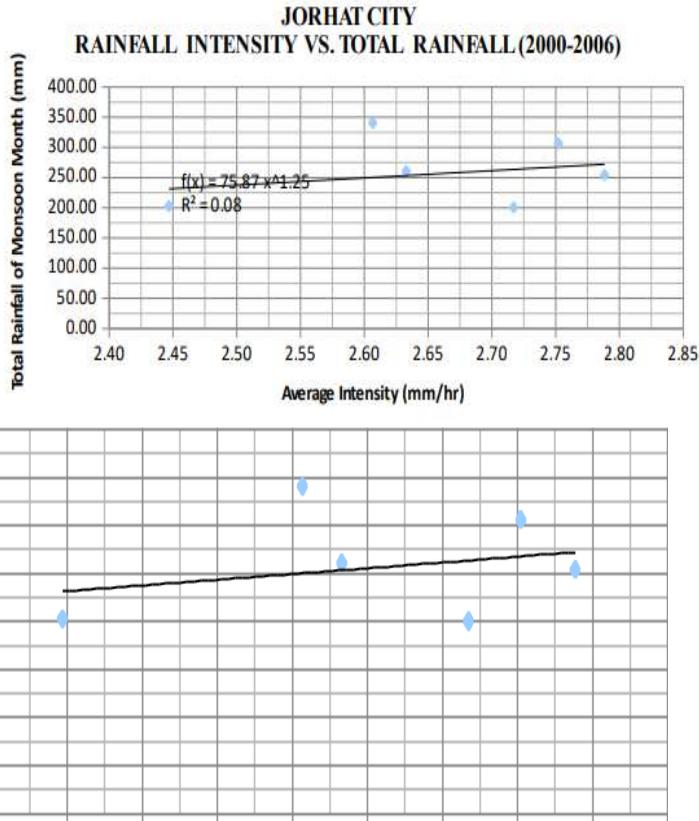
However, it is variable over Monsoon period. It is ranging from a minimum of 2mm/hr in the month of July to a maximum of 4.09 in the month of September with overall maximum rainfall intensity for monsoon period at 4.21 mm/hr during the period 2000-2006 (Fig. 6). This is based on hourly data available for 24 hrs for the said period. However taking the monsoon period as a whole from May- September, it is observed that the average intensity for the monsoon period has remained to be 2.63 mm/hr varying from a minimum of 2.45 mm/hr to 2.79 mm/hr for the whole monsoon season (Fig. 7).



Source: Indian Meteorological Department, Guwahati

Fig. 7 Overall scenario of rainfall intensity for the monsoon months, Jorhat, 2000-2006

The minimum average and maximum intensity have been depicted in the Fig 7, reveals that it is varying from a minimum of 2 mm/hr for most of the months i.e. May, June, July and September and for the monsoon period as a whole with exception for the month of August i.e. 2.66 mm/hr. Maximum values of intensity of 3.90 mm/hr, 4.03 mm/hr, 4.09 mm/hr, 4.21 mm/hr of rainfall is confined in May, June, September and the Monsoon season as a whole (Fig. 7).

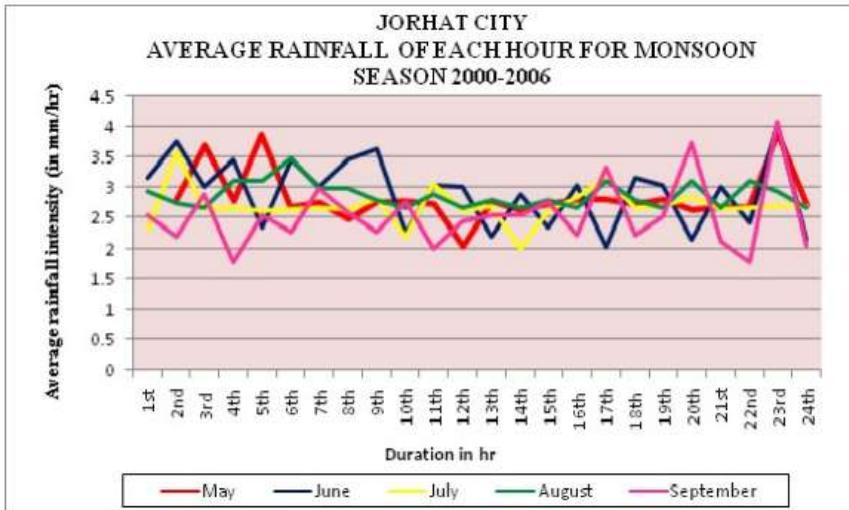


**Fig. 8 Comparison of rainfall intensity to total rainfall, 2000-2006**

The significant parameter for the hydrological configuration of storm sewers, culverts and many other systems, as well as for rainfall-runoff models, is rainfall intensities of different frequencies and durations (Vivekananda, 2012). As seen in Fig.4.8, a regression model of total precipitation on average precipitation intensity in monsoon months shows a rather weak relationship, where  $R^2 = 0.077$ .

#### 4.3.1 Rainfall intensity pattern in monsoon months, 2000-2006

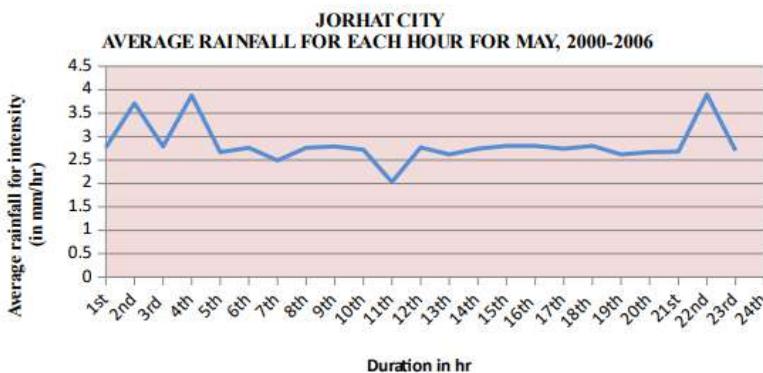
Through examining the average rainfall intensity trend for 24 hours, it is found that most rainfall peaks occur during the monsoon season for these seven years (2000-2006) for both the early hour period and later hour periods varying from 3 mm / hr to 4 mm / hr for May, June , July , August, and September. It should be remembered, however, that July sees maximum rainfall intensity peaks of 3 mm / hr to 3.5 mm / hr rainfall during the early part of the hour rather than during the later hours, which sees steady peaks of 2.5 mm / hr. Although September indicates strong peaks in rainfall during the later cycle with a length in 3.5 mm / hr to greater than 4 mm / hr, the lowest peaks are 1.5 mm / hr to 2.5 mm / hr during the early hours (Fig.4.9). Slight fluctuating peaks that range from 2mm / hr to 3mm / hr of rainfall are seen by the remaining length.



Source: Indian Meteorological Department, Guwahati

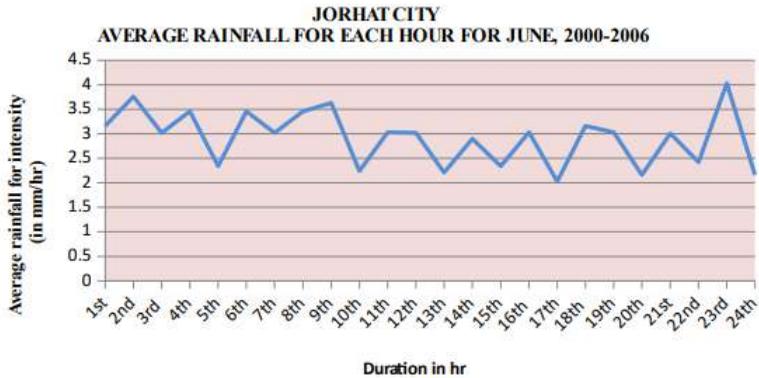
Fig. Fig. 9 Average hourly rainfall intensity for the monsoon season The individual specification of the average hourly rainfall intensity for the 24-hour monsoon period indicates the average rainfall intensity for the 24-hour period.

The Can curve reveals a few peaks, three of which are higher than the 24-hour mean rainfall, i.e. 2.66 mm / hr at 0300 hr, 0500 hr and 2300 hr IST (Fig. 10). At 0200 hr, 0900 hr, 2300 hr IST (Fig.11), the June curve displays three larger peaks. The July curve has one higher peak at 0200 hr IST (Fig. 12) and two higher peaks at 2000 hr and 2300 hr IST are seen in the September curve (Fig. 4.14). While the peak in August is conspicuously low (Fig. 13). There are five other moderate tops, which are over normal rainfall of 2.66 mm / hr, together with these nine notable tops. The ultimate scenario suggests that, over a 24-hour cycle, average rainfall per hour above mean rainfall occurs within 14 hours.



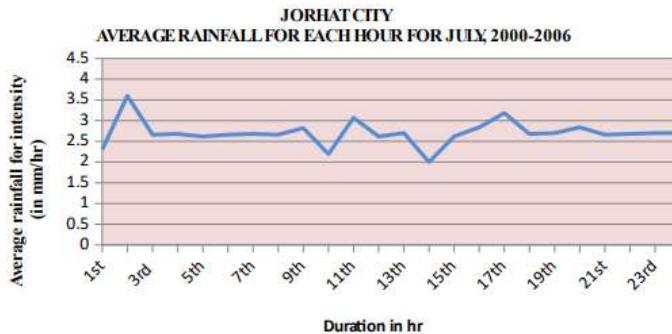
Source: Indian Meteorological Department, Guwahati

Fig. 10 Average rainfall intensity for 24 hour in May, 2000-2006



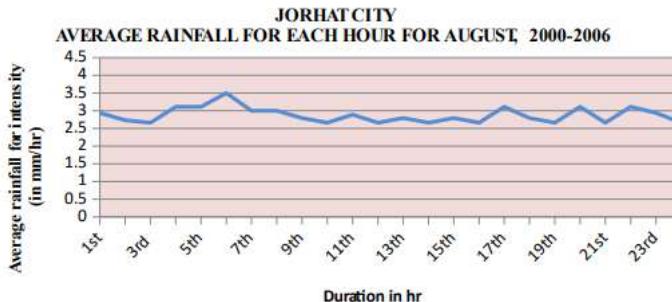
Source: Indian Meteorological Department, Guwahati

Fig. 11 Average rainfall intensity for 24 hour in June, 2000-2006



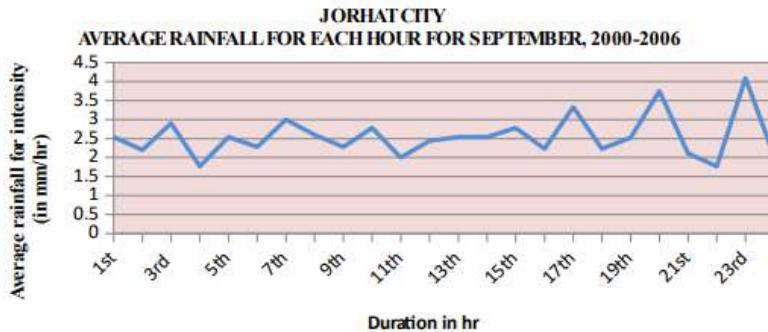
Source: Indian Meteorological Department, Guwahati

Fig. 12 Average rainfall intensity for 24 hour in July, 2000-2006



Source: Indian Meteorological Department, Guwahati

Fig.13 Average rainfall intensity for 24 hour in August, 2000-2006



Source: Indian Meteorological Department, Guwahati

Fig. 14 Average rainfall intensity for 24 hour in September, 2000-2006

The rainfall rate for May is 23 hours over 2.00 mm / hr (Fig. 4.10). In both of the 24 hours during June (Fig. 11) and July (Fig. 12), it is more than 2.00 mm / hr. It is further intensified in all 24 hours throughout August to 2.5 mm / hr (Fig. 13) and falls steadily throughout the month of September. A very strong rainfall rate during the monsoon months results in very strong runoff. Through the above study, it is also evident that Jorhat encounters during the monsoon season around nine peak hours of high intensity rainfall. In June, the average hourly rainfall rate is found to be maximum (Fig. 11) and is always alarming as it shows the intrinsic disadvantages of the Jorhat drainage scheme (Rajkumari, 2009), resulting in increased artificial flooding over the past decades. By restoring the natural drainage to its original degree and connecting the artificial drainage mechanism to it in order to pump out the excess water during the peak hours, this aggravating issue may be resolved.

#### Percentage of rainfall events to which artificial drainage system responds

Study of regular rainfall intensity showed that with 20% of frequency in the monsoon season, 2 mm of daily rainfall is prevalent. It is also found that with just 1 percent, more than 6 mm of regular rainfall rate is comparatively negligible. While the regular rainfall intensity of 2 mm / hr to 4 mm / hr accounts for around 2% (during August) to 6% (during May) and the daily rainfall intensity of 4 mm / hr to 6 mm / hr accounts for up to 5% for May to 1% for the remaining monsoon months

This method of study will prove to be an efficient tool for collecting information on the percentage of daily rainfall intensity occurring in the state, not just for monsoon months of different times, but also for the seasonal, annual percentage share of daily rainfall intensity. It may also help to correlate length with the maximum number of peaks, the monsoon months' maximum and lowest runoff pattern, during which artificial floods also appear to increase. For five years, three years or even one years, such study within a short time span would lead to the routine evaluation of restrictions and will assist in adequate drainage preparation in both natural and artificial perspectives.



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