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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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## **A STUDY ON MARKETING OF HANDLOOM PRODUCTS IN CHITTOOR DISTRICT, ANDHRA PRADESH.**

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### **Introduction**

Marketing is the process of defining, anticipating and creating customer needs and wants, organising the resources of the company to satisfy them. Since the handloom industry has been a widely dispersed cottage industry, the disposal of finished goods invariably is the crux of the problem. Due to lack of proper organisational marketing net work, the handloom products suffer in the market, while competing with the organised mill sector and decentralised power loom sector. It has, therefore, been attempted to find out the present structure of the market for handloom products and the degree of dependence of sample respondents on various agencies for marketing their finished products. It is a known fact that market for textiles is almost assured and continuous, since every human being needs and requires cloth. But since the producers are limited, it is not possible for them to establish direct contact with the consumers. Marketing of handloom fabrics requires certain skills. Hence, specialisation in the realm of marketing is a pre-requisite for successful marketing.

It is necessary to find out different types of intermediaries who stand between the weavers and the consumers. Since the weavers as well as consumers are large in number, it would be very difficult to both the parties to have a direct contact with each other. Further, a majority of the handloom producers are financially poor and economically backward. In the absence of proper and sufficient facilities to safeguard the interests of the weavers and the invariable dependence of the weavers upon private persons for getting raw materials, finances and marketing of finished goods, are causing for the entrance of too many middlemen in the distribution of handloom products in Andhra Pradesh in general and Chittoor District in particular.

The most of the important intermediaries in handloom cloth distribution in the District are the master weavers and the primary weavers' co-operative societies. Needless to say, the former comes under unorganized channel, whereas the latter comes under organised channel. The master weavers, on one hand, control the producers by giving loans and by supplying yarn and on the other hand, maintain close contacts with the wholesalers and also maintain their own retail shops through which they directly contact the ultimate consumers.

In the district there are a few producers who sell regularly their finished products to the ultimate consumers. There are some producers who are free from the clutches of master weavers, dealers and sell the finished products to the retailers. The share of such producers, in total, is of course, negligible.



The primary weavers' co-operative societies in the district buy handloom cloth from the members and sell mostly to APCO at ten per cent profit margin. Some of the societies also maintain their own retail shops through which they contact directly the consumers. Sometimes, these societies sell the handloom textiles to the All India Handloom Fabrics Marketing Cooperative Society Limited and also sell to Export Centres. But such sales are irregular and limited in nature.

### Objectives

The specific objectives of study

1. To Evaluate marketing practices of weavers in chittoor district.
2. To Review the problems related to marketing of handloom products.

### Sample design

The basis of the study is sample survey, the eclectic survey method has been used while drawing the samples. The Chittoor district has been divided into three divisions basing on concentration of weaving households: SriKalahasti, Madanapalle and Puttur. In each division, two mandals were chosen where weaving is concentrated. They are SriKalahasti, Varadhaiahpalem, Madanapalle, Kalakada, Narayanavanam and Satyavedu. The villages were selected by stratified random sampling with proportional allocation technique. The universe of weaver households has been divided into independent, master, weavers under middlemen, cooperative and labor weavers. The total number of sample weavers for all the classes is limited to 300. Ultimately, the sample was divided into 51 independent weavers, 22 master weavers, 78 weavers under middlemen, 43 cooperative weavers and 106 labor weavers.

### Tools of analysis

Suitable and appropriate statistical tools and mathematical devices like percentages, and chi-square test were employed while tabulating, analyzing and interpreting the data.

An attempt has been made to know the degree of dependence of the respondents on different channels for selling their finished products. The weavers mainly depend upon marketing agencies like traders in a handloom products, and the middlemen who collect the cloth from the weavers and sell either to consumers or traders. There is direct sales also by the weavers.

**Table : 1. Channels of Distribution**

Particulars	Independent weavers	Master weavers	Co-operative weavers	Total
Direct	15 (29.41)	9 (40.91)	-	24 (20.69)
Marketing agencies	17 (33.33)	8 (36.36)	-	25 (21.55)
Through	19	5	-	24



middlemen	(37.25)	(22.73)		(20.69)
Cooperative society	-	-	43 (100.00)	43 (37.07)
Total	51 (100.00)	22 (100.00)	43 (100.00)	116 (100.00)

**Note :** Figures in parentheses indicate the percentage to total.

**Source:** Sample survey.

Table-1 reveals that marketing agencies and middlemen play a very significant role in marketing of handloom products in Chittoor district. As far as independent weavers are concerned, 29.41 per cent of the weavers disposed their finished products directly, 33.33 per cent of the weavers sell their products through marketing agencies, 37.25 per cent of the independent weavers sell their products through middlemen, while in the case of master weavers 40.91 per cent to sell their product directly, 36.36 per cent of the weavers through marketing agencies and 22.73 per cent of the weavers through middlemen. It is noticed from the same table that the weavers under cooperative societies have sold their produce in the cooperative societies only. It is also observed from the table that the independent weavers depend mostly upon middlemen (37.25%) and marketing agencies (33.33%), whereas the master weavers on direct sales 40.91 and marketing agencies (36.36%).

Table -2 presents data relating to the terms of sale of the product by the respondents with different channels. Out of the total respondents the exchange of raw materials forms the popular terms of sale followed by cash payment. This is true in the case of channels of distribution except cooperative societies in which exchange of raw materials is mostly common.

**Table : 2. Terms of Sales**

Particulars	Direct	Marketing agencies	Through middlemen	Cooperative society	Total
Cash	12 (50.00)	9 (36.00)	7 (29.17)	-	28 (24.14)
Sale in advance	2 (8.33)	3 (12.00)	3 (12.50)	-	8 (6.90)
Credit	6 (25.00)	6 (24.00)	8 (33.33)	-	20 (17.24)
Exchange of raw materials	-	7 (28.00)	4 (16.67)	43 (100.00)	54 (46.55)
Cash cum credit	4 (16.67)	-	2 (8.33)	-	6 (5.17)
Total	24 (20.69)	25 (21.55)	24 (20.69)	43 (37.07)	116 (100.00)

**Note :** Figures in parentheses indicate the percentage to total.



**Source:** Sample survey.

The marketing of handloom products may be at times seasonal, for some products it may be continuous. This is presented in Table -3. Out of 51 independent weavers 34 weavers (66.67%) have seasonal demand for their product, 17 weavers (33.33%) have continuous market for their product, while in the case of master weavers 63.64 per cent of the weavers have continuous demand for their product, 36.36 per cent of the weavers do have seasonal demand. In the case of cooperative weavers, 53.49 per cent of the weavers have seasonal demand for their product 46.51 per cent of the weavers have continuous demand for their product. Out of 116 total weavers excluding weavers under middlemen, 56.03 per cent of the weavers have seasonal market for their product, 43.97 per cent of the weavers have continuous demand for their product.

**Table : 3. Nature of the Market Demand for the Products**

Type of weavers	Seasonal	Continuous	Total
Independent weavers	34 (66.67)	17 (33.33)	51 (100.00)
Master weavers	8 (36.36)	14 (63.64)	22 (100.00)
Cooperative weavers	23 (53.49)	20 (46.51)	43 (100.00)
Total	65 (56.03)	51 (43.97)	116 (100.00)

**Note :** Figures in parentheses indicate the percentage to total.

**Source:** Sample survey.

The fixation of price of the handloom product is influenced by many factors viz., the cost of production, demand for cloth, competition, as shown Table 4. In the case of independent weavers 50.98 per cent of the total weavers determined their product price on the basis of cost of production, 31.37 per cent of the weavers determined on the basis of demand for their product, 17.65 per cent of the weavers fixed the price in view of competition for their product from the products of power looms and mill cloth. In the case of master weavers 40.91 per cent of the weavers determined their price on the basis of cost of production, 36.36 per cent of the master weavers determined the price on the basis of demand their product, 22.73 per cent of the master weavers determined their products on the basis of competition. It is interesting to note that all the cooperative weavers have fixed the price on the basis of cost of production. The weavers under middlemen do not have any right to fix the price; they have to surrender their products to the middlemen as soon as the production is over. Out of 116 total weavers 78 i.e. 67.24 per cent of the weavers determined the product price on the basis of cost of production, 24 weavers i.e. 20.69 per cent on the basis of demand, 14 weavers i.e., 12.07 per cent on the basis of competition. It can be



observed from the table that the primary determining factor in fixing the price in the study area seems to be cost of production.

**Table : 4 : Fixation of the Price for the Products**

Type of weavers	Cost	Demand	Competition	Total
Independent weavers	26 (50.98)	16 (31.37)	09 (17.65)	51 (100)
Master weavers	9 (40.91)	8 (36.36)	5 (22.73)	22 (100)
Cooperative weavers	43 (100)	-	-	43 (100)
Total	78 (67.24)	24 (20.69)	14 (12.07)	116 (100)

**Note :** Figures in parentheses indicate the percentage to total.

**Source:** Sample survey.

All the weavers cannot get reasonable price for their products. This is presented in Table 5. Among the independent weavers 31.37 per cent of the total weavers get reasonable price for their product, 68.63 per cent of the independent weavers do not get reasonable price for their products. Among the master weavers 59.09 per cent of the total get reasonable price for their product, 40.91 per cent do not get reasonable price for their product.

**Table : 5. Securing Reasonable Price for the Product**

Type of the weavers	Reasonable	Moderate	Low	Total
Independent weavers	16 (31.37)	21 (41.18)	14 (27.45)	51 (100.00)
Master weavers	13 (59.09)	8 (36.36)	1 (4.53)	22 (100.00)
Total	29 (39.73)	29 (39.73)	15 (20.55)	73 (100.00)
Calculated value of	$\sigma X^2 = 6.99$			

**Note :** Figures in parentheses indicate the percentage to total.

**Source:** Sample survey.



It is inferred from the application of chi-square test that there is a significant association among type of weavers and securing reasonable price at market level. The chi-square statistical value is significant at 5 per cent level and it is given by 6.99. It can be observed from the table that most of the weavers are selling moderate and reasonable prices for their products. TABLE VALUE = 5.991 at 2 degree of freedom at 5% level of significance

Weavers have naturally some plans and programmes for improving their output and quality of the cloth to their advantage. Table 6. reveals plans and programmes for improving quality and quantity of output. Out of such weavers 38 respondents representing 19.59 per cent have not revealed their plans and programmes in order to improve the quality and quantity of output, 80.41 per cent of the respondents have revealed their plans and programmes like, improving the quality (22.16%), produce export oriented cloth (9.79%), increase the quantity of cloth (20.10%) and introduction of new looms in the process of production (28.35%).

**Table : 6 . Plans and Programmes for improving output and Quality**

Particulars	Independent weavers	Master weavers	Weavers under middlemen	Cooperative weavers	Total
High quality	17 (55.93)	9 (20.93)	11 (25.58)	6 (13.95)	43(100) (22.16)
Export quality	8 (42.10)	5 (26.32)	2 (10.53)	4 (21.05)	19(100) (9.79)
More production	10 (25.64)	3 (7.69)	17 (43.59)	9 (23.08)	39(100) (20.10)
New looms	14 (25.45)	5 (9.09)	28 (50.91)	8 (14.55)	55(100) (28.35)
No suggestions	2 (5.26)	-	20 (52.63)	16 (42.11)	38(100) (19.59)
Total	51 (26.29)	22 (11.34)	78 (40.21)	43 (22.16)	194(100) (100)

**Note :** Figures in parentheses indicate the percentage to total.

**Source:** Sample survey.

An attempt was also made to get the requirement of technical assistance by the weavers. As it is shown in Table 7. Of the total weavers 47.33 per cent have expressed the requirement of technical assistance for improvement in looms and other equipments. In this, the weavers under middlemen and independent weavers constitute greater percentage of 17.67 per cent and 17.00 per cent respectively. The requirement of assistance to design has been revealed by 50.67 per cent of the total weavers, 16.00 per cent of the independent weavers and 15.00 per cent of the weavers under middlemen.



**Table: 7. Respondents requirement of Technical Assistance**

Particulars	Independent weavers	Master weavers	Weavers under middlemen	Cooperative weavers	Labour weavers	Total
For improvement of looms and other equipment	51 (17.00)	7 (2.33)	53 (17.67)	31 (10.33)	-	142 (47.33)
For design	48 (16.00)	10 (3.33)	45 (15.00)	27 (9.00)	22 (7.33)	152 (50.67)
For training personnel	44 (14.67)	9 (3.00)	32 (10.67)	21 (7.00)	48 (16.00)	154 (51.33)
Marketing facilities	59 (19.67)	6 (2.00)	60 (20.00)	20 (6.67)	-	145 (48.33)

**Note :** Figures in parentheses indicate the percentage to total.

**Source:** Sample survey.

Labour weavers form the greatest percentage (16.00%), who required assistance for technical training. The assistance for marketing facilities was expressed by 48.33 per cent of the weavers, 20.00 per cent of the weavers under middlemen and 19.67 per cent of the independent weavers. It can be observed from the table that independent weavers and weavers under middlemen constitute greater proportion of weavers who require technical assistance, and this assistance is mostly for marketing and for improvement in the looms and design equipment.

### Summary and Conclusion

Since the handloom industry has been widely dispersed cottage industry. The disposal of finished goods invariably is the crux of problem. Since the weavers as well as consumers are large in number, it would be very difficult to both the parties to have a direct contact with each other. The most important intermediaries in handloom cloth distribution in the district are the master weavers and the primary weavers' cooperative societies. The master weavers, on one hand, control the producers by giving loans and by supplying yarn and on the other hand, maintain close contacts with the wholesalers and also maintain their own retail shops through which they directly contact the ultimate consumers.

The sample weavers in the district, particularly cooperative weavers sell their product to APCO through primary weavers cooperative societies. Some times master weavers also sell their products to these societies in the name of cooperative weavers. Andhra



Pradesh State Handloom Weavers' Cooperative Society Limited is the state-level co-operative society with different primary weaver's co-operative societies in the state as its members. Its main function is to work as marketing outlet to the member societies. It also maintains retail shops through which it sells the handloom fabrics to the ultimate consumers. The marketing of handloom products is done on different basis like cash, credit, cash advance and the like.

The marketing of handloom products may be at times seasonal; for some products it may be continuous. The fixation of price for the weaving product has been determined by many factors viz. the cost of production, demand for cloth and competition. All the cooperative weavers have fixed the price on the basis of cost of production. The weavers under middlemen do not have any right to fix the price. They have to surrender their products to the middlemen as soon as the production is over. The primary determining factor in fixing the price in the study area seems to be cost of production. It is disheartening to note that almost all the respondents who are ambitious of the future with their plans, could not implement them due to the financial problems.

The weavers in the district also face many problems in marketing of the handloom cloth. These problems are due to the seasonal demand for the handloom cloth, the existence of intermediaries, lack of storage facilities and lack of finance to wait for the reasonable price. All these aspects with regard to marketing need considerable attention by the Government. It has to maintain stocks by purchasing the finished cloth immediately of the production enabling the weavers to continue the activity. Necessary marketing finance should be provided so that the weavers can wait for the reasonable price. The handloom products have limited marketing outlet compared to mill and power loom cloth. APCO helps the cooperative weavers in marketing their products. Other weavers sell their products either directly or to the dealers. However, the weavers do not have their own marketing societies which can improve their bargaining power. APCO adopts seasonal rebate schemes to sell the handloom products. But this digs at the profits or margin accruable to the society. The prices of handloom products have also not been competitive. As the cost of production is increasing, the weavers are compelled to enhance the price of the product. APCO is also doing in the same. In this regard a commercial or business approach is needed so that the handloom products compete with other products. A well organized market network is necessary for the handloom products of all the weavers.

## References

1. R.G. Kakade, A socio-Economic Survey of Weaving Communi-ties in Sholapur, Gokhale Institute of Politics and Economics, Pune, 1947, p.24.
2. Government of India, Report of the Fact-Finding Committee (Handloom and Mills), Calcutta, 1942, p.71.
3. Government of India, Report of the Textile Enquiry Committee, Ministry of Commerce and Industry, New Delhi, 1953, pp.27-28.
4. Government of India, Report of the Village and Small Industries Committee, 1955, Planning Commission, New Delhi, 1955, pp.28-29.



5. Government of India, Report of the Working Group on Handlooms, Ministry of Commerce, New Delhi, 1964, pp.8-9
6. National Institute of Research and Development, Handloom sector –Prime Minister's 20 Point Programme for Economic Development, Hyderabad, 1977, p.1.
7. Report on Growth and prospects of the handloom industry”, study commissioned by the planning commission, Seemanthini Niranjana Soumya Vinayam for Dastkar, Andhra Pradesh 2001



## LEVEL OF STRESS BETWEEN JUVENILE DELINQUENT AND NON- JUVENILE DELINQUENT

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### Abstract

The intend of study was to compared the stress level among juvenile & non-juvenile male delinquents. The study included 30 males out of which 30 (15 juveniles from observation home Lucknow U.P) and (15 non- juvenile K.D. Singh Babu Stadium Lucknow University, U.P.) were normal population between the ages of 15 to 16 years was selected using stratified systematic (random) sampling technique. The present finding indicated that higher level of stress amongst juvenile delinquents than non-juvenile delinquents. This finding revealed that juvenile delinquents had high mean score (27.66) and more stress as compared to the non-delinquent mean score (9.06). The higher the stress severity, the greater the rate of delinquency. It is noticed from the present study that high level of stress in juvenile delinquent and due to the lack of care, supervision and may be not proper treatment facility in the observation home. So, improving the infrastructure facility and providing vocational and life skills education in juvenile home is suggested. It is suggesting that if proper care, supervision, education and provide specific training in home as well as in school to the children then, it will help to reduces the stress of these children.

**Keywords:** Juvenile Delinquents, Children, Adolescents, Stress.

### Introduction:

The word delinquency is derived from the Latin word “delinquere” meaning de i.e. away and delinquere i.e. to leave thus, meaning to leave or to abandon. Originally, the word had an objective meaning as it referred to parents who neglected and abandoned their children. In present day, it is used and applied to those children who indulge in wrongful and harmful activities. Juvenile Justice Act, 1986 defined a juvenile or child to be a person who in case of a boy has not completed age of 16 years and in case of a girl 18 years of age. The JJA Act, 1986 was repealed by 2000 Act and the distinction with regard to age between male and female juveniles has been done away with by the Government of India in performance of its obligation to the international obligations. Now age of juvenile in conflict with law for male and female has been fixed at 18 years. A juvenile in conflict with law under the J.J (C & P) Act, 2000 is a juvenile who is



alleged to have committed an offence and has not completed 18 years of age as on the date of commission of such offence.

A normal healthy development of any individual starts at home. It is the home, the family this constitutes the backbone of any human being. During childhood, the family constitutes the basic ecology in which the child's behaviour is manifested by way of positive or negative reinforcement (Dishion & Patterson, 2006). For many young people today, traditional patterns guiding the relationships and transitions between family, school and work are being challenged. Social relations that ensure a smooth process of socialization are collapsing; lifestyle trajectories are becoming more varied and less predictable. The restructuring of the labour market, the extension of the maturity gap (the period of dependence of young adults on the family) and, arguably, the more limited opportunities to become an independent adult are all changes influencing relationships with family and friends, educational opportunities and choices, labour market participation, leisure activities and lifestyles. It is not only developed countries that are facing this situation; in developing countries as well there are new pressures on young people undergoing the transition from childhood to independence.

Youth nowadays, regardless of gender, social origin or country of residence, are subject to individual risks but are also being presented with new individual opportunities—some beneficial and some potentially harmful. Quite often, advantage is being taken of illegal opportunities as young people commit various offences, become addicted to drugs, and use violence against their peers.

Stress is the result of the individual's awareness of his/her relationship with the environment being disturbed. In this model, stress is defined as a complex of emotional and physical (physiological) reactions which occur when an event is assessed as hazardous or disturbing, i.e. as a complex of mental and physical reactions to the stressor posing requirements that cannot be met. This definition clearly shows that stress involves much more than the mere stressor and the individual response to it. The relationship between the individual and the environment is emphasised, which clearly implies individual differences in the stressor sensitivity threshold. The more so, the likelihood of the occurrence or deterioration or persistence of a problematic state may be increased by some unfavourable factors. Stress is a body's method of reacting to a challenge. According to the stressful event, the body's way to respond to stress is by sympathetic nervous system activation which results in the fight-or-flight response. In humans, stress typically describes a negative condition or a positive condition that can have an impact on a person's mental and physical well-being.

### **Material and Methods**

This study is a descriptive research. The present study was undertaken to assess the levels of stress among Juvenile who staying at Government Observation Home of Lucknow, Uttar Pradesh and non-juvenile delinquents staying at K.D. Singh Babu Stadium hostel, Lucknow Uttar Pradesh. The data has been collected from two groups of



adolescents living in the city of Lucknow. The first group of adolescents consisted of 15 delinquent boys, residing in an Observation Home located in the city of Lucknow. The age range was from 15 to 16. The participants of this group were from low socioeconomic background, with an average income of 4190 Rupees per month. The second group of samples consisted of 15 sportspersons ranging in age from 15 to 16.

Participants were selected from K.D. Singh Babu Stadium Lucknow Uttar Pradesh of various sportspersons located in Lucknow. In this sample, 63% of the participants belong to Muslim families and the remaining 37% belong to Hindu families. The participants of this group were also from low socioeconomic background, with an average income 7450 Rupees per month. The stratified systematic (random) sampling technique used for this research.

### Limitations

As with most research, the present study has limitations. This study was conducted on delinquent boys only as due to unavailability of delinquent girls. Therefore, the findings of the study cannot be generalized to the female population.

### Variables/Tools: -

Stress of subjects is measured by Vijaya Lakshmi & Shruti Narain and reliability of the questionnaire was .82.

**Scoring:** - The answer of those items which tally with the answers given in the scoring key are given a score of +1. If they did not tally, they are giving a score of zero. Positive items are given a score of +1 on 'Yes' and zero on 'No' and negative items are given +1 on 'No' and zero on 'Yes'. Higher the score greater is the level of stress.

Item	Yes	No
Positive	1	0
Negative	0	1

### Procedure of Data Collection: -

In the present study, necessary permission was taken from the concerned authority. They were informed about the nature of the study prior to its commencement and also informed that their data will be used for research purpose only and hence confidentiality will be maintained. After this an informed consent was taken from each of the participants. Study subjects filled-out the questionnaires in groups of two. Such a procedure allowed for a closer relationship between the subjects and the investigator. Anonymity of the questionnaires was emphasised, and the subjects were asked to answer them frankly. On filling-out the questionnaires, the subjects were free to ask for additional explanation of any particular question. The subjects were previously informed on why they had been called to answer the questionnaires, and the examiner was properly introduced to them.

### Result & Discussion: -

After the data was collected, the responses were scored and analysed. The major findings are as follows.



**Table 01**  
**Representation of mean, SD on the measure of stress between Juvenile delinquent & Non- Juvenile delinquent**

Variable	Group	N	Mean	SD
Stress	Juvenile	15	27.66	4.65
	Non- Juvenile	15	9.06	2.32

Table 1 shows that the mean score of juveniles is 27.66, and non-juvenile mean score is 9.06. Standard deviation of juveniles is 4.65 and non-juvenile Standard deviation is 2.32.

From the reading of the table 1 it is found that the juvenile has shown higher stress than non-juvenile. As per the scoring manual of the stress higher scores indicate high stress. Therefore, it can be said on the basis of the mean score value that the juvenile of observation home in Lucknow showed high stress level.

### Discussion

The purpose of this study was to find out the level of levels of stress between Juvenile delinquents and non-juvenile delinquents staying at Juvenile home of Lucknow as well as K.D .Singh Babu Stadium. The results of the study showed that the juvenile was significantly higher stress than the non-juvenile delinquents. The result of the findings indicated that high mean score existed in the level of stress among juvenile delinquents. The present study is in line with Sherer (1994) & Sameeta Ng et. al (2018), who also found high level of stress amongst juvenile delinquents staying at Juvenile home of Manipur.

### Conclusion

The present findings may be concluded that juvenile delinquent group was suffering more depressive disorder than the non-delinquent group. As depression can lead to other comorbid psychiatric disorders providing vocational and life skills education in special home, juvenile home and observation home is suggested. It has been accepted that due to some situations and environment children become delinquent by not on their own will, thus this is not impossible to change the unfriendly attitude in them by reforming the unhealthy and poor surroundings, and by providing adequate suitable means. As we know that teachers and parents play a significant role in the development of a child's character.

It is suggested that if proper care, supervision, education and provide specific training in home as well as in school to the children then, it will help to reduce the stress of these children.

### References

- Agarwal, U.C. (1989). *Creativity and Adjustment of Adolescents*. DK Publishing, New Delhi.  
Bachman, J. G., & Youth in Transition (1970). *The impact of family background and intelligence on tenth grade boys*. Ann Arbor, Michigan: Institute for Social Research. Vol.2.  
Barton W. and Butts J. (2008). *Building on Strength: Positive Youth Development in Juvenile Justice Programs*. Chicago: Chapin Hall Center for Children at the University of Chicago.  
Bandura, A., & Walters, R. H. (1959). *Adolescent aggression*. New York: Ronald Press.



- Barnes, G. M., & Farrell, M. P. (1992). Parental support and control as predictors of adolescent drinking, delinquency, and related problem behaviors. *Journal of Marriage and the Family*, 54(4), 763–776.
- Baumrind, D. (1968). Authoritarian vs. authoritative parental control. *Adolescence*, 3(11), 255–272.
- Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology*, 4, (1), –103.
- Brown, R. P., & Gerbarg, P. L. (2005). Sudarshan Kriya Yogic breathing in the treatment of stress, anxiety, and depression: part II—clinical applications and guidelines. *Journal of Alternative & Complementary Medicine*, 11(4), 711–717.
- Chauhan, N. S., & Aurora, S. (1989). *Behaviour Deviance Scale for Adolescence*. Mapa. Meerut.
- Camenor and Phillips (2002). The Impact of Income and Family Structure on Delinquency. *Journal of Applied Economics*, Vol. V, No.2 (Nov 2002), 209–232.
- Comanor, W.S., & Phillips, L. (2002). The impact of income and family structure on delinquency. *Journal of Applied Economics*, 5, 209–232.
- Demuth, S., & Brown, S.L. (2004). Family structure, family processes, and adolescent delinquency:  
The significance of parental absence versus parental gender. *Journal of Research in Crime and Delinquency*, 41, 58–81.
- Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin*, 113(3), 487–496.
- Dishion, T. J., & Patterson, G. R. (2006). The development and ecology of antisocial behaviour in children and adolescents. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology. Vol. 3: Risk, disorder and adaptation* (pp. 503–541).
- Fletcher, A.C., Steinberg, L., & Sellers, E. B. (1999). Adolescents well-being as a function of perceived interparental consistency. *Journal of Marriage and the Family*, 61(3), 599–610.
- Glueck, S. & Glueck, E. (1962). *Family Environment and Delinquency*. Boston: Houghton Mifflin.
- Gold, M. (1963). *Status forces in Delinquent boys*. Ann Arbor, Michigan: Institute of Social Research.
- Gupta, A.K. (1987). *Parental Influences on Adolescents*. Ariana, Publishing House, New Delhi.
- Hirschi, T. (1969). *Causes of Delinquency*. Berkeley: University of California Press.
- Hoeve, M., Dubas, J. S., Eichelsheim, V. I., Van der Laan, P. H., Smeenk, W. H., & Gerris, J. R. M. (2009).  
The relationship between parenting and delinquency: a metaanalysis. *Journal of Abnormal Child Psychology*, 37(6), 749–775.
- Hoeve, M., Dubas, J. S., Gerris, J. R. M., Van der Laan, P. H., & Smeenk, W.H. (2011).
- Martin (2005). *Juvenile Delinquency. Theories of Causation. 03-Martin (juvenile)*. Maternal and paternal parenting styles: Unique and combined links to adolescent and early adult delinquency. *Journal of Adolescence*, 34(5), 813–27.
- Juang, L. P., & Silbereisen, R. K. (1999). Supportive parenting and adolescent adjustment across time in former East and West Germany. *Journal of Adolescence*, 22(6), 719–736.
- Loeber, R., & Stouthamer-Loeber, M. (1986). Family factors as correlates and predictors of juvenile conduct problems and delinquency. In M. H. Tonry, & N. Morris (Eds.), *Crime and Justice: An annual review of research* (Vol. 7, (pp. 29–149). Chicago: University of Chicago Press.
- Loeber, R., Slot, N. W., & Stouthamer-Loeber, M. (2006). A three-dimensional, cumulative development model of serious delinquency. In P. O. H. Wikstrom., & R. J. Sampson. (Eds.), *The explanation of Crime: Context, mechanisms and development* (pp. 153–194). Cambridge: Cambridge University Press.
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Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: parent child interaction.

In P. H. Mussen (Ed.), *Handbook of child psychology: Socialization, personality and social development*, Vol. IV (pp. 1-101). New York: Wiley.

O'Connor, T. G. (2002). Annotation: The 'effects' of parenting reconsidered: Findings, challenges, and applications. *Journal of Child Psychology and Psychiatry*, 43(5), 555-572.

Parikh, J. C., & Krishna, K. S. (1992). *Drug Addiction: A Psychosocial Study of Youth*. Friends Publication, New Delhi.

Rath P. et al. The Juvenile Justice. *Bhubaneswar, Open Learning System, 2007*.

Tidefors I. et al (2011). A Swedish sample of 45 adolescent males who have sexually offended: Background, individual characteristics, and offending behavior.

*Article of Nordic Psychology 2011, Vol. 63(4). DOI 10.1027/1901-2276/a000043*

West Bengal State Crime Record Bureau (2009). Statistics on cases of delinquency in Kolkata, West Bengal. *StudyMode.com*. Retrieved 05, 2001.

Sameeta Ng. et. al. (2018). Levels of depression, anxiety and stress among juvenile delinquents. *International journal of scientific research.*, Volume-7 | Issue-3, pp-67-68.

Sahmey, K. (2013). *A study on factors underlying juvenile delinquency and positive youth development programs*.

Sarkar, C. (1987). *Juvenile delinquency in India: An etiological analysis*: Daya Publishing House.

Sherer, M. (1995). The effect of computerized simulation games on the moral development of youth in distress. *Computers in Human Services*, 11(1-2), 81-95.

Smith, C., Hancock, H., Blake-Mortimer, J., & Eckert, K. (2007). A randomised comparative trial of yoga and relaxation to reduce stress and anxiety. *Complementary therapies in medicine*, 15(2), 77-83.

Vivek K Sharma, A. K., Senthikumar S, Sarita Kanojia & Shailesh Gupta. (2012). Comparative Study of Yoga and Physical Exercises on Psychological Parameters, Hand Grip Strength and Reaction Time during Examination Stress in Young Female Medical Students (Vol. 1, pp. 362). Open Access Scientific Reports.

Yoshihara, K., Hiramoto, T., Sudo, N., & Kubo, C. (2011). Profile of mood states and stress-related biochemical indices in long-term yoga practitioners. *BioPsychoSocial medicine*, 5(1), 6.

Zuzanek, J., & Manhell, R. (1998). Life-cycle squeeze, time pressure, daily stress, and leisure participation: A Canadian perspective. *Loisir et société/Society and Leisure*, 21(2), 513-544.



## DRUG REPURPOSING OF METFORMIN AS A POTENTIAL ANTI-CANCER AGENT IN PANCREATIC CANCER MANAGEMENT AND THERAPY

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### Abstract

Metformin, a highly common oral drug has been prescribed to treat type 2 diabetes mellitus (T2DM) for many decades. Metformin has also been reported to inhibit the proliferation of several human cancer cell types. Currently, there are several ongoing clinical studies evaluating the anti-tumor action of metformin in cancer management. Pancreatic cancer is the fourth leading cause of cancer-related deaths worldwide. The objective of this study was to assess the possibility of drug repurposing and examine the role of metformin as a potential anti-tumor agent in treatment and management of pancreatic cancer. The *in vitro* studies conducted on the human pancreatic cancer cell line (MIA PaCa 2), showed decreased proliferation of cancer cell in time- and dose-dependent manner. Considering these results, it can be assumed that metformin can be regarded as a promising chemoprevention agent for the treatment of pancreatic cancer. Further pre-clinical and clinical studies could help fully assess the role of metformin in cancer prevention and therapy.

**Keywords:** Cancer therapy; Drug Repurposing; Diabetes; Metformin; Pancreatic cancer

### 1. Introduction

Pancreatic cancer is the fourth leading cause of cancer-related mortality in both men and women worldwide (Jemal *et al.*, 2011; Tempero *et al.*, 2014). Despite the recent improvements in surgical procedures and therapies, prognosis for patients with pancreatic cancer remains very poor. The 5-year survival rate is only 24% even in patients with early disease diagnosis (Inoki *et al.*, 2003). More effective therapeutic methods are required for the effective management and treatment of pancreatic cancer.

Research demonstrates a potential role of metformin as adjuvant to chemotherapy in various cancers types. In diabetic patients diagnosed with cancer, simultaneous treatment with metformin has shown to improve response to chemotherapy (Jiralerspong *et al.*, 2009). Metformin co-treatment may also pave way for a dose reduction of other chemotherapeutic agents in patients undergoing cancer treatment thereby reducing the side effects of chemotherapy.



## 2. Materials and methods

### 2.1 Cell lines and culture

The human pancreatic carcinoma cell line (MIA Pa-Ca-2) was obtained from the National Centre for Cell Science (NCCS), Pune and passaged in the laboratory. Cells were grown in Dulbecco's Modified Eagle's medium (HiMedia) and supplemented with 10% fetal bovine serum, penicillin and streptomycin in a humidified atmosphere of 5% CO<sub>2</sub> at 37°C.

### 2.2 Antiproliferative activity assay

Antiproliferative activity of a drug interferes with the cell division and cell growth of cancer cells, thereby inhibiting its proliferation. The cell proliferation assay was conducted for 3 days after treating with metformin to study the relationship between the decrease in cell viability and the inhibition of cell proliferation in a time- and dose-dependent manner. Cells were seeded and cultured at a density of  $5 \times 10^4$  per well in 96-well plate. After 24 h of growth period, all cells were treated with different concentrations of metformin (1.25 mM, 2.5 mM, 5mM & 10 mM) for 24, 48 and 72 h except for the control. At the designated time points, the cells were washed twice with PBS to remove any floating cells. The harvested cells were then stained with 0.2% trypan blue dye. The viable cells were quantified using a haemocytometer under an inverted microscope. All experiments were performed in triplicates.

### 2.3 Clonogenic Assay

The ability of the cancer cell lines to form colonies on 6-well cell culture plates in the presence of different concentrations of metformin (1.25 mM, 2.5 mM, 5mM & 10 mM) was studied for a period of three weeks.

Cells were seeded in 6-well plates at a density of 1000 cells/well in 1 ml of culture medium containing 10% FBS. After 24 h, cultures were replaced with fresh medium and treated to four different concentrations of metformin (1.25, 2.5, 5 or 10 mM). The plates were then incubated at 37°C with 5% CO<sub>2</sub> in a humidified incubator for 3 weeks and the media was refreshed every third day. After 3 weeks, the colonies were exposed to the process of fixation with 4% paraformaldehyde and staining (0.5% crystal violet solution for 15 minutes at room temperature). Lastly, they were washed with distilled water to remove excess dye. The colony numbers were obtained by the 1-D gel analysis software. The experiment was performed in triplicates.

### 2.4 MTT assay

This assay measures the reduction of yellow-3- (4, 5Dimethylthiazol-2-yl)-2,5 diphenyltetrazolium Bromide) by mitochondrial succinate dehydrogenase. Since reduction of MTT can occur only in metabolically active cells, the level of activity is a measure of the viability of the cells. After 24 h of incubation of 100 µl of culture medium was dispensed in specific wells, metformin, negative control and blank were added in duplicates into the respective wells of the 96-well plate. Different concentrations of metformin were tested. The cells were further incubated for 24 h at 5% CO<sub>2</sub> at 37°C with >90% humidity.

After 24 h treatment, 50  $\mu$ l of MTT solution (1mg/mL) was added to each well and further incubated for 2 h at 5% CO<sub>2</sub> at 37°C with >90% humidity. MTT solution was discarded and 100  $\mu$ l of isopropanol was added in each well. Absorbance was measured at 550 nm using Biorad Microplate reader. The colour shift to yellow indicates acidic pH and the colour shift to magenta or purple is alkaline pH. The cell culture well was checked for cell lysis and cellular characteristics. The Optical Density (OD) at 550 nm was used in Biorad Microplate reader to calculate the percentage of viability.

### 2.5 Statistical analysis

Statistical analysis was done by Dunnett's test using GraphPad software to analyze the data between the treated groups and control. All groups were compared for significance.

## 3. Results

### 3.1. Dose-dependent anti-tumor effects of metformin *in vitro*

The anti-tumor effects of metformin on the viability of MIA-Pa-Ca-2 cell line was evaluated *in vitro* on treatment with different dosages of metformin; 1.25, 2.5, 5 and 10 mM respectively. The results showed that metformin decreased cell proliferation in a time- dependent manner (Fig. 1).

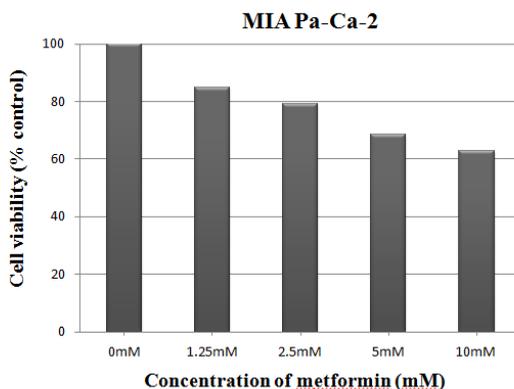


Figure. 1 Metformin inhibits the proliferation of cancer cells *in vitro* in a dose-dependent manner.

After 72 h of treatment, a significant decrease in the number of viable cells can be seen at the highest dosage of 10 mM (62%) when compared to the other doses (69.4% at 5mM and 79% at 2.5mM). Dosage concentration of 1.25 mM (84.7%) showed the least amount of inhibitory effect. A significant decrease in the number of viable cells can be seen after 72 h of treatment demonstrating the time-dependent cell proliferation inhibition of metformin.

### 3.2. Time-dependent anti-tumor effects of metformin *in vitro*

Cells were treated for 24, 48 and 72 h with different dosages of metformin; 1.25, 2.5, 5 and 10 mM respectively. A significant decrease in the number of viable cells can be

seen after 72 h of treatment at the highest dosage concentration of 10 mM (51.11%) when compared to the other doses of 2.5 mM (78.88%) and 5 mM (67.77). Dosage concentration of 1.25 mM (90%) showed the least amount of inhibitory effect. These results demonstrate that metformin also decreased cell proliferation in a time- dependent manner (Fig. 2).

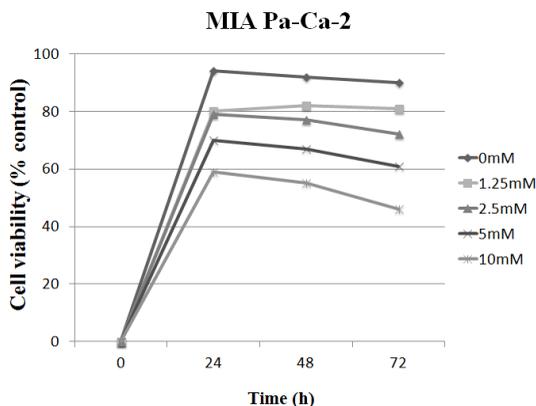


Figure. 2 Metformin inhibits the proliferation of cancer cells *in vitro* in a time-dependent manner.

### 3.3 Metformin decreases colony formation *in vitro*

The clonogenic assay demonstrated that the number of colonies decreased with the increasing concentrations of metformin (Fig. 3). After 72 h, colony formation was reduced to 35% at high concentration of 10 mM, when compared with the control. Dosage concentration of 1.25 mM showed the least amount of inhibitory effect (85%) compared to 2.5 mM (68%) and 5 mM (49%). These results indicate that the growth inhibitory effect of metformin on colony formation was dose- dependent.

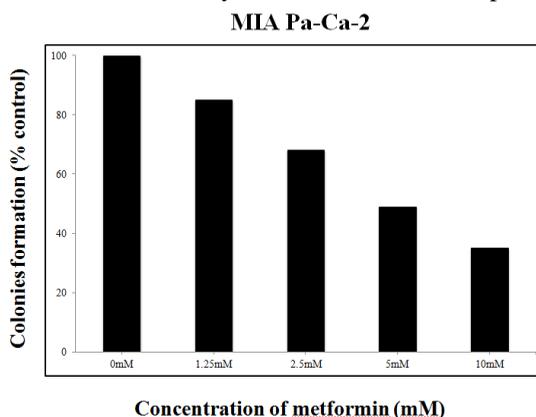


Figure. 3 Metformin reduces colony formation *in vitro*.

### 3.4 Metformin inhibits cancer cell proliferation *in vitro*

The antiproliferative effect of metformin on MIA Pa-Ca-2 was examined. The antiproliferative assay was conducted for 3 days after treating with metformin to study the relationship between the decrease in cell viability and the inhibition of cell proliferation. The assay demonstrated that metformin inhibits the proliferation of MIA Pa-Ca-2 cells (Fig. 4). The viability of the metformin treated cells was found to be statistically different from that of the control cells ( $p < 0.05$ ).

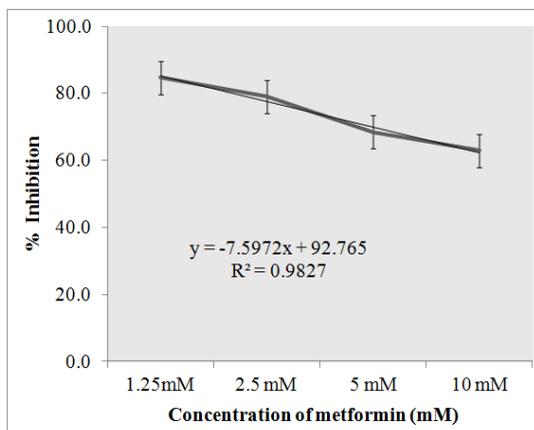


Figure. 4 Anti-proliferative activity of Metformin showing the relationship between the decrease in cell viability and inhibition of cell proliferation.

## 4. Discussion

Metformin, a drug used primarily for the treatment of type II diabetes, has been reported in several studies to reduce the incidence of specific cancers among diabetic patients. Of the studies available, the anticancer effects of metformin are reportedly seen at mM levels, levels that are 100-1,000 times in excess of doses capable of being achieved by pharmacotherapy with metformin in humans. In addition, some conflicting data have arisen in both *in vitro* and *in vivo* studies, with most indicating that the drug may have the potential to directly suppress tumor growth (Brodowska *et al.*, 2014). Several studies have claimed a notable reduction in the risk of all-cause and cancer-specific mortality, and with attenuated cancer progression (Pernicova & Korbonits, 2014).

To understand the direct relationship between the decrease in cell viability and the inhibition of cell proliferation, the course of proliferation was studied for over 3 days (24 h, 48 h & 72 h), after the addition of metformin. Both, cell count assay and cell viability assay showed that metformin (1.25, 2.5, 5 and 10 mM) led to a decrease in cell proliferation. The results thus reveal that the number of viable cells decreased with the increasing concentrations of metformin suggesting that metformin inhibited the cell



growth of MIA Pa-Ca-2 cell line in a time- and dose- dependent manner. The results also indicated the inhibitory effect of metformin on colony formation was dose-dependent.

Metformin is a relatively safe drug, with known pharmacokinetics and manageable toxicities. Its most common toxicity is mild-to-moderate gastrointestinal discomfort, usually self-limited and improved by a graduated ramp up in dose. Its most serious toxicity, reportedly, lactic acidosis, is rare, occurring once per 100 000 years of use (Bodmer *et al.*, 2010).

## 5. Conclusion

Metformin greatly inhibited the cell proliferation rate in the pancreatic carcinoma cell line (MIA Pa-Ca-2) in a time- and dose-dependent manner *in vitro*. Metformin at a concentration of 5 mM or more inhibited cell growth and colony formation greatly.

Metformin were reported to play a potential anticancer effect through molecular mechanisms of the mammalian target of rapamycin (mTOR)-signaling pathway and ATM/LKB1/AMPK axis (Del Barco *et al.*, 2011; Ben Sahara *et al.*, 2010; Jalving *et al.*, 2010). Preclinical work has also added to the evidence that metformin have antineoplastic activity in pancreatic cancer cell lines (Luo *et al.*, 2012). Therefore, it is natural to regard metformin as a well-tolerated and promising agent for prevention and treatment of pancreatic cancer.

The impressive safety profile and low cost of metformin make it an attractive anti-proliferative agent for developing treatment strategies for cancer. However, more insight into the molecular mechanism of metformin could help understand the drug's greater potential for more successful therapy.

## Conflict of Interest

The authors have no potential conflicts of interest relevant to this article.

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## References

- Ben Sahara, I., Le Marchand-Brustel, Y., Tanti, J.F. & Bost, F. (2010) Metformin in cancer therapy: A new perspective for an old antidiabetic drug? *Molecular Cancer Therapeutics*, 9:1092–1099.
- Bodmer, M., Meier, C., Krahenbuhl, S., Jick, S.S. & Meier, C.R. (2010) Long-term metformin use is associated with decreased risk of breast cancer. *Diabetes Care*, 33 1304–1308
- Brodowska, K., Theodoropoulou, S., Meyer Zu Hörste, M., Paschalis, E. I., Takeuchi, K., *et al.* (2014) Effects of metformin on retinoblastoma growth in vitro and in vivo. *International Journal of Oncology*, 45 (6): 2311-24.



Del Barco, S., Vazquez-Martin, A., Cuffi, S., Oliveras-Ferraros, C., Bosch-Barrera, J., et.al. (2011) Metformin: Multi-faceted protection against cancer. *Oncotarget*, 2:896–917.

Inoki, K., Zhu, T.& Guan, K.L. (2003) TSC2 mediates cellular energy response to control cell growth and survival. *Cell*, 2003; 115:577–590.

Jalving, M., Gietema, J.A., Lefrandt, J.D., de Jong, S., Reyners, A.K., et.al. (2010) Metformin: Taking away the candy for cancer? *European Journal of Cancer*, 46:2369–2380.

Jiralerspong, S., Palla, S.L., Giordano, S.H., Funda Meric-Bernstam, F., Liedtke, C., et. al. (2009) Metformin and pathologic complete responses to neoadjuvant chemotherapy in diabetic patients with breast cancer. *Journal of Clinical Oncology*, 27: 3297-3302.

Jemal, A., Bray, F., Center, M.M., Ferlay, J., Ward, E., et. al. (2011) Global cancer statistics. *A cancer Journal for Clinicians* 61:69–90.

Luo, Q., Hu, D., Hu, S., Yan, M., Sun, Z. & Chen, F. (2012) In vitro and in vivo anti-tumor effect of metformin as a novel therapeutic agent in human oral squamous cell carcinoma. *BioMed Central Cancer*, 12:517.

Pernicova, I and Korbonits, M. (2014) Metformin—mode of action and clinical implications for diabetes and cancer. *Nature Reviews Endocrinology*, 10(3):143-56.

Tempero, M.A., Malafa, M.P., Behrman, S.W., Benson, A.B., Casper, E.S., et. al. (2014) Pancreatic adenocarcinoma, version 2.2014: Featured updates to the NCCN guidelines. *Journal of the National Comprehensive Cancer Network*, 12:1083–1093.



विश्वशान्तिप्रतिस्थापनाय गान्धिमहोदयस्य शान्तिदर्शनम्

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शोधसारः

महात्मागान्धिमहोदयः विश्वामानवः आसीत्। तस्य चिन्तनं राष्ट्रियचिन्तनेन सह अन्तराष्ट्रियचिन्तनमपि आसीत्। तेषां मते सर्वासां समस्यानां समाधानं शिक्षया एव भवितुमर्हति। गान्धिमहोदयस्य शिक्षापद्धतिः अहिंसा, शान्तिः, सत्यादिनामुपरि आधारिता वर्तते। महात्मागान्धिमहोदयेन अशिक्षितजनानां शिक्षणाय प्रौढशिक्षायाः सामूहिकशिक्षायाः च योजना निर्मिता। तेषां मते सैव शिक्षा यया विमुच्यते, अवशिष्टा तु अविद्या। अहिंसा सत्यता च व्यवहारे प्रयोक्तव्या। सत्याग्रहः, असहयोगः, आत्मशुद्धिः इत्यादीनां प्रयोगेण शान्तिपूर्णरीतिभिः स्वाभिव्यक्तिः शासकपर्यन्तं प्रेषणीया। गान्धिशिक्षादर्शनं सामाजिक-आर्थिक-राजनैतिकसमस्यानां समाधानं रक्तपातं विना सरलतया करोति। इयं शिक्षा शारीरिकबौद्धिकश्रमं प्रति समादरभावनां विकासयति। "वसुधैव कुटुम्बकमिति" भावना मानवेषु संचरति। सम्पूर्णविश्वं भौगोलिकदृष्ट्या एकं राष्ट्रमस्ति। एवमरूपेण महात्मागान्धिमहोदयैः प्रदर्शितशान्तिमार्गः एव शोधपत्रेऽस्मिन् चर्चिता वर्तते।

भूमिका

ऐसमकालीनयुगेऽस्मिन् विज्ञानस्य अग्रगत्या मानवाः सर्वदा भौतिकसुखं प्राप्तुम् अभिलषन्ति। मानवाः स्वीयाकाङ्क्षापूर्तये सर्वदा धावमानाः दृश्यन्ते। अनेन कारणेन मानवमनसि सङ्कीर्णता वरीवर्धते। सतता-त्याग-सहिष्णुता-आत्मसंयमक्षमता-सहयोगिता-वसुधैवकुटुम्बकम् इत्यादिभावनाः प्रतिदिनं क्षीयन्ते। अपरपक्षे वयम् अवलोकयामः चेत् द्रष्टुं शक्नुमः यत् अस्माकं समाजे राष्ट्रे विश्वे च स्वार्थपरता-धनललुपता-अनैतिकता-क्षेत्रवादः-जातिवादः-भ्रष्टाचारः-आतङ्कवादः च विस्तृतो भवति। येन कारणेन समग्रसमाजः तथा विश्वः अशान्तेः अन्धकारेण आच्छन्नो भवति। समाजस्य तथा देशस्य सर्वत्र जनाः कोलाहलं कुर्वन्ति। गृहे, विद्यालये, आपने, मार्गे, समाजे, राष्ट्रे च "सर्वं मम" इति भावनया प्रायः संघर्षेण मानवानां प्राणहानिः भवति। प्रदुषितवातावरणे मानवमनसि शान्तिः विघ्निता भवति। अशान्तेः वातावरणं दूरीकरणाय, राष्ट्रोन्नयनाय, तृतीयविश्वयुद्धस्य अवरोधार्थं, तथा राष्ट्रस्यैक्यसाधनाय प्राणवायुसदृशी शान्तिशिक्षा अत्यावश्यिकी मन्यते।

प्रमुखशब्दाः – शान्तिशिक्षा, गान्धीदर्शनम्,

शान्तिशिक्षायाः अर्थः परिभाषा च (Meaning and Definition of Peace Education) –

शान्तिशिक्षाप्रसङ्गे मनसि प्रश्नैका समागच्छति यत् का नाम शान्तिः? तस्योत्तरत्वेन सामान्यरूपेण वयं वक्तुं शक्नुमः यत् मानवैः स्वस्य वातावरणेन साकं सामञ्जस्यं विधाय एकत्रवसवासं भवति शान्तिः। सकारात्मक-नकारात्मकौभयरूपेण शान्तेः व्याख्यानं क्रियते। सकारात्मकरूपेण शान्तिः प्रशान्तो भवति, नकारात्मकरूपेण शान्तिः भवति युद्ध-हिंसाया अनुपस्थितिः।

इउनिसेफसंस्थायाः मतानुसारेण-शान्तिनिमित्तं शिक्षा एका प्रक्रिया, या परस्परैः जायमानद्वन्द्वं शान्तिपूर्वोपायेन निराकरोति। शान्तिशिक्षा ज्ञान-दक्षता-मूल्यबोध्यादिभिः शिशु-किशोर-वयस्कानां आचरणे परिवर्तनम् आनयति, द्वन्द्वं, हिंसा च निराकरोति।

"Peace Education is defined as the process of promoting the knowledge, skills, attitudes and values needed to bring about behavioural change will enable children, youth and adults to prevent conflict and violence both overt and structural, to resolve conflict peacefully and to create conditions conducive to peace whether at an interpersonal



intergroup, national or international level."

UNISEF

विकिपिडियामतानुसारेण-व्यक्तिः आत्मना साकं, अपरेण साकं, वातावरणेन साकं सामञ्जस्यं विधाय कथं जीवितुं शक्नोति, तस्मिन् विषये मूल्यबोध-ज्ञानार्जन-मनोभाव-दक्षता-आचरणस्य प्रक्रिया भवति शान्तिशिक्षा।

**शान्तिशिक्षायाः उद्देश्यानि(Objectives of Peace Education)-**

- ✓ शिक्षायाः माध्यमेन चरित्रपूर्णसहृदयभावनासम्पन्नव्यक्तिनिर्माणम्, शान्तिपूर्णवातावरणनिर्माणे सहायताप्रदानं च।
- ✓ मानवान्तर्निहितचिन्तनशक्तेः, कल्पनाशक्तेः, तार्किकशक्तेश्च जागरणं तथा व्यक्तिनां मध्ये मूल्यबोधस्य सञ्चारम्।
- ✓ प्रेमसहानुभूतिसहृदयताहिंसानामाचरेण प्रेरणाप्रदानम्, मानवान्तर्निहितसंकीर्णतां दूरीकृत्य समाजहिताय देशहिताय च सुनागरिकनिर्माणम्।
- ✓ विभिन्न-सामाजिकरीतिनीतिः, प्रथा, संस्कारसम्बन्धे च ज्ञानप्रदानम्, व्यक्तिनां मध्ये आत्मनियन्त्रक्षमतायाः वरीवर्धनम्।
- ✓ परिवर्तनशीलपरिवेशेण साकं सामञ्जस्यसम्पादनं, व्यक्तेः ज्ञान-दक्षता-मनोभावस्य उन्नतिविधानं तथा च प्रगतिशीलराष्ट्रनिर्माणम्।
- ✓ विश्वमानवानां हिताय युद्धस्य दुष्परिणामविषये ज्ञानप्रदानम्। तथा युद्धस्य वातावरणं दूरीकृत्य शान्तिपूर्णवातावरणस्य सृजनम्।

**शान्तिशिक्षायाः परिधिः (Scope of Peace Education) –**

शान्तिशिक्षायाः परिधिः अतीवव्यापकं सुविस्तृता च। आत्मना साकं आत्मनः, व्यक्तिना साकं व्यक्तेः, समाजेन साकं समाजस्य, राष्ट्रेण साकं राष्ट्रस्य संयोजनं तथासंहतिविधानम् अस्याः शिक्षायाः अन्तर्गतमस्ति। शान्तिशिक्षायाः अन्तर्भूक्ताः विषयाः भवन्ति-

- मानवनिर्माणस्य शिक्षा।
- एकत्रवसवास्यशिक्षा।
- जातीयसंहतेः शिक्षा।
- आन्तर्जातिकबोधनिमित्तं शिक्षा।
- मूल्यबोधस्य शिक्षा।
- नैतिकशिक्षा।
- नियमानुवर्तितायाः शिक्षा।
- मानवाधिकारशिक्षा।

एका सुपरिकल्पिता शिक्षाव्यवस्था एषा, शिक्षणीयसमस्तविषयाः अन्तर्भूक्ताः भवन्ति।

**शान्तिशिक्षायाः अवधारणा(Concept of peace Education)**—द्वितीयविश्वयुद्धस्य परिसमाप्त्यनन्तरं राष्ट्रस्य उन्नयनाय, तृतीयविश्वयुद्धस्य अवरोधाय इ.उ. एन्. ओ. संस्था इत्यस्य प्रतिष्ठा जाता। UNO इति संस्थायाः शाखारूपेण UNESCO इति संस्था प्रामुख्येन शान्तिशिक्षाप्रसाराय गुरुत्वपूर्णभूमिकाम् आवहति। परन्तु एषा शान्ति अतिप्राचीना न तु नवीना। प्राचीनकाले शान्तिशिक्षा अनौपचारिकी आसीत् न तु वर्तमानम् इव औपचारिकी। अर्थात् शान्तिशिक्षानिमित्तं पृथक् पाठक्रमः नासीत् परन्तु मानवीयमूल्यरूपेण विभिन्नशास्त्रेषु



शान्तिशिक्षा विद्यते। यदा वयं वैदिकवाङ्मयम् अवलोकयामः तत्र वर्तते यत् परार्थसाधनेनैव जीवनं सार्थकं भवति तथा मनसि शान्तिः आयाति। तदर्थं परोपकारभावनास्वा, र्थपरित्यागः, च अत्यावश्यकम्। तदर्थं ईशोपनिषदि उच्यते-

*तेन त्यक्तेन भुञ्जीथा मा गृधः कस्यस्विद्धनम्।<sup>1</sup>*

एकताभावनामाध्यमेन शान्तिशिक्षायाः व्यवस्था आसीत्। ऋग्वेदे वर्तते -

*संगच्छद्वं संवदद्वं सं वो मनांसि जानताम्।*

*देवा भागं यथा पूर्वं संजानाना उपासते।।<sup>2</sup>*

वैदिकी संस्कृतिः लोकेषु विश्ववन्धुत्वभावनां प्रसारयति, विश्ववन्धुत्वभावनया वेदे शान्तिस्थापनस्य उपदेशः प्रदत्तः-

*मित्रस्याहंचक्षुषासर्वाणिभूतानि समीक्षे।*

*मित्रस्य चक्षुषासमीक्षामहे।।<sup>3</sup>*

एवं प्रकारेण विभिन्नऋषिभिः दार्शनिकैः, प्राश्नात्य - प्राच्यशिक्षाविद्भिः शान्तिशिक्षायाः उपदेशः प्रदत्तः, शान्तिशिक्षा च अङ्गीक्रियते। एतेषाम् ऋषिदार्शनिकशिक्षाशास्त्रीणां मध्यशान्तिशिक्षाप्रसाराय अद्यतनभौतिकवादिमानसिकविकारग्रस्थसमाजे तथा राष्ट्रे प्रादूर्भूता शान्तिदूरीकरणाय च महात्मागान्धिमहोदयस्य शान्तिदर्शनं कीदृशं प्रभावं जनयति, तस्मिन् विषये आलोचयामः।

### गान्धिमहोदयस्य शान्तिदर्शनम् (Peace Philosophy of Gandhi) -

भारतवर्षस्य देशसेवक-शिक्षाशास्त्रिषु अन्यतमो भवति गान्धिमहोदयः। गान्धिमहोदयः कथयति स्म, शान्तिशब्देन मानवव्यक्तित्वस्य संवेगात्मकपक्षेण साकं सम्बन्धं वर्तते इति। शान्तिः आनन्दस्य अवस्था वर्तते। शान्तेः सम्बन्धः प्रगति-समृद्धता-समानता-एकाग्रतादिभिः शब्दैः सह वर्तते। अतः समाजस्य तथा राष्ट्रस्योन्नयने हिंसादूरीकरणे च शान्तिशिक्षा अत्यावश्यकी। गान्धिमहोदयस्य जीवनदर्शने शान्तिनिमित्तं विभिन्नोपदेशाः विद्यन्ते, ते उपदेशाः भवन्ति -

- ✦ *सत्यस्य समावेशः (Inclusion of Truth)*- महात्मागान्धिमहोदयस्य दर्शने मूलाधारस्तम्भो भवति सत्यम्। महात्मागान्धिमहोदयः स्वीयजीवने सत्याचरणं कृत्वा सर्वान् मानवान् अपि सत्याचरणाय प्रेरितवान्। तेन उक्तं यत् सत्यस्य आचरणस्य अनुकरणेन समाजे अशान्तिः नागच्छति। अनेन समाजे शान्तिप्रतिष्ठा भवति, तथा मानवाः स्वयमेव आत्मिकशान्तिमनुभवन्ति।
- ✦ *अहिंसायाः शिक्षा (Education of Non-violence)*- महात्मागान्धिमहोदयस्य विचारधारायाम् अहिंसायाः महत्वपूर्णस्थानं वर्तते। अहिंसाशस्त्रेणैव गान्धिमहोदयः पराधीनभारतस्य शुद्धं मोचयितुं प्रयतते। सः लिखितवान् यत् व्यक्तेः संशोधनाय तं पुरतः अनुकरणीयः आदर्शः स्थापितव्यः, हिंसादण्डेन संशोधनं भवितुं नार्हति। महात्मागान्धिमहोदयस्य वचनमस्ति यत् सत्यरूपसाध्यान्वेषणाय नैतिकता अनिवार्या भवति। अन्वेषणमिदं सर्वदा अहिंसारूपसाधनेन एव भवितुमर्हति। अतः अहिंसा सत्याग्रहस्य मूलमन्त्रं वर्तते। सत्यं सर्वोच्चविधिः अहिंसा च सर्वोच्चकर्तव्यमस्ति। सत्यानुगणम् अहिंसायाः शक्तिः कल्पनीया भवति। स्थूलरूपेण अधिक जनाः कमपि मारणमेव अहिंसा इति स्वीकुर्वन्ति, परन्तु गान्धेः अनुसारं कुविचारमात्रं हिंसा वर्तते। गान्धिमहोदयस्य अहिंसा मनसा, वचसा, कर्मणा च सम्बन्धिता भवति।

महात्मागान्धिमहोदयस्य मतानुसारं अहिंसा केवलं एकं दर्शनं नास्ति, अपितु कार्यकरणस्यैका पद्धतिः, हृदयपरिवर्तनस्य च एकं साधनमस्ति। महात्मागान्धिमहोदयानाम् अहिंसा पारलौकिकशान्तेः मोक्षप्राप्तेः वा



साधनं नास्ति अपितु सामाजिकशान्तेः राजनीतिकशान्तिव्यवस्थायाः, धार्मिकसमन्वयस्य, पारिवारिकनिर्माणस्य, विश्वशान्तिस्थापनस्य साधनमपि च वर्तते। एतादृशः विचारः समाजे तथा राष्ट्रे शान्तिमार्गं प्रसारयति।

- ✦ **कथने कार्ये च एकरूपता (Uniformity in Saying and Doing)**– तस्य मतानुसारं मानवस्य कथने कार्ये च एकरूपता भवेत्। कार्ये कथने च विरोधिभावश्चेत्, सः समाजे अशान्तेः वातावरणं निर्माति। अतः कार्यकथनयोः एक्येन समाजे तथा राष्ट्रे शान्तिः वर्द्धनीया ।
- ✦ **सरलजीवनयापनम् (Life of Simplicity)**– गान्धिमहोदयेन मानवानां कृते उक्तं यत् जीवने सदैव सरलता अनुकरणीया, प्रदर्शनभावः वर्जनीयः । प्रदर्शभावेन संसारेऽस्मिन् अशान्तिद्वेषादयः वर्धन्ते। सरलजीवनयापनेन सुनागरिकः भवितव्यः । अनेन समाजे तथा राष्ट्रे शान्तिः वर्धिता भवति।
- ✦ **भेद-भावदूरीकरणम् (Abolition of Untouchability)**– गान्धिमहोदयः भेदभावनायां न विश्वसिति। तेन उक्तं यत् भेद-भावेन समाजे अशान्तिबीजस्य सृजनं भवति। अतः मनुष्यानां मध्ये जातिभेदभावनां दूरीकृत्य, वयं सर्वे मानवाः इति चिन्तनेन समाजे तथा राष्ट्रे सर्वत्र शान्तिः स्थापयितुं शक्यते।
- ✦ **समानतायाः भावना (Spirit of Equality)**– गान्धिमहोदयेन समानतायाः भावना प्रकटिता। तेन मानवः धनवानपेक्षया गुणवान् भवेत्, तदर्थं प्रेरयति। एवं समानताया आधारेण कार्यं व्यवहारश्च सम्पन्नो भवति चेत् मानवानां मध्ये कोऽपि अशान्तेः वातावरणं निर्मातुं नैव शक्नोति।
- ✦ **प्रजातान्त्रिकमूल्यस्य समावेशः (Inclusion of Democratic)**– गान्धिमहोदयस्य दर्शनं पूर्णप्रजातान्त्रिकमूल्याधारितं वर्तते। तेन कथितं यत् विरोधप्रदर्शनाय साधनरूपेण असहयोग विनयादयः, अस्माभिः आचरणीयाः। विना भेद-भावेन सर्वमानवैः व्यवहारः करणीयः। तेनैव आधारेण समाजे प्रत्येकस्य व्यक्तेः समानतायाः स्वतन्त्रतायाश्च अधिकारः भवति। प्रत्येकव्यक्तिः कस्मिन्नपि विषये स्वविचारं सार्थकयुक्तिमाध्यमेन प्रकटयितुं शक्नोति। अनेन समाजे अशान्तिः दूरीभूय शान्तिः प्रतिष्ठिता भवति।
- ✦ **रामराजस्य कल्पना (Imagination of Ramrajya)**– गान्धिमहोदयस्य समाजे प्रत्येकव्यक्तिः मानवता-नैतिकता-समर्पणादिभावनाया स्वकर्तव्यं पालयिष्यति। एवञ्च सर्वसाधारणस्य तथा समाजस्य हिताय चिन्तयिष्यति चेत् समाजे तथा राष्ट्रे शान्तिपूर्णवातावरणं परिव्याप्तं भविष्यति।
- ✦ **सामाजिकन्यायः (Social Justice)**– गान्धिमहोदयेन सामाजिकन्यायस्थितिः प्राप्यते। सः महोदयः सर्वदा कार्येण व्यवहारेण च दरिद्रजनेभ्यः सहायतां प्रदत्तवान्। समानतायाः भावनाया समाजस्य प्रत्येकव्यक्तिः दायीत्ववान् नागरिकः भवति चेत् समाजे सर्वत्र विकासः भवति शान्तिश्च स्थापिता भवति।
- ✦ **कर्तव्यं प्रति- सदर्शकचिन्तनम् (Positive view of Duties)**– समाजे कर्तव्यं प्रति सकारात्मकं मनोभावप्रदर्शनं गान्धिमहोदयस्य मूललक्ष्यं भवति। तेन महोदयेन उक्तं सचेतनताधारेण कार्ये सफलता आगच्छति । अतः प्रत्येकव्यक्तिः स्वकर्तव्यं सचेतनरूपेण पालयिष्यति चेत् आदर्शसमाजस्य गठनं भवितुं शक्नोति। येन कदापि अशान्तेः वातावरणं सृष्टिः नैव भवति।
- ✦ **निरपेक्षतायाः शिक्षा (Education of Impartiality)**– व्याक्तिना साकं पक्षपातपूर्णव्यवहारेण विकासमार्गः अवरुद्धो भवति। अनेन मानवस्य मानसिकस्थितिः विघ्निता भवति। यस्य फलस्वरूपेण अशान्तेः उत्पत्तिः भवति। गान्धिमहोदयः स्वोयजीवने निरपेक्षव्यवहारमवलम्ब्य सर्वेभ्यः मानवेभ्यः शान्तिप्रतिष्ठाय, निरपेक्षव्यवहाराय च प्रेरणां प्रदत्तवान्।



- ✦ राजनैतिकचिन्तनम्(Political Thinking)- गान्धिमहोदयस्य राजनैतिकचिन्तनं नैतिकताधारितम् आसीत्। अहिंसासत्यधर्माधारितराजनीतिदर्शनं तेन प्रस्तुतम्। तेषां राजनैतिकदर्शनम् अध्यात्मचिन्तनेन प्रेरितमासीत्। गान्धिमहोदयेन राजनीतिधर्मयोर्मध्ये चिरसम्बन्धस्य स्थापना कृता। तेषामनुसारं स्वार्थशून्यत्वं लोकसेवा, नैतिकता च राजनीतिः इति। गान्धिमहोदयाः नैतिकताऽहिंसासत्याग्रहप्रभृतीनां वलेन विजयमवापुः। तस्माद् वैश्विकराजनीतिज्ञाः अपि गान्धिं प्रति पश्यन्ति।

राजनीतिं प्रति गान्धिमहोदयस्य दृष्टिकोणं न तु सङ्कीर्णं, क्षेत्रीयं, राष्ट्रियञ्च आसीत् अपितु अन्तराष्ट्रीयमासीत्। तेषामनुसारं प्रत्येकं समस्या केवलं देशस्वैकस्य नास्ति अपि तु सार्वभौमिकसमस्या वर्तते। अस्याः समस्यायाः समाधानस्य साधनौ सत्यता अहिंसा च भवतः। अहिंसा व्यवहारे प्रयोज्यव्येति। प्रेमपूर्वकं जीवनं यापनीयम्। अनेनैव विश्वशान्तेः आशा परिपूर्णा भवितुं शक्यते इति गान्धिमहोदयस्य राजनैतिकं चिन्तनमासीत्।

- ✦ सर्वधर्मसमभावः (Equal spirit in all religious)सर्वधर्मं प्रति समदृष्टिकारणात् गान्धिदर्शनं विशिष्यते। सः धर्माचरणपेक्षया प्रार्थनायां विश्वसति। प्रार्थनयैव शक्तिः वर्धते।

#### महात्मागान्धिमहोदयस्य शिक्षादर्शनं विश्वशान्तेः सङ्कल्पना -

महात्मागान्धिमहोदयाः केवलं भारतीयाः एव न अपि तु विश्वमानवाः आसन्। तेषां चिन्तनं राष्ट्रियचिन्तनेनसह अन्तराष्ट्रीयचिन्तनमपि आसीत्। गान्धिमहोदयेन सर्वासाम् समस्यानां समाधानाय एकः क्रान्तिकरी व्यवहारिकश्च कार्यक्रमः विश्वस्य समक्षे प्रस्तुतः। स च कार्यक्रमः शिक्षापद्धतौ आमूलपरिवर्तनमिति। अनेन ते मानवसमाजस्य नवनिर्माणाय नैकविधकार्याणि कर्तुं वाञ्छन्ति स्म। तैः "नई तालीम" "वर्धा शिक्षाप्रणाली" वा इति नाम्ना प्रयोगाः अपि आरब्धाः। सम्प्रति "यूनोस्को" इति संस्थाऽपि अस्य महत्त्वस्य परीक्षणं कुर्वन्नस्ति। "यूनोस्को" इति संस्था शिक्षायाः माध्यमेन विश्वस्य बालकेषु नैतिकतायाः शान्तेश्च प्रचार-प्रसाराय कार्यरता वर्तते। महात्मागान्धिमहोदयेन शिक्षायाः माध्यमेन भारतीयसमाजेन सह सम्पूर्णविश्वसमुदायस्यकृते यः कार्यक्रमः सञ्चालितः, सः अधुना अपि आदर्शपूर्णः प्रासङ्गिकश्च वर्तते। ते अनया नवीनप्रणालीमाध्यमेन ऐदम्प्राथम्येन समाजे परिव्याप्तं श्रेष्ठश्रेष्ठयोः, शिक्षिताशिक्षितयोः, बौद्धिक-शारीरिकश्रमयोः, धनि-निर्धनयोः भेदं परिसमाप्य शारिरिकश्रमाय विशेषमहत्त्वं ते प्रददति। तेन श्रमं प्रति शिक्षितजनानां दृष्टिकोणं परिवर्तितं भवेत् तथा च धनिनिर्धनयोः बालकेषु विषमता दूरे भवेत्तिति तत्रोद्देश्यं वर्तते। एतावदेव, न "वर्धा शिक्षाप्रणाली" द्वारेणलघुद्वेगशिक्षां प्रदाय शासकशोषितवर्गयोः मध्ये आर्थिकशोषणं दूरीकर्तुमपि प्रयतते। महात्मागान्धिमहोदयेन अशिक्षितजनानां शिक्षणाय प्रौढशिक्षायाः सामूहिकशिक्षायाः च योजना निर्मिता। तेषां मते सैव शिक्षा या मुक्तये प्रवर्तते प्रेरयति वा, अवशिष्टा तु अविद्या। मुक्तेः नैकार्थाः वर्तन्ते, यथा- अज्ञानात् मुक्तिः, दुर्गुणैः मुक्तिः, हिंसातः मुक्तिः, द्वेषात् मुक्तिः च। अन्तःस्थविकारेभ्यो न्यूनताभ्यः मुक्तेः शिक्षैव वास्तविकशिक्षा वर्तते। अतः या चित्तं न शुद्ध्यति, मनं न नियन्त्रयति, स्वतन्त्रतायाः, समानतायाः, बन्धुतायाः, नैतिकतायाः, स्वावलम्बनस्य च भावनां न उत्पादयति, सा तु अपूर्णा शिक्षा भवति। अतः छात्रैः मौखिकशिक्षा एव न क्रियात्मकशिक्षा अपि गृहीतव्या इति। इतिहासभूगोलयोः शिक्षासम्बन्धे गान्धिमहोदयस्य विचाराः विश्वशान्तेः कृते विशेषतया उपयोगिनः सन्ति। तेषां कथनमस्ति यत् जातीय-राष्ट्रियभावनाया प्रेरितः इतिहासभूगोलौ बालकेषु प्रारम्भात् एव अन्यजनान् प्रति घृणायाः द्वेषस्य, भेदभावस्य च भावनामुत्पादयति। अतः अस्मासु आत्मिकसम्बन्धः न भवति। समग्रविश्वं एकं विशालराज्यम् इति स्वीकृते सति भेदभावस्य युद्धस्य च भावना समाप्यते। गान्धिवर्याः सम्पूर्णविश्वं भौगोलिकदृष्ट्या एकं राष्ट्रं स्वीकुर्वन्ति स्म। विश्वम् एकं राष्ट्रं चेत् युद्धभेदभावयोः समस्यानां समाप्तिः भवितुमर्हति। गान्धिमहोदयस्य मते अनया रीत्या एव भूगोलस्य शिक्षा प्रदेया।

महात्मागान्धिमहोदयैः प्रदीयमाना इतिहासभूगोलयोः शिक्षा आधुनिकवैश्विकसमुदायेन सह योजिता इति प्रतीयते। तेषामनुसारं संसारस्य सर्वे शिक्षितजनाः समाजं, राष्ट्रं, विश्वं, मानवतां प्रति वा स्वकर्तव्यानि



पालयष्यन्ति चेत् संसारात् हिंसा, युद्धं, घृणा, शोषणं इत्यादयः समाप्यन्ते, तथा च शाश्वतशान्तेः आनन्दं सर्वे प्राप्तुं शक्नुवन्ति इति।

**निष्कर्षः -**

अतः उपर्युक्तालोचनया वक्तुं शक्नुमः, साम्प्रतं समाजस्य तथा राष्ट्रस्य अशान्तिपूर्णस्थितेः परिवर्तनाय, गान्धिमहोदयस्य दर्शनमाधारिकृत्य प्राथमिकस्तरादारभ्य समाजे अनौपचारिकरूपेण शान्तिशिक्षा दीयते चेत् जनजागरणं भविष्यति। येन समाजे तथा राष्ट्रे परिव्याप्तः तमसासदृशः अन्धकारः दूरीभूयपुनः आलोकशिखासदृशी शान्तिः सुप्रतिष्ठिता भविष्यतीति, नास्ति अत्र सन्देहस्य अवकाशः।

**सन्धर्भग्रन्थसूचयः-**

- दुवे, एस. के. (२०१६) शान्तिशिक्षा एवं सतत् विकास, राधाप्रकाशनमन्दिर प्रा. लि., आगरा।
- द्विवेदी, कपिलदेव. (२०१५) संस्कृत-निबन्ध-शतकम्, विश्वविद्यालयप्रकाशनम्, वाराणसी।
- विहारी लाल, रमण. (२०१६) शिक्षा का दर्शन और समाजशास्त्र, आर. लाल बुकडिपो, मेरठा।
- विहारी लाल, रमण. (२०१७) शिक्षा के दार्शनिक एवं समाजशास्त्रीय परिदृश्य, आर. लाल बुकडिपो, मेरठा।
- झा. उदय शङ्कर. (२०१३) संस्कृतनिबन्ध-मञ्जुषा, चौखम्बा सुरभारती प्रकाशन, वाराणसी।
- मिश्र, रामेश्वर. (१९८४) गान्धीजी की विश्वदृष्टि, मानक पब्लिकेशन्स प्राइवेट लिमिटेड, नई दिल्ली।
- गान्धि, महात्मा. (२००४) अहिंसा की शान्ति, पिलग्रिम्स पब्लिशिंग हाउस, वाराणसी।
- शर्मा, देवीदत्त. (२००६) गान्धी और विश्वशान्ति, पिलग्रिम्स पब्लिशिंग हाउस, वाराणसी।

**पादटिप्पणी-**

१. यजु. ४०/१
२. ऋक. १०/१९१/२
३. यजु. ३६/१८



## INNOVATIVE PRACTICES IN TEACHING AND LEARNING PROCESS IN INDIA

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### **Abstract**

Teacher education is a global profession that should be implicit properly. Teachers are also notable support of any societal development. There was a time when knowledge of a subject matter was enough for any person to become a teacher. Now a day's time has changed and an efficient teacher must have knowledge about attitude, pedagogy, personality, traits and exceptionality of children. The quality and expand of learner's achievement generally depend upon the competence of a teacher and the motivation provided by him. The supremacy of any teaching-learning process mainly determine by the distinction of the teaching process and teacher. Teachers have great importance in enlightening the quality education. There are several issues, which needs attention to advancing the quality of teaching learning methods and process in India. One of them is the need for innovations in the teaching-learning process. That is why the development of innovative practices in the teaching-learning process is very important. Innovativeness means the ability to think beyond the boundaries and create something, which is different from the rest of the others that already exist. Teachers should creative and innovative in their teaching, curriculum development and teaching practices. In modern time, the greatest challenge the teachers used to face is to capture the students' attention and make them attentive throughout the class period. In order to overcome these challenges, teaching style should restructure and innovative ideas should incorporate so that it can make the class environment very attractive and interesting to the students. The objective of this paper is to discuss many useful innovative teaching-learning methods and process, which helps to impart knowledge easily to the students. This paper will emphasize on novel ideas and innovative teaching and learning skills like brainstorm, Role-play, crossover learning, incidental learning, embodied learning, audio-video tools etc.

**Keywords:** Innovative teachers, Role-play, Crossover learning, Incidental learning, Embodied learning, Brainstorm

### **Introduction**

Education is the backbone of any country. Our success in future and our personality depends upon our learning we get from our school. It gives us knowledge and understandings of how to solve problems in our daily life as well as how to look at the world around us. The quality of the education system directly influences the growth of a nation and teachers are called the nation builder. Apparently, teachers get a prominent place in the society. Teacher is an artist who moulds the behaviour of a student, makes him social, and helps him to develop creativity. However, the world is changing day by



day as well as the education system. Hence, teachers have to deal with more challenges and responsibilities in the present situation. Innovative technological advancement transformed our society and our education system also. With this in mind teachers have to accept the development of the technology in his teaching-learning process by adopting some innovative methods in it. The supremacy of any teaching-learning process determine mainly by the distinction of the teachers and the teaching process. Therefore, for developing innovative teaching and learning process innovativeness in teacher education is also important. Teachers must be creative in their teaching and other teaching related activities and this creativity development process should start from their teaching institutions. In the modern time, the greatest challenge the teachers used to face the capturing the student's attention and make them attentive throughout the class period. In order to overcome these challenges, teaching style should reconstruct and innovative ideas should incorporate so that it can make the class environment very attractive and interesting to the students. The aim of education is beyond teaching the textbook but has to add the purpose of innovative thinking, creative environment and self-sufficiency. Thus, the educational institutions should incorporate creative teaching methods that develop the knowledge of the students. Detecting and implementing innovative methods of teaching learning is the necessary in the present time. Many researches give evidences that there are many methods, which could increase the learning skills of the students. Students fed up with old methods of teaching and they now want something more practical, useful and interesting to learn. Therefore innovative methods do this work to make teaching learning more interesting and understandable. Meanwhile, this innovativeness in education system is popular across the globe.

### **The Concept of Innovation**

The word 'innovation' is derived from the Latin word 'innovate' which means to change something into something new. Innovation is a process of education and training in which creative practices and ideas are involved. For making efficiency and increase productivity, many organizations or schools initiated a risky and systematic change that called as innovative change. Uchendu (2015) describes innovation as "a process in which new programmes or practices put in place or inject into the operation of a system to replace old or ineffective ones". Innovation is nothing but some new methods, techniques and ideas for making teaching process more understandable and enjoyable for the learners. Innovation can adopt or adapt. Therefore, it is an application of technology in a new ways for gaining advantages in the form of job performances, services and commitments.

### **Advantages of Innovative Practices**

It emphasized in a publication released by UNESCO about the role of a teacher in this modern era, which states, "There was a time when the teacher's role was to pass down to the younger generation the knowledge, experiences and mythology of a slowly evolving society". The modern teacher must develop himself or herself according to the changing society. It does not make a difference whether the teacher is teaching to the classroom in a developing nation or an industrialized country, the issue continues as before. In inspecting the changing role of the teacher we need to see the changes as being a



response to, and an attempt to defy the pressures of a society, experiencing a consistent progression.' (Goble and Porter, 1977)

There are several pros of using innovative teaching practices in the educational system. A couple of them are as per the following:

a) **Increase Student Motivation:** Through innovative teaching methods, teachers easily control the students and instruct them to do a task. Therefore, the chance of distraction of the students mind is decrease and ultimately the motivation level increased.

b) **Removing Stressful Tasks:** Innovative practices make monotonous tasks energetic and interesting so the students do any stressful tasks enthusiastically.

c) **Improve Self-Learning:** Innovative teaching styles give opportunity of self-learning to learners. Much innovative learning provides extra coordination in the classroom.

d) **Expansion of Students Thinking:** Ideas and thinking capabilities of the students also increases by various innovative teaching methods, which may bring provide double confidence to the students.

e) **Active Learning Process:** Innovative practices in the classroom increases involvement of students, more in the learning process. Meanwhile the learning becomes more active and the complex subject matter becomes easier to the students.

f) **Instruction to the right learner:** By using innovative practices in the teaching method, teachers easily find the right learner who needs extra attention. This helps the teachers feel comfortable to spend more time with the students who need his help.

g) **More attention:** With the help of innovative practices the teachers able to help slow learners to concentrate on their studies without distraction.

h) **Change Status and Role of Teachers:** Innovative practices developed the teacher's pedagogical knowledge and ability. Innovative practices change the role of the teachers in the classroom because it encourages self-learning practices.

### **What is innovative teaching?**

Innovative teaching means teachers creativity and originality, which changed the style and techniques for his instructing. In everywhere throughout the world, various educational institutions executing numerous new strategies, thoughts and technology-based innovations to build up the student's knowledge. Innovating teaching is exceptionally basic for the students to arrive at their maximum capacity. Innovative teaching is a compulsory exercise for all the teachers to meet the educational needs of the new age students. Teachers' competency to teach in an innovative way is influencing innovative teaching performance. Some research finds out that there are many teachers who do not have competencies for teaching in an innovative way.

### **Methods of Innovative Teaching**

There is several teaching and learning process in the educational system. out of these some methods are discussed below-

#### **1. Brainstorm**

Brainstorm is group discussion to create thoughts and methods of taking care of issues or solving problems. It tends to utilize in the classroom environment as innovative method of educating. In the classroom educator ought to engage different minds concentrating on one single issue to get various thoughts. The classroom will transform into a good stage for students to express their thoughts without worrying over good or



bad. In this process, students will be able to assess their ability of critical analysis and evolve their capacity of thinking.

## **2. Love What You Do**

Main purpose of innovative teaching is to make students learn with eagerness. If students are stressed and tensed the learning process is hampered and they become reluctant to learn new lessons. Anyway, students will be more innovative and propelled when they are not pushed. Adoring work keeps them relax and gives them space to try different things with new ideas.

## **3. Audio & Video Tools**

The classrooms will be more interesting if one can incorporate audio-visual materials with their regular teaching. Use info graphics or other mind mapping devices that will enable student's creative mind to thrive and develop. These techniques will not just build up their capacity to tune in it assist them with understanding the ideas better. For instance, educator can get some oral history materials, direct live online conversations or playback open talks. There are many shrewd applications for teachers that can use to make great slideshows or presentation.

## **4. Classes outside the Classroom**

Another method of innovative teaching is to arranging a field trips that are applicable to the lessons or just go for a walk outside of the classroom with the students. The students will find this new and energizing and will learn and recollect the things very quickly.

## **5. Role Play:**

Educating through role play is an extraordinary method to make students step out of their zone of familiarity and permits them to investigate practical circumstances by collaborating with others in an oversaw manner so as to build up their interpersonal skills. This technique is helpful, particularly when the teacher teaching literature, history or recent developments. The role-play approach will enable the students to see how the scholarly material will be applicable to his regular tasks.

## **6. Accept New Ideas:**

A receptiveness can assist with embracing new educating techniques. Despite the fact of being open minded, sometimes a large portion of us shows reluctance to new thoughts. An educator should consistently prepare to acknowledge new thoughts regardless of whether it glances unusual at the beginning.

## **7. Puzzles and Games:**

Just case in if the games and riddles are a piece of the instruction, at that point learning is enjoyable to the students. Students may not feel they are learning when their lessons are presenting through games. Puzzles and games help students to think in an unexpected way, face challenges and attempt to beat those troubles. In this procedure, they get familiar with a great deal accidentally.

## **8. Introduce Lessons like a Story:**

Simply figure, for what reason do we watch motion pictures with much interest? We like to watch motion pictures because there is consistently a fascinating story to keep us locked in. Like that, learning lessons become additionally intriguing when the instructor presents it like a story. On the off chance that the educator is imaginative, even math exercises can identify with intriguing stories. The Knowledge and Human Development Authority (KHDA) stressing on schools to take measures for improving the nature of



educating and learning, these inventive thoughts certain to make teaching strategies more compelling.

## **Methods of Innovative Learning**

### **1. Crossover Learning**

The 2015 Innovating Pedagogy report recommended 'crossover learning' as one of ten developments that are near the very edge of having a serious effect on education (Sharples et al., 2015). The idea of crossover learning imply to comprehensive understanding of learning that associates formal and informal learning settings. In the case of crossover learning a teacher is to propose and discuss about a question in the classroom, at that point for students to investigate that question on a museum visit or field trip, gathering photographs or notes as proof, at that point share their discoveries back in the class to deliver individual or group answers. These crossover learning able students to extract the qualities of both environments give students the opportunity of authentic learning and open the doors of innovative learning.

### **2. Learning through Argumentation**

Students may improve their understanding of science and arithmetic by arguing in a manner like professional researchers and academician. Argumentation urges students to deal with conflicting ideas, which can expand their learning. It likewise permits students to refine their thoughts with others, so they figure out how researchers cooperate to set up or invalidate claims. At the point when students contend in logical manners, they figure out how to retract, listen effectively and react helpfully to other people.

### **3. Incidental learning:**

Incidental learning is spontaneous or accidental learning. It might happen at any time in anywhere while completing an action that is apparently irrelevant to what in learned. Research on this subject managed how one can learn in their everyday schedules at their working environments. For some individuals, cell phones have incorporated into their day-by-day lives, giving numerous chances to boost incidental learning. In contrast to formal instruction, an instructor does not drive incidental learning, nor does it follow an organized educational program, or result in formal certification. In any case, it might trigger self-reflection and this could utilize to urge students to reconceive what could some way or another be detached learning sections as a major aspect of more intelligible and longer-term learning ventures.

### **4. Context-Based Learning:**

Students in the internet age need not bother with more data. They have to realize how to proficiently utilize the huge measure of data accessible readily available – to figure out what is dependable, what is significant and when it is helpful to reference. Context based learning satisfy that reason. Context empowers students to learn from experience. By deciphering new information about where and when it happens and relating it to what we definitely know, we come to comprehend its importance and significance. In a classroom or lecture theater, the context is ordinarily bound to a fixed space and constrained time. Past the classroom, learning can emerge out of an advanced contest, for example, visiting a heritage site or historical places or being involved with a decent book.

We have chances to make context, by associating with our environmental factors, holding discussions, making notes, and altering nearby objects. We can able to



comprehend the context by investigating our surroundings, supported by aides and measuring tools. It follows that to plan compelling locales for learning, at schools, museum and historical sites, requires a profound comprehension of how context shapes and is shaped by the process of learning.

#### **5. Embodied learning:**

Embodied learning includes conscious of the body to connect with a genuine or simulated world to help the learning procedure. In embodied learning, the brain and body cooperate to each other so physical feedback and activities strengthen the learning procedure. Technological Innovations help to incorporates wearable sensors that accumulate individual physical and natural information, visual frameworks that track development, and cell phones that react to activities, for example, inclining and movement. This methodology can apply to the investigation of parts of physical sciences, for example, friction, acceleration, and force, or to investigate simulated situations such as the structure of molecules.

#### **6. Adaptive learning:**

Adaptive learning is an idea wherein each student give his own individual way of getting the hang of relying upon the amount he definitely knows or what he has to know and the measure of time he needs to appreciate a specific idea. . It utilizes information about a student's past and current learning and figuring out how to make a customized way through instructive substance. Adaptive learning framework prescribes the best places to begin new substance and simultaneously audit old substance.

#### **7. Computational Thinking**

As defined by Jeannette Wing, computational thinking is “a way of solving problems, designing systems, and understanding human behavior by drawing on the concepts of computer science.” It includes barely any means like Decomposition-separating enormous issues into littler ones, Pattern acknowledgment - perceiving how these identify with issues that have been unraveled before, Abstraction-putting aside insignificant subtleties, Algorithm-recognizing and building up the means that will be important to arrive at an answer and Debugging-refining these means. The point of this technique is to instruct youngsters to structure issues so they can tackle. Computational reasoning is not utilize just to urge youngsters to be PC coders, yet in addition to ace, a specialty of reasoning that will empower them to handle complex difficulties in all parts of their lives.

#### **8. Analytics of Emotions**

Automated techniques for eye and outward appearance recognition can break down how students learn, at that point they react diversely to their enthusiastic and psychological states. Common intellectual parts of learning incorporate whether students have addressed a question and how they clarify their insight. Non-psychological angles incorporate whether a student is disappointed, befuddled, or diverted. Even more largely, students have mentalities, (considering their brain to be as fixed or moldable), methodologies, (thinking about getting the hang of, looking for help and arranging how to learn), and characteristics of commitment, (diligence) which profoundly influence how they learn.

For classroom teaching, a promising methodology is to join PC based frameworks for intellectual mentoring with the ability of human instructors in reacting to students'



feelings and mentality, so the educating can turn out to be more receptive to entire youngster and student.

### **Conclusion**

This paper emphasized on various innovative methods in teaching learning process that gives the students an opportunity to develop their skills. It makes education system more interesting and meaningful to the students that help them to pay more attention in their studies. The main objective of teaching is to give information and knowledge to the students and makes learning better for them. Any method without destroying the objective could consider as innovative methods of teaching. The main purpose of education is not only makes students literate but also develops rational thinking, knowledge and self- sufficiency in them. If there is, willingness to change then there is a hope for progress in any field. Creativity can develop and innovative teaching and learning benefits both students and teachers. However, in the present time innovativeness is not implementing in the teaching-learning process in India like other developed countries especially in public schools

### **References**

1. Akpan, C. P. (2016). Innovative practices in school administration. *International Journal of Educational Administration, Planning and Research (IJEAPR)*, 8(1), 45-53.
2. Das, M. (2015). Innovative Practices in Teacher Education: An Overview. *International Research Journal of Interdisciplinary & Multidisciplinary Studies (IRJIMS)*, 1(5), 15-18.
3. Farswan, D. S. (2017). Innovative practices in teacher education in india. *International Journal of Current Research*, 9(4), 49593-49596.
4. Jayashree, R. (2017). A Study on Innovative Teaching Learning Methods for Undergraduate Students. *International Journal of Humanities and Social Science Invention*, 6(11), 32-34.
5. Kalyani&Rajasekaran. (2018). Innovative teaching and learning. *Journal of Applied and Advanced Research*, 3(Suppl. 1), S23-S25.
6. Kundra, T. (2018). Innovative practices in teacher education programme. *International Journal of Applied Research*, 4 (4), 238-240.
7. Subramani&Iyappan. (2018). Innovative methods of teaching and learning. *Journal of Applied and Advanced Research*, 3(Suppl. 1), S20-S22.
8. Uchendu, C. C. (2015) Change Management in Education. In C. P. Akpan, J. E. Okon and V. O. Ebuara (eds.) *Fundamentals of Educational Management*. Calabar: University of Calabar Press. Pp. 20-48.
9. Varshney& Joshi. (2014). Innovative Practices In Teacher Education. *Journal of Education and Practice*, 5(7), 95-101.



## RECONSTRUCTING ASSAM MOVEMENT (1979-1985) THROUGH THE GENDER LENS

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### Abstract:

The historic Assam movement or the *Asom Andolon* that took place from 1979 to 1985 in Assam was one of the most important political events of post Colonial India. It was started with the Mongoldoi by-election to the Lok Sabha. The Lok Sabha seat of Mongoldoi constituency got vacant due to the death of its MP Hiralal Patowari on 29 March, 1979. As the by-election process started, the election commission started a process of revision of electoral roll. It was alleged that in the revised electoral roll, names of about 45,000 immigrants got entered. The Assam Xahitya Xobha, the Purbanchaliya Lok Parishad and together with AASU formed a coalition called Axom Gono Xongram Porixod, also called All Assam Gana Sangram Parishad (AAGSP), to start a campaign to make people aware of the illegal immigration problem. This is the beginning of the historic Assam Movement.

In the Assam movement, a large number of women from all age groups and occupations came up to the streets and actively participated. Women took part in the processions, rallies, picketing, court arrest, economic blockades, etc. A significant aspect of the women's mass participation in the movement was the imprisonment of many of them for leading processions, 'delivering provocative speeches', etc. There are many women who even lost their lives during the course of this movement. In this study an attempt will be made to explore unheard voices of the women who have actively participated in the movement. But regrettably their contributions towards construction of Assamese identity through the movement have been marginalized in the present academic discourse of Assam.

**Keywords:** Women, Gender, Memories, Participation.

### Background of the Study:

The historic Assam movement or the *Asom Andolon* that took place from 1979 to 1985 in Assam was one of the most important political events of post Colonial India. According to Monirul Hussain (1993) Assam movement means that movement which demanded to stop (1) the illegal immigration of foreign nationals to Assam from the neighboring countries- Nepal and Bangladesh and (2) their participation in the electoral process in Assam/India, and (3) deportation of all foreigners living illegally in Assam so as to (4) enable the people of Assam to protect their distinct identity in their traditional homeland from the threat of foreign nationals.

It was started with the Mongoldoi by-election to the Lok Sabha. The Lok Sabha seat of Mongoldoi constituency got vacant due to the death of its MP Hiralal Patowari on 29 March, 1979. As the by-election process started, the election



commission started a process of revision of electoral roll. It was alleged that in the revised electoral roll, names of about 45,000 immigrants got entered. At that time there were number of reports of immigration from Bangladesh to Assam. The Chief Election Officer, S.L. Shakhder, on October 24, 1978 gave a speech where he mentioned about large scale inclusion of foreign nationals in the electoral rolls of north eastern region of India and how the influx has become a regular feature and said that, 'the foreign nationals who maybe in all probability constitute a sizeable percentage if not the majority of population in the state.' These reports and the speech of the Chief Election Officer alarmed the large section of the people of Assam and generated a fear psychosis. As a result, about 70,000 complaints were registered challenging the authenticity of the citizenship of these 'foreigners'. On June 8, 1979 the All Assam Students Union (AASU) organised a twelve hour strike demanding "detection, disenfranchisement and deportation" of foreigners. On August 26, 1979 the Assam XahityaXobha, the Purbanchaliya Lok Parishad and together with AASU formed a coalition called AxomGonoXongramPorixod, also called All Assam Gana Sangram Parishad (AAGSP), to start a campaign to make people aware of the illegal immigration problem. They also demanded a detailed and thorough study of the electoral lists in the remaining 13 parliamentary constituencies and till then they decided to boycott any form of election in Assam. This is the beginning of the historic Assam Movement.

The most important organization behind the Assam Movement was the All Assam Students Union (AASU) which was started as a voluntary federation of the students' unions of schools and colleges in 1967. The AASU and AAGSP took up the leadership and led the students and the masses for the Movement. Both these organizations claimed to be non-political body. The whole movement was started 'protesting against the alleged Indian Government policy of admitting and enfranchising foreigners' and the main demands of the movement were the detection, deportation and deletion of all foreign nationals from the electoral rolls of Assam. The leaders of these organizations called this movement as 'Assam's last struggle for survival' against the 'cultural, political and demographic transformation of Assam by the unchecked immigrants which threatened to reduce the indigenous people to minorities in their own land'. To make the movement a successful mass struggle they prepared certain programs, and called for mass squatting throughout Assam in front of the government offices, mass picketing, court arrest, rallies, demonstration, protest meetings, *gherao*, *bandh*, *dharna*, economic blockade, boycott of elections, etc. They were successful to mobilize broad support among the ethnic Assamese people and hundreds and thousands of masses participated in the campaign with a display of distinctive Assamese cultural and historical symbols making it a state-wide cultural festival. The movement that started in 1979 continued till 1985. In this six year long Movement, lakhs of people offered *satyagraha*, resisted the elections to the *loksabha* in 1980 and resorted to economic blockade, etc. The movement officially ended on 15<sup>th</sup> August 1985 after coming to an understanding with the government of Indian which found official expression in the Memorandum of Understanding popularly known as the Assam Accord, 1985.

The movement received a spontaneous response and active participation from all the section of the state irrespective of their social or economical affiliations. The

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Assam's press played an important role to build up public opinion among the Assamiyamas by articulating the common aspirations of the movement and exhibiting the gravity of the problem. Though, the Assam press is not immune from biasness and was criticized by many for spreading propaganda. There were allegations that the press sometimes covertly and sometimes openly takes an anti-left, anti-worker, anti-peasantry, anti-non-Asamiya stand.

#### **Statement of the Problem:**

Participation of women in social movement, political movement is not rare in the context of India. From the active participation in the protest against the partition of Bengal to the Indian national freedom movement Indian women have a long history of participation in the protest rallies and processions. From active participation to assisting their leaders/ husbands/ friends in the organizational work, serving and caring them with food and other hospitalities woman has different roles to offer. Assamese woman also has a long legacy of taking part in political and social movements in an active way, especially after Mahatma Gandhi's tour of Assam in 1920s and his call to woman to take part in political movements during India's struggle for freedom.

In the Assam movement, a large number of women from all age groups and occupations came up to the streets and actively participated. Women took part in the processions, rallies, picketing, court arrest, economic blockades, etc. They boycotted their class rooms and joined the movement spontaneously. A significant aspect of the women's mass participation in the movement was the imprisonment of many of them for leading processions, delivering provocative speeches, etc. There are many women who even lost their lives in the course of this movement. But popular writings on the Assam Movement often tend to focus on the 'martyrdom' or '*sahid*' made by the male participants, forgetting those female participators who sacrificed their life for the causes they believe, and therefore, there is a danger of their participation being lost in history. Some of the name of those woman martyr are **Renubala Nath, Tarinibala Nath** of Baksa district; **Fulomai Borkotoki, Nirmali Borkakoti, Nimati Nath** of Chamuguri, Nagaon district; **Jutika Baruah (Devi), Prothomi Deka** of Marigaon district; **Tankeswari Deka, Giriwala Deka, Kusumbala Deka** of Borkurha, Morigaonditric; **Mukulibala Roy** of Khargapur, Goalpara district; **Maloti Das, Jyotshna Medhi** of Koraikhuwa, Goalpara; **Kuloda Kurmi** of Khuwang, Dibrugarh; **Rupohi Nath, Rumoni Nath, Rasika Nath, Domoynti Nath, Naomai Devi, Phuleswari Devi** of Darang district; **Boijenti Devi, Lereli Bodo, Kanduri Boro, Madoi Gogoi** of Sunitpur district; **Aruna Kolita, Joonmoni Devi** of Hugrajuli, Sunitpur district; **Annandi Nath, Pori Devi, Bonoshree Das** of Sunitpur; **Luhuri Bora, Konswali Saikia** of Gohpur, etc. These names and others, their contribution, sacrifices are forgotten in the due course of time. The movement was dependent on the 'mass' participation of ordinary women, students whose voices were rarely heard or recorded. The newspapers of the period, even in any present academic discourses we don't get any name of such women and their experiences. News papers and other sources while reporting any meetings at various places in Assam listed only the names of women leaders of AASU and mention a very little information about those hundreds of women who made the event worth recording. They were become just number like 'hundreds in attendant'. It is, noteworthy; that these hundreds of women who became "just numbers" in the course of



time, during the Assam movement actively participated in processions and picketing. Many of the time these were the women who face the real atrocities and exploitations of the police and armies. There are many instances when the organizing leaders made fiery speeches and instigate fire among people and then those leaders were vanished and the wrath of the police and CRPF poured upon these general people.

In this study an attempt will be made to look into the nature of women's participation, their responses and perceptions to the Movement. This study tries to explore unheard voices of the women who have actively participated in the movement. But regrettably their contributions towards construction of Assamese identity through the movement have been marginalized in the present academic discourse of Assam. This study will be constructed through the gender lens which is one of the important approaches to the study of subjective experiences of the women in social movements of 21<sup>st</sup> century.

#### **Objectives of the Study**

- To trace out the role played by women in socio-political movements of Assam from historical perspective.
- To study the participation and contribution of ordinary Assamese women in the Assam Movement.

#### **Source and Methodology of the Study**

Both primary and secondary data are used in this study. Primary data will be collected through unstructured interviews of various strong holds of the movement and particularly from the surviving women participators who had taken active part in the movement. Besides, archival reports are used in the study. Secondary sources are mainly drawn from newspaper reports, novels related to Assam movement, commentaries in books and journals and relevant articles as well as published and unpublished thesis.

#### **Discussion:**

Women's Participation and response to the movement was a spontaneous one. Women of different age groups spontaneously came out of their homes to become agitators in the anti-foreigners' agitation in Assam. The participation of women reflects their consciousness towards Assamese society which they believed was in threat because of the illegal infiltrators. This consciousness was used by All Assam Students Union (AASU) and All Assam Gana Sangram Parishad to bring all the women to the streets. My interview with several women agitators reveals that their participation was a voluntary one. Many of them were students at that time in their first years of college. They mentioned that they were AASU members and from the beginning of the movement they were an active supporter of the movement and its' objectives.

For the first time Assamese women came out to take part in any political movement was in the early twentieth century during the freedom movements. The active participation of women like Nalinibala Devi, Girija Devi, Hemanta Kumari, Puspalata Das, and Chandraprova Saikiani, Malati Phukan, Sumita Bhattacharya, Snehlata Barua and many other women who came out of their households with a believe to drive away



the British represents the true picture of the involvement of Assamese women in the freedom struggle. Women's organization came to be formed. Initially they were not politically oriented and they were mostly dedicated to socio-political issues like spreading awareness about literacy, to importance of education to the society, to make women self-reliant, to propagate Gandhian ideology, to Gandhian constructive program etc. The formation of the Assam Mahila Samiti in the year 1926 saw the beginning of the formal organization of women in one platform at the provincial level under the leadership of Chandraprova Saikia. The Assam Mahila Samiti which was later renamed as the Assam Pradeshik Mahila Samiti (APMS) played a very important role in mobilizing women in the late 1920s and the 1930s. So, the contribution of APMS was undoubtedly a major factor in the large scale women participation in the freedom movement in Assam.

The social reform movements of the nineteenth century, the spread of education among women, and the policies of the British Government and the Gandhian ideologies had a profound impact on the lives of the Indian women. It encouraged middleclass and elite women to adopt new role models in the public domain and to engage in a range of activities like social reform, demand for franchise, spreading the nationalist message, usages of swadeshi goods, resorted to hand spinning and weaving to the mass mobilization of women for the freedom movement.

Gandhi's call for a non-violent non-cooperation movement had stirred the whole country which witnessed an unprecedented wave of nationalistic enthusiasm among men and women. He urged women to take the Swadeshi vow, give up foreign goods and spin every day. In Assam we saw a large number of women's participation in the freedom struggle. So, women's participation in movement is not a rare phenomenon in Assam. Assam has a long history of women's political as well as social activism.

The Assam agitation was different from the nationalist freedom movements because here the fight was against the own elected government. The changing social norms, increasingly liberal attitude towards women's education, success of AASU as well as Assamese mass media to convince the masses that Assamese identity is in threat led to the participation of not only women but also all section of the people of the society in a large number. During my interview with one of the women respondent revealed that as they were in their first year of their College they were educated well enough to decide whether they should join the movement or not. Though in the initial stage they heard from their elderly male neighbors specially, that why are they hesitating to join the agitation. They were educated and if they don't come out from their homes in support of the movement then how other women who were home maker or other least educated women will be motivated to join. As the agitation was led by students and they included both male and female students, the participation rate of women was higher and they were successful in attracting women of different age groups to the agitation.

The participation of women from the different class, caste and the communal background is one of the most important features of the anti-foreigners' agitation of 1979-85. Women were spontaneous participants and they took part in all activities like satyagraha, picketing or procession. The common perception was that, as the 'mother Assam' (Aai Axomi) is in danger everyone should come out of home to save her from

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intruders. This idea of ‘mother Assam’ was used by AASU in posters, in wall paintings, in the newspapers, banners as well as in the poems composed by many AASU members. One of the respondents named Runti Bora who is from Jorhat and one of the active member of the movement said that she is an active member of the AASU and their one of the main work is to lead the procession and made people aware with the objectives of the movement. To make people aware of the programs and to gather more people’s support they used to go to people’s houses to distribute leaflets. She said they raised some slogans like “*aah oi aah ulai aah, Khed oi KhedbidekhikKhed*’ ( come and drive away the infiltrators), *eijuijolisejolibo*i (this fire is burning, shall keep on burning ), “*kune koi Lachitnai, hazarLachitAguwai; kune koi Mulanai Hazar MulaAguwai*” ( who said Lachit<sup>1</sup> is no more, thousand Lachit march forwards; who said Mula<sup>2</sup> is no more, thousand Mula march forwards). She said that they used to sing songs like

‘Axomrsuke kune o Horumai

Bidekhihumaiase o Horumai

Ki Ahasai, diyaKhedai

Eyakenkorilearuupainai’

(In every nook and corner of Assam there are illegal infiltrator; what are you watching just drive them off)

‘Aamiakhomiyanohoudukhia

Bulihantanalovilenohobo

Aajirakhomiyainijoknisinile

Axomrokhatolejabo...’

Besides leading processions and making people aware of the movement they used to picket in many places, raise funds so that they (AASU) could carry on the movement. Though she mentioned that the leaders were mainly the male students but there were a female students also who also used lead the movement. Not only the students the educated section of women too responded to the agitation. The Assam Women Writers Association came out in support of the agitation and pleaded the government not to hold election without correcting voters list. In a memorandum submitted to the Governor of Assam they demanded to stop the election with wrong voter list.

In many part of the state, women’s association was formed like PurbanchaliyaMahila Sanstha, SamajsewiMatribahini, JagritaMahila Parishad, MulaGabharu etc. These women were not merely supporting the agitation but they were creating new avenues for self-employment so that it can minimize the economic opportunities of the infiltrators. They used handloom and spinning to support their households. They offer help to their fellow agitators, they voluntarily offer foods and aid to those who were picketing. In a way, they were engaged in picketing and at the same time they were weaving cloths, helping their fellow picketers with food and aids. In 1982, the violence between the Central Reserve Police Force and the agitators led to

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<sup>1</sup> Lachit, the Ahom General who fought against the Mughals in the battle of Saraighat in the year1671, whose heroism still worshiped in Assam.

<sup>2</sup>Mula Gabhoru, the brave Ahom women who fought against the Afghans after her husband was killed in the hands of the Turbak.



the agitators to resort to the non-violent movement. Agitators took to fasting as a way to protest against police atrocities and mainly women were on the forefront. Staging arrest was another non-violent method used by agitators and many women agitators staged court arrest in support of the movement.

As thousands of women came out to the streets in support of the agitation and many of them suffered from state sponsored violence. Lathi charge, molestation, tear gas etc were rapidly increasing so that people stopped the agitation. In such situation women came out not only in support of the agitation but also against such heinous acts of the Government forces. They started raising slogans like 'Indian army we donated blood, knitted wool to you in 1962, 1965, 1971. In return, you rewarded us with raping our mothers and sisters in 1980. Shame! Shame! As a result of it, at that time several Matribahinis were created to assist those who suffered during the agitation. SamajsewiMatribahin was one such organization who offered material help to those women who were either molested by Central Reserve Police Force (CRPF) jawans or lost family members. PurbanchaliyaMahila Sanstha, another organization that went from place to place, to offer medical and material support to those injured during the rallies or picketing.

Besides violence, women often became the centre of unwanted attention due to their participation in the agitation. In many instances, the women were criticized for their presence in the streets. Comments such as, 'women who agitated were manipulated by the male agitators' and 'women agitators in Narengi oil field were having pastry and tea as if they were on a picnic' were some of them. The increasing incidents of state-induced violence against women agitators made their family members to put restrictions on their joining the agitation. One of my respondent said that many a time she had to face police lathi charge and it was very difficult for her in sadar mekhela to run from the street. She said that as she was very active and she alone organized many awareness meetings about the agitations and protest rallies she came in the notice of the administration. So, she in order to avoid arrest used to hide in different places and many time she very carefully saved herself from being molested. Another respondent said that though she had not faced any exploitation in the hands of the CRPFs and Police but she shared an incident when she was very much apprehended as she was told to deliver a letter to one of the leader who was in hide at that time. She still remembers how she secretly delivered the letter in front of those CRPF and police officials. She believe if she was caught at that time she might also been molested.

**Conclusion:**

The anti-foreigners' agitation or the Assam movement is one of the important event of the history of post-independent India. It raised the issues of 'illegal immigration' from neighboring Bangladesh and showed a new face of Assamese sub-nationalism. It had far-reaching consequences in the socio-political scenario of the state. This movement had created the platform for the rise of regionalism in Assam. The radical group United Liberation Front of Asom (ULFA) was one of the direct result of this agitation as the movement failed to meet the expectations of the Assamese people. The subsequent Bodo movement was also a direct outcome of the rise of regionalism post-Assam agitation. Even the present CAA movement of Assam has a direct connection with it and the Assam accord.



The Assam Agitation added a new chapter in the history of Assam in terms of women's involvement and participation in a socio-political movement. In all the events women were there in equal numbers to their male counterparts. Women as well as men agitators were active during the Assam Agitation, but when it came to negotiate with the government about the exclusion of 'foreigners' there was no woman on the table. Thus, one-half of the agitators were completely ignored in the entire process of negotiation. It was totally hijacked by the male counter parts. In a United Nations report Kofi Annan has stated: 'Women make an important but often unrecognized contribution as peace educators in the families and in the society'. Though, that did not stopped women from their freewill to participate either in the active politics or in any forbidden radical groups. After the agitation we see unprecedented women involvement in ULFA as a combatant to fight against the 'Indian State'. In the Bodo movement also we see large number of women came out to the street demanding Bodo autonomy in the state. Even in the present CAA protest also we see women's extraordinary support and participation.

Apart from it, those women's associations that emerged in these six years many of these were dissolved after the agitation but a large number of these associations continued operating. These organizations, Mahila samitis still in operation in Assam and they gave women a sense of unity, togetherness and strength to stand against issues such as domestic violence, drunkard husbands or in other family issues. With the participation of the Assamese women in the movement the entire Assamese community got a fresh wave of enthusiasm which given a new dimension to the movement. Women from different social backgrounds participated in the movement that given a different meanings in their lives also. There were many women who were educated, doing their jobs but there were some women who before it never even came out of their households. For those educated young women it was an opportunity to raise their voices, a platform to serve their motherland which they believe was under threat. For the lower middle-class and illiterate women the agitation brought an opportunity to catch up with different sections of society and also an opportunity safeguards their homeland, their culture, their land from the 'bideshi'(infiltrator). Many women who could not come out of their household for different reasons used to raise their voices through their writings in the news papers or other magazines. Through their literary works they still took part in the agitation in the form of a literary protest.

In this paper an attempt is made to capture the role and the contribution that were made by the women in the Assam Movement. Also try to represent some women participants contribution towards the movement which were never been recognized and were lost in some numbers.

#### References:

- Report of the Fact Finding Committee Appointed by the Peoples' Union for Civil Liberties (PUCL) on Assam Unrest", Philosophy & Social Action, VI (I), 1980  
Ahmed Abu Naser Sayed, (Ed.), *Nationality Question in Assam*. The EPW 1980-81 Debate. Akansha Publishing House New Delhi, 2006  
Barman, Shivnath, Swadesh Swamat, a book on immigration problem of Assam Ranjan Sharma Bandhav, Panbazar, Guwahati, 1980



- Baruah, S.L.(1992)(Edt). *Status of women in Assam*. Delhi. New Delhi: Omsons Publication.
- Barpujari H.K., *North-East India: Problems, Policies And Prospects: Since Independence*, Spectrum Publications, Guwahati: 1998.
- Baruah, Chandra Nath, *Assamese Response to Regionalism*, Mittal publication, New Delhi 2009.
- Baruah Sanjib, *India against Itself: Assam and the Politics of Nationality*, Oxford University press New Delhi 2008
- Chaudhuri Sen Sucheta *The Bodo Movement and Women's Participation*, Mittal Publication, New Delhi, 1999
- Dole, Bhanu. (1980 January 28th). 'Jai AaiAxom' A poem published in DainikAsom. Guwahati.
- Front page report. (1979 November 15th). Published in newspaper DainikAsom. Guwahati.
- Front page report. (1979 November 19th). Published in newspaper DainikAsom. Guwahati.
- Front page report. (1980 February 28th). Published in newspaper DainikAsom. Guwahati.
- Front page report. (1980 March 8th). Published in newspaper DainikAsom. Guwahati.
- Front page report. (1980 July 11th). Published in newspaper DainikAsom. Guwahati
- Hussain Monirul, *the Assam Movement: Class, Ideology and Identity*, Manak Publication Delhi, 1993.
- Manchanda, Rita *Women's Agency in Peace Building: Gender Relations in post—Conflict Reconstruction*. Economic and Political Weekly XL(44-45), 2005
- Sharma, D., (1) *Assamese women in the freedom struggle*, Calcutta, 1993, pp 34–36.
- Sen Ilina (ed) *A space within the struggle women's participation in people's Movement*, Kali for women, New delhi, 1990.
- Nabanita Sharma (2017): *Role of Women during the Anti-Foreigners' Agitation in Assam 1979-1985*, *Journal of North East India Studies*, 7(2): 18-32.
- Karna, M.S. *Social Movements in North-East India* New Delhi: Indus Publishing Company, 1998.



## POLLUTION LEVEL ASSESSMENT OF AN URBAN STREAM USING BIOTIC INDICES AND WATER QUALITY INDEX IN CHANDIGARH (UT), INDIA

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### ABSTRACT

Monitoring of water quality in natural freshwater ecosystems is must for their management for which regular assessment of water quality can be done by calculating the water quality index (WQI) by regular water samplings and the same can be affirmed by biotic indices (BI). Current study was undertaken for the same purpose in an urban stream in Chandigarh (U.T.), N-Choe. WQI and BI were calculated for monthly samples clustered into seasons over a period of two years (July, 2016-June, 2018). Both WQI and BI indicated that the stream under study has undergone more pollution load over a year's span. Out of two stations, station 1 was found in better condition than station 2. Better species richness and more molluscan density was found in 1<sup>st</sup> year than 2<sup>nd</sup> and at station 1 than 2. At station 1, the values of various indices like H' (0-0.70); BMWP (2-15) and FBI (6.4-8) and WQI (61.48-77.24) indicated poor to very poor quality of water having impact of the pollution on molluscan biodiversity. At station 2 the values of H' was 0 in 5 out of 8 seasonal readings except for 1<sup>st</sup> year winter (0.11) and summer (0.68) and 2<sup>nd</sup> year winter (0.28). Other biotic indices like BMWP (0-12) and FBI (0-8) and WQI (85.93-103.5) also indicated that water at 2<sup>nd</sup> station is in more bad condition showing very poor molluscan faunal species richness and density. Overall the entire stream was showing the dominance of single pollution tolerant invasive species, *Physa acuta* followed by *Melenoidestuberculata* while remaining 5 (*Gyraulusconvexiusculus*, *Radix acuminata*, *Galba truncatula*, *Radix persica*, *Gyrauluseuphraticus*) were found as erratically occurring species.

**KEY WORDS:** N-Choe, Gastropods, Biotic Indices, Water Quality Index, BMWP, FBI, ANOVA

### INTRODUCTION

Chandigarh, the 1<sup>st</sup> planned city of post independent India, is internationally known for its architecture and urban design. Master plan of the city retained a few natural freshwater streams unaltered like Sukhna Choe and Patiala Ki Rao while the N-Choe was partly converted into a continuous green belt (Leisure Valley), by its Swiss – French architect Le Corbusier with a purpose to manage the surface water run-off from their catchments in monsoons and other rainy seasons along with natural recharge of sub-soil aquifers. The latter provide 20% of the city's water supply via tube wells. N-



Choe is one of the stream passing through the center of the city, its north to south slope provide natural drainage (Chandigarh master Plan 2031).

Currently all these seasonal drainages are suffering from pollution loads, mainly from the discharge of untreated municipal wastes, man-made encroachments, administrative negligence and resident's insensitivity leading to habitat destruction in these aquatic ecosystems. Mushrooming of slums on their banks, low availability of freshwater and high level of water pollution are some of the factors responsible for making these streams-an eye sore for the residents of this "City Beautiful". For the management of these freshwater seasonal rivulets, their continuous assessment becomes the need of the hour.

The quality of water in any type of water reservoir can be evaluated by assessing the physico-chemical analysis of its water (Matta et al. 2016) and calculating its water quality index (WQI) over a period. WQI indicates a composite impact of many water parameters (Chaurasia et al. 2018) and provide a dimensionless single number to express overall water quality at a certain time and location (Vinod et al. 2013) but the water quality keeps fluctuating and can be altered by naturally, climatically and anthropogenically induced factors (Shafakatullah et al. 2012). Surveillance of aquatic ecosystems can also be done by using the biological methods. Both freshwater fish and macroinvertebrates responds very well to any kind of stressors in their habitats (López-López, Sedeño-Díaz, 2015). Hence the holistic understanding of the aquatic ecosystem can be made by undertaking the physical, chemical and biological evaluation all together (Patang et al. 2018).

Benthic macroinvertebrates are generally used in bio-monitoring of both lentic and lotic ecosystems (Huang et al. 2015) and molluscs (Gastropods and Bivalves) are amongst the commonest representatives of this macro benthic fauna, found the most suitable for the purpose because of their longer longevity, lesser mobility, capability of re-establishment, accumulation of toxic metals etc. (Edler and Chollin, 1991). Freshwater molluscs, are found sensitive towards quality of water along with its flow and depth and hence are used as good bio indicators while assessing an aquatic ecosystems (9, 12, Gupta et al, 2015). This diverse shelled animal's group play multifaceted role in their respective ecosystem like controlling dynamics of trophic levels, functioning of ecosystem (Vaughn et al. 2004), regulating bio-geochemical cycle, cleansing agents and tools in bio monitoring programs (Seddon et al. 1998; Strong et al. 2007). Their quantitative and qualitative distribution can help in understanding the trophic status of water bodies (Clarke, 1979).

Current study is first of its kind in the urban stream in Chandigarh in which molluscan fauna and its water quality, both together are used as indicators of health of an ecosystem. The study of the pollution status of N-Choe carries a great importance as its existing condition not only posing stigma on city's aesthetics but has many other concerns like foul smell, mosquitoes breeding habitat, flooding the low-lying southern sectors in rainy seasons, use of this contaminated water for irrigation by the farmers downstream etc. Hence the regular monitoring of the Choe is need of the hour not only

for the management of a natural aquatic ecosystem but also for the public health concern.

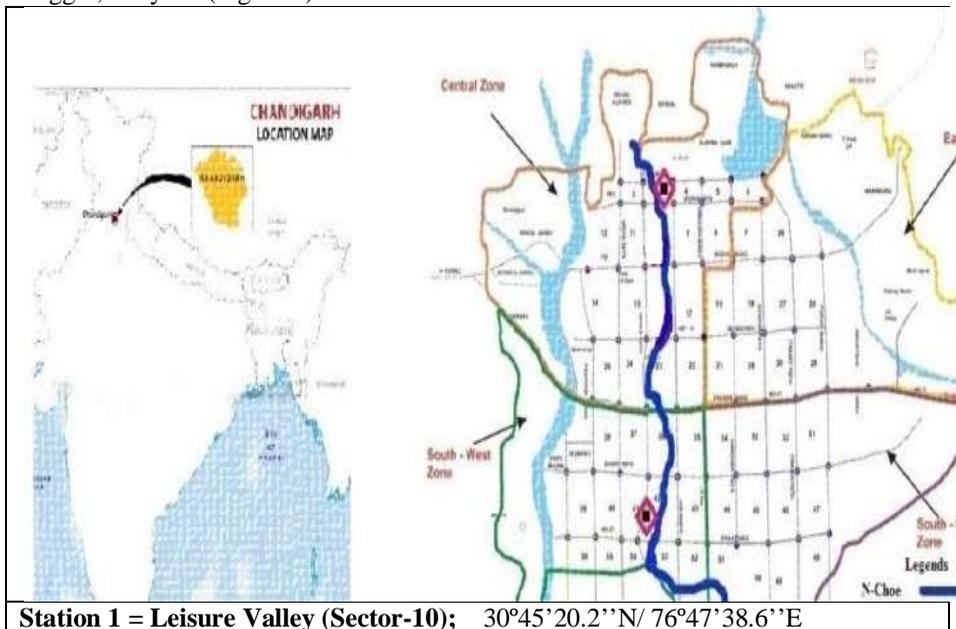
### OBJECTIVES OF THE STUDY

- To observe the seasonal changes in freshwater molluscan biodiversity (quantitatively and qualitatively) for a period of two year in N-Choe
- To analyse physic-chemical properties of water in the N-Choe during different seasons (Summer, Monsoon, Post Monsoon and Winter) for a period of two year to calculate the Water quality Index
- To apply different biotic indices on molluscan fauna in N-Choe
- To comparing biotic indices and water quality index for the assessment of pollution status in N-Choe

### METHODOLOGY

#### Study area and sampling sites

N-Choe is a natural, freshwater, seasonal and rain-fed rivulet (13.96 Km) passing through the center of the city beautiful, Chandigarh. Originating behind the Panjab-Haryana High Court in sector-3, flows from northeast to southwest direction (through sectors 5, 10, 16, 23, 42 and 53), enters Mohali (Panjab) and finally merges with River Ghaggar, Haryana (Figure 1).





**Figure 1:** Location of study area and sampling sites of N-Choe

**Sample Collection**

The water and soil samples were collected from above coordinate's site during first week of each month for a period of two years (July 2016 to June 2018). Each year was further divided into four seasons as prevailing in India i.e. Monsoon (July-August), Post Monsoon (September-October), Winter (November-February) and Summer (March-June). Water samples were collected in polyethylene bottles and were brought to the laboratory for the analysis of various selected physico-chemical parameters viz, Water current (WC), Dissolved Oxygen (DO), Temperature (T), Transparency (TRP), pH, Electrical Conductivity (EC), Total Dissolved Salts (TDS), Total Hardness (TH), Total



Alkalinity (TA), Chloride (Cl<sup>-</sup>), Nitrate (NO<sub>3</sub><sup>-</sup>) and Phosphate (PO<sub>4</sub><sup>-3</sup>). Few parameters like EC, pH and TDS were analyzed using digital meters while rest other parameters were analyzed using titration methods (APHA, 2012) within 24 hours.

Each soil sample (from 1<sup>2</sup>ft area) was collected in plastic bags and brought to the laboratory. The samples were sieved using standard sieve set (as per IS:460) of different mesh sizes (BSS 75mm, 44mm, 30mm, 10mm and 4mm), shells were handpicked from sieves, cleaned by soft brushes and living tissues were preserved in 5% formalin. The mollusks were identified up to species level, based on shell characteristics (Rao, 1989; Dey, 2007) and anatomical features (Taylor, 2003).

**Statistical analysis**

Biotic indices like Shannon Diversity Index (H'), Species Richness (SR), Simpson Diversity Index (D), Simpson Dominance Index (SD) and Pielou's Evenness Index (E) were calculated to compare the qualitative and quantitative variations in molluscan fauna during different seasons and between two different stations of N-Choe (Table 3). Shannon Diversity Index was also used to understand the level of pollution (Wilhm and Dorris, 1968) during different seasons at different sites of the N-Choe (Table 5). Other indices like Biological Monitoring Working Party Score (BMWP) and Family Biotic Index (FBI) were also used to understand the extent of organic pollution (Mandaville, 2002) in the said water body (Table 6 and 7). Water Quality Index (WQI) was calculated using Weighted Arithmetic Index method (Brown et al.1972) to assess the water quality status of N-Choe for the purpose of the utilization of the water (Table 8). One-way ANOVA was calculated using XLSTAT software to determine the significant difference in the physicochemical parameters of water during different seasons and between two sampling stations.

**RESULTS AND DISCUSSIONS**

**Seasonal fluctuations of malacofauna**

A total 1,103 shells of seven freshwater gastropod species were collected from two different stations of N-Choe in the two-year study period (Table 1). No bivalve was found from any station during this entire period.

**Table 1** List of Gastropod species collected from N-Choe

Species	Code	Station 1	Station 2
<i>Physa acuta</i>	Sp 1	+	+
<i>Melanoidestherculata</i>	Sp 2	+	+
<i>Radix acuminata</i>	Sp 3	+	-
<i>Radix persica</i>	Sp 4	+	-
<i>Galba truncatula</i>	SP 5	+	+
<i>Gyrauluseuphraticus</i>	Sp 6	+	-
<i>Gyraulusconvexiusculus</i>	Sp 7	+	-

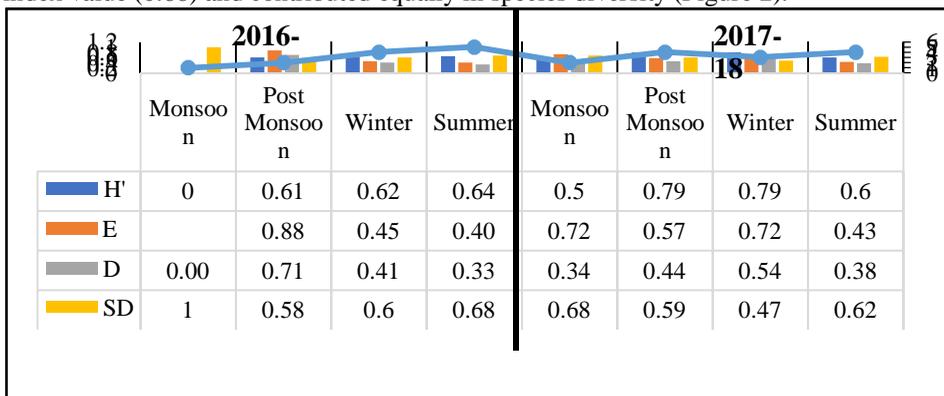
During the entire study period, dominance of two species i.e. *P. acuta* and *M. tuberculata* over rest of the five was observed during all seasons and at both stations. (Table 2 & 4)



**Table 2** Qualitative and Quantitative distribution of Gastropod species during summer, monsoon, post monsoon and winter season at station 1 of N-Choe

Station 1	Season	Sp1	Sp2	Sp3	SP4	Sp5	Sp6	SP7	Total
2016-17	Monsoon	3	-	-	-	-	-	-	3
	Post Monsoon	3	7	-	-	-	-	-	10
	Winter	197	70	1	-	-	1	-	269
	Summer	216	31	1	-	4	-	13	265
2017-18	Monsoon	14	56	-	-	-	-	-	70
	Post Monsoon	15	3	1	-	-	-	1	20
	Winter	58	59	3	-	-	-	-	120
	Summer	154	47	1	1	-	-	-	203

At station 1, winter (49.17%) and summer (48.44%) seasons exhibited rich molluscan density and richness in comparison to monsoon (0.54%) and post monsoon (1.8%) during 1<sup>st</sup> year samplings. The winter season was represented by 4 species with Sp 1 showing dominance followed by Sp 2 while Sp 3 and Sp 6 were represented by only single shells. The summer season was found supporting highest species richness (5 sp.) along with better abundance of Sp 7 followed by Sp5 while Sp 3 again was represented by only single shell. Post monsoon was the only season during entire study which endorsed the out numbering of Sp 2 over Sp 1. Despite of higher species richness in summer season, the simpson diversity index (0.33) value was found to be lowest because of higher dominance index value (0.68) and low evenness index value (0.4) witnessed that out of 5 sp. one or two sp. were found dominating while other sp. were recorded in very low numbers, hence do not contribute towards species diversity. While in post monsoon season species richness was lowest but diversity was found to be highest because the two reported sp. were more evenly distributed with higher evenness index value (0.88) and contributed equally in species diversity (Figure 2).

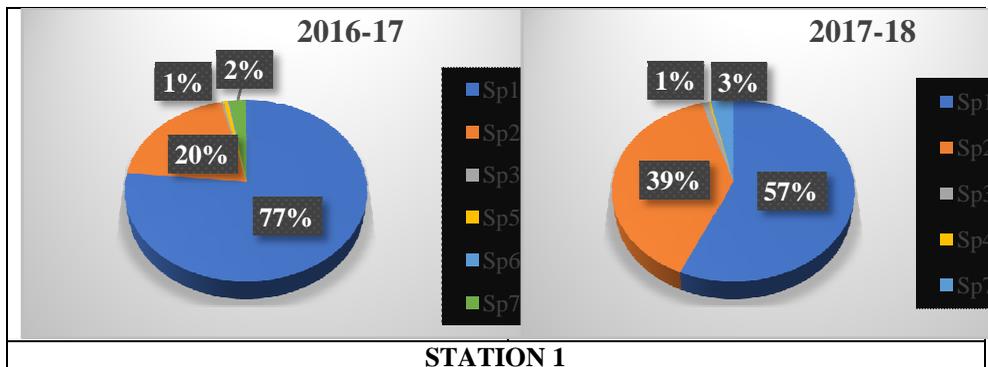


**Figure 2** Seasonal representation of different biotic indices at station 1 of N-Choe for two years

**Table 3** Biotic indices formulas and ranges

Biotic Index	Formula	Range
Shannon Wiener Index (H')	$\sum P_i \ln P_i$	0 – 3.5<
Pielou's Evenness Index (E)	$H/\ln S$	0 – 1
Simpson Diversity Index (D)	$1 - \sum n(n-1)/N(N-1)$	0 – 1
Simpson Dominance (SD)	$\sum (n_i/N)^2$	0 – 1

In the 2<sup>nd</sup> year also, summer favored molluscan community (49.15%) followed by winter (29.05%), monsoon (16.94%) and post monsoon (4.84%). Maximum species richness (4) was observed during summer along with post monsoon season, though post monsoon witnessed least number of shells. Both summer and post monsoon season witnessed single representative of (Sp 3, Sp 4) and (Sp 3 and Sp 7) respectively. Maximum species diversity was recorded during winter season (0.54) since species were found more evenly distributed and less dominance was observed (Figure 2). Though Sp 1 and Sp 2 were found in abundance at station 1 but the two were found showing reciprocal density relationship with each other. Decline in Sp 1 population in the 2<sup>nd</sup> year favored Sp 2 to multiply. Overall the maximum species richness and density observed in 1<sup>st</sup> year showed that conditions were more suitable for molluscan fauna than in 2<sup>nd</sup> year (Figure 3).



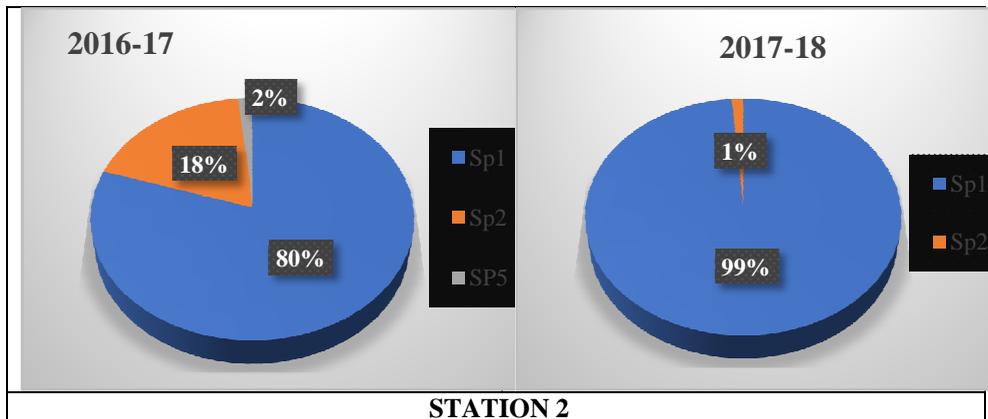
**Figure 3** Yearly distribution of different species of freshwater molluscs at station 1 of N-Choe

Station 2 was found having poor mollusc fauna than station 1 during both years, both in terms of density and richness (Table 4). At station 2 only 12.96% of fauna was found in the span of two years in comparison to station 1 (87.03%). Out of seven species found at station 1 only three (Sp 1, Sp 2 and Sp 5) were collected from station 2. Sp 5 was found in unit number only in summer season of 1<sup>st</sup> year.

**Table 4** Qualitative and Quantitative distribution of Gastropod species during summer, monsoon, post monsoon and winter season at station 2 of N-Choe

Station 2	Season	Sp1	Sp2	Sp5	Total
2016-17	Monsoon	-	-	-	-
	Post Monsoon	-	9	-	9
	Winter	42	1	-	43
	Summer	10	2	1	13
2017-18	Monsoon	9	-	-	9
	Post Monsoon	-	-	-	-
	Winter	11	1	-	12
	Summer	57	-	-	57

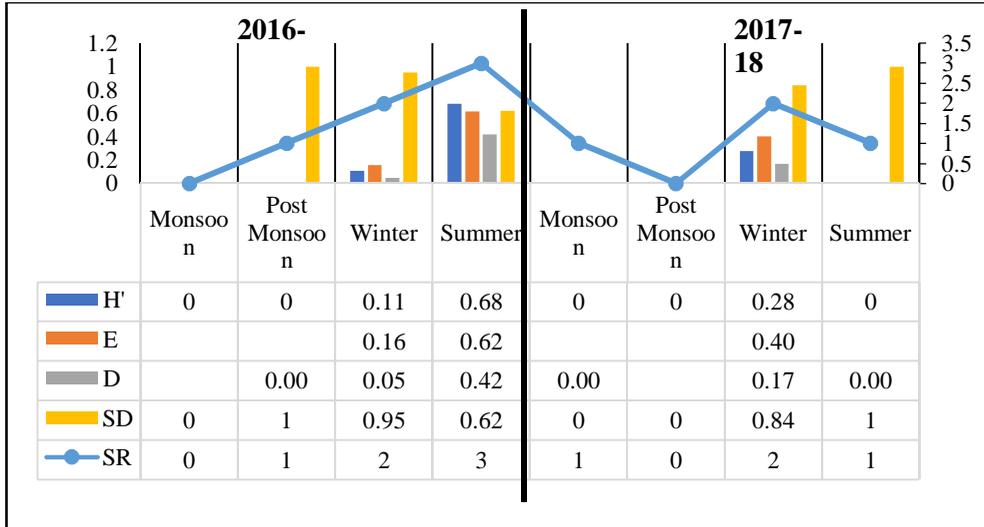
During 1<sup>st</sup> year summer, all three species were found but in lesser density (20%) while more molluscan community density (66.15%) was recorded in winter seasons with an absolute dominance of Sp 1 (Table 4). In monsoon samples no molluscan shell could be recovered while in post monsoon only 13.84% of total molluscan fauna was recovered from soil samples and was represented by only Sp 2.



**Figure 4** Yearly distribution of different species of freshwater molluscs at station 2 of N-Choe

2<sup>nd</sup> year samples showed the presence of only two species (Sp 1 & 2) but in higher number (54.54%) than 1<sup>st</sup> year (45.45%). Out of four seasons, a single shell of Sp 2 was found only in winter. Rest in all three seasons, Sp 1 was the sole species representing itself. 2<sup>nd</sup> year summer was again found a favorable season with 73.07% of the total fauna of the year with an absolute representation of Sp 1. Though the second year collection was found little higher than 1<sup>st</sup> year, but the presence of Sp 1 which is a very pollution tolerant species indicates the poor state of water quality (Figure 4). Present study findings went similar with the finding of other ecologists (Sheriiff and Delool,

2001; Dillon and Wethington, 2004; Kefford and Nugegoda, 2005; Stewart, 2006; Turner and Montgomery, 2009).



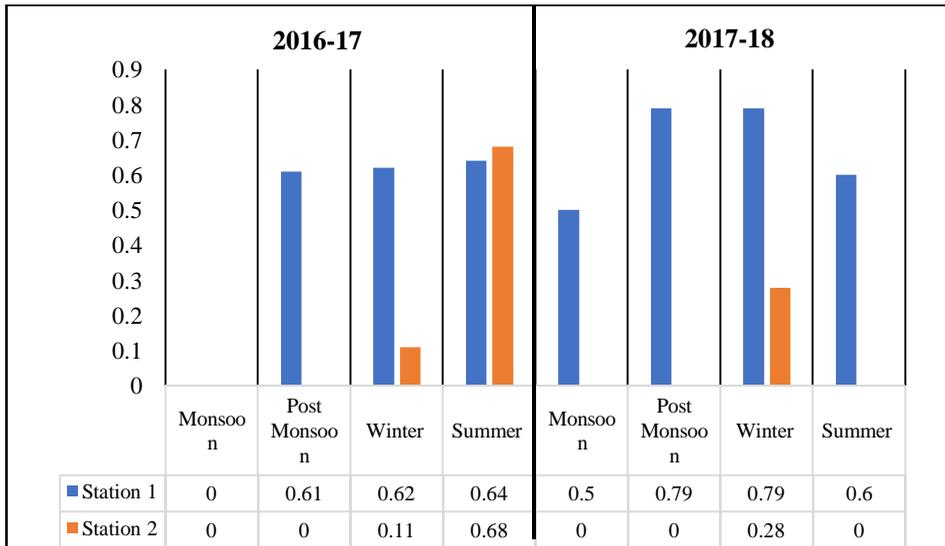
**Figure 5** Seasonal representation of different biotic indices at station 2 of N-Choe for two years \*Shannon Wiener Index (H'), Pielou's Evenness Index (E), Simpson Diversity Index (D), Simpson Dominance Index (SD), Species Richness (SR)

### Biotic Indices for pollution level assessment

Various biotic indices like H', BMWP and FBI were used to assess the level of pollution at different stations of N-Choe during different seasons.

### Shannon Wiener Diversity Index (H')

Values of H' helps us in understanding the levels of pollution (unpolluted or moderately or polluted). In the present study it was found on the basis of H' values (0 - 0.79) both the stations were found having polluted water (Figure 6) in almost all seasons. Station 1 (0 - 0.79) had shown little better condition than station 2 (0 - 0.68). Conditions in the Choe improved little bit over the year with its H' values rising from 0 - 0.64 (2016-17) to 0.5 - 0.79 (2017-18) which indicated that in post monsoon and winter seasons of 2<sup>nd</sup> year, the water quality improved from polluted to moderately polluted state. The worst conditions of water quality was observed in monsoon season (0 - 0.5) at both stations. Higher values of H' in winter (0.62 - 0.79) and summer (0.6 - 0.64) seasons indicated comparatively lesser pollution levels at both stations. At station 2, the water was found in much polluted state (0 - 0.28) except in summer season (0.68) where the water was observed showing marginally moderate pollution.



**Figure 6** Shannon Wiener Index results of both stations during different seasons of 1<sup>st</sup> and 2<sup>nd</sup> year

**Table 6** Shannon Wiener Index Scale (Wilhm and Dorris, 1966)

Base	Unpolluted	Moderate	Polluted
Log <sub>2</sub>	>3	1-3	<1
Ln	>2.08	0.69-2.08	<0.69
Log <sub>10</sub>	>0.90	0.30-0.90	<0.30

### Biological Monitoring Working Party Score (BMWP)

BMWP scores help us in understanding the water quality status and extent of pollution as well. Current study indicated that both stations fall under poor to very poor category hence reflected the presence of heavy load of pollution and the levels of pollution had impacted the faunal diversity and density as well (Figure 7). At station 1, during 1<sup>st</sup> year BMWP range varied from 2 – 15 with lower values in monsoon (2) and post monsoon (8) where water quality falls under very poor category and was also supported by low species richness (Figure 2). A little improvement in the water quality was observed in winter (12) and summer (15) which was found favoring more species richness.

In 2<sup>nd</sup> year sampling, water quality during monsoon season (8) was again found under very poor category with minimum species richness. While post monsoon (15), winter (12) and summer (12) season witnessed slight improved water quality with little higher species richness. The rise in BMWP score at station 1 during second year could be attributed to the cleanliness drive undertaken by the local administration.

At station 2, the values of BMWP ranged from 0 – 12 which reflected very poor water quality conditions during the entire study except for the summer season of 1<sup>st</sup> year (BMWP=12) where water quality improved from very poor to poor status (Figure 7). The summer season of 1<sup>st</sup> year also favored the maximum species richness (Figure 2).



The zero value of BMWP at station 2 during monsoon season of 1<sup>st</sup> year and post monsoon season of 2<sup>nd</sup> year proved the worst conditions by the absence of any kind of molluscan fauna. Cota et al. (2002) reported that high value of BMWP score for any water body showed that tolerance of organism to pollution is low. While the present study recorded low BMWP score which indicated the presence of *P. acuta* and *M. tuberculata* as high pollution tolerant species. Capitulo et al. (2001) also reported that Physidae family is very tolerant to pollution. *P. acuta* was reported as an indicator of organic pollution to critical degrees by many coworkers (Gollardo et al. 1994; Kalyoncu and Yildirim, 2009).

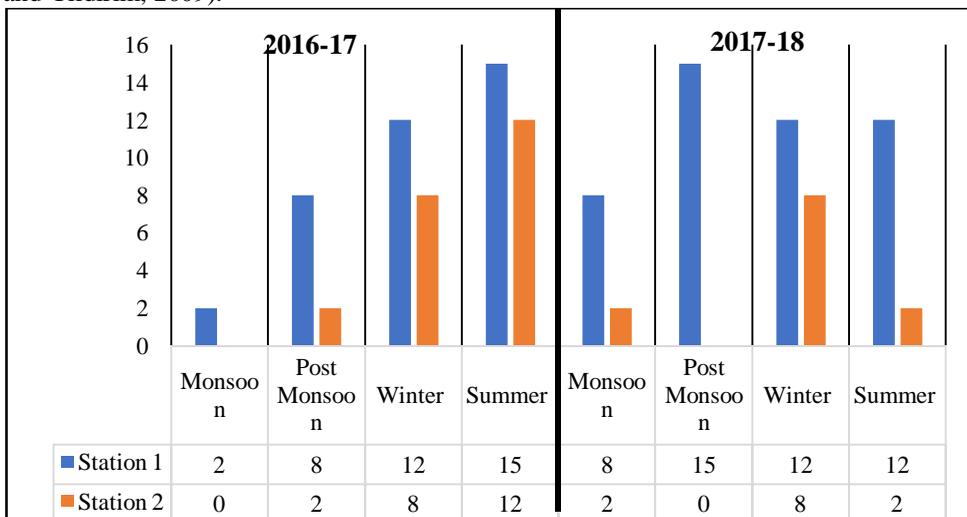


Figure 7 BMWP results of both stations during different seasons of 1<sup>st</sup> and 2<sup>nd</sup> year

Table 6 BMWP range, status and extent of pollution (Mandaville, 2002)

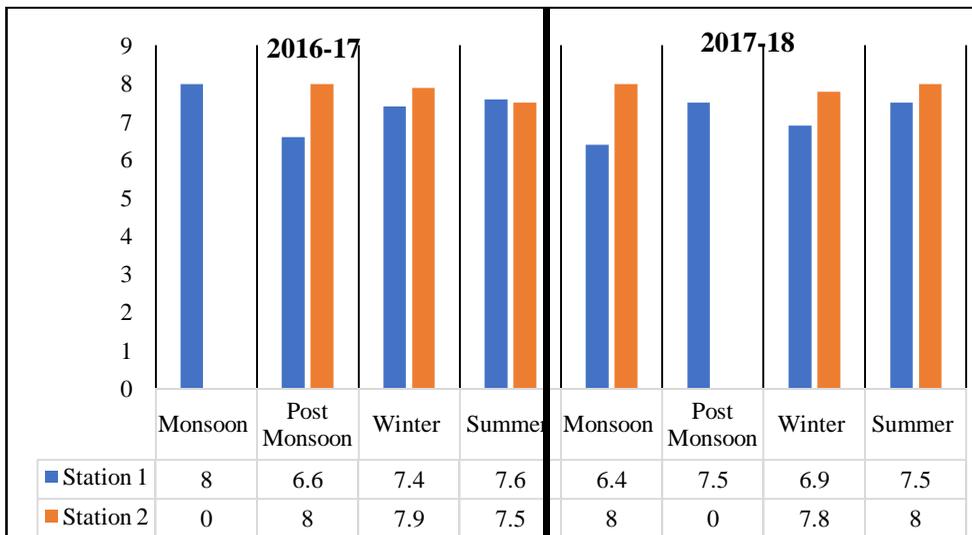
BMWP Range	Water Quality status	Extent of pollution
0-10	Very poor	Heavily polluted
11-40	Poor	Polluted or impacted
41-70	Moderate	Moderately impacted
71-100	Good	Clean but slightly impacted
>100	Very good	Unpolluted, un-impacted

### Family Biotic Index (FBI)

It provides a means of assessing water quality using macro invertebrate fauna. Where, each individual taxa are assigned a pollution tolerance value based on taxon's tolerance to organic pollution. At station 1, 1<sup>st</sup> year score of FBI during monsoon (8), post monsoon (6.6), winter (7.4) and summer (7.6) season falls within the range of poor and very poor category (Figure 8). The higher FBI score in monsoon season was solely due to the occurrence of highly tolerant species *P. acuta*. While the minimum FBI value in post monsoon is due to dominance of less tolerant species *M. tuberculata* over *P. acuta*. 2<sup>nd</sup> year results showed slight better scenario where monsoon (6.4) season indicated fairly poor again due to the dominance of *M. tuberculata* over *P. acuta* and winter (6.9)



seasons indicated poor water quality, where both species were found in equal abundance. Summer (7.5) and post monsoon (7.5) season witnessed very poor water quality with high FBI score due to the dominance of *P. acuta* over other species. Station 2 was continuously reported with high FBI score (7.15 – 8) during different season and showed very poor water quality. The zero FBI score which indicated excellent water quality reported during monsoon and post monsoon season of 1<sup>st</sup> and 2<sup>nd</sup> year respectively was due to the absence of any molluscan species and hence may not be considered as a true indicator of water quality status. All diversity indices in unison projected that N-Choe is in a bad state and the water quality at station 2 is worst.



**Figure 8** FBI results of both stations during different seasons of 1<sup>st</sup> and 2<sup>nd</sup> year

**Table 7** Family-level Biotic Index range, status and extent of organic pollution (Mandaville, 2002)

FBI range	Water quality status	Extent of organic pollution
0.00-3.75	Excellent	Organic pollution unlikely
3.76-4.25	Very good	Possible slight organic pollution
4.26-5.00	Good	Some organic pollution probable
5.01-5.75	Fair	Fairly substantial pollution likely
5.76-6.50	Fairly poor	Substantial pollution likely
6.51-7.25	Poor	Very substantial pollution likely
7.26-10.00	Very poor	Severe organic pollution likely

**Water Quality Index for pollution level assessment**

The WQI values of water samples of station 1 and station 2 during different seasons for two years (Figure 9) helped in understanding the water quality status so that water's specified usage can be assessed for the N-Choe. In 1<sup>st</sup> year, maximum WQI value at station 1 was observed during summer (77.02) followed by winter (71.94) and both of the seasons witnessed the maximum density of molluscan fauna with the dominance of high pollution tolerating species (*P. acuta*). Post monsoon (63.48) and monsoon (61.48) season showed better water quality but very low density of molluscan fauna which happened due to flushing out of molluscan fauna with heavy water flow. WQI values were found to be higher during the second year at both stations except the summer season. The water quality during different seasons witnessed poor water quality except for summer season of 1<sup>st</sup> year which falls under very poor category.

At station 2, summer season of 1<sup>st</sup> year witnessed the maximum WQI value (103.5) which showed that the water in the water body was found unsuitable for any usage, the finding was supported by the presence of very low molluscan density during the same seasons. It was followed by monsoon (91.4) which falls under very poor category of water quality and absence of any molluscan shell aging complement the results. Post monsoon (86.13) and winter season (85.93) also falls under the category of very poor water quality but winter season favored maximum molluscan density observed during the entire 1<sup>st</sup> year but the species found (*P. acuta*) in higher number had higher pollution tolerance value. In 2<sup>nd</sup> year, maximum WQI was observed during monsoon (101.9) while minimum in post monsoon season (92.83). Water quality at station 2 falls under very poor category during different seasons of both study years except for the summer and monsoon season of 1<sup>st</sup> and 2<sup>nd</sup> year respectively where the water in the stream was found unsuitable for drinking and need treatment before its any kind of usage.

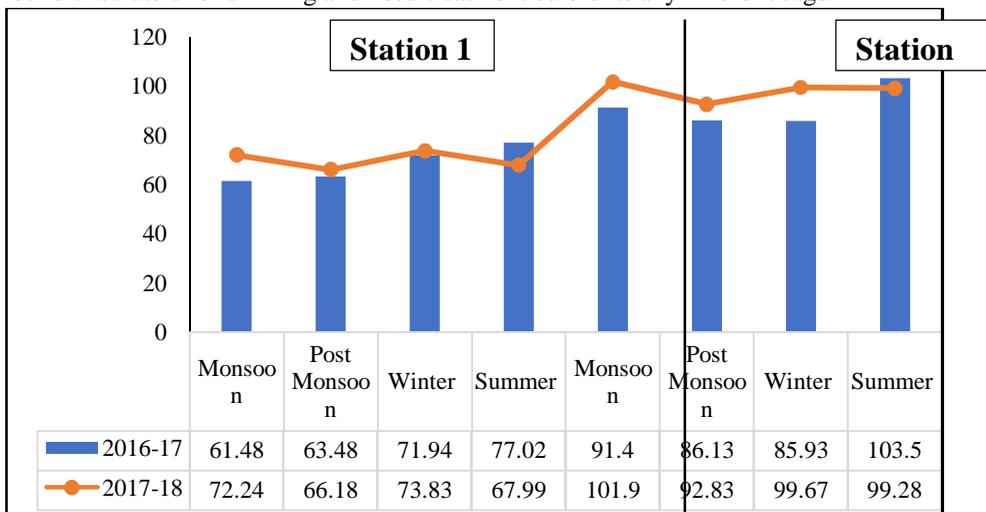


Figure 9 Water Quality Index (WQI) results of both stations during different seasons of 1<sup>st</sup> and 2<sup>nd</sup> year

Table 8 Water Quality Index range, status and usage of water Brown et al. (1972)



WQI range	Water quality status	Usage
0-25	Excellent	Drinking, irrigation and industrial purpose
26-50	Good	Drinking, irrigation and industrial purpose
51-75	Poor	Irrigation and industrial purpose
76-100	Very poor	Irrigation purpose
>100	Unsuitable for drinking	Proper treatment required for any kind of usage

WQI values of station 1 which was upstream during different seasons were found to be lesser than the downstream i.e. station 2 showing increase in pollution level while moving downstream. This may be due to the accumulation of pollutants, absence of any riparian vegetation, more human interventions, sewage disposal and low level of water along the downstream. The similar results were also observed by Ewaid, (2017) where he found better quality at upstream than downstream. Whereas Akumtoshi et al. (2020) and Bora and Goswami, (2017) reported better water quality in downstream as compared to upstream in their respective studies. The results overall indicated that the quality of water samples during different selected seasons at both stations falls under poor and unsuitable for any usage category.

**one-way ANOVA**

One-way analysis of variance (ANOVA) was calculated to compare whether there is any significant difference in physic-chemical parameters of water quality and gastropod species at both stations during different seasons as well as also between two stations under study. The results of ANOVA showed that the *F* calculated value at station 1 and station 2 during each year was found to be higher than *F* critical value (Table 9). The *p* value comes out to be less than 0.05 for both stations and during each year. On the basis of this result we will not accept the null hypothesis and accepts the alternate hypothesis. And this indicates that there is a significant difference amongst the water quality parameters and malacofauna during different seasons.

**Table 9** one-way ANOVA results for different seasons at station 1 and station 2 for 1<sup>st</sup> and 2<sup>nd</sup> year

STATION 1 (16-17)						
Source of Variation	SS	df	MS	F	P-value	F critical
Between Groups	259310.8524	13	19946.98865	27.69736127	1.99049E-16	1.9612184
Within Groups	30247.41293	42	720.1764983			
Total	289558.2654	55				
(17-18)						
Between Groups	342554.7842	13	26350.36802	33.81121639	4.97775E-18	1.961218



						4
Within Groups	32732.1988 1	42	779.338066 9			
Total	375286.983 1	55				
<b>STATION 2 (16-17)</b>						
Between Groups	1208575.69 6	13	92967.3612 5	115.767588 8	1.5779E-28	1.96 1218 4
Within Groups	33728.1722 1	42	803.051719 4			
Total	1242303.86 8	55				
<b>(17-18)</b>						
Between Groups	1142361.96 3	13	87873.9971 5	60.0665479 1	7.92105E-23	1.96 1218 4
Within Groups	61443.6489	42	1462.94402 1			
Total	1203805.61 2	55				

ANOVA results between physic-chemical variables of water between station 1 and station 2 also proves that both stations witnessed a significant difference in their water quality. Here also the calculated  $F$  value (7.46) was higher than the  $F$  critical value (2.35) and the  $p$  value (.0001) was less than 0.05 (Table 11). Therefore, we will not accept the null hypothesis again which supports that there will be no difference between the water quality and gastropod species distribution at two station under study.

**Table 10** one-way ANOVA results between station 1 and station 2

Source of Variation	SS	$d$ $f$	MS	$F$	$P$ -value	$F$ critical
Between Groups	339030.54 28	1 5	22602.036 18	7.4695945 82	0.0001231 57	2.3522227 63
Within Groups	48413.950 04	1 6	3025.8718 78			
Total	387444.49 28	3 1				

### CONCLUSION

In the present study, there were fluctuations in water quality and distribution of molluscan fauna at different stations of N-Choe and was due to the change in physico-chemical properties of water, water flow and water depth during different seasons. The ecological conditions of the choe were found not in a condition to favor rich malaco-diversity. Both sites were found to show a very little molluscan diversity. Time spent for



the study witnessed occurrence and abundance of the most tolerant invasive (Indian) pulmonate i.e., *P. acuta*. Other tolerant indigenous species (*M. tuberculata*) was the second most abundant mollusc. Rest of the species were reported very erratically and in meager percentage. Different biotic indices as well water quality index stated that the Choe was in its worst state especially at station 2. The entire surface run offs along with discharge of untreated sewage waste pollute the stream with organic and inorganic effluents.

#### ACKNOWLEDGEMENT

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#### REFERENCES

1. Apha, A. W. W. A. (2012). WEF.(2012). *Standard methods for the examination of water and wastewater*, 22.
2. Bora, M., &Goswami, D. C. (2017). Water quality assessment in terms of water quality index (WQI): case study of the Kolong River, Assam, India. *Applied Water Science*, 7(6), 3125-3135.
3. Brown, R. M., McClelland, N. I., Deininger, R. A., & O'Connor, M. F. (1972). A water quality index—crashing the psychological barrier. In *Indicators of environmental quality*(pp. 173-182). Springer, Boston, MA.
4. Capitulo, A. R., Tangorraa, M., &Ocónb, C. (2001). Use of benthic macroinvertebrates to assess the biological status of Pampean streams in Argentina. *Aquatic Ecology*, 35, 109-119. (Chandigarh master Plan2031) <http://chandigarh.gov.in/cmp2031/ecology.pdf>
5. Chaurasia, A. K., Pandey, H. K., Tiwari, S. K., Prakash, R., Pandey, P., & Ram, A. (2018). Groundwater quality assessment using water quality index (WQI) in parts of Varanasi district, Uttar Pradesh, India. *Journal of the Geological Society of India*, 92(1), 76-82.
7. CLARKE, A. H. (1979). Sphaeriidae as indicators of trophic lake stages.
8. Cota, L., Goulart, M., Moreno, P., &Callisto, M. (2002). Rapid assessment of river water quality using an adapted BMWP index: a practical tool to evaluate ecosystem health. *Internationale Vereinigungfürtheoretische und angewandteLimnologie: Verhandlungen*, 28(4), 1713-1716.
9. Dey, A. (2007). *Handbook on Indian freshwater molluscs*. AICOPTAX--Mollusca, Zoological Survey of India.
10. Dillon Jr, R. T., & Wethington, A. R. (2004). No-choice mating experiments among six nominal taxa of the subgenus *Physella* (Basommatophora: Physidae). *Heldia*, 6, 69-78.
11. Elder, J. F., & Collins, J. J. (1991). Freshwater molluscs as indicators of bioavailability and toxicity of metals in surface-water systems. In *Reviews of Environmental Contamination and Toxicology* (pp. 37-79). Springer, New York, NY.
12. Ewaid, S. H. (2017). Water quality evaluation of Al-Gharrafriver by two water quality indices. *Applied Water Science*, 7(7), 3759-3765.
13. Gallardo-Mayenco, A. (1994). Freshwater macroinvertebrate distribution in two basins with different salinity gradients (Guadalete and Guadaira river basins, south-western Spain). *International Journal of Salt Lake Research*, 3(1), 75-91.
14. Gupta, K., Nandy, A., Banerjee, K., &Talapatra, S. N. (2015). Biomonitoring of river Ganga bank by identifying mollusc species as an indicator. *International Letters of Natural Sciences*, 37.



15. Huang, Q., Gao, J., Cai, Y., Yin, H., Gao, Y., Zhao, J., ...& Huang, J. (2015). Development and application of benthic macroinvertebrate-based multimetric indices for the assessment of streams and rivers in the Taihu Basin, China. *Ecological Indicators*, 48, 649-659.
16. Kalyoncu, H., &Yıldırım, M. Z. (2009). Species composition of mollusca in the Aksu River system (Turkey) in relation to water quality. *Fresenius Environmental Bulletin*, 18(8), 1446-1451.
17. Kefford, B. J., & Nugegoda, D. (2005). No evidence for a critical salinity threshold for growth and reproduction in the freshwater snail *Physa acuta*. *Environmental Pollution*, 134(3), 377-383.
18. Lkr, A., Singh, M. R., & Puro, N. (2020). Assessment of water quality status of Doyang River, Nagaland, India, using Water Quality Index. *Applied Water Science*, 10(1), 1-13.
19. López-López, E., &Sedeño-Díaz, J. E. (2015). Biological indicators of water quality: The role of fish and macroinvertebrates as indicators of water quality. In *Environmental indicators* (pp. 643-661). Springer, Dordrecht.
20. Mandaville, S. M. (2002). *Benthic macroinvertebrates in freshwaters: Taxa tolerance values, metrics, and protocols*(Vol. 128). Nova Scotia: Soil & Water Conservation Society of Metro Halifax.
21. Matta, G., Kumar, A., Walia, A., Kumar, S., Mishra, H. K., Dhingra, G. K., ...& Wats, M. (2016). Quality estimation of ground water in industrial state of Uttarakhand. *Pollution Research*, 35(4), 849-854.
22. Patang, F., Soegianto, A., &Hariyanto, S. (2018). Benthic macroinvertebrates diversity as bioindicator of water quality of some rivers in East Kalimantan, Indonesia. *International Journal of Ecology*, 2018.
23. Seddon, M. B., Killeen, I. J., Bouchet, P., &Bogan, A. E. (1998). Developing a strategy for molluscan conservation in the next century. *Journal of Conchology*, (2), 295-298.
24. Shafakatullah, N., Lobo, R. O., Krishnamoorthy, M., &Thippeswamy, S. (2012). A study on the diversity of freshwater bivalves in the rivers of Karnataka and Kerala, South India. *Scientific Transactions in Environment and Technovation*, 5(4), 212-214.
25. Sheriiff, H. A., &Delool, R. A. (2001). A comparative study of Ecological and genetical adaptation of three Iraqi fresh water snails in respect to heavy metal pollution. *Bulletin of the Iraq Natural History Museum*, 9(3), 69-76.
26. Stewart, T. W. (2006). The freshwater gastropods of Iowa (1821-1998): Species composition, geographic distributions, and conservation concerns. *American Malacological Bulletin*, 21, 59.
27. Strong, E. E., Gargominy, O., Ponder, W. F., &Bouchet, P. (2007). Global diversity of gastropods (Gastropoda; Mollusca) in freshwater. In *Freshwater animal diversity assessment* (pp. 149-166). Springer, Dordrecht.
28. Subba Rao, N. V. (1989). Handbook, freshwater molluscs of India.
29. Taylor, D. W. (2003). Introduction to Physidae (Gastropoda: Hygrophila); biogeography, classification, morphology. *Revista de biología tropical*, 1-287.
30. Turner, A. M., & Montgomery, S. L. (2009). Hydroperiod, predators and the distribution of physid snails across the freshwater habitat gradient. *Freshwater biology*, 54(6), 1189-1201.
31. Vaughn, C. C., Gido, K. B., & Spooner, D. E. (2004). Ecosystem processes performed by unionid mussels in stream mesocosms: species roles and effects of abundance. *Hydrobiologia*, 527(1), 35-47.
32. Vinod, J., Satish, D., &Sapana, G. (2013). Assessment of water quality index of industrial area surface water samples. *International Journal of ChemTech Research*, 5(1), 278-283.
33. Wilhm, J. L., &Dorris, T. C. (1968). Biological parameters for water quality criteria. *Bioscience*, 477-481.



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## CREATIVITY AND INNOVATION POSSIBLE WITH HEALTHY AND MEDITATIONAL AWAKED MIND

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### ABSTRACT

The brain broadly differentiated into three parts like Conscious mind, Subconscious mind and Unconscious mind, which are responsible for control all the activity of our body. Our brain works 24 hours without taking any rest, so it is very important to awake and sharp our mind and make active our brain through many activities like chanting, yoga and meditation. These activities arose in the age of Vedas and Upanishad. These are India's oldest scientific complete spiritual discipline. Through all these activities we can trained our mind and developed its power of subtle perception by doing yoga we can realise our hidden strength through meditation we can explore our spiritual life. In meditation it is the simplest way to increase eternal power and it does not need any special requirement during meditation only sit calm and don't doing anything physically and mentally and focus your mind on a particular thing which full of consciousness and this process is called Meditation. The simplest way of spiritual meditation is the chanting of word Aum. Chanting of Aum can helps in removal of body's Stress and Incorporate New Positive Energy in your body. While Modern Science tends to look outward through experimental model, the ethetics of Yoga Meditation and Chanting enables us to stretch the depth of our own self. Stress is an unavoidable and constant feature throughout the lifetime, induces autonomic dysfunction for which meditation is examined to be antidote. With the help of these magical remedies our physical and mantle health may becomes strong and result in long healthy and happy living.

**KEYWORDS:** Esthetics, Conscious, Subconscious, Unconscious, Yoga, Meditation.

### 1. PARTS OF MIND

- a. **Conscious Mind:** - In our daily life while we are in awaken state conscious mind is responsible for our thinking and acting. For example- Driving, talking, and studying whatever we do when we are active. It is powerful but it is dependent on the subconscious mind in large amount (Prasad *et al* 2014)
- b. **Subconscious Mind:** - One of the most powerful information processor known is our subconscious mind. It observes all the internal awareness of our body, the conscious mind focuses on a finite scope of activities and information but the subconscious mind is virtually infinite in the amount of information it can process. In fact in our daily life most of what we see, hear is controlled and kept by the subconscious mind. Scientist evaluate that about 95% of what we do is regulated by our subconscious mind (Kartheek, 2014)

- c. **Unconscious Mind:** This part of our Mind remains asleep throughout our lifetime at the bottom of our consciousness. That part of our mind is goes back million of years to the reptilian days in our evolutionary history and it is the most primitive mental construct (Naskar, 2016).

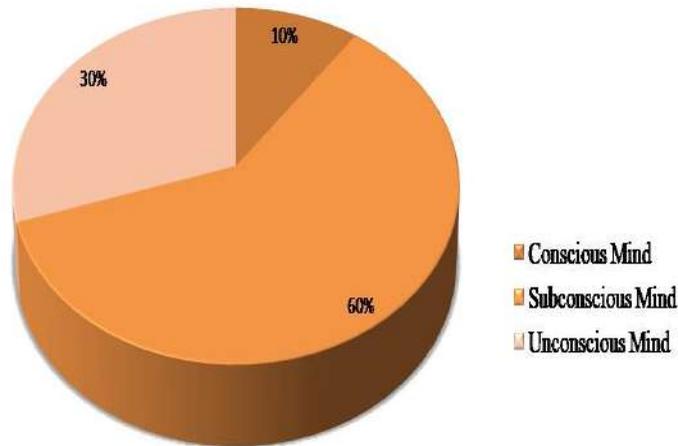


Fig.1. Showing the percentage of Conscious, Subconscious and Unconscious Mind

## 2. INTRODUCTION OF YOGA

When we create balance in our body by developing both strength and flexibility is called yoga. In this modern age man has become a machine, working all the day from morning till sunset. Yoga helps to promote a healthy and balanced life (Bhomavat, 2015). There is many other type of physical well being. In the present scenario flexibility is very important for all of us because the hardness and rigidness of our body naturally affect our mind (Woodyard, 2011). To attain a flexible body, yoga practice is necessary, through the various remedial techniques of yoga we can pluck out this root cause and can provide health and harmony (Bharshankar *et al*, 2015). Good physical health and relaxed self consciousness are not just techniques. Through yoga we can learn the cultivation of mindfulness in our daily life, reducing distraction and painful attachments (Saeed *et al*, 2010). Problems such as inability of movements, inability to concentrate and poor breathing habits become less obstructive to inner spiritual growth (Brown and Gerbarg, 2005). Yoga leads us to a spontaneous lightness of body and mind, natural bliss and freedom from despair (Koundinya and Koundinya, 2014).

## 3. TYPES OF YOGA

**3.1 Astanga Yoga :** Yoga sutra is the basis of Astanga yoga. Astanga word is made up of two Sanskrit words that are Ashta and Anga. Ashta means eight and Anga means limb. So it means eight limbs path (Butler *et al*, 2008)

Name of eight limbs of Astanga yoga: Yama, Niyama, Asana, Pranayama, Pratyahara, Dhrana, Dhyana and Samadhi (Devi *et al* 1986).



**3.2 Hatha Yoga:** The term Hatha yoga has been commonly used to describe the practice of asana. Hatha yoga is made up of two Sanskrit words that is Ha and Tha, Ha denotes vital force and Tha denotes mental force (Rajakchanda et al 2016). In other words the Hatha Yoga purifies our body system (Rupraiet al, 2013). With the help of Hath yoga our mind is prepared for Kundalini Yoga. The Hatha Yoga system includes Asana, Mudras and Pranayama (Sivsankaranet al, 2006).

**3.3 Mantra Yoga:** Mantra yoga is origin from Vedic sciences. In fact all the poetry or rhymes in Vedas are called Mantras (Gurjar et al, 2009). It is scientifically proved that a person who can chant Aum or Vedas can achieve the spiritual intelligence and supreme consciousness (Denninger et al, 2016).

**3.4 Bhakti Yoga:** Bhakti Yoga is the yoga of worship or devotion. This worship is generally for the God in any of the form. It may be lord Shiva, Rama, Christ, Mohammad, Guru Nanak etc. This also may be a guru for his follower (Telleset al, 2009).

**3.5 Karma Yoga:** It is the path of devotion to the work, when we loose our identity while working, only altruistic work remains. This state is very difficult to achieve (Kondamet al 2015). In the initial stage of Karma yoga human control their strong scenes of ego and consciously and unconsciously he is attached to the fruit of his efforts, but by constant involvement in the work and change in intellectual attitude (Thirumaran, and Balaji 2015). We can surely disassociate our self from the ego and our own personality. In this state, the work becomes worship to the God (Singh and Pandey, 2013).

**3.6 Jnana Yoga:** Jnana yoga is the process of converting mental knowledge into practical scenes (Bal BS 2010). Jnana literally means knowledge but in the science of yoga it means the process of meditative awareness. This leads to illuminative wisdom (Hartley et al., 2014).

**3.7 Swara Yoga:** Swara yoga is another type of yoga it is a Sanskrit word which means sound or note. In Swara Yoga there is a continuous flow of air through one nostril (Singh, and Pandey 2015). In scientific way Swara Yoga is a realization of cosmic consciousness and spiritual power through control of breath (Anand, 1991).

**3.8 Kundalini Yoga:** In our body, there are seven types of chakras or psychic centers. In Kundalini yoga, all chakras are awakened. The basic method of awakening these chakras is deep concentrations on these chakras. Kundalini means 'serpent power' which is believed to reside in the base of the spine (Arambulaet al, 2001).

**3.9 Kriya Yoga:** Kriya means activity or movement, so the Kriya Yoga refers to the activity or movement of consciousness (Sadlier et al,2008). There are over seventy types of kriyas in Kriya Yoga. Out of these only twenty kriyas are commonly known as best activities (Vedamurthacharet al, 2006).

**3.10 Raj Yoga:** There are two words in Raj Yoga, Raj and Yoga. Raja means king and yoga means union. It's also called Royal yoga (Sandhu and Shakya 2017). Raj yoga inclusive of all Yoga and its philosophy goes beyond the boundaries of the many styles of yoga today. Raj yoga is also known as the mental yoga or the yoga of the mind. (Corcoran, 2013)

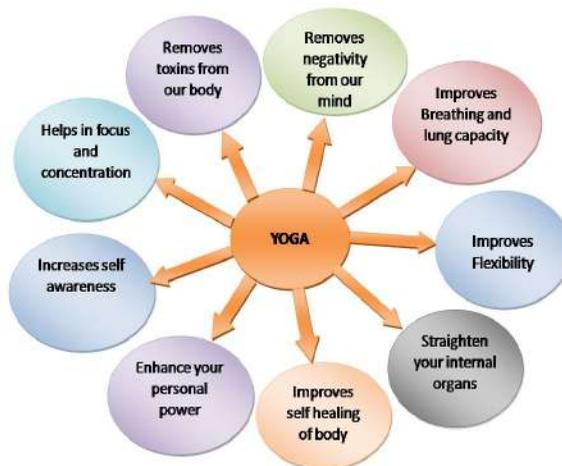
In India Raj yoga meditation is practice widely has centers all over the world. We can compare Raj yoga with the battery having seven cells of different colors of

VIBGYOR spectrum (Naik *et al*, 2016). It focuses on the harmonious development of the body, mind and soul as depicted in Fig. 2 (Sivanand, 1986). There are seven plexus (chakras) in our body, which plays an important role in Raj yoga meditation, just like Kundalini yoga. In the aesthetics term Chakras have their own photon field of VIBGYOR spectrum. We can imagine our self in the VIBGYOR color spectrum (Sivakumar and Pazhanivelu, 2016). The basic attributes of God are peace, love, joy, purity, bliss; knowledge and power which visualize as rays of VIBGYOR respectively (Vasudevan and Nityanandji, 2015).

Violets	Bliss	Crown plexus (Param Chakra)
Indigo	Knowledge	Brow plexus (Anjana Chakra)
Blue	Peace	Throat plexus (Vishuddha Chakra)
Green	Love	Heart plexus (Anahat Chakra)
Yellow	Joy	Solar plexus (Manipur Chakra)
Orange	Purity	Sacral plexus (Svadhithana Chakra)
Red	Power	Root plexus (Muladhar Chakra)

Fig 1: Showing seven plexus related to seven colours (Vasudevan and Nityanandji, 2015)

Fig. 2. Showing the benefits of yoga (Athreya, 2011).





#### 4. MEDITATION

When we talk about Meditation very few of us truly know what Meditation actually is. Some considers that meditation is the mental concentration on something, while other considers that we meditate when we imagine something that gives us peace. But in reality, Meditation is a state of regardless awareness, it is the state of consciousness we either in this state or we are not, despite what we are doing in life exactly (Chanda *et al*,2016). A person can be in meditation while doing his day's labors as another person can be very far from Meditation while sitting in perfect lotus posture on the top of a mountain (Breneman, 2010). Meditation is a state of profound deep peace that happens when our mind is calm and silent, still completely alert. This is just the beginning of inner conversion that takes us to a higher level of awareness (Athreya, 2011).

#### 5. HOW TO DO MEDITATION

With the help of just few simple steps we can add meditation in our daily routine and enjoy its benefits and magical powers (Ellangovan, 2008).

**5.1 Choose a convenient time:** Meditation is exactly relaxation time, so it should be done at your free time. Choose that time when you know you are not likely to be disturbed and free to relax and enjoy. You can do it at the time of sunrise and sunset because this time is very ideal for the practice.

**5.2 Choose a quiet place:** Just like a convenient time you might chose a place where you do not want to be disturbed. Peaceful and quiet environment can make the meditation experience for a person more relaxing and enjoyable.

**5.3 Sit a comfortable posture:** In meditation your posture plays very important role. Make sure you are relaxed and comfortable. Sit straight with your spine strait keep your full body relaxed and close your eyes throughout the process.

**5.4 Take a few deep breaths:** This is most important steps in meditation, just concentrates on your breaths and focus on its rhythm breath in or breathe out leads the mind in to a peaceful meditative state.

**5.5 Keep a pleasant smile on your face:** Soft and pleasant smile throughout the meditation keep you relaxed, peaceful and enhances your meditation experience.

**5.6 Open your eyes:** When you are come closer to end up of the meditation, don't be hurry to open your eyes and start moving about. Rub your hands with each other and touch your palm to your eyelids and open your eyes very slowly and gently. And take time to become sensible of yourself.

Fig No. 3 Showing steps of doing mediation (Xinshu Zhao *et al* 2010)

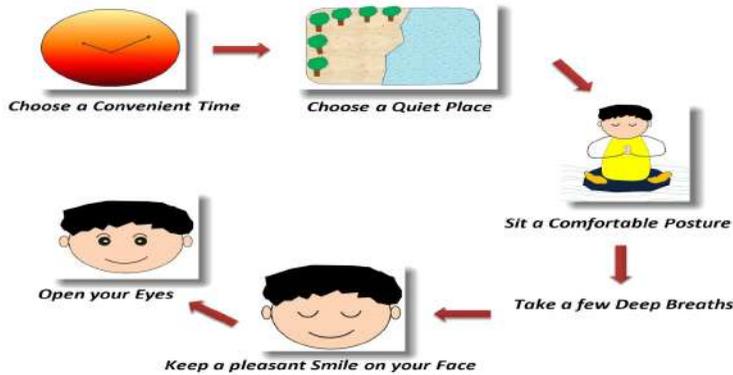
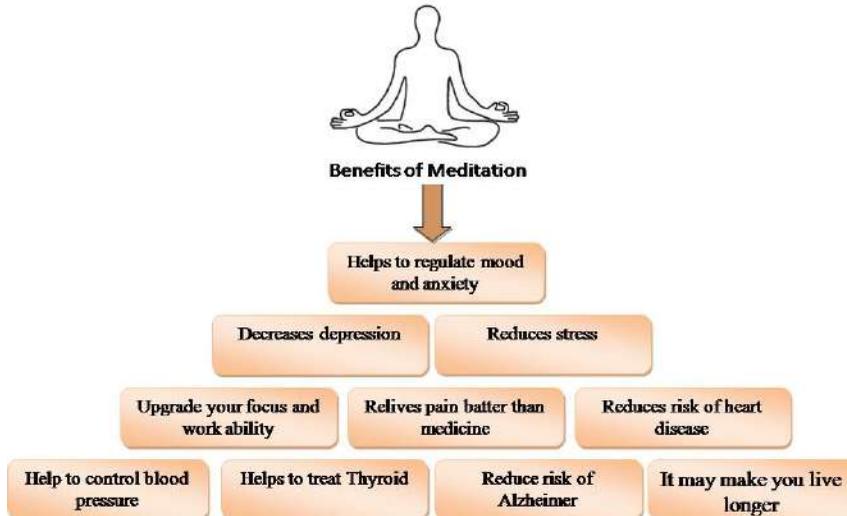


Fig 3. Display the effects of meditation (Jha and Baime, 2008)



## 6. AUM CHANTING

Aum is a mantra or vibration that is normally chanted at the beginning and end of yoga sessions. It is mantras that can be speak by anyone. Actually, AUM is a composition of four syllables A U M and the silent syllables (Prasad *et al*, 2014).

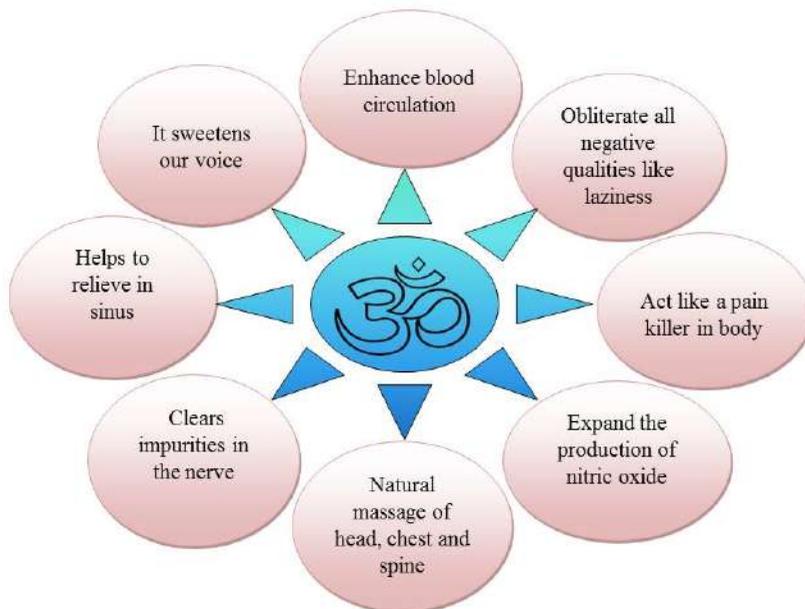
- A- It is the first syllable. A sound starts at the back of your spine and we stretch it out. We will start feeling our solar plexus and chest vibrating.
- U- It is a second syllable. When their sound is generated we feel that our throat vibrates.
- M- It is a third syllable. Pronounced as a prolonged mmm. With this sound top portion of our body vibrate. Specially two lips (Gurjar and Ladhake 2008).

The last syllable is deep silence of the infinite as brain power rises for the deep silence. We are merging our chant from M to deep silence with deep inhale of breath (Dubey Nagendra, 2015).

### 7. WHY DO WE CHANT IT?

In the universe, everything is pulsating and vibrating. In reality, nothing is still. The sound Aum when chanted by us it vibrates at the frequency of 432 Hz. This is the same irrational frequency originate throughout everything in nature (Ghaligiet *al*, 2006). The vibration and rhythmic pronunciation of Aum also have some physical effort on our body, just like the Meditation does. Aum is not just a word or sound but the entire universe that we feel, touch, hears and enjoys (Gurjaret *al*, 2009).

Fig. 4. Showing the benefits of Aum Chanting (Gurjar and Ladhake, 2008).



### 8. CONCLUSION

Yoga, Meditation and Chanting are very essential components for both our personal and professional development. People who adopt these habits in their daily routine have a powerful and positive impact on many people. With such view yoga



meditation becomes an ability to regulate emotions. In this modern age it is very essential to have a balance between mind and body. There are many type of diseases like hypertension, diabetes and thyroid which are stress related diseases occurring at younger ages, so it is important to heal mind and body which can be done through yoga, meditation and chanting Aum. By this study we conclude that yoga, meditation and Aum chanting serves as a brain stabilizer. These are some magical medicine for enhance the power of your mind.

## 9. ACKNOWLEDGEMENT

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## 9. REFERENCES

1. Ajay Anil Gurjar , Siddharth A. Ladhake, Ajay P. Thakare (2009). Analysis Of Acoustic of “OM” Chant To Study It’s Effect on Nervous System. International Journal of Computer Science and Network Security, VOL.9 No.1. 363-367.
2. Ajay Anil Gurjar and Siddharth A. Ladhake(2008). Time-Frequency Analysis of Chanting Sanskrit Divine Sound “OM” Mantra. International Journal of Computer Science and Network Security, VOL.8 No.8, 170-175.
3. Anand B.K. Yoga and medical sciences. 1991, PP. 84-87. *Indian J physiolPharmacol*.
4. Anshuman Naik1\*, Shashikala Patel2, Biswas DA3 and Manish Verma4(2016) Effect of Rajyoga Meditation on Intelligence Quotient of Attention Deficit Hyperactivity Disorder. Journal of Yoga & Physical Therapy. Volume 6 • Issue 2. 1-2.
5. Athreya Mritunjay. Accerelating the application of yoga for ananda. 2011, PP. 1-57 *International conference on yoga*.
6. Bal BS; Effect of anulomvilom and bhastrika pranayama on the vital capacity and maximal ventilator volume. J. Phy. Educ. Sport Manage, 2010; 1(1): 11-15.
7. Bhrshankar R. Jyotsana, Mandape D. Archana, Pathak S. Mrunal, Bharshankar N Rajay.2015,PP. 396-401 Autonomic Functions in Rajyoga Meditators. *Indion J PhysiolPharmacol*.
8. Breneman M.Diane. Mental and Emotional Health and the science of the Meditation, 2010. PP. 1-4 *J. Psychresns*.
9. Brown RP, Gerbarg PL. Sudarshan Kriya Yogic Breathing in the Treatment of Stress, Anxiety, and Depression: Part I—Neurophysiologic Model. *J Altern Compl Med* 2005;11(1):189-201.
10. Butler LD, Waelde LC, Hastings TA, Chen XH, Symons B, Marshall J, Spiegel D. Meditation with yoga, group therapy with hypnosis, and psychoeducation for long-term depressed mood: a randomized pilot trial. *J Clin Psychol* 2008;64(7):806-20.
11. Corcoran Niki. Yoga Meditation and Relaxation: A guided Practice towards inner peace. 2013.



12. Dr. Bhupendra Singh, 1 Dr.SmitaPandey(2015) Spiritual Healing and Rajyoga Meditation in SchizoAffective Disorder, Depressive Type - A Case Report. International Journal of Science and Research Volume 4 Issue 3. 261-263
13. ElanggovanMahaguru. Meditation yoga is Science.Ancient. 2008, PP. 1-28 *Yoga counseling*.
14. Gurjay Ajay Anil, Ladhake P. Ajay. AAnalysis of acoustic of Aum Chant to study its efeect on nervous system2009, PP. 170-176.*IJCNS*
15. Jereny west, Christian otte, Kathleen geher, Joe Jhonson, David C. Mohr. Effect of hath Yoga and African Dance on perceived stress, affects and salivary cortisol.2004, PP 114-118. *Annals of behavioral medicine*.
16. Karthhek B. Balapala. Counsious and subconscious process of human mind AclendestineEnlity indeed.2014, PP. 362-371. *International Journal of Basic and Applied Medical Science*.
17. Kondam A, Chandrasekhar M, Punita P, Varadharaju B, Suresh M, Karthik S; Combined effects of pranayama and suryanamaskar on dynamic spirometric values in normal young subject. National Journal of Physiology, Pharmacy and Pharmacology, 2015; 5(2):79-84.
18. Koundinya V Dilip and Koundinya D Surekha. B.K Rajyoga and avidence based mental silence type of meditation.2014, PP. 20-28, *International Journal of Current Medical and Applied Sciences*.
19. Louise Hartly, Mariana Diakova ,JenneferHolmer, alien Clarke and Karen Reer. Yoga for the primary prevention of cardio vascular disease.2014, *The Cochrane Library*.
20. Mahima Bhomavat 2015 Effect of Raja Yoga on Depression and Anxiety.. Indian Journal of Mental Health 2015 ; 2(3)
21. Mr. A. Sivakumar.,andDr. G. Pazhanivelu.,(2016). Impact of Yoga and Meditation Among the Student Community. International Journal on Recent and Innovation Trends in Computing and Communication. Volume: 4 Issue: 2. 92-94.
22. Pete Arambula, Erik Peper, Mitsumsa Kawakami, Katherine Huger Gibney. The physiological correlates of kundalini Yoga Meditation:a study of yoga master.2001, PP. 26-147 *Applied Physiology and Bio Feedback*.
23. Prasad Joshi, Avinash Inamdar, Sanjivani Inamdar, Ravi Prayag, Jyuthica K Laghate, BhagyashreeNilkanth(Effect of chanting ‘Vitthal’ on Heart: A Clinical Study.) 2014 Asian journal of complementary and alternative medicine 02 (02); 2014; 11-15.
24. Rajak Chanda<sup>1</sup>, Rampalliwar Sanjeev<sup>2</sup>, Verma Rahul<sup>3</sup>, Singh Prabhaker<sup>4</sup>, Shirarkar Milind<sup>5</sup>(2016 )Study of Suryanamaskar, Nadishodhana Pranayama, Omkar Chanting and Meditation (Yoga) on Respiratory Parameters in Young Healthy Medical Students. Sch. J. App. Med. Sci., 2016; 4(9A):3219-3224
25. Rajak Chanda<sup>1</sup>, Rampalliwar Sanjeev<sup>2</sup>, Verma Rahul<sup>3</sup>, Singh Prabhaker<sup>4</sup>, Shirarkar Milind<sup>5</sup> (2016) Study of Suryanamaskar, Nadishodhana Pranayama, Omkar Chanting and Meditation (Yoga) on Respiratory Parameters in Young Healthy Medical Students.



26. Ruprai RK, Kamble P, Kurwale M; Effect of yoga training on breathing rate and lung functions in patients of bronchial asthma. *International Journal of Recent Trends in Science and Technology*, 2013; 5(3):127-29.
27. Sadlier M, Stephens SDG, Kennedy V. Tinnitus rehabilitation: a mindfulness meditation cognitive behavioural therapy approach. *The Journal of Laryngology & Otology* 2008 ; 122: 31–37.
28. Saeed SA, Antonacci DJ, Bloch RM. Exercise, yoga, and meditation for depressive and anxiety disorders. *Am Fam Physician* 2010;81(8):981-6.
29. Sandhu s and Shakya M (2017).yoga and Meditation for spiritual intelligence, mental Silence and eternal Awareness.
30. Shirley Telles, Vashali gaur and Acharya Bal Krishna. Effect of yoga practice session and a Yoga theory session on state anxiety.2009. *SAGE Journals*.
31. Siddharth, Thakare P. AjayngScientific benefits of meditation 76 things you can might be miss. 2010, *Live and Dare mission Liveanddare.com*.
32. Singh Bhupendra and Pandey Smita. Spiritual healing and Rajyoga meditation in shizo- affective disorder, dipressive type- A case report.2013, PP 2319-7064 *International Journal of Science and Research*.
33. SripadGhaligi, H R Nagendra and Ramchandra Bhatt(2006) Effect of vedic chanting on memory and sustained attention. *Indian Journal of traditional knowledge* 5(2):177-180.
34. Thirumaran M, Balaji PV; Effects of suryanamaskar on cardio-respiratory and reaction time among final year medical students Sch. J. App. Med. Sci., 2015; 3(5A):1842-1844.
35. Vasudevan B.K and Nityanandji B.K, 2015.
36. Vedamuthachar A., Nimmagadda Janaki Ramaiyah, J. Aram, M. Hegde and Taranath K Shetty. Antidepressant efficacy and hormonal effects of sudarshana Kriya Yoga (SKY) in alcohol dependent individuals.2013, PP. 249-253. *Jouranal of affective disorders*
37. Woodyard C. Exploring the therapeutic effects of yoga and its ability to increase quality of life, *Int J Yoga* 2011;4(2):49-54.
38. www.mallstuff.com. One stop destination for entertainment fun and spiritual knowledge.
39. Xinshu Zhao, John G. Lynch, Jr., Qimei Chen (2010), Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis, *Journal of Consumer Research* 37(2): 197-206.



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## COVID - 19: A WORLDWIDE POIGNANT & DISTRESSING INFODEMIC

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### Abstract

The severe Acute Respiratory syndrome Corona Virus - 2 (SARS - Co2) has led to a global health crisis. Deemed by WHO as a pandemic on 11th March 2020, the world is dealing with the unforeseen challenges hit by the pandemic. As many as 213 countries and territories have registered COVID - 19 cases and more or less every country is under considerable strain. The entire world is buzzing with uncertainty and questions pertaining to whether this is a clear warning regarding the end of mankind. Under this stressing situation, the main aim and objective is to spotlight:

- Psychosocial effects caused due to emotional outbreak during COVID 19.
- Interventions to tackle the mental health problems.

**Key words:** Pandemic, Psychosocial effects, Stress, SARS – Co 2, Yoga and meditation.

### Overture

In India, the figures have shown to be up to 4.75million confirmed cases and the death toll stands at 78,586 as of 12th September 2020, having a recovery rate of 73%. On 6th July 2020, 239 scientists from 32 countries put the signature on an open letter addressing the WHO saying that there was more than enough evidence for SARS - Co2 to be transmitted via aerosols, though there is no universal acceptance of airborne transmission yet. The title said, " It is time to address airborne transmission of COVID - 19". In contrast to the transmission of viruses, aerosols are considered to be micro droplets that take a longer time to settle on floor. Aerosols are expelled by people when they laugh, speak, sing or breath; whereas, the respiratory droplets (much larger in size, 5 micron or more than aerosols) are expelled with forceful acts such as sneezing or coughing.

The major stress inducing factor among people is their misconception to believe that getting infected by COVID-19 means courting death. In reality, that is not the case. Among the infected ones, 81% of the people show mild symptoms, 13.8% undergo severe illness, 4.7% are critical and 2.3% of the people face death.

In this special feature we look at how the pandemic, this COVID environment and the measures taken to curb it, has impacted on the psychosocial effects drastically. The attention should be devoted to the potential interventions to tackle the mental health problems.<sup>iii</sup>

### Impacts of COVID environment of mental health

As the corona virus pandemic sweeps across the globe, it has increased the feeling of stress, worry and anxiety among people. The repercussions of the pandemic have taken an emotional toll on people, they are dismayed by the current scenario. The pandemic spotlights both existing as well as the new psychosocial problems. As per the

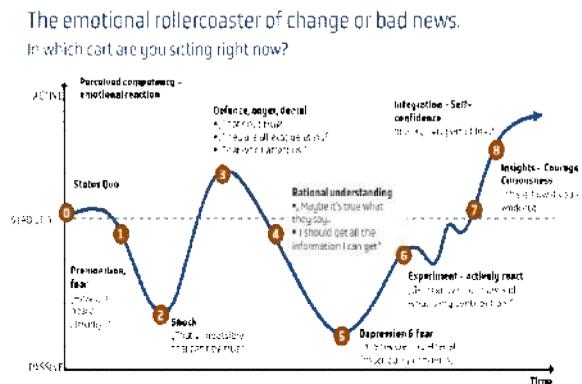
researchers, social isolation and loneliness are highly linked with the reduced life span and increased mental and physical illness. Every age group is hit by corona virus resulting into the psychological (self-blame, denial, confusion etc.), physical (sleep disturbances, changes in eating patterns, etc.), cognitive symptoms (difficulty in concentration, flashbacks, etc.)

Hospitals are overwhelmed with the increase in COVID-19 cases day by day while at the same time decreasing supply shortage is a topic of concern. This has increased anxiety and depression among frontline workers who are facing the situation every minute and are at the highest risk of contamination. According to research, older people are already at a risk of poor health due to experiences such as loneliness and bereavement, also are more likely to develop illness due to increased vulnerability to the virus. The reduced interaction has also played a major role in negative mental health among older adults. Nearly every country has closed the schools and colleges which has indirectly impacted the mental health in a negative fashion among the children and adolescents, which may be due to the decreased opportunity to engage with the peers and also due to drastic changes in the regular study patterns. Job loss and unemployment have increased the feeling of anxiety among the people to a greater extent. Around 5.2 million people filed for the unemployment benefits during week of April 5 according to data. Moreover, mental health disorders are common co-morbidities among patients with chronic illness like lung disease, asthma, diabetes, heart disorders, etc.

The effect of lockdown during this COVID environment has exacerbated the existing mental health problems. Social distancing, isolation, job loss and financial pressure have

led to the feeling of low self-esteem among the people. The levels of loneliness, depression, alcoholism drug use, suicidal behavior, self-harm etc. are expected to rise judging by the current situation. Various stages of emotions one can experience as corona virus forces large swatches of the globe into lockdown. SO, UNDER WHICH

### CATEGORY ARE YOU FALLING?

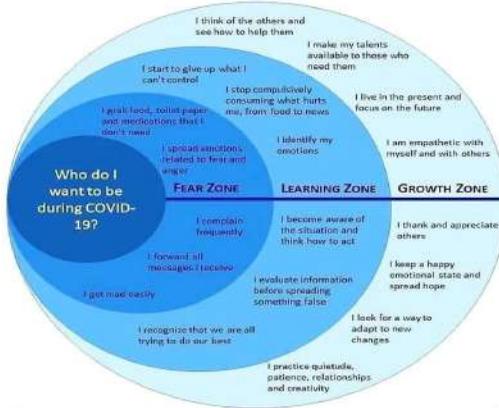


However, large scale disasters, whether traumatic, natural or environmental are most always accompanied by increase in depression, post traumatic disorder, secondary traumatic stress, a broad range of other mental and behavioral disorders, domestic violence and child abuse. But these problems shouldn't be eluded and care should be taken on these lines too.<sup>iii</sup>

### How to achieve mental health stability

As the pandemic wears on, it is going to increase the mental health burden.

It is noteworthy to say that everyone reacts to a given situation differently depending upon the social support, emotional background, family and friends, financial situations etc. But, at this point of time one really needs to be in the stable condition, understand the scenario, think rationally and act logically. So here are a few ways which can help to cope the COVID environment. Also, a list of consideration is given by



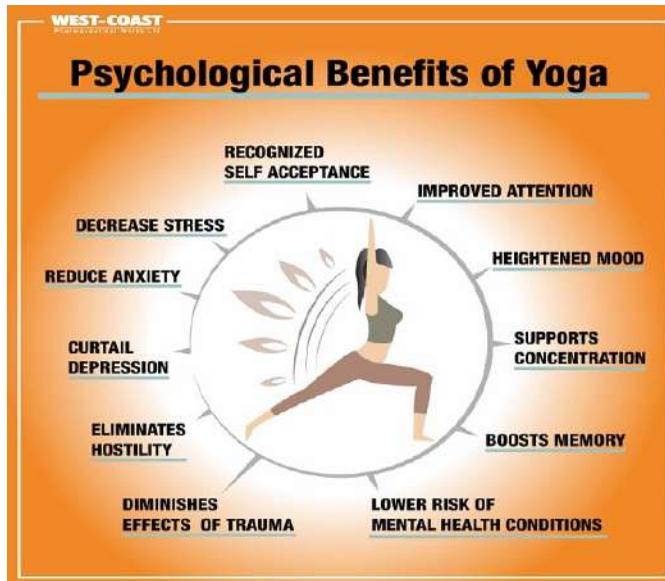
WHO for coping up with stress during COVID - 19 outbreaks.<sup>iv</sup>

First of all, one needs to acknowledge and observe the feelings he or she is going through without judging oneself, identify the cause, identify your behavior towards it, challenge the emotion and finally try the things that can bring you mental comfort. Continuously hearing about the pandemic can make you anxious, so take breaks, refresh yourselves and don't be 'overloaded' just be 'updated'. Congregate the facts and ignore the rumors, connect to an incredible source you can trust like WHO website. Talk to people you trust, connect to your loved ones via video chat, do things you enjoy, listen to music. Take care of your body by exercising daily which may increase the positive feeling, have a balanced diet, get proper sleep, avoid alcohol and cigarette smoking. Create a menu of personal self-care activities and serve yourself with those activities.





Perform yoga and meditation for boosting up the immunity and also to achieve calmness, take deep breaths, connect to yourself spiritually, spend time with nature, have confidence in yourself, write about the previous life challenges you have faced strongly and believe that you will face this too, stay motivated, be polite and humble to yourself. Acknowledge the secondary traumatic stress and allow time to you and your family after a traumatic event. If feel overwhelmed ask for help from a psychologist.<sup>vi</sup>



### Helpguide's 6 Keys to Mental Health





## Conclusion

The outbreak of corona virus has caused tremendous psychological problems in the subpopulations and it has brought an extra socio-economic burden on the existing mental health service. This topic shouldn't be ignored and attention should be driven on these lines too because at the end psychologically strong person will be able to stay strong in any situation. This is the time when people need to be mentally stable and think logically and rationally.

At the end, **Health does not always come from medicine. Most of the time, it comes from peace of mind, peace in heart, peace of soul.**

## References:

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<sup>i</sup><https://www.who.int/emergencies/diseases/novel-coronavirus-2019/global-research-on-novel-coronavirus-2019-ncov/covid-19-technology-access-pool/take-action-now>

<sup>ii</sup>[https://covid19.who.int/?gclid=Cj0KCQjwv7L6BRDxARIsAGj-34qoxIzdnxb6mDUtjz-](https://covid19.who.int/?gclid=Cj0KCQjwv7L6BRDxARIsAGj-34qoxIzdnxb6mDUtjz-Pc1pemNOG3dO0OS6874M6E2tfOV45SHZmzkaApVZEALw_wcB)

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<sup>iii</sup><https://www.weforum.org/agenda/2020/05/united-nations-global-mental-health-crisis-covid19-pandemic/>

<sup>iv</sup>[https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200415-sitrep-86-covid-19.pdf?sfvrsn=c615ea20\\_6](https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200415-sitrep-86-covid-19.pdf?sfvrsn=c615ea20_6)

<sup>v</sup> Rajkumar Ravi Philip, COVID-19 and mental health: A review of the existing literature, <https://www.sciencedirect.com/science/article/pii/S1876201820301775>

<sup>vi</sup> Horesh, D., & Brown, A. D. (2020). Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(4), 331-335. <http://dx.doi.org/10.1037/tra0000592>



## IMPACT OF GLOBALISATION ON CASHEW EXPORT FROM INDIA

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### **Abstract**

Globalization and cashew industry Cashew industry is one of the traditional industries which is export oriented industry and generates foreign exchange to build up the share of the gross domestic product of the country. The increase in import of raw cashew shows the availability of raw nuts and the lack of domestic cultivation of cashew especially for generating the employment opportunities in the cashew processing industries. The industry, being highly labour intensive is a vital source for domestic employment. The trend in cashew kernel exports from India indicates stagnation with neither a hike nor a massive decline. According to DGCIS, the average export of cashew kernel was 106,188 tons during the last decade (Figure 3.6), which is around 24% of the world average. However, the average annual growth in kernel exports was -2% during the decade. In terms of value, India earned on an average of 4,355 Crores of foreign exchange per year during the last decade with an average growth of 11% per annum. India's dependence on the imported raw nuts from African countries may increase in coming years due to the negative growth recorded in raw cashew nut production. However, the entry of new regions from India into cashew cultivation offers positive signs for the future.

### **Introduction:**

Cashew is one of the India's foreign exchange earners and the second biggest dollar earner. India is the largest producer and exporter of cashew kernels in the world. Over 65% of the world export of cashew kernels is accounted for by India. Cashews have a reasonably long chain between the grower and the final consumer. The uncertainties in the global economic scenario have caused many intermediaries to reduce their stock-holdings and forward purchases of cashews. This has caused the perception that demand has fallen and prices have also eased in response. However, the consumption pattern of cashews in developed countries is affordable. This pattern is counter-recessionary, as it is less expensive than eating at restaurants. Therefore, cashew consumption was not affected negatively in previous recessions and we expect it to be similar this time too.

Globalization and cashew industry Cashew industry is one of the traditional industries which is export oriented industry and generates foreign exchange to build up the share of the gross domestic product of the country. The increase in import of raw cashew shows the availability of raw nuts and the lack of domestic cultivation of cashew especially for generating the employment opportunities in the cashew processing industries. The industry, being highly labour intensive is a vital source for domestic employment. Statistics reveals that about 95 percent of women workers are in the cashew processing industry. Over the past few decades this industry has seen some rapid and tremendous growth, though unregulated. This unregulated growth has threatened the survival of the industry. One of the major constraints of the industry is



the perennial shortage of supplies of raw nuts and the precarious dependence on supplies from other countries. India has historical importance in this regard that it is the first country in the world that started the international trade of cashew. The globalization put forth some opportunities such as: (i) increase in cashew cultivation and cashew production, (ii) employment generation, (iii) formation of cashew processing unit, (iv) alcohol production from cashew apple, (v) shield oil production, (vi) transportation facility for cashew industry etc. India has a tremendous potential in the domestic as well as foreign market of cashew.

The globalization has an impact on the industry as a result of the economic asymmetries in trade of cashew (Mahajan, 2010). There is an increase in export, import and foreign exchange of cashew at state level. Economic reforms were instrumental in improving the competitiveness the cashew processing industry. As a result, the quality and standard of cashew in the domestic and international market increased in the post reform period. The cashew processing industries under the public sector is mainly focused on the variety of domestic market of cashew; it helps to improve the economic condition of the cashew processing sector. The export and foreign exchange of cashew increased during the post reform period which is reflected to increase the share of the state gross domestic product. The international expos were conducted to increase the competitive condition of cashew. The volatile nature of price of cashew influenced the market conditions and the consumption pattern mainly due to the prestigious position of cashew in the international market after the economic reforms. The export- import liberalised policies affect the import of raw nuts from the African countries and to create a suitable remedy for solving the shortage of raw nuts in the cashew processing sector. The number of private owned cashew processing industries increased after the economic reforms. The private multinational entrepreneurs earned maximum profit and for this the employment opportunities to the cashew processing workers increased, it affected the wages and living conditions of marginalised sections in the society. The goods and services tax implemented by the present government affected the international market of cashew and the value addition policies affected the socio economic conditions of cashew processing workers. After the economic reforms, the budgetary provisions and the subsidies provided by the government highly promote the cashew processing industry to improve and sustain the living conditions of cashew processing workers.

The total area harvested and production of raw cashew nuts in India was 1,040,890 hectares and 779,335 tons respectively in 2016. This makes up 17 % and 20 % of the world's harvested areas and production of raw nuts. The productivity is 753 kilograms per hectare. This is greater than the rest of the world's productivity 599 kilograms per hectare. During 2008 to 2017, the area harvested increased from 850 to 1,000 hectares. However, the production and productivity not recorded any significant growth during the period. The productivity remained almost steady until 2013-14, with a fall in 2009-10. However, it declined from 2013-14 to 2015-16 and shows a gradual upward trend after 2015-16. The overall annual growth in production of raw nuts during the period was 1.8 % despite the negative growth in some years. However, the overall growth in the productivity records a negative growth of -0.06 % per annum in the decade. The National Research Center for Cashew (NRCC) reports that cashew cultivation in India was mainly carried out as an afforestation and conservation



programs for wastelands rather than for economic ventures. Since productivity was not the basic objective of such a program, the cashew was highly neglected. Poor soil fertility in cashew growing areas, seedling progenies of nondescript origin, and neglect of the crop resulted in low productivity.

#### **Review of Literature:**

Being a recent move, there have been various researches on different aspects of the initiative ranging from the economical to social and ethical dimensions. Some of these researches retrieved through internet searches have been reviewed here.

**Harilal., et al., (2006)** in their report “Power in Global Value Chains: Implications for Employment and Livelihoods in the Cashew Nut Industry in India” explores the impacts of an expanding global market for cashew nuts on the livelihoods of women workers in the cashew processing industry. This report shows that a power imbalance between intensely competing producers and relatively few buyers in the global market place large retailers, the supermarkets, and the upper hand over their supply chains. Supermarkets are increasingly able to dictate the terms on which business is done and how the cashew is produced, as well as to capture most of the revenue generated along the chain and shows clearly that such work, while essential for survival, does not provide enough income to raise households out of poverty.

**Anandaraj and Chinniah (2010)** in their article, “Cashew Production in India” states that the cashew was introduced in India by the Portuguese long back. The demand for Indian cashews is quite large due to the qualitative edge of them over the cashews of other countries. India is blessed with enough land resources, congenial climatic environments, adequate man power, and sufficient funding support, in addition to technology for promoting cashew nut production. Cashew industry is directly connected to the growth of the economy of India which gives employment to many people.

**Pavaskar and Kshirsagar (2012)** in their article “Indian Cashew Industry meeting competitive challenge of Vietnam” indicates that Cuddalore district in Tamil Nadu state was considered to have the maximum area and production under cashew than other cashew production districts in the state. In early years, the cashew industry was mostly located in Kerala, which then had over 50 percentages of cashew plantations in the country. But land ceiling legislation restricted the expansion of cashew sowing in Kerala, as demand for cashew nuts grew.

**Indian Cashew Market Commentaries (2015)** in their report “Cashew Market Commentaries from Experts” indicates that in the last few years, there has been a power shift on both sides of the cashew market – supply and demand. India is no longer the largest supplier to the world market – which position has been taken over by Vietnam for kernels and West Africa for RCN. On the demand side, USA & EU continue to be large buyers, but they have been overtaken by Asia, which is now the largest consuming region (India is the largest consuming country). This has altered the market dynamics – relative power of each region to determine market trend has changed. Reflecting this, many buyers in the 2 major importing regions – USA and EU – have made some changes in buying patterns.

**Objectives :**The Main objectives of this paper is based on following headings:

- To Examine the Impact of Globalisation on Cashew Export from India.
- To Evaluate the Problems of Cashew Exports from India.



**Methodology:**

The method used in this paper is descriptive-evaluative method. The study is mainly review based. It is purely supported by secondary source of data, i.e. books, journals, papers and articles and internet.

**Results and Discussions:**

Maharashtra used more land area for cultivation, and production and productivity were more than any other Indian states. NRCC studies reveal that higher yields in Maharashtra are primarily due to the fact that cashew production is of recent origin and the major plantation areas have been established with the high yielding clonal material. Next to Maharashtra, Andhra Pradesh has 185.57 hectares of land where the production and productivity was 111,390 tons and 600 kilograms per hectare, respectively. In Orissa, the production was comparatively less, even though 183.31 hectares of the area were used for cultivation. Here, the productivity was 513 kilograms per hectare. In the case of productivity, Nagaland and Assam stand next to Maharashtra, despite very low areas of cultivation and production. These are newly emerging regions in India in terms of cashew cultivation. In the case of Kerala, the traditional cashew cultivation region in India, 90.87 hectares of land was cultivated from which 83,980 tons of cashews were produced in 2016. The productivity is 962 kilograms per hectare, which is well above the India average.

**Table:1**

**Major raw cashew nuts producing states in India During 2016-17**

State	Area (000) ha	Production (000 MT)	Productivity (kg/ha)
Kerala	90.87	83.98	962.00
Karnataka	127.86	85.15	672.00
Goa	58.18	32.66	561.00
Maharashtra	186.20	256.61	1378.00
Tamil Nadu	141.58	67.65	478.00
Andhra Pradesh	185.57	111.39	600.00
Orissa	183.32	93.90	513.00
West Bengal	11.36	12.96	1140.00
Jharkhand	14.83	5.83	393.00
Chhattisgarh	13.70	9.33	681.00
Gujrat	7.22	6.50	900.00
Pondicherry	5.00	2.16	432.00
Assam	1.05	1.08	1028.00
Tripura	4.25	3.45	812.00



Meghalaya	8.50	5.83	686.00
Manipur	0.90	0.32	360.00
Nagaland	0.50	0.54	1080.00
Total	1040.89	779.34	12676.00

Source: Directorate of Cashew nut and Cocoa Development, 2019.

According to DCCD statistics in 2016, the top five states in India in terms of cashew areas harvested are Maharashtra, Andhra Pradesh, Orissa, Tamil Nadu, and Karnataka. All these states together account for 79 % of cashew cultivation areas in India. The top three states- Maharashtra, Andhra Pradesh and Orissa show a similar trend in area harvested. The top five states in India in terms of raw nut production are Maharashtra, Andhra Pradesh, Orissa, Karnataka, and Kerala. The top five states together constitute 81% of overall raw nut production in India. Maharashtra alone accounts for 33% of production. Traditional cashew cultivating regions like Kerala and Karnataka constitute only 11% each.

The top five regions in terms of higher productivity are Maharashtra, West Bengal, Nagaland, Assam, and Kerala. The first four regions record productivity above 1,000 kilograms per hectare while Kerala's productivity is only 962 kilograms per hectare. It is interesting to observe that productivity is relatively low in the top raw nut producing states like Andhra Pradesh, Orissa, and Karnataka.

**Cashew Kernel Exports :** The trend in cashew kernel exports from India indicates stagnation with neither a hike nor a massive decline. According to DGCIS, the average export of cashew kernel was 106,188 tons during the last decade (Figure 3.6), which is around 24% of the world average. However, the average annual growth in kernel exports was -2% during the decade. In terms of value, India earned on an average of 4,355 Crores of foreign exchange per year during the last decade with an average growth of 11% per annum.

**Country-wise Exports:** The quantity of the cashew kernel exported from India to 24 different countries during 2013-17. In 2013-14, 29.2% of the total exports were to the USA and 15.2% to the UAE. As the years passed, the export of kernels to the USA diminished and the UAE received 20.8 % of kernel exports from India. Currently, the UAE is the major trade partner for India. The USA only receives 15.6% of the total exports from India. The Netherlands is another major recipient and exports to Japan and Saudi Arabia have also increased over the years. Germany, Spain, France, Kuwait, Belgium, and the UK are the other countries import cashew kernels from India.

**Table: 2**

**Country wise export of cashew kernels from India, 2013-2014 to 2017-2018**

Country	2013-14		2014-15		2015-16		2016-17		2017-18	
	QTY (M.T)	%								
UAE	17421	15.2	23904	20.1	18537	19.2	18556	22.5	17570	20.8
USA	33898	29.	30643	25.	2266	23.	1751	21.	1317	15.



		5		8	1	5	5	3	9	6
Netherlands	9918	8.6	9349	7.9	6236	6.5	4891	5.9	8650	10.3
Japan	6702	5.8	7413	6.2	7826	8.1	6434	7.8	8509	10.1
Saudi Arabia	7195	6.3	6336	5.6	7535	7.8	7441	9.0	7827	9.3
Germany	2808	2.4	4724	4.0	2720	2.8	2449	3.0	3278	3.9
Spain	3089	2.7	2384	2.0	2296	2.4	2140	2.6	2534	3.0
France	2963	2.6	2958	2.5	2916	3.0	1907	2.3	2135	2.5
Kuwait	1568	1.4	1329	1.1	1706	1.8	1658	2.0	2067	2.5
Belgium	2122	1.8	2601	2.2	2597	2.7	2362	2.9	1976	2.3
UK	2813	2.5	2766	2.3	1780	1.8	1674	2.0	1825	2.2
Korea, Rep.	2221	1.9	3193	2.7	2777	2.9	2271	2.8	1541	1.8
Singapore	1654	1.4	1490	1.3	1145	1.2	1199	1.5	1268	1.5
Qatar	709	0.6	781	0.7	797	0.8	843	1.0	1153	1.4
Greece	1284	1.1	1252	1.1	1000	1.0	770	0.9	1129	1.3
Turkey	703	0.6	782	0.7	797	8.0	482	0.6	861	1.0
Canada	862	0.8	793	0.7	449	0.5	361	0.4	677	0.8
Malaysia	897	0.8	707	0.6	953	1.0	648	0.8	603	0.7
Trinidad	508	0.4	588	0.5	524	0.5	464	0.6	531	0.6
Israel	713	0.6	668	0.6	734	8.0	316	0.4	461	0.5
Iran	1181	1.0	927	0.8	1133	1.2	687	0.8	442	0.5
Italy	865	0.8	1201	1.0	839	0.9	756	0.9	383	0.5
Jordan	630	0.5	617	0.5	363	0.4	660	0.8	267	0.3
Algeria	1531	1.3	1356	1.1	602	0.6	685	0.8	60	0.1
Others	10536	9.2	9890	8.3	7423	7.7	5133	6.2	5424	6.4
Total	114791	100	118952	100	96346	100	82302	100	84352	100

Source: The Cashew Export Promotion Council of India

The growing demand for kernels in the international market and the availability of cheap possessing labour (mainly of women), the required skills in processing are the important favourable factors for the rapid growth of cashew processing industry in India. Cashew processing industry in India flourished primarily because of the international market. Globalization and the consequent economic policies highly affect the cashew processing industries. The trade policies and liberalized trade agreements after the economic reforms with the international scenario influence the working of cashew processing industries. The private sector's dominance of cashew processing industries is one of the net outcomes of the economic reforms. In general, the economic position of the women cashew workers much improved after the economic reforms.

**Conclusions:**



India's dependence on the imported raw nuts from African countries may increase in coming years due to the negative growth recorded in raw cashew nut production. However, the entry of new regions from India into cashew cultivation offers positive signs for the future. The growth in India's kernel export has almost stagnated and records negative growth, though foreign exchange earnings from kernel trading are growing at 11% per annum. However, the increasing trend in India's raw nut imports adversely affects the nation's net foreign exchange earnings. The export intensity with conventional trade partners like the USA is declining and this gap is being filled by other kernel exporting countries in the world, which may adversely affect India's global trade competitiveness. It is therefore, important to take measures to retain the market share in the countries where India is likely to lose the market share in future. The producers and exporters need to be educated and trained to maintain the quality standard of the products. New markets also need to be explored and developed, vast potential of which is there in major importing countries of cashew kernel from India.

#### References:

1. K.N.Harilal, Nazneen Kanji, J. Jeyaranjan, Mridul Eapen and Padmini Swaminathan, (2006) "Power in Global Value Chains: Implications for Employment and Livelihoods in the Cashew Nut Industry in India" report submitted to International Institute of Environment and Development, March. pp.212-215.
2. Anandaraj and Chinniah, (2010) "Cashew Production in India" kisan world, October, p 23.
3. Pavaskar and Kshirsagar, (2012) "Indian Cashew Industry meeting competitive challenge of Vietnam" Cashew week, 13 (40): p 9-13.
4. Indian Cashew Market Commentaries, (2015) "Cashew Market Commentaries from Experts", Cashew week (A weekly news letter) vol.14(16), 29th March – 4th April. pp.251-254.



## THE VOICE OF SUBALTERN IN THE NOVELS OF MULKRAJ ANAND

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### **Abstract:**

Writings on social evils are a narrative of trauma and resistance, pain, and protest. However, they uphold the saga of suffering not only of one single individual but of the entire community. These narratives reveal the hypocrisy of the democratic Indian society where people are forced to live on unequal terms in the name of caste, class, and gender. This paper aims to highlight the anguish and angst of the socially-outcasted communities, deprived of their rightful representations. Subaltern literature spurted out to expose issues of exploitation, discrimination, and the increasing death rates of the underprivileged sections of the Indian society. Both Gandhi and Ambedkar envisioned education as a means for the upliftment of the weaker sections.

**Key words** :- Discrimination, Exploitation, Hypocrisy, Oppression, Resistance

### **Introduction**

India is the largest part of Asia which has a notorious rigid caste system. For non-Indians like Greeks, Aryans, Persians, Muslims, Portuguese, and other Europeans, the most unusual thing of Indian society is its caste system. The system of inter-class relations in Indian society makes the caste system, a unique one. The caste system is a social structure that divides the society between the castes: the Brahmins, the Kshatriyas, the Vaishyas, and the Sudras. There is a separate system within these castes. Brahmins, Kshatriyas, the Vaishyas are called as twice-born and they are considered as upper castes. The Sudra caste is considered as a lower caste. These kinds of upper and lower separation systems are called Varna and Jati respectively.

Caste discrimination in India has also been raised as an issue of serious concern by several other treated bodies and special procedures. One's caste can be determinative of one's occupation is also referred to as discrimination based on work and descent (Human Rights Watch 22-24). The caste discrimination is a national and a global struggle for the human rights of the Dalit and the other oppressed sections of our society. The movement seeks to build both a national and global union against the caste system and the ensuing inhuman oppression and discrimination. It is not limited to India alone, it is rampant in South Asia and extends to whatever the people of the subcontinent live.

Indian English fiction echoes the painful voices of the weaker sections. This literature portrays the caste humiliation, injustice, and discrimination perpetrated by the upper caste people. This literature not only echoes the pain and agony of the lower class but also has a healing power to cure the trauma of the past. Madara Chennaiah in Kannada is one of the first Dalit writers. Dohar Kakkaiyah, Marathi Saint Chokhamela, and his wife Soyarabai also explained the oppression of Dalits through their writings in the thirteenth century.



Though many novels were written during pre -Independent period, social criticism took its form, shape, only after the attainment of independence. Man has created an artificial barrier in the name of the caste that has threatened the very structure of our democracy.

***In the words of Srinivasa Iyengar:***

Today casteism has permeated political life, to such an extent that the very structure of our democracy is threatened. Nobody appears to take notice of this cancer. Tension is mounting and yet the atmosphere of drift continues. The levels of caste are manipulated by all striving for political power, not in the furtherance of an integrated nationalism but for sectarian ends which weaken the composite fabric.

Untouchability, which is another part of caste -class structure, is a degrading part of humanity. Gandhiji has severely criticized it. As we all know from freedom the while grip of we are asking for the foreign nation we have ourselves for centuries, trampled underfoot millions of human beings without feeling the slightest remorse for our inequity. Novelists have revolted against superstitious beliefs, rituals, which are hurdles to the progress of society.

**While explaining Tolstoy's philosophy, Gandhi writes:**

An oppressor's efforts will be in vain if we refuse to submit to his tyranny. Slavery consists in submitting to an unjust social order, not in suffering ourselves to be kicked. Real courage and humanity consist in not returning a kick for a kick.

Social criticism, which is found in Indo-Anglian novels further flourished under the influence of great leaders like Gandhiji, and Jawaharlal Nehru. Gandhiji revolted against the social evils like alcoholism, decadence of cottage industries, corrupt practices of government officials.

Jawaharlal Nehru, a great humanist, and optimist, considered that freedom from the social evils is as essential as that of the freedom of foreign oppression.

Social criticism has become an effective instrument in the hands of many Indo-Anglian Novelists like R.K.Narayan, Raja Rao, Baabani Bhattacharya, Kamala Markandeya, Khwaja Ahmad Abbas, and Mulk Raj Anand are a few of them.

Mulk Raj Anand had a first-hand knowledge of the evils of poverty and squalor. The feeling for the suffering masses shaped him to become champion of the underdogs. He was also influenced by social and political backgrounds during the time of Civil disobedience campaign his suffering at the hands of police, and the British oppression in Jallianwalla Bagh made him oppose fascism and imperialism.

His hatred for imperialism was bound up also with his Disgust for the Cruelty and Hypocrisy of Indian feudal life, with its caste, creed, dead habits and customs, and its restrictive religious rites and practices. The hatred for imperialism made him question everything, social and ethical. He focused his attention on the suffering and misery of the people. His novels may fittingly be called 'Epics of Misery'. He felt that the international socialism is the only solution to the problems in the world.

The West with all its wealth, modernity, faith in democracy, is not essentially free. So, he thought that he would take up the fight for liberation for oppressed peoples, regardless of caste, color and creed. Mulk Raj Anand who always aimed at a change used his novel to express his thoughts. He considered that every novelist should be aware of his responsibility towards and discharge by leading the society on the right path. If he does not have that responsibility, he is not a novelist at all.

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He has to reform society, based on intellectual values. Mulk Raj Anand freely mixed with the low caste children in his boyhood and youth. This friendship cutting across the caste barriers, inspired in his novels.

***As Mulk Raj Anand himself acknowledges in the preface***

“All these heroes, as the other men and women who had emerged in my novels and short stories, were dear to me, because they were the reflections of the real people I had known during my childhood and youth.

And I was only repaying the debt of gratitude owed them for much of the inspiration they had given me to mature into Manhood, when I began to interrupt their lives in my writing.

They were not mere phantoms. They were flesh in my flesh and blood of my blood, and obsessed me in the way in which certain human beings obsess an artist’s soul. And I was doing no more than what a writer does when he seeks to interpret the truth from the realities of life”.

Mulk Raj Anand consciously avoided themes of chivalrous romance and love but explored the problems of outcaste, peasants, and working classes. Throughout his works, Mulk Raj Anand champions the cause of human love. The subjects of his novels are untouchability, exploitation, poverty and wretchedness, problems of the working classes, hunger, condition of women and economic insecurity etc. His novels focus the attention of the basic conditions in which man is living. Each one of his novels deals with one or the other of the social problems.

MulkRaj Anand published his first novel ‘Untouchable’ in 1935. It attacks the problem of untouchability and social injustice. This novel ruthlessly condemn manmade barriers created between caste Hindus and untouchables.

Hindu society is orthodox and caste-ridden and it has compelled a large section of its people to live like animals. The struggle for the emancipation of down trodden was mainly fought by Dr. Ambedkar. Though the battle was going on in one adorning of India, it was against the root cause of untouchability prevalent all over India. But the politically motivated parties and organizations which took the program of removal of untouchability became the obstacles in its path and it was delayed in reaching their parts of the country. The untouchables were worse than slaves and were isolated from their own people.

They could not raise their voice against this evil. The untouchables were burnt alive or killed or deprived of their land and property by force. Gandhiji who was aware of this social evil protested against this. He particularly condemned Ramsay Macdonald Award to the untouchable which according to him is to alienate untouchables from caste Hindus. The Britishers wanted to exploit the Indian caste system for their own benefit. So, he asked his countrymen to free the untouchables from the age-old bondage.

He also said that he himself had lived with untouchables for quite sometime. Gandhiji’s thoughts inspired novelists like Mulk Raj Anand to a great extent that he decided to write a novel on untouchability to help Gandhiji’s campaign against the removal of untouchability.

Most of Anand’s work deals with social problems. The high castes oppression and the consequent psychological implication on the minds of the untouchables are revealed in Mulkraj Anand’s two novels Untouchable and The Road. “ Anand is the first Indian to



have depicted in the novel form, the stigma of this evil which isolates man from his own society". Untouchable is a real-life story of Anand's playmate, Bakha. When Anand hit on his head by a stone, thrown by his friends, Bakha carried him to his house. Anand's mother snatched away her son from Bakha and abused him for polluting her son.

This inhuman treatment made Mulkraj Anand protest against the caste hierarchy. The experience MulkRaj Anand had when he was separated on board of a ship by some westerners made him realize the meaning of the term Untouchable," Moreover the article in Young India" by Gandhiji describing how he met a sweeper boy, and finding him with torn clothes and hungry: took him to the Ashram inspired Mulk Raj Anand to visit the Ashram to know more about the life of untouchables.

The seed when was sown in his childhood grew stronger in his mind. This helped him to write a novel on the life of Indo-Anglian novelist, P.59 the low caste. He disclosed his desire with Gandhiji and asked him, "why not a tract on untouchability"? Mulk Raj Anand answered, "A novel was more human and could produce contrary emotions and shades of feeling, whereas a tract could become biased and that I liked a concrete as against a general statement. On the advice of Gandhiji Mulk Raj Anand went to Gandhiji's Ashram to look for himself the problems of untouchables.

Mulk Raj Anand untouchable is based on Gandhian thought and values. It speaks for the poor, down-trodden, and low caste people. It ridicules the hypocrisies of the high-class people, the superiority of inhuman attitude, and superstitious believes. It is a satire on the Hindu society as a whole. Untouchability is a degrading part of human civilization.

Untouchable is a story of a scavenger boy, Bakha an 18-year-old son of Lakha who is one of the Jemedars of the sweepers of the town and cantonment. Bakha is the child of the 20<sup>th</sup> century and everything around him excites and arouses a kind of curiosity in him. Bakha is influenced by western thoughts and values, and impressed by European dress and manners. He likes to imitate western styles, being innocent of his own position in society. "from Tommy he has secured a pair of old breeches and from a sepoy a pair of old boots, he would, if he could, life to look like the white foreigner and so be in then fashion". The scene is set in Bulashah in Punjab it opens with the surroundings in which Bakha lives " the ramparts of human and animal refuse that lay on the outskirts of this little colony, and the ugliness, the squalor and the misery that lay within it, made it an uncongenial place to live in".

Bakha gets up early in the morning. He is duty conscious and love for life. He is an efficient worker, cleaning three rows of latrines several times. Though his work is dirty he remains clean. "each muscle of his body, hard as a rock when it came to play, seemed to shine forth like glass, what a dexterous workman". The onlooker would have said "the society unaware of his efficiency considers his work as mere dirt.

The outcast is not even allowed fresh air and water. The wages they earn is not even adequate for them to have a good meal, once a day. They live in thatched houses where there is no proper ventilation and light. The darkness in their homes highlights their own condition. They are separated from the other people they are not even allowed to cane before high caste because they believed that the very presence of untouchables would pollute them. The outcasts have no well of their own they are too poor, to have one as a result, these untouchables have to "collect at the foot of the caste – Hindu's well depend on the bounty of some of their superiors to pour water into their pitcher the outcasts had



to wait for a chance to bring the same caste. Hindu's to the well, for luck to decide that he was kind, for fate to ordain that he had time to get their pitchers filled with water" (Anand 2001 : 14)

Sohini, sister of Bhaka goes to well to take water. A Hindu brahmin Pandit seeing Sohini's beauty and youth draws water from the well and pours enough water for her. He invites Sohini to clean the courtyard. Sohini goes to his house and the Pandit tries to molest her. Sohini pushes him away and the Pandit unable to satisfy his desire cries I polluted, polluted. He cries that Sohini has touched him and polluted. Bakha later hears the truth from his sister and wants to take revenge on that brahmin Pandit, but his place in society prevents him to take revenge on him. Meanwhile, Bhaka goes to the temple to clean it. He stands outside: since he is not allowed to enter the temple fearing temple would be polluted. He thinks that even God does not want a low caste people like him. He is profoundly moved by the hymns, poojas in the temple. Soon he is scolded and ill-treated by the people. Even education is denied to the low caste people.

Anand shows how these subalterns were not allowed to enter into temples also in the "Temple incident" of the novel untouchable Bakha and his sister Sohini are being severely accused of polluting the temple. Bakha is curious to know what has happened as he is not involved in any of the crimes. The calm and holy atmosphere is suddenly disturbed by the cry "polluted! Polluted! Polluted!" (Anand 68page)

The low caste is not allowed in the school, since they have a chance to mingle with the other students. Moreover, "the masters wouldn't teach the outcasts, lest their fingers which guided the students across the text should touch the leaves of the outcasts books and they were polluted".

Bakha's desire to learn is shown when he sees schoolboys with eager looks. Low castes are not allowed to move freely in society and carry on their usual transactions. "A Hindu merchant pours water over the coin Bakha had placed at a designated spot, a packet of cigarettes is thrown at him and the encounter on the street ended in a traumatic experience". He is not even allowed to have a fresh walk while he is walking about enjoying the sights of the town, a shout follows: "why don't you call you swine, and announce your approach? Do you know that you have touched and defiled me, now I will have to go and take a bath to purify myself. After this incident Bakha announces about his arrival in the town "posh, posh sweeper coming; posh sweeper coming.

Bakha, vexed after his lower position in society, asks his father about the inequality and inhuman attitude. His father tells him that their fate is like that, he has to bear it with patience, "they are superiors. One word of theirs is sufficient to overbalance all that we might say before the police".

After Bhaka realizes his own position in society, he could not mix freely with his friends, Ramcharan the washer man's son. Chota the leather worker's son. He is afraid to touch Ramcharan when he offers him sweets: "here is your portion," said Ramcharan unfolding the handkerchief which he carried. Throw me one, said Bakha. "Take it", said Ramcharan. But Bakha hesitated and did not hold his hands out. Take it, why don't you take it?



Ramcharan grumbled no give it to me, throw it Bakha said. Finally, when Bhaka was playing, a little boy was hurt, and Bhaka's tender heart makes him to take the boy and rush to his mother. The little boy's mother shouts at him and scolds him for polluting her child. Bakha, is frustrated and realizes the cruelty of "Untouchable! Untouchable! That's the word! Untouchable I am Untouchable! The story would have ended like that. But Mulk Raj Anand is influenced by Marxism and Joyce's stream of consciousness that he ended his novel with an optimistic note. He gives three solutions to his story. The first one is preaching of Salvationist missionary. The second is Gandhiji's speech and the third one is the views of poet Iqbal.

Bakha comes in contact with a Salvationist missionary who says that there is no caste such as untouchability. Jesus sacrificed himself to end his caste.

Mulk raj Anand introduces Gandhiji as a character in the novel in the appropriate place. The purpose of Gandhiji in the novel is to instill hope and determination in Bakha. Gandhiji's speech drives Bakha like a magnet. " He hadn't paused to think. The word "Mahatma" was like a magic; magnet, to which he like all the other people about him, rushed blindly.

During his speech, Gandhiji says that untouchability is the greatest bolt-on Hinduism, and further adds that I do not want to be reborn. But if I have to reborn, I should wish to be reborn as untouchable, so that I may share their sorrows, sufferings, and affronts leveled at them, so that I may endeavor to free myself and then from their miserable condition. Bakha also comes in contact with poet Iqbal. He is critical of Gandhiji's speech and says that the only flush system, a modern Sanitary system would bring a reform in society. People can handle themselves and untouchability would not find its place in society.

Bakha feels excited and goes home with the hope to report to his father, the things he came in contact with. As E.M. Forster has put it well in his unforgettable preface to the book. "His Indian day is over" and the next day will be like it, but on the surface of the earth if not on the depth of the sky, a change is at hand."

Untouchable will remain a portrayal of a scavenger boy into which Mulk Raj Anand reveals his own insights, thoughts and human attitude towards realities, and social evils of the downtrodden and oppressed individuals of Indian society. Mulk Raj Anand returned to the same theme in "The Road" twenty-six years later, Caste restrictions were not as rigid as before. Untouchability was slowly losing its ground. Low caste were allowed to enter temples and equal opportunities were given to them.

The government has launched several social and economic measures to end up these social evils, Constitution was also modified to give fair justice to untouchables. Central Government also announced a scheme to abolish forced labor. There were new programs launched to give land, houses to low castes. But still, caste consciousness was prevalent in India, especially in villages. In the remote villages, caste barriers were rigid and seems to be no change at all. There were panchayat wells meant for all. But untouchables were not allowed to take from the well. So, he returned to the same theme to emphasize, the oppression of the high caste a need for shaking out of their complacency, so that they might reorder their attitudes towards untouchables.



### As MulkRaj Anand Remarks:

*People attack me for being a Marxist. I'll tell you a story. There is a village near Khandala where the caste families evicted forty untouchable families who were trying to build a road. The case was put to the Central Government two years ago. Nothing has happened. I have bought two villages, and the untouchables have moved into them. But I can do nothing to get the petty bureaucracy out. If I lived in England I shouldn't worry, because there the bureaucracy out. If I lived in England I shouldn't worry, because there the bureaucracy seems to work. Here it doesn't, and I protest, and they call me a Marxist. 18 S.C. of India, p.80.*

Harrex, Fire and the Offering, The English language Novel ( Calcutta: writers work shop, p.Lal, Lake gardens,1977) The Road is the story of Bhikku who struggles against self-identity in society. He is an “ individual who naturally tends to turn inwards in quest of his own safety, pleasure, and integrity, when all around him is violence, greed and fear”.

He questions the attitude of society. He asks other caste Hindu boys, why people like him are not allowed into the temples. The boys on hearing this try to beat Bhikku. Bhikku's eagerness to go to the temple and see god is revealed when he remarks, “ I have not seen god around these parts for a long time”. Bhikku's village Gowardhan, consists of both the members of untouchables, false Hindu's in equal numbers. As they are prevented to move freely in society, untouchables construct their own road. Dhooli Singh, a humanitarian fights for the cause of untouchables and is prepared to make amends for what men of his caste have been doing to the poor untouchables. Block development officers have also prepared themselves to put into action to respect these citizens.

Suryanarayana Moorthy Kohinoor in the Crown, Critical Indian English Literature, (New Delhi: Sterling Public Ltd., 1987), p.9. Upper caste prevents them *in* their noble cause and wrecks vengeance on them .Thakur Singh a high caste makes no secret of why they object to the construction of the Road. "Today they are breaking the bread out of our mouths. Bybreaking the stones with the help of Dhooli Singh, they hope to ingratiate themselves with the Sarkar and earn money so that they can buy the status of the twice-born have more money than, is good for them".

Already the upper castes, *in* vengeance burnt down the huts of the untouchables. Against the wish of Thakur Singh, Dhooli and his son have acted courageously, and helped untouchables. Thakur Singh, to win Dhooli to his side, talks about Hindu Dharma, Vedanta, and asks to keep away from untouchables.

He is advised to seek shelter in the temple. Dhooli Singh not pays heed to this, but rather invites all the untouchables to his house, and distributes sari, and other costly items to them. He asks them to stay in his house itself. Come all my sons, to my field we will all live there and work there. Come and fetch what we have at my house. And we will sleep on straw for the night...And tomorrow I will go to Gurgaon and get enough money from the Sarkar for building<sup>22</sup>.



He further says in helping them he would win the Grace of God and there is no need to visit holy places to seek peace and tranquillity. "Come, my sons and daughters, come. All is yours. I will not need to go to the Ganga to wash my sin."<sup>23</sup>

At last untouchables complete the construction of a Road. Jawaharlal Nehru's democratic ideals give hope for them to fight against social inequality. The final scene is important, when the landlord's daughter gives a glass cup of water to Bhikku to quench his thirst, his son kicks out Bhikku.

Bhikku raises his hand against the landlord's son but soon controls him, and moves towards Delhi in hope of peace and happiness. In *The Road*, it is a picture of untouchables who have long been suppressed, now being conscious of their rights in society.<sup>24</sup> Echoing of the hammer, in striking stones for the construction of road is symbolic of the new spirit, hope in them to continue.

Their struggle against the social inequality. Their courage, determination reminds of the marching song of the great American leader Martin Luther King, over come on any. "We shall overcome, we shall the picture of low castes in 'untouchable' is very much different from that of *Road*'. Bakha in *Untouchable* is an adolescent boy whereas Bhikku is a grown-up man. Bhikku is aware of the collective organ to fight against this evil whereas Bakha does not have that awareness.

He could only mourn of being born as a member of a low caste and do not understand his own responsibility in society. As "Bakha is more a passive sufferer, Bhikku tends to be a crusader conscious of his own rights". Unlike Bakha, who returns home with a hope of Gandhi a spirit, Bhikku also realizes that this social evil would not be put down all of a sudden.

The depiction of the subalterns in this novel *Untouchability* is the crucial subject to be analyzed critically. Anand echoed the real situation of subalterns, their mentality, and reality. In the Indian cultural context, subalternity occurs based on caste, class, and gender. The caste system has played a great destruction to the people of our country. It is deep-rooted from the time immemorial.

Anand exposes the hypocrisy, snobbery, and ostentation of the aristocratic people who sometimes stoop very low to achieve their ends. Anand's novel expresses his great advocacy of the marginalized and defenseless against their lifelong humiliation, persecution, and oppression not in the form of propaganda but by simply giving his own account of life.

G.S. Bala ram Gupta has rightly observed "Anand deserves credit even for his thematic choice for his very first novel- a choice which is imperfect consonants with his humanistic concern for man as man, irrespective of his social status" (Wikipedia)



In other words- Anand has realized the pangs of the people who are always oppressed like slaves or even worse than that. As E.M.Foster holds the view about sweepers in the preface to Untouchable.

“The sweeper is worse off than a slave for the slave may change his master and his duties and may even become free, but the sweeper is bound forever. Born into a state from which he can’t escape and where he is excluded from social intercourse”.

In the novels of Anand like Coolie , Untouchable, Two leaves and a bud noneconomic forces are much highlighted.

“Do you begin to see then what kind of world we are creating?” It is the exact opposite of the stupid hedonistic utopias that the old reformers imagined. A world of fear and torment, a world of trampling and being trampled upon, a world which will grow not less but more merciless as it refines itself. Progress in our world will be progress towards more pain.-George Orwell (1984)

Anand is not a writer of imagination but of reality. He observed the deprived masses who strived a lot for their basic amenities like food shelter and water etc. He wished to write about the folk whom he had known from very close.

According to Anand who was the ardent follower of Marxism says that “Radical changes must be brought into the Indian society. It is the bound duty of the young writers to give expression to the changes taking place in Indian society and assist to attain the spirit of progress in the country.

Anand understands that only through patience, non-violence one can achieve their goals.MulkRaj Anand presents these problems to make the readers aware of the situation around us. In doing so, he pleads everyone to have a sense of possibility by following the ideals of Gandhiji love, compassion, and mutual understanding.

#### **References:**

- 1.Anand. Raj. MULK. Untouchable.Penguin Books India: New Delhi,2001
- 2.Anand .Mulk Raj.The Road:Delhi:Orient Paper Backs.1964
- 3.K.R.Srinivasa Iyengar, Indian writing in English, New Delhi: Sterling Publishers Pvt Ltd.,1983,p.334
- 4.Ramaja, Gandhian Thought, and Indo- Anglican Novelist. Delhi:Chanakya Publications, 1983,p.20
- 5.Radhakrishnan, Indo-Anglian Fiction:Major Trends and Themes, Madras: Emerald Publishers, 1984, p.96
- 6.Mulk Raj Anand. The Daily Telegraph.29 September 2004.Retrieved 4 October 2017
- 7.C.J.George, MulkRaj Anand, His Art and Concerns: A Study of His Non-autobiographical Novels, New Delhi: Atlantic Publishers, 1994.
- 8.Vivekananda,Swami. Caste, Culture, and Socialism.Calcutta:Ashutosh Lithographic Co,1983



9.Forster, E.M. Preface to Untouchable.by Mulkraj Anand.New Delhi:Arnold Associates,1935.7-

10.[www.teleiib.com](http://www.teleiib.com)>OrwellGeorge>prose Assessed on 21August.2020

11.<https://books.google.co.in>>books. Assessed on 23 August.2020



## KSHEERABASTIAS AN ADJUVANT THERAPY IN GARHASHOSHAW.S.R. TO IUGR

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### Abstract

*Garbhashoshais* mainly due to *Vata* and under-nourishment. IUGR is a major problem affecting pregnant women and results in significant perinatal mortality and morbidity. In the present case, a 28 years old Primigravida was detected with IUGR at 27 weeks of gestation. There was Asymmetrical foetal growth seen and fall in the growth rate of AC and FL. Then she was treated with some internal medication and *Shatavari-AshwagandhaKsheerabasti*. A course of 5 *Bastison* every alternate day was given in the 8<sup>th</sup> month. As a result, foetal weight was remarkable increased along with the HC: AC ratio. She delivered a healthy male baby of weight 2525gm at term through Lower Segment Caesarean Section due to contracted pelvis. Her *SutikaAvastha* also went healthy. This current case and approach shows that Ayurveda is highly effective in management of IUGR.

**Keywords:** Ashwagandha, Garbhashosha, IUGR, Ksheerabasti, Shatavari, Vata

### INTRODUCTION

*Aaharamapnoti Yada Na Garbha:, Shosham Sampanoti Parisrutim Va/  
Tam Stree Prasute Suchiren Garbham, Pushto Yada  
Varshaganairapi Syat* || (Cha.Sha.2/15)

Charak says that, due to undernourishment to the fetus or vaginal bleeding after conception, the fetus suffers from *Shosha* i.e. emaciation or dryness. According to Sushruta, *Vayu* is said to be the cause of its dryness. Dalhana writes that, due to effect of *Vayu*, the fetus has absence of *Ojas*. Kashyapa says that the *Rasa* either flows slowly or does not flow in the *Rasavahi Nadi* of fetus, as a result it develops very slowly. According to Vagbhata, the upward moving *Vayu* dries *Rasavahi Srotas* of the fetus; it suffers from *Vata Vikrutia* and becomes dry. *Bruhaniya* medicines, *Ksheera*, *Mansarasa* are specially mentioned in the treatment of *Garbhashosha*.

IUGR is evaluated with the *Anunnata Kukshi* [fundal height less than the period of gestation] and *Garbha Aspandana* [reduced fetal activity] which are the significant features of *Garbha Kshaya*. For its management, Sushruta has mentioned the use of *Ksheera Basti* from 8<sup>th</sup> month onwards to nourish the growth restricted fetus.

Intrauterine Growth Restriction is defined as a condition in which a fetus doesn't grow to normal weight during pregnancy. It is said to be present in those babies whose birth weight is below the 10<sup>th</sup> centiles of the average for the gestational age. The basic



pathophysiology is reduced availability of nutrients on the mother or its reduced transfer by the placenta to the fetus.

The causes of IUGR can be

1. Maternal-Constitutional, undernutrition, maternal diseases like Anemia, Hypertension, Thrombotic diseases, Heart diseases, Chronic renal diseases, Collagen vascular diseases, alcohol, smoking.
2. Fetal- Structural anomaly, Chromosomal abnormalities, multiple pregnancies, infections like TORCH, Malaria.
3. Placental-Chronic placental insufficiency with inadequate substrate transfer, placental pathologies.
4. Unknown

In most of the causes of IUGR blood flow to the fetus is compromised either through vasoconstriction or loss of blood.

### Case Report

A written consent is taken from the patient regarding case presentation.

A 28 year old primigravida who was under regular antenatal checkup was detected to have stationary fundal height and correspondence of gestational age by LMP to fetal growth was less than the expected. Fetal growth corresponding to 26 weeks was seen when she was 29 weeks of gestation by date. On further investigations she was detected with reduced abdominal circumference of the fetus. She was having no previous history of any major illness or surgical intervention. Her both the parents are having diabetes mellitus since five years.

On Examination:

<i>Nadi – VataKaphaPradhana</i>	<i>Mala – Kvachitsamyak, Kvachitasamyaka 1-2 times/day</i>	<i>Mutra – Samyak</i>
<i>Jivha – Nirama</i>	<i>Shabda – Spastha</i>	<i>Sparsha – AnushanaShita</i>
<i>Druk – Upanetra</i>	<i>Akruti – Krusha</i>	<i>Nidra – Prakrut</i>
<i>Kshudha- Samyak</i>	<i>Agni – Sama</i>	<i>Samhanana- Alpa</i>

She is *PittakaphajaPrakriti* with *AlpaBala* and *Madhyama Sattva*. Her *Vyayamshakti* was *Alpa*.

### Menstrual History-

Her menarche was at the age of 13. Her menstrual cycle was regular with 26-28 days of interval, 3 days of bleeding of moderate quantity.

Obstetric History – G<sub>1</sub>P<sub>0</sub>A<sub>0</sub>L<sub>0</sub>



**USG findings:**

Date	USG impression	EFW(in grams)
08.11.2019	GA-12+2weeks intrauterine gestation FHR-164bpm Low lying placenta Nasal bone present, NT-normal	
27.12.2019	GA-19+1 weeks FHR-148bpm Plcenta-2cm away from internal os Anomaly scan-normal	253gm
05.02.2020	<b>GA by date-26+6 weeks</b> <b>GA by USG – 25+1 weeks</b> FHR-138bpm Plcenta-4.6cm away from int.os <b>HC-240mm (26weeks)</b> <b>AC-193mm (24weeks)</b>	697gm
02.04.2020	<b>GA by date-35 weeks</b> <b>GA by USG – 33+2 weeks</b> FHR-132bpm AFI-14 <b>HC-301mm (33+3weeks)</b> <b>AC-268mm (30+6weeks)</b> Asymmetrical fetal growth seen <b>Fall in the growth rate of AC and FL</b>	1827gm
23.04.2020	<b>GA by date-38 weeks</b> <b>GA by USG – 36+2 weeks</b> FHR-140bpm AFI-14.2 <b>HC-318mm (35+5weeks)</b> <b>AC-298mm (33+5weeks)</b> Mild fetal growth restriction but interval growth is fairly adequate <b>Vertex presentation</b>	<b>2388gm</b>

**Ayurvedic Management:**

I. Internal medication:

Garbhapala Rasa	<i>Apanau Kala</i>	1-1 tablet
TapyadiLoha	Morning-Evening	1-1 tablet
Dhatri-Yashti <i>Churna</i>	At night	500mg
YashtiGhrita	<i>Samanau Kala</i>	1-1tbsp



II. *KsheeraBasti:*

1. Ingredients:*Ashwagandha, Shatavari*
2. Preparation:
  - 3gm *AshwagandhaChurna* + 3gm *ShatavariChurna*
  - 50ml water + 50ml milk
  - By boiling the above ingredients, 50ml *Ksheerpakawas* made.

3. *BastiPradana Kala:*

No.	Date	Time	Before Basti	Pratyagam
1	03.04.2020	9am	BP-110/70mmHg P-68/min Fundal Height-32weeks FHS-146bpm Position-ROA	9.20am
2	05.04.2020	9.15am	BP-110/70mmHg P-64/min Fundal Height-32weeks FHS-140bpm Position-ROA	11am
3	07.04.2020	9am	BP-120/70mmHg P-70/min Fundal Height-34weeks FHS-148bpm Position-ROA	10.30am
4	08.04.2020	8.45am	BP-110/70mmHg P-68/min Fundal Height-34weeks FHS-146bpm Position-LOA	10am
5	10.04.2020	9am	BP-110/70mmHg P-72/min Fundal Height-34weeks FHS-148bpm Position-LOA	11am

III. *Pathya-Madhura, BalyaAahara, Suvarna Siddha LajaJala, Kamalpushpa Siddha Jala, Makane*

**Primary Outcome** – Normal fetal growth parameters seen.

**Discussion**

In *Garbhasosha*, *Vata* is the predominant *Dosha* involved and *Brimhana* is the line of treatment adopted for pacification of *Vata*. As *Basti* is the main treatment of



*Vata* and *Ksheera* is mentioned as the drug of choice in treatment of *Garbhashosha*, *Ksheerabasti* was chosen in this case. The main cause of *Garbhashosha* is *Rukshata* which should be eliminated by *Snigdha Dravyas*. *Shatavari* and *Ashwagandha* are *Madhura*, *Snigdha*, *Balya*, *Bruhaniya* and *Garbhasthapaka*.

As said,

*Ksheera Jivaniyanam/ Ksheerghrutabhyaso Rasayanam// (Cha.Su.25)*

Milk is *Madhura*, *Snigdha*, *Shita*, *Bruhaniya*, *Balya* and *Sarvasatmya*. Hence *Shatavari* - *Ashwagandha* *Ksheerapakas* was chosen for the *Basti* treatment. Also after *Basti* course, her bowel movements became regular.

*Garbhapala Rasa* was given as it is useful in any pathology of gravid uterus. *Hingul* is *Yogavahi* and *Rasayan*; *Naga-Vanga* gives strength to uterus; *Trijata-Jiraka* is *Pittashamaka*, *Garbhasahaya Balyakara*; *Devdar* eliminates pathology in the uterus; *Vishnukranta* treats obstruction in *Srotasa* and it is *Garbhasthapaka*.

*Tapyadi Loha* works on *Rakta Dhatu* and its proper flow. It also maintains the *Agni* and hence digestion. *Shilajit* acts on obstruction in *Vatavahi Nadi* and *Shushkata*. *Raktaprasadanai* is the major role of *Tapyadi Loha*. It improves placental insufficiency and transport of nutrients to fetus and hence helps in treating *IUGR*.

*Dhatri* is a *Rasayana*, *Garbhasthapaka* and useful in *Garbhashaya* *Daurbalya* while *Yashti* is *Rasayana*, *Jivaniya* and *Balya*. *Ghritais Shreshthain Snehana*. As *Rukshata* and *Vatavikruti* are the causes of *Garbhashosha*, *Ghritapanas* was chosen 2 times a day.

After the course of internal medication and *Ksheerabasti*, fetal weight was remarkably increased. The patient underwent lower segment caesarean section at 39 weeks due to contracted pelvis, delivered a healthy male baby of birth weight 2525gm with APGAR score of 9 at 1 minute. Patient was fit and fine and due to *Basti* treatment, her *Sutika Avastha* was also healthy. Follow up of *Sutika* and neonate was taken for 1 month after delivery and both were found sound and healthy without any major issues.

Along with internal medicines if *Ksheerbasti* is administered, it helps immensely to control *Vata* which in turn helps for proper growth, proper position-presentation and proper *Anulomana*.

Abbreviations used:

1. IUGR – Intrauterine growth retardation
2. AC – Abdominal Circumference
3. FL – Femoral Length
4. HC – Head Circumference
5. CRL- Crown Rump Length
6. WNL – Within Normal Limits
7. PIH – Pregnancy Induced Hypertension
8. LMP – Last Menstrual Period
9. USG - Ultrasonography
10. GA- Gestational Age
11. EFW - Estimated Fetal Weight



12. FHR – Fetal Heart Rate
13. Bpm- Beats per minute
14. NT – Nuchal Translucency
15. AFI – Amniotic Fluid Index

### References

1. Acharya Priyamvada Sarma, Dalhana Acharya, Susrutha Samhita, Nibhandasangraha commentary. Ninth edition. Varanasi; Chaukhambha Orientalia; 2007. p.393
2. Vagbhata, Arunadatta, edited by Pt. Hari Sadasiva Sastri Paradakara. Astangahrdaya, Sarvangasundara commentary. Varanasi; Chaukhambha Sanskrit Santhana; 2010. p. 223
3. Vaidya Vishnu Gogate, Dravyaguna Vigyana, 1<sup>st</sup> edition, 2008, Vaidyamira Prakashan, p.244
4. Vaidya Vishnu Gogate, Dravyaguna Vigyana, 1<sup>st</sup> edition, 2008, Vaidyamira Prakashan, p.635
5. Premvati Tiwari, Ayurvediya Prasuti Tantra evam Stree-roga, 2<sup>nd</sup> edition, 2011, Chaukhambha Orientalia, p.359
6. DC Dutta. Text book of Obstetrics. 9th edition. New Delhi; Jaypee Brothers Medical Publishers (P) Ltd; 2018. p.432
7. Ammu.K.Sasi, Ayurvedic management for intrauterine growth restriction - a case report, International Journal of Ayurveda, and Pharma Research, IJAPR | May 2020 | Vol 8 | Issue 5
8. Suprabha K, Pharmacognostical and Physico-chemical evaluation of Shatavaryadi Ksheerapaka in IUGR introduction, *Global J Res. Med. Plants & Indigen. Med.* | Volume 5, Issue 9 | September 2016 | 244–252



Ultrasound Clinic

Patient name: Mrs. [Redacted] Age/Sex: 27 Years / Female  
 Patient ID: 18011 Visit No: 1  
 Referred by: Dr. [Redacted] Visit Date: 08/11/2019  
 LMP Date: 01/08/2019 LMP EDD: 07/05/2020(14W 1D) | C-EDD: 19/05/2020(12W 3D)

### OB - 2/3 Trimester Scan Report

Real time B-mode ultrasonography of gravid uterus done.

Rouge: Transabdominal  
 Single intrauterine gestation

**Maternal**  
 Cervix measured 3.10 cms in length.  
 Internal Os is closed.

Right uterine PI: 2.2  
 Left uterine PI: 1.6  
 Mean PI: 1.90 (64%ile)

**Fetus**  
**Survey**  
 Placenta: Posterior placenta is low-lying at this early stage and covers the internal os.  
 Liquor: Normal  
 Umbilical cord: Normal cord insertion.  
 Fetal activity: Fetal movement seen.  
 Cardiac activity: Cardiac activity present. Fetal heart rate - 164 bpm

**Biometry (Mediscan, Hadlock)**

BPD 26 mm 13W 1D	FL 16 mm 12W 3D
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CRL - 67 mm (12W 3D)  
 IT - 1.9 mm

**Aneuploidy Markers**  
 Nasal Bone: Nasal bone is seen.  
 Nuchal Translucency: 1.1 mm Normal.  
 Ductus venosus: Normal flow was recorded in the ductus venosus.  
 Tricuspid regurgitation: No tricuspid regurgitation.

**Fetal Anatomy**  
 Head: normal, Neck: normal, Spine: normal, Face: normal, Thorax: normal, Heart: normal, Abdomen: normal, KUB: normal, Extremities: normal

Patient name: Mrs. [Redacted] Age/Sex: 27 Years / Female  
 Patient ID: 18011 Visit No: 2  
 Referred by: Dr. [Redacted] Visit Date: 22/12/2019  
 LMP Date: 01/08/2019 LMP EDD: 07/05/2020(21W 1D) | C-EDD: 19/05/2020(19W 3D)

### Anomaly Scan

Real time B-mode ultrasonography of gravid uterus done.

Rouge: Transabdominal  
 Single intrauterine gestation

**Maternal**  
 Internal os is closed. Cervix is 3.1 cms in length.

Right uterine PI: 1.4  
 Left uterine PI: 1.4  
 Mean PI: 1.43 (75%ile)

**Fetus**  
**Survey**  
 Presentation: changing lie  
 Placenta: Lower end of the posterior placenta is approximately 2 cm away from the internal os of cervix.  
 Liquor: Normal  
 Umbilical cord: Normal three vessel cord and normal cord insertion.  
 Fetal activity: cardiac activity present.  
 Cardiac activity: Fetal shows normal cardiac activity and body respiratory movements.  
 Fetal heart rate - 148 bpm

**Biometry (Hadlock)**

BPD 65 mm 19W 4D	HC 162 mm 19W	AC 128 mm 19W 2D	FL-R 62 mm 19W 1D	FL-L 61 mm 18W 4D
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EFW 850g (AC, FL, BPD) 85%ile

Foot Length: 27 mm  
 BCD: 19 mm

Patient name: Mrs. [Redacted] Age/Sex: 27 Years / Female  
 Patient ID: 18011 Visit No: 3  
 Referred by: Dr. [Redacted] Visit Date: 05/02/2020  
 LMP Date: 01/08/2019 LMP EDD: 07/05/2020(26W 6D) | C-EDD: 19/05/2020(22W 1D)

### Growth Scan

Real time B-mode ultrasonography of gravid uterus done.

Rouge: Transabdominal  
 Single intrauterine gestation

**Background** - Prior growth, NT and anomaly scan is normal with low lying placenta.

**Maternal**  
 Cervix measured 3.20 cms in length.  
 Internal os is closed.

Right uterine PI: 1.2  
 Left uterine PI: 0.68  
 Mean PI: 0.94 (95%ile)

**Fetus**  
**Survey**  
 Placenta: Fundo posterior placenta is not low lying now and ends 4.8 cm from the os.  
 Liquor: Normal. Amniotic fluid index = 11  
 Umbilical cord: Normal three vessel cord and normal cord insertion.  
 Fetal activity: Fetal movement seen.  
 Cardiac activity: Cardiac activity present. Fetal heart rate - 130 bpm

**Biometry**

BPD 67 mm 20W 3D	HC 243 mm 20W	AC 192 mm 20W	FL-R 64 mm 20W 3D	FL-L 62 mm 20W 3D
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EFW 970g (HC, AC, FL, BPD) 95%ile

Patient name: Mrs. [Redacted] Age/Sex: 27 Years / Female  
 Patient ID: 18011 Visit No: 4  
 Referred by: Dr. [Redacted] Visit Date: 02/04/2020  
 LMP Date: 01/08/2019 LMP EDD: 07/05/2020(31W 0D) | C-EDD: 19/05/2020(27W 2D)

### Growth Scan

Real time B-mode ultrasonography of gravid uterus done.

Rouge: Transabdominal  
 Single intrauterine gestation

**Maternal**  
 Cervix is 3.2 cms in length. Internal Os is closed.

**Fetus**  
**Survey**  
 Presentation: Cephalic  
 Placenta: Developing placenta is fundo posterior.  
 Liquor: Normal. Amniotic fluid index = 14  
 Umbilical cord: No evidence of cord around the neck.  
 Fetal activity: Fetal movement seen.  
 Cardiac activity: Fetal shows normal cardiac activity and body respiratory movements.  
 Biophysical profile score = 10  
 (Fetal breathing movements - 2, Gross body movements - 2, Fetal Tone - 2, Reactive Fetal heart rate - 2, Amniotic fluid volume - 2)

**Biophysical profile:** Fetus shows normal breathing movements and active limb and spine movements.  
 Fetal heart rate at rest is 132 bpm and it increases upto 153 bpm on active movements.

**Biometry (Hadlock)**

BPD 81 mm 29W 3D	HC 301 mm 29W 3D	AC 288 mm 29W 0D	FL-R 62 mm 29W 3D	FL-L 62 mm 29W 0D
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EFW 1600g (AC, FL, BPD) 95%ile



Patient name	Mrs.	Age/Sex	27 Years / Female
Patient ID	15611	Visit No.	6
Referred by	Dr.	Visit Date	23/04/2020
LMP Date	01/08/2019	LMP EDD: 07/05/2020(39W)	I C-EDD: 18/05/2020(36W 3D)

**Growth Scan**

Real time B-mode ultrasonography of gravid uterus done.

Route: Transabdominal

Single intrauterine gestation

Background: Previous USG showed mild fetal growth restriction. No medical risk factors.

**Maternal**  
 Cervix measured 3.00 cms in length.  
 Internal os is closed.

**Fetus**

**Survey**

Presentation : Cephalic  
 Placenta : Fundo- posterior placenta has normal appearances.  
 Liquor : Normal  
 Amniotic fluid index = 14.2

Umbilical cord : No evidence of cord around the neck.  
 Fetal activity : Fetal movement seen.  
 Cardiac activity : Cardiac activity present  
 Fetal heart rate = 140 bpm

**Biometry**

BPD 80 mm 34W 4D	HC 318 mm 36W 5D	AC 258 mm 33W 5D	FL-RL 87 mm 34W 3D	FL-LI 87 mm 34W 3D
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BFW BPD, HC, AC, FL 3081 grams

Long Bones	Tibia	Fibula	Humerus	Radius	Ulna
(mm)					
Right	0	0	58	0	0
Left	0	0	58	0	0

Ratios(%) HC/AC = 1.07, FL\_R/HC = 0.24, FL\_L/HC = 0.22, FL\_R/BPD = 0.78

**Fetal Anatomy**  
 Head: normal, Neck: normal, Spine: normal, Face: normal, Thorax: normal, Heart: normal, Abdomen: normal, KUB: normal

**CASE REPORT PATIENT INFORMED CONSENT**

Provisional title of the case report: *Ashwathani* as an adjuvant therapy in *Garbhashya* w.r. to IUGR – A case report

I, Mrs. \_\_\_\_\_, have been treated by Vd. Triveni Dhopeswarkar confirm that I am legally entitled to give this consent. In signing this consent form, I authorize this practitioner and other co-authors to write a case report about my treatment.

I understand the following:

- I will not directly benefit from participating in this case report.
- The information that can be shared with other health care professionals, however, may improve the care that is received by others in the future.

Signing this consent form does not remove my rights to privacy. My name and protected health information will not be shared, unless my authorization is requested and consented, however, I understand that complete anonymity cannot be guaranteed.

My information being used for this case report includes relevant to this case disease history, laboratory findings, photographs and prescribed treatment protocols. A summary of my treatment will be presented for evaluation by a panel of experts and researchers and may be published in a medical journal under open access license (everybody can see and read such publication freely online) and/or presented at a medical conference, and I give permission for such publication or presentation. The summary of my treatment and the case report will not contain any personal data. If any personal data are affected they will be published in anonymized form. Allowing my information to be used in this case report will not involve any additional costs to me. I will not receive any compensation.

By signing this form, I give consent to present my case report.

Signature: \_\_\_\_\_



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**A STUDY ON FAILURE IN DISCOURSE COMPLETION TASKS IN ENGLISH LANGUAGE IN RELATION TO LINGUISTIC PERFORMANCE AMONG SECONDARY SCHOOL STUDENTS IN KERALA**

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**Abstract**

English Language curriculum in the country has always been designated to bring students communication skills to an acceptable, naturalistic, impulsive entity which equips them to excel both in academic spheres and non academic pursuits. Henceforth using language to communicate typically involves stretches of speech that are much longer than a sentence. These longer stretches are referred to as connected discourse and since communication happens all the time, discourse is a huge part of our lives. It is absolutely vital especially both as part of the child's daily real life interactions and as an important domain in the orb of formal language learning process. The endeavor of the study has been twofold primarily directed to assess the level of the secondary school students competence in responding to a series of discourse completion tasks and to equate their competence or failure in relation to linguistic performance, secondary to unearth the possible hindrances in the way of making the discourse clear and apt. The respondents of the study were secondary school students and method adopted was normative survey through stratified random sampling. The results of the study seemingly announce the failure exceedingly high number of students has in crafting discourses and giving oral responses spontaneously in second language even with an exposure to a linguistically rich – contextually bound classroom culture. Moreover findings pronounce the significant positive correlation that exists between the correlates i.e. the scores in Discourse Completion Tasks and Linguistic Performance.

**Key words:** Discourse, Discourse Completion Tasks, Linguistic Performance, Oral Responses

**Introduction**

There always has been a proliferation of new methods and approaches in second language teaching pedagogy. The main focus of language teaching is to make the learners express themselves purposefully, meaningfully and effectively. It is in the backdrop a new era in language teaching began to shift on the study of discourses which began to be materialized in English classrooms across the country. A good number of syllabi followed by secondary school students in the country began to reorganize their language curriculum in tune with targeted discourses. The students were expected to get familiarized themselves with the new paradigm consciously or unconsciously. A review made by the researcher through the syllabi opened the fact that the students following the secondary curriculum are given sufficient exposure to linguistic repertoire through academic teaching. The investigator intended to find through the study how far the students have gained their competence in Discourse. The competence can be an



influence of either their primary discourse capacity or as a result of their secondary discourse facility.

### Literature Review

To (Van Dijk 1998, Van Dijk 2003) one of the crucial social practices influenced by ideologies are language use and discourse, which in turn also influence how we acquire, learn or change ideologies. Halliday, M.A.K. and Ruqaiya Hasan. (1976), Canale, M. & Swain, M. (1980), Nunan, D. (1988), Swales, J. M. (1990), have interpreted discourse in their studies as an inevitable component of language competence. Gee, J. P. In his work in social linguistics, explored the concept of *Discourse* ("big D" Discourse). In Gee's work, *discourse* ("little d") refers to language-in-use. When discussing the combination of language with other social practices (behavior, values, and ways of thinking, clothes, food, customs, and perspectives) within a specific group, Gee refers to that as Discourse. There have been a variety of sources and studies pertaining to discourse completion tasks as a reliable and practical method of data collection. The instrument was originally developed by Shoshana Blum-Kulka (1989) for studying speech act realization comparatively between native and non-native Hebrew speakers, based on the work of E. Levenston. Discourse-completion task consists of scripted dialogue representing various scenarios, preceded by a short prompt describing the setting and situation. The prompt usually includes information on social distance between participants and pre-event background to help the participant construct the scenarios. Oral tests that represented different discourse styles, genres, studies have found significant differences in the scores according to whether the respondent was engaged in an interview or a reporting task, for example (Shohamy 1983). Some discourse processing studies have examined the transfer of discourse competence and features from L<sub>1</sub> to L<sub>2</sub> tests.

Houria Chohra (2018) in his study classroom discourse failure among Algerian secondary school learners noted down the following points of relevance to the study

- ✓ Learners prefer keeping silent to avoid mistakes
- ✓ Learners social background may have a great impact on their success and failure in learning a foreign language
- ✓ Failure in communication can be associated with lack of practice
- ✓ Strengthening delivery of the quality of discourse output rather than quantity output

The second correlate for the study- linguistic performance was taken as the real authentic utterance extracted from the continuum of speech. The linguistic performance assessment scale was developed on the notion that students significantly varies with regard to their linguistic output. This study is also supportive of the claim Noam Chomsky has made regarding the need for an ideal speech community in equipping the child with linguistic data as we have only limited knowledge about the human mind more specifically the linguistic competence of the individual, competence that is revealed through linguistic performance can be assessed although.

In the 1960s, the leading theory of language was that of Chomsky (1965), who made a famous distinction between competence and performance: competence, referring to the underlying grammatical system that he claimed to be intuitively known by all speakers of the language and performance, referring to actual language use in real



situations. Chomsky was only interested in competence, viewing performance – which incorporated memory limitations, distractions and slips of the tongue- as a distortion of the ideal model that is competence. In reaction to Chomsky, Hymes (1972) argued that there was more to language than idealized grammar, invoking the term communicative competence to refer to the competence that is required in real communication. Leech (1992) elaborating his focus on CCL has given linguistic performance a behavioral manifestation of language, in the form of naturally – occurring spoken or written discourse. A viable number of scholars and linguists have tried to quantify linguistic performance with naturally occurring speech extracts thereby segmenting written from spoken outputs. Some of the researches have been directed to equate linguistic competence with speaking performance, one such was that researched by (Wahyuni, et al., 2012). The findings showed that there was a significant correlation between students’ linguistic competence and their speaking performance. The correlation coefficient between linguistic competence and speaking performance was 0.315 and the correlation was low or weak. Furthermore, it was found that the influence of linguistic competence on speaking performance was 9.9 %. It is concluded that linguistic competence gave contribution to students’ speaking performance.

As cited by Rudolf P. Bortha (1981) in the seminal work, *The Conduct of Linguistic Inquiry, a Systematic Introduction to the Methodology of Generative Grammar*, linguistic performance and its products are in fact complex phenomena. The nature and characteristics of a particular instance of linguistic performance and its products are in reality, determined by a combination of factors.

Some of the factors which influence linguistic performance are

- ✓ The linguistic competence or unconscious knowledge of the speaker- hearer
- ✓ The nature and limitations of the speaker- hearers speech production and speech perception mechanisms.
- ✓ The nature and limitations of the speaker- hearers memory, concentration, attention and other mental capacities.
- ✓ The social environment and the status of the speaker – hearer.
- ✓ The dialectal environment of the speaker – hearer.
- ✓ The idiolect and individual style of speaking of the speaker – hearer
- ✓ The speaker – hearer’s factual knowledge and view of the world in which he lives.
- ✓ The speaker – hears state of health, his emotional state and other similar incidental circumstances.

Each of the factors mentioned above is a variable in linguistic performance and as such, may influence the nature and characteristics of a particular instance of linguistic performance and its products. Thus any of these factors may be responsible for what is problematic in particular instance of linguistic performance and its products. It is therefore clear why the linguist regards linguistic performance and its products as a complex phenomenon.

As evidenced by Chomsky a good number of people fail to bring their linguistic competence into actual linguistic performance. The researcher through the study makes an attempt to disclose how far students perform based on the set criteria independent of the tasks initiated by the rater in a non rehearsed setting. An array of



studies have been conducted in the field of linguistics and education focusing on the validity and reliability of discourse completion tasks as a robust method of second language assessment. Mixed reviews and findings reveal both the felicity and paucity of this tool as a mode of evaluation.

As per the theory and findings vocalized there seems to be two directions through which the study has significance and relevance. First and foremost the study can render its voice to the existing norms regarding how second language learners comprehend, perceive and document discourses and at the same time equally pertinent is whether they are able to perform verbally based on a set criteria.

### **Hypotheses of the Study**

1 The students differ in their levels of competence in Discourse Completion Tasks for the

whole sample and subsample based on type of school management

2 The students differ in their levels of Linguistic Performance for the whole sample & subsample based on type of school management

3 There is significant relationship between competence in Discourse Completion Tasks and

Linguistic Performance of secondary school students

### **Methodology**

A sample of five hundred students was drawn from different secondary schools across the state of Kerala. Normative survey method was adopted following stratified random sampling. The students who were in their high schools (13-15 years) were selected as representative samples from the population. They had their enrollment either in schools following state syllabus (government schools, state aided schools, state unaided) or respective secondary education boards (ICSE -The Indian Certificate of Secondary Education and Central Board of Secondary Education.). The data collected from the corresponding schools were scored, tabulated and entered for analysis using appropriate statistical procedures..

#### **4.1 Instruments Employed**

##### **4.1.1 Discourse Completion Tasks**

For the purpose of the study a discourse completion test was standardized (piloted from a sample of 100 students, Spearman –Brown Coefficient - .772) by the researcher taking into account different components reviewed from the literature pertaining to students written or production competence in the following dimensions such as

- Discourse completion tasks – open ended
- Reverse discourse completion tasks
- Multiple choice discourse completion tasks and
- Situation based open ended discourse completion tasks

The test measures how well the students demonstrate their ability in English language while documenting their skills in writing when a context is provided with The test also evaluates by making them comprehend and pen down the possible oral utterances they would make if they were in such a linguistic environment. Each of the dimensions was allotted a score of 5 and the maximum score of the tasks would be a



score of 20. The scores were further categorized based on different levels such as exceptionally high, high, good, average, poor and low.

#### **4.1.2 Linguistic Performance Oral Assessment Scale**

The students' Linguistic performance was assessed based on the response to a series of tasks initiated by the rater in a spontaneous natural environment through an oral analytic assessment rating scale based on five criteria such as

- Accuracy
- Appropriacy
- Choice of vocabulary and structure
- Pronunciation
- Overall Quality

After a preliminary try out, computing inter reliability (Cronbach's Alpha - .961) and further ensuring the validity norms a series of tasks specified to assess the oral proficiency for constructed levels against a language learner's performance was evaluated. Each of the criteria was described ranging from zero mastery level through an end point describing the most competent user. The components were numerically assigned a score from 1 to 5 and the maximum score to be 25. Description for each criterion was defined against the numerical value allocated by the rater.

#### **Findings of the Study**

**5.1.** The level of discourse competence of secondary school students for the whole sample indicated that –out of the whole sample (500), when distributed according to different levels of Discourse Competence, a count of 5 (1.0%) constituted the exceptionally high discourse competence group, a number of 13 (2.6 %) in the high discourse competence group, 61 students (12.2%) in the good discourse competence, 68 students (13.6%) in the average discourse competence group, 219 students (43.8%) in the low discourse competence group and finally 134 students (26.8%) cluster in the poor discourse competence group.

**5.2** When Government, state aided, state unaided, CBSE and ICSE secondary school students were compared according to their level of discourse competence, there were no students from government, aided and state unaided schools who constituted the sample from exceptionally high discourse competence group. 4 students from ICSE and one student from CBSE came in the exceptionally high discourse competence group. There were no students from government, aided and unaided schools who comprised the high discourse competence group. 12 students from ICSE and one student from CBSE constituted the high discourse competence group. There were no students from government who could be classified under good discourse competence category. 27 students from CBSE, 10 students from aided, 18 students from ICSE and 6 students from state unaided came in the good discourse competence category. There was only one student from government, 34 students from CBSE, 11 from Aided, 16 from ICSE, 6 from State unaided which made up the average discourse competence group. 44 students from government schools, 73 students from CBSE and 45 students from aided, 41 students from ICSE and 16 students from State unaided constituted the low discourse competence category. Out of 115 Government students, a cluster of 70 fall in poor discourse competence or discourse failure group, out of 166 CBSE students, a count of 30, out of 88 State aided schools a number of 22, from 99 ICSE students, a count of 8



and finally from a group of 32 State unaided students a number of 4 form the poor discourse competence group.

**5.3** When the level of linguistic performance of secondary school students for the whole sample was calculated, a count of 9 (1.8 %) comprised the very good user group and a count of 46 (9.2 %) comprised the competent User Group. While a count of 119(23.8 %) made up the modest user group, a count of 123 (24.6 %) came in the limited user or average group and a count of 203 (40.6 %) in the extremely limited user or low group..

**5.4** When the level of linguistic performance of secondary school students for the sub sample based on management was calculated, a total of 9 students came in the very good user group. There were no students from Government, CBSE and Aided who came in the very good user group and only 7students from ICSE and 2 students from State unaided came in the very good user category. Under the level of competent user classification in the linguistic performance level a count of 46 students came in this category out of which only one student was from government category. 12 students from CBSE, 10 students from Aided in the competent user group, 22 students from ICSE and finally one student from state unaided in the competent user group. A count of 119 came in the modest user or good group out of which 3students were from government schools,. 57 students from CBSE, 14 students from aided, 37 students from ICSE, and further 8 students from State unaided. 123 students came for the limited user or average group, out of which 5 students from the government, 66 students from the CBSE, 19 students from aided, 20 students from ICSE and finally 13 students from State unaided. Out of 203 students who fall in the extremely limited user or low linguistic performance level group, a count of 106 Students were from government schools, 31 students from CBSE, 45 students from aided and 13 students from ICSE and 8 students from state unaided.

**5.5** When the relationship between competence in discourse completion tasks and linguistic performance for the whole sample was computed, the coefficient of correlation worked out using Pearson Product Moment Correlation was found to be .731 which is significant at the 0.01 level. The variables Discourse competence and Linguistic performance are positively correlated and the relationship can be stated as marked or substantial. Therefore, it can be inferred there exists significant positive correlation students scores in discourse completion tasks and Linguistic performance.

### **Discussion and Conclusion**

From the analysis it is clear that exceedingly number of students find it difficult to build up a discourse pattern in their conversation. The majority of the students fall in the low discourse competence and the least number of students in the exceptionally high discourse competence group. They are unacquainted of the ways to craft language in different meaningful contexts apart from the academic or textual learning of language. They comparably fall below is out of the fact that their pragmatic knowledge of when to use and how to use language is apparently imperceptible. Moreover they find it laborious to get hold of appropriate vocabulary and connectives to keep the thread. Further being weak in comprehension skills, they find it relatively difficult to read



between the lines hence meaning is obstructed. Basic sentence rules or maintaining the structure is still another problem faced evidenced through their response sheets. Results show that 134, out of 500 students, a percent of 26.8 students find it hard to document their competence in discourse completion tasks. How secondary school students differ in terms of their competence in discourse completion tasks based on type of management have to be taken into heed. The study therefore proposes to take remedial measures to develop discourse production skills among students so as to make them competent facilitators of language.

Students were provided with a stress free environment to make them at ease in eliciting quite natural utterances. The oral assessment tasks were administered independent of their scores in tasks so as to help them in being vocal about their views, likes ,opinions, thinking, interests etc. 203 students , from a count of 500 (40.6 %) are having low linguistic performance. While assessing their speech against a set of criteria like, fluency, accuracy, appropriacy, pronunciation, overall quality etc these students couldn't come to an expected level of performance. Some of the problems or inaccuracies noted by the rater and while some figured out directly from the respondents words were as follows

- Inability to comprehend even the least complex spoken stratum
- Failure to respond to tasks even with repeated cues or prompts
- Incapability to produce the intended meaning through words-
- Inefficiency in articulating even the basic - common words
- Incompetency in transferring academic knowledge to a contextualized imaginary situation
- Disorientation and over consciousness with right and wrong usages
- Lack of linguistic rich environment or out of classroom language exposure
- Limited self learning preference towards language learning
- Paucity in expression skills owing to dearth of real world knowledge
- Disinclination towards an incomprehensive tongue or foreign language

The study accepts the first two hypotheses that there is difference in the level of competence in discourse completion tasks and linguistic performance for the whole sample and subsample based on management. The third hypothesis formulated accordingly -there is significant and positive correlation between competence in discourse completion tasks and linguistic performance is also fully substantiated. Therefore it can be deduced that the two constructs individually and collectively nurtured can bring about successful linguistic demeanor and facility in English language. The present study will be valuable as the conclusions drawn can significantly render its implications for second language teaching methodology and research output evenly and with a wider perspective.

#### **Limitations and Suggestions**

Regarding the sample selected the number was delimited to 500 owing to practical difficulty. Minimum two hours was required to complete the two tests. It yielded as a constraint to extend the study to a larger sample. A perfectly equal subsample couldn't be selected given that it put much effort on the management to allocate timetable within the tight schedule. The tests developed for the study have been validated for the age group 13 -15. Hence it is to be registered here that the conclusions



drawn from this piece of research should not be over generalized as they are delimited to the population from which the sample was drawn. Regarding the choice of items and the responses elicited is in requirement to the politeness principle and discourse regarded pertinent in the specific culture of the population from which the sample is drawn. Hence generalizations have to be cautiously and judiciously made. Further studies can be conducted among an extended sample and by adding up a few more dimensions to competence and performance. A longitudinal study could also be made feasible to study the development of discourse competence and linguistic performance of selected children over the years.

### References

- Bachman, L. F., & Cohen, A. D. (Eds.). (1998). *Interfaces between second language acquisition and language testing research*. Ernst Klett Sprachen.
- Botha, R. P. (2017). *The conduct of linguistic inquiry: A systematic introduction to the methodology of generative grammar* (Vol. 157). Walter de Gruyter GmbH & Co KG.
- Chohra, H., & Hamerlain, S. (2018). Classroom Discourse Failure among Algerian Secondary School Learners. *Arab World English Journal (AWEJ) Volume, 9*.
- Discourse Completion Tasks. (n.d.). In Wikipedia. Retrieved July 29, 2020, from [https://en.wikipedia.org/w/index.php?title=Discourse-completion\\_task](https://en.wikipedia.org/w/index.php?title=Discourse-completion_task)
- Gee, J. P. (1990). *Social linguistics and literacies: Ideology in discourses*. London: Falmer Press.
- Gee, J. P. (2014). *An introduction to discourse analysis: Theory and method*. Routledge.
- Kunjappan, S. (2020). *A study on Discourse Competence in English in relation to Linguistic Performance and Linguistic Intelligence among secondary school students*, (Unpublished doctoral thesis), Mahatma Gandhi University, Kottayam.
- Nguyen, M. (2019). Data collection methods in L2 pragmatics research. *The Routledge handbook of second language acquisition and pragmatics*, 195-211.
- Van Dijk, T. A. (2000). Ideology and discourse: A multidisciplinary introduction. *Pompeu Fabra University, Barcelona*, 1025-1034.
- Van Dijk, T. A. (2004). Discourse, knowledge and ideology. *Communicating ideologies. Multidisciplinary perspectives on language. Discourse and social practice*, 5-38.
- Wahyuni, D, Ihsan, D., & Hayati, R. (2014). Linguistic competence and speaking Performance of English education study program students of Sriwijaya University. *The Journal of English Literacy Education: The Teaching and Learning of English as a Foreign Language, 1*(2), 83-92
- Wojtaszek, Adam. (2016). Thirty years of Discourse Completion Test in Contrastive Pragmatics research *Linguistica Silesiana* 37. 161-173.
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## RIGHT TO EDUCATION ACT, 2009 AND PRIVATIZATION OF EDUCATION: AN ANALYSIS WITH SPECIAL REFERENCE TO INDIAN CONSTITUTION AND HUMAN RIGHTS PERSPECTIVE

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### Abstract

Justice in forms of social, economic and political is the touchstone of every egalitarian society. The scheme of providing the opportunity of being educated is one of the main institutions of social justice. It is rightly said by G.K. Chesterton that Education is simply the soul of the society as it passes from one generation to another. With the advent of Constitution of India, the principles of welfare state in form of social justice become so much prominent that those are part and parcel of every individual's life. The facet of Right to life and personal liberty has got predominance over everything under the sun. In this Article, the focus is on some of the important areas namely, Constitutional provisions regarding the Right to Education, the historical background of the evolution of Right of Children to Free and Compulsory Education Act or RTE Act 2009, International initiatives relating to Right to Education as one of the basic human rights and lastly in this Article an analysis has been made how the phrase 'Privatization of Education' is oxymoron in the perspective of Right to Education Act or RTE Act 2009 and the role of Indian judiciary in relation to this Right to Education.

**Key words:**Welfare state, Social justice, Right to Education, Constitution of India, Human Rights, Privatization of Education.

### Introduction

'Education is the discipline for the adventure of life.'

A.N Whitehead.

Etymologically, the word 'Education' comes from the Latin word *educatio*, which means 'a breeding, a bringing up, a rearing'. According to Oxford dictionary 'Education' means an enlightening experience. More specifically, it is a process of receiving or giving systematic instruction. It is rightly said by Herbert Spencer that education has its object in the formation of character. We live in a society which can be termed as welfare society or welfare state and the concept of social justice is imbedded in its roots. The basic meaning of 'social justice' denotes an idea of fairness and it ensures the just relationship between the state and its subjects by securing privileges, opportunities and it enables people to get basic benefits and to bear the burden of



cooperativeness. Reciprocal unity is the touchstone of social justice. To get a more vivid picture of the phrase 'social justice' we have to turn the pages of history of making our Indian Constitution. Before drafting the Constitution, there was an undoubted unanimity regarding the incorporation of the principles of social justice for an egalitarian society. The Preamble of Indian Constitution ensures three kinds of justice namely, social justice, political justice and economic justice. Providing of education is one of the most important pillars of the whole structure of social justice.

The concept of education can be traced since the inception of civilization. At that period of time education was described as the process of training by the adults to the young about some basic knowledge and skills necessary for their day-to-day existence in the then society. Story telling was one of the most popular forms of educating young fellows. With the progress of time, the structure of educating people started changing. Formal schooling, establishments of colleges and universities started blooming to fulfill the demand of the society. Education is very crucial for a holistic development as well as empowerment of a state and naturally, individuals are included under the purview of the state. It is one of the means to secure dignity, self-esteem to one's self. Education is a tool of socialization. The Right to Education movement started nodding its head during British realm in colonial India under some true leadership. Mahatma Gandhi was one of the most prominent leaders regarding the movement of basic and compulsory education in India. Gopal Krishna Gokhale initiated the scheme of compulsory primary education in India. This scheme received warm support of Sir Rashbehari Ghosh and during the Swadeshi Movement, he supported the move for national education, becoming the First President of the National Council of Education (1906-1921).

### **Constitutional Mandates.**

The concept of Right to Education initially was not incorporated as fundamental right in Indian Constitution. However, it was included as Directive Principle of State Policy under Art. 45 of Constitution. Art. 45 said that it required the State to endeavour to provide within 10 years from the commencement of Constitution for free and compulsory education for all children unless and until they complete the age of 14 years. From the very language of this Article, it is quite clear that the directive under Art. 45 was not confined merely to the idea of primary education. It was extended up to the limit of 14 years of age. Therefore, education for children of this age group should have been free at latest by the year of 1960. However, from the practical point of view many years passed in this way. The framers of Indian Constitution felt it very deeply that for the smooth running democratic set up, education is one of the basic elements. Through the Constitution (86<sup>th</sup> Amendment) Act 2002, Art. 45 came into being in a new form and content. According to the provision of this Article, the State shall endeavour to provide early childhood care and education for all children until they complete the age of six years. Art. 45 can also be construed as supplementary to Art.24, which prohibits the employment of a child below the age of 14 years in any factory or mine or in any other hazardous employment. Art.45 can also be supplemented by Art. 39(e) and 39(f). Under Art. 41 the State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age sickness and disablement, and in



other cases of undeserved want. Even the concept of this Right to Education can be construed from the language of Art. 30(1) where it is laid down that all minorities, whether based on religion or language, shall have the right to establish and administer educational institutions of their choice.

Apart from these, Art. 46 is also very much important in this regard. It is provided under Art. 46 that the State shall promote with special care the educational economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitations.

During this period, Hon'ble Apex court of India has made an implication regarding the idea of Right to Education under Art. 21 of Indian Constitution. In the landmark judgement of *Unnikrishnan, J.P v. State of Andhra Pradesh* (1993) 1 SCC 645 Hon'ble Supreme Court of India has held that fundamental rights and directive principles of state policies are complementary and supplementary to each other. It was also held by that judgement that right to education is included within the purview of right to life and personal liberty and it is a very important fundamental right. The word 'life' has been held to include 'education' because education promotes good and dignified life.

Subsequently to the landmark decision of *Unnikrishnan* judgement, when the Constitution (86<sup>th</sup> Amendment) Act, 2002 came into force, a new article was introduced in our Indian Constitution. That is Art. 21A that makes the right to education a fundamental right without any kind of doubt. This Art. 21A came into being on and from 1<sup>st</sup> April 2010. According to the language of that particular article, the state shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the state may, by law, determine. The tune of Art. 21A can be strengthened by Art. 51A (k) of Fundamental Duties. The clause (k) was inserted via 86<sup>th</sup> amendment. It is told by that particular clause that who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.

Art. 21A has been described as the most important fundamental right and stands above other rights. In another landmark decision of Supreme Court *Ashoka Kumar Thakur v. Union of India* (2008) 6 SCC 1, it was told "as one's ability to enforce one's fundamental rights flows from one's education." It is held in famous case of *Avinash Mehrotra v. Union of India* (2009) 6 SCC 398 that Art.21A must be read with Art.19 (1)(a). Article 21A has also been construed as fundamental right of every child to receive education free from fear of security and safety so that children have a right to receive education in a sound and safe building. In *Ashoka Kumar Thakur v. Union of India* (2008) 6 SCC 1, Dalveer Bhandari, J directed "The Union of India to set a time limit within which this article is going to be completely implemented. This time limit must be set within six months. In case the Union of India fails to fix the time limit, then perhaps this work will also have to be done by the court." Before the enforcement of this judgement, the Government of India during the tenure of 2001-2002 has already launched *Sarva Shiksha Abhiyan*, to make the elementary education free without enacting any central legislation. It was felt by the constitutional jurists that without enacting any central legislation, the dream of implementing the theoretical aspect of



Right to Education in hard-core reality, could never be achieved. A robust legislative approach was need of the hour.

### **Salient features of the Right to Education Act, 2009**

The Right of Children to Free and Compulsory Education Act or Right to Education Act (RTE) is a legislation of Parliament of India enacted on 4<sup>th</sup> August 2009. A draft of the bill was prepared in the year 2005 very roughly. With the progress of time, the said draft of the bill came into being as an enactment in the year 2009. Primarily according to the opinion of the sub-committee of the Central Advisory Board of Education, the provision of compulsory education was one of the pre-requisites of that bill. It will never be a hyperbolic statement if anyone says that Right to Education Act, 2009 is an outcome of Art.21 and Art.21A of the Indian Constitution. India became one of 135 nation states to make education a fundamental right. This Act among other things provides for the right of every child who has attained the age of 6 years to be admitted in a neighborhood school and to be provided free and compulsory education in such school. It is the responsibility of the state for making such arrangement available to such children. As a consequence of implementing this kind of legislation, all schools whether it is aided or state schools will now have to facilitate the concept of free and compulsory education and charging of any kind of capitation fees is now completely prohibited and the parents of children cannot be subjected to any kind of hindrances to get free and compulsory education for their children. As it is already discussed that Art.51A (k) of the Indian Constitution already casts a fundamental duties upon parents to make available their children to such free and compulsory education.

The major and important provisions of Right to Education Act, 2009 are given below:

- Right to Free and Compulsory Education for children from the age group of 6 to 14 years;
- This enactment promotes a friendly learning atmosphere for those children in the schools;
- The provisions of RTE, 2009 at the same time prohibit any kind of physical as well as mental harassment of those children;
- The focus of RTE is on the various norms related to better infrastructure, student teacher ratio, working days and hours of teaching and non-teaching staffs etc;
- No child is liable to pay any charges for education under RTE, 2009;
- Most importantly, the RTE, 2009 makes Central and State Govt. responsible to provide Free and Compulsory Education by providing financial and other resources;
- No child shall be held back, expelled, or required to pass a board examination until completion of elementary education;
- This RTE Act 2009 provides the rules regarding the transfer of any child from one school to another school;
- According to the provision of this enactment, it shall be the duty of every parent or guardian to admit or cause to be admitted his or her child or ward, as the case may be, to an elementary education in the neighbourhood school;



- This legislation chalks out the extent of school's responsibility for free and compulsory education;
- This legislation introduces the concept of establishing neighbourhood schools;
- A child above six years of age has not been admitted in any school or though admitted, could not complete his or her elementary education, then, he or she shall be admitted in a class appropriate to his or her age; Provided that where a child is directly admitted in a class appropriate to his or her age, then, he or she shall, in order to be at par with others, have a right to receive special training, in such manner, and within such time limits, as may be prescribed: Provided further that a child so admitted to elementary education shall be entitled to free education till completion of elementary education even after fourteen years.
- For the purposes of admission to elementary education the age of a child shall be determined on the basis of the birth certificate issued in accordance with the provisions of the Births, Deaths and Marriages Registration Act, 1886 or on the basis of other such document, as may be prescribed. No child shall be denied admission in a school for lack of age proof.
- A child who completes elementary education shall be awarded a certificate;
- It will apply to all of India except Jammu and Kashmir;
- It provides for 25 percent reservation for economically disadvantaged communities for the admission to Class 1 in all private schools;
- It mandates about the improvement of quality of education;
- School teachers will need adequate professional degree within five years or else will lose job;
- School infrastructure (where there is problem) to be improved in three years, else recognition cancelled;
- Financial burden will be shared between state and central government

The crux of the RTE, 2009 has been imbedded into the phrase of 'Free and Compulsory Education'. Free education means that no child, other than a child who has been admitted by his or her parents to a school, which is not supported by the appropriate Govt., shall be liable to pay any kind of fee, charges or expenses, which may prevent him or her from pursuing as well as completing elementary education. 'Compulsory Education' bestows an obligation or responsibility on the appropriate Govt. as well as local authorities to provide and ensure admission, attendance and completion of elementary education by all children of the age group of 6-14. So from the above two important phrases it is quite apparent that Govt. has to shoulder the burden of responsibility to spread literacy throughout India among a certain age group.

### **Right to Education- qualified Human Right**

Right to education is recognized as one of the basic human rights undoubtedly. To implement this kind of right many initiatives have been taken by various organizations at international level from a human rights perspective. Specifically Article 26 of UDHR (Universal Declaration of Human Rights, 1948) states:

"Everyone has a right to education. Education shall be free at least in the elementary and fundamental stages. Elementary education shall be compulsory.



Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit. Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further activities of the United Nations for the maintenance of peace. Parents have a prior right to choose the kind of education that shall be given to their children.”

Apart from UDHR, Article 13 and Article 14 of the International Covenant on Economic Social and Cultural Rights, 1966 reiterate the principle of Right to Education. According to the language of this International Covenant, right to education includes right to free, compulsory primary education for all. Right to education also includes our responsibility to provide basic education for those individuals who have not completed primary education. At the same time, it encompasses the responsibility to eradicate any kind of discrimination at all level of education system, to set minimum standard and to improve overall quality.

The provisions related to Right to Education can also be evident from Article 2 of the Protocol of European Convention on Human Rights, UNESCO Convention against discrimination in education, Convention of the elimination of all form of discrimination against women, Convention on the Rights of Persons with Disabilities, African Charter on Human Rights, Declaration of the Rights of Child 1959, Convention on the Rights of the Child 1989 etc. In 1990, the World Declaration on Education for All (EFA) was adopted. Apart from these conventions, it is noteworthy to mention other two conventions namely, Convention No.138 and 182 of International Labour Organization (ILO). Therefore, there are three different levels where the concept of Right to Education can be analyzed.

- Primary level- there must be free and compulsory primary or elementary education for all children,
- Secondary level- there shall be generally available and accessible education for all on the basis of merit,
- University level- there shall be generally available and accessible higher education for all on the basis of merit.

Millennium Development Goal (MDG) to achieve universal primary education by 2015 was established to fight for the all children everywhere, regardless of gender, to a complete course of basic primary education.

### **Privatization in Indian Education System.**

The 19<sup>th</sup> century was a time of rapid economic growth and urbanization. During the mid 90's a brand new concept of LPG (Liberalization Privatization Globalization) came into Indian commercial as well as economic scenario. Those three ideas of Liberalization Privatization Globalization started sweeping across the territory of India at that time. Those three ideas are interdependent to each other. At this juncture, a new era of institution building started penetrating into the Indian education system. It was a time when schools and education gradually assumed greater importance and came to reflect



the prevailing social divisions and patterns of inequalities. Education in countryside evolved very slowly but schools developed very rapidly in the cities. Education reform appeared in many guises at that time. The shifting of tendency towards bureaucratization of education system became so much prominent. A dynamic vortex of change started making its space within the education system.

According to the Oxford Advanced Learner's Dictionary New 8th edition the word, *Privatize* means something to sell a business or an industry so that it is no longer owned by the government. The synonymous word of *Privatize* is *Denationalize*. The word privatization is the noun form of the verb *Privatize*. *Privatization* is a generic term and it refers to the process of transferring of ownership. Specifically the term privatization is aimed at breaking the traditional concept of monopoly of the government. As the effect of privatization starts spreading in all areas of the economy, therefore it is obvious that education system of India has its no exception. Education is now a both private and social investment. The shift towards privatization of education rapidly reduces the role of the Central as well as the State governments. Privatization is considered as the management by private sector with less interaction or less intervention from the part of the government. Privatizing education can be done in several forms viz. converting of Govt. aided institution into self-financed institution, establishing private educational institutions, introducing various self-financed courses even in Govt. owned institutions etc. The self-financed institutions having the philosophy that higher fees or charges can be generated for those who can bear the burden with ease. There are several factors responsible for privatizing education system in India. Those are the followings:

- to fulfill the demand of literacy of every child in such a highly populated country;
- it is great financial burden for State as well as Central Govt. for spending too much money for education for everyone;
- one of the most important justifications for privatization lies on the inefficient education policies;
- quest for quality is considered another criteria for reducing Govt. schooling;
- now-a-days providing education is termed as economic service;
- In the perspective of knowledge industry, privatization of education promotes a more competitive economic environment;
- The inefficiency in fulfilling the skilled work force in this knowledge industry by the Govt. is another reason for the evolution of privatization in Indian education system.

The story has its dark side too. The concept of high fees or charges directly undermines the equal and universal access to education. The concept of privatization plays an adverse role on the principle of basic, primary, compulsory as well as elementary education for all. If anyone has to buy education *in lieu* of high fees, then the welfare theory of social justice cannot be justified.

### **Judicial Activism**

Indian judiciary has played a pivotal role regarding the issue of right to education in India. Several decisions of Hon'ble High courts as well as Apex Court of India have



been guiding the educational institutions to construct a better structure of education. We have already discussed that concept of right to education came from the concept of Right to Life and personal liberty (Supra.). It is also held that it is the obligation of State to provide free and compulsory education for all children from the age of 6 up to 14 years (Supra.). Apart from the judgements of Unnikrishnan, Ashoka Kr. Thakur and Avinash Mehrotra, there are other several judicial pronouncements which are note worthy to be discussed to get a clear picture regarding the stand point of Indian judiciary relating to the desirable structure of Indian education system.

In landmark judgement of *Mohini Jain v. State of Karnataka* (1992) 3 SCC 666, it was ruled, “ The right to education flows directly from right to life and that right to education being concomitant to the Fundamental Rights, The State is under constitutional mandate to provide educational institutions at all levels for the benefit of the citizens...” . Here the Hon’ble Court also observed that charging of capitation fee amounts to discrimination on a class basis and is thus total denial of Article 14 of the Indian Constitution. The bench criticized the capitation fee as “Nothing but a price for selling education” and the commercialization of education is adversely affecting the educational standards in accordance to that bench. The court characterizes the educational institutions charging capitation fee as ‘teaching shops’ and at the same time the court also observed that the concept of teaching shops is absolutely contradictory to the constitutional scheme and opposite to Indian culture and heritage. According to the Hon’ble Court if a poor meritorious student is denied to get admitted in any educational institutions only because he has no money whereas on the contrary the rich can have the capacity to purchase it , such a treatment is patently as well as latently unethical, unjust, unfair and unreasonable. In *Mohini Jain*, the court took an extremely expensive view of State’s responsibility or obligation to provide education to everyone at all level. From a practical point of view, such an approach was hardly viable and feasible in the present economic situation of our country. That particular ruling undoubtedly bestowed upon the state an impossible financial burden to provide education for all at every level. There is no such justification to oust completely the role of private institutions from the field of higher education. In cases of professional education there seems to be no need of bar of private initiatives. Of course, care has to be taken that those institutions must be administered in the spirit of doing social service rather than in profit making business. Taking note of the inadequate outlay on education on limited economic capacity of the state, the court ruled that private educational institutions, both aided or unaided, are a necessity in India, but at any cost, commercialization of education cannot and should not be permitted.

The scheme framed by the court in the case of Unnikrishnan and thereafter followed by the governments was held to be an unreasonable restriction under Article 19 (6) of the Indian Constitution. In the landmark judgement of *T.M.A. Pai Foundation v. State of Karnataka* (2002) 8 SCC 481, in relation to the private unaided educational institutions the court was of the opinion that the scheme has the effect of nationalizing education in respect of important features viz. the right of a private unaided institution to give admission and to fix the fee. The scheme related to grant of admission and the fixing of the fee framed in Unnikrishnan, has been replaced by another judicially evolved scheme in *T.M.A. Pai Case*.



Apart from the above two judgements another landmark decision in *Nalanda Educational Society, Kondapur, Hyderabad v. Govt. of Andhara Pradesh and others* 2010 SCC Online AP 697 regarding the desirable structure of educational institution along with the structure of Capitation Fee Act is important. In another case *Islamic Academy of Education v. State of Karnataka* (2003) 6 SCC 697, it was held that there can be no profiteering and capitation fee cannot be charged since education is essentially charitable in nature. It was also ruled by the Hon'ble Court that the surplus or the profit that can be generated must be only for the benefit or use of that educational institution. In *Modern School v. Union of India* (2004) 5 SCC 583, Hon'ble Supreme Court opined that prevention of commercialization is necessary. It was held by the Hon'ble Apex Court that one of the methods of preventing commercialization of education in schools is to insist that every school follow the principles of accounting applicable to not for profit organization or non business organization.

### Conclusion

It is an eternal truth that in spite of having objections, arguments or hindrances, society will have to move with due course of time. By keeping aside all the reservations and so-called conservativeness, society will have to pave its own way to catch the rhythm of time. It is not at all rational or advisable to keep away ourselves from the wave of modernization. Concisely privatization is now an inevitable factor in every facet of our society. To meet the ever-growing demands, our society has to adapt some policies for the smooth functioning of its governance. In addition, undoubtedly the concept of privatization is one of those policies. It is already discussed in this Article that Indian education system has no exception in this regard. There are certain factors, which are responsible for the evolution of privatization in education sector. As the horizon of knowledge is ever expanding, it is felt that induction of privatization is necessary so that it can share some sort of burden of the State to whom the sole responsibility to eradicate the illiteracy from our country is bestowed upon. This would be only desirable explanation or jurisprudential rational behind the insertion of privatization in Indian education system. Providing of education is considered as an important factor contributory to human resource development. It is noteworthy to mention here that privatization and commercialization are not same. A very thin difference exists between these two. Commercialization in education system denotes the idea of providing education only in lieu of consideration in terms of money and because of this, it is derogatory to the true spirit of constitutional requirements of socialistic pattern of our society.

RTE, 2009 and privatization are just contradictory to each other. While it is laid down in the enactment, it is the obligation of the State to provide compulsory, primary, elementary education for every child up to a certain age, on the very contrary privatization fades out the whole idea of compulsiveness of the State to provide education. Therefore, both are oxymoron in nature. If commercialization in the guise of privatization will come in action, it seems difficult to implement this legislation. Nevertheless, the complete negation of privatization is not rational or advisable. Private initiatives regarding higher education is very much beneficiary. To quench the thirst of quality, technological revolution and competitiveness in fair manner, privatization



especially in higher education sectors like colleges and universities, is the need of the hour.

Ensuring the access of higher education by the weaker sections of society, maintaining the proper accountability and transparency with clear policy prescription, encouraging excellence with proper monitoring, privatization is a welcome initiative. Neglecting the basic ingredients of welfare state, privatization cannot be done. A joint venture of Govt. and private sector in Indian education system in accordance to the need of society as well as our Constitutional spirit is the most desirable one. Privatization, lock, stock and barrel, is discouraged like anything.

## References

1. Basu, DD. (2004). *Introduction to the Constitution of India*. Wadhwa Nagpur. (19<sup>th</sup> ed.).
2. Baxi, Upendra.(2012). *The Future of Human Rights*. New Delhi Oxford University Press India. (3<sup>rd</sup> ed.).
3. Jain, M.P. (2007). *Indian Constitutional Law*. Wadhwa and Wadhwa Co. Nagpur. (5<sup>th</sup> ed.).
4. Pandey, J.N. (2011). *The Constitutional Law of India*. Central Law Agency, Allahabad. (48<sup>th</sup> ed.).
5. Rai, Kailash.(2015). *The Constitutional Law of India*. Central Law Publications, Allahabad. (11<sup>th</sup> ed.).
6. Hornby, A.S. (New 8<sup>th</sup> Ed.).(2010). *Oxford Advanced Learner's Dictionary of Current English*. Oxford University Press.
7. Lee, S. E. (2013) Education as a human right in the 21<sup>st</sup> century. *Democracy and Education*. 21(1).
8. Abrol, Monika.(2016). Emerging trends on privatization of Education in India. *International Journal of Educational Administration*, ISSN 0976-5883, 8(1).
9. Karamala, Aresh Kumar., & Sultana, Tabassum. (Dec 2018).Understanding Educational Framework: Analyzing the Impact of Privatization on Right to Education(RTE). *Asian Law and Public Policy Review*, ISSN 25816551, 3.
10. Gill, Rana Preet. (2018, 12<sup>th</sup> Aug). The Right to Education, *The Hindu*. Retrieved on 1<sup>st</sup> May 2020 from <http://www.thehindu.com/opinion/open-page/the-right-to-education/article24666396.ece>
11. Sriram, Jayant.(2016, 14<sup>th</sup> Dec). Empowering the Right to Education, *The Hindu*. Retrieved on 1<sup>st</sup> May 2020 from <http://www.thehindu.com/news/national/Empowering-the-Right-to-Education/article16802276.ece>
12. Left Behind: on the right to free, compulsory education. (2018, 18<sup>th</sup> Jan). *The Hindu*. Retrieved on 1<sup>st</sup> May 2020 from <http://www.thehindu.com/opinion/editorial/left-behind-on-the-right-to-free-compulsory-education/article22458272.ece>
13. The Right of Children to Free and Compulsory Education Act, 2009
14. The Right of Children to Free and Compulsory Education Bill, 2005
15. Universal Declaration of Human Rights, 1948



16. International Covenant on Economic Social and Cultural Rights, 1966
17. Declaration of the Rights of Child 1959
18. Convention on the Rights of the Child 1989
19. Retrieved on 14<sup>th</sup> May 2020 from <http://www.inc.in/en/leadership/past-party-president/rash-behari-ghosh-inc>



## CHANGING FACE OF DIGITIZATION IN INDIAN PETRO-RETAIL: FROM ENTERPRISE TO CUSTOMER

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### ABSTRACT

Retail industry has undergone a huge change globally in terms of technology adoption. While this change has been very pronounced and visible in general retail, fuel retail has also had its fair share of technology innovations. This scenario holds true in the Indian context also. Indian retail has undergone a sea change while the Indian Fuel retail market has evolved from commoditized sale to service-based product offerings over last few decades. In the Indian fuel retail market context, this has happened on account of increased competition via new private players and deregulation. However, technology adoption continues to be at a marginal level. Currently, the adaptation & implementation of technology is mainly focused on Quality & Quantity assurance, operation management and governance at the fuel station. Technology implementation geared towards customer behavior & expectation analysis (to drive loyalty) still remains fairly nascent, especially when compared to general retail. While technology adoption has matured in the areas of operations and control, its utilization for customer retention & loyalty in Indian petro-retail is yet to see significant traction.

**Keywords:** Consumer behavior, Indian fuel retail, Digitization in petroretail, Value added services

### 1. Introduction

The last few decades have witnessed significant technology advancement. From analog to digital and from digital to Artificial Intelligence (AI), Big Data, Internet of Things (IOT), technology is changing the way industries function worldwide, whether it is manufacturing or service domain. In this process, consumer exposure to these technologies has led to changes in behavior, expectations, needs etc. Technology and the digital domain have also had a huge impact on consumer decision making process across various industries. Further, social media is playing an increasingly important role in marketing, and companies are using social media to strengthen their Brand and to create more sustainable customer relationships. Companies today increasingly use social media to connect with their customers in a more personalized and direct way. Moreover, there is an increasing trend towards sharing of customer information among different service industries in order to assess customer buying pattern, thereby designing and delivering a more targeted offering.



Retail sector in India is witnessing a huge change with traditional retailers adopting new formats. Application of new technologies like VR, AI, Big Data, and usage of technology based social media are the attributes that are driving organized retail in India. Convenience and variety are two major reasons driving the preference for organized retail.

The Oil and Gas industry is no stranger to big data, technology and digital innovation. As early as the 1980s, Oil and Gas companies began to adopt digital technologies, with a focus on better understanding a reservoir's resource and production potential, improving health and safety, and boosting marginal operational efficiencies at oil fields around the world. A wave of digital oilfield initiatives swept through most of the industry in the 1990s and the early part of this century. However, for most of this decade, the industry has not taken advantage of the opportunities that derive from using data and technology in a meaningful way. A single drilling outfit at an oilfield, for example, can generate terabytes of data every day, but only a small fraction of it is used for decision-making. As other capital-intensive industries, such as aviation and automotive, have revolutionized their business and operating models through a holistic application of digital technologies, the opportunity for the Oil and Gas industry to leverage the transformational impact of digitalization has become more evident.

Fuel retail business in India has undergone a huge change from a fully regulated market to semi regulated market. Till 2002, the sector was completely under government control. During these years, the marketing function of organizations received the least importance. Distribution was considered the primary marketing function since it was a seller's market. The customers had no option but to buy products from public sector oil companies. The entry of private players in the market increased the options available to customers and also helped evolve the concept of customer service in fuel retail business. At present there are more than 50,000 PSU fuel retail outlets spread across India. There are around 5000 fuel retail outlets by private players. In the current competitive environment, a branding war has begun between fuel retailers. They are becoming more customer centric, and once the market becomes fully deregulated in the coming years (with the number of players becoming doubling), price-based competition will give way to competition for gaining customer loyalty by providing differentiated services to customer.

The three major Indian fuel retailers (enjoying a majority share) are the PSUs: BPCL, HPCL and IOCL. Others include private players like Reliance, Nayara and Shell. All the three PSUs have taken initiatives to add non-fuel revenues and build customer loyalty. These initiatives have been taken on outlets, both within urban limits, and also on outlets on highways and suburbs. All this was done to gain customer loyalty and thus increase customer satisfaction. (<http://www.bharatpetroleum.com>)

Petro retailing in India has evolved from a commodity product (pre-independence era) to a service-based value-added product (recent era). While the retail sector (excluding petro-retail), has witnessed huge digitization in operations, customer experience, understanding of customer needs and building loyalty, petro-retailing sector is yet to catch up to comparable levels. In India, digitization has become a key facet of almost every sector of retailing, impacting the buying behavior of the consumers at large. This



has forced OMCs to accelerate their technology adoption. OMCs have been trying to introduce value-added service with limited technological advancement. On the other hand, private players have introduced advanced technology-based value-added service to enrich customer experience and influenced their buying behavior. They have also adopted and upgraded their approach towards usage of technology and digitization to better serve their customers.

## 2. Literature review

As early as the 1980s, Oil and Gas companies began to adopt digital technologies, with a focus on better understanding a reservoir's resource and production potential, improving health and safety, and boosting marginal operational efficiencies at oil fields around the world. In the 1990s and the early part of this century, digital oilfield initiatives swept through most of the industry. However, for most of this decade, the industry has not taken advantage of the opportunities that derive from using data and technology in a meaningful way. Themes like *Digital asset life cycle management*, *Circular collaborative ecosystem*, *Beyond the barrel - innovative engagement model* and *Energizing new energy towards innovative models for optimizing & marketing energy* are going to be central to the digital transformation of oil & gas over next decades. IOT and mobile devices are emerging as top digital topics for Oil & Gas companies. IOT devices can be used to enhance the reward process while targeting customers. While digitalization could be a source of positive change, there are a number of challenges that need to be overcome to realize its full potential for both business and society with respect to data security. At the same time, the exponential increase in global information flows has created new risks around data privacy and security, and businesses across sectors are grappling with challenges related to changing customer expectations, cultural transformation, outdated regulation, and skill shortages – to name a few. (World Economic Forum, white paper on Digital Transformation Initiatives of Oil & Gas industry, 2017)

Technology adoption has occurred everywhere, from small industries to large scale manufacturing and other industries. This trend is also visible in Oil & Gas sector. Studies have also revealed that while new technologies have altered consumer behavior, they have also had a significant impact on the way in which fuel retailers run their businesses. For example, retailers can now take advantage of data and analytics to deliver personalized offers to consumers, and they can aim marketing programs at increasingly narrower segments of the driving population. Research by Accenture indicates that more than eight in 10 (81%) of fuel retailers plan to increase their investments in digital solutions over the next three to five years, and 45% plan to increase these investments significantly (by 20% or more).

### **Technology adaptation in global petro retail context:**

Governments of many countries established digital platforms as a national strategy to build on the strengths of the traditional industry with a focus on supporting and strengthening the small and medium enterprises in the countries. The strategy originated



from large economies like the USA, China, Germany, Japan and Sweden, involving broad spectra of different economies. ( Reinert,2019).Heavy investments have been made by Oil & Gas companies in integrating mobile devices in daily operations, which includes real time data monitoring through specialized software, for workflow improvements leading to better group communications, increased worker productivity and better recording of field data. (World Economic Forum , white paper on Digital Transformation Initiatives of Oil & Gas industry ,2017). Oil and gas companies are using cloud computing, automation, and other technologies to transform their back-office systems, operations, and product and platform offerings. Cloud, cognitive, and other digital disruptors figure prominently in supporting new customer experiences, product innovation, and rewired industry ecosystems. (Tech Trends 2018, Deloitte Insights)

It has also been seen that while global oil majors are using AI and big data in the upstream side, there are very few applications on the downstream side and even these are limited to availability of data and governance. (GEO ExPro , July 2019: Article – Digital Technology trends in Oil and Gas Industry by Dean Baker ,RISC ( UK))

A study on global petro-retailing showed the following evolutionary trend:

- Micro-market segmentation and dynamic pricing are major levers of competition
- Rise in competition, entry of new players, and the decline in fuel margins is driving many players out of business and leading to market consolidation (e.g., Germany, Canada & UK)
- Increased focus on cost reduction is leading to the shift to unmanned outlets (e.g., Netherlands)  
(McKinsey & Company Petrotech 2016, 12<sup>th</sup> International Oil & Gas Conference & Exhibition, December 2016, New Delhi: Fuel Retailing)

Study of usage of digitization adoption in petro retailing in Asian context showed that majority of the stations are operated manually, and automation is being used for better fuel management system for improved accounting of fuel station leading to transparency in transactions. (Bahar et.al2015)

### **Technology adaptation in Indian petro-retail context:**

Both PSU OMC & private players will feel the margin pinch as competition intensifies; however, the margin decline is expected to be relatively lower for PSU OMCs (Research report by CRISIL on fuel retailing in 2017). To that extent, it becomes even more important to have a robust marketing and branding function to reduce margin pressure.

Fuel Station is the final 'point of sale' in the petroleum supply chain and as this is the touch point with the end consumer, it becomes the most important functional point in the entire Supply Chain. In order to remain competitive, usage of technology in the field of Transaction data, sales volumes, market prices, pricing rules, asset utilization patterns, usage patterns, demographic characteristics with respect to customer and retail



network efficiency and automated retail operations, Visual evidence of right quality and quantity of the product delivered, Remote operations monitoring, Multiple retail propositions at point of sale, Loyalty programs based on consumption pattern and offering various payment and filling options at forecourt are required to be explored. (Automation Industry Association: Automation in Petroleum Retailing, 2020)

All three PSU oil & gas companies, i.e. BPCL, IOCL and HPCL have provided automation systems at their fuel stations to integrate business processes at the fuel station, increase speed of transaction & operation, and eliminate the need for manual intervention. Automation provides transparency and control of all facets of Retail Outlet operation, as well as database generation which reinforces control and analysis of retail outlet performance. ([www.hpretail.in](http://www.hpretail.in)).

Studies have been done on introduction of biometric verification system to ensure secure and cashless system to avoid cash theft in Fuel station (Kaushik *et al.*, 2017). It has also been observed that introduction of Solid-State controller for capturing every transaction in fuel station also helps in tracking & monitoring at later time as well, while bringing in transparency. (Arokiasamy, & Sumathi, 2017).

Centralized automation of fuel station management has been implemented by automating fueling linked with amount availability in the RFID & GSM technology based petro-card, as well as automating the tank gauging system for fuel level indicator giving automated operation of the Fuel station (Rao & Prasad, 2017). Automated Smart Vehicle Fueling System was developed to reduce the manpower cost of fuel station by introduction of framework of payment of fueling by the customer through preloaded RFID card. (Tamilarasu *et al.*, 2019).

Usage of advanced technology by private players has given it an advantage in overall profitability and ensuring safety by using multi-product dispensers that dispense fuel. Its managers can monitor each transaction, auto tank-gauging equipment at all stations so that an alarm goes off at the supply location, thousands of miles away, if the station's stock goes below the minimum desired level and usage of fibre-reinforced-plastic (FRP) material of underground storage tanks. Ensuring nil leakage that could lead to an environmental hazard. (Sudhir Bisht, How Reliance has changed India's petro retail sector, Rediff news, 2017)

With the entry of private and foreign players, the scenario of petro-retailing in India has been changing considerably and the companies have modified the petro retail mix and practices have changed from just selling the fuel to satisfying through marketing and promotional activities. OMCs are focusing on the infrastructure development with other associated services like ATM, Restaurant etc as a source of non-fuel business. (Yadav *et al.* 2012).

Oil companies in India are focusing on setting up state-of-the-art facilities for offering fuel and non-fuel services. While efficient dispensing machines, branded fuels, quick oil change centers, loyalty programs have been introduced in the fuel business, technology



has been introduced with non-fuel businesses like convenience stores, ATMs, fast food outlets, medical shops, grocery, dhabas, etc at fuel stations. (Vyas & Vyas, Marketing Mastermind, September, 2005) .

In India, in order to meet the demands of the consumers, the major fuel retailing companies like BPCL, HPCL and IOCL have taken up innovations in various fields. BPCL tied up with FinoPaytech to sell financial products, insurance and remittances from its fuel retail outlets. The tie-up is expected to help spread financial inclusion, strengthen customer loyalty, increase customers at its fuel retail outlets, and increase revenue from its non-fuel segment. The improvement in attendant productivity and an end-to-end integration of payment process provides BPCL with a full control on the outlet level operations, the platform also allows BPCL to seamlessly add new payment options and provides them with customer insights, thereby increasing the overall sales. (www.bharatpetroleum.com).

IOCL and HPCL tied-up with mobile commerce platform, Paytm, to allow payments through the Paytm wallet at petrol pumps in February and May 2016 respectively. Payments through wallet will not only enhance convenience to customers but will also bring in more operational efficiency, thereby reducing queues at these pumps. (www.hpretail.in).

### **3. Findings & Discussion:**

In the global oil & gas industry, digitization has been adopted across upstream and downstream sectors. While AI, Big Data, IOT etc have been widely adopted on the upstream side for exploration and related use cases, large amount of digitization has happened in the downstream sector as well. Introduction of technologies like cloud etc has impacted the customer experience, product innovation as well as the development of industry ecosystems. Micro market pricing, unmanned fuel stations, Self-serving dispensing pumps, etc serve as the backbone of the digital technology adopted by the global players in petro-retailing, specifically in European and American market, keeping customer expectations and buying behavior in mind.

In the Asian context, the adoption of technology in petro-retailing is fairly low. Fuel station automation has been adopted purely for fuel station management purpose. However, there is very less evidence of the utilization of digitization for customer insights and analysis to map their needs, experience, etc. Infact, an Oliver Wyman article in July 2020 edition of Energy Asia states that apart from select countries like Korea, Japan, and Singapore, gasoline stations in the rest of Asia don't offer many products or services beyond fuel. (<https://www.oliverwyman.com/our-expertise/insights/2020/jul/asian-gasoline-retail-ripe-for-consolidation.html>)

In the Indian context, OMCs have adopted fuel station automation predominantly with the objective of transparency of transactions, asset management and control of fuel station management. Though OMCs have tried to introduce financial inclusion to strengthen customer loyalty, there has been limited implementation of technology from the customer expectation and needs perspective. The adoption & implementation of



technology is mainly focused on Quality & Quantity assurance. With the entry of private players such as Nayara, Reliance, Shell etc in the marketplace, competition is increasing sharply, hitting the bottom line of the companies. Adoption of digital technologies shall help them take care of customer service protocols, brand management and finally profit maximization.

Going forward, we see 3 technology driven trends which can reshape the fuel retailing space:

- a) Reinventing customer experience through digital and analytics
- b) Preparing for the future of mobility and
- c) Optimizing network operations using technology and analytics.

In order to improve customer experience, there are four areas of innovative solutions:

- **Mobile:** smart phone revolution brought high availability, low cost and high user penetration by proliferation of fuel apps & in-app payment convenience.
- **Internet of Things (IOT):** empower ability to book fuel lanes before reaching the pump and also provide alerts on fuel levels, nearest pumps, next station, etc.
- **Loyalty:** Merging loyalty and payment cards into one card, using mobile & IOT devices enhanced reward process to target customers
- **Security:** Tokenization, GPS/ geolocation solutions, multifactor authentication, advanced analytics helps to fraud elimination.

Implementing technology solutions along the above lines could help fuel retailers unlock value beyond the traditional commodity sale approach. A retailer sensitized to consumer needs and expectations could offer intelligent retail solutions underpinned by technology, automation and data. Given that Indian fuel customers have traditionally been price-sensitive, 'joining the dots' on customer data could help unlock fresh value offerings creating new opportunities for growth. Further, digitization could be leveraged to increase agility and response – in terms of service offerings as well as enhanced targeting. This could allow retailers to capture customers 'in the moment' – essentially, significantly increase the ratio of impulse buys by the Indian fuel customers; something currently lacking.

## Conclusion

Rapid technological advancements as well as increasing exposure to digitization has led to a more evolved modern customer. Accordingly, customer habit, expectation & experience, in general have undergone a change and still evolving. Retail sector has witnessed a remarkable shift in the customer buying behavior due to technological enhancement. There is an overlap among customers in retail and petro-retail as well. Customer behavior towards petro-retailing is also evolving. Adoption of technologies like AI, big data, cloud, mobile technology etc in upstream part is quite mature. However, in the Indian context, the same is not very significant on the



downstream side, particularly in the areas of customer identification, recognition, meeting their expectations of product/service mix etc. While General retail has made rapid advances in technology implementation and thus led to enhanced customer expectations, petro-retailing is yet to catch up. Further, the future roadmap of digital themes and initiatives for Oil & Gas Industry in India increasing looks likely to include (a) Digital asset life cycle management, (b) Circular collaborative ecosystem, (c) Beyond the Barrel – Digital customer services and (d) Energizing New Energies, in line with the development in global petro retail industry. This needs very strong technology adoption & implementation. But this is not inline with the existing technology implementations currently underway in the Indian fuel-retail industry. Thus, a clear gap exists in adoption of digital technology to meet customer expectation. This definitely merits further detailed study into the customer expectations and preferences and suitable adoption of technology in the Indian fuel retail context.

### **References:**

#### **Thesis**

1. Reinert, S. Encourage risk and optimise the competitiveness of the Norwegian petroleum industry through a government digitalization platform. University of Stavanger, Norway, 2019

#### **Journal papers:**

2. Newaz B.A, Islam, N, Hossain, S, Sujon R, A, A New Automation Approach for Fuel Station Management System, Nevşehir Bilim ve Teknoloji Dergisi Cilt 4(2) 99-107 2015
3. Kaushik, A, R, Kori P, Kedare, O, Gautam, M. Automated Fuel Station, IOSR Journal of Electronics and Communication Engineering (IOSR-JECE), e-ISSN: 2278-2834, p- ISSN: 2278-8735, PP 27-29, www.iosrjournals.org National Conference on Emerging Trends in Engineering & Technology, 2017
4. Arokkiasamy, A, Sumathi, S. Automation of Petroleum Filling Stations Using Solid State Controller, Advances in Natural and Applied Sciences, ISSN: 1995-0772, EISSN: 1998-1090, 2017 Special 11(6): pages 330-337
5. Rao, S, S, V, Prasad, S. Centralized automation of petrol bunk management and safety using RFID and GSM technology, 2017 International Conference on Intelligent Computing and Control (I2C2), 23-24 June 2017, Coimbatore, India,
6. Tamilarasu, P, Kumaresan, V, Gunasekar, T, Logeswaran, T, Suresh, M. Design of an Automated Smart Vehicle Fueling System, International Journal of Recent Technology and Engineering (IJRTE), ISSN: 2277-3878, Volume-8 Issue-4, November 2019



7. Vyas,U, Vyas,P,H. Petro-Retailing Sector: Evolution and Challenges Marketing Mastermind, September, 2005
8. Yadav,S, Sakariya,S, Thaker,M. Petro Retail Mix Elements: A Study Of Indian Market, Journal Of International Business And Economics, Volume 12, Number 2, 2012 pp 34- 45
9. Kaushal,K, Patel,R.P. Role of non-fuel retailing services: the face of petro-retailing in India, Journal of Business and Retail Management Research (JBRMR) Vol 7 Issue 1 October 2012

**Websites :**

10. <http://www.bharatpetroleum.com>
11. [www.hpetail.in](http://www.hpetail.in)
12. <https://www.oliverwyman.com/our-expertise/insights/2020/jul/asian-gasoline-retail-ripe-for-consolidation.html>
13. Sudhir Bisht , How Reliance has changed India's petro retail sector, Rediff news , 2017

**Magazine Article**

14. World Economic Forum, white paper on Digital Transformation Initiatives of Oil & Gas industry ,2017
15. Tech Trends 2018, Deloitte Insights: 2018 Tech Trends for the oil and gas industry
16. Digital Technology trends in Oil and Gas Industry by Dean Baker, RISC ( UK ) , GEO ExPro, July 2019
17. McKinsey & Company .Fuel Retailing : Preparing For The Next Technology Wave Petrotech 12<sup>th</sup> International Oil & Gas Conference & Exhibition, New Delhi: Fuel Retailing ,December 2016.
18. Research report by CRISIL on fuel retailing, May 2017
19. Manju Nandwani . Automation Industry Association: Automation in Petroleum Retailing, August 2020.



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## A STUDY ON- COVID-19 IMPACT ON INDIAN SME-'S AND CHALLENGES AND OPPORTUNITIES IN CRISIS

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### Abstract

The ongoing Corona virus pandemic is an once-in-a-lifetime crisis for most businesses. We are in the early days of what is likely to be a prolonged and intermittent shutdown, one that will be lifted only gradually over months. For now, the production and transportation of all goods has been put on hold, except for those earmarked as essentials. Large factories, Plant and offices are shut down, and so are hotels, restaurants and most Micro shops. The situation is particularly dire for small businesses with limited or negligible cash reserves.. As the lockdown continues, most small businesses will be fighting for their existence. The threat is even greater for millions of organised and unorganised workforce that they employ; which could soon be accosted with layoffs and job losses.

The key challenges will be to improve access to finance and investment for small enterprises, give them more freedom to expand into new sectors, and promote their use of new technologies to better connect with producers, suppliers and consumers.

This paper highlights the scenario of SME in India in Covid-19 crisis, What are challenges face by SME enterprises? What about owners and employees of SME? what kind of policies and strategies should be expected to overcome the challenges and seize the opportunities for SMEs to develop and grow the business after the COVID-19crises?

**Key Words:** SME, Challenges of SME in India, Impact after COVID19, & Opportunities for SME's after COVID19.

### REVISED DEFINATION OF SME IN INDIA:

Delivering the economic package, part of the **Aatmanirbhar Bharat Abhiyaan**, Finance Minister Nirmala Sitharaman announced revisions in the definition of Micro Small and Medium Enterprises (MSME). Earlier, the MSMEs were defined on the basis of investments, now the revised definitions will also include turnover of the unit .

FM Sitharaman also declared that there will be no more distinction between Manufacturing and Service MSMEs. "Earlier, the criteria for manufacturing units and service units were different. Now those distinctions between Manufacturing and Service MSMEs are being removed. They will all be defined similarly," she said.



**Micro Units**

MSMEs will now be called Micro units if they have investments upto Rs 1 crore and turnover of less than Rs 5 crore. The definition earlier was on investment criteria of up to Rs 10 lakh for Service MSMEs earlier and Rs 25 lakh or manufacturing.

**Small Unit**

For an MSME to be defined as a Small unit, its investment limit has been raised from Rs 5 crore to Rs 10 crore with a turnover of less than 50 crore. This applies to all MSMEs including the Service enterprises which earlier came under investment of up to Rs 2 crore.

**Medium units**

Enterprises with investments up to Rs 20 crore with a turnover of less than Rs 100 crore will now be called Medium units. Earlier, the investment limit for Medium units was up to Rs 10 crore and Service enterprises up to Rs 5 crore.

“The definition being changed is done in the favour of MSMEs. There has always been this fear, among successful MSMEs also, that if they outgrow the size of what has been defined as an MSME, they will lose their entitled benefits .

**EXISTING SME CRITERIA**

Classification	Micro	Small	Medium
Manufacturing enterprises	Investment<25 Lac	Investment< 5cr	Investment<10cr
Service Enterprises	Investment<10Lac	Investment<2 cr	Investment<5 cr

**REVISED SME CRITERIA(After Covid-19)- Investment and Annual Turnover**

Classification	Micro	Small	Medium
Manufacturing & Service Enterprises	Investment<1cr Turnover <5cr	Investment<10cr Turnover <50cr	Investment<20cr Turnover <100cr

**(Source- Economic Times )**

**Situation of SME after Covid-19**

The COVID-19 pandemic is hurting small enterprises globally. But socioeconomic pressures are particularly severe in developing countries, where resources are limited and economic activity weak, and small business are often the backbone of growth. The pandemic threatens to throw economies into recession and push tens of millions of households back or even deeper into poverty.

The MSME sector employs over 110 million Indians and contributes nearly 30% to India’s GDP. The proposed Rs10,000 crore Fund of Funds can realistically pay salaries



of only 5% of the total employees, if we consider Rs 20,000 average monthly salary. This clearly indicates that the small businesses still need to work hard to ride out the storm on their own and those who will wait for government help sooner. Around 99 percent of the MSMEs are dominated by Micro enterprises in which labour intensive production units are already under stress with restricted labour movements. Finance Minister's attempt at redefining MSME by including businesses with higher investment and turnover does not address the main problem of majority of unregistered micro enterprises shutting down due to less or nil operating capital. A total of 114 million people are employed in MSMEs and the shortage in working capital as a consequence of the lockdown would drive most businesses out of the market.

The pandemic's impact will be disproportionate in least-developed and small-island developing countries, notably in Africa and in the Pacific, which are especially vulnerable to economic volatility and shocks. Their health systems and economies are less able to cope with challenges, leaving their poor and vulnerable groups at increased risk.

Exogenous trade shocks are transmitted through the global value chain. Large retailers have closed stores, hurting factories and workers locked into just-in-time supply chains in countries including Bangladesh and Cambodia. Many micro, small and medium-sized enterprises are fighting for survival as a result. Yet they must cover salaries, rent, and other operating expenses, debts to financial institutions, and taxes.

Many will see letting go of workers as the best solution. This could transform an economic crisis into a social calamity. Fortunately, the focus of most businesses for now is on protecting employees, understanding the risks to their business, and in managing supply chain disruptions. This will be important for safeguarding jobs and incomes, preserving financial stability, and to revive growth by minimizing disruptions to trade and global supply chains.

### **Challenges of SME in India;(In lockdown period)**

The phases of lockdown announced by the government witnessed a revenue shortfall of more than 60 per cent for the sector, creating an unprecedented crisis. The MSME sector faced a severe shortage of working capital, including delay in payments, shortage of labour and disruption in supply chain. The survival of these enterprises are at stake due to the pandemic. There is an urgent need to undertake research to analyse the challenges of the enterprises in detail, Quick recovery of these businesses can mitigate the most difficult consequences. But beyond the immediate recovery, there is need to ensure the medium to long-term survival of small businesses by removing impediments to their growth.

1. **Contributing 30-35 percent of the GDP**— These Micro, Medium and Small scale industries face a higher risk of shutting down their production due to cash flow constraints. All India Manufacturers Association reported that 43 percent of the MSMEs will cease to operate with the lockdown extension.



2. **Role of Bank and Financial Institutions** : Banks are often reluctant to lend due to a lack of market information, concerns about risk, and poor quality loan applications. Unless investors, entrepreneurs, and viable businesses can be financed, opportunities will be wasted and growth potential squandered.
3. **Role of state-owned enterprises**: state-owned enterprises provide essential services such as power generation, water, sewage, and telecommunications. But they can be inefficient, drain government resources, and generate low returns.
4. **Informal labour markets to restart the business**: starting a business involves high costs and long delays, compromising investment and business growth. This is a key reason behind the large informal labour markets of some countries. Efforts must be made to remove bureaucratic red tape to allow businesses to open and operate as quickly as possible when COVID-19 restrictions are eased.
5. **Accessing inputs and managing inventory**. MSMEs increasingly source frequent inputs from abroad, so supply chains have become longer and more complex. For the garment companies North Africa, for instance, as orders have collapsed, key inputs-such as fabrics from China, have also disappeared.
6. **Policy uncertainty and disrupted supply chains**. Policies are evolving fast. MSME managers often work alone and cannot create crisis teams to track changes
7. **Managing the work environment**. For manufacturing MSMEs in lockdown situations, remaining open is challenging as factory floors are not designed for social distancing. Massive outmigration from cities has meant workers have disappeared and they may be difficult to remobilize. Many countries have suspended support to farmers even as the agricultural calendar continues.

#### **Need to overcome the challenges of SME in India;**

1. **Need to Reorganize MSME and Boost Employment**The slew of measures announced by the central bank to ease the liquidity will cushion the MSME sector during the lockdown period. However, incentivizing small scale businesses to operate amidst weak demand would need recapitalizing finance based on the firm's productivity. A structural makeover of the business sector will call for measures beyond just monetary policy. While current economic stimulus aims at protecting the business sector, challenges remain in adopting a medium term policy given the unorganized structure.
2. **Financial Grants** : Other countries are design the policy to reduce the impact on Small and Medium Enterprises (SMEs) by providing wage subsidies, loan guarantees, direct lending and modified structural policies. The Reserve Bank of India (RBI) has similarly offered a much-needed loan moratorium, cuts in the Cash Reserve Ratio (banks minimum reserve requirement to be held with RBI) and working capital financing.
3. **Relief package has focused on small industries**:The expectation of a burgeoning fiscal deficit to 5.07 percent from revised estimate of 3.8 percent means that financial stimulus is somewhat of a double edged sword. Economic relief packages during the crisis must be followed with strategies to provide economic security to the working age population across the country. To keep up with the growth of the working age population, estimates suggest that India must create 10



million jobs annually. Ease of doing business becomes a crucial factor in creating employment opportunities.

- 4. Identify the methods to sustain the operations of MSME sector post lockdown:** For India, it is important to endeavour to balance the immediate financial response with continuous public and human capital investment. Biting the fiscal bullet is inevitable in a crisis situation but assessing the cost of growth foregone is crucial to strategize policies for future. The real challenge lies in the transition of role from being protective to promotional through structural operations by factoring in the consumption demand. Temporary infusion of money in businesses and renovation of MSME sector is much needed to realize the ‘Make in India’ dream.
  
- 5. Developing new Venture and Motivate women Entrepreneurs:** In this situation it is good way to identify skill potential of women , and provide platform to them for generating new idea to start new ventures which they can start at home with minimum investment this could help to generate the employment opportunities and also helps to create flow of income to build the society economically activities such as, online home cooking orders, tailoring(mask making, protection clothes)online service classes(like online dance, cooking, art craft, virtual sessions in Rural schools, spoken tutorial of various subjects) will gives new directions for women entrepreneurs to diversify and expand the business at minimum cost.

<b>Action required to overcome the challenges</b>			
<b>1</b>	Generating new ideas and ventures	9	Lead with humility and build with family culture
<b>2</b>	Planning for Diversification and Modification of business (Short term alternatives)	10	Maintain optimum liquidity and proper cash management
<b>3</b>	Don't loose the trust of customer, employee, suppliers	11	Hire smart talent with low cost
<b>4</b>	Build trauma management capabilities	12	Collaborate and correlate instead of competition
<b>5</b>	Use of competitive weapon	13	Develop eco-system environment
<b>6</b>	Anticipate and plan for upturn	14	Encourage women entrepreneurs
<b>7</b>	Implementation of portfolio approach	15	Take the advantages of government subsidies and new scheme
<b>8</b>	Adopt digitalisation and modern approach	16	Open the new doors for expansion of business .

**OPPORTUNITIES FOR SME IN INDIA AFTER COVID 19:**

The global Corona virus outbreak has impacted about one-fourth of India’s 69 million MSMEs at present.



1. **ECONOMIC PACKAGE:** Finance minister Nirmala Sitharaman unveiled a slew of measures for MSMEs as part of the economic package to counter Covid-19 outbreak, which included ₹3 lakh crore collateral-free automatic loans for small businesses and two separate funds to provide equity support. As part of one of the long-pending reforms in the sector, the government also changed the definition of MSMEs, linking it to turnover limits so that such businesses can grow without fear of losing benefits.
2. **HAPPY, an ML-based MSME digital Lender has launched a 'Lockdown Loan':**  
The digital credit facility is developed to address the working capital woes of Indian microenterprises during the lockdown period. It will provide them capital access of Rs 25,000 and Rs 50,000 with bullet repayment after 6 months. The Lockdown Loan comes with COVID-19 protection insurance, wherein full loan waiver is extended to the corona virus infected. The digital lending platform interacted with nearly 300 MSMEs via a survey to understand their sentiments and pain points. The Lockdown Loan was designed and developed on the basis of the survey results to empower the micro-entrepreneurs during these difficult times.
3. **PSBs luring MSMEs with pre-approved loans:** Messages of pre-approved loans at attractive rates which banks often sent to prime retail customers have now become the template of public-sector lenders to reach out to their micro, small, and medium enterprise (MSME) clients. It is reported that public sector banks are trying to reach out to MSMEs, which are their existing customers, for loans under the 'Atmanirbhar Bharat' package that promised 3 lakh crore in collateral free loan.
4. **Emergency Credit Line Guarantee Scheme:** Finance minister Nirmala Sitharaman had announced a Rs-3-lakh crore credit guarantee scheme for MSMEs —Emergency Credit Line Guarantee Scheme (ECLGS) -- as part of the package. The scheme received cabinet approval on May 20,2020 and operational guidelines were made public on May 25,2020 .The scheme is applicable to all MSME borrower accounts with outstanding credit of up to Rs-25 crore as on February 29, 2020 and annual turnover of up to Rs-100 crore.
5. **SAP Launch :** SAP India has launched a new program to help micro, small and medium enterprises become more competitive globally. The program, 'Global Bharat', will provide MSMEs free access to SAP's global Ariba Network, as well as offer digital skilling initiatives for the workforce. Speaking to ET, Deb Deep Sengupta, President and Managing Director, SAP Indian Subcontinent, said the aim was to help these companies deal with the current pandemic induced slowdown and deal with the key. India is the second largest centre for the Germany-headquartered firm after its home market. MSMEs account for 80% of the company's customers in India. As part of this initiative, the company will offer MSMEs free access to its B2B marketplace Ariba Networks till the end of this year. "Companies can onboard themselves once they meet some basic criteria and be globally discoverable," said Sengupta. This will give them access to almost million global suppliers on the network.



### **Conclusion :**

It is universal truth that every one is ready to accept the reality. Like all crises, pandemics, and natural disasters, the Corona virus pandemic will eventually die down – give or take a few weeks or months from now. The new business models will evolve and a number of innovations will help society in different ways. Consumer behaviour will change and those who pick up these trends will flourish in times to come.

The morning after the crisis will open up a stream of new opportunities and challenges for the businesses. Once the pandemic scare ends and the restrictions lift, the nation will depend on its small business community to spearhead the economic recovery. There will be businesses that will not survive – those with flawed business models and depleted capital are at maximum risk. The agile and adaptable entrepreneurs will be ready to address the consumer demand, restart their operations and start growing their employee strength. The others will wait for magic and will keep blaming the virus, policies, government, competition etc rather than taking corrective actions. There is potential for great future of SMEs in India but definitely it will take time and patience to materialise.

### **References :**

1. ITC, ed. SME Competitiveness Outlook: Connect, Compete and Change for Inclusive Growth. SME Competitiveness Outlook. Geneva: International Trade Centre, 2015
2. “World Has Entered Recession, May Recover next Year: IMF.” The Print, March 28, 2020.
3. [www.outlookindia.com](http://www.outlookindia.com)
4. [WWW.conomictimes.indiatimes.com](http://WWW.conomictimes.indiatimes.com)
5. <https://indianexpress.com/article/explained/pandemic-explained-who-novel-coronavirus-covid19-what-is-a-pandemic-6309727/>



## STUDY TO FINDOUT THE EFFECTIVENESS OF ONLINE PHYSIOTHERAPY CLASSES-A SURVEY

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### Abstract:

During COVID-19 in India, different modes of online education are conducted in all kinds of schools, from primary to universities. This paper illustrates how effectively the online Physiotherapy classes are taught in Vaagdevi College of Physiotherapy in Telangana, India. With help of PHYSIOSTUDY application, lessons are carefully redesigned and provided on leading online platforms like Cisco WebEx and Skype along with live classroom. Taking advantage PHYSIOSTUDY application, online videos, all lessons are deliberately redesigned and provided either on live or in recordings. Survey shows over 86% students are gratified with the online teaching and effectiveness of the online teaching is equal to classroom teaching.

**Keywords:** effective, PHYSIOSTUDY Application, Physiotherapy, Teaching

### INTRODUCTION:

During COVID-19 in India in 2020, Classes are held in all kinds of forms on various platforms. An online learning platform offering a variety of courses based on commonly used textbooks in India is opened by ministry of education for free for students from grade one to twelve. For students from rural and remote areas with no internet connection, relevant courses and learning resources are broadcast over T-SAT and DD network in Television. Multiple free platforms are also opened for high education institutes as well. On PHYSIOSTUDY application all digital textbooks are provided to college students as well as all materials are easily accessible with a mobile phone. According to the data released by MOE, as of April 3, a total of 1,454 high education institutes across the country have provided online education to students; more than 950,000 teachers have created 942,000 online courses and taught 7.133 million lessons via over a hundred online platforms.

There are many types of online platforms considering where the course is taken , completely online course and blended course. Online course could also be classified into three types considering how learning materials are provided, resource supplying, resource creating, and resource creating+supplying. The most widespread solution in India during prevention and control of COVID-19 is live course+resource supplying. Live courses are mostly provided on online meeting platforms, teaching platforms, paid



knowledge platforms, traditional online school systems.

### **Visual**

In Vaagdevi College of physiotherapy, teachers are advised to use online platforms like Google meet, Cisco WebEx, Zoom and Skype to all students during prevention and control of COVID-19. In order to take advantage of visual strengths of live course and abundant resources online, especially on national quality teaching resource platforms, staff finally decided on a complex mode including live course, micro-course videos, and resource sharing.

### **Research Question**

How effectively Physiotherapy classes are taught for college students totally online during prevention and control of COVID-19?

### **Research Objectives**

1. To recommend possible lesson plan of online course.
2. To summarize pros and cons of online classes for college students.

### **Literature review**

According to Erik Schurer Multiple apps for collaboration and video calls have appeared extensively in the media lately, but what's a bit snowy is what the actual functionality is. Often the issue is about privacy and exploding user numbers. They compared five frequently used video conferencing apps and see which app is a good choice. These apps all have the standard features for video conferencing, online meetings these days. There are some differences in terms of interface, ease of use, functionality and price.

For companies using G Suite or Office 365, Google Meet/Chat and Microsoft Teams, respectively, are clearly the best choice. The functionality is not limited to video conferencing only, and there are no additional costs. On the other side of the playing field, you will find Zoom, where Zoom is currently not recommended for privacy reasons. If these problems are addressed, then Zoom really does have the most extensive functions. We find WebEx, which is not part of an office suite. It is, however, a good choice. Moreover, expansion to WebEx is possible when more collaboration functions are needed.

### **Materials and Methods:**

#### **General educational objectives**

Get knowledge related to COVID-19, especially knowledge regarding how to protect yourself and your family; learn some common knowledge about brand names; be able to design an English brand name; be able to apply for a booth at a trade fair in English; be able to introduce your products at a trade fair in English; be able to communicate with your clients in English and get information related to your business at a trade fair.

#### **Specific learning objectives:**

**Knowledge:** master words and phrases used for product description; know how to build



a brand, how to register for a trade fair, how to get information about your clients, get some common knowledge regarding order, pay, transport in international business.

**Competence:** be able to write product introduction in English; be able to apply for a booth in a trade fair and introduce your products to your clients in English; be able to negotiate with your potential clients about price, order, pay and way of delivery, etc.

**Quality:** be careful enough not to miss important information in communication with your potential clients; be well-behaved at a trade fair and present professional image to your clients; be careful enough not to make any mistakes in details of product item, number, pay, and transport ; be patient with clients’ requirements and complaints.

**1. Learning methods**

Watch online videos or live course provided by teachers; teach you important knowledge provided by teachers online; participate discussion online; finish tasks and homework.

**2. Online resources**

type of resource	content of resource	source of resource
pdf file, picture, audio, ppt file	textbook and recordings, vocabulary and grammar	textbook publisher
video	introduction to learning materials, explanation of vocabulary, grammar, passage and exercises	collected from internet; recorded by teachers

**Results:**

**Survey and Evaluation**

*Students’ evaluation*

After twenty weeks of online course, a survey on quality of online course was made. Questionnaire was sent to students in Vaagdevi college of physiotherapy online. Survey shows 85.55% students find the online course satisfactory, and 6.45% comparatively satisfactory. More than half satisfied students (58%) mention in interview that the repeatable videos are very helpful.

*Teachers’ evaluation of online course*

Even two third of teachers (15 out of 19) agree to total online course, teacher’s evaluation differs and shows certain proportion to their ages. Understandably, teachers above 60 feel more reluctant to provide online course while younger teachers prefer online course to off line course. Those teachers who prefer total off line course admit that new technology required for online course could be a big barrier and some show



concern about low efficiency of non face-to-face communication.

#### *Pros and cons of online course*

Interview shows that for teachers, one of the greatest advantages of having lessons online is that they don't have to commute. Working from home means teachers could take care of their families as well, which seems especially important considering the fact that their children should also study home. For young teachers, the work efficiency of working online is twice of working off line. The trick lies in the fact that once the video and teaching materials are prepared, everything could be shared in different classes. The assessment of students also seems much easier, since with homework assistants, teachers have been removed off the burden of assessing students homework.

Necessity of learning new technology is the biggest disadvantage of online course for teachers. Every teacher has spent hours learning new software before providing online course. Two teachers described the training as "useful yet time-consuming". Survey shows that lack of face-to-face communication is considered the second biggest disadvantage. As for the reasons of concern, the eldest teacher asserted that "unreal" feelings of learning online may result in poorer performance, while some young teachers show concern over students' ability to finish the tasks without teachers' supervision. When technique is mentioned, teachers point out that there could be many ways of cheating in online course.

Surveys of students to some extent agree to the young teachers' concern. The polarized test result indicates reactions of students to the online course, coinciding with the top factor affecting quality of online study which can be seen from the questionnaire, self-discipline. Survey also shows students with better self-discipline have better acceptance of online course while students admitting difficulty with Self-discipline are less satisfied with online course.

In the interview, some students attribute better acceptance and more satisfaction of online course to the repeatable learning materials, especially recordings, videos and tests. It is also a merit that all files could be downloaded from the online course platform. Generally speaking, compared with traditional off line course, students have more choices regarding when and how much they learn and practice. For the disadvantages of online course, lack of interaction, distraction, reliance on network conditions rank top three in students' survey.

#### **Discussion and Conclusion and Recommendations:**

Online course, as a new means of learning, has played a vital role in higher education during prevention and control of COVID-19 in India with both merits and shortcomings. One of major finding of the current study is that effect of online course is related to self-discipline of students, in others words, motivation.



Measures could be taken to improve online course, especially for students who claim to have trouble with self-discipline. The marking system on online course platforms could be designed with more fun, while teachers could take use of students' favored teaching materials, like videos and PowerPoint. For students, they could be encouraged to work with fellows to get more support and dual control.

In live course, teachers could design some interactive sessions, the easiest way of which would be to have students get connected with teacher over microphones and cameras. For students living in areas with not satisfaction network, they could be encouraged to watch recorded videos instead of attending live course. Over two thousand years ago, Confucius emphasized the importance of "to teach students in accordance with their aptitude". Likewise, in the age of internet, we should also teach students in accordance with their environment, in particular, their network conditions.

### **References:**

[www.physiostudy.in](http://www.physiostudy.in)

[https://play.google.com/store/apps/details?id=physioshelf.zain.com&hl=en\\_IN](https://play.google.com/store/apps/details?id=physioshelf.zain.com&hl=en_IN)

<https://www.techzine.eu/blogs/collaboration/46302/zoom-vs-google-meet-microsoft-teams-cisco-webex-meetings-bluejeans>.

Ding Shulin. (2020). *Principles and Practice of Online Course during COVID-19*.

*Experiment Teaching and Instruments*.(3), pp. 3-7.

Fu Weidong. Zhou Hongyu (2020). *Challenges of COVID-19 to Online Course in China And Coping Strategy*. *Journal of Hebei Normal University*. (3), pp.14-18.

Picciano, Anthony G.(2002)*Beyond Student Perceptions: Issues of Interaction, Presence, and Performance in an Online Course*. *JALN* 6(1),pp.21-39.

Xie Youru, Qiu Yi, Huang Yuling, Wang Qinlei, (2020).

*Characteristics, Problems and Innovations of Online Teaching of "No Suspension of Classes" during the Period of Epidemic Prevention and Control*. *E-Education Research*.3 (3),pp.20-28.



**A STUDY OF EMOTIONAL, MENTAL, PHYSICAL HEALTH AND  
ADJUSTMENT PROBLEMS OF PENSION HOLDER AND NON-PENSION  
HOLDER IN MADHUBANI DISTRICT, BIHAR**

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**Abstract**

Aging brings about changes not only in physical appearance and functioning, but also in psychological functions and social roles. Old people have to adjust to several loss, loss of physical vigour, loss of job due to retirement (Desai and Naik, 1969), loss of a spouse and often, loss of social states and economic stability due to retirement. Adjustment in old age is correlated with education, occupation, income and social class (Anantharaman, 1979) and health is found as a best predictor of life satisfaction of the aged. (Ramamurti, 1996) Retirement requires gradual psychological adjustment. Proper financial, psychological and physical preparation helps one to adjust more easily to retirement life. Generally retired people are excluded from the mainstream of daily life. Retirement tends to be perceived by society as a period characterized by passivity, social withdrawal, and physical and mental decline. Many elderly people accept this perception partly because of ideas inherited from the past. People who retire may feel the loss of a role that is central to their identity, or they may enjoy the loss of strains that go with the role. Retirement bring other role adjustments. It not only alters house hold income but also can change the division of household work, marital quality, health, social contact, emotional stability. Unexpected illness or disability can affect the retirement experience.

**Keywords:** Retirement, adjustments, correlated, Mental, Health and Physical.

**Introduction:**

Elderly or old age is the delicate period of life of a person. It is the period when people “move away” from previous more desirable periods or times of “usefulness”. Old age is usually discussed in connection with the different types of problems encountered by the aged and the welfare measures associated with providing them a better quality of life. It has been observed that physical diseases, psychological illness , speak about the difficulties that they face. In elderly physical changes include wrinkling of skin, stopped posture, flabbiness of muscles, decreased vision and hearing, a decreased efficiency of cardiovascular system. This age period is loss, which may be identified like loss of physical abilities, loss of intellectual processes, loss of work role and occupational identification (Retirement), loss of intimate ties, such as death of spouse, friends and other a acquaintances. During the process of ageing, the physical functions of the body slowly deteriorate demanding greater coping skills on the part of the ageing person to adjust to the environment. In addition, there are problems caused by others in the society because of their unfavorable attitudes.



Growing old is not easy and involves various life changes which demand multiple adjustments requiring stamina, ability and flexibility. The loss of work through retirement is one of the major adjustments for individual ages. For many, this is the first indicator of the impact of aging. Retirement is defined as partial or complete withdrawal from career work accompanied by a change in the source and decrease of income. Retirement as a process of gradually reducing labour force activity. The standard retirement age varies from country to country but it is generally between 55 to 70 years. In some countries, this age differs according to being males or females. The standard age of retirement in India is considered 60 years with some exceptions where some employees retire at the age of 65 or a little bit earlier such as members of judiciary, Doctor and university staff. Retirement is not just a few years of rest from the hard work before death. Retirement is a significant life change that affects various areas.

The transition from a life of work to one of retirement has both practical and emotional implications (e.g. living with lower income, having many leisure hours, having to leave a familiar and a well-known world). Responding to retirement occurs on an individual and a unique basis. Literature mentioned diverse responses to this basic life change with differences in intensity and style of response among retirees. Retirement should not be an obstacle in one's lifetime which hampers the retiree from being creative and capable of contributing to the society. Thus, having appropriate coping and adjustment skills in the transition to retirement could positively affect the results of this transition. Adjustment is known as the psychological processes through which people adapt or cope with the demands and challenges of everyday life. It is a person's ability to be familiar with his/her environment and situation. This reflects the changes an individual makes in his/her environment to enable him/her to live successfully in that environment. Consequently, adjustment should be considered as an inner process occurring at an individual and a social level to attain balance between the retiree and his/her interaction with the environment. Adjustment to retirement is affected by the individual's flexibility as well as the society's readiness and the availability of other resources such as income, health, and social support system (friends, relatives, neighbors). In addition, other affecting factors include the level of control over the time of retirement; the importance of work for him/her; role as main caregiver for parents and/or spouse; marriage status (married or not); personality type and life style; the intergenerational relationship and how the retiree adapts with previous life transitions.

Various psychological components (depressed mood, loneliness) and physical components (fatigue, pain) experienced in old age effect quality of life. Life expectancy continues to increase throughout the world and this increase in life expectancy and the falling birth rate results in 'Aging of the Population' characterized by the relatively rapid increase of the aged population i.e. the population aged 60 years and above (Sivamurthy, &Wadakannavar, 2001). The size of the elderly population in India increased from 20 million in 1951 to 57 million in 1991 and is expected 198 million in 2030.



Aging brings about changes not only in physical appearance and functioning, but also in psychological functions and social roles. Old people have to adjust to several loss, loss of physical vigour, loss of job due to retirement (Desai and Naik, 1969), loss of a spouse and often, loss of social states and economic stability due to retirement. Change in roles and lowered status are found to cause distress in old age and adjustment is found to decrease with age (Shirolkar and Prakash, 1996). Studies show that non-working older people report more adjustment problems than those who have a job or are capable of working (Jayashree and Rao, 1991; Singh, Singh and Dawra, 1983). Adjustment in old age is correlated with education, occupation, income and social class (Anantharaman, 1979) and health is found as a best predictor of life satisfaction of the aged (Ramamurti, 1996).

Retirement requires gradual psychological adjustment. Proper financial, psychological and physical preparation helps one to adjust more easily to retirement life. Generally retired people are excluded from the mainstream of daily life. Retirement tends to be perceived by society as a period characterized by passivity, social withdrawal, and physical and mental decline. Many elderly people accept this perception partly because of ideas inherited from the past. People who retire may feel the loss of a role that is central to their identity, or they may enjoy the loss of strains that go with the role. Retirement bring other role adjustments. It not only alters house hold income but also can change the division of household work, marital quality, health, social contact, emotional stability. Unexpected illness or disability can affect the retirement experience.

Elderly people are far from being a homogeneous group; consequently they have diverse views about retirement. It would be an aim in pre-retirement education to promote the concept that retirement is another stage in life with other forms of social participation, no longer valued in terms of the production of goods and services for which money is paid, but valued in terms of the contribution it can make to the community in a variety of ways. Retirement is not a single event but an on-going process. Personal resources (health, SES, and personality), economic resources, and social – recreational resources such as support from a partner and friends, can affect how well retirees weather this transition. People who had a strong sense of competence and self-esteem during their working lives are well adjusted and are more likely to have a positive feeling about retirement.

#### **Tools Employed:**

1 **Personal data sheet:** Developed by the investigator regarding demographic details of the participants.

2 **Shamshad-Jasbir Old Age Inventory (SJOAI)** developed by Shamshad Hussain and Jasbir Kaur (1995). An adjustment scale, It measures 6 areas namely Health, Home, Social, Marital, Emotional and Financial adjustment of the participant. For the age group 50 to 65yrs. This 125 items inventory measures the adjustment of old people. It requires the subject to indicate his/her response by ticking “YES” “NO” OR ‘DON’T KNOW”. The responses are scored with the help of the scoring key for each area and



the level of adjustment is measured and interpreted for each area and overall adjustment of the subject is measured. Higher the score in each area indicates better adjustment and low score indicates poor adjustment in that particular area. The Reliability score of the tool is, under test reliability is 0.83, and under, full test is 0.91 as per the recommendations, reliability score is more than 0.8 is reliable.

#### **Methods:**

**Sample & sampling technique:** The sampling technique for the present study was stratified random sampling.

#### **Procedure:**

Elderly Pension holder and Non- Pension holder male and female of 60 years and above of different socio economic status and of different sectors living in urban and rural area of Madhubani District, Bihar were selected for the study. Of the total 300 Pension holder and Non- Pension holder people included in the study, 200 were male and 100 were female. Among them Pension holder male were 100 and non- pension holder male were 100 and Pension holder female were 30 and non- pension holder female 70. Elderly pension holder and non-pension holder after retirement, worked in Government and private sectors were taken for the study.

The selected subjects who fulfilled the inclusion criteria were briefed about the study and, personal demographic information was collected. The respondents were made to answer Shamshad - Jasbir Old Age Inventory (SJOAI). Participants read each item carefully and chose one of three possible responses ('yes' / 'no' or 'cannot say') to show how much each statement is true about them, how they feel or do in the described situations to all 125 items. The instructions were read out and each item in the questionnaire was explained in case of difficulty in understanding the item/s, in order to get good response.

#### **Review of Literature:**

Review of related literature makes the investigator fully aware with the previous work that has been done. It also provides an opportunity of gaining insight into the method, measures, subject and approaches employed.

**Desai and Naik (1970)** That retirement brings about many changes in the personal and social life of a retired person. Retirement presents a disjunction in the life cycle, bringing with it a host of changes. Economic problems, physical and physiological problems, psycho-social and social problems are some of the specific problems faced by a retired personnel. Apart from family and social problems, the retirees confront a lot of problems after retirement. Generally, there is a lowering of income, loss of status, decreased socialization, changes of activity and life style, uncertainty about the future, difficulty in utilization of time and a search for a new identity and status after retirement. It is also noted that retirees who had a high status prior to retirement find the transition difficult. A retiree suffers from a loss of prestige along with a loss of income and takes a less productive social and economic role.



**Punia and Punia (2002)** Indicated the differences in the different types of problems faced by male and female subjects in old age. The women respondents in this study faced more marital problems than the men which supports the study.

**Damman, Marleen et.al (2013)** Their study aims to improve our understanding of adjustment to the loss of the work role, by conceptualizing retirement as a multidimensional process embedded in the individual life course. Result indicates that a steep upward career path is associated with fewer financial adjustment difficulties but with more difficulties adjusting to the loss of status. Compared with continuously married retirees, divorced retirees without a partner are more likely to miss the social dimensions of work and those who partnered are more likely to miss financial resources. The longer individuals are retired, the less likely they are to miss work-related social contacts. Thus changing life course experiences might have important consequences for retirement processes of future retirees.

**Shukla et al.(2013)** Reported that, subjective happiness among rural male elderly found to be better than female elderly ( $\mu=19.9$ ).

**Nair and Joseph(2013)** Highlighted that men had significantly higher scores in all areas of adjustment *viz.*, health, home, social, marital, emotional and financial than females. The study pointed out that as males are in a better position than females in financial, social and cultural aspects of adjustments.

### Results:

**Group and level of Adjustment:** Out of six areas of Adjustment, Pension holder and non-pension holder differed significantly in three areas of adjustment – health adjustment ( $F=7.363$ ;  $p=.007$ ), home adjustment ( $F=14.346$ ;  $p=.000$ ) and social adjustment ( $F=11.709$ ;  $p=.001$ ), including total adjustment, where we find that retired pension holder had significantly higher scores in the respected areas than, non-pension holder indicating better adjustment. When total adjustment scores were analyzed pension holder group had significantly ( $F=9.828$ ;  $p=.002$ ) higher scores than non-pension holder group. However, in the rest of the areas – marital, emotional and financial adjustment pension holder and non-pension holder had statistically similar scores, as the F values failed to reach the significance level criterion of .05 level.

**Gender and level of adjustment:** ANOVA revealed significant difference between male and female pension holder and non-pension holder group only in the health adjustment area ( $F=3.998$ ;  $p=.046$ ). The mean values clearly indicated that male subjects had better adjustment than female subjects. In rest of the adjustment areas ANOVA revealed non-significant difference between male and female groups in their mean adjustment scores in various areas as well as in total adjustment scores ( $F=1.689$ ;  $p=.195$ ). In other words, retired male and female group had statistically similar scores on various areas of adjustment and overall total adjustment scores, conforming that gender did not have significance influence over level of adjustment.

**Group, gender and levels of Adjustment:** The interaction effects between group and gender were found to be significant only for the area home adjustment for the rest of the areas the interaction effects between group and gender were found to be non-significant and even the total adjustment scores revealed non-significant. In other words, the pattern of adjustment level was same for male and female individuals irrespective of the group



(pension holder and non-pension holder) they belong. In the case of pension holder, female subjects had better adjustment; where as in the case of non-pension holder, male subjects had better adjustment.

**Table : 1**  
**Mean Adjustment scores of male and female Pension holder and Non-Pension holder group**

Group	Gender	Adjustment Inventory							
		Health		Home		Social		Marital	
		Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
Pension Holder	Male	16.88	4.66	17.16	3.46	15.07	3.42	11.93	2.50
	Female	16.47	4.60	17.96	3.82	15.02	3.73	12.51	2.33
	Total	16.7	4.63	17.34	3.55	15.62	3.4	12.06	2.47
Non-Pension Holder	Male	16.08	4.44	16.85	3.90	13.77	3.60	12.11	2.34
	Female	14.4	3.01	14.83	2.83	14.2	2.62	11.76	2.38
	Total	15.30	4.02	15.95	3.60	13.91	3.20	11.95	2.36
Total	Male	16.48	4.56	17.01	3.68	14.77	3.65	12.02	2.42
	Female	14.86	3.72	15.65	3.40	14.34	2.97	11.95	2.38

**Table: 2**  
**Mean Adjustment F and p value of male and female Pension holder and Non-Pension holder group**

Group	Gender	Adjustment Inventory							
		Health		Home		Social		Marital	
		Mean	S.D	Mean	S.D	Mean	S.D	Mea	S.D
F (Group) 1,300	Total	15.90	4.34	16.52	3.64	14.62	3.42	12.2	2.40
		F=7.362 P=.007		F=14.345, P=.000		F=11.708 P=.001		F=.836 P=.360	
F (Gender) 2,300		F=3.997 P=.045		F=1.826, P=.177		F=.265 P=.606		F=.127 P=.720	
	F (Interaction) 2,300	F=1.590 P=.207		F=9.614, P=.001		F1.571 P=.210		F=2.230 P=.135	

**Table: 3**  
**Adjustment of male and female Pension holder and Non-Pension holder group in Emotional and financial**

Adjustment Inventory							
Group	Gender	Emotional		Financial		Total	
		Mean	S.D	Mean	S.D	Mean	S.D
Pension Holder	Male	14.11	4.38	9.40	2.65	85.32	17.01
	Female	13.9	3.40	9.47	2.22	85.47	15.61
	Total	14.8	4.17	9.42	2.55	85.36	16.64
Non-	Male	13.93	3.84	9.05	2.23	81.84	15.60



<b>Pension Holder</b>	<b>Female</b>	<b>12.53</b>	<b>3.0</b>	<b>9.0</b>	<b>2.53</b>	<b>76.55</b>	<b>12.27</b>
	<b>Total</b>	<b>13.30</b>	<b>3.58</b>	<b>9.03</b>	<b>2.36</b>	<b>79.47</b>	<b>14.41</b>
<b>Total</b>	<b>Male</b>	<b>14.2</b>	<b>4.11</b>	<b>9.23</b>	<b>2.45</b>	<b>83.57</b>	<b>16.37</b>
	<b>Female</b>	<b>12.92</b>	<b>3.23</b>	<b>9.13</b>	<b>2.45</b>	<b>78.90</b>	<b>13.74</b>
	<b>Total</b>	<b>13.63</b>	<b>3.85</b>	<b>9.2</b>	<b>2.45</b>	<b>81.91</b>	<b>15.62</b>
<b>F (Group) 1,300</b>		<b>F=2.743,p=.097</b>		<b>F=1.677,p=.195</b>		<b>F=9.827,p=.001</b>	
<b>F (Gender) 2,300</b>		<b>F=2.359,p=.125</b>		<b>F=.001,p=.973</b>		<b>F=1.688,p=.194</b>	
<b>F (Interaction) 2,300</b>		<b>F=1.665,p=.197</b>		<b>F=.032,p=.854</b>		<b>F=1.890,p=.169</b>	

**Discussion:**

Traditionally, retirement has been viewed as the gateway to old age. Work is more than earning a living. It is a way to live. Retirement is not only an occupational career transition, but a family transition as well. Retiring from the workforce can represent a significant change for many individuals. Changes can be felt on a financial, social and emotional level and can influence new retirees’ standard of living, daily activities, social networks and well-being. Although there has been extensive research on retirement adjustment, results have been inconsistent and thus remain inconclusive regarding the nature of the impact of retirement. On the one hand, retirement has been found to have beneficial effects. While, on the other hand, some studies suggest that retirement has important negative effects. Thus, a better understanding of adjustment process would provide a clearer picture of the outcomes, that is, the challenges and costs that it generates at the individual and societal level.

It is clear that the elderly people pension holder had higher level of adjustment than elderly people Non-pension holder. The role of gender did not have a significant effect on the level of adjustment. Most of the studies conducted on the aged population in India are found to be sociological studies and surveys. Moreover, there are only few psychological studies carried out in our culture taking together the variables of old age adjustment and retirement.

The pension holder subjects had better adjustment, where few of the studies support our findings. Being passionate about work can thus lead to positive or negative outcomes in retirement, depending on whether the passion is harmonious or obsessive, respectively. As the person is pension holder, may lead to less financial problems leading to better health adjustment.

**Major Findings of the Study:**

- Pension holder population had higher scores in three areas health adjustment, home adjustment, social adjustment and in total overall adjustment than Non-pension holder population.
- Apart from the area health adjustment, in all other areas male and female individuals did not differ significantly in their level of adjustment.



- The interaction effects between type of group and gender were found to be non-significant for the different areas of adjustment and overall adjustment. Only in the area home adjustment the interaction effects between group and gender were found to be significant.

#### **Conclusion:**

It is clear that there is a drastic effect and changes among elderly people after retirement where retirement affects the elderly persons, which was explored to some extent. Pension holder buffers the overall adjustment among elderly. Our study aims at pointing out the adjustment issues in elderly retired population. A new perception of retirement is needed to replace the negative ones prevalent at the present time. There is need to create a new environment for retired, an environment in which elderly people can use their energy, skills and experience according to their abilities and their desires in a creative and fruitful way. It is necessary to disseminate accurate information about the elderly so as to overcome ignorance and prejudice. It may not be correct to assume that the elderly are beyond the point in life at which they could make any new contribution to society or take on any new responsibilities.

#### **References:**

1. Damman, M., Henkens, K., &Kalmijn, M. (2013). Missing work after retirement: The role of life histories in the retirement adjustment process. *The Gerontologist*, 55(5), pp.802-813.
2. Dhara, D. R., &Jogsan, Y. A. (2013). Depression and psychological well-being in old age. *Journal of Psychology & Psychotherapy*, 3(3), p.1.
3. Punia, D., &Punia, S. (2002). Socio-emotional and Psychological Problems of Retired Elderly in Haryana: A Comprehensive View. *Journal of Human Ecology*, 13(6), pp.455-458.
4. Desai K.G. and Naik H.M.,( 1970) Problems of Retired People in Greater Bombay, Bombay: Tata Institute of Social Sciences .pp.112-114.
5. Shukla, P. and Kiran, U.V., (2013) Subjective happiness among the elderly across various groups .*Iosr J. Humanities and Social Science (IOSR-JHSS)* 13(6): pp.46-49
6. Nair, J. P. and Joseph, M. I., 2013, Adjustment and spirituality in old age. *J. Behavioral Soc. Sci.*, 1(3), pp.139-145.



oShodj.k dk Hkjrh; vFb; oLFk ij çHko

MND x.lsk dëkj fl g

çkjk& jke l ñnj fl g

Mqo\$ i kD&cfy; k fcØei jHhk; k& l djh] e/kcpuh] fcgkj

I kñr l kj

oShodj.k , d , ð h çfØ; k dk o.ku djrk gSftl ds }kjk {ks=h; vFb; oLFkvlk] l ektla vls l ð—fr; ka dls l pjk] ijfogu vls 0; ki kj ds of'od ul'odl ds ek/; e l s , dh—r fd; k x; k gA bl 'kcn dk mi; lsc dHh&dHh fo'lsk : i l s vkfFkd] oShodj.k ds fy, fd; k tkrk g% 0; ki kj] fonskh çR; (k fuosk] iatç çokg] çokl vls çks] kSxdh ds çl kj ds ek/; e l s varjzVh; vFb; oLFk ea jk'Vh; vFb; oLFk vka dk , dhçj. kA l keftd l eakka ds {ks= ea , d LFkkrud , dhçj.k ds : i ea oShodj.k dls nfu; k Hkj ea l keftd l eakka ds xgurk ds : i ea ijHkkr'kr fd; k tk l drk gS tks nj ds LFkkua dls bl rjg l s tMfrk gSfd dbz ehy dh njh ij gkus okyh ?KVukvka ds vkdkj vls bl ds foijhr gks gA oShodj.k dk vke rls ij vFkz gS gekjs nSk dh vFb; oLFk dls fo'o vFb; oLFk ds l kFk , dh—r djuka vkjkk fd, x, vkfFkd] ijforLka dk vFb; oLFk ds l exz fodkl ij , d ulvdh; çHko i Mte gA bl us Hkjrh; vFb; oLFk ds of'od vFb; oLFk ea , dhçj.k dh Hh 'kafvkr dha 1991 ea Hkjrh; vFb; oLFk cMv l dV ea Fkh tc fonskh eep HkHkj ?KVdj 1 cfy; u M, yj gis x; kA oShodj.k dk çHko —f'k] vls kSxd] foUkh;] LokLF; {ks= vls dbz vl; {ks=ka l fgr foHku {ks=ka ij i Mte

'kñ l aSr % oShodj.k] vkfFkd] vFb; oLFk', dhçj.k] —f'k] vls kSxdA fo'k; i nsk %

0; ki kj us çkphu dky l s gh nfu; k ds foHku Hkxka dls tkMves dk dke fd; k gA phu dk jSke ftl jkLrs l s vjc vls fQj i'pe ds nSk vls vl; nSk ea tkrk Fk ml jkLrs dls fl Yd : V dgk tkrk FkA fl Yd : V l s u dsoy l keku dh vkoktqgh gsrh Fkh çfYd ylxka vls fopkja dk vkokxeu Hh gsrk FkA Hkjr l s 'kñ; vls n'keyo ç.kyh 0; ki kj ds jkLrs gh nfu; k ds vl; Hkxka ea i gpp ik; k FkA uMyl dh mri fuk phu ea gPz FkA 0; ki kj ds jkLrs gh uMyl nfu; k ds vl; Hkxka ea i gpp vls bl ds dbz uke gis x; s tS s l so; kj i kLrk] vkfAvls] kSxd Økñr ds ij .kkoLo: i oShodj.k ea rsth vk xBA ml ds ckn 'kaf' ea , f'k; k l s dPps eky dk fu; kr gsrk Fk vls ; jkS l s mri knka dk vk; kr gsrk FkA mluhl ota 'krkñh ds e/; l s lFkfr cnyus yxh FhAchl ota l nh ds e/; ds ckn l s dbz dā fu; ka us fo'o ds foHku Hkxka ea vi us ij il kjus 'kaf' fd; A bl rjg l s çgk'Vh; dā fu; ka dk tle gPzA

gj dā uh bl çkr dh ijh dks'k'k djrh gSfd mri knu ds ykx ds de fd; k tk; A bl ds fy; s t: jr i Mes ij dā fu; k; mri knu ds dbz pj. ka dks vyx&vyx nSk ea i jk djokrh gA ; fn , liy uked dā uh vefjdk ea vi us mri kn cuk, xh rls ogk [kpz vf/kd vk; s; D; kñd vefjdk ea dkexkja dks vf/kd i kfjJfed nsuk gsrk gA ; fn rkboku ; k phu ea dke gsk rls [kpz de vk; s; D; kñd bu nSk ea dkexkja dks de i kfjJfed nsuk gsrk gA dPps eky dks ges'k , ð s LFku l s [kjhrus dh dks'k'k dh tkrh gS tgi og l cl s l Lrs ea mi yC/k gA bl rjg l s foHku nSk l s dke djokus ea ykx de dh tk l drh gS vls eukQs dks c-k; k tk l drk gA

gj çktkj ea xgdka dh l ð; k l hfer gsrh gA dkdbz Hh dā uh vi us mri kn dks ?kysm çktkj ea fdl h [kkl l hek rd gh çp l drh gA ml l s vf/kd fcØh ds fy; s u; s çktkj ka dh t: jr gsrh gA eku yhft, fd fdl h fdl ku ds [kr ea l fct; ka dh tcjnLr i hokj gPz gA ml dk xlp bruk NIS/k gSfd ogk pldgj Hh og vi uh l kjh l fct; k; ugha çp l drka vi uh l fct; ka dls l gh dher ij çpus ds fy; s fdl ku dks u; s çktkj ea tkuk gskA ; gh gkyr dā fu; ka dh Hh gsrh gA ml gages'k u; s çktkj ryl'kus dh t: jr gsrh gA

vkt ijh nfu; k dh vFb; oLFk vki l es tMh gPz gA fo'o ds foHku nSk dh vFb; oLFk ds bl ijLij tMko dks oShodj.k ; k Xyls ykbt s ku dgrs gA vkt ; fn e/; , f'k; k ea dkdbz mFky i fky gsrh gS rls ml dk vl j ijh nfu; k dh vFb; oLFk ij i Mfrk gA

çktkj dk oShodj.k rls çgr igys l s gis jgk Fk yfdu vls kSxd Økñr us bl ea rsth yk nhA mluhl ota l nh ea , f'k; k l s dPps eky dk fu; kr gsrk Fk vls ; jkS l s mri knka dk vk; kr gsrk FkA ; g lFkfr mluhl ota l nh ds e/; l s cnyus yxh FkA



chl oha l nh ds e/; ds ckn dbz dEifu; ka us fo'o ds vvx&vyx fglI ka ea vius iſ; i l kjus 'k# fd; A bl ds l kfk gh cggk'Vh; dEifu; ka dk tle gya ftl dEiuh dk 0; ol k; , d l s vfk/d ns ka ea QSk gya gks ml s cggk'Vh; dEiuh dgrs gA

oſohdj.k , d , ſ h cfØ; k dk o.ku djrk gſftl ds }kjk {k=h; vFØ; oLFkkvka l ektka vſj l h—fr; ka dks l pkj] ijfjogu vſj 0; ki kj ds oſ'od uſ/odZ ds ek/; e l s, dh—r fd; k x; k gA bl 'kſn dk mi; kx dHh&dHh fo'isk : i l s vfkFkd oſohdj.k ds fy, fd; k tkrk g% 0; ki kj] fonſkh çR; {k fuoſk] iuth çokg] çokl vſj çkſ kſxdh ds çl kj ds ek/; e l s varjzVh; vFØ; oLFkk ea jk'Vh; vFØ; oLFkkvka dk , dhdj.kA l kelftd l aakka ds {k= ea, d LFkfdud , dhdj.k ds : i ea oſohdj.k dks nſu; k Hkj ea l kelftd l aakka ds xgurk ds : i ea ijfjHk'kr fd; k tk l drk gſ tſ nſj ds LFkkuka dks bl rjg l s tdkrk gſfd dbz ehy dh nſj ij gksus okyh ?Vukvka ds vdkdj vſj bl ds foijhr gksrs gA

oſohdj.k dk vle riſ ij vFZ gſ geks ns k dh vFØ; oLFkk dks fo'o vFØ; oLFkk ds l kfk , dh—r djuka vjkk fd, x, vfkFkd ijforzka dk vFØ; oLFkk ds lex fodkl ij , d ukvdh; çHko iMk gA bl us Hkjr; vFØ; oLFkk ds oſ'od vFØ; oLFkk ea, dhdj.k dh Hh 'k#vkr dhA 1991 ea Hkjr; vFØ; oLFkk çMſ l aV ea Fkh tc fonſkh eep HhA] ?Kvdj 1 fcy; u M,yj gks x; ka oſohdj.k dk çHko —P] vſj kſxd] foUkh;] LokLF; {k= vſj dbz vl; {k=ka l fgr foHku {k=ka ij iMkA , yiith ufr ; kuh mnkjhdj.k] futhdj.k vſj oſohdj.k ds ckn gh rRdkyhu fouk ea h euekgu fl g us Hkjr ds foHku {k=ka ea fodkl nſj ka

**ubz vfkFkd ufr dk vlxauſ**

, d çMſ foukh; vſj vfkFkd l aV dks >yus ds ckn M,- euekgu fl g us , d ubz ufr ykb ftl s mnkjhdj.k] futhdj.k vſj oſohdj.k ufr ¼ yiith ufr½ ds uke l s Hh tkuk tkrk gſ ftl s ubz vfkFkd ufr] 1991 ds : i ea tkuk tkrk gſD; kicd ; g l aV l s çkj vkus dk , d mik; FkA vFØ; oLFkk dks mnkj cukus vſj oſohdj.k djuſ ds fy, fuEufyf[kr mik; fd, x, Fkſ

- 1- **voeW;** uHkxrku dh l eL; k ds l ek/ku ds fy, Hkjr; eep dk 18 l s 19 % rd voeW; u fd; k x; ka
- 2- **fofuosk,** yiith eMy ds l pk: cukus ds fy, dbz l koZt fud {k=ka dks futh {k= dks çp fn; k x; ka
- 3- **fonſkh çR; {k fuoſk ¼ QMhvkbz dh vufſr% ,** QMhvkbz dks çek ¼26 % ¼ j {k m l kca ¼26½ % vkfn tſ s dbz {k=ka ea vufſr nh xbz FhA
- 4- **, uvljvkbz ; kt uſ'od** fonſkh fuoſk ka dks tſ l ſo/kk; i mi yC/k Fkh os Hh , uvljvkbz dks nh xba

ubz vfkFkd ufr ¼NEP&1991½ us 0; ki kj ufr; k ekaed vſj foukh; ufr; k jkt dſk; vſj çtVh; ufr; k vſj eY; fu/kkj.k vſj l kFkxr l kka ds {k=ka ea çnyko iſk fd, A NEP&1991 dh eç; fo'iskrk, a gA ¼½ mnkjhdj.k ¼vkrj d vſj çk½ ¼i½ futhdj.k dk foLrj] ¼ii½ l koZt fud {k= ds l a k/ku ka dks mu {k=ka ea i pfuH'kr djuk tgl futh {k= ea çoſk djuſ dh l Hkrouk ugha gſ ¼v½ vFØ; oLFkk dk oſohdj.k] vſj ¼v½ çktkj ds vuqjy flFkfrA

**oſohdj.k ds ij.Me%**

jk'Vh; vFØ; oLFkk ds fy, oſohdj.k ds fufgrkFZ dbz gA oſohdj.k us fo'o çktkj ea vFØ; oLFkkvka ds çp vl; k; vſj çrLi/kz rst dj nh gA ; g oLrvka vſj l okvka ea 0; ki kj vſj iuth dh vlkktkgh ds l aak ea varj fuHkr ea ijfyf[kr gks gA ij.kkeLo: i ?kjsy vfkFkd fodkl ijh rjg l s ?kjsy ufr; ka vſj çktkj dh flFkr; ka l s fu/kkj r ugha gksrs gA çYd] os ?kjsy vſj varjzVh; ufr; ka vſj vfkFkd flFkr; ka nks l s çHkfor gA bl çdkj ; g Li'v gſfd , d oſohdj.k vFØ; oLFkk] viuh ?kjsy ufr dk fuekz k vſj eY; kadu djrs l e;] 'isk fo'o ea ufr; ka vſj fodkl ds l Hkfor dk; ka vſj çrfrØ; kvla dh vunçh ugha dj l drh gA bl us l jdkj dks mi yC/k ufr fodYi dks fo'o k fd; k tſ jk'Vh; Lrj ij fu.kz yus ea dſn gn rd ufrxr Lok; Ukr ds uq l ku dk dkj.k curk gA

**jktxj ds çgrj vol j%** oſohdj.k ds dkj.k vfkFkd xfrfok; k rsth l s c—h gA jktxj ds u; & u; s vol jka dk l tu gya gA dbz u; s vfkFkd çka dk fodkl rks oſohdj.k ds ckn gh gya gſ tſ s xM/xka] pM/x<} i qſ gſ jkcn] uſ M] vkfna

**thou'lyh ea çnylo%** oſohdj.k us yſka dh thou'lyh dks ijh rjg çny fn; k gA 1990 ds igys vf/kdrj yſk ns tkMh iſ' 'kvZ ea çtj çl dj yrs FkA T; knrj Ldih Nk=ka ds ikl Ldih Mſ ds v yok fxus pps gh Mſ gksrs FkA vkt vf/kdrj Nk=ka ds ikl Ldih ds fy, vyx Mſ ] [kysus ds fy, vyx Mſ ] çktkj



tkus dsfy, vvx Ml vlg iRvZ dsfy;svyx Ml gkr gA igys ykx LuDl dsuke ij ryk gvk iki M+ ; k ?kj eacuh vkywdh fpil [krrs FkA vc rls vvx&vyx ftyoj dsfpil i dV/ eafeyrs gA fodkl ds vl elu yH%o s o h d j .k us vkfFkd vl elurk dls vlg Hkh rsth l s c<k; k gA , d vlg rls fdl h cMh dEiuh dk e d s t j yk [kka #i ; s dk oru ikrk g s ogha n i j h vlg fnglMh etnjika dls U; ure etnjih Hkh ugha feyrh gA vkt Hkh vkcknh ds, d cMh fg LI ds fy; snks o a dh jk/h t v /kuk e f' dy gls tkrk gA fodfl r n s k a } j k x y r r j h d e k b l R e k y % f o d f l r n s k , d r j Q r l s V M c s j ; j d e d j u s d h o d k y r d j r s g a o g h a v i u s n s k e a V M c s j ; j d k b l R e k y d j r s g a v e s j d k t s s n s k v i u s f d l k u k a d k s H k j j h v u p k u n r s g a f o d k l ' k h y n s k a d k s b l l s g k f u g h g l r h g A

**o s o h d j . k d s d k j d %**

1980 vlg 1990 ds n'kd rd nfu; k ds vf/kdrj nsk fo'o cktj l s dVdj jguk i l n d j r s F k A o s , d k b l f y , d j r s F l s r k f d L F k u h ; m | l s x / k a k a d k s Q y u s Q u y u s d k e k s k f e y A c k j h o l n r / k a d s v k ; k r d k s j k d u s d s H k j j h v k ; k r ' k q d y x k ; k t k r k F k A , d h u h r d k s V M c s j ; j d g r s g A o y M V M v , x u k b t s k u u s l n l ; n s k a d k s b l c k r d s f y , j k t h d j f y ; k f d V M c s j ; j d e f d ; s t k ; A o y M V M v , x u k b t s k u g e s k k l s i j h n f u ; k e a f u c k z k 0 ; k i k j d k i { k / j j g k g A H k j r H k h b l l & F k k d k , d l n l ; g A

Hkjr ea Hkh igys cgr vf/kd VM c s j ; j F k A l j d k j u s 1991 e a m n k j o k n h u h r ; k a d h ' k a # v k r d h A m l d s c l n H k j r e a d b z c g j k " V h ; d E i f u ; k a u s v i u s d n e j [ k u s " k a # f d ; A v k t m u u h r ; k a d s i f j . k k e t h o u d s g j { l s = e a f n [ k u s y x s g A i g y s H k j r e a ; f n f d l h d k s e k v j l k b f d y [ k j h m u h g l r h F k h r k s n l s r h u c h M g h m i y C / k F k s t s f d j k t n r ] c y v v l g ; s t n h A L d W j e a c t k t d k , d k f / k d j F k A d k b z H k h o k g u [ k j i n u s d s f y ; s i g y s u e c j y x k u k g l r k F k v l g f o j u e c j v k u s e a g h n k s r h u l k y y x t k r s F k A v k t n k i f g ; k o k g u k a d s v u f x u r e , M y m i y C / k g A v k i t c p k g s r c v i u k e u i l n n k i f g ; k [ k j i n l d r s g A H k j r h ; v F i D ; o L F k k d s f o H k u { l s = k a i j o s o h d j . k d k c H k o %

1991 e a f o l k h ; l a d v l s f u i V u s v l g v k f F k d o f ) d h A p h n j g k f l y d j u s d h b P N k l s H k j r e a v k f F k d l d k j d h ; k s t u k e a f o f H k u { l s = k a e a v k ; k r c k / k k , a g v k b z x b z A b l e a 0 ; k i k j v l g f o n s k h f u o s k e a ' k k f e y F l s A ' k a # v k r h n k s e a H k j r d s f y , ; g d k O h v P N k l k f c r g v k l v c ; g d g u k t y n c k t h g l s x h D ; k a d v i r e d l k / h A p h o f ) n j u g h a c f y d b l c k r d k l i f u f ' p r d j u k g s f d v k f F k d c < l e r j h d s O k ; n l a e a l c l s v P N k g l r k f d g j d k b z [ k j k g y c u s A f u " d " l ; g g s f d H k j r e a o s o h d j . k d s c H k o B h d u g h a j g s x j h c v l g v e h j d s c h p d h [ k k b z c < k g S A v k f F k d v l e l u r k f n [ k k b z n r h g s e g a k b z v l g c j k s t x k j h H k h c < k g s " A

**-f'k {l s = i j o s o h d j . k d k c H k o %**

-f'k {l s = x k e h k H k j r h ; v F i D ; o L F k k d k e f ; v k / k j g s f t l d s v k l i k l l k e f t d & v k f F k d f o ' k s k k f / k d k j v l g v h k o ? m e r s g a v l g b l d h l j p u k e a f d l h H k h c n y k o d k l k e f t d b f d o v h d s e k s t m k l S v u i j , d l e k u c H k o i M e s d h l H k k o u k g A 1991 e a H k j r d h v F i D ; o L F k k d k m n k j h d j . k H k j r } k j k v i u k ; k x ; k F k A , d x b k h j v k f F k d l a d v d k l k e u k d j r s g q ] H k j r u s v k b z e , O l s \_ . k d s f y , l a d z f d ; k j v l g v k b z e , Q u s m l s ' l j p u k R e d l e k ; k s t u " \_ . k f n ; k j t l s d l n ' k r k a d s l k f k , d \_ . k g s t l s l a b / k r g s v F i D ; o L F k k e a l j p u k R e d i f j o r u d s f y , A v f u o k ; l : i l s c k t j y m n k j h d j . k % d s l j d k j h f u ; a . k d k s / k h j & / k h j s l e k r d j u s l k o z f u d { l s = d l s B u k a v f u t h d j . k % d k f u t h d j . k d j u s v l g e a 0 ; k i k j % o s o h d j . k % d k s l { k e d j u s d s f y , f u ; k r l f c l M h v l g v k ; k r c k / k v / k a d k s d e d j u s d s f y , l d k j k a d h e l a c d h x b A o s o h d j . k u s b l e a e n n d h g s %

- t h o u l r j d k s A i j m B k u k ]
- x j h c h d k s d e d j u k ]
- [ k k ] l j { k k l i f u f ' p r d j u k ]
- m | l s x v l g l o k v / a d s f o l r k j d s f y , 0 ; k i d c k t j r s k j d j u k ] v l g
- j k " V h ; v k f F k d f o d k l e a i ; k r ; l o x n k u n s u k A

**v l g l a x d { l s = i j o s o h d j . k d k c H k o %**

Hkjr h ; m | l s x i j o s o h d j . k d s c H k o r c ' k q g g t c l j d k j u s 1990 d s n ' k d d h ' k a # v k r e a n s k d s c k t j k a d k s f o n s k h f u o s k d s f y , [ k s y f n ; k A H k j r h ; m | l s x d k o s o h d j . k v i u s f o f H k u { l s = k a t s s b l i k r ] n o k ] i v / k y ; e ] j l k ; u ] d i M e ] l h e m ] [ k p j k ] v l g c h i h v l s e a g v k / k a 2017 & 18 e a o f ) g b z A



ošohdj.k dk vFkz gS jk"Vha ds chp 0; ki kj vojkska dk fujkdj.k vFkz foLrh; çokg ds ekv; e l s jk"Vha dh vFkz; oLFkkrvka dk , dh dj .kj oLrjvka vFkz l okvka ea 0; ki kj vFkz jk"Vha ds chp d,i kj v fuoska çkSj kSx dh ds {ks= ea fo'ksk : i l s l p kj vFkz ifjogu ea rsth l s çxfr ds dkj.k gky ds o"kkā ea nfu; k Hkj ea ošohdj.k ea of) gpbz gā Hkkjr l j dkj us 1991 ea vi u h vkfFkZd uhr ea cnyko fd; k ft l ds }kjk ml us nsk ea çR; {k fonskh fuosk dh vuqfr nhA Hkkjr; m | l s ea ošohdj.k ds çHkko dk ykHk ; g gS fd dbz fonskh dā fu; ka Hkkjr ea m | l s LFkfr d j rh gā fo'ksk : i l s QkekZ; [Vdy] chi hvkS; i vFky; e] fofueZk vFkz jkl k; fud {ks=ka ea vFkz bl us nsk ds dbz ykSka dks jkst xj nsus ea enn dh gā bl l s nsk ea çkSj xj h vFkz xj h ch ds Lrj dks de djus ea enn feyha bl ds vykok Hkkjr; m | l s ij ošohdj.k ds çHkko dk ykHk ; g gS fd fonskh dā fu; ka vi us l kFk vR; fkd mlur çkSj kSx dh ykrh gā vFkz bl l s Hkkjr; m | l s dks rdudh : i l s mlur cukus ea enn feyrh gS AHkkjr; m | l s ij ošohdj.k ds udkj Red çHkko ; g gS fd çkSj kSx dh ds vkus ds l kFk Je dh l ā; k ea deh vkbz vFkz bl ds i fj . kkeLo: i dbz ykSka dks mudh ukd f j ; ka l s fudky fn; k x; ka ; g e f ; : i l s nok j l k; u] fofueZk vFkz l hev/ m | l s ka ea gqk gS A

**foLrh; {ks= ij çHkko**

vkfFkZd {ks= dk l Hkj vkfFkZd mnkjhdj.k dh fn'kk ea Hkkjr ds dk; Dē dk l cl segROI wZ ?KVd gā gky ds vkfFkZd mnkjhdj.k ds mi k; ka us gekj s ?kj s y ckt kj ea çokg d j us ds fy, fonskh çfrLi f/kz ka ds }kj [kly fn, gā uokpj vFkz Ro ds fy, t: jh gks x; k gā foLrh; e; LFk vi us i j ā f j d -FVdks l s çkj vk x, gā vFkz os vf/kd ØSMV tS [kela ds ekuus ds fy, rS kj gā i fj . kkeLo: i] oš'od foLrh; {ks=ka ea dbz uokpj gq gā ftudk ?kj s y {ks= ij Hkh vi uk çHkko gā foHkku foLrh; l LFkkrvka vFkz fofu; ked fudk; ka ds mnHko us foLrh; l ok {ks= dks : f<oknh m | l s gkus l s çgq xfr'khy cuk fn; k gā bl çfØ; k ea ; g {ks= dbz p u k r ; ka dk l keuk dj j gk gā bl cny s gq l n Hkz e] Hkkjr ea foLrh; l ok m | l s dks nsk ea Qy s yk [kka Hkko fuosk dā dh foHkku vko; drk vka ds vuq i dbz uohu mri krka dh i s'kd' k dj ds vkus okys o"kkā ea , d çgq gh l dkj Red vFkz xfr'khy Hkēdk fuHkkuh gā vkfFkZd {ks= dk l Hkj vkfFkZd mnkjhdj.k dh fn'kk ea Hkkjr ds dk; Dē dk l cl segROI wZ ?KVd gā foLrh; l okvka ea of) %çfçak] chekj vpy l ā f l k vFkz 0; kol kf; d l okvka dks 'kfev d j s gq 1/4 2003&04 ea 5-6% dh f x j k o v ds çkn 2004&05 ea oki l 8-7% vFkz 2005&06 ea 10-9% gks xbA 2006&07 ea 1-1%, o"ka 2017&18 ea 18% dh of) ds l kFk xfr dks cuk, j [k x; k gā ošohdj.k ds dkj .kj foLrh; l ok m | l s l Dē .k ds nFj ea gā ckt j ea cnyko] çfrLi /kz vFkz rdudh fodkl oš'od foLrh; l ok m | l s ea vHkri wZ cnyko dh 'k#vkr dj j g s gā

**fu; kr vFkz vk; kr ij çHkko**

o"ka 2001&02 ea Hkkjr dk fu; kr vFkz vk; kr Dē % 32]572 vFkz 38]362 fevy; u Fkka dbz Hkkjr; dā fu; ka us varjZVh; i j -; ea l Eekfur f [k y k V h cuuk 'kq dj fn; k gā -Fk fu; kr nsk ds d y ok'kZd fu; kr dk y x Hkx 13 l s 18% gā 2000&01 ea 6 fevy; u vesj dh M, y j l s vf/kd ds -Fk mri krka dks nsk l s fu; kr fd; k x; k Fk] ftuea l s 23% v d s y l eph mri krka }kjk ; ksxnku fn; k x; k Fkka gky ds o"kkā ea l eph mri kn nsk ds d y -Fk fu; kr ea , d y l cl s clVs ; ksxnkudr kZ ds : i ea mHkjs gā tS d y -Fk fu; kr dk l k p o l a f g l l k gā vukt 1/4; knkrj çkl erh ploy vFkz xS çckl erh ploy 1/4 ry ds çht] pk; vFkz d, Qh v l ; çe [k mri kn gā ftuea l s çR; d nsk ds d y -Fk fu; kr ea y x Hkx 5 l s 10% dh fg l n j h gā o"ka 2017&18 ea 12% dh of) gks xbA

**ošohdj.k ds l dkj Red vkfFkZd çHkko**

• dā fu; ka ds fy, , d varjZVh; ckt kj gS vFkz mi Hkēk vka ds fy, p u s ds fy, mri krka dh , d foLrr J ā k y gā fodflr nsk ka l s fodkl 'khy nsk ka ea fuosk ds çokg ea of) f t l dk mi ; ks v k f F k Z i q f u e Z k ds fy, fd; k tk l drk gā nsk ka vFkz vf/kd l s vf/kd l kē -frd l ā dZ ds chp t kudkj h ds vf/kd l s vf/kd çokg us l kē -frd çk/krvka dks n j d j use ea enn dh gā rdudh fodkl ds i fj . kkeLo: i fodkl 'khy nsk ka ea çk Mku dk m y v k v l j g q k gā

- 1- bl l s vkfFkZd çokg ea rsth vkbz gS vFkz bl ea varjZVh; foLrh; l LFkkrvka dk Hkh gkFk gS bl nsk ka ds vkfFkZd fodkl ea l gk; rk feyh gS A
- 2- ošohdj.k dh otg l s i n h vFkz oLrjvka ds çHkko ea Hkh rst h gpbz gS tS s nsk ka ea 0; ki kfj d xfrfof/k; ka rst gpbz gS vFkz bl l s vkfFkZd fodkl dks xfr feyh gS A



3- inth çokg ds dklj.k fodkl fodkl 'khy n'skka ea fodfl r n'skka ds ykx vi uh inth dk fuosk djus yxs gš ftl l sf d mlğa vř/kd C; kt fey l ds bl l sf fodkl 'khy n'skka ea vř/kd vř/kd of) gks jgh gš vřj muds l keřtd vř/kd fodkl gřfons'kh inth çkřr gks jgh gš

4- l eku 0; ki křjd vřj Je fu; e viuk, tıus l sl Hkh n'skka dk l nřyř vř/kd fodkl gksck A

**ořohdj.k dsudkjřed vř/kd çhko%**

• fodkl 'khy n'skka ea ukřřfj; ka dh vkmVl křl & ds ifj .kkeLo: i fodfl r n'skka ea ukřřfj; ka dk upl ku gřk gš l pkjh jxcla ds Ořyus dk vř/kd [krjk gš • fo'o ij 'kkl u djus okyh vilj 'křä okys cgg'Vh; fuxela dk , d vřfuřr [krjk gš vř ea Nkř/s fodkl 'khy n'skka ds fy, ] ; g vř; (k : i l smi fuosk ds, d l ĩe : i dks tle nsl drk gš

1- ořohdj.k l smi hoknh vř/kd; oLFk dks c<kok feyk gš vřj çktkj eyd vř/kd; oLFk vi ukbz tk jgh gšA vehjka dh l ĩ; k de vřj xjhcla dh l ĩ; k c<+jgh gš vř/kd vehj vřj vř/kd vehj vřj xjhc vřj vř/kd xjhc gšrs tk jgs gšA

2- ořohdj.k l sl ekt dY; k k JI keřtd l ĩ çkk vřj l keřtd U; k; l sl çkřr xřřfok; ka ea jkT; ka us gřk [křp fy, gš bl otg l sl jdkjh l gk; rk vřj l ĩ çk.k ij vř/kd jgus okys ykřka dh n'kk vřj T; křk l křuh; gšrs tk jgh gšA

3- vřj jk'Vh; foLk l kLFk , d s rjhdsviukř gš ftl l sf fodfl r n'skka ds vř/kd fgrka dks c<kok feyrk gš vřj much l ĩ çkk gšrs gš vřj xjhc n'skka ds vř/kd fgrka dh vund'kh gšrs gš bl otg l sf fodkl 'khy n'skka ea ořohdj.k ds çřr fojkk c<k gš bu n'skka ea ruo dh fLFkr c<h gšA

4- xjhc vřj rhl jh nřu; k ds n'skka ds Nkř/s m l xcla vřj dke /křka ij cgg'Vh; dā fu; ka us pkř/ dh gš vřj Nkř/s 0; ki kjh bu cMh dā fu; ka dk epkcyk uk dj l dus ds dklj.k yxkrkj ?Nkřs ea tk jgs gšA

**fu"çhko%**

Hkřr us , yihth e, My l s vř; f/kd ykk çkřr fd; k D; křd 2007&2008 ea bl dk tMh h c<ej 9-7% gks x; kA çktkj inthdj.k ds ekeys ea Hkřr nřu; k ea pkřs LFKku ij gš yřdu ořohdj.k ds çkřr Hkřr -f'k dh fLFkr ea l ĩ çkk ugha gřk gš l dy ?křs w m R i k n ea -f'k dk fgll k dšy 17% gš Hkřeghu iřjokja dh l ĩ; k ea of) gřz gš vřj fdl ku vc Hkh vřREGR; k dj jgs gš yřdu ořohdj.k ds l çkjřed çhko dks n[ křs gq ] ; g dgk tk l drk gš fd cgr tYn Hkřr bu çk/křvka dks Hkh ikj dj tk, xk vřj fodkl ds vi us exz ij -<f'k l sekpz djs kA gky ds vudko dk l cd ; g gš fd fdl h n'sk dks l ko/kkuhi w d l uhr; ka dk , d l a kst u p u k p křg, vřbl supl ku l sepus ds fy, vol j ys se l (ke cukr gš 21 oha l nh ea nřu; k ij jkt djus ds fy, vřz kL= fo'křk vřj nřu; k Hkř ea fd, x, fořku vř; ; uka ea Hkřr vřj phu dh iřj dYi uk dh xbz gš Hkřr] tks vc Ø; 'křä l erk ds ekeys ea pkřkh l cl s cMh vř/kd; oLFk gš tki ku l s vřks fudy l drk gš vřj 10 o"ka ds Hkřr jh rhl jh cMh vř/kd 'křä cu l drk gš ge dg l drs gš fd gekjs nřud tıou ea gekjs vřl ik l tks vř/křudh dj.k fn [kkbz nrk gš og ořohdj.k dk , d ; křnk u gš ořohdj.k us gea 1991 l s, d yek j k L r r ; fd; k gš ftl ds ifj .kkeLo: i gekjs n'sk dh mlur gřz gš ořohdj.k l fn; ka l s gšrk vk; k gš vřj vřks Hkh gšrk jgřkA ; g , d ; Fkřz gš ftl l s ge egg ugha ekM+ l drA ořohdj.k l s upl ku ds l křk l křk Qk; ns Hkh gq gš ; g dgus ea vř'k; křä ugha gšrk fd ořohdj.k l s Qk; ns vř/kd gq gš vc nřu; k ds cMh n'skka dks , d h uhr; k; cuku h gšrk r křd ořohdj.k dk ykk vře vřne h rd igpā tc gj oxz dk vřne h , d l gh Lrj dh tıou'křy tıus yxřk r Hkh ořohdj.k l gh ek; us ea l Qy dgky, xkA



## A STUDY ON POPULATION AND URBAN PROBLEMS OF MADHUBANI, BIHAR

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### **Abstract**

The urban population in almost every country will grow, as already for the first time in human history, the majority of the world population is living in urban areas. But, the urbanization process is also accompanied by number of problems, because of unmanageable growth of population in urban areas, and it is related to provision of basic facilities and services in urban areas like water supply, sanitation, housing, transport etc. The growth of urbanization in India is basically through two ways, one is through increase in the urban population, which will be natural and the second one is through migration, which is result of people migrating from rural to urban areas and also from small towns/cities to big metros. However, in the 1990s, i.e. when the Indian government opened up their economy, there seen a rise in rapid economic growth of the country. But this economic growth was more of urban growth, which led to rapid migration of rural population to urban areas. Thus, it was estimated that the total urban population by the year 2030 will be 610 million, which will account for the 40% of the total population of the country (Mohan, 2012).

**Keywords:** Urban, Population, India, Area, Growth and Migration.

### **Introduction:**

The urbanization has a concept is an integral part of the process of development. Both Industrialization and urbanization are inseparable, just as agriculture fosters villages, industry encourages growth of towns (Maheshwari, 2006). There exist a close relationship between urbanization and economic growth, and good example is the many developed or industrialized countries and also a few developing countries. As a result, many populations are living in urban areas, because cities, towns and other urban areas have facilitated the evolution of knowledge and have been the incubators of civilization and the engines of growth (Singhsodhi, 2003). The urban population in almost every country will grow, as already for the first time in human history, the majority of the world population is living in urban areas. But, the urbanization process is also accompanied by number of problems, because of unmanageable growth of population in urban areas, and it is related to provision of basic facilities and services in urban areas like water supply, sanitation, housing, transport etc.

### **Urbanization in India:**

In the year 1950, only about 30% of the world population lived in urban areas, which were increased to above 50% in 2017. It was estimated that by the year 2030 more than 70% of world people will be lived in urban areas. The term 'urbanization' means the increasing share of a nation's population living in urban areas. A nation's urban population can grow from natural increase births minus deaths, net rural to urban migration and reclassification.

The growth of urbanization in India is basically through two ways, one is through increase in the urban population, which will be natural and the second one is



through migration, which is result of people migrating from rural to urban areas and also from small towns/cities to big metros. However, in the 1990s, i.e. when the Indian government opened up their economy, there seen a rise in rapid economic growth of the country. But this economic growth was more of urban growth, which led to rapid migration of rural population to urban areas. In the year 1951, only five cities are having population of more than one million, which increase to 53 cities in 2011 and it was estimated that by 2031, it will be 70 cities in the country with million populations. Similarly, three cities are having more than 10 million populations in the year 2011, and it was estimated that six cities will be having 10 million populations by 2031. Thus, it was estimated that the total urban population by the year 2030 will be 610 million, which will account for the 40% of the total population of the country (Mohan, 2012). The many cities in our country, are becoming extremely crowded and if we see the 20 most densely populated cities in the world, out of which five will be from India including, Kolkata and Mumbai. Madhubani district is one of the thirty-eight districts of Bihar, India, and is a part of Darbhanga division. Its administrative headquarters are located in Madhubani. The district has an area of 3,501 square kilometres (1,352 sq mi) and has a population of 1991 is 2832024 (+1.99%), in 2001, 3575281 (+2.36%) and in 2011, 4487379 (+2.30%) and Total population Madhubani Town is 75736 in 2011.

#### **Review of Literature:**

literature available on the topic of urbanization. Some of the important literatures are discussed below:

**Batra, Lalit (2009)** 'A Review of Urbanization and Urban Policy in Post-Independent India', in this paper, he tries to give insight into the existence of urban policy starting from the British rule to the post independent period (here the shift in urban policy in every Five Year Plan periods) and more importantly, the current neoliberal reforms undergoing in the field of urban affairs.

**Mohanty, Prasanna K. (2014)** In his book 'Cities and Public Policy: An Urban Agenda for India', talks about the importance of cities in catalyzing growth, which in turn leads to the overall development of the country. The negative aspects of the urbanization can be overcome through meaningful urban public policy or undertaking reforms in various fields of urban areas like urban planning, finance and management etc. For that thing to happen, the book discusses about the number of examples from India and global also, regarding how to make and implement good urban public policy.

**Ahluwalia, Isher Judge, Kanbur, Ravi and Mohanty, P.K (ed.), (2014)** 'Urbanization in India: Challenges, Opportunities and the Way Forward', contains 11 scholarly articles written by experts on the field of urban studies. The challenges of urbanization in India have been discussed along with the opportunities it presents if it was utilized properly and efficiently through good urban planning. The need for urban infrastructure, for effective service delivery systems, it's financing and most importantly its sustainability along with the role of urban local government has been the focus of this book. Thus, so many important literatures available on the present study, and here the authors tried to put all together and come out with some unique study on the theme of urbanization in India in one article.



**Ahluwalia, Isher Judge, (2016)** In her book ‘Transforming Our Cities: Postcards of Change’, discusses about, the majority of cities in India have been facing huge challenges in all the fronts or in other words, for the government, the governance of urban areas is a big challenge. The reasons being lack of basic facilities like good roads, water, housing, parks, electricity etc. Although Isher Judge Ahluwalia also given references about some cities in India, which have taken positive steps in solving the issues arises from urbanization. So, the need for big transformation of Indian cities is the need of the hour.

**Methods:**

This paper is descriptive and investigative, based on the secondary data composed from different research papers, journals, and government reports to understand the population growth strategies and Urbanization in Madhubani, Bihar, India.

**Results and Discussions:**

The Table: 1 clearly shows that the total population of India was increased from 102.86 crores in 2001 to 121.02 crores in 2011. The number of towns/urban agglomerations has increased from 5161 to 7935 from the period 2001 to 2012, which was an increase of 2774 towns/urban agglomerations. The urban population in the year 2011 was 37.71 crores, which was 28.61 crores in 2001. The percentage of urban population to the total population of the country was 31.16 % in 2011, which was 27.8% in the year 2001.

**Table: 1**  
**Decadal Urban Population Growth in India (Census of India)**

Year	Total Population (in crores)	No. of Towns	Urban Population (in crores)	% Share of Urban population	Decadal Growth of Urban Population in %
1951	36.11	2843	6.24	17.3	41.4
1961	43.92	2365	7.89	18.0	26.4
1971	54.81	2590	10.91	19.9	38.2
1981	68.33	3378	15.95	23.3	46.1
1991	84.63	3768	21.76	25.7	36.4
2001	102.86	5161	28.61	27.8	31.3
2011	121.02	7935	37.71	31.16	31.8

*\*Data from provisional tables released by Census of India 2011. Source from-Report of the Working Group on Urban Poverty, Slums, and Service Delivery System, Steering Committee on Urbanization of Planning Commission, 3rd October, 2011, New Delhi, p. 59.*

The Table: 2 shows the average annual percentage growth rate of population of both rural/urban and overall total. During the period from 1951 to 1961, the average annual percentage growth rate of population of rural was 2.06% and 2.64% for urban, whereas the overall total was 2.16%. One interesting fact about the is that, the average annual percentage growth rate of population for rural areas, since the year 1981 till present decreased.



**Table: 2**  
**Rural/Urban Differential in Growth of Population-India**

Period	Average annual percentage		Growth Rate of Population
	Rural	Urban	Total
1951-1961	2.06	2.64	2.16
1961-1971	2.19	3.82	2.48
1971-1981	1.93	4.61	2.47
1981-1991	2	3.64	2.38
1991-2001	1.81	3.15	2.15
2001-2011	1.22	3.18	1.76

*Source from-Selected Socio-Economic Statistics India-2011, Government of India, Ministry of Statistics and Programme Implementation, Central Statistics Office, Social Statistics Division, New Delhi, October, 2011, p.20.*

It was 2% during 1981 to 1991, which decreased to 1.81% in 1991 to 2001 and finally in last decade i.e. from 2001 to 2011 it was 1.22%. Whereas for urban areas, the average annual percentage growth rate of population was 3.64% during 1981 to 1991; which decreased to 3.15% in 1991 to 2001; and in last decade from 2001-2011, it increased to 3.18%. Thus, there seen a decrease in the percentage growth rate for rural areas, from 2% to 1.22% during 1981 to 2011 period. But, for urban areas the population growth rate, was still hovering around 3% plus, during the above mentioned three decades and interestingly during the period from 2001 to 2011, it increases slightly from 3.15% to 3.18%. Thus, the population growth rate for urban areas was more than rural areas. One interesting fact, can be seen from the top 5 urbanized States, three are from southern States; and in top 10 urbanized State, a total of 4 southern States Tamil Nadu, Kerala, Karnataka and Andhra Pradesh represent. The four southern States mentioned before are also the major contributor for our country (India) GDP. The employment is the main reason for migration of male, compare to female in various streams of migration. For male, the migration from rural to urban areas was 60.9%, whereas for female it was only 3%. Even within urban to urban areas, male migration was 48.2%, compare with 3% for female. On account of marriage only, female migrate more rather than for employment cause.

**Table: 3**  
**State-wise projected Slum Population from 2011 to 2017 (in millions)**

State	2011	2012	2013	2014	2015	2016	2017
Andaman & Nicobar Islands	0.034	0.035	0.037	0.038	0.040	0.041	0.043
A.P.	8.188	8.273	8.357	8.440	8.522	8.603	8.681
Arunachal Pradesh	0.098	0.103	0.109	0.114	0.120	0.126	0.131
Assam	1.071	1.100	1.130	1.160	1.191	1.222	1.254
Bihar	1.684	1.707	1.730	1.753	1.774	1.796	1.817



Chandigarh	0.332	0.349	0.365	0.382	0.397	0.411	0.430
C.Garh	2.112	2.169	2.228	2.288	2.348	2.410	2.471
Dadra & N. Haveli	0.026	0.029	0.032	0.034	0.037	0.040	0.043
Daman & Diu	0.009	0.009	0.009	0.009	0.009	0.010	0.010
Delhi	3.163	3.261	3.361	3.464	3.571	3.682	3.793
Goa	0.155	0.161	0.168	0.175	0.181	0.186	0.192
Gujrat	4.663	4.760	4.857	4.954	5.052	5.150	5.246
Haryana	3.288	3.391	3.495	3.600	3.707	3.815	3.924
H.P.	0.087	0.089	0.091	0.093	0.095	0.097	0.099
J & K.	0.494	0.504	0.514	0.524	0.534	0.544	0.554
Jharkhand	0.932	0.949	0.966	0.984	1.001	1.019	1.037
Karnataka	3.631	3.700	3.770	3.840	3.910	3.981	4.049
Kerala	0.533	0.536	0.539	0.541	0.544	0.546	0.548
L.dweep	0.002	0.002	0.001	0.001	0.001	0.001	0.001
M.P.	6.393	6.523	6.654	6.786	6.918	7.051	7.181
Maharashtra	18.151	18.550	18.951	19.353	19.754	20.153	20.557
Manipur	0.075	0.076	0.071	0.077	0.078	0.078	0.079
Meghalay	0.205	0.209	0.212	0.215	0.219	0.223	0.226
Mizoram	0.106	0.108	0.110	0.112	0.114	0.116	0.118
Nagaland	0.083	0.084	0.085	0.086	0.087	0.088	0.089
Odisha	1.736	1.771	1.805	1.841	1.876	1.912	1.948
P.Cherry	0.137	0.143	0.150	0.156	0.162	0.167	0.174
Punjab	2.798	2.864	2.930	2.996	3.063	3.128	3.194
Rajasthan	3.826	3.895	3.962	4.030	4.095	4.160	4.225
Sikkim	0.013	0.014	0.014	0.015	0.015	0.015	0.016
T.N.	0.645	8.863	9.081	9.299	9.515	9.730	9.940
Tripura	0.131	0.134	0.137	0.140	0.143	0.146	0.149
U.P.	10.878	11.127	11.379	11.631	11.885	12.140	12.394
U.Khand	0.826	0.846	0.866	0.887	0.907	0.927	0.948
W.B.	8.547	8.641	8.733	8.825	8.919	9.014	9.106
India	93.056	94.978	96.908	98.845	100.787	102.729	104.668

Source from: Report of the Working Group on Urban Poverty, Slums, and Service Delivery System, Steering Committee on Urbanization of Planning Commission, 3rd October, 2011, New Delhi, p.60.

**Challenges of Urbanization in India:**

Population growth and rapid urbanization are combining to create huge challenges for Indian cities. According to McKinsey, the country’s cities are expected to grow from 340 million people in 2008 to a whopping 590 million in 2030. Meeting demand for urban services in these cities will require US\$ 1.1 trillion in capital investment over the next 20 years. Without the right design and planning, this massive urban growth could exacerbate existing problems of congestion, pollution, and traffic



safety. Rapid and unprecedented population growth have contributed to common, pressing issues for India's cities. Many of these are inherently linked to transportation, including reducing urban sprawl, ensuring safe access to city services, and addressing the real estate industries' roles in determining cities' designs.

In the past two decades, Indian cities have grown tremendously—not only in population, but in geographic size. Sprawling cities and reliance on automobiles have contributed to traffic congestion, air pollution, rising greenhouse gas emissions, and poor public health. Ensuring that India's cities of the future are both livable and sustainable requires that decision-makers find ways to shorten commuting distances and decrease urbanites' reliance on automobiles.

As our country moves along on the path of urbanization, we will find new problems and challenges emerging out of it, some of which are already felt. While urbanization process resulted into economic growth in our society, but equally it is true that, there exist number of problems associated with the urbanization. Some of them are discussed below: The urbanization is also one of the reasons, for the global warming throughout the world and led to climate change even in India, we already seeing the impact of climate change on monsoon pattern and in near future, we will see more in other areas. The climate change is primarily caused by the building up of greenhouse gases e.g. carbon dioxide, methane, nitrous oxide and others in the atmosphere, which led to the rise in the temperature of the earth. The climate change is basically the result of human induced activities such as agricultural systems, industrial activities, fossil fuel consumption, land use pattern and many more (Sadashivam, 2010 ). Rather than, those occurring naturally in bio-physical environments. Although, agriculture is also the villain for contributing the above cause, but more importantly it was because of increase in the growth of vehicles in the cities and towns, more use of fossil fuels and construction activity by clearing the green and vacant lands for constructing buildings, roads, highways, malls etc.

Moreover, rural non-farm workers, such as rural artisans and rural service providers also depend on the growth of farmers incomes (Singh, 2010 ). Because of climate change, there has been a lot of desperate migration of those poor villagers to the towns and cities in search of ways to make a living; and this will increase when the land is no longer productive or severe drought, flood and other extreme weather conditions make it impossible to earn a living by farming. This will have political implications too, as these climate change migrants will put pressure on an already existing lack of infrastructure and basic amenities in urban areas (Sadashivam, 2010a). This will also affect the food production in the country, if we see, large number of rural people are depend upon for their living on agriculture profession and migrating to the cities will automatically affect the food security in India. As the population is increasing, we will see this problem more, already food inflation in our country is increasing, and affects the lives of both rural and urban people. But, more on the former category and even in urban areas, it will be more on the poor urban people. Furthermore, it will be increase more, as the contribution of agriculture and its allied activities towards the GDP in recent times is going down. Also, with the increase in urban population, more and more agricultural land or areas need to be converted for constructing houses, bridges, highways for urban use, which will affect agriculture production in near future.



### **Negative Implications of the Urbanization:**

The urban agencies should be given more financial and independent powers and include in its various provision of urbanization, according to the changing situation and environment, so that it can face the challenges of urbanization, as the powers and functions given in the 74th act was two decades old. And also, it is still matter of choice for the State government, to devolve various powers and functions in what manner and extent to their urban local bodies, which is unfortunate and needs to be done away with. There was also a instances in many State, where the government is emphasizing and creating new urban development authority or agency for urban development, and which was actually under the control of State government, which undermines the functioning of urban local self government in the State and needs to be discouraged in totality.

Rural areas need to be made developed, so that people don't thing about migrating in such huge number. Here, the role of State government becomes more important, along with the Panchayati Raj Institutions, the latter needs to be given more powers and functions. The 73rd constitutional amendment act related to rural local self government needs to be re-look and frame according to the real needs of the rural people, especially because of climate change, the people who depends upon agriculture directly or indirectly are mostly going to be affected. Furthermore, initiating number of programmes for the welfare of the people living in rural areas, especially related to providing employment by the government; like Mahatma Gandhi National Rural Employment Guarantee Act, which guarantees 100 days of work for one unemployed person in a family in a year. Since, unemployment is the main reason for migration of the people, especially to urban areas. Also, the private players need to be encouraged, so to set up business in

rural areas by giving them concession of various kinds. Even if people want to migrate for better opportunity and life in that situation, instead of putting pressure on big cities, it is preferable to identify and develop the small towns and cities, which can absorb the rural migrant located near to their place. **Conclusion:**

The urbanization concept provides both the challenges and opportunities for every country, although it may not be uniform in every country. In India also, the urban population is increasing in good number, but there exist a problem of infrastructure deficit, which was a big hurdle in the way of providing basic services to the people and also more importantly the economic growth of the country. Notwithstanding their economic powers of Madhubani in Bihar suffer from acute shortages of social and physical infrastructures (schools, health facilities, roads, public transport, water supply, housing, and air quality, water quality). A significant share of the households in this town live in slums. Furthermore, they also have been affected by social polarization and violence, especially on religious and caste bases, leading to socio-spatial segregations. The story of the small and medium-size towns in Bihar (below 100,000 population) is reverse in economic terms. They are often the centers of stagnation and lack necessary civic infrastructure and amenities. As such, the Indian urban system/cities can be said to be far away from the sustainability triad of economy, equity, and environment. These three aspects can create gridlock situations for the cities and inhibit their potential for becoming effective economic and social change sites, unless all these issues are addressed comprehensively and without any neglect of the less privileged rural and



regional economies, which are the major source of migration to large cities. The urban system in India is clearly facing major sustainability and resilience challenges.

**References:**

1. Batra, Lalit (2009) 'A Review of Urbanization and Urban Policy in Post-Independent India' Centre for the Study of Law and Governance, New Delhi, pp. 27-29.
2. Ahluwalia, Isher Judge. (2016) Cities at Crossroads: Setting cities free. *The Indian Express*, p.5.
3. Mohanty, P.K. (2014), in his book 'Cities and Public Policy: An Urban Agenda for India', Sage Publication, New Delhi. pp. 38-40.
4. Ahluwalia, Isher Judge, Kanbur, Ravi and Mohanty, P.K (ed.) (2014) 'Urbanization in India: Challenges, Opportunities and the Way Forward', Sage Publication, New Delhi. pp. 58-61.
6. Agarwal, Siddharth. (2011) The State of Urban Health in India: Comparing the poorest quartile to the rest of the Urban Population in selected States and Cities. *Environment and Urbanization*, 23(1), p.14.
7. Singh, S.P. (2010). Rising food Inflation: Issue and Measures. *Kurukshetra-A Journal on Rural Development*, 58(6), p. 35.
8. Singh, Satpal. (2004). Urban Poverty and Gender in India. *Nagarlok- An Urban Affairs Quarterly*, 36(1), pp.1-3.



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## A STUDY OF GOVERNMENT SCHEMES TOWARDS INCLUSIVE GROWTH AND ITS IMPACT: A CASE STUDY ON SELECTED DISTRICTS OF UTTAR PRADESH

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### **Abstract:**

The concept of 'inclusive Growth' is based on the concept of inclusion of bottom of the pyramid with main stream. Over enthusiastic government schemes and transferring the responsibility to the solder of local government through centrally sponsored programs for inclusive growth is the objective of this study. The political tantrum and certain expertise in subject always in argumentative that the schemes are buzzwords for economic development coincides with inclusive growth. This study is based on primary data collected from respondents residing in rural villages to analyze the impact of schemes on their life. Finding suggests that there is significant impact of centrally sponsored schemes on the life of the people, as an indication of inclusive growth in the society.

**Key words:** Inclusive growth, Government Schemes, Primary Data, Centrally Sponsored Schemes.

### **Introduction:**

Growth does not guarantee that all persons will benefit equally. Inclusive Growth is an improvement over narrow focused concept of growth alone. The concept of inclusive growth in their late 2000s gains momentum as incorporated into the concept of sustainable development goals (United Nations, 2016). New era of policy which argues that economic development should be achieved in a way that achieved through opportunity to all. Investment, innovation and participation of locally elected government and major diverse of activities are the routes through inclusive growth and job creation to the targeted level can be achieved (United Nations, 2016, p.33). Inclusive growth perhaps the most important concept used in new economic development policy should be achieved in a way opportunity to all (United Nations, 2016, p. 33).

High inequality cause political instability and social destruction have implications on sustainable growth (ADB 2007 a and b). The word 'inclusive growth' referred by the Asian Development Bank (ADB 2007 c) made emphasis on ensuring the economic opportunities created by growth are available to all across class and gender (see also Ali and Zhuang 2007). At present the opportunities created through growth are unevenly distributed failed to reach at poorest and disadvantageous peoples. In general it is found that if the distribution of growth benefit is left over to the market forces always unevenly distribute the wealth in favour of advantageous groups. Therefore the government intervention via formulating policies and programs to facilitate less advantageous via equal –opportunity to all is called an inclusive and sustainable development.



The education, health services, sanitation and economic livelihood security are proxy parameters to inclusive growth are used to know the opportunities available and availed by the poorer class of the society. The concept of inclusive growth focused to the distribution of benefit of growth with fairness, not emphasize the level of growth. The key components to be addressed through inclusive growth is fiscal policy measures, investment in education, health and sanitization, labour market reforms and social security net to be strengthen.

In section 2, we discussed some of the prominent studies covering growth, inequalities and inclusive growth. In section 3, cover research methodology designed to study the measures adopted by government to reduce inequalities. Section 4, covers analysis and interpretation of data to judge impact of government measures on the public. Section 5, is devoted to the conclusion and recommendations for future course of action.

### **Literature Review:**

India made a remarkable progress in reducing poverty between 2011/12 to 2015 it succeed to reduces poverty from 21.6 to 13.4 percent at international poverty line (2011 PPP \$ 1.90 per person per day). More than 90 million peoples uplifted above poverty line improved their living standard due robust economic growth and inclusive schemes adopted by the government (Poverty & Equity Brief, South Asia, India, April 2000). Latest estimate in year 2015 show that still 176 million peoples are living below poverty line (Poverty & Equity Brief, South Asia, India, April 2000). India is still facing the challenging steps towards inclusive growth to include women, schedule tribes in main stream balancing for health, education and gender equality, where country continuously performed poorly.

A series of fiscal policy and measures designed by government to tackle inequalities to achieve inclusive growth (Asian Development Bank, 2012). The income inequality is a curse for economies it reduces aggregate demand of the economy due to lower marginal propensity to consumption (MPC) of upper class (Stiglitz 2016). Still many of the eminent scholars believes that growth is the engine of eradicating poverty (Son and Kakwani 2008; Bourguignon 2004; Partridge and Rickman 2008; Dollar et al. 2013). However, increase in economic inequalities and stagnant economic development fuels the debate over redistribution of income through social welfare emerged as a new dimension called inclusive growth. This new dimension of economic development foster the opportunity of growth through equitable distribution is a top policy priority for economies in present time periods (Bowman 2007).

Kuznets (1955) curve suggests that inequality increases with development due to structural changes while latter on start decreasing due to trickle-down impact. Yet a long experience proved that this concept is inconsistent (Kanbur, 2000; Yin, 2004). Asian Development Outlook( 2012), Kanbur (2000) have mentioned that concept of growth with trickle-down effect not working universally as Latin American countries inequality declines while in Asian Countries it has increased even the poverty declined sharply (ADB,2012). Growing inequality is due to policy made for national development (Yin (2004)) can be cured with certain changes in policies. Chenery, Ahluwalia, Duloy, Bell, & Jolly, (1974) have published a paper entitled 'Redistribution with Growth' have emphasized greater share of GDP in favour of low income groups.



Therefore, now the focus turned from growth to redistribution of growth (Kakwani & Pernia, 2000). The new version of growth concept called pro-poor, will increase the incremental income of lower income group sharper than the higher income group (White and Anderson, 2001)

There are four reasons to the inequalities due to economic growth are skill-biased technological change and polarization, education, globalization and labour market institutions (Heshmati et. al. 2019). The study by Chu et. al. (2015) have also emphasize growth increased the demand for skilled labour and decrease the demand for unskilled labour cause increase in inequalities.

One more step ahead to inclusive growth is inclusive development or sustainable development. Though both are used interchangeably but have marginal difference as inclusive development is talking about economic, social and environmental issues are the dimensions of inclusive development. While, inclusive growth is focused on availability of equal-opportunity to all. Though these two words are interchangeably used in various talks and literatures. Sachs (2004) called inclusive development is direct democracy, the exercise of civil and political rights, distribution of amenities e.g. health, education and infrastructure enabling equal participation of all across class, creed, race, gender and religion.

Gupta (2014), have ascribed ten points on commonalities and inequalities on inclusive growth and development by depicting marginalized people, focus on excluded area or region, equal-opportunity, knowledge, redistribution of social benefits, context specificity, target capacity building, rearranging existing power equation, recognition of customary traditions, stimulating the self-help option of the poorer. So the concentration of wealth can be countered.

The measures such as Human Development Index (HDI) multi-dimensional poverty indices, wellbeing indices and quality of life indexes ((UNDP, 2013), (OPHI, 2013, by Alkire et. al.), are strive in combination to social mix by integrating wealthy and less privileged in same area through multi-dimensional management, non- governmental and community services, policy inclusion, infrastructure projects can help empower downtrodden (Bagla and stone, 2012).

The above literature review brings us on the verge of conclusion that interference of government in the growth opportunities can only the way to achieve inclusive growth and social justice. The decade after decade this concept has strengthen now it become such vocal that Central Government started working on it in collaboration with local governments. In present decades Centre government started focusing on direct benefit to the target population through center sponsored programs to achieve the concept of inclusive growth. This study is to analyze the impact of these schemes on the target population.

#### **Research Methodology:**

This study is exploratory cum descriptive in nature. Data for the study is collected from rural Uttar Pradesh. The objective is to find the impact of governments schemes on the life of socially and economically disadvantaged people. The hypothesis for the study in collectively for all schemes is given below:

$H_{01}$ : There is no economic upliftment of peoples who received benefit from government schemes.



H<sub>02</sub>: There is no social upliftment of peoples who received benefit from government schemes.

H<sub>03</sub>: There is no sustainable development opportunities arise through government schemes.

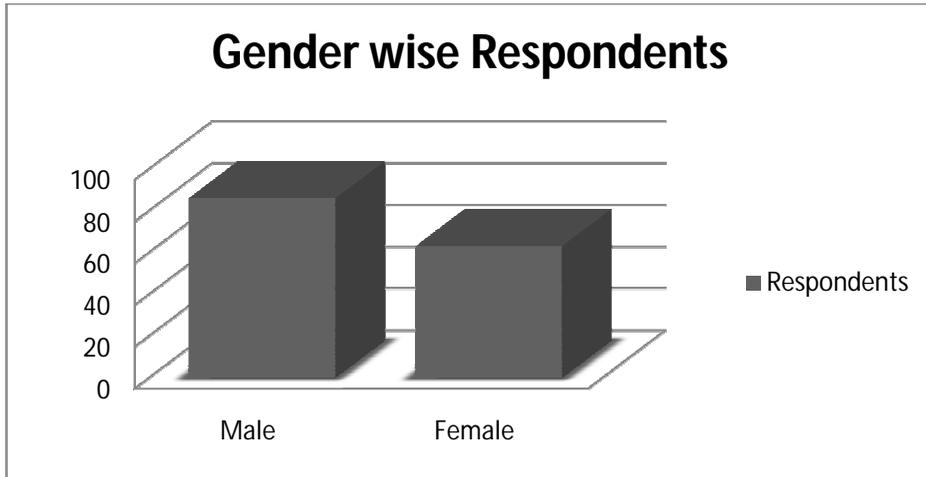
H<sub>03</sub>: There is no symptom of inclusive growth found in areas where government schemes are implemented

This study is based on primary data collected through questionnaire. Random sampling method is adopted for the selected district of Uttar Pradesh i.e. Lucknow, Rae Bareilly, Pratapgarh, Prayagraj, Mirzapur and Varanasi. The selection of district is based on convenient sampling with due consideration of districts almost representative to whole of the Uttar Pradesh. The villages selected from these districts are also based on convenient sampling with due consideration of convenient to data collection. The respondents are selected purely on random basis ready to reply the questions asked by researcher in their understandable language. The village selected and the respondents' demographic profile is given in the Table 1 below:

**Table1: Demographic Profile of respondents**

District	Village	No. of Respondents		
		Male	Female	Total
Lucknow	Akbarpur	04	01	05
	Malak	03	02	05
	Malihabad	02	03	05
	Gaura	04	01	05
	Lalpur	04	02	06
Rae Bareli	Amba	04	04	08
	Bari	04	02	06
	Sivli	03	03	06
	Bani	03	02	05
	Deeh	02	04	06
Pratapgarh	Gyanpur	04	03	07
	Korahi	02	03	05
	Harrya	04	02	06
	Dalapur	05	02	07
	Mau	03	03	06
Prayagraj	Barawan	02	03	05
	Barhula	04	01	05
	Khajuri Khurd	04	02	06
	Gaura	05	02	07
	Gauhani	03	03	06
Varanasi	Ajaypur	04	04	08
	Devji	02	05	07
	Aura	04	02	06
	Jigana	03	02	05
	Karia	04	02	06
Total		86	63	149

Figure 1: Graphical representation of respondents' gender wise:



Gender wise respondent figure shows that 58 percent respondents are male and 42 percent respondents are female.

**Analysis and Interpretation:**

The demographic description show that majority of the respondents are in the age group of 26 to 40 and 41 to 60 that weights 57.4 per cent of total respondents. Same we see from the Table 2 given below.

**Table 2: Age wise Respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	33	22.0	22.1
	26-40	43	28.7	51.0
	41-60	43	28.7	79.9
	61 and above	30	20.0	100.0
	Total	149	99.3	100.0
Missing	System	1	.7	
Total		150	100.0	

Educational qualification of the respondents shown in Table 3 show that majority of the respondents are either below matriculation or have no formal education. 41 percent population below matriculation and 34 percent have no formal education show a wide gap to be fulfilled in this direction to reduce the demographic divide of rural and urban population.



**Table3: Educational Qualification of the Respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	No Formal Education	51	34.0	34.2	34.2
	Below Matriculation	62	41.3	41.6	75.8
	Intermediate	28	18.7	18.8	94.6
	Graduation	8	5.3	5.4	100.0
Total	149	99.3	100.0		
Missing	System	1	.7		
Total		150	100.0		

Table 4 shows the profession of the respondents. As the lacking in education may be the major cause that’s why majority respondents are daily wage earners and small farmers as 47.3 and 44 percent respectively.

**Table 4: Profession**

	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Daily wage earner	71	47.3	47.7	47.7
	Farmer	66	44.0	44.3	91.9
	Service	12	8.0	8.1	100.0
	Total	149	99.3	100.0	
Missing	System	1	.7		
Total		150	100.0		

Table 5 shows the earnings of the daily wagers. As the data show that 26.7 percent population is earning between Rs. 5,000 to Rs. 9,000. At present still majority peoples earning less than 5,000 monthly which is less than subsistence wage determined by the Government of India.

**Table5: If daily wage earner average monthly earnings: (Only applicable to wage earners)**

	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Below Rs. 5000	27	18.0	38.0	38.0
	Between Rs-5000 to Rs. 9000	40	26.7	56.3	94.4
	Between Rs. 9000 to Rs. 15,000	4	2.7	5.6	100.0
	Total	71	47.3	100.0	
Missing	System	79	52.7		
Total		150	100.0		



Table 6 shows the holding size of the formers. Majority of the farmers holding size is between 2 to 5 hectares. If we see the total no. of farmers as 67 respondents 33 have holding size of below 5 hectares, means more than 80 percent farmers are marginal farmers. Due to this small size of holding majority family members are disguised unemployed need to be shifted to any other sector.

**Table 6: If Farmer, your holding size: (Only applicable to farmers)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below two hectares	22	14.7	32.8
	2-5 hectares	33	22.0	49.3
	6-10 hectares	12	8.0	17.9
	Total	67	44.7	100.0
Missing	System	83	55.3	
Total	150	100.0		

Table 7 show the status of service holders in the respondents. Only 12 peoples are in service out of 150 persons. Out of these 12 peoples 9 are in private sector.

**Table 7: If in service: You are employed to : (Only applicable to service holder)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government Job	3	2.0	25.0
	Private Job	9	6.0	75.0
	Total	12	8.0	100.0
Missing	System	138	92.0	
Total	150	100.0		

Table 8 shows the status of government employees out of 3 peoples 2 are on the post of peon, the other one is on clerical grade.

**Table 8: If in Government Job your position is**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Peon	2	1.3	66.7
	Clerk Grade	1	.7	33.3
	Total	3	2.0	100.0
Missing	System	147	98.0	
Total	150	100.0		

Table 9 shows the status of private employees. Out of 9 people 6 are on the post of peon and 3 are on the post of executive.



Table 9: If in Private Job your nature of Job is:

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Peon	6	4.0	66.7	66.7
Valid Executive grade	3	2.0	33.3	100.0
Total	9	6.0	100.0	
Missing System	141	94.0		
Total	150	100.0		

Table 10 shows the average monthly earnings of the salary class. More than 50 percent of the respondents are earning below Rs. 15,000.

Table10: If in service what is your average monthly income

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Below Rs.15,000	6	4.0	50.0	50.0
Valid Rs. 15,000 to 30,000	5	3.3	41.7	91.7
Valid Above 30,000	1	.7	8.3	100.0
Total	12	8.0	100.0	
Missing System	138	92.0		
Total	150	100.0		

The above demographic analysis reveal that majority peoples have either no formal education or below matriculations. Due to this they are working as unskilled daily wage earners. Majority farmers are marginal farmers; their family members are facing disguised unemployment. In service class also majority are in the job of peon have not much income. The demographic analysis of the respondents clearly showing the vicious circle of poverty evolved by Ragnar Nurkse (1958) shown that the vicious circle implies a circular constellation of forces tending to act and react upon one another in such a way as to keep a poor country in a state of poverty Nurkse’s in own words: “A country is poor, because it is poor.” Or “Because it is poor, the country does not develop; because it does not develop, it remains poor.” The explanation show that poverty is the cause of poverty due to interlocked in vicious circle of poverty self –perpetuating poverty and deprivation get transmitted generation to generation. Nurkse’s suggestion to breakdown this vicious circle of poverty through development of entrepreneurial skill to remove the burden on agriculture sector, enhance their income will incorporate generation of excess capital will evolve human resource to find the path of sustainable development. In line of this we have analyzed the recent popular schemes launched by the government and its impact on the peoples.



**Table 11: Shows question wise respondents' answer about the various schemes launched by NDA Government and benefits received by peoples as under:**

Q. No .	Questions	Yes	No	Total
12	Are you know about PM-Kisan Samman Nidhi Yojana	113	36	149
15	Do you know PM Garib Kalyan Yojana (PMGKY)?	92	57	149
16	Are you beneficiary of PM Garib Kalyan Yojana?	99	50	149
17	Do you know Pradhan Mantri Shram Yogi Maan Dhan (PM-SYM)?	103	46	149
18	Are you participated in Pradhan Mantri Shram Yogi Maan Dhan (PM-SYM)?	96	53	149
19	Do you know Pradhan Mantri Jan-Dhan Yojana (PMJDY)?	93	56	149
20	Are you beneficiary of Pradhan Mantri Jan-Dhan Yojana (PMJDY)?	97	52	149
21	Do you know about Pradhan Mantri Kaushal Vikas Yojana (PMKVY)?	81	68	149
22	Are you beneficiary of Pradhan Mantri Kausal Vikas Yojana (PMKVY)?	98	51	149
23	Do you know about Swachh Bharat Abhiyan?	100	49	149
24	Are you beneficiary of Swachh Bharat Abhiyan?	93	56	149
25	Do you know Saansad Adarsh Gram Yojana (SAGY)?	86	63	149
26	Is your village beneficiary of Saansad Adarsh Gram Yojana (SAGY)?	52	97	149
27	Do you know about Beti Bachao, Beti Pado Yojana of the government?	103	46	149
28	Have you availed Beti Bachao, Beti Pado Yojana of the government?	89	60	149
29	Do you know about Pradhan Mantri Mudra Yojana (PMMY)?	93	56	149
30	Have you availed benefit from Pradhan Mantri Mudra Yojana (PMMY)?	83	66	149
31	Do you know about Atal Pension Yojana?	89	60	149
32	Are you availed Atal Pension Yojana?	75	74	149
33	Do you know about Stand Up India Scheme?	81	67	148
34	Are you beneficiary of Stand Up India Scheme?	65	84	149
35	Do you know Pradhan Mantri Ujjwala Yojana (PMUY)?	99	50	149
36	Are you beneficiary of Pradhan Mantri Ujjwala Yojana (PMUY)?	71	78	149



From the Table 11 we can see that majority peoples have awareness about the Government Schemes and they are also the beneficiary of the same. The same we can see with the help of Table 12 showing the statistically significance difference between the respondents' responses as under:

**Table 12: One-Sample Test**

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Are you know about PM-Kisan Samman Nidhi Yojana	35.287	148	.000	1.24161	1.1721	1.3111
Who is beneficiary of this scheme?	43.039	148	.000	2.08725	1.9914	2.1831
How much annual cash distributed under this scheme	38.348	148	.000	1.87248	1.7760	1.9690
Do you know PM Garib Kalyan Yojana (PMGKY)?	34.607	148	.000	1.38255	1.3036	1.4615
Are you beneficiary of PM Garib Kalyan Yojana?	34.410	148	.000	1.33557	1.2589	1.4123
Do you know Pradhan Mantri Shram Yogi Maan Dhan (PM-SYM)?	34.464	148	.000	1.30872	1.2337	1.3838
Are you participated in Pradhan Mantri Shram Yogi Maan Dhan (PM-SYM)?	34.452	148	.000	1.35570	1.2779	1.4335
Do you know Pradhan Mantri Jan-Dhan Yojana (PMJDY)?	34.558	148	.000	1.37584	1.2972	1.4545
Are you beneficiary of Pradhan Mantri Jan-Dhan Yojana (PMJDY)?	34.430	148	.000	1.34899	1.2716	1.4264
Do you know about Pradhan Mantri Kaushal Vikas Yojana (PMKVY)?	35.571	148	.000	1.45638	1.3755	1.5373
Are you beneficiary of Pradhan Mantri Kausal Vikas Yojana (PMKVY)?	34.416	148	.000	1.34228	1.2652	1.4194
Do you know about Swachh Bharat Abhiyan?	34.411	148	.000	1.32886	1.2525	1.4052
Are you beneficiary of Swachh Bharat Abhiyan?	34.558	148	.000	1.37584	1.2972	1.4545
Do you know Saansad Adarsh Gram Yojana (SAGY)?	35.039	148	.000	1.42282	1.3426	1.5031
Is your village beneficiary of Saansad Adarsh Gram Yojana (SAGY)?	42.138	148	.000	1.65101	1.5736	1.7284
Do you know about Beti Bachao, Beti Padao Yojana of the government?	34.464	148	.000	1.30872	1.2337	1.3838
Have you availed Beti Bachao, Beti Padao Yojana of the government?	34.794	148	.000	1.40268	1.3230	1.4823
Do you know about Pradhan Mantri Mudra Yojana (PMMY)?	34.558	148	.000	1.37584	1.2972	1.4545
Have you availed benefit from Pradhan Mantri Mudra Yojana (PMMY)?	35.339	148	.000	1.44295	1.3623	1.5236
Do you know about Atal Pension Yojana?	34.794	148	.000	1.40268	1.3230	1.4823
Are you availed Atal Pension Yojana?	36.416	148	.000	1.49664	1.4154	1.5779
Do you know about Stand Up India Scheme?	35.385	147	.000	1.45270	1.3716	1.5338



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Are you beneficiary of Stand Up India Scheme?	38.361	148	.000	1.56376	1.4832	1.6443
Do you know Pradhan Mantri Ujjwala Yojana (PMUY)?	34.410	148	.000	1.33557	1.2589	1.4123
Are you beneficiary of Pradhan Mantri Ujjwala Yojana (PMUY)?	37.109	148	.000	1.52349	1.4424	1.6046

Table 12 One sample t-Test shows that statistically all the questions responses are significant. It means peoples have awareness about the government schemes and also the beneficiary of the schemes.

Therefore the null hypothesis of the research such as there is no economic and social upliftment of the peoples due received benefit could be rejected by looking the t-statistics inTable-12 showing significant. From this it can be interpreted that these center sponsored schemes have positive impact on the poor as their awareness and availed benefit suggests.

The hypotheses no. three and four are drawn to analyze the symptoms of sustainable development and inclusive growth in Indian Economy. While there is no separate questions and statistics are drawn to measure this but, this is symptomatic that polices are positively affecting living standards of the lower income groups. Therefore, it can be interpreted that hypothesis three and four are also rejected. The alternate hypotheses such as economic and social upliftment of beneficiaries are happen. Due to this possibility of sustainable and inclusive growth is consisting in the economy.

### Conclusion and Recommendations:

This research work to examine the awareness and benefit availed from Central Government sponsored programs to bring social justice via equal –opportunity to all. This concept is called inclusive growth (see also Ali and Zhuang 2007). Overall twenty five questions asked from the respondents about awareness and inclusion of them under the schemes. Majority of the respondents have affirmative answer which is statistically significant (Table 12). Though the methodology of the study is simple based on questionnaire but demonstrate the importance of awareness and reach among the public. This study is done at a point of time for limited no. of respondents can be expand to get a more clear view regarding implementation and availed benefit by the population. In-depth and extensive study will give clearer picture for policy makers to concentrate on effective policy so that filtering can be reduced. The equal-opportunity to all is the only way through which India will be included in the group of higher ranked HDI index countries. Only through this the objective of inclusive development can be achieved.

### Reference:

Ali, I and Zhuang, J. (2007), ‘Inclusive Growth toward a Prosperous Asia: Policy Implications’. ERD Working Paper No. 97, Economic and Research Department, Asian Development Bank, Manila.  
ADB (2007a) Asian Development Outlook 2007: Growth amid Change. Manila.  
ADB (2007b) Key Indicators 2007: Inequality in Asia. Manila.  
ADB (2007c) Towards a New Asian Development Bank in a New Asia. Report of the Eminent Persons Group to the President of the Asian Development Bank. Manila.



- ADB (2012). Asian Development Outlook 2012: Confronting Rising Inequality in Asia. Mandaluyong City, Philippines, Asian Development Bank.
- Alkire, S. Conconi, A. and Roche, M. (2013) Multidimensional Poverty Index 2013: Brief Methodological Notes and Results. Oxford Poverty & Human Development Initiative (OPHI).
- Bagla, P. Stone, R. (2012). India's Scholar-Prime Minister Aims for Inclusive Development. *Science* 335 (6071): 907-908. DOI: 10.1126/science.335.6071.907.
- Bourguignon, F. (2004). The Poverty – Growth – Inequality Triangle. Working Paper No. 125, Indian Council for Research on International Economic Relations (ICRIER), New Delhi.
- Bowman, K. (2007). Knowledge Stocks by Distance to Frontier: Linking Low Education Inequality to High Growth in Developing Countries. *Journal of Asian Economics* 18: 613-35.
- Chenery, H. Ahluwalia, M. S. Duloy, J. H. Bell, C. L. G. & Jolly, R. (1974). *Redistribution with Growth; Policies to Improve Income Distribution in Developing Countries in the Context of Economic Growth*. Oxford University Press, Oxford.
- Chu, A. Cozzi, G. and Furukawa, Y. (2015). Effect of Economic Development in China on Skilled-Biased Technical Change in the US. *Review of Economic Dynamics* 18(2): 227-42
- Dollar, D. Kleineberg, T. and Kraay, A. (2013). Growth Still is Good for the Poor. World Bank Policy Research Working Paper 6568. Available at SSRN: <http://ssrn.com/abstract=2309849>.
- Gupta, J. (2014). Sharing our Earth, Inaugural Address as Professor of Environment and Development in the Global South, University of Amsterdam. [http://www.oratiereeks.nl/upload/pdf-3450weboratie\\_Gupta.pdf](http://www.oratiereeks.nl/upload/pdf-3450weboratie_Gupta.pdf).
- Heshmati, A. Kim, J. and Wood, J. (2019). A Survey of Inclusive Growth Policy. *Economies* 7 (3): 1-18. <https://doi.org/10.3390/economies7030065>.
- Kakwani, N. and Pernia, E. M. (2000). What is Pro-Poor Growth? *Asian Development Review* 18 (1): 1-16.
- Kanbur, R. (2000). Income Distribution and Development. *Handbook of Income Distribution* 1: 791-841.
- Kuznets, S. (1955). Economic Growth and Income Inequality. *The American Economic Review* 45(1): 1-28. DOI: 10.2307/1811581.
- Nurkse, R. (1958). *Problem of Capital Formation in Underdeveloped Countries*. Oxford: Blackwell.
- Partridge, M. and Rickman, D. S. (2008). Distance from Urban Agglomeration Economies and Rural Poverty. *Journal of Regional Science* 48: 285-310.
- Sachs, I. (2004). Inclusive Development Strategy in an Era of Globalization. Working Paper No. 35. Policy Integration Department, World Commission on the Social Dimension of Globalization, International Labour Office Geneva.
- Son, H. and Kakwani, N. (2008). Global Estimates of Pro-Poor Growth. *World Development* 36 (6): 1048-1066.
- Stiglitz, J. E. (2016). America's Great Malaise and What to do about it. *Journal of Policy Modeling* 38 (4): 639-48.
- UNDP (2013). *Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World*. New York: United Nations Development Programme.
- United Nations (2016). Department of Economic and Social Affairs. <https://www.un.org/development/desa/publications/sustainable-development-goals-report-2016.html>.
- White, H. and Anderson, E. (2001). Growth versus Distribution: Does the Pattern of Growth Matter? *Development Policy Review* 19 (3): 267-89.
- Yin, J. Y. (2004). Developing Strategies for Inclusive Growth in Developing Asia. *Asian Development Review* 22: 1-27.
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## THE INDO-MYANMAR BORDER TRADE: AN ANALYTICAL STUDY

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### Abstract

The current study is conducted to recapture and revisit the dynamics of border trade in the context of the Indo-Myanmar region with the objective to understand its significance in a new light. Since the launching of Look East Policy in the 1990s, India has been actively pursuing better cultural, trade, economic and political relations with its Southeast Asian neighbours that come under the ASEAN grouping. New Delhi's eastward push in its regional engagement has also been guided by its desire to develop the strategic and volatile northeastern region that shares long and porous borders with five neighbouring countries including Myanmar. Four states in the northeast, viz., Arunachal Pradesh, Nagaland, Manipur and Mizoram share 1,643 km long border with Myanmar, considered the 'gateway to ASEAN' due to its physical location. The signing of the Border Trade Agreement in 1994 between India and Myanmar was the first tangible effort towards cross-border cooperation aimed at leveraging the close geographical, cultural and traditional proximity between the two countries. In this backdrop, the current paper is an analytical study of the Indo-Myanmar border trade and what it entails while examining challenges and constraints. In doing so, it tries to highlight the peculiar issues and dynamics of border trade in the context of the Indo-Myanmar border and concludes with relevant suggestions.

**Keywords:** Indo-Myanmar, Border Trade, Northeast India, Infrastructure, Act East Policy

### Introduction

India and Myanmar are strategic land neighbours sharing a 1,640 km length border passing through four northeastern states- Arunachal Pradesh, Manipur, Mizoram and Nagaland. Diplomatic relations between the two countries had seen ups and downs but began to improve since the 1990s. Under the Look East/Act East Policy, Myanmar is increasingly given priority by New Delhi as the natural land bridge to the prosperous ASEAN<sup>1</sup> region. India's renewed interests in Myanmar in the early 1990s had been guided by a threefold objective as many writers have pointed out: first, to thwart the strategic threat perceptions about China's growing influence in the country and act as a counterbalance to the former; second, to deal with the security challenges posed by insurgents and militants in India's northeast and restore stability at the border; third, to integrate with the booming economies of Southeast Asian countries via Myanmar and the northeast region. These factors had compelled India to embark on a 'constructive engagement' policy with Myanmar's military Junta government. Policymakers in New

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<sup>1</sup>Association for Southeast Asian Nations (ASEAN) is an inter-governmental regional grouping of ten small countries in the Southeast Asian region, including Myanmar, established in 1967.



Delhi had also felt the need to develop the remote northeastern region and transform it into a trade and economic hub by building a robust transport and connectivity infrastructure in order to capitalize on the historical and cultural linkages of the region with Myanmar and Southeast Asia. This is also seen as a positive alternate policy approach to the national security-centric paradigm with which India has been dealing with its northeast. The introduction and operationalization of border trade with Myanmar in this context was a significant and crucial step in strengthening relations at the bilateral, regional and local levels.

### **Methodology**

The present study is based on 'desk research' and some field observations. It relies on secondary sources and uses a qualitative method of analysis. To encapsulate the dynamics of border trade, the paper focuses on two official trade points in the Indo-Myanmar region, i.e., Moreh and Zokhawthar located in Manipur and Mizoram respectively. Lack of primary data limits the scope of the study but the findings remain relevant.

### **Indo-Myanmar Border Trade Agreement**

The first official 'Border Trade Agreement' between India and Myanmar was inked on 21<sup>st</sup> January 1994 in New Delhi and inaugurated on 12 April 1995 by the then Union Minister of Commerce<sup>2</sup>. The 1994 agreement envisaged that border trade will take place through custom posts at two designated places viz., Moreh in Manipur and Zokhawthar at Champhai District in Mizoram corresponding to Tamu and Rih on the Myanmar side respectively. As per the agreement, new trade posts in other places will be notified as mutually agreed upon by the two countries. While Moreh Land Custom Station (LCS) was made functional in 1995, Zokhawthar LCS was opened on 30<sup>th</sup> January 2004.

It was initially agreed that 22 items of locally produced commodities consisting of agricultural and minor forest products will be traded between India and Myanmar based on two mechanisms: a) barter exchange and b) traditional/free exchange per customary rules with a 5 per cent duty which is a concessional rate<sup>3</sup>. Barter system has been the preferred mode of business transactions among people living in the border areas. Article III of the Agreement states that border trade may be conducted in freely convertible currencies or in currencies mutually agreed upon by the two countries, including through counter trade agreements. Traders are hence required to invoice their goods in US dollars with each transaction limited to US\$ 20, 000 only (Pushpita Das 2014:16).

As per the Agreement, the original list of items included for Indo-Myanmar border trade notified by Public Notice No. 289 (PN)/ 92-97 dated 10<sup>th</sup> April 1995 consists of:

- 1) Mustard/Rape Seed, 2) Pulses and Beans, 3) Fresh Vegetables, 4) Fruits, 5) Garlic, 6) Onion, 7) Chillies, 8) Spices, 9) Bamboo, 10) Minor Forest Products excluding Teak, 11) Betel Nuts and Leaves, 12) Food Items for local consumption, 13) Tobacco, 14) Tomato, 15) Reed Broom, 16) Sesame, 17) Resin, 18) Coriander Seeds, 19) Soya bean, 20) Roaster Sunflower Seeds, 21) Katha, 22) Ginger. Among these, bamboo has a great

<sup>2</sup>See 'Indo-Myanmar Border Trade, Introduction', Department of Commerce and Industries, Government of Manipur at URL: [http://dcimanipur.gov.in/border\\_trade.html](http://dcimanipur.gov.in/border_trade.html)

<sup>3</sup> See 'Border Trade', Ministry of Development of Northeastern Region (MDoNER) at URL: [www.mdoner.gov.in/content/border-trade](http://www.mdoner.gov.in/content/border-trade)



export and investment potential as the region is rich in bamboo products. According to the Indian Chamber of Commerce, the combined production of bamboo in the Northeast States accounts for 65 per cent of India's production value and 20 per cent of the global production value. The state of Mizoram alone contributes to around 40 per cent of India's bamboo production. The region also produces a large amount of spices such as chillies, ginger, mustard seeds, fruits and vegetables which can be processed and marketed locally (Indian Chamber of Commerce 2013).

Border Trade is different from trade through air or sea ports especially since the latter involves clearance through customs and has large volume. Border trade, in effect, is an "over-land trade" by way of exchange of commodities from a bi-laterally agreed list by people living along both sides of the international border<sup>4</sup>. According to Pushpita Das, the rationale for border trade arises from two main factors. The first pertains to the remoteness of the border areas which does not allow access for the local people to national commercial centres to sell their products and buy items of daily necessity; and the second factor is the shared socio-cultural ties and economic complementarities by people across the border for whom border trade offers a natural milieu for greater economic interactions (Pushpita Das 2014:5). Thus local requirements and preferences largely influence the nature and dynamics of border trade. Unlike contraband items, border trade is governed by strict modalities and protocols that are worked out in advance and the volume of trade is not allowed to exceed a given limit beyond which it might pose a threat to national security (Pushpita Das 2014). In case of Indo-Myanmar border trade, goods and items worth US\$ 2000 are allowed for exchange at a time.

As per the agreement, the barter trade is restricted only to land route and transactions can take place only by way of head-load or non-motorized transport system (A.P. (DIR Series) Circular 17: 2000). Some facilities have also been provided by both governments to facilitate free movement of hill tribes residing along the Indo-Myanmar border albeit confined within 16 km of the international border upon acquiring official permits with certain terms and conditions while visa is ruled out<sup>5</sup>. Among the items permitted, India's exports to Myanmar from across the border mainly consisted of agricultural food products like edible buffalo offal, soyabari, skimmed milk powder, soya grid and wheat flour while imported items from Myanmar include forest products like betel nuts, dry ginger, kooth root, serpentine root, timber and numeric finger (Thiyam Bharat Singh n.d.). It was agreed in the 3<sup>rd</sup> India-Myanmar Joint Trade Committee Meeting in October 2008 that the Custom Land Stations in Moreh (Manipur) and Zokhawthar (Mizoram) would be upgraded to normal trade centres while the list of commodities to be traded were exponentially increased to 40 items (YHome 2009). Apart from the upgradation to normal trade, all goods except a handful of restricted items were allowed to be traded at this point at MFN rate (RIS 2011:7). Thus 18 additional items as notified by Public Notice 106 (RE-2008)/ 2004-2009 dated 7<sup>th</sup> November 2008 were added to the existing list that included the following:

1) Agarbatti, 2) Bicycle's spare parts, 3) Blades, 4) Bulbs, 5) Cosmetics, 6) Cotton Fabrics, 7) Fertilizers, 8) Imitation jewellery, 9) Insecticides, 10) Leather footwear, 11)

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<sup>4</sup>See Border Trade MDoNER at URL: [www.mdoner.gov.in/content/border-trade#b](http://www.mdoner.gov.in/content/border-trade#b)

<sup>5</sup> Ibid.



Life saving drugs, 12) Menthol, 13) Mosquito Coils, 14) Paints and Varnishes, 15) Spices, 16) Stainless steel utensils, 17) Sugar and Salt, 18) X Ray paper and photo paper. In 2012, 22 more items/commodities were approved for border trade as per the Public Notice No. 30 (RE-2012)/ 2009- 2014 dated 16<sup>th</sup> November 2012 as follows-

1) Agricultural machinery/equipments/tools, 2) Bicycle, 3) Bleaching Powder, 4) Coal, 5) Edible Oil, 6) Electrical and Electrical Appliances, 7) Fabricated Steel Products, 8) Garments/Readymade garments/cloths, 9) Handlooms and handicraft items, 10) Hardware/minor construction materials and electrical fittings, 11) Lime, 12) Medicines, 13) Milk Powder, tea, edible oil, beverages, 14) Motorcycle and Motorcycle Spare Parts, 15) Electronic/musical instruments, stationery item, torch light, 16) Plastic items such as water tank, buckets, chairs, plastic pipes and briefcase, 17) Staple food items like Rice, Wheat, Maize, Millets and Oats, 18) Scented Tobacco, 19) Semi Precious Stone, 20) Sewing Machines, 21) Textile fabrics, 22) Three wheelers/cars below 100 CC. However these items are not yet notified by the customs (Agrawal NEFIT. n.d.).

Alongside border trade, normal/Most Favoured Nation (MFN) trade in all other commodities between the two countries through the LCS is permitted subject to payment of custom duty at applicable rates<sup>6</sup>. During former Prime Minister Manmohan Singh’s visit to Nay Pyi Taw in 2012, two memoranda of understandings (MoUs) related to border development were signed viz., MoU on India-Myanmar Border Area Development and the MoU on establishing of Border Haats encompassing a wide range of projects including health, agriculture and basic infrastructure like roads and bridges (YHome 2014:139).

**Table 1: Land Custom Stations in NER Dealing Trade with Myanmar**

NER States	LCS in India	LCS in Neighbouring country	Neighbouring country
Arunachal Pradesh	Nampong* (Pangsau Pass)	Pangsu	Myanmar
Manipur	Moreh	Tamu/Namphalong	Myanmar
Mizoram	Zokhawthar (Champhai)	Rih/Tiddim	Myanmar
Nagaland	Avankhung**	Somara	Myanmar

\* Notified yet non-functional, \*\* Not yet notified but agreed for setting up LCS

Source: RIS Border Trade Report October 2011 and Ministry of Development of Northeastern Region, Government of India.

While border trade through Moreh was immediately operationalized on 12 April 1995, the Mizoram sector has been neglected for a long time and maximum volume of trade takes place through the Moreh-Tamu segment, handling almost 99 per cent of India’s trade with Myanmar. Here it is imperative to mention that border trade has been provided by one of the clauses enshrined in the Mizoram Peace Accord of 1986 signed between the Mizo National Front (MNF) and the Indian government (Songate 2008).

<sup>6</sup>Ibid.



The construction of a composite Land Custom Station (LCS)<sup>7</sup> on the extreme border with Myanmar at Zokhawthar was entrusted to the Border Roads Task Forces (BRTF) of Border Roads Organization (BRO) of India. After an inordinate delay, the trade point between Zokhawthar and Rih was opened on 31 January 2004<sup>8</sup>. The BRTF started to build the LCS from June 2005 and completed work in August 2007. But the LCS was only recently inaugurated after a passage of 10 years by Commerce and Industry Minister Nirmala Sitharaman on 25 March 2015<sup>9</sup>.

The internal environment in Mizoram with its relatively better security situation and faster growth of state economy (based on per capita income) is conducive for enhancing border trade. Evidently, there has been rapid growth in the volume of border trade along the Mizoram route with rising demands for imports while trade flow in the Moreh sector has declined in absolute term (Bezbaruah 2007). Apart from unfavourable security environment, the low level of trade in Moreh has also been attributed to lack of essential infrastructure and other facilities. The RIS report pointed out that acute 'infrastructure deficit' such as unavailability of electricity, bad road, manual handling of goods, unfriendly exchange rate and other barriers prohibit official trade to grow and contribute to the rampant growth of informal trade (RIS 2011: 8).

#### **Examining the Dynamics of Border Trade - What it does not Entail**

The major feature with regard to border trade with Myanmar is the huge gap between *formal* and *informal* trade. With regard to Moreh, E. Bijoykumar Singh has commented that "the biggest threat to border trade comes from informal trade" because "informal trade has grown by leaps and bounds while formal trade has remained a dwarf" (E. Bijoykumar Singh 2015). In the initial period following the signing of border trade agreement, volume of formal trade speedily picked up from Rs 15 crores in 1995 to Rs 46.49 crores in 1996-97 and reached Rs 62.39 crores in 1997-98 but then started to decline sharply in the subsequent year (Bezbaruah 2007).

The inclusion of 18 additional items in 2008 failed to provide the necessary impetus for trade as indicated by the fact that the quantum of trade had fallen from Rs. 8.82 crore in 2006-07 to Rs. 3.37 crore in 2011-12 (Pushpita Das 2014). Besides, India has largely maintained a negative or deficit trade balance with Myanmar and the share of the latter in India's total trade remains very low at about 0.2 per cent in 2010-2011 (RIS 2011). The trade deficit rose from a minuscule US\$ 2.5 million in 1980 to as high as US\$ 1 billion in 2012 (De and Majumdar 2014:57). But the low level of trade does not take into account the informal trade that takes place through the local trade points due to absence of systematic records (RIS 2011).

According to some estimates the volume of illegal trade has far exceeded the volume of formal/legal trade indicating the huge potential for expansion of border trade (Thiyam

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<sup>7</sup>A composite Land Custom Station consists of Telecom, Bank, Immigration, Postal and Security Offices.

<sup>8</sup>Administrator, 'Trade with Myanmar' May 5 2008 at URL: <http://tradeandcommerce.mizoram.gov.in>

<sup>9</sup> See 'Nirmala Sitharaman inaugurates Land Customs Station at Indo-Myanmar border' March 25 2015 at URL: [http://articles.economicstimes.indiatimes.com/2015-03-25/news/60474926\\_1\\_indo-myanmar-border-border-trade-centre-industry-minister-nirmala-sitharaman](http://articles.economicstimes.indiatimes.com/2015-03-25/news/60474926_1_indo-myanmar-border-border-trade-centre-industry-minister-nirmala-sitharaman)



Bharat Singh n.d.). In fact, the periodic expansion of the trading list was done for two reasons: to curb smuggling of goods not included in the list and to address the plummeting level of legal trade (Pushpita Das 2014:17). During stakeholders' consultation in Moreh and Imphal, it emerged that border trade including the unofficial trade was much more than the overall official bilateral trade between India and Myanmar and no estimates of such trade could be obtained (Upendra Das 2016). The demarcation between the formal and informal trade is also blurred by the widespread involvement of people from different walks of life such as politicians, bureaucrats, security personnel, enforcement agencies as well as other people from civil society groups (Chakraborty 2011).

Here it is imperative to mention that formalization of border trade is a huge task in a transnational zone like northeast India where traditional linkages allowed for cross-border flows for centuries. There had been traditional exchange of goods between the people living along both sides of the border and inhabitants of the border areas have long enjoyed the facility of free movement up to 40 kms on either side until 1968 when the government of India introduced a permit system to unilaterally check entry of undesirable elements (Manipur Online October 17 2010). The proliferation of illegal or unauthorized trade is accompanied by the growth in smuggling activities across the border. Willem van Schendel argues that "it is only when states forbid or fail to sanction certain transnational trade flows that these come to be defined as illegal, illicit, black, underground, contraband, clandestine, smuggling, and so on" (Schendel 2005:156).

Often people indulge in illicit trade due to ignorance and lack of awareness about the significance of normal trade in international borders. Since the rules and regulations imposed by normal trade are too complex, small traders are inclined to turn towards the simpler option of illegal trade (E. Bijoykumar Singh 2015). While some illicit trade can be "morally justified" due to their efficacy, there are those that belong to the 'harmful category' with security implications. Seizures by customs at Moreh and at the Zokhawthar trade point often include narcotic drugs, precious stones and black currencies along with other consumer goods. Long unfenced borders, custom restrictions, low transaction costs and low transportation costs provide incentives for smuggling of illegal goods (Thiyam Bharat Singh n.d:7). There are two forces at work at the Moreh station- the security personnel and the insurgent groups, the latter engaged in regular extortion of money that undermined trading activities. This led to the tightening of security at the check posts which in turn causes considerable delays and cash losses for traders (RIS Border Trade Report 2011:75).

#### **Restriction on Tradable Items**

Formal regulation of trade has also considerably decreased the amount of goods that can be traded. The common refrain in border trade has been that the list of permissible items as per the agreement does not match the desired list (E. Bijoykumar Singh 2015). For instance rice is not included in the initial list of 22 tradable items despite the fact that Nagas, Mizos and many other community groups in the northeast sustained on "Myanmarese (Burmese) rice" for decades (Sharma 2011). Another commonly traded item not included in the list is *pig* along with other livestock. Trade in pigs has been a lucrative business for people in the Chin Hills and Mizo Hills. On average, 1500 pigs arrive per week across the Tiau River out of which 300 are to be sold as both saleable



meat and piglings all over Mizoram (Songate 2008: 132). In case of Mizoram, livestock (mostly pigs) constitute more than a quarter of informal imports especially after the March 2006 ban of livestock import due to report of an avian flu case in Mandalay (Levesque and Rahman 2007). It has been pointed out that the rules of custom framed by the Union Commerce Ministry do not encourage the free flow of goods and that the Customs department came up with a negative list of items<sup>10</sup>.

According to M.P. Bezbaruah, the rigidities in the existing trading agreement have contributed to the decline in volume of formal trade. He pointed out that since the agreement adopted barter mode of trading, the value of export by each trader has to be matched by the value of the trader's import. Also the official exchange rate of currencies (Kyat and Rupee) allows for gross-over valuation of Kyat and does not reflect the true market-determined unofficial value of currency exchange (which is much in favour of rupee) leaving little incentive to Indian traders (Bezbaruah 2007). Apart from overvaluation of Kyat, rampant inflation in Myanmar's economy also necessitates the existence of a "dual currency-system" in which Kyat and Dollars co-exist. This in turn promotes the circuitous exchange in the black market that offers as much as 31 times more Kyat than what the official exchange market offers and the same applies to exchange of rupees with dollars (say \$240-250 against Rs 10,000 approx), and these dollars can again be converted into Kyats at a rate fluctuating around 1200-1400 Kyat per dollar (Levesque and Rahman 2007: 17).

Moreover, India's trade with Myanmar and the Southeast Asian states is mostly confined to manufacturing products and is restrictive towards agricultural products. Therefore northeast states do not have comparative advantage in India's export to ASEAN (PanchaliSaikia 2011). Northeast's major exports to its neighbours via the land route mainly consist of tea, coal, limestone, boulder, ginger, fruits, vegetables, perfumery, soyabari, cumin, flour and others with marginal changes from year to year. Of these, tea and coal constitute 94 per cent of all exported items while manufactured goods have a negligible presence in the export basket (Chakraborty 2011:16). In fact, most of the imports to the northeast region consist of manufactured products and processed food items such as fish, dry ginger, yellow peas, cement, multi-wall paper sacks, laminated poly bags, machinery equipment and parts, mustard, soya and others (Chakraborty 2011:17).

**Table 2: Total Export Import In The Northeastern Region For Five Years (2008-2013)**

YEAR	EXPORT (Figure in crores)	IMPORT (Figure in crores)
2008-2009	777.00	170.00
2009-2010	985.41	236.95
2010-2011	861.42	300.93
2011-2012	1242.37	399.11
2012-2013	1540.14	399.07

<sup>10</sup> See "Infrastructure development key to success of border trade" at URL: [http://articles.economictimes.indiatimes.com/2005-06-19/news/27474042\\_1\\_border-trade-road-connectivity-myanmar](http://articles.economictimes.indiatimes.com/2005-06-19/news/27474042_1_border-trade-road-connectivity-myanmar)



Source: *Present Scenario on Border Trade and Look East Policy available at [www.planningcommission.gov.in](http://www.planningcommission.gov.in)>conf1*

### **Capturing the Cultural Component**

Border trade has wide cultural underpinnings beyond the legal customs and systematization. As pointed out by Chakraborty, what is perceived as “international trade” by New Delhi is nothing but “traditional trade” for the border tribes (Chakraborty 2011:19). People living across the border often prefer the traditional way of dealing with each other without much hassle about custom checking and export/import rules. Local tribes hardly bother to obtain entry permission as stipulated by the bilateral agreement for movement across the border. For instance, Moreh is a mere 5 kilometre distance from Tamu and people living on both sides of the townships can easily exchange goods and items simply by crossing the border by foot or otherwise. Similarly, the dividing line of Tiau River between Champhai and Rih (Myanmar) is simply crossed over by inhabitants of both sides to carry out trading and other activities (Sharma 2011). It is in this manner that a large chunk of trade has been conducted ‘illegally’ along the Indo-Myanmar border. Samir Kumar Das observes that this unregulated trade provides an important means of livelihood for the border people who engage in small trade involving small amounts of capital and deal in low-value products for sale in the border zone markets (Das 2014:6).

### **Transitional Economy**

The big picture that is missing in India’s trade agreement with Myanmar is the peculiar nature of tribal economy in the northeast. Northeast remains by and large a traditional-based economy although a subsequent portion of the population has made inroads into the tertiary sector<sup>11</sup>. According to Thingnam Kishan Singh, the region’s historical development and progress of its mode of production have not yet had the necessary material base nor the time required to transform itself successfully into a capitalist system. He bases this on the colonial exploitation and destruction of the fragile tribal economy as well as on the post-colonial state’s “top-down” interference that showered economic packages on the region without building a firm production base (Kishan Singh 2015).

This lop-sided strategy of development has been practiced for decades and plunged northeast further into economic crisis. As a consequence, while Northeast continues to be the virtual ‘dumping ground’ for both Indian goods and cheap foreign commodities, very little has been exported from the region. More recently, introduction of a highly formalized border trade system has the inadvertent potential to disrupt the existing modes of trading and bargaining. For the local tribes, border trade is based not so much on profit as it is on the principle of subsistence to cater to the immediate needs of the

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<sup>11</sup>In a study based on a three-tier classification to ascertain structural changes in the NER economy, Chakraborty (2011) observes that in the time period between 2002-03, there has been a fall in the sectoral contribution of the primary sector by -10.42 per cent, an increase in the tertiary sector by 7.88 per cent followed by a marginal increase in secondary sector by 2.53 per cent. He argues that this trend exhibits a trend of transformation of the region’s economy. See his article “North East Vision 2020: A Reality Check” at URL: <http://www.idsk.edu.in/common/file/oc-33.pdf>



bordering people (Pushpita Das 2014). Thus, harmonization of both the traditional (barter exchange) and modern systems of exchange (monetized currency-based exchange) for promoting surplus-oriented trade is essential. The concept of border trade has to incorporate all these features with promotion of local entrepreneurship as the main objective.

In December 2015, India introduced two important policy shifts in border trade- from 'barter trade to normal trade' and from 'border trade to normal trade' since barter trade transactions were not captured in the banking system or reflected in the trade statistics. As the trade basket has diversified and adequate banking system is in place to support normal trade, the Reserve Bank of India in consultation with the Government of India has decided to do away with the barter system of trade which has been the main mode of trade at the Indo-Myanmar border (Taneja et al 2019:16). This shift has the potential to disrupt traditional modes of trading at the border especially with the requirement of documentation which is often burdensome for local traders who are not fluent with legal and official languages. The setting up of border haats or rural market as per mutual agreement between the two countries can ensure the continued practice of traditional exchange of goods and items between border residents.

### **Third-country Issue**

Another issue is the 'unintended' involvement of a third country in Indo-Myanmar border trade as northeast markets are flooded by Southeast Asian and Chinese goods. Chakraborty has pointed out that trade with Myanmar is more often a transit trade of goods and commodities produced in other countries which creates conditions for informal trade. Thus among the varied items coming from Myanmar, agricultural and forest products including agar woods, pulses, groundnuts, betel nuts as well as gems, precious stones originate in Myanmar but other goods ranging from electrical and electronics, textiles and footwear, cosmetics, toiletries and other high value metals and stationeries are from other Southeast Asian countries (Chakraborty 2011:19). In fact, most of the commodities imported through informal channels are third country products, mostly consumer goods coming from China and as far as from Korea and Japan (Bezbaruah 2007). The Indian government has also raised the minimum import price twice to curb the illegal import of betel nuts from third countries like Indonesia (Taneja et al 2019: 19). The influx of large number of cheap goods also lower the comparative advantages of Indian goods.

All these point to the need to liberalize trade in these items and to explore means and methods for exploiting the full market potential of northeast and its relative advantages. On the other hand as Baruah has pointed out, the removal of trade barriers and harmonization of tariffs on third country products could make the northeast region an attractive site for marketing and investment (Baruah 2005). To address the issue of third country goods without hampering the demand-supply dynamics in the region, an efficacious system of Certificate of Origin (COO) would have to be implemented through an e-trade online system and issued by government-designated credible agencies (Upendra Das 2016: 17).

### **Towards Expansion of Border Trade**

With increase in India's economic engagement with its neighbours there is much scope for expanding border trade. In 2013-14, India's total trade with its immediate



neighbours viz., Nepal, Bhutan, Bangladesh and Myanmar stood at Rs 80,303 crore out of which the share of the northeast region was barely 1 to 2 per cent (Mazumdar 2014). India has immensely gained from its changed economic policy towards Myanmar as bilateral trade grew from US\$ 12 million in 1980 to about US\$ 1.5 billion in 2009, which is a considerable increase by 46 per cent (RIS 2011:54). In 2012-13 the bilateral trade increased to a phenomenal US \$ 1.92 billion as export-import volume between the countries increased and diversified. The total border trade between India and Myanmar, however, remains marginal and averages around US \$ 1 million per year and 99 per cent of the accounted formal border trade takes place through Moreh. India is currently the second largest export destination for Myanmar after Thailand. In 2014, Myanmar's overall exports to India exceeded US\$ 1.4 billion, constituting a fifth of Myanmar's global exports (De and Majumdar 2014:58).

In 2017-18, Bangladesh was the most important border trading partner for India accounting for 87 per cent of border trade as compared to Myanmar's 0.01 per cent while China is Myanmar's most important border trading partner accounting for 87 per cent of the border trade with its neighbouring countries (Taneja et al 2019:12). Besides, as of 2018, only the LCSs in Moreh and Zokhawthar are notified and functional. While Moreh LCS has been upgraded to an Integrated Check Post (ICP), Zokhawthar LCS still lacks even basic infrastructure such as internet facility and laboratory testing facility leading to inordinate delays in export and import facilitation. Thus, investment in basic infrastructure at the border including transport, warehousing, electricity, optical fibers, telecom etc along with capacity building and investment in key sectors like tea, bamboo, timber and agro processing is of utmost importance to boost trade and related businesses (Upendra Das 2016:19). With the removal of basic hindrances, there is much scope for expansion of border trade between India's northeastern states and Myanmar.

Border trade has also had positive impacts on the bilateral relations as well as local population, observes Pushpita Das. She notes that as a result of border trade there have been greater interactions between the customs and immigration officials and between the security personnel of both countries which in turn led to better understanding of each other (Pushpita Das 2014:21). Border trade is particularly beneficial for locals as it generates employment opportunities and enables them to engage in trade activities which promote socio-economic development at the local level. It also leads to better cross-border cultural understanding and cooperation between the local population with the deepening of their livelihood interdependence.

### **Conclusion**

The objective to regularize Indo-Myanmar border trade was to improve relations with Myanmar by channelizing opportunities across the boundary. It was in sync with the economic reforms taking place in both the countries and at the regional and international level<sup>12</sup>. Even though the present border trade is minuscule in volume, its significance in normalizing India-Myanmar relations cannot be overlooked (Pushpita Das 2014). But

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<sup>12</sup> Note that even as India announced its economic reform policies in the early 1990s, Myanmar also launched a series of open-door policies that allowed private firms to engage in external trade and legitimized border trade with its neighbouring countries. For this, see Kudo et al "Five Growth Strategies for Myanmar: Re-engagement with the Global Economy" p. 9.



cross-border trade is not the panacea to northeast economic issues nor does it provide the one-for-all solution to the region's longstanding problems. Rather, border-trade merely constitutes one of the important avenues for growth<sup>13</sup> that needed to be promoted for two crucial reasons: *first*, to ensure that northeast is no longer excluded from India's economic growth and that the region gets due attention in India's economic engagement with Myanmar and Southeast Asia. *Second*, and more importantly, the realization of a border trade with Myanmar is an expansion of India's territorial conception of the Northeast region, an acknowledgement of its "transnational character" as well as potential in catalyzing India's "eastward diplomacy" under its Act East mission.

In this context, Sanjib Baruah's premise that "border regions will no longer be border regions..." holds eminence as northeast economy begun to be integrated with surrounding areas in the region (Baruah 2005). The 5<sup>th</sup> India-Myanmar Joint Trade Committee Meeting was held in Nay Pyi Taw on 17<sup>th</sup> February 2015 wherein both sides agreed to work together to remove the bottlenecks hampering the bilateral trade and investment such as lack of good connectivity, lack of banking arrangement both for regular and border trade and strengthen mutually beneficial relationship in the field of promoting two-ways investment, infrastructure development particularly to promote border trade, connectivity, agriculture, energy and others<sup>14</sup>.

The pertinent security challenges also raise several questions regarding the feasibility of building linkages across the border that can be 'easily' held hostage by hostile elements. The efforts of both central governments can be thwarted or sabotaged by insurgent groups operating along the international border who waste no time in exploiting the loopholes in development programmes. The activities of insurgents through their regular collection of levies, control of drugs and arms trade have created "an economy of its own" that helps run their "parallel governments" (Sailo 2014:4). But this only shows the urgency on the part of the state and central governments to develop the border area and display concrete policy action to instill a sense of security and confidence among the local people so that they can desist from complying with the 'negative forces' at work. The most plausible solution in such a situation is building of physical infrastructure particularly trade and transport connectivity. Also to achieve an integrated development in the northeast, promotion and facilitation of border trade has to go hand in hand with promotion of local industries and entrepreneurs, infrastructure development on a priority basis, capacity building, growth in tourism, people-to-people contact etc. State governments and other stakeholders in the region should be made effective partners in India's regional economic initiatives under the aegis of Act East Policy.

## References

"Barter Trade With Myanmar Under the Indo-Myanmar Border Trade Agreement", Reserve Bank of India, Circular (16-10-2000)- FEMA, available at URL: [https://www.taxmanagementindia.com/visitor/detail\\_circular.asp?ID=1826](https://www.taxmanagementindia.com/visitor/detail_circular.asp?ID=1826)

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<sup>13</sup> See "India's North-East: Diversifying Growth Opportunities", Indian Chamber of Commerce, p.3

<sup>14</sup> See 'India-Myanmar 5<sup>th</sup> Joint Trade Committee Meeting' February 17 2015 New Delhi at URL: [http://commerce.nic.in/MOC/press\\_release.asp?id=3148](http://commerce.nic.in/MOC/press_release.asp?id=3148)



Baruah, Sanjib (2005), *Durable Disorder: Understanding the Politics of Northeast India*, Oxford University Press.

Bezbaruah, M.P (2007), "The Indo-Myanmar Border Trade: The Stakes for Northeast India", *Dialogue*, 9(1), Retrieved URL: [http://www.asthabharati.org/Dia\\_July07/m.p.%20bez%20.htm](http://www.asthabharati.org/Dia_July07/m.p.%20bez%20.htm).

Das, Samir Kumar (2014), "Border Economy and the Production of Collective Subjects in India's East and the North East", *India Quarterly*, 70 (4): pp. 299-311.

De, Prabir and Majumdar, Pranab (2014), "Developing Cross-Border Production Networks Between North Eastern Region of India, Bangladesh and Myanmar: A Preliminary Assessment", *Research and Information System for Developing Countries*, Retrieved URL: <http://www.eldis.org/go/home&id=69457&type=Document#.VaaHivmqkko>.

Das, Pushpita (2014), "Status of India's Border Trade: Strategic and Economic Significance", IDSA Occasional Paper No. 37.

Das, Ram Upendra. Dr. (2016), "Enhancing India-Myanmar Border Trade: Policy and Implementation Measures", Retrieved URL: [https://commerce.gov.in/writereaddata/uploadedfile/MOC\\_636045268163813180\\_Final%20Enhancing\\_India\\_Myanmar\\_Border\\_Trade\\_Report.pdf](https://commerce.gov.in/writereaddata/uploadedfile/MOC_636045268163813180_Final%20Enhancing_India_Myanmar_Border_Trade_Report.pdf)

Indian Chamber of Commerce (2013), "India's North- East: Diversifying Growth Opportunities", Retrieved URL: [https://www.pwc.in/assets/pdfs/publications/2013/north-east\\_summit-2013.pdf](https://www.pwc.in/assets/pdfs/publications/2013/north-east_summit-2013.pdf)

Levesque, Julien and Mirza Zulfiquir Rahman (2008), "Tension in the Rolling Hills: Burmese Population and Border Trade in Mizoram", *Institute of Peace and Conflict Studies*, 14: 1-20.

Paul Songate (2008), "Indo-Myanmar Border Trade: Socio-Economic and Political Dynamics in Mizoram", in Jagadish K. Patnaik (eds), *Peace and Development in Mizoram: Role of the State and Civil Society*, Aizawl: Mizoram University.

RIS (2011), "Expansion of North East India's Trade and Investment with Bangladesh and Myanmar: An Assessment of the Opportunities and Constraints", *Research and Information for Developing Countries*, Retrieved URL: <https://www.ris.org.in/expansion-north-east-india%E2%80%99s-trade-and-investment-bangladesh-and-myanmar-assessment-opportunities>

Sailo, Laldinkima (2014), "Northeast India-Myanmar: Search for Cooperation and New Approaches", *Institute of Southeast Asian Studies ISAS Brief*, 321, (27 February 2014).

Saikia, Panchali (2011), "Linking India's Northeast with Southeast Asia: Significance of Internal Connectivity and Backward Integration", *IPCS Issue Brief*, Retrieved URL: [http://www.ipcs.org/issue\\_select.php?recNo=421](http://www.ipcs.org/issue_select.php?recNo=421)

Schendel, Willem van (2005), *The Bengal Borderland: Beyond State and Nation in South Asia*, London: Anthem Press.

Sharma, Sukanya (2011), "Negotiating Transnational Identities on Indo-Myanmar Border: The Trade Factor", *India Quarterly*, 67 (1): pp. 53-64.



Singh, E Bijoykumar “Border Trade at Moreh: Looking back” (26June 2015), Retrieved URL: [http://e-pao.net/epSubPageExtractor.asp?src=education.Jobs\\_Career.Border\\_trade\\_at\\_Moreh\\_Looking\\_back\\_By\\_E\\_Bijoykumar](http://e-pao.net/epSubPageExtractor.asp?src=education.Jobs_Career.Border_trade_at_Moreh_Looking_back_By_E_Bijoykumar),

Singh, Thiyam Bharat (n.d) “A Study on Indo-Myanmar Border Trade”, Retrieved URL: [www.dgciskol.nic.in/vaaniijaya0907](http://www.dgciskol.nic.in/vaaniijaya0907)

Taneja et al (2019), “India-Myanmar Border Trade”, Indian Council for Research On International Economic Relations, Working Paper 378, June 2019, Retrieved URL: [http://icrier.org/pdf/Working\\_Paper\\_378.pdf](http://icrier.org/pdf/Working_Paper_378.pdf)

YHome, K, (2009), “India-Myanmar Relations (1998-2008) - A Decade of Redefining Bilateral Ties”, *Observer Research Foundation*, ORF Occasional Paper 10: 1-30.



## WISDOM: BECOMING KNOWLEDGEABLE

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### Abstract

The present article aims to study the information processing theory in relation to Learning, memory and intelligence. It also try to find out the continuum of alignment of all theories in relation to improve knowledge and become knowledgeable. The paper present a assumed framework of various aspects of learning, memory and intelligence with special reference to 'Wisdom'. One another attempt to present a joint effort of Philosophy and Psychology. Article mostly based on the original thoughts which will be helpful to initiate a new dimension of cognitive activities.

**Key words :** Central Executive, Self Regulatory Memory, Meta-cognition Wisdom and Consciousness.

Learning is a process through which experience and training courses permanent change in knowledge and behaviour. The change may be deliberative or unintentional, better or worse, correct or incorrect, conscious and unconscious (Mayer 2011, Schunk 2012). Learning changes occurs through experience and training (interaction with environment) not caused by maturation and disease. There are the two view of study about learning and learning theories. Behavioural view of learning and cognitive view of learning.

Behavioural learning theories explains learning as a change in behaviour and it emphasized the effect of external events. This approach of learning supported by J.B. Watson. Behavioural theories explains learning as a process of association between stimulus and response. In this approach, human being considered as a machine in a mentalism way.

Cognitive view of learning explains learning is extended and transforming, and understanding process we already have as a matter of memory. Cognitive view of learning is a general approach that view learning as an active mental process of acquiring remembering and using knowledge. According to the cognitive view people actively choose, practice, pay attention, ignore, reflect, and make many decisions as their purpose.

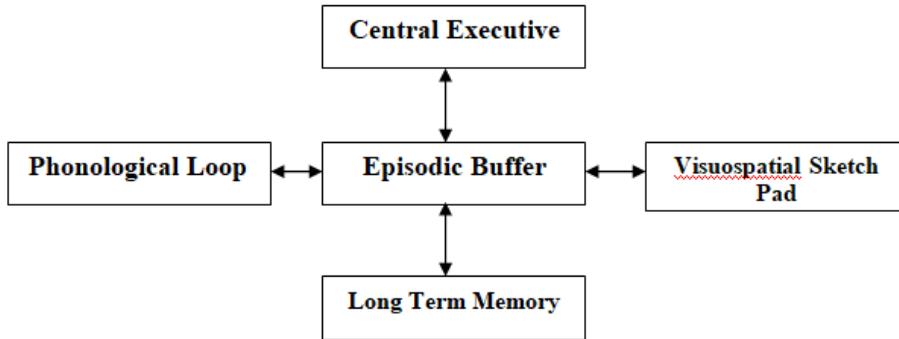
The cognitive and Behavioural view of learning differ in their assumption about the process of learning. According to cognitive view knowledge and strategies are learned, and then knowledge and strategies change behaviour. On the other hand, behaviour view of learning assumed that new behaviour's themselves are learned.

Knowledge is the product of learning but learning is the more then the end product of previous learning, it also guide new learning. Cognitive approach suggest that one of the most important element in learning process is what the individual brings to new learning situation. What we already know is the foundation and frame for constructing all future learning. Cognitive approach include both subject-specific understanding and to have the knowledge of something is to remember it over time and





sketch pad holds visual and spatial information and episodic buffer integrate information from phonological loop, visuo-spatial sketch pad and long term memory.



Sources: Baddley, 2007; Baddeley, Hitch & Allen, 2009; Jarrold Tam, Baddeley & Hancey, 2011

This model of working memory explain the information processing of immediate consciousness (cognition) in terms of the memory. The role of central executive is most important to select the information for attention and comprehension. It works just like a monitor of the information which are under process at a point of time. It determines the context of cognition. When a person received too much information and some time complexity of thoughts in mind both leads cognitive load. Cognitive load is the volume of resources necessary to complete a task. The resources required by the task (intrinsic), the resources required by the process stimuli irrelevant to the task (Extrinsic) and deep process of information related to the task including the application of prior knowledge to a new task (Germane).

Information Processing in long term memory is a product which takes place apart from the cognition. Long term memory is a content of sub-cognition processes. But when we involve in the information processing at LTM level the information automatically comes under the process of cognition and under central executive activation. Thus the information, acknowledge, understand and use for the cognitive adaptation. Central executive, phonological loop and visuo-spatial sketch pad work on the immediate cognition level in STM. Similarly, the Self Regulatory Knowledge, Declaration Knowledge and Procedural Knowledge work on sub-cognition level of processing. It is very important to keep these processing in continuum of alignment in between Self Regulatory and Central Executive. Declarative Knowledge verbal information, facts, knowing that something in the case. Procedural Knowledge demonstrate when we perform a task knowing how and self regulatory knowledge manage your learning or knowing how and when to use your declarative and procedural knowledge.

### How to Become Knowledgeable

Theoretical explanation of information processing approach claims on some principles (Strategies) to improve our knowledge and memory and how to make best use



of information stored in our mind for the development of declarative memory and make it meaningful. We use memories procedures which improve the remembering and make skilled in the art of storage, and retrieval of information. Memories techniques include the method of loci (place), Acronames, chunking, key word method, rote memorization. As far as concern with the procedural memory boosting we can use automated basic skills based on association and autonomous and domain. Specific strategies consciously applied skill to reach goal in a particular subject or problem. The above memory boosting devices works on the basis of partial improvement in the knowledge, it improves the retrieval of the facts which are stored in our memory. One another important issues to consider for understand that these all techniques related to cognitive domain so that emotional and behavioural aspects could not be nourished. So it leads to make our students and adults as computer / machine.

So what should be a an approach to become knowledgeable? Memory improvement is a partial development therefore we have to focus on the holistic approach which develop cognitive affective and psycho-motor aspect of human personality. Human being a super-conscious and intellectual organism so we should try to develop 'Wisdom' through the metacognitive monitoring. It fulfills the aim of all round development of human being.

Meta-cognition term was first defined by John H. Flavell (1979). Meta-cognition can be define as thinking above thinking. It is a mental ability which monitor all mental activities and regulate them. Michelle Reconscente (2008) said, "Knowledge or awareness of self as a knower." Meta cognition literally means higher-order knowledge about the own thinking as well as ability to use this knowledge to manage your own cognitive process meta-cognition involves three kinds of the knowledge.

1. Declarative knowledge – It is about yourself as a learner, the abilities skills and memory that influence the learning.
2. Procedural knowledge – Knowledge about how to use strategies.
3. Self Regulatory knowledge – Knowing the conditions about the task to fulfill the Aims.

Shunk (2012) Meta-cognition is the strategic application of declarative, procedural and self regulatory knowledge to accomplish goal and solve problems. As the executive entity of the cognitive functions Meta-cognitive regular thinking and learning. The three essential skills used by Meta-cognitions – (i) Planning about time, ability, skills and resources. (ii) Monitoring is a real time awareness of 'How I am doing', have I prepare and plan well. (iii) Evaluating involve making judgement about the process an outcome. In breif Meta-cognition makes us goal directed and prepared. Meta-cognition is a supreme sense/ awareness to plan, monitor an evaluate our own mental, behaviour an emotional functioning. It works like a regulator of mental abilities. So if we want to become knowledgeable we have to develop the Meta-cognition (observer) of own mental processing. Anthony Magnacca quoted, "Meta-cognition involves choosing the best way to approach a learning task, students with good meta-cognitive skills, set goal, organize their activities, select among various approaches to learning, and change strategies of needed." A lot of research indicated that meta-cognition improve learning, memory thinking, problem solving and other cognitive abilities. Bransford, Brown and Cocking (2000) synthesize a decade of researches at



National Academy of Science, concluded, “the Meta-cognitive approach is the best effective approach to instruction. Meta-cognition practices increase students abilities to transfer or adopt their learning to new context and tasks.” Rachille Dene Poth (2019) stated that “Meta-cognition helps in social emotional learning. Again he says that to promote Meta-cognition we can use - (i) Relationships, (ii) Thinking aloud, (iii) Share ideas, (iv) Use resources and visible thinking. Meta-cognition ability makes us much more sensible and planner so that contribute in the problem solving.

The Meta-cognitive practices develop the wisdom among students. The theory of ‘Triarchic theory of successful intelligence’ explains the higher level of mental processes involve in intelligence and as well as wisdom. Sturnberg believes that there is a universal process of intelligence is found among human beings. Information processing occurs in three stages or it serve three functions:

1. Metacognitive works : Planning and monitoring it called executive process. eg. Analytical intelligence.
2. Performance Component involves in the implementation of the strategies. eg. Creative Intelligence.
3. Knowledge acquisition component involves in the new knowledge gaining responses. eg. Practical intelligence.

The above three component of intelligence involves in the development of ‘Wisdom’. Wisdom is the ability to make sensible decisions and judgement because of your knowledge and experience. Wisdom is the ultimate cognition which use meta-cognitive skills, performance skills and knowledge acquisition skills. It is the centre of the whole cognitive activities. The role of wisdom is to synthesize the meta-cognition performance and learning. It also leads the wholistic approach to regulate and control all activities. The theory of Sternberg explain with the name of Balance theory because wisdom balance among the mental processing. Wisdom also decide the right doing from the wrong doing. So wisdom include the cognitive emotional and behavioural aspects of the individual. So finally it can be stated that ‘Wisdom’ is the ultimate aim of all types of learning. But unfortunately our whole education system is emphasizing to develop the analytical intelligence to collecting a lot of information. Wisdom develops a sense of synthesis the life, not only outside world but also within the individual. It is a matter of interdisciplinary and holistic approach of mental activities and thinking, emotion and behaviour and leads to the all round development of the personality. On the other hand, if we focus on the intelligence only, than we prepare the computer mind without sensibility, emotion and compassion. One another thing must be added that wisdom is the ability /concept which is the matter of psychology as well as philosophy. Philosophy and intellectual tradition of Indian society emphasized on the consciousness and assumed that whole personality and human behaviour govern by consciousness. The concept of ‘Wisdom’ is near to philosophy as well as it connect to the psychology. The concept of wisdom reflect the multi-disciplinary characteristics. Definitely it will be a “Concept of future.”

Thus at last, it can be concluded that to becoming knowledgeable we must promote ‘Wisdom’ in place of intelligence. Wisdom include in itself the concept of intelligence, emotional intelligence, social intelligence and ideal behaviour so that a



simple and holistic approach will be developed that will help the all round development of a human being.

### **References**

1. Bransford Broon and Cocking (2000). How People learn : Brain, Experience and School, Washington D.C. National Academic Press.
2. Brown, A. (1987). Meta-cognition, Executive Control, Self Regulation and Other More Mysteries Mechanisms in F. Weinert and R. Kluwe Eds. Hillside, H.J. :Erbaum.
3. Mayer (2005). Exploring Psychology (6<sup>th</sup> Edition in Modules), New York, NY : Work.
4. Schunk (2012). Learning Theories : An Educational Perspective (6<sup>th</sup> Edition.) Boston, M.A. Allyn&Bacom : Person.
5. Sturnberg, R.J. (2000). Handbook of Human Intelligence, New York, NY : Cambridge University Press.
6. Sturnberg, R.J. and Sturnberg, K. (2012). Cognitive Psychology (6<sup>th</sup> Ed.) Belmont, C.A. : Wordsworth.
7. Woolfolk, H.A. (2016) Educational Psychology, Indian Edition, Dorling Kindersley India Pvt.Ltd..



## **SCIENCE EDUCATION THROUGH KANNADA NEWSPAPERS- A ROLE OF KANNADA LANGUAGE**

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### **ABSTRACT:**

Our societies are dominated and even 'driven' by ideas and products of science and technology and their relevance is increasing constantly as the days go on. Science education is the field concerned with sharing science content with common people rather than the field experts to promote a culture of scientific and critical thinking. Media is one of the chief sources of science information where its aim to serve the common people.

The study focused on the role of print media in providing science education in which two leading Kannada newspapers were studied under content analysis method. It revealed that, there were differences in science coverage of those two dailies and the existing patterns are in informative approach rather than educational one. Study upheld the results like health and medical science, environment and agriculture got highest priorities through news format followed by article and columns. Self-sourced Indian origin science is widely catered with the less interest generating attempts. The present substantial science dissemination needs to improve in its qualitative approaches which will be helpful in arousing interests among readers and also to consider it as a classroom education material

**Keywords:** Newspaper, Science coverage, Science education, scientific literacy, Science and Technology

### **INTRODUCTION**

Life is a never-ending learning process; a famous saying suggests that learning is a continuous process throughout the life and undivided part of life. Each individual child will come across the learning process through his/her first 20 years of school education. It's the first and formal step where learning activities start and nurturing him/her to be live in society by gathering the necessary skills, knowledge, etc., Ireland's Learning for life: white paper on adult education by department of education and science (2000) reported that learning is a life-long process which includes the characteristics like ongoing, voluntary, and self-motivated pursuit of knowledge for either personal or professional reasons. Therefore, learning is needed to enhance our social inclusion, active citizenship, personal development, self-sustainability, as well as competitiveness and employability.

We are living in a modern technologically driven society which comprises of complex environmental structures. Understanding the composition of environment and its surrounded happenings needs the knowledge of science. One should be aware of growing technologies to reap its full benefits which are the results of applications of theoretical science.

### **SCIENCE AND EDUCATION**

The word "Science" came from the Latin word "Scientia". It could refer to almost anything that you had to learn in order to master it. Basically, science means acquiring the knowledge in a systematic way, it may be in any field of study. Science can be broadly classified into natural science and social science. The application of science to solve the problems of human beings and



to improve their life conditions is called as technology. Education (Dewey,1944) is the process of facilitating learning, or the acquisition of knowledge, skills, values, beliefs, and habits. Educational methods include storytelling, discussion, teaching, training, and directed research. Education frequently takes place under the guidance of educators and also learners may also educate themselves.

Our societies are dominated and even 'driven' by ideas and products from science and technology (S&T) and it is very likely that the influence of science and technology on our lives will continue to increase in the years to come (Sjoberg, 2001). Hence to obtain the full benefits of science and technology growth one must be aware of it. Reading and learning science from various sources can be broadly called as science education. A web for definitions and translation defined, science education is the field concerned with sharing science content and process with individuals like children, college students, or adults within the general public. The field of science education includes work in science content, science process, some social science, and some teaching pedagogy. European commission on science education for responsible citizenship (2015) reported that, science education is vital to promote a culture of scientific and critical thinking, evidence-based reasoning for decision making, active societal participation in technological world, and inspire children and students of all ages to aspire to careers in science and other occupations which will result in knowledge and innovative intensive society.

Such important science is available at different point of sources likes school text books, science journals, and also through media. After school curriculum it is inevitable for anyone to depend on media sources to get the science and technology information in comprehensive way. In the mean while media is one mass communication tool that can reach the large masses at a time with remarkable impression. Hence wider utilization of media to make people scientifically literate is significant. Chief function of media like informing and educating were also support the goal of science education. Broadly media can be classified into print, electronic and internet based new media. Print media is the oldest and still most credible form of information source along with enlightening the masses with its in-depth writings. Catering science and technology information to large group of people is also named as science communication and the same carried out in laymen language through some media is called science journalism.

Bhattacharyya (2013) articulated that science communication bridges the gap between science and the common man and listed its benefits. Science communication can inform the masses factually, inculcates scientific temper, spread awareness, integrate and create public opinion, provides quality information, seek mutual participation and persuades the masses. Advancements in science and development of scientific temper contribute to mitigate effects of depleting resources of earth, climate change, poverty, diseases, drought, social evils etc. (DeBoer, 2000 as cited in Rautela& Chowdhury, 2016)

Coverage of science and technology content in media reflects the level of science education that the society is getting through and becoming scientifically literate. Hence science education is crucial for society to evolve in a positive way and the present study examined the patterns existing in science and technology issues coverage in media with special reference to Kannada newspapers.

## **REVIEW OF LITERATURE**

It may be positively or negatively but the topic i.e., science has always been a subject of interest for human beings, many studies have been conducted with the aim to overcome the challenges of



effective and innovative way of presenting popular Science to the general masses. And hence the continued efforts are there to shape the scientifically literate society.

### **MEDIA COVERAGE OF SCIENCE**

Patairiya (2011) articulated that science coverage percentages differ in different media are as followed: print media- 3.4 percent, television- 2.18 percent and Radio- 5.84 percent which needs to be hike till 10 percent. Vigyan Prasar survey on science coverage in 52 newspapers (31 in Hindi and 21 in English) revealed that on an average only 3.3 % science items were given in the media, where 4.3 % in English and 2.5 % in Hindi. It also reported that maximum no of science stories were published from the field of health care/medical (31.8%) irrespective of language, place of publication and day (Vigyan prasar 2000, as cited in Kumar, 2013).

A study by BharviDutt and K. C. Garg (2000) on English-language newspaper in 1996 had shown that The Pioneer, The Hindu and The Times of India were the three dailies which gave more importance to science which comprises of 23 percent of total space devoted by 27 major national dailies. nuclear science and technology got more space followed by defense, space research, and astronomy. The same authors carried out a one more study on same topic during 2008 and found that The Times of India has given maximum coverage (19%) to Science issues amongst the 37 English newspapers studied, but it has less coverage even when compared to political and sports news. Among 5385 items that were published on different aspects of S&T, health news dominated the coverage with 37 percent of share, followed by environment (~15%) and space S&T (~11%). They opined that it is common in both India and in other countries also. Authors opined that, emphasis on environmental issues is influenced by global political activity, raising concern level and interest among decision makers and planners (Dutt& Garg, 2012) . It concluded that Indian newspapers devoted far less than one percent of total printed space to articles and stories related to Science and Technology.

Meenukumar's (2013) study compared the Hindi and English newspapers and found that 2.04 percent of science content published on science where English dailies are ahead with 2.34 percent and Hindi are of 1.74 percent. Regional language dailies provide more space to agriculture than English newspapers. The picture is in another study where English newspapers allotted less space (1.77 %) compared to Kannada dailies (1.90%). But the remaining trends like sub topics preference, formats used etc., results were repeated as like in other studies (Vinay, 2016).

### **SCIENCE COVERAGE AND SCIENCE EDUCATION**

Recently implemented Right to Compulsory Education Act, 2009, recommends for learning through activities, discovery and exploration in child friendly and child centric manner. It clearly indicates that the science teaching at school level is also, primarily aiming at promoting scientific thinking and creating scientific attitude among the students in particular and the people in general (Sharma & Gore, 2016) .

Improving the science literacy is one of the objectives of science communication. Science literacy is an urgent and important issue and is rapidly becoming one of the great issues in our life since all our activity is being touched by products or processes of S&T (Jack and Rannikmae, 2009, as cited in Rautela& Chowdhury, 2016). In many countries, especially developed nations world-wide, the rate of science communication/journalism has a direct link with scientific



advancement, research activity and allied Science & Technology progress. They are mutually dependent to a large extent (Kumar, 2010).

Sondlo's (2018) study on role of science news and classroom education revealed that the use of newspapers is one of the effective way of teaching where it supplements the formal teaching materials along with enhancing student's vocabulary skills, conceptual understanding and knowledge. Stuckey et al., (2013) study suggested that science education is highly relevant, wide spread and multifaceted. Socio-scientific issues-based science education approaches present the most promising approach for addressing value- centred learning and a humanistic perspective in science education (Marks & Eilks, 2009; Sadler, 2011).

### OBJECTIVES

The study has the objective of quantitative and qualitative analysis of science content published in kannada newspapers and their role in educating the masses.

The specific objectives of the study are as follows

1. To identify the overall space allotted and total number of science items covered in the selected newspapers.
2. To Classify the above items into broad sub-disciplines, space devoted to them and identification of the disciplines that received maximum attention.
3. To analyze the workplace and source of the reported items and their prominence.
4. To identify the themes, issues, visual representation and concerns as reflected by these items.

### METHODOLOGY

Here content analysis is the most appropriate method where it allows researcher to analyze the published literature in a quantitative and qualitative manner. Kerlinger (1986) defined content analysis as a method of studying and analyzing communication in a systematic, objective, and quantitative manner for the purpose of measuring variables.

The study was based on the items on S&T appearing in two prominent and popular state- wide dailies namely Vijaya Karnataka (VK) and Prajavani which are publishing from state capitals. The selected newspapers make up a half of the total kannada newspaper circulation (ABC, 2018) and a huge reader base along with the place in top 3 newspapers of the state. The advantage of selecting prominent and popular dailies has also been pointed out by Moyer and colleagues (Moyer et. al., 1995).

Table 1: Kannada newspaper circulation figures

Sl.No	Newspaper	Circulation	Editions	Readership
1	Vijayavani	7,60,738	09	6,482,000
	Vijaya Karnataka	6,93,018	11	6925,000
	Prajavani	5,31,028	08	64,35,000
	Udayavani	2,88,060	05	30,98,000

All the news items, articles, features, columns and editorials that are published in the selected dailies (except local pages to make bias-less while generalizing to population) which deal with any new discovery, invention and innovation that extends the existing knowledge and helps in uplifting human life were considered as unit of analysis. Each item was measured in column cm and assigned appropriate sub -discipline based on the content and its intended message, priority, words used and thematic presentation. The data were collected for a period of two months (Nov -



Dec 2018) which encompasses all 120 days newspapers and was fed into code sheet for further analysis.

The results of the content analysis are given below.

## **FINDINGS AND DISCUSSION**

This study aimed at knowing the patterns exists in coverage of Science and Technology issues by kannada newspapers which will play a significant role in science education.

### **a. TOTAL SPACE ALLOTTED AND ITEMS COVERED BY TWO NEWSPAPERS**

A total of 292 items were published on different issues of science and technology during Nov 01, 2018 to Dec 31, 2018, which is 2.5 percent of the total printable space. The Prajavani daily has given clearly double coverage (4.5 %) than Vijaya Karnataka (1.88) with respect to number of science items published and space devoted to them. VK has more printable space than Prajavani, still it allotted very less space for science and tech information.

Table 2: Number of Science items published and space devoted

Newspaper	Total space for 60 days (in cm sq.)	Items	Space for S & T (in cm sq)	Percentages S &T
Prajavani	12,28,500	196	55,875	4.5
Vijaya Karnataka	12,35,520	96	23,273	1.88
Total	24,64,020	292	79,147	2.5 (Avg.)

### **B. SUB-TOPIC COVERED UNDER SCIENCE AND SPACE ALLOTTED FOR THEM**

The published science content was classified into 16 subtopics (Table 3). Highest coverage is observed regarding health and medical categories. If both were combined together it spans quarter (22 - 26%) of the total science coverage of each daily. Information was published in high detail along with pictures due to their need of common people. Health and medical content appeared at supplements in Prajavani and at main pages in VK, where VK supplements health coverage comes with commercial interests rather than useful for readers. Many items were dropped due to their weak characteristics to support operational definition. Hence overall coverage is in informative manner.

Also, study found that Environment got highest priority with 40 items which encompasses 11,044 cm<sup>2</sup> space (19.76 %). Increasing awareness on pollution and its socio-political dimensions makes them to be located at front pages for more than 10times during the study period. Most of the news items were alarming the public consciousness in protecting the environment and newspapers did advocacy role here.

General science: Items related to some areas of science were rarely appeared and got less than one percent of space were classified under general science. Their presentation approach is nominal and appearance is not more than once.



Table 3: Different science topics covered and space allotted for them in cm<sup>2</sup>

Sub-topics	Prajavani			Vijaya Karnataka		
	Items	Space (cm-sq)	Space%	Items	Space (cm sq.)	Space %
Aeronautics	2	563.5	1.0	2	128	0.54
Agriculture	12	7041	12.6	6	2286.5	9.82
Astronomy	2	144	0.25	4	984	4.22
Automobile	6	2200	3.93	2	336	1.44
Communication	6	1654	2.96	4	1148	4.93
CT&CC	10	1818	3.25	12	2866	12.31
Defence	8	1452	2.59	6	751	3.22
Education	14	5298	9.48	2	295	1.26
Environment	44	11044	19.76	8	1119.5	4.81
Gadgets	14	5210	9.32	6	2725	11.7
General science*	26	6988	12.50	8	2936	12.61
Health science	14	6020	10.77	8	1498	6.43
Life science	10	1620	2.89	2	350	1.50
Medical science	12	2240	4.0	14	4229	18.17
Space science	10	1027	1.83	12	1621	6.96
Nuclear science	6	1555.5	2.78	-	-	-
Total	196	55,875	99.9%	96	23,273	99.9%

CT & CC - Computer technology and cyber-crime \* - General science includes Entomology, Food science and Waste processing, Sexology, Oceanography, Civil engineering, Archeology etc., and including items which occupying less than 1 percent of space.

Agriculture received more space and got fourth place in the selected dailies, but their presence was widely seen at supplement pages. Informative approach has been followed in presentation by using news feature format where more photos were published. Most of the stories dedicated to narrate the success stories of farmers, where total absence of agricultural science news on main pages was observed during the study period.

Defence science items were repeatedly appeared in front and international pages in a manner to reinforce the country’s pride towards its strength. Space science news was completely dominated by ISRO’s satellite launching information items where the opportunities to explain and heighten the scientific knowledge of masses through these were seriously neglected.

Same happened regarding nuclear science items by providing news about nuclear power plants new adaptations located at national pages with lack of narration and nominal kind of photos. Prajavani gave more education related news items in which students achievements were appreciated will helpful in inspiring children to think innovatively and read newspapers regularly.

**c. SPACE PREFERENCE IN TERMS OF PAGES**

In both the dailies large number of science and technology items were placed and published in other pages category like state, national and international followed by supplementary pages, editorial and op-ed pages and front pages. Quarter of the science items of Prajavani were published at editorial and op-ed pages reflects their serious concern towards science in their editorial policy than of VK. Instead of supplementary pages science should get the space at front and editorial pages to reap the full benefits of technological driven society.



Table 4: Science items allotment and preferences in different pages.

Placement of Science items	Prajavani		Vijaya Karnataka	
	No.	% age	No.	% age
Front page	18	9.18	12	12.5
Editorial and Op-Ed page	46	23.46	14	14.58
Other pages	70	35.71	54	56.25
Supplement	62	31.63	16	16.66
Total	196	100	96	100

**D. FORMATS OF S & T INFORMATION PUBLISHED IN SELECTED NEWSPAPERS**

News was the most preferred format used to provide science content which it exceeds half of the coverage (176 out of 292, Avg. 60.8%) in the selected newspapers. Articles and columns got vice-versa status in the below table (no. 5) followed by news feature (16), photo feature (08), editorial (06) and letter to editor (04).

Interestingly letter to editor category of Prajavani got 4 items which were suggested to adopt new innovations to solve the existing problems in environment, waste management and computer technology. News feature and photo feature were the best possible formats to present science stories where more photos, tables and graphs can be used which will helpful in understanding the complex S&T topics easily by all sections of the society.

Table 5: Share of science items published in different formats.

Formats	Prajavani			Vijaya Karnataka		
	Items	Space (cm-sq)	Space%	Items	Space (cm sq.)	Space %
News	116	59.18	21401	60	62.5	9275
Article	38	19.38	17992	10	10.41	2139.5
Column	18	9.18	6516	16	16.66	5909.5
Editorial	04	2.04	800	02	2.08	336
Photo Feature	06	3.06	4694	02	2.08	1353
News Feature	10	5.10	4175	06	6.25	4260
Interview	-	-	-	-	-	-
Letter	04	2.04	297	-	-	-
Total	196	100	55,875	96	100	23,273

**e. PRESENTATION OF S&T ITEMS IN TWO SELECTED NEWSPAPER**

Around eighty percent (81.46 %) of the science items were published with relevant photos, sketch, graphs in both the newspapers. Again, Prajavani is ahead in publishing a greater number of photos and allotting space to them. Content without even any supportive image is far less but the content



with photos is not satisfied due to their nominal approach at most of the news items. Because publishing old or occasional photos won't support the goal of making science easy and understandable to all masses.

Table 6: Illustration of science content

Newspaper	Prajavani			Vijaya Karnataka		
	Items	With Photo	%	Items	Without Photo	%
Prajavani	196	158	79.59	13540.5	38	19.38
Vijaya Karnataka	96	80	83.33	3440	16	16.66
Total	296	119	81.46	16,980.5	27	18.02

**f. NEWS SOURCE AND ORIGIN OF SCIENCE INFORMATION COVERED**

Out of 292 items, 240 (82 percent) news items source was self only despite many of the news and other items were published without proper labeling of sources. Prajavani had borrowed 36 items from PTI where Vijaya Karnataka's share is just two only. Prajavani got a news item from P, where as Vijaya Karnataka published science content by borrowing from its sister publications like Economic Times.

While looking at the origin of science items, around 95 were form and belong to India. Prajavani published 182\*items related to India followed by US (12) and UK (02). Vijaya Karnataka's news origin share is 94 form India, 2 form UK.

**g. QUALITATIVE ANALYSIS OF SCIENCE COVERAGE**

Content analysis revealed that the tone or approach of more than 50 percent of the news items (180) were just to inform the readers rather than educating and enlightening them. Very small number of stories were bylined and research based with proper citation of research organization and journal names. Ample number of items was seen at front pages but their space allocation was moderately less. Study found that there was a great emphasis on environment and space science items due to their increasing need of awareness to tackle pollution problems and success stories of ISRO in all its missions. Headlines were published in a more effective way by using rhyming words and questioning heads. Photos and graphs that were used in an occasional manner than to support the writeup with original photos

The study revealed many interesting facts under the content analysis approach that newspapers of same language may possess similarities in some cases and at the same time contradictory results under different categories. Though the science coverage percentages of Kannada newspapers (2.5 %) was satisfactory in terms of quantity (space) but their overall quality is poor. And also, overall science coverage is very low when compared to the coverages of politics, sports and commerce issues.

Like previous studies findings, it is again proved that health and medicinal science got more coverage followed by Environment, general science and agriculture. Increasing trends in coverage of computer technology & cyber-crime and gadgets news was witnessed under the study which were the efforts to fulfill the needs of tech savvy youth in a technologically driven society.

While comparing with Prajavani, researcher necessarily felt that Vijaya Karnataka's approach towards science coverage needs to be entirely readdressed and improved. Newspapers must improve in their overall science coverage along with emphasizing the other sub disciplines like



astronomy, earth sciences etc., rather than just health and environment. Researcher identified the presence of commercial interests in health science items of Vijaya Karnataka where concerned doctors and organizations contact details were provided. It indirectly suggests the people to consult them to solve their problems.

New arenas of science like data science, marine science etc., news items to be given to make readers more updated about the trends. Along with news items, editorial presence and interviews of science experts must be provided to help the readers more concerned about science which will result in shaping their opinions on day-to-day issues and helpful decision-making process. During the sample period science related to children was very rarely seen and not more than 3 items. To make people of all age groups to be scientifically literate, newspapers must incorporate more science content which should possess the characteristics of informing, educating and enlightening. Use of relevant photos, sketches and graphs will arouse the interests of readers which further helps in easy understanding of science.

Qualitative part of study showed that newspapers were less concerned towards the educative and persuasive kind of science content, which must be addressed very quickly to make society scientifically literate which would pave the ways to mitigate the social evils like poverty, superstitions, black magic etc., Newspapers are the chief sources of science and technology information whose dedicated efforts to cover science and related developments will definitely result in the improvement of science literacy and education.

### **Conclusion**

Literature studies proved that science communication through newspapers does the role of educating the masses and adds stuff to classroom teaching material with their science content. The present study revealed that, Prajavani newspaper was ahead in science communication with respect to number of items, space, presentation mode and in other qualitative issues than the other leading daily i.e., Vijaya Karnataka. Study also confirmed that health and medical, environment, agriculture were the chief categories published under science which were provided mostly in news format followed by article, column and editorials. Catering maximum science items with photos was satisfactory result but their approach must be readdressed. Along with self-sourced Indian origin science, newspapers must also inform the readers with global developments in science and technology by borrowing news items from all around the world. Qualitative analysis showed that science content was not covered purely with scientific and educational perspectives. More than half of the S&T coverage deals with nominal and informative approach rather than educative and persuasive to inculcate science in our daily lives. So, through study it is suggested that newspapers science coverage must be improved like politics and commerce, that to with the aim and approaches of educating the children and common people regarding science. Further studies have to be conducted to identify the impact of science coverage on S&T awareness of masses and its active role in classroom education to make it clearer and more applicable.

### **REFERENCE**

1. Audit Bureau of Circulation. (2018). Highest Circulated Daily Publications 2017-18. Retrieved from [http://www.auditbureau.org/files/JJ2018%20Highest%20Circulated%20amongst%20ABC%20Member%20Publications%20\(language%20wise\).pdf](http://www.auditbureau.org/files/JJ2018%20Highest%20Circulated%20amongst%20ABC%20Member%20Publications%20(language%20wise).pdf)
2. Bhattacharyya, K. K. (2013). Science communication as a tool for development. *Global Media Journal – Indian Edition*, 4 (1). Retrieved from [http://www.caluniv.ac.in/global-media-journal/CMNT\\_JUNE\\_2013/COM-%204-%20%20Kapil.pdf](http://www.caluniv.ac.in/global-media-journal/CMNT_JUNE_2013/COM-%204-%20%20Kapil.pdf)
3. Dutt, B., & Garg, K. C. (2000). An overview of science and technology coverage in Indian English-language dailies. *Public understanding of science* (9), 123–140. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1006.3397&rep=rep1&type=pdf>



4. Dutt, B., & Garg, K. C. (2012). S&T coverage in English-language Indian dailies. *Journal of Science communication*, 11(3), 1-9. Retrieved from [https://jcom.sissa.it/sites/default/files/documents/Jcom1103\(2012\)A01.pdf](https://jcom.sissa.it/sites/default/files/documents/Jcom1103(2012)A01.pdf)
5. European Commission (2015). Science education for responsible citizenship. Retrieved from [http://ec.europa.eu/research/swafs/pdf/pub\\_science\\_education/KI-NA-26-893-EN-N.pdf](http://ec.europa.eu/research/swafs/pdf/pub_science_education/KI-NA-26-893-EN-N.pdf) doi:10.2777/12626
6. Kannada Media News. (2018). Indian readership survey 2017: Kannada newspapers report. Retrieved from <http://www.kannadamedianews.com/irs/indian-readership-survey-2017-kannada-newspapers-report/>
7. Kerlinger, F.N. (1986). *Foundations of behavioral research* (3rd ed), New York: Holt, Rinehart and Winston.
8. Kumar, M. (2013). Comparison of science coverage in Hindi and English newspapers of India: A content analysis approach. *Global Media Journal – Indian edition*, 4(1), 1-13. Retrieved from <http://www.caluniv.ac.in/global-media-journal/ARTICLESJUNE2013/ARTICLE%20-2-%20Meenu%20Kumar.pdf>
9. Marks, R., Otten, J., & Eilks, I. (2010). Writing news spots about science – a way to promote scientific literacy. *School Science Review*, 92, 99–108.
10. Moyer, A., Greener, S., Beauvais, J. & Salovey, P. (1995). Accuracy of health research reported in the popular press: Breast cancer and mammography. *Health Communication*, 7 (2), 147-161. Retrieved from <http://ei.yale.edu/publication/accuracy-health-research-reported-popular-press-breast-cancer-mammography/>
11. Patariya, K. M. (2011). Science and technology communication studies in India: Policies and experiences. In Manoj, K., P. & Nogueira, M., I. (Eds.) *Sharing science* (pp. 155-160). New Delhi: National Council for Science & Technology Communication, GOI, India.
12. Rautela, G. S., & Chowdhury, K. (2016). Science, science literacy and communication. *Indian Journal of History of Science*, 51, 494-510. DOI: 10.16943/ijhs/2016/v51i3/48850
13. Sadler, T. D. (2011). *Socio-scientific issues in the classroom*. Dordrecht: Springer.
14. Science Education. (n.d.). *Definitions.net*. Retrieved February 27, 2019, from <https://www.definitions.net/definition/science+education>.
15. Sharma, O. P., & Gore, M. M. (2016). Developing scientific temper through school education. Retrieved from [http://www.academia.edu/5015946/Developing\\_Scientific\\_Temper\\_through\\_School\\_Education](http://www.academia.edu/5015946/Developing_Scientific_Temper_through_School_Education)
16. Sjoberg, S. (2001). Science and technology education current challenges and possible solutions. Retrieved from [https://folk.uio.no/sveinsj/STE\\_paper\\_Sjoberg\\_UNESCO2.htm#\\_ftn1](https://folk.uio.no/sveinsj/STE_paper_Sjoberg_UNESCO2.htm#_ftn1)
17. Sondlo, A. (2018). An analysis of the coverage of science news and the use of newspapers in the science classroom, presented at XVIII IOSTE Symposium Future educational challenges from a science and technology perspectives, Malmo, Sweden, 13-17 August 2018. Retrieved from <https://www.researchgate.net/publication/331064804>
18. Stuckey, M., Hofstein A., Mamlok-Naaman, R., & Eilks, I. (2013) The meaning of relevance' in science education and its implications for the science curriculum. *Studies in Science Education*, 49(1), 1-34, DOI: 10.1080/03057267.2013.802463
19. Vinay, G. P. (2016). Comparison of science coverage in English and Kannada dailies. *Abhinav national monthly refereed journal of research in science & technology*, 5(12), 1-7. Retrieved from <http://abhinavjournal.com/journal/index.php/ISSN-2277-1174/article/v>



## लोक साहित्य के कुछ अन्वेषक एवं समीक्षक

डॉ. सत्यलता

ICSSR-PDF

हिन्दी विभाग आंध्र विश्व विद्यालय

लोक शब्द अत्यन्त व्यापक अर्थ रखता है, यह ब्रह्मा की तरह अनन्त, अक्षर और असीम है एवं जन का पर्याय है। जिस साहित्य में इस अभिजात्य संस्कार रहित आदिम मानव की स्वतः प्रेरित अभिव्यक्ति हो, वह लोक साहित्य नाम से अभिहित होता है। साहित्य जीवन का प्रतिविम्ब है। वास्तव में जीवन की विविध अवस्थाओं तथा अनुभवों का मनुष्य की भाषा में चित्रण साहित्य में होता है। लोक साहित्य इस कर्म के प्रतिपादन में सर्वश्रेष्ठ स्थान पर आसीन है, क्योंकि लोक साहित्य में मानव हृदय का यथार्थ चित्र हमारे समक्ष उपस्थित हो जाता है। जीवन के निश्चल और स्वाभाविक रूप का दर्शन हमें लोक साहित्य ही होता है। शिष्ट साहित्य में चित्रण प्रायः काल्पनिक एवं अतिरंजित पाया जाता है। उसमें विशाल मानव समाज के बहुत थोड़े से व्यक्तियों के जीवन की विशिष्टतापरक झांकी मिल सकती है; परन्तु लोक साहित्य अधिकाधिक जन समाज की भावनाओं का वास्तविक प्रतिनिधित्व करता है। अतः अखण्ड मानव समाज की एकता का परिचय जितना सुन्दर हमें लोक साहित्य में मिलता है, उतना अन्यत्र सम्भव नहीं। इसमें ऐसा प्रतीत होता है कि विश्व भर में सर्वत्र मानव का एक जैसा हृदय बोल रहा है। अतः यह साहित्य मानवीय स्नेह की एकता का द्योतक है। जातीय जीवन में हमारे इस साहित्य का अत्यधिक मूल्य है। विश्व कवि रविन्द्रनाथ ठाकुर ने लिखा है कि जिस प्रकार शिशु प्रकृति की सृष्टि है। किन्तु वयस्क मानव अधिकतर स्वयं अपनी रचना है, इस प्रकार लोक साहित्य भी शिशु साहित्य है, मानव मन में उसका स्वतः जन्म हुआ है। लोक साहित्य भी शिशु साहित्य है, मानव मन में उसका स्वतः जन्म हुआ है। लोक साहित्य में भी लोक-गीत जन मानस में प्रवाहित भाव लहरी की सर्वश्रेष्ठ एवं सर्वाधिक प्रभावशाली अभिव्यक्ति है। राजस्थान में एक कहावत “गीतड़ा अरके भीतडा” अर्थात् चिर काल तक रहने वाले गीत है, अथवा भीत है। पुराने मकानों की भांति हमारे ये गीत पुश्त दर-पुश्त चले आते हैं।

आदिम मानव के हृदय की भावनाओं का भण्डार अपनी संजीवनी शक्ति के बल पर जीवित एक हृदय से दूसरे हृदय में प्रवाहित स्रोतस्विनी रूप में पीढ़ी दर पीढ़ी चला आ रहा है। राजस्थान के लोक-गीतों में अन्य लोक साहित्य की भांति भावों की अभिव्यक्ति अपना विशेष स्थान रखती है। यहाँ के विभिन्न गीतों में मानव के प्रत्येक हृदयगत भाव का सूक्ष्म चित्रण हुआ है। मिलन और विरह, हास्य और रूदन, रोष, भय, घृणा और वीरता, वेदना और वैराग्य आदि सारे भावों के विश्लेषण हमारे ग्राम गीतों में सम्यक रूप से हुआ है।

जीवन के प्रत्येक पहलू पर गीत गा-गा कर मानस के भावों का उन्मूलन होता है। लोक-गीत भाव ही भाव है और कुछ नहीं। पारिवारिक और सामाजिक जीवन परिस्थितियों हर्ष, शोक, विषाद, पीडा, भय और करुणा के भावों को प्रकट करने के लिए लोक-गीतों को जन्म देती रही है। सभ्यता के आवरण में मनुष्य संकोचवश अपने प्रकृत भावों को ज्यों के त्यों प्रकट करने में लजाने लगा, अतः गिने चुने प्रतिभावान व्यक्तियों को ही भावाभिव्यक्ति का अधिकार रह गया जो समाज में साहित्यकार कहलाने का दावा रखने लगे। पर लोक गीतों द्वारा अभिव्यक्ति पर मानव मात्र को अधिकार है। आदिम मनुष्य हृदय के गानों का नाम ही लोक गीत है।

लोक-कला को प्रारब्ध से जुड़ी है। लोक-गीत हो, लोक नृत्य अथवा लोक कहानी हो अथवा लोक नाटक, परम्परागत मूर्ति कला हो अथवा चित्र कला: इनकी रूपरेखा से धरती को गन्ध आयेगी। यही कारण है कि लोककला एक प्रांतीय अथवा एकदेशीय न होकर सदा विश्वव्यापी वस्तु के रूप में जीवित रही है। भाषा और शैलीगत भेद के कारण भले ही लोक कला के बाह्य रूप में भेद में उपस्थित हो जाये, परन्तु रस भाव आदि की दृष्टि से उनमें समस्त सृष्टि के साथ एकस्वरता रहती है। सामाजिक व भौगोलिक परिस्थितियों के कारण भेद होते हुए भी गीतों को अन्तरात्मा एक ही है। गाँव-गाँव और घर-घर में विचरण करके गीत संग्रहकर्ताओं का अनुभव है कि भारत के प्रत्येक प्रान्त में घरों के भीतर गाये जाने वाले गीतों को सुनने से प्रतीत होता है मानो एक ही आत्मा भिन्न-भिन्न भाषाओं में बोल रही है। मानव हृदय सर्वत्र समान है। व्यक्ति रचित जातीय एवं सामाजिक भेद-भाव लोक हृदय में भेद उत्पन्न नहीं कर पाते। लोक-गीत मानवीय भावनाओं इच्छाओं और आकांक्षाओं के स्वाभाविक प्रकाशन मात्र है। इसी कारण संसार भर के लोक साहित्य में सर्वत्र एक ही अन्तरधारा बहती हुई दृष्टिगोचर होती है। डॉ० कन्हैया लाल सहल के शब्दों में क्या कहानियाँ, क्या कहावतें और क्या लोक गीत सभी पर यह बात समान रूप से लागू होती है। अनेक गीत संसार के अलग-अलग भागों के होते हुए भी साम्य मिलते हुए पाये जाते हैं। भारत के अन्यान्य प्रांतों-विशेषकर गुजरात और उत्तर प्रदेश के गीतों के साथ राजस्थानी गीतों में अत्यधिक साम्य है इंग्लैण्ड तक के गीतों में भावगत समानता पायी गयी है, उदाहरण स्वरूप प्रेयसी की समाचार भेजते हुए वियोगी पति एवं



पत्नी की ओर से पति के संवादात्मक गीतों के अंश दिये जाते हैं-इंग्लैंड का गीत-प्रेमी पति एक पक्षी से कहता है-

“Will is me my gay gashwk that you can speak and ice.

For you can carry a love letter to my true lover from me”

X X X X X X X X

“How can I carry a letter to her or how should I her know.

I bear a tongue that never talked with her and eyes that never saw her shape.”

राजस्थानी गीत:-

‘उड ज्या रे काग गिगन का बासी, खबर तो लाव म्हारे राजन को।’

नाँव नहीं जाए, मैं तो गाँव नहीं जानू सूरत न जाए धारे राजन की।

नाँव बतास्यों, गाँव बतास्यों, सूरत बतास्यों म्हारे राजन की।

तीखी-तीखी नाक फिरंगी को नौकर, चाल चले उमरावाँ की।।’

X X X X X X X X

‘उड ज्या रे काग गिगन का बासी, खबर तो ल्याव म्हारी गौरी की।

नाँव नहीं जाणू मैं तो गाँव नहीं जाणू सूरत ना जाणू धारी गौरी की।।

इसी प्रकार अन्य देशों के लोक गीतों की तुलना करने पर विदित होता है कि फ्रांस, जर्मनी, स्पेन, रूस, युगोस्लाविका और बुल्गेरिया आदि सब स्थानों के गीतों में भाव शैली और विषय सम्बन्धी साम्य पर्याप्त मात्रा में पाया जाता है। जातीय हृदय की उथल-पुथल, दुःख-सुख, संयोग-वियोग आदि की भावनाएँ विभिन्न अवसरों पर गाये जाने वाले गीतों में व्यक्त हुई हैं। देश का सच्चा इतिहास और उसका नैतिक एवं सामाजिक आदर्श इन गीतों में सुरक्षित है।

जीवन रस जिससे छलक रहा हो वही तो सच्चा साहित्य है, फिर लोक साहित्य और विशेषता लोक-गीतों में तो प्रत्येक हृदय को रस से प्लावित करने की क्षमता है। जब लोक मानस आनन्द से गदगद हो उठता हो या वेदना का स्रोत बहने लगता हो, लोक-गीत की महती परम्परा बलवती हो उठती है। रस का यही अजस्र प्रवाह लोक-गीत का आदर्श है। स्वर फुहार है और शब्द जल है। डॉ० धीरेन्द्र शर्मा ने ग्रामीण तथा नागरिक परम्परा का सम्बन्ध दूध और उसके ऊपर मलाई की तरह जैसा बताया है। किसी देश की संस्कृति तथा साहित्य तब तक पूर्ण नहीं कहा जा सकता जब तक लोक साहित्य से परिचय प्राप्त नहीं किया जाय। आप लिखते हैं, “अभी तक हम भारतीय नागरिक केवल मलाई का स्वाद लेते रहे हैं पूर्ण तुष्टि और स्वाद के लिए मलाई सहित कटोरा भर दूध होना चाहिए।”

विदेशों में लोक साहित्य का नृशास्त्र, समाज शास्त्र, भाषा शास्त्र, इतिहास, मनोविज्ञान और पुरातत्व से घनिष्ठ सम्बन्ध माना जाता है। यूरोप के प्रत्येक छोटे-बड़े राष्ट्र की अपनी लोक साहित्य परिषद है। अनेक अन्वेषकों और विद्वानों ने इस दिशा में महान कार्य किया है।

भारतवर्ष में भी अनेकों विद्वानों एवं संस्थाओं के माध्यम से साहित्य का अनुसंधान होता रहा है। जन-जीवन में व्याप्त इस प्रकृत साहित्य की अतुल राशि की खोज कर-कर के देश के विभिन्न विश्वविद्यालयों में पीएच.डी.की डिग्री हेतु शोध ग्रन्थ उत्तर प्रदेश के क्षेत्रीय लोक गीतों का सराहनीय संग्रह किया जो उनकी कविता कौमुदी के चतुर्थ-पंचम भागों में प्रकाशित हुआ। फिर गीतों के धनी देवेन्द्र सत्यार्थी ने २५ वर्षों के अथक परिश्रम से हिन्दी क्षेत्रीय लोक गीतों को अपनी पुस्तकों (१) धरती गाती है, (२) धीरे बहो गंगा (३) वेला फूले आधी रात (४) और बाजत आवे ढोल में प्रस्तुत करके भारत की इस अमूल्य धाती का महत्व प्रस्थापित किया।

इसी प्रकार लोक साहित्य के पारखी विद्वान श्री कृष्णदेव उपाध्याय, डॉ० सत्येन्द्र तथा श्याम परमार आदि महानुभावों ने लोक साहित्य के विभिन्न पक्षों को लेकर शोधपूर्ण विवेचना की है। डॉ० सत्येन्द्र का पीएच.डी हेतु प्रस्तुत शोधग्रन्थ तो ‘ब्रज लोक साहित्य: एक अध्ययन’ है ही। तत्पश्चात् उनकी बहुमुखी सर्जना-प्रवृत्ति ने लोक साहित्य को ही मुख्य रूप से अध्ययन और रचना का विषय बनाकर विविध-विषयक अमूल्य ग्रन्थ लोक साहित्य को भेंट किये हैं। आपकी समीक्षात्मक रचनाएँ हैं- ‘लोक साहित्य विज्ञान,’ ‘लोक-संस्कृति,’ ‘लोक साहित्य का तात्विक अध्ययन,’ और ‘लोक वार्ता की पगडण्डियाँ। लोक साहित्य के तात्विक अध्ययन की दिशा में अग्रसर इन अनुपम उपलब्धियों के आधार पर डॉ० सत्येन्द्र ‘लोक साहित्य के चक्रवर्ती’ की उपाधि से विभूषित हुए हैं।

इन समीक्षात्मक एवं तात्विक अध्ययन सम्बन्धी रचनाओं के अतिरिक्त आपके ब्रज की लोक संस्कृति तथा ब्रज की लोक कहानियाँ आदि अन्य ग्रन्थ भी प्रकाशित होते रहे हैं। निजी रचनाओं के साथ डॉ० सत्येन्द्र के शिष्य मण्डल ने आप से प्रेरणा ले कर आपके मार्ग दर्शन में लोक साहित्य पर कई शोध ग्रन्थ तैयार कर लिये हैं। डॉक्टर साहब की पुत्र वधू डॉ० शारदा सत्येन्द्र ने आप के मार्ग दर्शन में राजस्थान के लोक देवता गोगाजी पर “जाहर पीर गुरु सुग्गा” शीर्षक शोध ग्रन्थ



तैयार किया है।

डॉ० कृष्णदेव उपाध्याय के भोजपुरी लोक गीत तथा डॉ० श्याम परमार का 'भारतीय लोक साहित्य', लोक साहित्य पर प्रामाणिक उपलब्धि है। इसी प्रकार मेघाण्जी ने गुजराती भाषा क्षेत्र के लोक साहित्य पर स्तुत्य अनुसन्धात्मक अध्ययन एवं गीतों का संकलन प्रस्तुत किया है।

डॉ० श्याम परमार एवं डॉ० चिन्तामणि उपाध्याय के मालवी लोक-गीत भी इसी श्रेणी के हैं। पिछले लगभग दो दशकों से विद्वानों का ध्यान अपने देश की धरती लोक साहित्य पर अध्ययन करने की ओर अधिक जा रहा है। इस अवधि में और भी अनेक विद्वान लोक साहित्य अनुसन्धान में रत हो रहे हैं। श्रीमती सीता देवी दमयन्ती एवं लीला प्रभाकर की धूलधूसरित मणियाँ, श्री बुन्दावनलाल वर्मा का बुन्देल खण्ड के लोक गीत, डॉ० सत्यव्रत सिंह की भोजपुरी लोक गाथा, प्रो० श्रीचन्द जैन का मध्य प्रदेश के लोक गीत, श्री राम इकवाल सिंह के मैथिली लोक-गीत, डॉ० चिन्तामणि उपाध्याय का लोकायतन एवं डॉ० कुलदीप का लोक-गीतों का विकासत्मक अध्ययन आदि रचनाएँ इस तथ्य की द्योतक हैं कि भारतीय स्तर के लोक साहित्य पर महत्वपूर्ण शोध एवं समीक्षात्मक कार्य हो रहा है।

राजस्थान की कई राजकीय तथा अर्धराजकीय संस्थाएँ इस प्रकार के शोध कार्य से रत हैं जिनमें निम्नलिखित नाम उल्लेखनीय हैं:-

1. राजस्थान प्राच्य विद्या प्रतिष्ठान, जोधपुर।
2. सार्दूल राजस्थानी रिसर्च इन्स्टीट्यूट, बीकानेर।
3. राजस्थान संगीत नाटक अकादमी, जोधपुर।
4. भारतीय लोक-कला मण्डल, उदयपुर।
5. राजस्थान विद्या पीठ, उदयपुर।
6. राजस्थान साहित्य अकादमी, उदयपुर।
7. भारतीय विद्या मंदिर शोध प्रतिष्ठान, बीकानेर।

उपर्युक्त संस्थानों के अतिरिक्त राजस्थानी लोक साहित्य और विशेषकर लोक-गीतों पर व्यक्तिगत रूप से जिन विद्वानों ने खोज पूर्वक प्रचुर सामग्री संचित की है उनमें मेरे स्मृति पथ में आनेवाले निम्नलिखित नाम उल्लेखनीय हैं।

जैन साधु-साध्वियों सदा से लोक जीवन से गाढ सम्पर्क रखते आये हैं। शिष्ट साहित्य में प्रयुक्त विविध छन्दों की भांति जैन साधु लेखकों की रचनाओं में विविध ढालें(तर्ज) रहती थीं और गीत का नाम और पंक्ति देकर उनका निर्देश किया जाता था। इन उल्लेखों और उदाहरणों से गीतों की प्राचीनता और प्राचीन रूपों पर प्रकाश पड़ने के साथ-साथ सैकड़ों विस्मृत गीतों का भी पता चल जाता था।

राजस्थानी लोक साहित्य पर इन जैन विद्वानों और कवियों का महान उपकार है। राजस्थान के सुप्रसिद्ध धुरन्धर विद्वान श्रीअगरचन्द नाहटा ने उस प्रकार के प्राचीन गीतों की खोज का स्तुत्य कार्य किया है। उनके द्वारा एव अन्य कई जैन विद्वानों के द्वारा लगभग ढाई हजार देशीयों और ढालों का संकलन किया गया है।

राजस्थान में जिस प्रकार भाषा सम्बन्धी कार्य महानुभावों ने किया है, इसी प्रकार लोक साहित्य के विभिन्न पक्षों पर पिछले कुछ वर्षों में सराहनीय शोध कार्य हुआ। अनेकों विद्वानों ने राजस्थानी लोक कथा, कहावतें और लोक गीतों पर खोज करके संकलन करवाये और अप्रकाशित सामग्री का तो और छोर ही नहीं। मैंने राजस्थानी लोक-गीतों के अध्ययन की अवधि में देखा कि सुप्रसिद्ध लोक साहित्य के क्षेत्र में विधि पूर्वक कार्य करने वालों के अतिरिक्त भी अनेक लोक संस्कृति के प्रेमी विद्वान मौनरूप से अपने-अपने क्षेत्रों में लोक साहित्य को खोज एवं संकलन में रत हैं, जिनका उल्लेख मैंने अपने शोध ग्रन्थ "राजस्थानी लोक-गीत की भूमिका में किया है।

9. श्री नरोत्तम दास स्वामी, स्वर्गीय डॉ० रामसिंह और स्वर्गीय सूर्य करण पारीक के सामूहिक प्रयासों से संकलित राजस्थान के लोक-गीत 2 भागों में प्रकाशित। वयोवृद्ध शिक्षा शास्त्री एवं विद्वान श्री स्वामीजी लोक गीतों के संकलन आदि का और भी स्तुत्य कार्य करते रहे हैं आपके 'शान्ति आश्रम नामक ग्रन्थालय, बीकानेर में उपलब्ध है। लेखिका का राजस्थानी गीतों पर शोध कार्य भी आप के ही निर्देशन में हुआ।

2. बीकानेर के ही स्वर्गीय मुरलीधर व्यास व श्री बट्टी प्रसाद काकरिया ने कहावतों और मुहावरों का विशिष्ट संग्रह किया। श्री मोहन लाल पुरोहित और श्री दीनदयाल शोभा ने जैसलमैर के लोक साहित्य पर विशेष रूप से कार्य किया। श्री पुरोहित और व्यास जी की धूमर पुस्तक और श्रीभोजा की 'राजस्थान की गणगौर' इनके लोक साहित्य प्रेम की द्योतक हैं।

3. डॉ० कन्हैया लाल सहल का पी.हेच.डी के लिए रचित ग्रन्थ राजस्थानी कहावतें एक महत्वपूर्ण उपलब्धि है। डॉ० सहल इस दिशा में और भी अध्ययनरत हैं-आपके लोक साहित्य पर शोध परक लेख बहुधा पत्र-पत्रिकाओं की गणगौर रहते हैं।



४. जोधपुर के श्री जगदीश सिंह गहलोत का मारवाडी लोक-गीत संग्रह और वयोवृद्ध श्री मनोहर शर्मा का लोक साहित्य की सांस्कृतिक परम्परा अभिनन्दनीय रचनाएँ हैं।

५. पिलानी के श्री गणपत स्वामी और पतराम दास गोड का गीत संकलन बिरला कालेज पिलानी के पुस्तकालय में संग्रहीत है।

६. भूतपूर्व संसद सदस्या, विदूषी लेखिका रानी लक्ष्मी कुमारी चूडावत के राजस्थानी लोक कथाओं और वार्ता के कई संकलन प्रकाशित हो चुके हैं।

७. उदयपुर के डॉ० जनार्दनराय नागर, पुरुषोत्तम मेनारिया आदि विद्वानों के अतिरिक्त डॉ० देवीलाल सामर ने राजस्थानी और भारतीय लोक-गीतों और लोक नृत्यों की अभिनवात्मक संगीत में बांध कर अनुपम उपलब्धियाँ की हैं-आपने सम्पूर्ण जीवन लोक कलाओं की खोज और विकास में लगाकर नित्य नई उद्भावनाएँ की हैं जिनके फलस्वरूप भारतीय लोक साहित्य और लोक नाट्य एवं नृत्य कलाओं को अन्तर्राष्ट्रीय क्षेत्र में ख्याति प्राप्त हो रही है। डॉ० महेन्द्र भानावत भी डॉ० सामर की प्रेरणा से भारतीय लोक कला मण्डल की उपलब्धियों में योग दे रहे हैं।

लोक काव्यों का संग्रह एवं अन्य कई रचनाएँ प्रकाश में आ चुकी हैं। यहाँ से प्रकाशित होने वाली पत्रिकाओं 'रंगायन' आदि में भी महत्वपूर्ण शोध परक लेख प्रकाशित होते रहते हैं।

८. बीकानेर की डॉ० सुशीला ने लोक महाभारत पर पी.हेच.डी के लिए शोध प्रबन्ध लिखा है। भारतीय विद्या मन्दिर शोध प्रतिष्ठान, बीकानेर में लोक साहित्य का कुछ संग्रह हुआ है। श्री मूलचन्द पारीक आदि अन्य कई व्यक्ति भी इस दिशा में कार्यरत हैं।

श्री कोमल कोठारी ने लोक कथाओं सम्बन्धी प्रशासनीय कार्य किया है। उन्हीं की सेवाओं के फलस्वरूप संगीत नाटक अकादमी जोधपुर द्वारा कई लोक-गीत संग्रह प्रकाशित हुए और लोक साहित्य व संगीत रिकार्ड किया गया। हाडौती लोक साहित्य पर डॉ० कन्हैयालाल शर्मा का शोधग्रन्थ एवं अन्य रचनाएँ उल्लेखनीय उपलब्धि हैं।

कलकत्ता की राजस्थान रिसर्च सोसायटी और बंगाल हिन्दी मण्डल में भी राजस्थानी लोक साहित्य का सुन्दर संग्रह है।

डॉ० देवीलाल सामर के लोक कला प्रेम के फलस्वरूप लोक-नृत्य, लोक-नाट्य आदि विधाओं से सम्बन्धित प्रचुर लोक साहित्य प्रकाशित हो चुका है, जिसमें उल्लेखनीय हैं-राजस्थान के लोकानुरंजन, राजस्थान का लोक संगीत, राजस्थान में कई पत्र-पत्रिकाएँ लोक साहित्य सम्बन्धी शोध पर प्रकाशित हो रही हैं: जिनसे नित्य नई शोध का विवरण प्राप्त होता है। मुख्य हैं-शोध पत्रिका मरुभारती, पिलानी:राजस्थान भारती, बीकानेर: परम्परा, जोधपुर: रंगावण, उदयपुर।

ऊपर वर्णित लोक साहित्य प्रेमी विद्वानों द्वारा संकलित सामग्री से बीकानेर, जैसलमेर, शेखावाटी, पिलानी, जयपुर, जोधपुर, मेवाड़ और हाडौती आदि विभिन्न क्षेत्रीय राजस्थानी लोक साहित्य की विभिन्न विधाओं सम्बन्धी खोज बहुत कुछ करनी अपेक्षित है।



## GEOLOGICAL STUDIES OF THE ALKALI SYENITE FROM DANCHERLA, ANANTAPUR DISTRICT, ANDHRA PRADESH

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### ABSTRACT

Geological studies on saturated to oversaturated and subsolvus aegirine-riebeckite syenite body of the Dancherla alkali syenite pluton has carried out. The REE distribution of the Dancherla alkali syenite pluton shows a high fractionation between LREE and HREE. The absence of Eu anomaly suggests source from garnet peridotite. The negative Eu anomaly indicates role of plagioclase fractionation. Three distinct co-eval primary magmas i.e., mafic syenite, felsic syenite and alkali basalt magmas-all derived from low degrees of partial melting of mantle differentiates and enriched metasomatised lower crust played a major role in the genesis and emplacement of the syenite into overlying crust along deep seated regional scale trans-lithospheric strike slip faults and shear zones following immediately after late-Archaean calc-alkaline arc magmatism at different time space episodes i.e., initially at craton margin and later on into the thickened interior of the Eastern Dharwar Craton. Commingling and limited mixing of independent mantle derived mafic and felsic syenitic magmas and accompanying fractionation resulting into soda rich and potash rich syenite variants was tentatively deduced mechanism for the origin of Dancherla alkali syenite pluton at the craton interior.

Dancherla alkali syenite has yielded a six point Rb-Sr whole rock isochron age of  $2211 \pm 110$  Ma with low initial  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio of  $0.7004 \pm 0.00046$ ; MSWD = 5.8. The low initial Sr(i) ratio suggests mantle derived juvenile additions to the crust.

*Keywords:* Alkali syenite, Magma mingling and mixing, Eastern Dharwar Craton, Dancherla, Andhra Pradesh.

### INTRODUCTION

The late Archaean alkaline magmatism is a rare and unique phenomenon known so far only in the eastern block of Dharwar Craton in the form of a syenite body at Koppal (Sadasivaiah and Appannagoudar, 1972; Chadwick et al, 2001), Karnataka, Peninsular India and figures as one among such a few rare world occurrences viz. SE of Greenland, Lake Superior Province of Canada and Eastern Gold Field of Yilgarn Block of Australia. The Eastern Dharwar Craton is studded with a number of small and a few large aegirine and riebeckite bearing syenite bodies of late-Archaean to Palaeoproterozoic age, which were confined to major regional scale deep seated crustal weak zones located to the west of the Cuddapah Basin such as the Dancherla alkali syenite pluton respectively. This alkaline syenite body has emplaced prior to the emplacement of mafic dyke swarms. An attempt has been made to establish field relations, petrographic characters, geochemistry and geochronology of the Dancherla alkali syenite pluton.

Madhavan et al (1994) identified enriched alkaline and sub-alkaline nature of alkali riebeckite syenites (Racherla, Giddaluru and Idamakollu) and hedenbergite syenite (Gundlapalle) respectively intruding into Nallamalai Fold Belt of the Cuddapah Basin. Madhavan (2002) classified alkaline provinces of India into Cuddapah Intrusive Province, Southern Indian



Peninsular Province, Deccan Province, Vindhyan Province, Bastar Province and Shillong Province. Mazumder et al (2000) indicated three episodes of alkaline magmatism viz. (1) alkaline complexes emplaced at the junction of Eastern Ghats Mobile Belt and Craton (s) at 1600 to 1200 Ma, (2) alkaline rocks emplacement in Southern Granulite Terrane around 750 Ma and alkaline dykes of Kanakapura in Southern Karnataka at around 820 Ma and (3) Pan-African alkaline magmatic event (~550 Ma) in Kerala.

Lassen et al. (2000) studied the late-Archaean silica under-saturated alkaline bodies of ~2680 Ma old in the western Quetico belt, Superior Province, Ontario, Canada. They are formed from mantle derived melts and displaying evidences of magma mingling. Smithies and Champion (1999) suggested origin of felsic alkaline intrusive emplaced in the granite-greenstone terrane of the Eastern Gold Fields, Yilgarn Craton (~2650 and 2630), Western Australia, due to crustal delamination or convective thinning of a denser garnet-rich lower crust that resulted from extraction of earlier voluminous granite magma. Janne Blighert Toft et al (1995) studied late-Archaean (~ 2700 Ma old) Skjoldungen alkaline igneous province, SE Greenland wherein alkaline magmas were emplaced into a ~2800 Ma Archaean gneissic basement. The alkaline rocks show coherent geochemistry suggesting a petrogenetic relationship and derived from regional mantle derived mafic parental magma and they resemble potassic rocks from modern arcs. Flux melting of Ocean Island Basaltic lithosphere in a mantle wedge overlying subduction zone established these late-Archaean alkaline complexes as one of the earliest manifestation of modern plate-tectonic processes. Four granite magma series were evolved at ~2750 Ma to 2670 Ma from the Archaean Abitibi Southern Volcanic-Plutonic Zone and the Pontaic sub-Province, Superior Province, Canada (Rui Feng and Rob Kerrich, 1992). The evolution reflects subduction, magma generation and differentiation processes that typify modern arc systems followed by collision. Primitive magmas of the shoshonitic series may have been derived from low degrees of partial melting of a depleted mantle wedge previously metasomatised by alkaline rich fluids released from a sub-ducting slab.

## REGIONAL GEOLOGY

The Archaean granite-greenstone terrane of the Eastern Dharwar Craton represents a calc-alkaline arc granitoid batholith (Chadwick et al, 2000) with accreted segments of intervening narrow linear greenstone belts of inner-arc type which along with intrusive syn-kinematic granitoids accreted on to the western block of the Dharwar Craton. Gopal Reddy and Suresh (1993, 1998, 2004), Suresh et al (1996, 1998, 2003, 2005) and Reddy (1998) identified four magma suites similar to those magmatic series associated with Abitibi Greenstone Belt i.e., (1) Tonalite-Trondhjemite-Granodiorite gneiss suite (TTG), (2) Tonalite-Granodiorite-Monzogranite (TGM) suite, (3) Monzogranite-Syenogranite suite (MS suite) and (4) granite and Alkali Feldspar Granite Suite (AFGS) i.e., shear controlled post-orogenic granites (Suresh and Rao, 1994 and anorogenic A-type granite suite (Zakoulla et al. 1998; Sarvothaman, 1996). Tonalite-Granodiorite-Monzogranite (TGM) suite was evolved mainly due to mingling and mixing of coeval mafic and felsic magmas and accompanying fractional crystallisation processes in calc-alkaline arc environment.

Greenstone belts were invariably subjected to regional scale sinistral ductile shearing mostly along their eastern contacts with the granitoids forming major late-Archaean sutures/terrane boundaries in the Eastern Dharwar Craton (Swami Nath et al, 1976; Drury et al, 1984). Important of them are: (1) the eastern margin of the Chitradurga Schist Belt (boundary between Western Dharwar Craton and Eastern Dharwar Craton) with the emplacement of the Koppal alkali syenite body, (2) the Hutti-Kolar suture hosting major Dancherla alkali syenite



pluton, (3) the Rudravaram-Tsundupalli suture associated with the deformed Pulikonda alkali syenite pluton, (4) the Velikonda-Sherawala line separating the Nallamali Fold Belt and the Nellore Schist Belt and (5) Mesoproterozoic suture between the Eastern Dharwar Craton and the Eastern Ghats Mobile Belt comprising Prakasam Alkaline Province. The Rudravaram and Velikonda shear zones were further reactivated as post-Cuddapah thrusts and between these thrust zones a parallel crustal weak zone was formed within Nallamalai Fold Belt. This is known as Racherla-Sagileru-Cheyyeru line which was later occupied by alkali syenites, lamproites and minor ultra potassic flows (Reddy, 1999). The tectono-magmatic events of Eastern Dharwar Craton with reference to alkaline magmatism are shown in Table 1.

Table No. 1: Different episodes of the precambrian alkaline magmatism in the Eastern Dharwar Craton, Peninsular India (modified after Suresh et al, 2010)

Sl. No.	Episode	Rock Types	Area / Equivalent
05.	Neoproterozoic alkaline intrusives (~800 Ma)	Alkali Syenites and Lamprophyres	Kanakapura-Harohalli area, Karnataka. Southern central marginal zone of Dharwar Craton (transitional to Southern Granulite Terrane-SGT).
04.	Mesoproterozoic post-Cuddapah alkaline intrusives (~1350-1100 Ma)	Minor Riebeckite Syenites; Nepheline Syenites; major Gabbro-Anorthosites, Lamproites (~1400 Ma), Lamprophyres and Kimberlites (1100 Ma).	Prakasam Alkaline Province (PAP)/Cuddapah Intrusive Province (CIP). Contact zone (Marginal zone) of Dharwar Craton and Eastern Ghats Granulite Belt (EGGB). Lamproites in Nallamalai Fold Belt (NFB). Kimberlite Fields in Craton interior.
	Upper Cuddapah sediments	Minor syn-sedimentary acid to basic and ultra-potassic flows and mafic dykelets	Confined to the Nallamalai Fold Belt (NFB)
	Palaeo to Mesoproterozoic lower Cuddapah sediments (~1800-2000 Ma)	Sediments associated with acid and basic intrusives and flows.	Intra-cratonic Sedimentary Basin in the Eastern Dharwar Craton (EDC)
	Mafic Dyke Swarms (MDS) (~1800-2400 Ma)	Dolerite and Gabbro mafic dykes with minor ultra-mafics, Anorthosites, Granophyres and Alkali Gabbro dykes and basic sub-volcanic varieties.	Within Eastern Dharwar Craton (EDC)
03.	Meso to Palaeoproterozoic pre-Cuddapah alkaline intrusives	Alkali Syenite, Pyroxenite, Gabbro, Anorthosite, Dolerite and Granophyre.	Peddavaduguru Syenite. Interior central part of the Eastern Dharwar Craton (EDC).
	Palaeoproterozoic alkali intrusives (~2300 Ma)	Alkali Syenite	Syenite bodies of Dancherla, Danduvaripale,



02.			Reddypalle etc.; Interiors and central part of the Eastern Dharwar Craton (EDC); Pikkili Nepheline Syenite/Syenite of Southern Granulite Terrane (SGT).
	AFGS-Alkali Feldspar Granite Suite (post-orogenic & anorogenic granitoids) (~2400-2200 Ma)	Granite, Alkali Feldspar Granite Suite (AFGS) and Syenite	Granite, Alkali Feldspar Granite Suite (AFGS) and Syenite craton along boundary of major Granite bodies; Vannedoddi and Yeguvaplli Syenites.
	MS-Monzogranite-Syenogranite suite (~2500-2400 Ma)	Granite, Monzo-Granite and Monzo-Syenite (~Closepet Granite and Charnockite) and nearer to southern craton marginal area.	Western part of the Eastern Dharwar Craton (EDC).
01.	Late-Archaeon alkali syenite intrusives (2500-2400 Ma)	Alkali Syenite and Hornblendite-Diorite ( $\pm$ A-type Granite)	Nearer to western boundary of the Eastern Dharwar Craton-EDC (Koppal Syenite) and nearer to eastern boundary of the Eastern Dharwar Craton-EDC (Pulikonda Syenite).
	TGM-Tonalite-Granodiorite-Monzogranite suite (~2600-2700 Ma)	Tonalite-Grano-diorite-Monzo-granite (TGM); Micro-granular Mafic Dykes (MMD) and Micro-granular Mafic Enclaves (MME); Hornblendite-Diorite/Appinite; Monzodiorite/Syenite, Lamprophyre and Trondhjemite (remobilized TTG gneisses).	Eastern Dharwar Craton (EDC)
	Dharwar Greenstone Belts (~ 2600-2900 Ma)	Meta-basic and meta-acid volcanics ( $\pm$ minor meta-ultra-mafic flows); meta-sediments, Volcanic Conglomerate, meta-tuff and Banded Iron Formation (BIF).	Eastern Dharwar Craton (EDC)
	TTG-Tonalite-Trondhjemite-Granodiorite Gneiss suite (~3100-2900 Ma)	Older mafic Gneisses and Tonalite-Trondhjemite-Gneisses (TTG), Granulites, high grade meta-pelites, Fuchsite Quartzites etc.	Eastern Dharwar Craton (EDC)

### GEOLOGICAL SET-UP OF SYENITE

Post-granite, undeformed Dancherla alkali syenite pluton has emplaced into the thickened craton interior and located to the west and southwest of Palaeoproterozoic Cuddapah Basin in Anantapur district, Andhra Pradesh. The location and the geological map of syenite body is shown in the Figures 1 and 2. The salient features of the syenites are given in Table 2. The syenites contain mafic microgranular dyke-lets and enclaves (mafic syenites) indicating spectacular co-existence of mafic and felsic syenitic magmas exhibiting dominantly magma mingling character with limited mixing nature and are characterized by the presence of multiple syenite phases i.e. mafic phases and felsic phases.

Note: In the given figure (Figure No. 01) bold dot-dash line indicates the western limit of a positive Bouguer gravity anomaly (Kaila and Bhatia, 1981). The Mesoproterozoic Cuddapah and Kaladgi Basins are indicated by CB and KB; Neoproterozoic shear zones of high strain are: N-V: Nallamalalai-Velikonda; M-B: Moyar-Bhavani; At: Attur; P-Ca: Palghat-Cauvery; A: Achankovil; a-g are granulite massifs; a: Coorg; b: Biligirirangan (B-R); c: Shevroi; d: Nilgiri; e: Kollimalai; f: Annamalai; g: Palni. The inset shows the main Archaean Blocks in South India. EG: Eastern Ghats; NB: Northern Block; WSB: Western Sub-Block; EB: Eastern Sub-Block; SB: Southern Block.  Syenite: 1. Koppal, 2. Dancherla, 3. Vannedoddi, 4. Peddavaduguru, 5. Chintalacheruvu, 6. Danduvaripalle, 7. Reddypalle, and 8. Pulikonda.

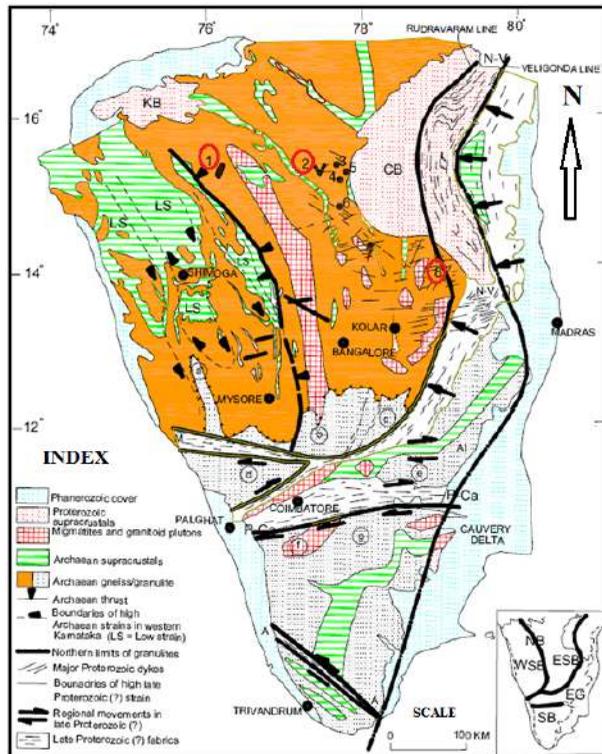


Figure No. 01: Location map of syenites shown in regional tectonic map of Eastern Dharwar Craton (*modified after Suresh et al, 2010*)

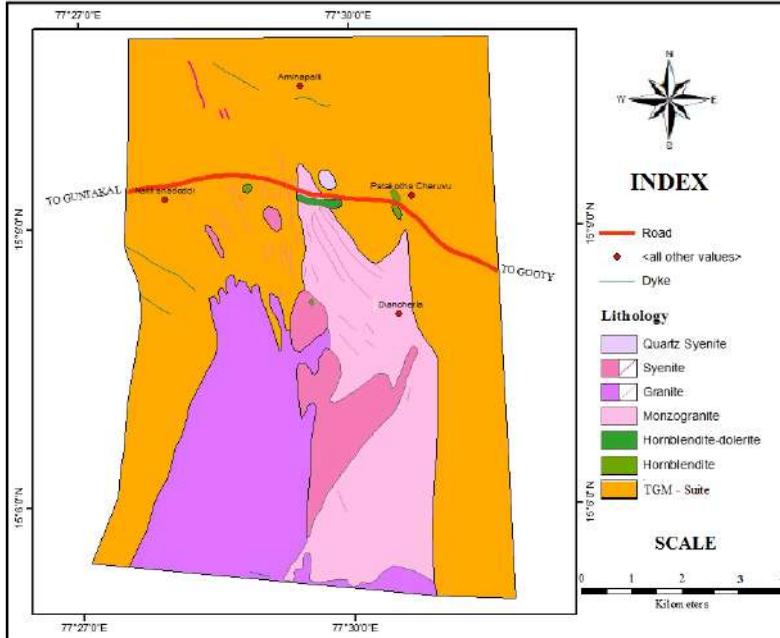


Figure No. 02: Geological map of Dancherla alkali syenite pluton (*modified after Suresh, et al., 2010*).

The syenites at the craton interior are intrusive into calc-alkaline expanded granitoid suites as well into late to post-orogenic granitoid suite. They were emplaced in tensional to trans-tensional weak zones, trending in NNW-SSE and NNE-SSW directions, of regional scale deep-seated crustal planes in the form of conjugate sets of strike-slip fault zones/brittle shear zones (lineaments) showing sinistral and dextral shifts respectively. Its manifestation was in the form of emplacement of post-orogenic granites such as the granites of Gooty, Nagasamudram, Singanamala, Salkamcheruvu, Bukkapatnam, Puttaparthi and anorogenic A-type granites such as Dorigallu and Peravali and shallow level alkali-syenite intrusives such as Dancherla. Subsequently the NNW to NW, NNE to NE and WNWESE and ENE-WSW trending fault systems/shear zones were reactivated during the Post-Cuddapah times. The Gani-Kalava fault system (Dhone-Jonnagiri-Uravakonda-Lattavaram fault trending in NNE to NE direction) and Venkatampalli fault system (Kalyandurg-Venkatampalli-Anumpalli-Peddavaduguru-Jakkalcheruvu fault system trending ENE) and Bellary-Guntakal-Gooty-Cuddapah fault system (WNW trending) are noteworthy and along intersections of these zones kimberlites and lamprophyres were emplaced around 1100 Ma.

Table No. 02: Geological sequence of different rock types in the Dancherla alkali syenite pluton

Age	Craton	Sub-Craton	Emplaced Pluton	Rock Types
Proterozoic	Dharwar Craton (DC)	Western part of the Eastern Dharwar Craton (EDC)	Dancherla Alkaline Pluton	Mafic Dykes
Palaeoproterozoic				Aplites
				Quartz Feldspar veins
				Pegmatite veins
				Quartz Syenite
Syenite				
Late-Archaean			MS-Suite- (AFGS) Suite	Granite
Archaean			Dharwar Greenstone Belt in Peninsular Gneissic Complex (PGC)	Tonalite–Granodiorite–Monzogranite (TGM)
			Tonalite Granodiorite –Monzogranite (TGM) in PGC	Hornblendite

The Dancherla alkali syenite pluton is composed of a zone of NNW and NNE trending intrusives (swarms) and dominantly consisting of pink syenite to quartz syenite (orthosyenite to nordmarkite) with subordinate mesocratic monzosyenites. They emplaced into wedge shaped brittle shear bounded Nagasamudram pink granite. The variants are coarse to medium-grained ( $\pm$  miarolitic cavities), fine-grained, porphyritic and pegmatoidal varieties and leucosyenite ( $\pm$  quartz syenite). The Dancherla alkali syenite body consists of minor contemporaneous disrupted medium-grained mafic rich syenite (shonkinite rich in aegirine-augite, aegirine, apatite and sphene) dykelets and cusped shaped mafic micro-granular enclaves associated with dominant leuco-syenite and its limited mixing had resulted meso-monzosyenite. It is undeformed but locally affected by very narrow thin mylonite planes which are occupied by fluorite-copper sulfide veinlets trending in NNW and NNE directions and also by WNW and ENE trending strike-slip fracture planes (altered) displaying subhorizontal lineations. The Dancherla alkali syenite pluton is a typical of high level near surface intrusives as they locally contain miarolitic cavities and characterised by mantled feldspars. Locally, sizeable pink pegmatite bodies with very coarse aegirine-riebeckite needles are exposed to the SE of Dancherla where rare granite pegmatite veinlets are also seen traversing syenite pegmatite.

### PETROGRAPHY

The evidences for magma mingling and mixing of mafic syenite and felsic syenites are:  
 (1) intrusion of shonkinite into coarse/pegmatoidal syenite as mafic microgranular syenite



dykelets which disrupted into cusped shaped microgranular mafic syenite enclaves, (2) the clustering of mafics and felsics and formation of mafic schlieren banding, disaggregation of mafic enclaves into mafic clusters/segregates, (3) armoured grains i.e., feldspars mantled by mafics, (4) potassium feldspars mantled by plagioclase feldspar (rapakivi texture) and multiple oscillatory rims of alternately arranged potassium and plagioclase feldspars i.e., interaction of soda magma series and potash magma series, (5) occurrence of quenched aegirine-augite and apatite needles in syenites and (6) the poikilitic and sieve textures, sieve texture between mafics and felsics and between microcline and plagioclase feldspar and seriate texture and presence of felsic inclusions in mafics and vice-versa indicate magma mixing character. The replacement of microcline perthites by anti-perthites and perthites by non-perthitic K-feldspar and vice-versa also noticed. Medium-grained (euhedral to subhedral) to fine-grained, hypidiomorphic granular, porphyritic and pegmatoidal textures are found in the Dancherla alkali syenite described below.

Aegirine (up to 50%) and microcline perthite are the chief minerals while orthoclase and plagioclase are subordinate in mesosyenite and melasyenite. Untwinned and carlsbad twinned perthitic orthoclase associated with plagioclase is replaced locally by microcline. Plagioclase occurs as sericitised-zoned relict grains, albite perthites, included grains or coarse perthitic patches (string, braided veins and patches etc) or marginal grains or medium-grained intergranular type. The perthitic phenocrystic microcline contain inclusions of plagioclase (granular aggregates), quartz, opaques, sphene, titan-augite, epidote etc., (sieve texture). Opaques, sphene and apatite occur as inclusions within aegirine which also occur as individual or clustered grains. Replacement of plagioclase by microcline leaves patches or worm like relicts. Concentrically zoned hexagonal/double hexagonal shaped plagioclase perthitic lamellae are found within microcline phenocrysts due to magma mixing where plagioclase rims are still preserved but the remaining part is occupied by microcline. Carlsbad twins of original plagioclase feldspars are still retained. At places strain shadowed bi-pyramidal quartz with straight contacts/edges (up to 10%) occupy interstitial spaces.

In porphyritic syenite, the microcline perthite phenocrysts (fractured as well granulated along the boundaries due to syn-magmatic disturbances) are dominant. The matrix consists of equal amounts of perthitic potassium feldspar and plagioclase feldspar with subordinate bottle green to green pleochroic aegirine (locally replaced by riebeckite) and accessories of opaques, sphene and apatite. In medium grained syenite, potassium feldspar (perthite) is dominant followed by plagioclase feldspar and minor aegirine which is being replaced locally by riebeckite. The pegmatoidal syenite dominantly consists of perthitic potassium feldspar ( $\pm$ antiperthite) followed by minor proportion of twinned aegirine needles (euhedral, platy and zoned) and with the accessories of opaques, sphene and apatite ( $\pm$ fluorite, tourmaline, calcite, biotite and chlorite). These grains are being replaced by ink blue secondary riebeckite along grain boundaries and fractures with the release of opaques. Rarely a few aegirine grains have inclusions of microcline.

## GEOCHEMISTRY

The alkali syenites of Dancherla are saturated to over-saturated and sub-solvus type. The location of samples and chemical analyses (Trace elements and Rare Earth Elements) of the syenites is given in Table 3 and 4. Chondrite normalised Rare Earth Elements patterns (Fig. 3) of Dancherla alkali syenite indicate the source region.



Table No. 03: Trace element data of Dancherla alkali syenite pluton

Sl. No.	01 (Meso Syenite)	02 (Meso Syenite)	03 (Leuco Syenite)	04 (Leuco Syenite)	05 (Leuco Syenite)
ELEMENT	DCS-09	DCS-10	DCS-08	DCS-16	DCS-12
Sc	5.82	13.52	45.56	0.99	1.47
V	49.18	26.52	107.65	16.13	23.7
Cr	9.25	2.75	4.13	7.84	7.31
Co	10.98	4.11	16.25	3.37	4.44
Ni	12.92	4.71	17.33	25.79	13.42
Cu	7.47	1.32	6.32	12.64	8.35
Zn	167.58	6.65	9.42	203.58	71.89
Ga	32.01	21.56	22.48	13.75	18.73
Rb	156.69	114.56	131.18	94.85	125.72
Sr	446.17	904.45	1205.03	657.5	419.68
Y	41.54	18.18	19.3	4.62	10.48
Zr	198.78	487.11	187.48	60.29	91.53
Nb	27.34	120.22	60.13	2.65	12.38
Cs	1.69	0.65	1.3	0.67	1.35
Ba	812.67	145.91	74.98	1011.66	762.89
Hf	5.44	14.65	6.44	1.3	2.19
Ta	0.51	1.36	0.35	0.06	0.18
Pb	56.29	13.91	11.77	42.64	41.79
Th	22.24	25.34	3.91	3.77	13.13
U	4.74	3.92	2.54	1.21	2.23

The Rare Earth Elements distribution in Dancherla alkali syenite pluton in general shows high fractionation between LREE and HREE which is characteristic of low degrees of partial melting of mantle resulting into alkaline magmas. There is no Eu anomaly suggesting no role plagioclase fractionation and source region composition could be garnet peridotite.

The leucosyenites, porphyritic quartz syenites and pegmatites are depleted in LREE and HREE while pegmatites are highly depleted in LREE and HREE. The porphyritic quartz syenite shows mild +ve Eu anomaly suggesting plagioclase accumulation. Mafic syenite enclaves are comparatively enriched than the porphyritic quartz syenite and pegmatite but in general they show moderate fractionation with low HREE and moderate LREE content when compared to other syenite variants. Rapakivi textured porphyritic syenite and leucosyenites are enriched in LREE and HREE.

Table No. 04: Normalized REE data of the Dancherla alkali syenites

Sl.No.	01 (Meso Syenite)	02 (Meso Syenite)	03 (Leuco Syenite)	04 (Leuco Syenite)	05 (Leuco Syenite)
ELEMENT	DCS-09	DCS-10	DCS-08	DCS-16	DCS-12
La	372.02	101.76	49.06	44.38	70.17
Ce	264.73	82.83	47.46	29.96	51.04
Pr	199.29	63.82	43.19	20.71	41.69



Nd	148.66	44.28	36.14	14.95	31.54
Pm	NA	NA	NA	NA	NA
Sm	71.16	18.74	19.01	7.04	16.01
Eu	31.49	11.95	13.31	7.14	11.36
Gd	28.20	12.19	11.40	3.95	8.75
Tb	18.59	8.79	9.39	1.92	4.34
Dy	12.80	4.70	5.61	1.28	3.07
Ho	8.79	3.69	4.50	0.94	2.21
Er	7.88	4.02	4.45	0.87	2.05
Tm	6.76	3.53	3.53	0.88	2.06
Yb	7.32	4.56	3.65	0.95	2.54
Lu	6.91	5.15	3.97	1.03	2.94

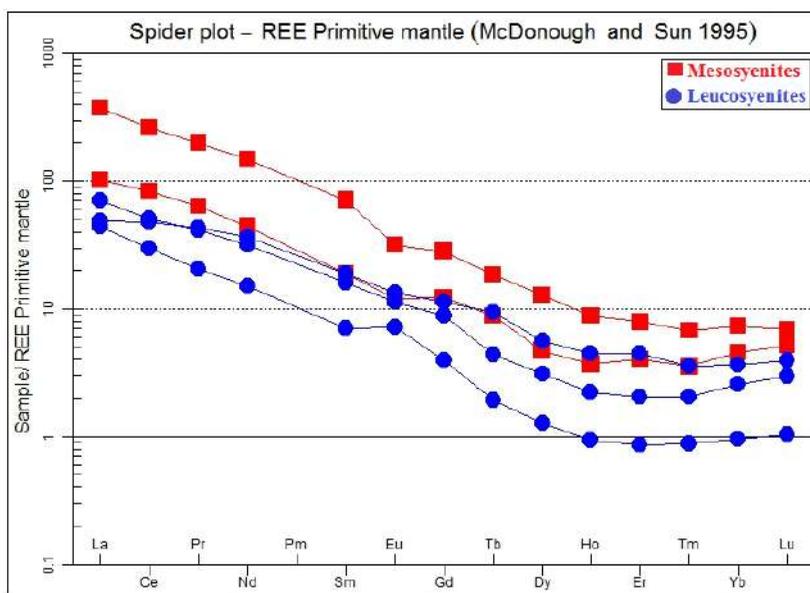


Figure No. 03: Rare Earth Elements plot of the Dancherla alkali syenite pluton after Mc Donough and Sun (1995)

The fractionation from mafic syenite into leucosyenite to pegmatite show inverse relationship with LREE concentrations. Mafic syenite occurring as enclaves/dykelets show enrichment in LREE and HREE. Similar character is shown by pink syenite comprising disrupted mafic microgranular enclaves and rapakivi textured porphyritic syenite which were derived by mixing of mafic and felsic syenites. Unusually the decrease of LREE and HREE with respect to progressive fractionation is noticed in the syenite variants. Mafic syenite enclaves of Dancherla alkali syenite pluton show anomalous values (ppm) of the following elements U (4.74), Th (25.34) and Zr (487.11). Dancherla alkali syenite pluton shows higher concentrations (values in ppm) of Zr (487.11), Nb (120.22) and Ta (1.36).



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## GEOCHRONOLOGY

Dancherla syenite yielded a six point Rb-Sr whole rock isochron age of  $2211 \pm 110$  Ma with low initial  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio of  $0.7004 \pm 0.00046$ ; MSWD=5.8. The low initial Sr(i) ratio suggests mantle derived juvenile additions to the crust (Suresh et al, 2010). Guntakal granodiorite of Tonalite-Granodiorite-Monzogranite suite yielded Shrimp U-Pb Zircon age of 2600 Ma age (Chadwick et al, 2000). Gooty granodiorite yielded  $2524 \pm 34$  Ma age and the Kadiri granite yielded  $\sim 2500$  Ma age while the post-orogenic shear controlled younger pink granite of Gooty has yielded age of  $2467 \pm 56$  Ma by Rb-Sr dating (Pandey et al, 1995). The geochronological studies of Dancherla alkali syenite amply demonstrates the existence of co-eval presence of alkali syenites and A-type granites in the Eastern Dharwar Craton. Post-orogenic continental epi-orogenic uplift type granites, such as Gooty, Nagasamudram, Singanamala, Bukkapatnam, Puttaparthi, Mudigubba and Charupalle were recorded by Suresh et al (2003; 2005). The oldest Palaeoproterozoic A-type granite in India was located at Dorigallu ( $2262 \pm 108$  Ma; Zakaulla et al, 1998) and at Peravali (Suresh and Jaiswal, 2003). The  $\sim 2200$  Ma granites are also reported in different parts of Andhra Pradesh (Pandey et al, 1995) such as Rachakuntapalle granite ( $\sim 2200$  Ma), Akkalakuppi granite ( $2260 \pm 130$  Ma), Penemellagundalapalle granite ( $2286 \pm 32$ ), Charakonda granite ( $2227 \pm 64$  Ma), Seshikunta granite ( $2128 \pm 20$  Ma), Dharmavaram granite ( $2237 \pm 46$ ) and Rasakuntapalle alkali granite ( $2024 \pm 56$ ).

## ORIGIN OF SYENITE

The Eastern Dharwar Craton is characterized by two major alkaline magmatic events i.e., (1) late-Archaeon to Palaeoproterozoic, pre-Cuddapah, silica saturated to over-saturated magmatism confining to extensional tectonic settings set-in Eastern Dharwar Craton after calc-alkaline magmatism and (2) Mesoproterozoic post-Cuddapah under-saturated alkaline complexes of Prakasam Alkaline Province emplaced at the craton margin. There are at least three cycles of emplacement of pre-Cuddapah tholeiitic mafic magmatism (Mafic Dyke Swarms) emplaced at  $\sim 2400$  Ma,  $\sim 2200$  to  $2000$  Ma and  $\sim 2000$  to  $1800$  Ma (on the basis of available age data) interspersed with two cycles of ( pre-granitic and post-granitic) alkaline magmatism took place. The earliest mafic dyke activity dated at  $2400$  Ma by Ikramuddin and Stueber (1976) was preceded by first phase of late-Archaeon alkaline magmatism (Shrimp U-Pb age of  $\sim 2500$  Ma for Koppal syenite by Chadwick et al, 2001). The second phase of alkaline magmatism took place around  $\sim 2200$  Ma ( Pandey et al, 1995; Zakaulla et al, 1998).

Three distinct co-eval primary magmas i.e., mafic syenitic, felsic syenitic (both mantle differentiates and crustal derived) and alkaline mafic magmas played a major role in the genesis of syenites. Comingling and limited mixing of independent syenitic magmas i.e., felsic syenitic and mafic to intermediate magmas accompanied by fractionation into soda rich and potash rich variants was tentatively deduced mechanism for the origin of syenites. They were derived from the source area of the enriched or metasomatised sub-crustal lithospheric mantle or lower crust. Low degrees of partial melting of mantle at different depths yielded different compositional melts which were simultaneously emplaced into over lying crust and involved in mingling and mixing at different time space episodes i.e., initially at the craton margin and later on into the craton interior, where strike slip faults/brittle shears had played a major locii for the emplacement of alkaline rocks.

Dancherla alkali syenite body has formed by magma mingling and mixing of mantle derived mafic syenite and felsic syenite magmas and subsequent fractional crystallisation processes at craton interiors. The geochemistry suggesting the source region for the Dancherla



alkali syenite pluton. The Dancherla alkali syenite body again shows different source characteristics and from different mantle depths for mafic syenites and felsic syenites (as per the Sr isotope ratios). Mafic syenites were derived from Rare Earth Elements enriched source while felsic syenites were derived from Rare Earth Elements depleted source. Some plagioclase accumulation could be noticed probably during magma mixing processes. The differentiated syenites are unusually low in LREE. At the craton interior, during waning stages of calc-alkaline magmatism thickening of the crust and cratonisation took place. The highly fractionated post-orogenic granitoids (Gooty, Nagasamudram, Singanamala, Bukkapatnam, Puttaparthi and Mudigubba-Kadiri) emplaced along conjugate sets (NNW-SSE and NNE-SSW trending) of brittle-ductile shears of strike-slip nature.

Two successive episodes of alkaline magmatism i.e., late-Archaeon to Palaeoproterozoic pre-Cuddapah and Mesoproterozoic post-Cuddapah times and each one again characterized by two cycles took place under different tectonic domains i.e., initially under sinistral-slip shear followed by dextral-slip shear. The early cycle of each episode of magmatism was initially triggered at the plate margin tectonic setting which was followed by the second cycle confining to an intra-plate/within-plate tectonic settings of Eastern Dharwar Craton. Thus the first cycle of earliest episode of alkaline magmatism was triggered along the accretionary boundaries of the micro-plates or sub-terranes representing the margins of linear greenstone belts bounded by sinistral shears. The second cycle took place in the thickened interiors of the craton after amalgamation or accretion/suturing of these micro-plates into a major composite tectonic block resulting into Eastern Dharwar Craton. This phenomenon was repeated again during Mesoproterozoic times along the eastern marginal zone of this part of Eastern Dharwar Craton where it was juxtaposed with or thrust over by the Eastern Ghats Granulite Belt. During this time a major event of first cycle of second episode of alkaline magmatism took place along the craton margin resulting in to the formation of Prakasam Alkaline Province under dominant dextral-slip shear domain. After this major event the second cycle of minor kimberlite magmatism took place in within/intra-plate tectonic setting dominated by dextral slip shear domain in the interiors of thickened and cratonised Eastern Dharwar Craton.

The time-spatial association of late-Archaeon to Palaeoproterozoic post-orogenic and A-type granites with the alkali syenites indicate a complex situation wherein the syenites were formed by varied processes under different tectono-magmatic environments. Some of the syenites and alkali granites may be co-eval but not genetically related or some other syenites and alkali granites might have been formed in different times but genetically related but they are spatially associated along terrane boundaries and at the craton margin or at the craton interior. The following situations were visualised viz. (1) The shear controlled late to post orogenic granites represent the end phase or waning stages of highly fractionated mantle derived calc-alkaline arc magmatism which locally grade into alkali feldspar granite and quartz syenite by differentiation or by alkali feldspar metasomatism along pluton margins or along sheared contacts. The alkali syenites of Dancherla which was emplaced subsequently into these bodies were also derived from the mantle but not genetically related to the associated granites. Whether the alkali granites and syenites were genetically related or not, the main focus of this paper is on their spatial association, different cycles of alkaline magmatism, different tectonic positions say craton margin or craton interior; the role of mantle and crust for the formation of these rocks and magma mingling and mixing and accompanying fractional crystallisation processes of syenite magmas during evolution of late-Archaeon to Palaeoproterozoic rare alkaline rocks of the Eastern Dharwar Craton. The authors suggest a detailed geochemical, isotopic and geochronological studies of the Dancherla alkali syenite pluton.



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## References

1. Chadwick, B., Hegde, G.V., Nutman Allen, P. and Vasudev, V.N. (2001) *Syenite emplacement during accretion of the late-Archaean Dharwar Batholith, South India: SHRIMP U/Pb age and structure of the Koppal pluton*. Jour. Geol. Soc. India, v.58, pp 381-390.
2. Chadwick, B., Vasudev, V.N. and Hegde, G.V. (2000) *The Dharwar Craton, Southern India, interpreted as the result of late-Archaean oblique convergence*. Precambrian Res., v.99, pp.91-111.
3. Crawford, A.R. (1969) *Reconnaissance Rb-Sr dating of the Precambrian rocks of Southern Peninsular India*. Jour. Geol. Soc. India, v.10, pp.117-166.
4. Crawford, A.R. and Compston, W. (1973) *The age of the Cuddapah and Kurnool systems, South India*, Jour. Geol. Soc. Australia, v.19(4), pp 453-464.
5. Drury, S.A., Harris, N. B.W., Holt, R.W., Reeves-Smith, G.J. and Weightman, R.T. (1984) *Precambrian tectonics and Crustal evolution in South India*. Jour. Geol., v.92, pp.3-20.
6. Gopal Reddy, T. and Suresh, G. (1993) *Study of Granitic rocks in parts of Anantapur district, A.P.(Extended abstract)*. Rec. Geol. Surv. India., v.126, Pt-5, pp.53-55.
7. Gopal Reddy, T., Suresh, G. and Rao, N.V. (1998) *Classification and characterization of the Peninsular Gneissic Complex in the eastern block of Dharwar Craton*. Indian Mineralogist, v.32(1), pp 9-11.
8. Ikramuddin, M. and Stueber, A.M. (1976). *Rb-Sr ages of the Precambrian dolerites and alkaline dykes SE Mysore state, India*. Lithos, v.9, pp.235-245.
9. Janne Blichert Toft, Mink T. Rosing, Charles E. Lesher and Catherine Chauvel (1995) *Geochemical constraints on the origin of the late-Archaean Skjoldungen alkaline igneous province, SE Greenland*. Jour. Petrol., v.86(8), pp.515-561.
10. Lassen, B., Hattori, K. and Percival, J.A. (2000) *Late-Archaean alkaline magmatism in the western Quetico belt, Superior province, Ontario: Geol.Sur.Canada, Current research, 2000-C 21, p.6, Contribution to the Western Superior NATMAP project*.
11. Leelanandam, C., Burke, K., Ashwal, L.D. and Webb, S.J. (2006) *Proterozoic mountain building in Peninsular India: an analysis based primarily on alkaline rock distributions*. Geol. Mag., v.143(2), pp.195-212.
12. Madhavan, V., Malikarjuna Rao, J., Srinivas, M. and Natarajan, R. (1994) *Petrology and petrogenesis of syenites from the Cuddapah basin, Andhra Pradesh*. Jour. Geol. Soc. India, v.43, pp.225-237.
13. Madhavan, V. (2002) *The alkaline provinces of India: an agenda for future investigations*. Jour.Geophysics, v.XXIII, No.2, pp.69-86.
14. Mazumder., S.K., Rao, T.K. and Nathan, N.P. (2000) *Alkaline complexes of southern and eastern India an overview*. Geol. Surv. India Spec. Publ., no.55, pp.101-134.
15. Nagaraja Rao, B.K., Rajurkar, S.T., Ramalingaswamy, G. and Ravindra Babu, B. (1987). *Stratigraphy, structure and evolution of Cuddapah basin*. Mem. Geol. Soc. India, No.6, pp.33-86.
16. Pandey, B.K., Tikam Chabria and Gupta, J.N. (1995) *Geochronological characteristics of the proterozoic terranes of Peninsular India: Relevance to the first order target selection for uranium exploration*. Jour. Expl. Res. Atom. Min., v.8, pp.187-213.



17. Ratnakar, J., Vijaya Kumar, K. and Rathna, K. (2008) *Geochemical investigations on the alkaline mafic dykes in the environs of the Prakasam Alkaline Province, Eastern Ghats Belt, India*. In: R.K. Srivastava, Ch. Sivaji and N.V. Chalapati Rao (Eds.), *Indian Dykes: Geochemistry, geophysics and geochronology*. Narosa Publishers, New Delhi, pp.291-308.
18. Reddy, K.V.S. (1998) *Compilation of STM geological maps of the Peninsular gneissic complex, Anantapur district, A.P.(Extended abstract)*, Rec. Geol. Surv. India, v.132, pt.5, pp.5-7.
19. Reddy, I.V. (1999) *A note on the occurrence of ultrapotassic volcanic rocks in the Proterozoic Cuddapah basin*. Jour. Geol. Soc. India, v.54, pp.467-471.
20. Rui Feng and Rob Kerrich (1992) *Geochemical evolution of granitoids from the Archaean Abitibi southern volcanic zone and the Pontaic sub-province, Superior Province, Canada: Implications for tectonic history and source regions*. Chemical Geol., v.98, pp.23-70.
21. Smithies, R.H. and Champion, D.C. (1999) *Late-Archaean felsic alkaline igneous rocks in the Eastern Gold Field, Yülgarn Craton, western Australia, a result of lower crustal delamination?* Jour. Geol. Soc. London, v.156, pp.561-576.
22. Srinivas, M., Rao, J.M. and David, K. (2004) *Petrological diversity and mode of evolution of syenites from eastern Andhra Pradesh*. Indian Jour. Geochem., v.19, pp.120-138.
23. Suresh, G. and Viswanatha Rao, N. (1994) *Study of granitoids of Gooty-Singanamala area, Anantapur district. (Extended abstract)*. Rec. Geol. Surv. India, v.128, pt.5, pp.376-377.
24. Suresh, G. and Jaiswal, N. (2003) *Specialised thematic Mapping of the southern extension of Jonnagiri schist belt, Julakalva schist belt and adjoining granitoids of Peninsular Gneissic Complex*. Rec. Geol. Surv. India, v.136, pt.5, pp.11-12.
25. Suresh, G., Gopalan, C.V. and Jaiswal, N. (2005) *Specialised Thematic mapping of the granite-greenstone terrain in the gap area between Julakalva and Kadiri schist belts, Anantapur and Chittoor districts, A.P.* Unpubl. Prog. Report, Geol. Surv. India, pp.1-42.
26. Suresh, G, Ananthanarayana, R, Hanumanthu, R.C, Subhasish Ghosh, Anil Kumar, A and Reddy, K.V.S., (2010). *Geology of Pulikonda and Dancherla Alkaline Complexes, Andhra Pradesh*, Journal Geological Society of India. Vol.75, , pp.576-595.
27. Swami Nath, J, Ramakrishnan, M. and Viswanatha, M.N. (1976). *Dharwar stratigraphic model and Karnataka craton evolution*. Rec. Geol. Surv. India, v.107 (2), pp.149-177.
28. Zakaulla, S., Thirupathi, P.V., Pandey, B.K., Umamaheswar, K. and Dhanaraju, K. (1998) *Early Proterozoic A-type pink granite from the Dorigallu-Timmanayanapalyam area, Anantapur district, A.P., India*. Jour. Atomic Mineral. Sci., v.5, pp.65-76.