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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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(P.K. Thakur)

Secretary( Officiating)





## COMBINED EFFECT OF TWO DIFFERENT TRAINING METHODS ON SELECTED PERFORMANCE PARAMETERS AMONG INTER COLLEGE MALE FOOTBALL PLAYERS

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### **Abstract:**

The purpose of the present study was to determine the combined effect of two different training methods on selected performance parameters i.e. Speed and Muscular Strength Endurance among inter College Male Football Players. To achieve the purpose of the study, the subject were selected totally thirty Intercollege male football players were selected from Osmania University, Hyderabad, Telangana, India. The subjects were randomly selected and their age ranged from 18-23 years. The selected groups were divided into two groups, experimental and control group. The experimental group consisted of fifteen (N-15) male football players and they underwent Plyometric Training and SAQ Training. Fifteen (N-15) Male football Players acted as the control group as without any specific training. The duration of the training period was resected twelve weeks and the session for three days in a week. The combine Plyometric Training and SAQ Training is considering as the Independent variable. The performance parameters i.e. Speed and Muscular Strength Endurance were known as dependent variables. The statistical technique analysis of 't' test was used to analyse the pre-test and post-test data of experimental group and control group. The results showed that the Combined Plyometric Training and SAQ training had significant improvement on the selected performance parameters i.e. speed and Muscular Strength Endurance compared to control group.

**Key Words:** Plyometric Training, SAQ Training, Speed and Muscular Strength Endurance.

### **Introduction:**

Plyometric training comprises explosive muscle contractions to improve strength, speed and power. Factually the spare of sprinters alone, endurance athletes are now reaping the many benefits of plyometric training. Plyometric training has a wealth of benefits for endurance players - Increase speed, Improve strength and endurance, Improve economy, Reduce injury occurrence



and Boost agility and coordination. The SAQ training method “involves progressive exercises to develop an athlete’s ability to be more skilful at faster speeds and with greater precision”, In games players require a high level of physical fitness to scope with the demands of the game. Therefore it is essential that coaches condition their athletes in an effective manner to improve their sport specific attributes and prepare them for competition.

### **Methodology:**

The purpose of the present study was to determine the combined effect of two different training methods on selected performance parameters such as Speed and Muscular Strength Endurance among inter College Male Football Players. To achieve the purpose of the study, the subject were selected totally thirty Intercollege male football players were selected from Osmania University, Hyderabad, Telangana, India. The subjects were randomly selected and their age ranged from 18-23 years. The selected groups were divided into two groups, experimental and control group. The experimental group consisted of fifteen (N-15) male football players and they underwent Plyometric Training and SAQ Training. Fifteen (N-15) Male football Players acted as the control group as without any specific training. The duration of the training period was resected twelve weeks and the session for three days in a week. The combine Plyometric Training and SAQ Training is considering as the Independent variable. The performance parameters such as Speed and Muscular Strength Endurance were known as dependent variables. The statistical technique analysis of ‘t’ test was used to analyse the pre-test and post-test data of experimental group and control group.

### **Statistical Analysis:**

The following statistical procedures were followed to estimate the Combined effect of Two Different Training Methods on selected Performance Parameters among Inter College Male Football Players. The pre and post test scores were analysed by using “t” ratio statistical technique. Statistical significance was set a priority at <0.05.

### **Findings**

The mean difference between the pre and post-test of the control and experimental groups was tested using ‘t’ ratio to find out significance of the difference made by the experimental and control groups during the experimental period of twelve weeks.

**Table – I**  
**Computation of ‘t’ Ratio Between pre-test and Post-test Means of Combined Plyometric Training and SAQ Training group on Speed**

Experimental Group	Mean	SD	Mean Difference	Standard Error Mean	t-Ratio
Pre-Test	7.13	.43205	.36667	.06068	6.04*
Post-Test	6.76	.44668			

\*Significant at 0.05 level of confidence.

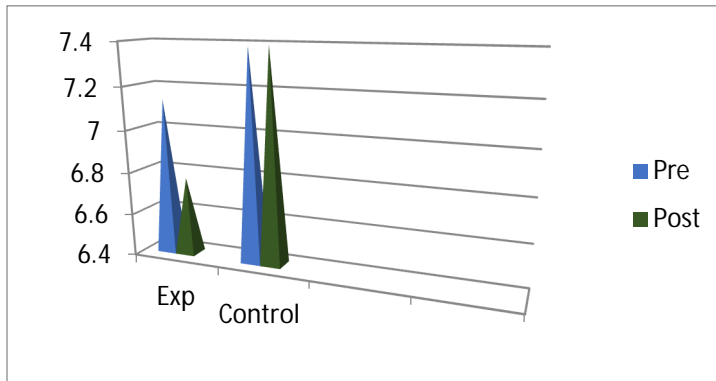
Table – I reveals that the computation of ‘t’ ratio between mean of pre and post-test on Speed of Intercollegiate level Football Players of Combined Plyometric and SAQ training group. The mean value of pre and post-test of Combined Plyometric and SAQ training group were 7.1333 and 6.7667 respectively. Since, the obtained ‘t’ ratio 6.04\* was higher than the required table value 2.14, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the speed of the experimental group improved due to combined plyometric and SAQ training.

**Table – II**  
**Computation of ‘t’ Ratio Between pre-test and Post-test Means of Control group on Speed**

Control Group	Mean	SD	Mean Difference	Standard Error Mean	t-Ratio
Pre-Test	7.38	.50408	-.00667	.16168	-.041*
Post-Test	7.39	.24919			

Table – II reveals that the computation of ‘t’ ratio between mean of pre and post-test on Speed of Intercollegiate level Football Players of Control group. The mean value of pre and post-test of Control group were 7.3867 and 7.3933 respectively. Since, the obtained ‘t’ ratio -.041 was lesser than the required table value 2.14, it was found to be statistically no significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the speed of the control group didn’t improved.

**Figure –I Diagram Shows the Mean Values of Pre & Post Test on Speed of Experimental and Control Groups**



**Table – III**

**Computation of ‘t’ Ratio Between pre-test and Post-test Means of Combined Plyometric Training and SAQ Training group on Muscular Strength Endurance**

Experimental Group	Mean	SD	Mean Difference	Standard Error Mean	t-Ratio
Pre-Test	44.66	4.79086	6.73333	2.03181	3.314*
Post-Test	51.40	5.11021			

\*Significant at 0.05 level of confidence.

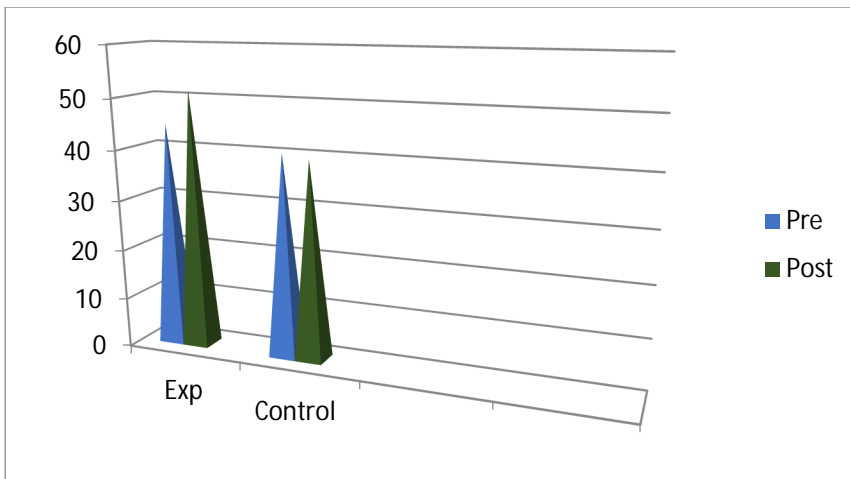
Table – III reveals that the computation of ‘t’ ratio between mean of pre and post-test on Muscular Strength Endurance of Intercollegiate level Football Players of Combined Plyometric and SAQ training group. The mean value of pre and post-test of Combined Plyometric and SAQ training group were 44.66 and 51.40 respectively. Since, the obtained ‘t’ ratio 3.314\* was higher than the required table value 2.14, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the Muscular Strength Endurance of the experimental group improved due to combined plyometric and SAQ training.

**Table – IV**  
**Computation of ‘t’ Ratio Between pre-test and Post-test Means of Control group on Muscular Strength Endurance**

Control Group	Mean	SD	Mean Difference	Standard Error Mean	t-Ratio
Pre-Test	40.46	6.02218	.93333	1.38862	.672
Post-Test	39.53	5.51448			

Table – IV reveals that the computation of ‘t’ ratio between mean of pre and post-test on Muscular Strength Endurance of Intercollegiate level Football Players of Control group. The mean value of pre and post-test of Control group were 40.46 and 39.53 respectively. Since, the obtained ‘t’ ratio .672 was lesser than the required table value 2.14, it was found to be statistically no significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the Muscular Strength Endurance of the control group didn’t improved.

**Figure –II Diagram Shows the Mean Values of Pre & Post Test on Muscular Strength Endurance of Experimental and Control Groups**



**Conclusions:**

The results of the study reveal that there is a significant improvement on combined plyometric training and SAQ training group when compared to the control group. These changes are due to training as well as due to participating in combined plyometric and SAQ training. The training inspires changes in combined plyometric and SAQ training of the football players. The unique profile should take into consideration while administering to the football players.

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## FEMALE UTOPIA - A NOTE ON MARVELOUS REALITY IN SUNITI NAMJOSHI'S *THE CONVERSATIONS OF COW*

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### Abstract

This research paper clearly points out these two novels as Magic Realist texts and emphasizes the problems of gender, chauvinism, feminine conditions and their bitter experiences and also represent the subaltern multiple voices having universal appeal. The two novels full of fabulous tales deploy magic realism to the very end digging stereotyped images of men and patriarchy. According to Namjoshi, lesbianism is a solution to establish female self-respect, identity and a life of freedom. It is a strong metaphor of resistance and ironical criticism of male dominated world that exemplifies the postmodern ambiguity. This research article to be discussed about Female Utopia in Suniti Namjoshi's , The Conversations of Cw.

**Key Words:** Literary Canons, Post Colonialism, Magic Realism, Metaphysics, Patriarchal Values, Universal Appeal, Lesbians Narrative.

### Introduction

*“There was once a poet who thought she was a nightingale, and another who thought she was a rose - charming perhaps, able certainly, having found at least a way to cope. Would the nightingale's entrails have been more powerful (as emblematic objects) laid out on the floor of a room that you came to, and then withdrew from, startled and amazed? Oh the rose is bloodless, she is white with pain; and Philomel wails in the woods again.*

*But there are the other more ordinary animals. They are not literary. They own their pain.”*

— Suniti Namjoshi,  
*The Fabulous Feminist*

Culture Plays a Significant role in de-gendering the marginalized and plays a vital role for inspiring change towards equality of gender. The literary cannons of post colonialism, post Modernism, Surrealism, Feminism, Marginal Literature , literature of diaspora and above all new literary genre ‘the Magic Realism’ has become the true spirit of conundrum of pioneering literary tradition in witnessing the reality of marginal voices at its center.

As a result cultural traits of one’s tradition in particular and nation as its gravity towards universal approach must be seen as a dynamic tool of raising one’s protest especially towards de-gendering, the marginal, neglected and subverted and the voice of women. Culture and gender discourse has been therefore the central force of human knowledge and provides us to enlighten our own self that is ‘women’ the other gender towards comprehensible manifestation.

The present paper deals with the incorporation of magical tales to reveal the truth and a critique of patriarchy towards the society of female utopia in Suniti Namjoshi’s *The Conversations of Cow*. Sunithi Namjoshi is an Indian born Canadian novelist and uniquely acknowledged as a contemporary feminist writers of Indo Canadian English Literature. She has been accolade for her witty and sharp criticism of gender issues, feminism and the issues related to human rights through her fables and fantastic elements of magic.

She is widely known for her accomplishment in the realm of gender issues, immigrant problems, male chauvinism and above all her louder voice of protest against the women in particular and gender bias in general through her creative works of poetry, short stories and outstanding novels of post modern ambiguity.

### **Literary Works:**

Her famous woks include seven volumes of poetry and novels like *The Feminist Fables (1981)*, *Bedside Book of Nightmares (1984)*, *The conversations of Cow (1985)*, *The Blue Donkey Fables (1988)*, *The Mothers of Mayadiip (1989)*, *St Suniti* and *The Dragon (1994)*, *Building Babel (1996)* and *Goja: An Autobiographical Myth (2000)*.

Most of her Poems and Novels truly depict the challenging issues of gender and sexual orientation, menacing patriarchal society and present a perfect picture of a “Female Utopian”, a world secretly yearned for by feminists through her fantastic fables and narrative structure of magical realism by deploying post modern and post colonial devices of ambiguity, resistance to time and history, intertextuality, hybridity, anthropomorphism, mundane to metaphysical and vice versa.

The aim of the study is to trace the elements of magic realism in her novels *The Conversations of Cow* and *The Mothers of Mayadiip* and tries to focus on the

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elements of feminism, gender issues and canonical set up of patriarchy against the backdrop equal rights for women an ideal world of Female Utopia through her marvelous fairytales and fables.

Sunithi namjoshi who is a lesbian living with her partner Gilian Hanscombe in a small village in England has revolted against the gender bias and feminist rights by incorporating traditional fairy tale narratives to counter the destructive tendencies of patriarchal values and the prevailing male-female arrangements.

The present study of *The Conversations of Cow* is truly witty, sharp and satirical and an alternative female paradigm of magical world in order to bring the marginal women to the centre and erasing the prevalent notion of male chauvinism. Focusing on the central characters of Suniti and Bhadravathi the Cow, her travel companion, attempts to shift the narrative from object position to the subject position and thereby the writer tends to restore the displaced power of the muted half of humanity. Throughout the novels Sunithi attempted to emphasize that the old traditional myths about male and female, no longer prevail and that the subject has been re-defined against the phallogocentric structures. The universal appeal of the truth and the real have intrinsically woven in the structure of the plot in both the novels and there is a heavy sarcasm and ambiguity of post modernism and the characters have left with a lead of introspection and questions sexual politics, challenging society's gender arrangements and attempt to dethrone the myth of femininity, the construct of patriarchy and thus re-order the world.

### **The Conversations of cow**

The significant devices of magic realism are hybridity, fantasy, ambiguity, universal appeal, authorial perspective, intertextuality, anthropomorphism, juxtaposition of the ordinary to the extraordinary and mundane to metaphysical etc.,

Suniti Namjoshi has cleverly employed such devices in *The Conversations of Cow* where the central theme of the novel is lesbianism and the theme of same sex between the two lead characters Suniti and Bhadravathi has been portrayed powerfully envisaging the problems of women, gender and patriarchy. Their story is of a lesbian narrative told through the cows and the issue of women in general and of migrants is cleverly narrated through their conversations while travelling. The anxieties and the experience of emotions of the two characters have amply deployed of magical elements and protest against the male supremacy is questioned on various events through their travel.

The plot is portrayed around the emotions and anxieties of lesbians in Canada in five major sections: The Manifestation, Bhadravathi, Interlude, Bud and Conjuring Cow. In all these interwoven stories, the two main characters Suniti and Bhadravathi are introduced as lesbian cows and the narrative is often

mixed with magical elements of humans converting to animals and vice versa. Here the author cleverly employs the magical quality of anthropomorphism in order to translate the animal issues into human and racial issues. It is very explicit in one of the arguments with the manager of the hotel on their travel.

Everything alright, Sir?

Yes, thank you, but I am not a 'sir', I am a lesbian, and my friend is a

cow (*The conversations of cow*, 23)

On their way back in van, Bhadravati became silent and express her anguish of men and says that cows and men are alike. Then Suniti who is a lesbian is not happy with her statement comparing animals and men are alike and opine that cows and women are identical. Here the writer has chosen the narrative of magical structure to raise the issue of identity from the Indian point of view through the conversations of human to animal vice-versa.

B, I say, 'what about our identities? Aren't we false to our true Selves?'

Oh yeah? She mumbles absent-mindedly, '..

S, 'Identity is fluid. Haven't you heard of transmigration?

And you call yourself a good Brahmin?....

B, but, aren't you really a lesbian cow?...(*The conversations of cow*, 33)

Throughout the stories of Suniti and bhadravati, the identity issue takes core of the discourse and is continued in all the subsequent chapters of the narrative. The ambiguity of Suniti to identify herself as a women and then admitting herself as a lesbian shows allegorical representative of bisexual and yearns for the female utopia of equality like that of a snail. The element of dream is employed here.

That night I dream. Cow has transformed herself into a woman. She is wearing a sari''. She is feeding chipmunks. I sit there gazing at Bhadravti. I feel such admiration and love for her. She smiles at me. I approach closer.( *The conversations of cow*, 46-47)

### Summing up

The writer thus powerfully depicts the devices of magic reality and eventually presents a world of women as self protective, ironic, resistance to the male domination and tries to subvert the patriarchal values. The study also clearly justifies the novel of magic realism. The narrative of the lesbian love Suniti and her guru Bhadravti in the form of cows and cows meeting other cows



and their interaction with human form on their travel in Canada certainly reveals the form of magic, fantasy and intertextuality and the novel is regarded as a novel of Magic Realism. In a way both the novels emerge as 'femino-centered' in protest of their voice and witness the marvelous elements of magic realism. In the end the study also raises the question of the contemporary definition of magical realism still remaining open, as many new literary texts appear and are categorized as magical realist literature; Moreover, the research area for further study in literature may include combination of the magical realist analysis with different types of literary criticism and cultural studies.

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## COINTEGRATION AND CAUSALITY BETWEEN ECONOMIC GROWTH AND ECONOMIC DEVELOPMENT IN INDIA

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### **Abstract**

The terms economic growth and economic development have been used as an alternative expression for reflecting any country's economic performance, though there is considerable difference between the two terms based on the method and criteria of measurement. Economic growth is related to and measured by growth in GDP of the country which gives partial view about economy and do not give information about income distribution and therefore, human welfare. Thus, economic development as measured by Human development index gives not full but wider picture of economy in terms of human welfare and quality of life. The present study uses the GDP annual growth rate as measurement of economic growth and Human development index as measurement of economic development. Cointegration test is used to identify the existence of relationship between economic growth and economic development in long and short run and identifies the existence of long and short run relationship between economic growth and economic development. Granger causality test is conducted to identify the causal relationship between economic growth and development and it is observed that there is unidirectional relationship between the two.

**Keywords:** Economic growth, Economic development, Cointegration Test, Granger Causality test.

### **Introduction**

The terms economic growth and economic development have been used as an alternative expression for reflecting any country's economic performance, though there is considerable difference between the two terms based on the method and criteria of measurement. To measure economic growth, aggregates showing quantitative changes in economy are unremittingly used giving partial view of economy. Percent increase in national income alone cannot indicate economic development (Peru, 1986). Therefore, aggregates reflecting the qualitative improvement in economy are suggested and being in use to ponder upon the measurement of economic development of a country giving a wider picture of economy (Ivic, 2015).

Economic growth and economic development are more interrelated than being interchangeable as used by many experts earlier. Economic growth is no longer the prime objective to achieve by policy makers. There is more than increase in just production level required especially improvement in socio-economic standard of people at large (**Andy Lewis, 2009**). It is not difficult to identify that one cannot be achieved in the absence of other. Economic growth should lead to economic development and vice a versa. Increased production activities lead to increase in employment opportunities, thereby giving more purchasing power to the people which facilitates enriched standard of living and when there is better living conditions, there is increased demand for production. This undoubtedly signifies and necessitates the cause and effect relationship between economic growth and development. According to theoretical approaches of economic growth and development, economic development starts after a level of economic growth is achieved. But, how far this is relevant in case of India is the purpose of the present study. With this objective the present study intends to establish the relationship between economic growth and economic development by using Cointegration and Granger Causality test.

### **Literature Review**

**Haller, A. P. (2012)** asserted the wider scope of term 'economic development' due to inclusivity of societal upgradation and pointed out the relevance of growth theories for developed nations and development theories for developing and less developed nations.

GDP or aggregate income was considered as more reliable metrics to measure economic growth during the time when macroeconomist has given more emphasis to economic growth. But to measure economic development, capacity development concept given by Sen (1990) can be foundation to identify those factors which leads to economic development (**Feldman, et.al, 2014**). **Sen (1999)** has regarded development as stimulating independence and fundamental liberty of individuals to be more participative and productive in economic life. Economic development follows in real sense when individuals have self-realization about their potentials to find suitable opportunity to actively engross and contribute to economy and society as well. Thus, for the purpose of quantifying qualitative aspects in order to ascertain the economic development of a nation, United Nations Development Program publishes Human Development Report annually through Oxford University Press. **The Human Development Report (1990)** discussed the meaning and measurement of human development and proposed a new composite index of human development. The purpose of creating Human development index was to shift the criteria of assessment of development of a nation from economic growth to human development i.e. development of people and their capabilities.

**Lucas (1988)** regarded Human Capital as factor of production and knowledge as centrifugal force to accelerate economic growth. Sustaining an economic and social progress in a nation requires Human Capital. Lucas stressed on build-up of human capital or skill acquirement as an unconventional source of continual growth. Therefore, he identified education and more specifically, learning by doing as important source of accumulation of human capital by acquisition of skills.

**Swanson & Holton (2001)** remarked human resource development as “a procedure of development” and education as the attainment of human capital that is intellectual as well as experiential. The authors stressed on human resource development as short as well as long term value addition from investment in improvement in acquaintance and proficiency in individuals. Thus, education allows the application of approaches that set learning into action within the human resource development structure and it should be part of a country’s national policy.

**Kemeny (2014)** has suggested that the best strategy of economic development is proper utilization of human resources by converting it into human capital ensuring capacity building.

**Feldman, M. P. & Storper, M. (2018)** have reminded the Schumpeterian view of economic development looking for innovation and role of entrepreneurs which undoubtedly directing the role of educational standards of the people accompanied by good health to facilitate the whole development process. Capacity enhancement is core objective of education not only with the purpose of achieving economic targets but also to fulfil the collective need of the society for socially acceptable, desirable and responsible individuals.

**Alsahawi & Gardener (2004)** presented human resource development to be closely associated with material standard of living, the character of social and cultural life and welfare of society. It was also established that HRD is more representative indicator of development since it is an essential condition for all kinds of growth.

The studies have suggested human resource development as an important indicator to assess the economic development. Thus, the study is conducted with the purpose of establishing the significant relationship between economic growth and economic development.

### Methodology

Based on previous studies, Gross Domestic Product is used as indicator of economic growth and Human Development Index is used as indicator of economic development. The data is collected from RBI Bulletin and UNDP report for the period of 1990 to 2018. Cointegration test is applied to identify the long and short run relationship and further Granger Causality test is applied to

test the cause and effect relationship between economic growth and development. The test is based on the assumption that past causes present and/or future and this cause contains unique information about an effect and thus, the test is useful in examining the cause and effect relationship between two variables. According to Granger causality test if one variable "Granger-causes" other variable, then preceding information of one variable has information to predict another variable. If X fails to cause Y, X will be considered to be exogenous of Y. Similarly, if both X and Y fails to Granger cause each other, both the variables will be considered to be independent. Granger causality is thus a dominant tool which allows testing for things that was not considered important so far.

The hypotheses are –

H<sub>1</sub>: Economic growth granger causes economic development.

H<sub>2</sub>: Economic development granger causes economic growth.

#### **Causality between economic growth and economic development**

While using time series data, it is important to check the stationarity of data. A time series has stationarity if there is no change in the shape of the distribution of data due to shift in time and one of the causes of non-stationarity is unit roots. Unit roots can cause unpredictable results. Thus, to check the stationarity of variables, one of the most prevalent unit root test, Augmented Dickey Fuller (ADF) test is applied on each variable. The null hypothesis for the test is that there is a unit root and p-value less than 5 percent reject the null hypothesis.

**Table 1. Unit Root Analysis**

	p-value	
	Level of variable	First level of diff.
GDP growth rate	0.6755	1.426e-008
HDI	1	0.008156

Table 1 exhibits that both time series are nonstationary at level but stationary at first level of difference. The unit root test results lead to the need of cointegration testing before attempting Causality test.

Cointegration test is used to identify whether two nonstationary time series are integrated together and there is long term and short-term relationship between the two nonstationary time series. The study uses the Engle-Granger test of cointegration.

**Table 2. Cointegration test result**

Cointegrating regression - OLS, using observations 1990-2018 (T = 29)

Dependent variable: GDPGR

	Coefficient	Std. error	t-ratio	p-value
Constant	0.668033	2.59973	0.2570	0.7992
HDI	10.6506	4.84756	2.197	0.0368 *



\*5% Significance level

**Table 3. Unit Root test for Residual**

Residual (uhat) p-value	0.0003651*
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\*1% Significance level

Table 3 shows that unit root hypothesis is rejected for the residuals from cointegrating regression and therefore there is evidence of cointegration between GDP growth rate and Human development index and this implies the existence of long and short run relationship between GDP growth rate and Human development index.

**Table 4. Granger Causality test**

Null Hypothesis	p-value	Status of hypothesis
GDPGR does not Granger Cause HDI	0.6472	Accepted
HDI does not Granger Cause GDPGR	0.0858 *	Rejected

\*10% significance level

Table 4 clearly indicates toward univariate relationship between GDP growth rate and human development index. Human development index shows the causal effect on GDP growth rate indicating that importance of human resource development on economic growth. As the country's human resource improves, it contributes in increasing the rate of growth of economy. But the growth rate of economy does not show causal effect on human development index implying that economic growth of country is not contributing in the development of human resource.

## Conclusion

Economic growth is regarded as basis of enhancing human welfare as it enables people's consumption, thereby it is inevitable. However, as a matter of fact, the economic growth may not always lead to rise in human welfare. Thus, economic development is considered to be more essential than economic growth. Economic growth is related to and measured by growth in GDP of the country which gives partial view about economy and do not give information about income distribution and therefore, human welfare. This can be argued on the basis of observation of some countries where in spite of higher rate of economic growth, incidence of poverty and unemployment is high. Thus, economic development as measured by Human development index gives not full but wider picture of economy in terms of human welfare and quality of life.





The present study uses the GDP annual growth rate as measurement of economic growth and Human development index as measurement of economic development which is composed of life expectancy, educational attainment level and standard of living as measured by per capita income. All the three components of human development index encompass qualitative and quantitative aspects of human life. Cointegration test is used to identify the existence of relationship between economic growth and economic development in long and short run as unit root hypothesis is accepted at level of variable but rejected at first level of difference. The Cointegration test results support the existence of long and short run relationship between economic growth and economic development. In continuation to this, Granger causality test is conducted to identify the causal relationship between economic growth and development and it is observed that there is unidirectional relationship between the two as hypothesis is accepted in case of direction of relationship from GDP growth to Human development index and the hypothesis is rejected when the direction of relationship is from Human development index to GDP growth rate. This implies that economic development has cause and effect relationship with economic growth but economic growth does not show cause and effect relationship with economic development. The results indicate that economic growth in the country may be lop-sided, not allowing fair income distribution to improve quality of life of people. Also, India's rank in terms of Human development index is 130 in 2018, keeping India in the category of medium human development. Thus, policy decisions are required to be more balancing in such a way that enhances not only economic growth but growth with development.

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## FUTURE PATH FOR PRE-PACKAGED INSOLVENCY RESOLUTION IN INDIA

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The Insolvency and Bankruptcy Code (“IBC”), with its enactment in 2016 created a buzz in the economy as it paved the way for restructuring of the dwindling debt laden corporate firms in India. It created a paradigm shift by overhauling the erstwhile haphazard legal framework dealing the matters of Insolvency and Bankruptcy in India, it also turned out to be “*creditor friendly*” as against the previous debtor controlled regime, it benefited both, the creditors and the corporate debtors. The Judiciary and the regulators have been on their toes to maintain the malleability of the law with every amendment and regulations coming since the inception of the Code, and the cases of different magnitudes shaping the framework of Insolvency in India.

The pace with which the adjudicating authorities have functioned to deliver an effective and efficient regulatory framework in the matters of Insolvency and Bankruptcy is unprecedented, but still the statutory time period of 330 days<sup>1</sup> under the Insolvency and Bankruptcy Code is not being achieved in most of the cases. The average time taken in successful resolution is 394 days<sup>2</sup> and this delay adversely affects the interest of all the stakeholders. Out of total 3312 cases which have been admitted under IBC, 780 have resulted into liquidation while 1961 are still under CIRP. (Table below: Status of CIRPs as on December 31, 2019<sup>3</sup>)

Status of CIRPs	No. of CIRPs
Admitted	3312
Closed on Appeal / Review / Settled	246
Closed by Withdrawal under section 12A	135
Closed by Resolution	190
Closed by Liquidation	780
Ongoing CIRP	1961

<sup>1</sup> <https://ibbi.gov.in/uploads/legalframework/630af836c9fbbed047c42dbdfd2aca13.pdf>

<sup>2</sup> <https://ibbi.gov.in/uploads/publication/62a9cc46d6a96690e4c8a3c9ee3ab862.pdf>

<sup>3</sup> <https://ibbi.gov.in/uploads/publication/62a9cc46d6a96690e4c8a3c9ee3ab862.pdf>

>270 days	456
> 180 days ≤ 270 days	247
> 90 days ≤ 180 days	537
≤ 90 days	542

It shows that still majority of cases are resulting into liquidation despite of such an effective resolution mechanism which is not be a viable or desirable solution for promoting the welfare of the economy.

### **What is Pre-Packaged Insolvency Resolution?**

Pre-packaged bankruptcy is a quasi formal procedure which integrates the essence of an out of court private restructuring and that of a formal bankruptcy. It is a pre-planned insolvency procedure where a resolution plan is formulated and finalised prior to the initiation of formal proceedings.

### **Need of Pre-Packaged insolvency resolution**

The Corporate Insolvency Resolution Process contemplated under the Insolvency and Bankruptcy Code, 2016 involves participation of the judiciary to a huge extent; no doubt that it elongates the time taken in the process, but the involvement of Adjudicating Authority ensures that the resolution becomes enforceable once it gets approved. So, currently in our country's system, it does not leave any scope for any out of court settlement of bankruptcy. The biggest reason behind it is that the new mechanism in our country to deal with insolvency and bankruptcy is still in its nascent stage and the market has not matured enough for an informal bankruptcy resolution. In countries like USA and UK, the pre pack insolvency resolution is in practice for decades now.

Under Chapter 11 of the United States Bankruptcy Code, a company in financial distress reaches agreement on the terms of a Chapter 11 plan with its key creditors and solicits acceptances for a resolution plan prior to filing for bankruptcy protection and asks the bankruptcy court to confirm the plan and approve the related disclosure statement and solicitation procedures on an expedited basis. A pre packaged insolvency case is not available to every financial distressed companies, it is available for only those cases where the debtor's financial distress primarily is caused by excessive debt levels and the company is not in need of comprehensive restructuring of its business operations.

As per UK laws<sup>4</sup>, A pre-pack is an arrangement whereby the sale of all or part of a company's business and/or assets is negotiated and agreed, before an insolvency practitioner (IP) is appointed with the relevant documentation being signed and implemented, immediately or shortly after the appointment is made. One of the major advantages of pre-pack administration is the speed of sale of the company, resulting into higher returns for creditors when compared with alternative routes into insolvency along with transparency, business continuity, reduced cost of administration, etc.

Looking into the practice of pre-packaged insolvency resolution process and the positive outcome of it in developed nations, it can be adopted in the Indian context as well.

### **Ground for Pre-Packaged Insolvency In India**

During the time when IBC was being formulated, the Bankruptcy Law Reforms Committee in its first report mentioned that "*Speed is of essence for the working of the bankruptcy code*" and observed that "*the most important objective in designing a legal framework for dealing with firm failure is the need for speed*". Now that after almost after 3 and half years of implementation of the Code we are still struggling with the strict adherence of the statutory timeline given under the code, apart from the delays, other issues are there like formal engagement of third-party advisors, direct and indirect costs, etc. Also, the delays cost implicitly to the business by disruption of operation and refusal by service providers, loss of goodwill, etc.

By informal private restructuring, these costs incurred under CIRP may be minimised to a huge extent and since private restructuring are out of court processes which are not bound by any statutory procedure, they can be *custom made* i.e., the resolution plans can be flexible allowing the prospective buyers to conduct their due diligence and minimise the post resolution conflicts and litigations.

However, if we see the past trends in India regarding out of court settlement/restructuring schemes, they have not been so successful. RBI introduced the scheme of Corporate Debt Restructuring (CDR) in 2001 and rolled it back in 2018 owing to its failure, the CDR cell approved restructuring of stressed loans worth ₹ 4 trillion since its inception. Of this, ₹ 84,677 crore worth of loans exited the CDR cell successfully and ₹ 1.84 trillion exited

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<sup>4</sup> <https://www.thegazette.co.uk/insolvency/content/100359>

without success. Nearly ₹ 1.32 trillion worth of bad loans were still undergoing restructuring in the scheme when it was rolled back<sup>5</sup>. RBI also introduced schemes like Scheme for Sustainable Structuring of Stressed Assets (S4A)<sup>6</sup> which was focused on Resolution of large borrowal accounts which are facing severe financial difficulties, this scheme allowed lenders (mostly banks) to separate a sustainable loan from an unsustainable loan. The banks would convert the unsustainable debt into equity or equity related instruments, the debt burden of the borrower was substantially reduced and on the other hand promoter's equity stake was also reduced. But due to fragmented approach of the various agencies involved, parallel litigations at different statutory authorities, none of the out of court settlement schemes fetched the desired results, ultimately the RBI withdrew all these schemes<sup>7</sup> and transferred all the cases to IBC.

### **Benefits of Pre-packaged Insolvency Resolution**

- a) **Business continuity:** Carrying out business during insolvency could be a difficult task to attend if there is no funding available, or its too complicated to comply with the regulatory requirements. Pre-packs facilitate a quick and relatively smooth transfer of a business, allowing the business to continue uninterrupted.
- b) **Speed:** A pre pack process involves a lot less time as compared to formal proceedings, as a resolution plan is filed along with initiating statutory resolution framework, a corporate debtor in the United States negotiates the terms of a Chapter 11 restructuring plan and solicits votes on it prior to the bankruptcy filing and Court approvals.
- c) **Smooth Resolution after CIRP:** Once the resolution will take place, it will take lesser time in transfer of business and operations to the buyer which will result in smoother handover of business, also the buyer will take the possession of business and assets without incurring lot of procedural hurdles.
- d) **Confidentiality:** In Indian context there is a social stigma associated with insolvency and if the information of a company undergoing insolvency gets leaked in the market, the value of assets of the plummets, irrespective of the economic value of the assets. In pre packaged framework, the plan of revival of the company is drawn up in a very secret way, this confidentiality preserves the reputation along with the going concern value of the company.

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<sup>5</sup> <https://www.livemint.com/Industry/k2S0MIBwJ1Imv7x6PXPxSJ/RBI-moves-to-wind-up-CDR-system.html>

<sup>6</sup> [https://www.rbi.org.in/scripts/BS\\_PressReleaseDisplay.aspx?prid=37210](https://www.rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=37210)

<sup>7</sup> <https://economictimes.indiatimes.com/news/economy/policy/rbi-withdraws-cdr-sdr-s4a-jlf-schemes-to-restructure-defaulted-loans/articleshow/62891543.cms?from=mdr>

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## **Government's Initiative for Pre-Packaged Insolvency**

In March 2019, the Government of India reconstituted the Insolvency Law Committee (ILC) as a standing committee to analyse the functioning and implementation of IBC. Along with other changes in the code, the committee has been working on the ways to incorporate the concept of “Pre-Packaged Insolvency” in the IBC, comments from various stakeholders were invited upon this topic<sup>8</sup>.

## **Prospects for Pre-Packaged Insolvency Resolution in India**

With IBC being one of the fastest evolving law in the recent times, there are chances that the Pre-Packaged Insolvency Resolution might be incorporated in Code, but for that specific provisions and amendments in the Regulations will have to be made as well. Like US and UK, Insolvency Professionals will have a crucial role to play in this framework as the responsibility of the success of it along with balancing the interests of all the stakeholders to mutually benefit them will be on him. Also, with the trend of industry rising towards out of court settlements and arbitrations the pre-packaged insolvency resolution could be an alternate route for saving the stressed corporate firms in India.

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<sup>8</sup> <https://www.financialexpress.com/economy/pre-packaged-insolvency-resolution-govt-seeks-stakeholder-comments/1550354/>

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## **REINVENTING INDIAN MSME SECTOR IN 2020**

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### **Abstract:**

India is the world's 3<sup>rd</sup> largest Startup base. In order to become number one in the world MSME sector requires a new charge to fuel entrepreneurship in the light of dynamically changing social, political, economic, cultural, financial and climatic environs. The present generation of emerging entrepreneurs follow a new trend in the way they handle intelligence, knowledge and information in order to take risks and taste independence. The style to follow in order to start a career as employer and not an employee in congruence of the sector's need and the attitude of youth so that India becomes number one in the world is to become ICT enabled, use Artificial Intelligence, Augmented Reality, Virtual Reality, Glass Machining, Blockchain, 3D printing and the like technologies.

**Keywords:** Reinventing MSMEs





## **Introduction**

India is the world's third-largest Startup base which has knowledge economy driven entrepreneurship. The Indian spirit of enterprise is not yet branded and not at all advertised but it catches the attention of the world. Many countries of the world are watching India and they research and analyse the Indian startup as well as assess the conduciveness to start and run these enterprises. They often find that real performers are silent and stay in the background and do a lot of the hard work. Micro, Small and Medium Enterprises (MSMEs) are the harbinger of India's 5 trillion dollar economy goal.

India's MSME sector has over 60 million Micro, Small and Medium enterprise mostly rural which contribute around 29% to India's GDP as this sector grows annually at the rate of 10%. It provides employment to over 111 million people. 8000 and more products ranging from traditional to the latest state of the art technology based items are indigenously produced by the Manufacturing Enterprises and over a thousand services are doled out by Service Enterprises. In this asymmetric environment there has been a phenomenal growth of MSMEs in India. The top ten states are- Uttar Pradesh, West Bengal, Tamil Nadu, Karnataka, Bihar, Andhra Pradesh, Gujarat, Rajasthan, and Madhya Pradesh.

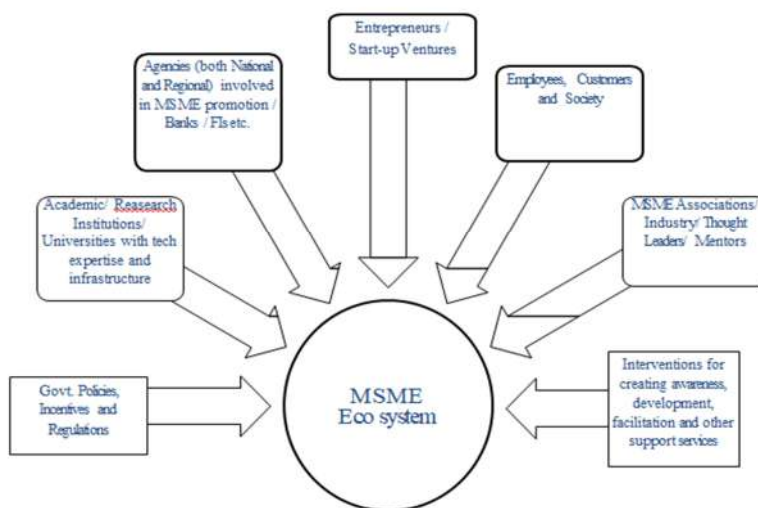
This sector of India is made up of hard-working and risk-taking entrepreneurs and their skilled teams. India being a young country with potential youth power behind MSMEs helps its growth. Indian entrepreneurs has community (Parsis, Patels, Sindhis, Kutchis, Khattris, Jains, Chettiars, Marwaris and Bohras) based clustering which have been extremely successful in expanding their business even globally. The traditional MSMEs are run by the family and not just the individual and so the boys and girls upgrade the enterprise to new innovative technologies like digital payment, online bidding and procurement, e-commerce, e-marketing, e-Taxes. MSMEs are now working towards providing provident fund, pension and insurance to both assets and human lives.

Listed below are a few concerns when the Indian MSME sectors were studied by foreign university students. The correct existing picture did not emerge as data in access was insufficient, scattered, scanty and non digital. The researchers resorted to extrapolation with wafer thin information as most of the organizations were rural and semi urban with operators of low levels of literacy and sometimes zilch.

- 1) Lack of credibility of information specific to business due to dependancy on memory of of the small and medium businessmen, conscious of their financial condition and finally lie to impress
- 2) Lack of proper timeline and the cycle of birth of information. All information should and must have an expiry date in a learning environment. They cannot be persistant. Also there has to be contiguous timeliness. Startup lack clarity on this as years of no take off, or failure breaks in between have different understanding for each and every business
- 3) The consequences of biased generalization of locale specific information for reasons academic to zygology
- 4) The bias for homogeneity over heterogeneity of products, services, process and technolog
- 5) Information flow is asymmetric and follows Poisson's distribution and show new patterns and deviate from the known and validated definitions

Hence for the existing scenario knowledge and analysis ought to be first enhanced in quality, quantity and technology. The plausible solution in such given circumstance in order to start a career as employer and not an employee is to become ICT enabled, use Artificial Intelligence, Augmented Reality, Virtual Reality and 3D printing. This will move the MSME sector over the learning curve.

### Ecosystem



### **The New Version of Indian MSME Sector**

Indian MSME should become the global leader and trendsetter in products, processes, use of technology and in the ease of growth. We have to first identify a bucket of impact factors which impede the growth and sustenance of the sector.

1. Natural disasters are the main reason for closure of over a million Indian MSMEs in year 2017 - 2018. There has to be a template for the emerging MSME's success and survival. Digital Locker for MSME's will help to cope with various disasters. Entrepreneurs should undergo training / mock drills to cope with disaster like earthquake, flood and cyclone.

2. All traditional MSME have to invariably reinvent themselves towards semi or complete automation. A complete end to end feedback system should become operational. In order to showcase Indian success case studies in order to maximise eye balls globally using virtual reality exhibition shows and virtual walk through museums.

3. In a small and micro business, Management is most of the times the job of one individual and they have to wear multiple hats as different kinds of Managers as listed above. The curious situation is there are many men and women who have been very successful at it without ever having been to a Business Management School.

4. Physical Infrastructure needs to be upgraded- Percentage of Villages Connected to Telephone Network, Percentage of Villages Connected through Power Network, Electricity Supply for Industries (hrs per day) Duration of Tap-water Supply, Quality of Water Supply, Time taken to Travel 25 kms, Density of Roads, Per capita Length of Roads

5. Governance has to be more rural oriented - Extra Payments made to Obtain Identity documents, Process Rating of Obtaining Identity Documents, Process Rating of Obtaining Electricity Connection, General Awareness Level, Percentage of People Aware of Public Grievance System, Rating of Transparency, Rating of Public Grievance System, Days taken to get Electricity Connection, Days taken to get Telephone Connection

6. Law and Order has to reach all geography- Accessibility of Law and Enforcement Agencies for Concerns, Problems in Legal System Conflict Resolution, Law and Order Conducive for Business, Area per Police Station, Per capita Police Availability,

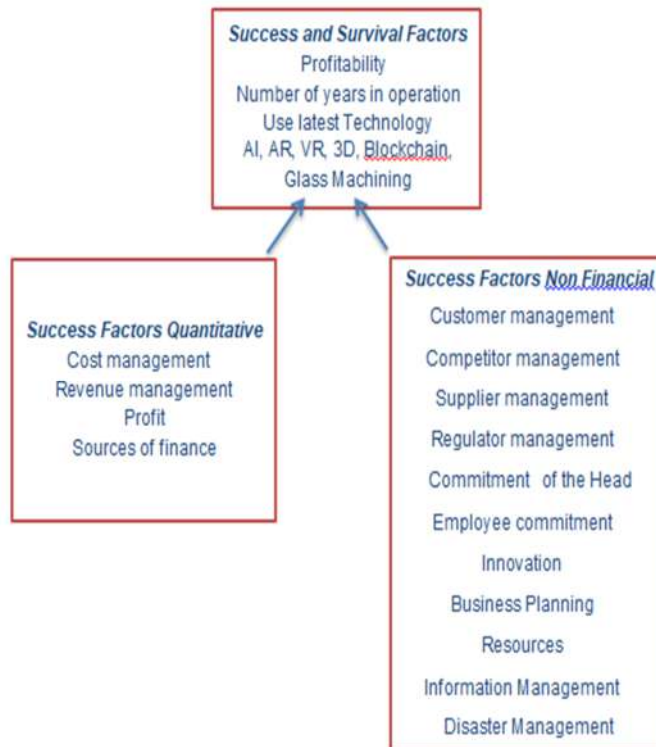
7. Adapt to changing Environment - Change in forest cover, Depth of water table, Grazing area to total land area, Population Density Per sq. km, Population Growth

8. Business Establishment Cost should have lesser or no hidden costs -Months Waited to Start a Business, Number of Approvals Required, Ease of Procedures, Information and Acquisition of Operating Licenses, Permits and Stamps, Process Rating of Land Title Acquisition, Cost of Electricity Connection, Cost of Telephone Connection, Problems in Access and Cost of Finance in Operation and Growth of Business, Problems in Obtaining Business License and Operating Permits in Operation and Growth of Business- Cost of Doing Business -Importance of Electricity Back-up for Core Business, Importance of Personal Connections to Government Officials, Awareness Regarding 'Additional Informal Payment' to be Paid to District Authorities, Being Asked for 'Informal Payment' by Public Officials 'for Getting Things Done', Percentage of Firms Requiring Electricity Backup, Instances of 'Gifting' for Smooth Running of Business

## **Conclusion**

New technologies such as 3D Printing, Glass Machining, CAD/CAM, CNC machining for tooling, vacuum heat treatment, Robotics and Process Automation etc. require trained personnel and consultancy in tooling and related areas which can be best addressed by the ministry for MSME sector. It is interesting to note that Ministry of MSME, Government of India is in the process of establishing 15 Technology Centres and upgrading / modernizing the existing TCs under the Technology Centre Systems Programme (TCSP) at an estimated cost of Rs. 2,200 crore including World Bank funding of USD 200 Million. These centres would be equipped with multiple cutting edge manufacturing technologies, such as CNC Machines, 3D Manufacturing/Additive Manufacturing, Laser / Ultrasonic machining, Robotics and Process Automation, Precision measurement/ Metrology equipment, for General Engineering and Automotive Sector, state-of-the art Electronics Manufacturing Facilities, Calibration and Testing Facilities for Electronic System Design and Manufacturing (ESDM) Sector. They are all expected to start functioning from June, 2020. The expected potential would lead to the training capacity 3,00,000 trainees per year to attend to all the MSMEs.

## Success Factors



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**CRITICAL ANALYSIS OF TELECOMMUNICATION (BROADCASTING AND CABLE) SERVICES (EIGHTH) (ADDRESSABLE SYSTEMS) TARIFF ORDER, 2017**

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**Abstract:**

On December 2019, TRAI had urged all broadcasters to provide the details about the price of their channels and communicate the consumers and urged the consumers to choose their preferred channels on or before December 29, 2018. Later, the dates got extended. Best Media Info compared this act of TRAI with Indian Government's 2016 Demanitisatation". In this article, the author is going to analyse the advantages and limitations TRAI's tariff order 2017 through the lense of Criminology and Economics. The author is also going to analyse the implementation aspects of this tariff order.

**Key words:**TRAI's Tariff Order 2017, Trai and Television Consumer, TRAI and Broadcasting Industry

**Introduction**

On 29.09.1959 Indian Government had established the India's first Terrestrial Television Doordarshan. In 1975, Satellite Instructional Television Experiment" (SITE), a joint project was launched by ISRO and NASA for community viewing of TV programs. Cable television in India came into prominence in 1989. Right now in India, , more than **830** private satellite TV channels (which include **256** pay channels owned by **53** pay broadcasters, ) 243 private FM Channels, **35** TV channels of public service broadcaster and 180 community radio stations. Broadcasting distribution sector comprises of 60,000 Local Cable Operators (LCOs), 6000 Multi System Operators (MSOs), 7 Direct-to-Home (DTH) operators, 2 Head end-In- The Sky (HITS) operators and a few IPTV service providers. The cable TV sector comprises of large number of MSOs and LCOs serving around 100 million cable TV subscribers. A large number of MSOs are small in scale as almost half the total subscriber base is shared among top ten MSOs.

Broadcasting industries represent nearly 46% of the total size of media and entertainment industry. It will grow at Compound Annual Growth Rate (CAGR) of 15%. There are currently 298 million homes in India, out of which 197 million have TV sets. The revenue of television industry was estimated at Rs. 47500 crore in 2014. Out of this, Rs. 32000 crore (67 %) was attributed to subscription revenue generated from consumers and the balance Rs.15500 crore (33%) comes from the advertising market. <sup>1</sup>

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<sup>1</sup> Consultation Paper on Tariff Issues related to TV Services 29 January, 2016 (TRAI). Available at [https://main.trai.gov.in/sites/default/files/201603140412490825217Siti\\_Cable\\_Network\\_Ltd.pdf](https://main.trai.gov.in/sites/default/files/201603140412490825217Siti_Cable_Network_Ltd.pdf)



It is estimated that subscription revenue growth at an annualized growth rate of 16% is expected to outpace the advertising revenue growth of 14% on account of improving monetization due to mandatory cable TV digitalization. The contribution of subscription and advertising revenue to the total TV sector in 2019 would be in the ratio 69:31 with the size being Rs. 67600 crore and Rs. 29000 crore respectively.

#### **Key developments and Regulatory framework on Broadcasting sector**

Though cable tv services are available from 1989 onwards, the regulatory framework broadcasting industry has come very late. In 1994 Indian Government had passed the Cable Television Networks (Regulation) Ordinance. Later, the Union Government had enacted the Cable Television Networks (Regulation) Act 1995. After 1995, new technological advancements has been recognized and implemented in Indian cable industry.

In 1999 up linking and down linking of TV channels Got recognized and. In 2003, DTH operations commenced. In 2008, Internet Protocol Television (IPTV) services were started. In 2009, Head end-in-the-sky (HITS) were started. The Cable Television Networks (Regulation) Amendment Act, 2011 has made it mandatory for switch-over of the existing analogue Cable TV networks to Digital Addressable System (DAS) in four phases and the 4<sup>th</sup> phase of digitization was supposed to be completed in 31<sup>st</sup> March, 2017.<sup>2</sup>

#### **TRAI and Broadcasting sector**

Central Government, has issued a notification on 09.01.2004 and has entrusted regulatory functions relating to broadcasting and cable TV sector to Telecom Regulatory Authority of India (TRAI). At the initial stage, TRAI has followed light touch approach and later, it has started to focus on protecting consumer interest. TRAI has considered various pricing models of broadcasting Industry in the wholesale and retail level across the world and framed suitable price model as per Indian conditions. TRAI has realized that the price of channels are unequally levied across the country and DTH providers and cable operators have taken advantages of their position. As a result, TRAI has decided to implement digitalization of cable network and urge the consumers to have set top box in their home. Meanwhile, DTH service providers are providing the channels as individual at high price whereas, in bouquet, the price of the channel is less. Considering this unfair trade practices, from 2004 onwards TRAI has implemented tariff orders. However, each order got challenged in various forums such Telecom Tribunal, Telecom Appellate Tribunal, High Courts and Supreme Court. The recent tariff order (2017) got passed in 2014 and amended in time to time. This order got consulted with the stakeholder through a consultancy paper in 2016. However, it got implemented finally on February 2019.<sup>3</sup>

#### **Objects behind the enactment of 2017 Tariff regulations.**

the issues related to availability of channels on a-la-carte (individual) basis, transparency in pricing, non-discrimination and level playing field continued even after digitalization.

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<sup>2</sup> Ibid.

<sup>3</sup> Ibid.





- Collection of subscription revenue from subscribers is not reflected transparently in Subscriber Management System (SMS) resulting in non-transparent flow of revenue between LCOs, MSOs and broadcasters.
- Huge pendency of payments to different stakeholders results in disconnection of signals impacting quality of experience of viewers and resulting in litigations at various levels.
- Due to non-transparent and discriminatory practices, a large number of disputes have taken place among the various stakeholders and channels are frequently blocked or discontinued from the platforms without any intimation to subscribers.

### Key features of DTH Tariff Regulation-2017

TRAI has framed the following regulations on DTH and cable network for the betterment of the consumers,-

- i) Telecommunication (Broadcasting and Cable) Services (Eighth) (Addressable Systems) Tariff Order, 2017,
- ii) Telecommunication (Broadcasting and Cable) Services Interconnection (Addressable Systems) Regulations, 2017
- iii) Telecommunication (Broadcasting and Cable) Services Standards of Quality of Service and Subscriber Protection (Addressable Systems) Regulations, 2017

These regulations have fixed uniform maximum retail price for each TV channel (which is also offered as part of a bouquet) at INR 19 and disallowed the inclusion of TV channels priced at amounts greater than INR 19 in bouquets. These regulations also stipulated that promotional schemes be only offered on standalone prices for offering television channels and not on bouquet prices, cannot exceed 90 days at a time, and can be offered only twice in a year.<sup>4</sup>

These regulations further stated that price of a bouquet of television channels not be less than 85% of the sum of standalone prices of television channels included in the bouquet. And pay channels and free to air channels not be in the same bouquet. These regulations mandated that the Broadcaster/Distributor must appoint "Compliance officer".<sup>5</sup>

As per these regulations, the price of a bouquet of television channels shall not be less than 85% of the sum of a-la-carte prices of television channels comprised in the bouquet and High definition and standard definition channels cannot be in the same bouquet of television channels. These regulations further stipulated that the distribution fee paid by broadcasters to a distributor of television channels, cannot exceed 35% of the maximum retail price of the television channel and Television channels cannot be priced differently for different distribution platforms.<sup>6</sup>

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<sup>4</sup> Telecommunication (Broadcasting and Cable) Services Standards of Quality of Service and Subscriber Protection (Addressable Systems) Regulations, 2017.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.



This TRAI's tariff order got challenged before the division bench of Madras High Court by the DTH service provider Tata sky and Vijay tv. Two important issues were raised by the DTH service provider and broadcaster in this case.

- 1. Whether the TRAI Regulations regulate content, directly or indirectly?
- 2. Whether TRAI has the power to regulate the content of broadcasts?

Justice Sundar stated that The impugned provisions affected content by limiting the amount of money that could be earned through television channels,. this hampers the creation and acquisition of new content. The impugned provisions, therefore, indirectly regulate content. Since the Copyright Act does not allow for such restriction of content on the basis of public interest, TRAI did not have the authority to pass the impugned provisions. However CJ of Madras High Court had differed the views of Justice Sundar and said that TRAI can Regulate the broadcasting sector including content. There is no contradiction.<sup>7</sup> since, two judges of division had given splitting decision, this case had referred to third judge. The third judge had agreed the decision of Chief Justice of Madras High Court and given his verdict in favour of TRAI. However, Madras High Court held that putting cap of 15% to the discount on the MRP of a bouquet is arbitrary.<sup>89</sup>

The decision of the Madras High Court got challenged and the above said two important issues also raised before the Supreme court. The apex court held that the price ceiling operates only on channels that are sold in the form of bouquets. Channels sold on a standalone basis may be priced freely by the service provider, and therefore, content for these channels would go unaffected. The Court further held that the ceiling price of INR 19 is an improvement on the earlier amount (INR 15.12), and may also be increased from time to time, subject to market conditions.<sup>10</sup>

Answering the overlapping jurisdiction aspects of copyright and TRAI tariff order the apex court held that the impugned provisions violate rights granted under the Copyright Act would be premature, since the broadcast reproduction right comes into existence only after the broadcast comes into existence (Section 37(2) of the Copyright Act). At a stage where content has not been created, therefore, no right may exist under the Copyright Act. TRAI's power to regulate (including the power to prohibit) is being used to benefit the public. Therefore, 'regulation' in Section 36 does include the power to prohibit. The only restriction on the power to regulate under Section 36 is the requirement that they be consistent with the TRAI Act and the rules made under the legislation.<sup>11</sup>

The Supreme Court finally affirmed the TRAI's jurisdiction and held that TRAI would be permitted to pass regulations that affect rights created under the Copyright Act. a

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<sup>7</sup> 2018 (2) CTC 113.

<sup>8</sup> 2018 (74) PTC 417 (Mad)..

<sup>9</sup> <https://www.thehindubusinessline.com/info-tech/madras-hc-upholds-trai-tariff-order-regulation-for-broadcasting-companies/article23970769.ece>

<sup>10</sup> Star India Private Limited v Department Of Industrial Policy AND PROMOTION & ORS (2018) available at

<https://www.advocatekhoj.com/library/judgments/announcement.php?WID=10731>

<sup>11</sup> Ibid.



harmonious construction of the two statutes would require the prioritization of public welfare. Since the regulations passed by TRAI on consumer welfare, the best way in which both statutes can be harmonized is to state that, the TRAI Act, being a statute conceived in public interest, which is to serve the interest of both broadcasters and consumers, must prevail, to the extent of any inconsistency, over the Copyright Act which is an Act which protects the property rights of broadcasters.<sup>12</sup> After this decision, the legal avenues of DTH service providers come to an end.

### **Economic Analysis**

#### **Unequal distribution of Wealth could result in market failure**

Prior to TRAI's tariff orders 2017, the DTH providers, broadcasters and Cable tv service providers were not had uniform arrangement on channel prising for distribution. As a result, each DTH and cable tv service providers levy different prices for the same channel. Some service providers have tie-up with the broadcasters and for price fixing which resulted in cartelization. Some DTH service providers also owner of some tv channels and they impose different pricing models for granting access of their channels in different platforms. For promoting their own DTH services, some DTH service providers discounted their own channels prices. Non transparent distribution arrangement might helped the few players to control the broadcasting market which could eventually lead to market failure.

#### **Asymmetric information**

The consumers were unaware of the pricing arrangement of the broadcasters and service providers. This less information lead the consumers to follow the instructions of their service providers. The consumer were exploited by the service providers by way of quoting higher prices of the channels, dumping unnecessary channels and stopping the consumers from having their preferences. Asymmetric information may lead to adverse selection and Moral hazard

In broadcasting industry, prior to the implementation of TRAI's tariff order, , service providers (seller) only had the information channels prising arrangements. As a result, at the time of concluding the contract, he could influence the buyer (customer) to opt the unworthy plans. For example, I have seen that one DTH service provider devised different regional plans for each states in India and thease regional plans were not given to the people from other region. Further, DTH operators had tie-up with DTH sellers to promote their high value packs and given some incentives to the sellers those who sold lot high value packs to the customers.

The author consider that Positive externality is required in the form of state regulation for ensuring transparent and fair prising of a channel as same as all DPOs and DTH providers. Information symmetry would help the consumers to make an informed choice and each curbe the unfair trade practices of DTH and cable service providers and

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<sup>12</sup> Ibid.



distributors. The author believes that TRAI's Tariff Order could create conducive environment to the tv viewers and provide the opportunity to make informed choices.

### **Criminological Analysis**

#### **i) Lack of consumer awareness as an opportunity to exploit:**

Rational Choice Theory and Routine activity theory Highlight that the criminals commit the crime when they find the suitable target and favorable circumstance. to control the crime, these theories suggest that to control the crime, the crime prone circumstance must be altered or manipulated in a such a way that the criminal's choices become limited. DTH service providers and Cable TV service providers have taken advantages of minimal regulated market and less consumer literacy and provided unwanted channels on higher rates. For example, Tata Sky has provided special packs on the basis of region. A south Indian who is willing to watch south pack then, he can avail south special pack in south India. This south special pack gives the option to the consumer to choose two south Indian languages and other additional channels like English news channels were available at affordable price. However, the same south special pack was not available to a south Indian who is residing at north India. He can avail south Indian language channels at higher cost. Similarly, cable tv operators have provided some number of channels to all the users irrespective of their preference and collected common service charge for these channels from all cable tv consumers irrespective of whether they have watched these channels are not. Mandatory set top box installation ensure that consumer has to choose their preferred channels and try to avoid manipulation by the DTH service providers and cable tv service providers to impose their plans. However, after the installation of set top box and DTH boxes, the service providers have come with new models such offering channels in bouquets and make it individual channel price costlier and exploiting the consumers. Price of each channel and bouquets have varied from one service provider to another service provider. Hence, state intervention in the form of uniform pricing model and imposing price sealing on channels which are clubbed in bouquet certainly restrict the unfair trade practices of the DTH and cable tv service Providers.

#### **ii) Providing bouquet plans and regional packs as an innovation means to cheat consumers:**

Robert K. Merton stated that since, society suffered anomie (strain), the people could choose either one of the following five ways to overcome their strain. Since means are not equally distributed the people choices also limited. Hence, people may choose either appored or unapproved mans to achieve their goals. Some people may alter their goals as per their means. Merton said that five ways in which individuals respond or adapt to "selective blockage of access to opportunities among those variously located in the class, ethnic, racial, and gender sectors of the social structure. Innovation is one such adaptation in which the people may alter means to achieve their goals.<sup>13</sup> In "Innovation"

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<sup>13</sup> Robert K. Merton, Social Structure and Anomie, American Sociological Review, Volume 3, Issue 5 (Oct., 1938), 672-682.

strategy, a person could use his position and occupation as an avenue and use that occupation for his quick gain; he could use his occupational advantage and get quick money. DTH companies also bringing some new plans in a such a way which could benefit the DTH service providers and broadcasters at the cost of consumers. For example, DTH service providers could club free channels with pay channels in a bouquet and collect charges. By doing this, DTH providers facilitate for the increase of viewership of unpopular channels and get more money from the consumers. As highlighted in the previous para, some DTH providers had provided regional packs as per their own arrangements, through this, DTH providers could earn more money and indirectly compel the consumers to view the unwanted channels.

iii) Broadcasters can justify their higher price

*Matza and Sykes's have developed a theory called "Neutralisation theory" for explaining causal factors of crime. They have conducted study on Juveniles and concluded that juveniles have learned some phrases and contentions through which they justifying their criminal acts and morally free from guilt. These phrases and reasons are known as neutralization techniques. Matza and Sykes's stated that people are using the five broad kinds of neutralisation techniques/excuses and justifying their crime.<sup>14</sup> They are,-*

- a) *Denial of responsibility*
- b) *Denial of injury*
- c) *Denial of victim*
- d) *Condemnation of the condemners*
- e) *Appeal to higher loyalties*

Cable tv service providers and could justify their higher pricing as for providing good quality pictures and without combining all channels they could not able to overcome all expenditure of up linking and down linking of tv channels. Cable tv service providers could say that because of combining all channel, they could able to provide comprehensive channels to all users of that area. Cable tv service providers and DTH providers could justify their unfair practices by saying that moto of every business enterprise is "profit maximization"; hence, with the collaboration of broadcasters they could earn more money.

### **Implementation Aspects**

the Regulation provides a capping of Rs. 130/- as Network Capacity Fee (NCF) for 100 SD channels and Rs. 20/- for the slab of next 25 SD channels. However if we include the GST (18%) the NCF cost is of 153. The original implementation date was on December 29, 2018. However, due to lack of willingness on the part of DTH and cable service providers and lack of awareness on the part of consumers the implement date

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<sup>14</sup> Gresham M. Sykes and David Matza, Techniques of Neutralization: A Theory of Delinquency, American Sociological Review, Vol. 22, No. 6 (Dec., 1957), pp. 664-67.



got extended up to February 1, 2019 and further extended up to March 31, 2019.<sup>15</sup> On January, 2020, TRAI has amended the tariff order and clarified that the Network Capacity Fee (NCF) of INR 130 must be collected for providing 200 channels and mandatory DD channels should not be included for calculating 200 channels.<sup>16</sup> the January tariff order which is popularly known as Tariff Order 2.O has stated that the rate of an individual channel should be INR 12 instead of 19 and if the channels are offered in bouquet then, price of each channel in the bouquet shall not be lesser than 33% value individual channel price. Many broadcasting industrialists have stated that Tariff Order 2.O would result in further disruption in the broadcasting sector.<sup>17</sup>

At the initial stage, many DTH service providers were very reluctant about the implementation of these regulations. Some DTH providers have not given their intimation on the channel pricing in the Electronic Programme Guide (EPG) in each channel. After the repeated notices from the TRAI, these DTH service providers have started implementing TRAI's regulation. Even while doing the implementation, the service providers have misleading information about TRA's regulation on channel prising. Some DTH service providers have given very limited time to the consumers and one fine day suddenly stopped the services of the channels.

#### **Uncertainty on Subscriptions of certain plans**

##### **No guidelines on Multi TV services.**

Multi Tv connection means a consumer might have taken several tv connections ufrom a DTH service provider. These connections are taken in one name. the multi tv connection holders have availed benefits of 50% reductions of service charges prior to the implementation of these rules. However, TRAI's tariff guidelines have not specify about the the network charges and channel charges of each connection. As a result, DTH service providers have communicated to the multi tv connection holders that each of their connection might be considered as separate connection and full service charges will be levied for each connection. After few months of kiatic situations, TRAI has devised new tariff for multi tv connections and grant some relaxations from the payment of Network capacity fee for multi connections. Till now, Dish tv and D2H have consumer prone service providers and levy INR 50 NCF for per multi tv connections. However, the other DTH service providers like Tatasky and Airtel levy full NCF (INR 130) fee for each multi tv connection. TRAI has framed special rules for multi tv connections which state that NCF of multi tv connection should not exceed INR 52 (40% of actual NCF). However, this rules will be implemented in March, 2020.<sup>18</sup>

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<sup>15</sup> <https://www.news18.com/news/tech/trai-now-says-cable-and-dth-users-can-choose-channels-by-31-march-but-there-is-fine-print-to-be-read-2034621.html>

<sup>16</sup> <https://www.news18.com/news/tech/your-cable-and-dth-bills-will-be-more-affordable-now-check-if-you-are-on-new-tariff-plans-2522103.html>

<sup>17</sup> <https://www.thehindubusinessline.com/info-tech/cable-bills-will-rise-with-new-tariff-order-broadcasters/article30533249.ece>

<sup>18</sup> <https://telecomtalk.info/trai-rules-multi-tv-d2h-dishtv/244072/>

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### **Uncertainty on longer duration plans:**

Till March 2019, Migration conditions of the subscribers who have just availed the long term plans from the respective DTH service providers were uncertain. TRAI has issued fresh orders in this regard and stated that till the actual duration of such long term plans, the DTH providers should not migrate the consumers. However, TRAI has issued fresh notice and stated that DPOs can migrate the subscribers to a best suitable plan in case if the subscribers have not exercised their right to choose their own plans. In May, 2019, TRAI has issued directions to some DTH providers for non-compliance of TRAI's tariff order (notification) on long duration packs.<sup>19</sup>

### **Drawbacks**

- TRAI had announced that “65 million cable TV subscribers and 25 million subscribers, in total 90 million television subscribers in India, had made the switch to the new tariff plans already”. If this is the fact then, why TRAI has extended the migration period?
- As per TRAI's Tariff order, Doordarshan's 32 channels and channels on spirituality are made available as free. Some DTH service providers are providing 100 free channels on their own wish. And levy tax on all individual channels. However, some DTH providers like Airtel provide all free channels as free.
- Lack of consumer awareness and unwillingness of DTH and cable tv service providers had created a chaotic situation. Some DTH providers and cable tv service providers have suddenly stopped the broadcasting of all channels of the consumers and asked the consumers to provide their preferred list immediately. However, TRAI later, issued an order and asked the DTH service providers and cable tv service providers to provide a suitable plan to the consumers and provide sufficient time to the consumers to choose their preferred channels and till that time, the broadcasting services should not be stopped.
- At the time of implementation of this new tariff order, consumers were believed that this tariff order was unworthy. Cable tv operators and DTH service providers have shown their resilience against the implementation of this order and they misled the consumers on the tariff order. Lack of consumer awareness led the DTH providers and cable tv operators to take advantages again.
- Cable operators finding it difficult to fulfill the needs of all customers because, some customers want their regional channels alone whereas, very few customers want sports and English channels.

Broadcast Audience Research Council BARC India stated that the new tariff order, which is said to be the biggest disruption in India's broadcast industry. **CRISIL** reported that based on current pricing, the monthly TV bill can go up by 25% from Rs 230-240

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<sup>19</sup> [https://www.business-standard.com/article/economy-policy/traai-pulls-up-dth-cable-operators-for-not-complying-with-new-tariff-119050100854\\_1.html](https://www.business-standard.com/article/economy-policy/traai-pulls-up-dth-cable-operators-for-not-complying-with-new-tariff-119050100854_1.html)



to Rs 300 per month for viewers who opt for the top 10 channels, but will come down for those who opt upto top 5 channels.<sup>20</sup>

### Impact on Advertisement Industry

The executive council of the Indian Society of Advertisers (ISA) has called this as a sudden development, and ability to predict its impact is “extremely difficult”. It further advised its members not to use pre and post viewership data from BARC for media planning, buying and pre and post viewership analysis during the transitional period (six weeks).<sup>21</sup> Meanwhile, Barc India stopped publishing the viewership data from February 1st week to till April 1<sup>st</sup> week. Later, TRAI has issued a show cause notice to BARG India.<sup>22</sup> Some reports have shown that the TRAI’s tariff order actually increased the customer’s monthly bill. While addressing this issue, TRAI chairman explained that if someone wants to view 50 channels then, this new tariff order will reduce his monthly bill; however, if someone wants to view 250 or more channels then, his monthly bill will increase. He further stated that people should change their behaviour of taking everything and try to have the habit of taking the necessary channels alone.<sup>23</sup> Indian Broadcasting Foundation (IBF) has raised concerns on TRAI’s new tariff order stated that this situation would result in closing down of some tv channels; which could result in the increase of unemployment.<sup>24</sup>

### Conclusion

The object of TRAI Tariff order sounds good. However, implementation of these rules requires high level planning and coordination and cooperation from all stake holders. Further, the prices of channel depend on the market behaviour. Already there are some reports which highlighted the prices of popular channels might increase. The author believes that TRAI’s tariff order needs to be updated regularly. TRAI must create consumer awareness so that all consumer will avail the benefits of this.

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<sup>20</sup> <https://www.crisil.com/en/home/newsroom/press-releases/2019/02/new-trairegime-unlikely-to-reduce-tv-bills-for-most.html>

<sup>21</sup> <https://economictimes.indiatimes.com/industry/services/advertising/tariff-order-impact-advertiser-body-asks-members-not-to-use-barc-viewership-data-for-6-weeks/articleshow/67886032.cms>

<sup>22</sup> <https://economictimes.indiatimes.com/industry/media/entertainment/media/traissues-show-cause-to-barc-india-for-not-publishing-tv-ratings-online/articleshow/68680611.cms?from=mdr>

<sup>23</sup> <https://www.indiantelevision.com/regulators/tra/exclusive-rs-sharma-on-new-tariff-order-traistussle-with-barc-potential-monopoly-in-the-sector-190411>

<sup>24</sup> <https://www.financialexpress.com/brandwagon/indian-broadcasting-federation-hits-back-against-the-new-tariff-order/1812662/>

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## IMPACT OF FDI ON PROFITABILITY OF PUBLIC SECTOR BANKING INDUSTRY OF INDIA

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### ABSTRACT

Foreign Direct Investment (FDI) is an investment made by an Individual of Company of another country in the business of one country either in the form of controlling interest or ownership. From the progression of liberalization and reform in the financial sector in 1991, banking sector has undergone major transformation. In the public sector banking FDI is allowed up to 20%. Banking zone provisions the support money that supports and fosters growth in all the industries. This paper discusses the FDI Equity inflows in Service Sector in India and highlights banking Sector in the form of FDI. This paper analyzes the FDI inflows and impacts in public banking sector from January, 2005 to December, 2017. The profitability of Indian public sector banks is measured by Net Profits, Net Interest Income, Return on Assets (ROA) and Return on Equity (ROE). In this analysis for banking sector the independent variables are FDI Inflows, GDP, Lending Rates and Inflation rate. The research has been done in secondary methods. The secondary methods are multiple regressions, t-test, ANOVA & F-test. Mainly it was found the FDI inflows do not have any significant impact on the banking sector of India.

**Key words:** FDI, Banking, Profitability, ROA, ROE, NII & NP

### 1. INTRODUCTION

Indian Federal Government has opened up the banking sector for foreign investors raising the ceiling of foreign direct investment in the Indian private sector banks to 49 percent. However, the ceiling of FDI in the country's public sector banks remains unchanged at 20 percent. Foreign banks having branches in India are also entitled to acquire stakes up to 49% through "automatic routes". It is to be noticed that under "automatic route" fresh shares would not be issued to foreign investors who already have financial or technical collaboration in banking or allied sector. They would require FIPB approval. Foreign Direct Investment has become sin-quo-non for the economic development of both developed and developing countries. Today, Indian banks are as technology savvy as their counterparts in developed countries. As a result of liberalization, privatization and globalization model, Indian banks have entered international market and global banks have become part of Indian market. Furthermore, FDI in the banking sector ensures to provide the benefits of technology transfer, better risk management, financial stability and better capitalization, integration into global economy, knowledge transfer and rising competition. Foreign Direct Investment in India is one of the major monetary sources for economic development in India. Foreign companies invest in India to take benefits of lower wages and changing business environment of India. Economic liberalization started in wake of the 1991 economic crisis and since then FDI has steadily increased in India. But in the banking sector,



being a service sector is the one of the most attractive area for FDI. The FDI in banking sector should be increased or not depends on their performance. FDI leads to generation of employment opportunities. There is a positive correlation between FDI inflows with GDP growth in India. The FDI inflow increases the GDP growth. So growth of Indian GDP is largely influenced by FDI mentioned that due to FDI the competitive and reform force have led to the emergence of internet, e-banking, credit cards, mobile banking, ATMs etc. JayashreePatil (2014) found out that ROA and total business is positively growing in case of FDI into banks than Non-FDI into public and private banks. Study by Yinggi Wei and V.N. FDI in banking is raised to 74% from the earlier limits of 49% to further liberalize the FDI norms in the Banking Sector. The revision in FDI limit may create an enabling environment for higher FDI inflows along with infusion of new technology and management practices resulting in enhanced competitiveness by FDI inflow in Banking in developing countries in recent years. FDI firms are better performers than Non-FDI firm in international economics. Therefore, the impact of FDI on productivity, profitability and efficiency of Indian banking needs to be studied. There is a liberalization of FDI policy from 49% to 74% in 2005, so it become necessary to check if there was an impact of FDI and liberalized FDI policy on the Indian banking industry.

The objectives of the study are:

- To explore the FDI inflows to the public banking sector of India
- To find the impact of FDI on the profitability of public banking sector of India

The hypotheses of the study are:

**H<sub>0</sub>:** There is no significant impact of FDI on the profitability of the Indian public banking sector.

**H<sub>a</sub>:** There is a significant impact of FDI on the profitability of the Indian public banking sector.

## **2. LITERATURE REVIEW**

Patil (2017) observed by the support of FDI more employment opportunities can be created. With more skill enhanced employees the profitability can be increased. The parameters to judge can be the working speed by which human resource accounting can be encouraged. This has increased income levels of banks by considering the increments in ROE and NII. More domestic sources of investment can be made possible by which more can be expected.

Sharifi and Akhter (2016) observed the profitability in general public sector banks in Asian nation. They found that there's a big impact of the FDI on Assets and Equity depending on the measurement of return on equities.. FDI and banking sector interactions establish that by FDI inflows there is a possibility of a development in banking sector by increments in the return on assets and net interest income.

Sarwan Kumar (2016), expressed a powerful presence of FDI permits a quick restructuring, at an equivalent time host Governments follow sound productivity of business, potency familiarized towards a profitability creating. FDI depends mostly on the investments and on the restructuring efforts of the new owner on equity, on assets, profit by banks and new employment generation.

Sambad, A (2015) discussed the determinants of profitability of Bangladesh by using the regression analysis with panel data. He found out that liquidity position, risk loan, credit risk, capital risk and banks efficiency are significant factors for deciding the profitability position of Bangladesh 48 commercial Banks.

Chaturbedi.A(2015) explored that while comparing the 10 year's data from 2002 to 2011 on productivity factors such as dealing by member of staff & income between employees. It is observed that the performance of Bank of Baroda is much superior. The gap performance of both banks on two variables has shown an increasing trend. By FDI improved operational efficiency along with lower provisioning can be a welcome step for improving the performance of the bank. The bank also required to keep a check on their increasing labour cost.

Malla Reddy (2014) highlighted that FDI through providing capital, strengthening efficiency, and new job opportunities plays are some important things for economic development. FDI as a non debt inflows helps in improving the technical knowledge capabilities of Indian Banks. It can solve various issues as incompetent supervision, increased NPAs, monetary unsteadiness plus low capital capability. It was concluded that the profitability of Indian banks can be increased depending on the performance of the bank by increasing return on assets and return on equity. Depending on this more domestic investment and FDI Indian banking industry will be more profitable.

Patil (2014) observed that FDI inflows to the Indian banking sector have got a positive impact, but the performances of private banks are better now. Private sector banks are investing their money deposits in a better way to get more earnings. FDI in the Indian banking sector is ready to place a right away or indirect link to boost the productivity criteria by job opportunities, gap up the new numbers of operating branches. Profitability from such a growing business is definitely expected, however in very future business. He concluded that the profitability situation can be measured with a high level of return on asset and investment income by banks.

### **3. RESEARCH METHODOLOGY**

For the investigation of the banking part of India, Multiple Regression has been utilized. Numerous relapses are an expansion of basic direct relapse. It is utilized to anticipate the estimation of a variable dependent on the estimation of at least two different factors. To be anticipated is known as the reliant variable (or some of the time, the result, target or paradigm variable). Various relapse is a factual apparatus used to infer the estimation of a rule from a few other autonomous, or indicator, factors. It is the synchronous mix of various elements to survey how and to what degree they influence a specific result. R-squared is a factual proportion of how close the information is to the fitted relapse line. It is otherwise called the coefficient of assurance, or the coefficient of numerous judgments for various relapses. The meaning of R-squared is genuinely straight forward; it is the level of the reaction variable variety that is clarified by a direct model. Or on the other hand:

$$R\text{-squared} = \frac{\text{Explained variety}}{\text{Total variety}}$$

R-squared is consistently somewhere in the range of 0 and 100%:

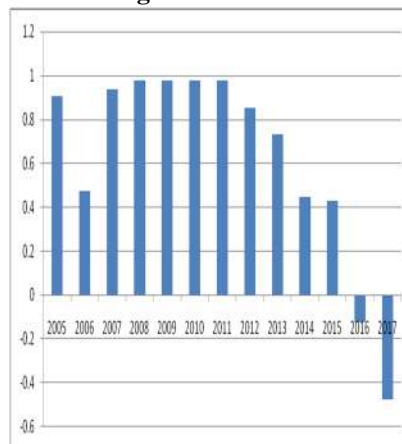
The 0% demonstrates that the model clarifies none of the inconsistencies of the reaction information around its mean. The 100% demonstrates that the model clarifies all the changeability of the reaction information around its mean. When all is said in done, the higher the R-squared, the better the model fits the information. Relapse investigation produces a condition to portray the measurable connection between at least one indicator factor and the reaction variable. The p-esteem for each term tests the invalid theory that the coefficient is equivalent to zero (no impact). A low p-esteem ( $< 0.05$ ) shows that the invalid theory can be dismissed. At the end of the day, an indicator that has a low p-esteem is probably going to be a significant expansion to the model since changes in the indicator's worth are identified with changes in the reaction variable.

**Table 3.1: FDI Equity Inflows to Banking Sector of India**

YEARS	FDI Equity Inflows to Banking Sector Rs(Crore)
2005	1876.88
2006	1935.86
2007	2954.39
2008	2200
2009	1912.6
2010	1988.33
2011	1092.565
2012	1510.79
2013	1401.56
2014	1601.56
2015	1701.56
2016	3,074.03
2017	3275.45

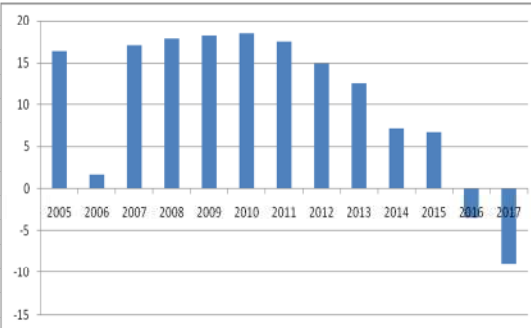
**Table 3.2: ROA% Average**

YEARS	ROA% Average
2005	0.9075
2006	0.474642857
2007	0.936428571
2008	0.977857143
2009	0.976666667
2010	0.975925926
2011	0.978076923
2012	0.852307692
2013	0.733846154
2014	0.444814815
2015	0.43
2016	-0.125185185
2017	-0.474444444



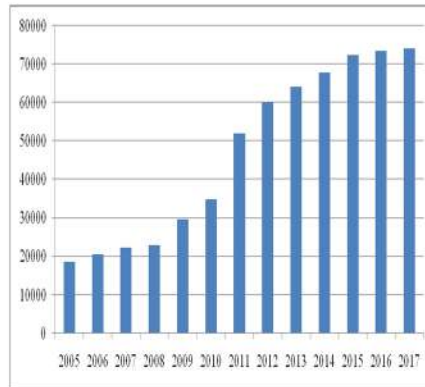
**Table 3.3: Return on Equity % ( ROE)**

YEARS	ROE% Average
2005	16.26313646
2006	1.606967536
2007	17.0222485
2008	17.80685868
2009	18.1441853
2010	18.40412011
2011	17.51750919
2012	14.88730088
2013	12.57908665
2014	7.411639615
2015	6.689532704
2016	-3.503655441
2017	-8.058873249

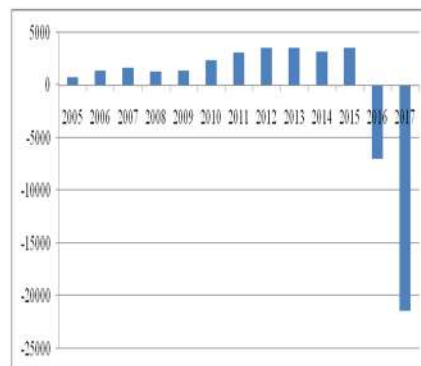


**Table 3.4: Net Interest Income**

YEARS	NET PROFIT (In Millions) Average
2005	708.4468571
2006	1352.437619
2007	1628.898095
2008	1275.984222
2009	1421.100579
2010	2365.599111
2011	3087.199353
2012	3515.085059
2013	3582.392
2014	3151.203222
2015	3565.590944
2016	-7047.390273
2017	-21468.8759



YEARS	NET INTREST INCOME (In Millions) Average
2005	18428.79771
2006	20489.368
2007	22223.21964
2008	22918.71957
2009	29496.86415
2010	34830.55389
2011	51915.95754
2012	60954.95788
2013	64208.7665
2014	67810.57389
2015	72299.58474
2016	73537.45974
2017	74228.93033



**Table 3.5: NET PROFIT (In Millions) Average**

#### 4. DATA ANALYSIS

The Regression Analysis is used in the study to predict the extent of dependence of different predicted indicators of FDI performance (ROA, ROE, NII and NP) with various factors of its explanatory variable. This was tested by using the first result of the regression analysis i.e. ANOVA (F-test). Further, R square value of the regression analysis has been made to show the extent to which the explanatory variables explain the dependent factor. The second result of the regression analysis i.e. t-test along with significant value (p-value) indicates the most significant explanatory variable that influences the explained/ dependent factor. The regression co-efficient of the independent variables has been estimated and the results are shown in Tables below.

##### (a) ROA as Dependent Variable

**Table 4.1:**  
**Multiple Regression Analysis Model Summary (ROA)**

<i>Regression Statistics</i>	
Multiple R	0.846
R Square	0.716
Adjusted R Square	0.574
Standard Error	0.259
Observations	13

It is seen from Table that the co-efficient of determination ( $R^2$ ) was 0.716 indicating that 71.60 per cent of the variation in the ROA can be explained by and influenced by the four explanatory variables (FDI equity inflows to banking sector, GDP, Inflation rate and Lending rates) by 71.60 percent which is a good indicator for establishing a well set relationship.

**Table 4.2:**  
**ROA (ANOVA)**

<i>Particulars</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	1.349	0.337	5.046	0.025**
Residual	8	0.535	0.067		
Total	12	1.884			

a. Dependent Variable: ROA

b. Predictors: (Constant), FDI equity inflows to banking sector, GDP, Inflation rate and Lending rates

\*Significant at 1 percent level

\*\*Significant at 5 percent level

The ANOVA (F-test) indicates that the scale/ factor – ROA was quite significant since it is seen from the table, that the significant value (p-value) of F-test are 0.025, which means that explanatory variables are significant at 5 percent level (sign.0.025) with respect to the explained factor i.e. “ROA”.

**Table 4.3:**  
**Multiple Regression Coefficients (ROA)**

<i>Particulars</i>	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-0.364	1.189	-0.306	0.768
FDI Equity Inflows to Banking Sector in %	-0.050	0.035	-1.454	0.184
GDP in Billions in %	0.096	0.032	3.006	0.017**
Inflation Rate in %	7.326	4.252	1.723	0.123
Lending Rates in %	3.589	9.748	0.368	0.722

\*Significant at 1 percent level

\*\*Significant at 5 percent level

Based on the Multiple Regression output table of “ROA (Y)” and its constituent variables, we are able to derive the following equation.

$$\text{ROA (Y)} = -0.364 - 0.050 (\text{FDI Equity inflows}) + 0.096 (\text{GDP}) + 7.326 (\text{Inflation rate}) + 3.589 (\text{Lending rate})$$

Out of all the independent variables, only variable GDP has an impact on ROA since P-value of t-test is coming less than 0.05. This reveals that Progress in GDP can put a high remarking growth of ROA. Further, the independent variable FDI equity, inflation rate and lending rates has got no impact on ROA, since the P-value of FDI equity, inflation rate and lending rates are higher than 0.05. They do not have any impact on ROA.

#### **(B)ROE as Dependent Variable**

**Table 4.4:**  
**SUMMARY OUTPUT (ROE)**

<i>Regression Statistics</i>	
Multiple R	0.691
R Square	0.478
Adjusted R Square	0.217
Standard Error	4.752
Observations	13

It is seen from Table that the co-efficient of determination ( $R^2$ ) was 0.478 indicating that 47.80 per cent of the variation in the ROE can be explained by and influenced by the four explanatory variables (FDI equity inflows to banking sector, GDP, Inflation rate and Lending rates) by 47.80 percent which is a good indicator for establishing a well set relationship.

**Table 4.5:**  
**ANOVA (ROE)**

<i>Particulars</i>	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	165.43	41.36	1.83	0.216
Residual	8	180.66	22.58		
Total	12	346.09			

The ANOVA (F-test) indicates that the scale/ factor – ROE was not significant since it is seen from the table, that the significant value (p-value) of F-test are 0.216, which means that explanatory variables are not significant at 5 percent level (sign.0.216) with respect to the explained factor i.e. “ROE”.

**Table 4.6:**  
**Regression coefficients (ROE)**

<i>Particulars</i>	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.555	21.854	0.025	0.980
FDI Equity Inflows to Banking Sector in %	-0.692	0.635	-1.091	0.307
GDP in Billions in %	0.783	0.587	1.333	0.219
Inflation Rate in %	102.583	78.145	1.313	0.226
Lending Rates in %	12.780	179.166	0.071	0.945

\*Significant at 1 percent level

\*\*Significant at 5 percent level

Based on the Multiple Regression output table of “ROE (Y)” and its constituent variables, we are able to derive the following equation.

$$\text{ROE (Y)} = 0.555 - 0.692 (\text{FDI Equity inflows}) + 0.783 (\text{GDP}) + 102.583 (\text{Inflation rate}) + 12.780 (\text{Lending rate})$$

None of the independent variables, has an impact on ROE since P-value of t-test is coming more than 0.05. This reveals that the variables - FDI equity, GDP, inflation rate and lending rates has no impact on ROE.

**(C)NII as Dependent Variable**

**Table 4.7:**

**SUMMARY OUTPUT (NII)**

<i>Regression Statistics</i>	
Multiple R	0.998

R Square	0.997
Adjusted R Square	0.995
Standard Error	0.004
Observations	13

It is seen from Table that the co-efficient of determination ( $R^2$ ) was 0.997 indicating that 99.70 per cent of the variation in the NII can be explained by and influenced by the four explanatory variables (FDI equity inflows to banking sector, GDP, Inflation rate and Lending rates) by 99.70 percent which is a good indicator for establishing a well set relationship.

**Table 4.8:**

**ANOVA (NII)**

<i>Particulars</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	0.0375	0.009	580.919	0.000
Residual	8	0.0001	0.000		
Total	12	0.0376			

*\*Significant at 1 percent level*

The ANOVA (F-test) indicates that the scale/ factor – NII was quite significant since it is seen from the table, that the significant value (p-value) of F-test are 0.000, which means that explanatory variables are significant at 5 percent level (sign.0.000) with respect to the explained factor i.e. “NII”.

**Table 4.9:**

**Regression coefficient (NII)**

<i>Particulars</i>	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-0.034	0.018	-1.821	0.106
FDI Equity Inflows to Banking Sector in %	0.001	0.001	1.640	0.140
GDP in Billions in %	0.015	0.000	29.918	0.000*
Inflation Rate in %	-0.115	0.066	-1.748	0.119
Lending Rates in %	-0.018	0.151	-0.118	0.909

*\*Significant at 1 percent level*

*\*\*Significant at 5 percent level*

Based on the Multiple Regression output table of “NII (Y)” and its constituent variables, we are able to derive the following equation.

$$\text{NII (Y)} = -0.034 + 0.001 (\text{FDI Equity inflows}) + 0.015 (\text{GDP}) - 0.115 (\text{Inflation rate}) - 0.018 (\text{Lending rate})$$



of all the independent variables, only variable GDP has an impact on NII since P-value of t-test is coming less than 0.05. This reveals that Progress in GDP can put a remarking growth of NII. Further, the independent variable FDI equity, inflation rate and lending rates has got no impact on NII since the P-value of FDI equity, inflation rate and lending rates are higher than 0.05. This reveals FDI equity, inflation rate and lending rates do not have any impact on NII.

#### (D)NP as Dependent Variable

**Table 4.10:**  
**SUMMARY OUTPUT (NP)**

<i>Regression Statistics</i>	
Multiple R	0.9956
R Square	0.9913
Adjusted R Square	0.9870
Standard Error	0.0089
Observations	13

It is seen from Table that the co-efficient of determination ( $R^2$ ) was 0.9913 indicating that 99.13 per cent of the variation in the NP can be explained by and influenced by the four explanatory variables (FDI equity inflows to banking sector, GDP, Inflation rate and Lending rates) by 99.13 percent which is a good indicator for establishing a well set relationship.

**Table 4.11:**  
**ANOVA (NP)**

<i>Particulars</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	0.0720	0.0180	228.011	0.000
Residual	8	0.0006	0.0001		
Total	12	0.0726			

\*Significant at 1 percent level

The ANOVA (F-test) indicates that the scale/ factor – NP was quite significant since it is seen from the table, that the significant value (p-value) of F-test are 0.000, which means that explanatory variables are significant at 5 percent level (sign.0.000) with respect to the explained factor i.e. “NP”.

**Table 4.13:**  
**Regression coefficients (NP)**

<i>Particulars</i>	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-0.033	0.041	-0.809	0.442
FDI Equity Inflows to	0.003	0.001	2.265	0.053

Banking Sector in %				
GDP in Billions in %	0.019	0.001	17.122	0.000*
Inflation Rate in %	-0.395	0.146	-2.706	0.027**
Lending Rates in %	-0.238	0.335	-0.711	0.497

\*Significant at 1 percent level

\*\*Significant at 5 percent level

Based on the Multiple Regression output table of “NP (Y)” and its constituent variables, we are able to derive the following equation.

$$NP (Y) = -0.033 + 0.003 (FDI Equity inflows) + 0.019 (GDP) - 0.395 (Inflation rate) - 0.238 (Lending rate)$$

Out of all the independent variables, variable GDP and Inflation rate has an impact on NP since P-value of t-test is coming less than 0.05. This reveals that Progress in GDP and Inflation rate can put a high remarking growth of NP. Further, the independent variable FDI equity and lending rates has got no impact on NP, since the P-value of FDI equity and lending rates are higher than 0.05. This reveals that FDI equity and lending rates do not have any impact on NP.

**Table 4.14: Testing of Hypothesis**

Dependent Variables	Independent Variables	R <sup>2</sup>	Significance F	P-Values	Impact of FDI	Null Hypothesis
ROA	FDI Inflows	0.140	0.206	> 0.05	No significant Impact	Accepted
ROE	FDI Inflows	0.199	0.126	> 0.05	No significant Impact	Accepted
NII	FDI Inflows	0.091	0.318	> 0.05	No significant Impact	Accepted
NP	FDI Inflows	0.142	0.204	> 0.05	No significant Impact	Accepted

Above table shows the dependent and independent relationship between four dependent factors/variables (ROA, ROE, NII and NP) with single independent factor/ variable i.e. FDI. The R square value of ROE is coming highest, then coming NP and ROA. This reveals that the coefficient of determination of variable FDI is more in case of ROE, which shows that ROE is more explained to FDI than any other factor. In all cases the significant value of ANOVA (F-test) is coming higher than 0.05 (5 percent level of significance). This represents that null hypothesis is accepted i.e. FDI don't have significant impact on ROA, ROE, NII and NP.

**Table 4.15: Correlation Matrix of Public Sector Bank (Performance)**

Particulars	FDI Equity Inflows (%)	GDP in Billions (%)	Inflation Rate (%)	Lending Rates (%)	ROA (%)	ROE (%)	NET INTREST INCOME (%)	NET PROFIT (%)
FDI Equity Inflows (%)	1							
GDP in Billions (%)	0.243	1						
Inflation Rate (%)	-0.517	-0.396	1					
Lending Rates (%)	-0.303	-0.762	0.586	1				
ROA (%)	-0.375	0.531	0.337	-0.188	1			
ROE (%)	-0.447	0.242	0.441	-0.001	0.925	1		
NET INTREST INCOME (%)	0.301	0.996	-0.455	-0.779	0.490	0.201	1	
NET PROFIT (%)	0.377	0.979	-0.540	-0.808	0.410	0.128	0.993	1

The above table shows the correlation matrix between FDI equity inflows with GDP, Inflation rate, lending rates, ROA, ROE, Net Interest Income and Net Profit. There is a positive correlation between FDI equity inflows with GDP, Net Interest Income (NII) and Net Profit. Out of all there is high positive correlation between FDI equity inflows w.r.t Net Interest Income and Net Profit.

## 5. RESULT & DISCUSSION

- Return on Assets(ROA)

Based on the results it can be concluded that the null hypothesis “There is no significant impact of FDI on the profitability of the Indian public banking sector” can be accepted. As per the findings that there is statistically no significant impact of FDI on the Return on Assets of Indian public sector banks in the study period.

- Return on Equity(ROE)

Based on the results it can be concluded that the null hypothesis “There is no significant impact of FDI on the profitability of the Indian public banking sector” can be accepted. As per the findings that there is statistically no significant impact of FDI on the Return on Equity of Indian public sector banks in the study period.

- Net Income Interest(NII)

Based on the results it can be concluded that the null hypothesis “There is no significant impact of FDI on the profitability of the Indian public banking sector” can be accepted. As per the findings that there is statistically no significant impact of FDI on the Net Income Interest of Indian public sector banks in the study period.

- Net Profit(NP)

Based on the results it can be concluded that the null hypothesis “There is no significant impact of FDI on the profitability of the Indian public banking sector” can be accepted. But in the case of private sector banks, the null hypothesis cannot be accepted. But in total that there is statistically no significant impact of FDI on the Net Profit of Indian public sector banks in the study period.

## 6. CONCLUSION

It is seen that efficiency has improved because of the rivalry of these new contestant keeps money with outside capital. Profitability doesn't show a huge effect directly. In any case, it is proposed to be additionally changed to 100 percent FDI for leaving private part banks. For open area banks as far as possible is proposed to be expanded to 49 percent. Likewise, barely any more bank licenses ought to be given in the blink of an eye with 74 percent remote capital (FDI). This would expand rivalry among the FDI banks and improve the general execution of the FDI banks as well as the non-FDI banks. The investigation likewise prescribes permitting FDI banks to open more branches with RBI guidelines so the inclusion can increment and the spread advantages provincial and different zones. Additionally, this will expand the challenge and achieve every one of the advantages of FDI banks in revealed zones. Indian financial segment is demonstrating sustain additionally substantiated existence throughout worldwide monetary emergency by solid arrangements plus methodology by not offensive country's money related framework. Advancement and expansion in the banking segment have now over everywhere throughout the globe. Throughout the mainly current time, a rapid speed by financial expansion with active arrangement innovation had prepared 'India' a goal-getting ambition in favor of world speculations. From the above research, it tends to be presumed as 'India' is a creative country plus persons functioning within private links sustain with not as much of homogeneous funds subsequent to their giving up work. Forenergizing careful propensity amongst them our monetary parts are creating dissimilar strategy. Aside from all, as wealth bringing limit up inside 'India' becomes extremely a smaller amount for taking our financial division headed for overall people need venture commencing overseas. Last however not the least RBI should make arrangements like with the end goal overseas investment ought not in excess of compose guidelines by 'RBI' plus ought to be accordingly for development of the nation.

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## A CASE STUDY-A GENUINE WORK ON THE DREAMS AND VISION OF A LADY IN 2020

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### ABSTRACT

This is an effort to review and analyse what do the new steps we will adopt to strengthening the facility of girls and pull them equal to men within the society. Empowerment of women is completely the aim of the upliftment of economic, social and political field of women's for this study the researcher prepare a well-defined questionnaire with cronbach alpha 9.01 to conduct personal interview with 200 women's of varied occupation including housewife. We analyse the information by way of study the increase of relation between age, academic qualification occupation of the respondent and the sensation of they may be proud to be a woman. Using percentage analysis, estimated regression graph for interpretation of the data and Chi-square test for hypothesis analysis, we used statistical software SPSS for analysis.

**Keywords:** Need for Strengthening Women, Feel Proud To Be A Woman, Women And Men -Treat Equally, Upliftment of Women.

### INTRODUCTION

From an adorable toddler to an old wrinkled mother, a woman plays numerous roles in her life; all tough than the opposite. Being undervalued by society as a mere means of maintaining the household, women could hardly express their emotions and opinions. These ideas and skills were suppressed and underestimated. Through the century's women began to realize their worth and commenced to regulate society. They emerged as writers, activists, scientists, national leaders, and whatnot.....We sleep in a rustic where we worship goddesses and at an equivalent time where women were abused and harassed regardless of their age. consistent with the present scenario, India has become a rustic that's not safe for ladies. Even small kids were tortured brutally and that we have witnessed many incidents ahead of our eyes. consistent with the National Crime Records Bureau of India, reported incidents of crime against women increased by 6.4% during 2012 and a criminal offense against a lady is committed every three minutes (Wikipedia). Society has reached a stage where we'd like to intensify and find an answer to the issues faced by women. Gender equality may be a right. a lady should have her own freedom and dignity.



Through the empowerment of women, it'll become a tool for advancing development and successively, it'll cause the reduction of poverty. If a lady is healthy and empowered, she is in a position to supply the longer-term generation a typical living. Women's empowerment activism has been at its peak for the past few years. The society even coined a reputation for the activists-**feminists**. instead of considering feminists as people working for an honest cause, society and social media have started considering them as fame-seekers who want to possess a heroic position in society. This misconception should be clarified.

### **Statement regarding the Research:**

**“Women empowerment”** may be a concept which wants to offer equal rights and protection to women in chauvinistic societies. It intends to offer women equal status in order that women can live an independent life with self-respect and dignity. Championing women of all backgrounds who dare to innovate, lead, and uplift others towards a more equal and inclusive workplace. Gender equality is important for economies and communities to thrive. the race is on for the gender-equal boardroom, a gender-equal government, gender-equal media coverage, gender-equal workplaces, gender-equal sports coverage, more gender equality in health and wealth ... so let's make it happen. Let's be Each for Equal. Pandit Nehru once said “To awaken the people, it's the ladies who must be awakened. Once she is on the family moves, the village moves and therefore the nation moves.” Society has reached a stage where we'd like to intensify and find an answer to the issues faced by women. Concentrating on Indian society, we will find numerous problems and challenges in women's face. Our society has always been silent about the economic empowerment of women. Women as a household entity their contribution has not been accounted for within the national budget. they're alleged to be living off the earnings of the husbands. Their contribution to the household is belittled. To empower a woman, we should always support them once they face a crisis. Today many ladies face many issues like physical abuse, child labour, child marriages, dowry deaths, etc. So, they ought to be provided awareness, training, and counselling and this, in turn, can stop gender-based violence to an extent. we should always create a secure area for women. they ought to feel safe even they walk in the dark alone. Women should tend more education and check out to develop more opportunities for employment for ladies. Teach job skills and enhance their knowledge and can power. There are some ways like this to empower a lady just like the above mentioned. We lived during a country where we had lady lions like Jhansi Rani, Kasturba

Gandhi, Sarojini Naidu, Gandhi, etc. “A girl should be two things: who and what she wants” -Indira Gandhi-Yes, woman should, have the courage and liberty to choose who and what she wants. She must be happy to be herself within her own capacity, knowledge, and capability.

She should begin of the shell and open her eyes  
to the new horizons of the planet and she or he or he can and she will fly  
colours within the sky.

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

- 1 to review the factors, need for strengthening women to measure during this world.
2. to gauge the notice steps have now and wish in future for strengthening women.
3. to review the factors which may strengthen a lady to realize their goals.

#### **Hypothesis of the Study:**

1. there's no significant difference between age and feel proud to be a lady.
2. there's no significant difference between educational qualification and feel proud to be a lady.
3. there's no significant difference between occupation and feel proud to be a lady.

#### **Research Methodology:**

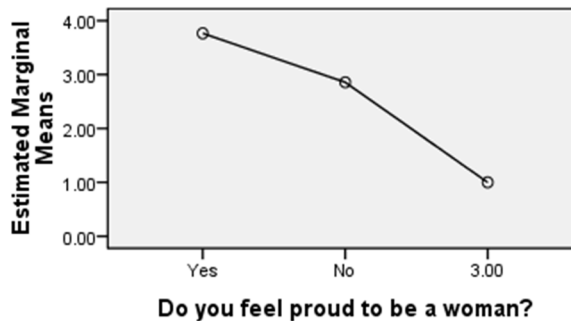
***Table 1: Demographic characteristic of respondents***

Age of respondent	Class-18-27	98	49%
	28-37	38	19%
	38-47	37	18.5%
	48-56	20	10%
	57-65	7	3.5%
Occupation of the respondent	Employees	65	32%
	Non employees	76	39%
	Students	59	29%
Marital status of the respondent	Married	120	60%
	Un married	80	40%

Table 1 shows the demographic characteristics of the respondents selected for study the researcher conducted a personal interview with 200 individuals from different age group varying from 18 to 65 years,32% employees,39% non – employees and 29%students responded Among the respondents 60% married and 40% unmarried.



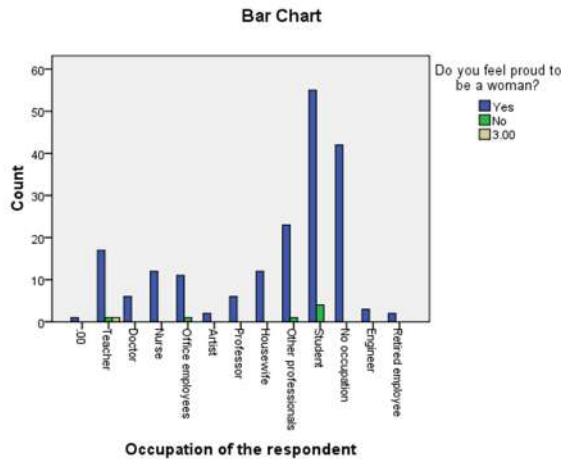
**Estimated Marginal Means of Educational status of the respondent**



**Table2: Do you feel proud to be a woman**

Age of Respondent		Yes	No	Total	percentage
	18-27	92	5	97	48%
	28-37	36	2	38	19%
	38-47	37	0	37	19%
	48-56	20	0	20	10%
	57-65	7	0	8	4%
Total		192	7	200	199%

The table above shows the greatness of being a woman in 2020. Not like previous days now the women are courageous and proud to say I am a woman, I want to live in this world with full freedom equalling to men.

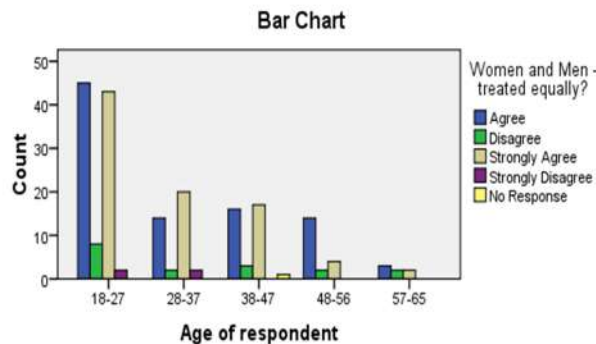


The current situation majority of the girls feel that there is no difference between girls and boys in family and both have the same status of life.

**Table 3: Girl students' point of view regarding the comparison of boy's life**

Do you think boys, having a better life than girls	yes	82	40%
	No	118	60%
Is girl, faced objection from family?	Yes	77	38%
	No	123	62%

Table 3 shows that 40% of the women feel that boys have better life than girls and 60% women's feel that no deference between boys and girls. similarly, 38% of them feel women faced objection from family and 62% feel that no objection they face from family.89% respondents agreed and 11% dis agreed the opinion of men and women are treating equally 74% agreed and 26% dis agreed the opinion of the women feel independence in everywhere,49% agreed and 51% disagreed the opinion of At worse situations-handled better-if men,48% agreed and 52% disagreed the opinion of Felt helpless being women,88% agreed and 12% disagreed the opinion of women should have freedom in choosing their life partner,20%agree and 80% disagree the opinion of Feel safe-walking alone in the dark through.

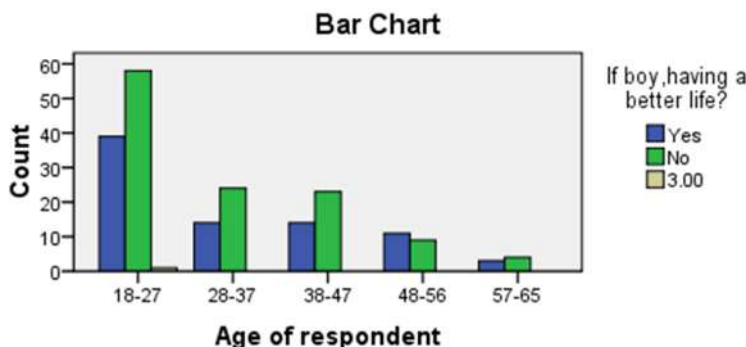


**Table4: Classified study of Women's point of view in 2020**

Women and Men -treated equally?	Agreed	178	89.8%
	Dis agreed	22	10.2%
Independency in women	Agree	149	74.5%
	Disagree	51	25.5%
At worse situations-handled better-if men?	agree	94	49%
	disagree	106	51%
Felt helpless being women	agree	97	48.5%
	disagree	103	51%
Women should have freedom in choosing their life partner?	agree	176	88%
	disagree	24	12%
	disagree	151	80%
Afraid of wearing modern dresses in front of public?	agree	79	38%
	disagree	121	62%
Faced any misbehaviour from fellow beings?	agree	102	52%
	disagree	98	48%
Feel comfortable while Working outside the village/society?	agree	168	84%
	disagree	32	16%
Courage to oppose idea-felt wrong?	agree	148	74%
	disagree	52	26%

Women can shine similar to men in politics, business, and sports?	agree	49	24.5%
	disagree	151	75.5%
Courage to campaign against social evils?	agree	148	74%
	disagree	52	26%
Capable of looking after herself outside in all aspects	agree	141	70.5%
	disagree	59	29.5%

As per the questionnaire evaluation shown the table 4 :above the researcher observe that road,38% agreed and 62% disagreed the opinion of scared of wearing modern dresses ahead of public, 52% agreed and 48% dis agreed the opinion of Faced any misbehaviour from fellow beings,84% agreed and 15%dis agreed Feel comfortable while Working outside the village/society,74% agreed and 24% dis agreed the opinion of Courage to oppose idea-felt wrong,24.5% agreed and 74.5% disagreed the opinion of girls can shine almost like men in politics ,business, and sports, 74% agreed and 26% disagreed the opinion of Courage to campaign against social evils,70% agreed and 30% disagreed the opinion of Capable of taking care of herself outside altogether aspects.



## HYPOTHESIS:

1. Since P value greater than .05 in Chi-square test, we accept the hypothesis and conclude that there is no significant relationship between age and feel proud to be a woman.



2. Since P value greater than .05 in Chi-square test, we accept the hypothesis and conclude that there is no significant relation between Educational qualification and feel proud to be a woman.

3. Since P value greater than .05 in Chi-square test, we accept the hypothesis and conclude that there is no significant relation between occupation and feel proud to be a woman.

## CONCLUSION

Women at any age at any education status, any level of occupation they feel they're proud to be a lady. So as per the study, the researcher observes that the ladies in 2020 are capable and eligible to face any field like men but still, they feel the law implemented from the govt side isn't enough to assist women to steer, work, live alone in society. to measure and add this world a lady needs courage and equality acceptance from men and society, give women freedom in-home, equivalent positions in politics, sports and every one extra-curricular activities lift them up it's the necessity of society.

## Suggestions

1. If we give education to a lady it's like give education to subsequent generations.
2. Women and Men -treat equally give free education to all or any women allow them to come up.
3. Allow them to feel safe walking alone in the dark through road or where ever they are going , give them motivation training and allow them to show Courage to oppose idea-felt wrong.
4. Permit Women to shine almost like men in politics, business, and sports.
5. Accept and permit them capable of taking care of herself outside altogether asp.

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**संस्कृतनाटकेषु मानवीयमूल्य निरूपणम्**  
**Human values in Sanskrit Dramas**

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**आहारनिद्रा भयमैथुनानि समानमेते पशुभिर्नराणाम्।**

**धर्मोऽहि तेषामधिको विशेषः धर्मेणहीनः पशुभिः समानाः।।**

उद्भिजाः, अण्डजाः, जरायुजाः चेति प्राणिनः चतुर्विधाः। तेषु मातृगर्भोत्पन्नाः गर्भवासकाल परिणामेन जाताः जरायुजाः, जरायुजेषु नलुष्येपि अन्यतमः इति तस्यापि जन्तुत्वं भवत्येव। अपि च मानवोपि कविभिः जन्तुशब्देन व्यवहृतः।

**“पर्यत्सुको भवति यत्सुखितोऽपि जन्तुः”<sup>1</sup>** इत्यत्र यथा

मानवः धर्माचरणादेव जन्तुषु उत्तमो भवति अद्यतनकाले कलियुगे (विशेषतः) यागादि धर्माचरणं सर्वेषामसाध्यम्। अतः सर्वोत्तम धर्माचरणं आत्मगुणानि अष्टौ महर्षिभिः निरूपितानि।

भूतदया 2. क्षमा 3. असूयाभावः (असूया राहित्यम्) 4. शौचं 5. वृथायासत्यागः 6. सर्वेभ्यः शुभं भवतु इति आशंसा 7. दैन्यत्यागः 8. दुराशात्यागः इत्येते आत्मगुणाः।

**“दया सर्वभूतेषु क्षान्तिरनसूया शौचमनायासः मङ्गलं अकार्पण्यं असूहेति”<sup>2</sup>** यस्य एते आत्मगुणाः भवन्ति स सर्वोत्तमः धार्मिकः इति महाकविभिरपि निरूपितम्। संस्कृतनाटकेष्वपि भासकवेः आरभ्य अमावधि एवं विधानां आत्मगुणानां मानवीयमूल्यद्योतकानां प्रबोधः विशेषतः दृष्ट एव।

**भासनाटकेषु मानवीयमूल्यानि :-** 1. स्वप्नवासवदत्ते- भासनाटकेषु परैः उक्तस्य हितस्य श्रवणं मातृव्यं परित्यज्य तत्कर्माचरणं करणीयमिति हितमुपदिष्टम्। अपि च परगणेषु आदरोपि दर्शनीयः इति तत्र स्पष्टमुक्तम्।

**असूया :- गुणानां वा विशालानां सत्काराणां च नित्यशः।**

**कर्तारः सुलभा लोके विज्ञातारस्तु दुर्लभाः।।<sup>3</sup>**

यः कोपि उत्तमस्य कार्यस्य कर्ता भवति तस्य उथ्थमत्वमङ्गीकर्तुं द्वितीयः न सहते। सा एव असूयेति उच्यते। असूया गुणेषु दोषाविष्करणमिति असूयालक्षणम् तां परित्यज्य गुणिनं ये अभिनन्दन्ति ते मानवोत्तमाः इति मूल्यमत्र निरूपितम्।

**परोपकारिता :-** सत्पुरुषाः स्वप्रयोजनम् अनपेक्ष्यैव परान् रक्षितुं यतन्ते स्यमापदि स्थिताः अपि विपद्गतेषु परेषु तैः यत्नः क्रियते इति अविमारकनाटके निरूपितम्। ते स्वकार्यं जन्यं यशः तस्य प्रतिफलं वा नेच्छन्तः स्वार्थरहिताः एव प्रवर्तन्ते।

**छन्ना भवन्ति भुवि सत्पुरुषाः कथञ्चित्**

**सवैः करणैर्गुरुजनैश्च नियम्यमानाः।**

**क्षयः परव्यलननेत्य विनोक्तुकामा**

**विस्मृत्य पूर्वानियमं विवृता भवन्ति।।<sup>4</sup>**

**कालिदास नाटकेषु मानवीयमूल्यानि**

कालिदास नाटकेषु बहूनि मानवीयमूल्यानि उपदिष्यति। विद्याभ्यासवशादेव पुरुषः संस्कारवान् भवति तदार्थं उत्तमः उपाध्यायः एष्टव्यः स च उपाध्यायः कीदृक् भवेदिति मालविकाग्निमित्रे स्पष्टमुक्तम्। कश्चन उपाध्यायः असाधारणप्रज्ञावान् अधीतशास्त्रः पण्डितश्च भवति। किन्तु शिष्यं बोधयितुं न समर्थो भवति। अन्यः बोधयितुं समर्थ – न तु शास्त्रानभिज्ञः। तयोः अन्यतरेण छात्रस्य न किमपि प्रयोजनं भवति इति अद्यापि शिक्षकेण आचरणीयं मानवीयमूल्यं कालिदास वर्णितवान्।

**विद्यार्जनम्**

**श्लिष्टक्रिया कस्यचिदात्मसंख्या संक्रान्तिरन्यस्यमविशेषयुक्ता।**

**यस्योभयंसाधु स शिक्षकारणां धुरि प्रतिष्ठापयितव्या एव।।<sup>5</sup>**

उत्तमः शासकः :- उत्तमः प्रजापालकः कथं भवेदिति अभिज्ञानशाकुन्तले बहुषु श्लोकेषु दर्शितम्। उत्तमः पालकः अमार्गं प्रस्थिताः प्रजाः योग्ये पथि स्थापयेत् विवादं प्रशमयेत्। सम्पदं विभज्य अनुभवेत् इति स्पष्टमुक्तम्।

**नियमयसि विमार्गप्रस्थितानात्तदण्डः**

**प्रशमयसि विवादः कल्पसे रक्षणाय।**

**अतनुषु विभवेषु ज्ञातयः सन्तु नाम**

**त्वयि तु परिसमाप्तं बन्धुकृत्यं प्रजानाम्।।<sup>6</sup>**

**अनौघत्यम्:-** सत्पुरुषः सम्पद्भिः न गर्वितो भवेदित्यपि मानवीयं मूल्यं शाकुन्तले दर्शितम्।

**भवन्ति नम्रास्तरकः फलोदेगमैः नवाम्बुभिर्ह्रीरविलम्बिनो धनाः।**

**अनुद्धताः सत्पुरुषाः समृद्धिभिः स्वभाव एवैष परोपकारिणाम्।।<sup>7</sup>**

विशाखदत्तस्यनाटकेषु मानवीयमूल्यानि विनयसम्पन्नत्वम्

प्रायशः युवानः धनिनः अधिकारवन्तश्च तैः तैः कारणैः गर्विताः मातृपित्रादिषु अविधेयाः तान् धिक्कर्तुमपि उत्सहन्ते। किन्तु यदा शिष्यः उत्पथेन पथा गच्छति तदैव गुरुभिः वारितो भवति। अहस्मिन् विषये अपराधः अतः गुरु एव मामनुशास्ति इदानीं मया स्वातन्त्र्यं न कार्यमिति योजीकरोति सः कदाचिदपि सन्मार्गात् न भ्रष्टो भवतीति मानवीयं मूल्यं मुद्राराक्षसनाटके दर्शितम्।

**इहदि रचयन्साध्वी शिष्यः क्रियां न निवार्यते,**

**त्यजति तु यदा मार्गं मोहात् तदा गुरुरङ्कुशाः।**

**विनयरूचयस्तस्मात् सन्तः सदैव निरङ्कुशाः,**

**परतरमतः स्वातन्त्र्येभ्यो वयं हि पराङ्मुखाः।।<sup>8</sup>**

**भवभूतिनाटकेषु मानवीयमूल्यानि लोकज्ञता :-** विद्वानपि देशकालानभिज्ञः कार्ये प्रवृत्तः कार्यसाधने विफलो भवति परिहासास्पदं च भवति अपि च स्वेच्छया अवक्तव्यमपि आत्मीयं रहस्यं बहिः प्रकाशयन् मर्मसु परैः अभिहतो भवति। कदाचित् कोपप्रसादादि अन्तर्गतं भावं स्पष्टं बहिः प्रकाशयन् स्वयमेव स्वकार्यं भङ्गहेतुः भवति। अपि कार्यसादकेन कथं वर्तितव्यमिति विश्वजनीनं मानवीयं मूल्यं भवभूतिना। स्पष्टमुपदिष्टम्।

**बहिः सर्वाकारं प्रगुणमणीयं व्यवहरन्,**

**पराभ्यूहस्थानान्यपि तनुतगणि स्थमयति।**

**जनं विद्वानकेः सकलमति सन्धाय कजटैः,**

**स्तटस्यः स्वानस्थः स्वानर्घान्धितयति च मौनं च भजते।<sup>9</sup>**

**धर्मरक्षणम् :-** उत्तररामचरितेपि धर्मरक्षणार्थं सर्वं त्याज्यमेवेति मूल्यं मानवीयं स्पष्टमुपदर्शितम्।

**स्नेहं दयाञ्च सौख्यं च यदि वा जानकीमपि।**

**आराधनाय लोकस्य मुञ्चतो नास्ति मे व्यथा।<sup>10</sup>**

मुरारेः नाटकं मानवीयमूल्यम् न्यायादनपेतः।

यश्च धर्मसम्पत्तेनमार्गेण प्रवर्तते तिर्यञ्चापि तस्य सहायकाः भवन्ति। अमार्गे गच्छन्तं सोदरोपि विमुञ्चति इति रामायणकथासारः यत् मुरारिणा दर्शितः स च धर्मः सार्वकालिकः सार्वभौतिकः विश्वजनीनश्च। “तिर्यञ्चापि” इति अपि शब्देन मनुष्याः सर्वदा सहकृतवानः भवन्त्येव इति अनर्घराघवे सूचितम्।

**यान्ति न्यायप्रवृत्तस्य तिर्यञ्चापि सहायताम्।**

**अपन्थानं तु गच्छन्तं सोदरोपि विमुञ्चति।<sup>11</sup>**

श्रीहर्षदेव नागानन्दनाटके मानवीयमूल्यम् :- उपकारिता विशेषतः कलियुगे देहः नश्वरः सर्वेषाम् अशुचीनाम्। एवं हेयस्य शरीरस्य कृते परायेषु प्रवर्तनं व्यर्थमिति नागानन्दे दर्शितम्।

**सर्वांशुचि निधानस्य कृतदनस्य विनाशिनः।**

**शरीरकस्यापि कृते मूढाः पापानि कुर्वते।<sup>12</sup>**

एवं संस्कृतभाषायां नाटकानां संख्यायाः अपरिमेयत्वात् कतिपयनाटकेभ्यः प्रसिद्धेभ्यः एव कानिचिदेव मानवीयमूल्यानि दिङ्मात्रमुदाहृतानि। वस्तुतस्तु शोधनबन्धनार्थमेव पर्याप्तोऽयं विषयः स्थालीपुलाकन्यायेन दर्शितः सुधीभिः यथाशक्ति स्वयं द्रष्टव्यश्च।

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## चम्पुरामायणमधिकृत्य भोजस्य पाण्डित्यम्

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**शोधसारः** भोजप्रणीतं चम्पुरामायणम् संस्कृतसाहित्ये तथा चम्पुसाहित्ये विशिष्टस्थानं लभते। गद्यपद्यमयी चम्पुशैल्यां अत्र वाल्मीकियरामायणस्य कथामेव वर्णितो भवति परन्तु काव्यस्य प्रतिपदे पदे काव्यकारभोजस्य अपूर्ववस्तुनिर्माणक्षमपाण्डितप्रतिभायाः निदर्शनं प्राप्यते। अस्मिन् पत्रे विषयवस्तुवर्णन-अलंकार-रस-गद्यशैली इति चतुर्दिशा भोजस्य प्रतिभां विचार्यते।

**कुटशब्दाः** - चम्पुरामायणम् , अलंकारः, रसः विषयवस्तुवर्णनम्, गद्यशैली भोजराजप्रणीतं चम्पुरामायणं चम्पुकाव्येषु प्रख्याततमं वर्तते। गद्यपद्यमयं काव्यं चम्पुरित्यभिधीयते इति<sup>1</sup> लक्षणं पूर्णरूपेणात्र संगतं भवति।

**विषयवस्तुवर्णनम्** । चम्पुरामायणस्योपजीव्यं श्रीवाल्मीकियं रामायणमेवास्ति, कुत्रचन साहित्यिकविच्छित्तिविशेषाय भोजराजेन कथायां परिवर्तनं कृतम्। अत एव भोजराजेन चम्पुरामायणस्यादौ स्पष्टरूपेण कथितम् –

वाल्मीकिगीतरघुपुंगवकीर्तिलेशौ।

स्तुतिं करोमि कथमप्यधुना बुधानाम्॥ इति<sup>2</sup>

अपूर्ववर्णनाशक्तेरधिकारी भोजस्य विषयवस्तुवर्णने वर्णनावाहुल्यं न दृश्यते। अरण्यकाण्डस्य हेमन्तवर्णनम् सुन्दरकाण्डस्य सायंकालवर्णनम् किष्किन्ध्याकाण्डस्य वर्षाऋतुवर्णनम् अतीवमनोज्ञानि सन्ति। नैसर्गिक पदार्थैः सह मानवस्य अंगागीकृतसम्बन्धम् भोजस्य वर्णनया अभिव्यञ्जितो भवति।

**अलंकारप्रयोगम्** । काव्ये अलंकारस्य महत् स्थानं वर्तते तथा च अलंकारप्रयोगेन काव्यकारः स्वीयप्रतिभां अपि प्रदर्शयति। अस्मात् भोजोऽपि न व्यक्तिक्रमः। तदीये चम्पुरामायणे अर्थालंकारशब्दालंकारयोः सफलप्रयोगो दृश्यते। अनुप्रास यमक श्लेष उपमि रूपक अतिशयोक्ति तुल्ययोगिता एकावली काव्यलिंग विरोधाभासादि अलंकाराणां गद्यपद्ययोः उभयोः क्रियते। अनुप्रासालंकारस्य प्रयोगो यथा बालकाण्डे –

बलेन तपसा लब्धे वलेत्यतिवलेति च।

विद्येते मयि काकुस्थ विद्ये ते वितरामि ते॥ इति<sup>3</sup>

पुनः

खरपरुषि शरासने गृहीते खरकिरणान्वयशेखरेण तेन।

खररघुवरयोः रणं समाप्तं खरनखरायुधयोरिव क्षणेन॥ इति<sup>4</sup>

राज्ञः दशरथस्य जराग्रस्ततायाः वर्णनप्रसंगे कविः मनोरमा उपमायाः प्रयोगो करोति , यथा -  
नियतमपरिहार्या या जरा सा मदंगे।

विकचकमलपण्डे चन्द्रिकेवाविरासीत् ॥ इति<sup>5</sup>

बालकाण्डे देवैः वर्णितः विष्णोः वर्णने अतिशयोक्तिः अलंकारस्य प्रकृष्टोदाहरणं प्राप्यते -

प्रह्लादस्य व्यसनममितं दैत्यवर्गस्य दम्भं

स्तम्भं वक्षःस्थलमपि रिपोर्यौगपद्येन भेत्तुम्।

बद्धश्चन्द्रं पुरुषवपुषा मिश्रिते विश्वदृष्टे

दंष्ट्रारोचिर्विशदभुवने रंहसा सिंहवेषे॥<sup>6</sup>

काव्यलिङ्गालंकारस्य तथा विरोधाभासालंकारस्य एकत्र समावेशो दृश्यते -  
युगपत्प्राप्तगुणयोश्चाप भार्गवरामयोः ।

ऋजुतां वक्रतां प्राप वक्रतापि तथावर्जम् ॥ इति<sup>7</sup>

एवं चम्पुरामायणस्य न केवलं पद्यांशः अलंकारसमृद्धः अपि तु गद्यांशोऽपि  
अलंकारेणालंकृतः। यथा - बालकाण्डस्यान्तिमांशे प्राप्तः 'अथ सङ्क्रान्त्या  
जामदग्न्यशक्तिसम्पदा सम्पन्नं पन्नगपरिवृढभोग-भुजाभिरामं राममविरलमालिङ्ग्य  
मूर्ध्नुपाग्राय दशरथः परिख्येव परिसरे परिसरन्त्या सरयूसरितानुविद्धामयोध्यां  
दारकान्सदारान् सादरमवलोकयन्तीनां पौरपुरन्ध्रीणां नीरन्ध्रितगवाक्षैः कटाक्षैः  
सौन्दर्यवञ्चिततापिञ्छैः पिञ्छातपत्रायमाणधवलातपत्रः प्रविवेश। इति वाक्ये  
अनुप्रासालंकारस्य रमणीयप्रयोगो दृश्यते।

**रसप्रयोगम् :** वाक्यं रसात्मकं काव्यम् इति<sup>8</sup> कथनानुसारं काव्ये रसस्य प्राधान्यता स्वीकृतम्।

चम्पुरामायणे अपि अस्य कथनस्य सार्थकतां परिलक्षति। यथा - रामस्य वनागमनसमये

दशरथस्य, सीताहरणस्य पश्चात् रामस्य, वालीवधस्य पश्चात् तारायाः शोकपूर्णवस्थायाः

चित्रणेन कविना करुणरसं स्फुटयते। हते वालिनि ताराऽतीव दुःखिता सन् यदा रामं वक्ति-

नाहं सुकेतुतनया न च सप्तशाली

वाली न च त्रिभुवनप्रथितप्रभावः।

तारास्मि वज्रहृदया विशिखैरभेद्या

धन्वी कथं भवति राघवमामविद्ध्वा।। इति<sup>9</sup>

तदा तु कारुण्यमतिवेलं भवति प्रवाहितम्।

तथैव रामपरशुरामयोः रामरावणयोः युद्धवर्णनायां वीररसः कवन्धवर्णने वीभत्सरसः हनुमानस्य वचनक्रियया रोद्ररसः तथा अगस्त्यऋषेः अलौकिकता वर्णने अद्भुतरसस्य अभिव्यक्तिः दृश्यते। भिन्नरसानां समावेशः चम्पुरामायणस्य उपभोग्यतां वर्द्धयति।

**गद्यशैली** - चम्पुरामायणे दृश्यमानः भोजस्य गद्यशैलीविषये सन्देहो नास्ति यत् स वाणभट्टस्य रचनाया प्रभावितो भवति। अतः अत्र दीर्घसमासवद्धसुदीर्घवाक्यमुपलभ्यते। यथा अरण्यकाण्डे 'अथ कदाचित् ..... सीमन्तयन् हेमन्तसमयः समुद्जृम्भृत' इति समासाकीर्णवाक्यम्। उत्कलिकाप्रायश्चेण्याः गद्यं विहाय समासाधिक्यवर्जितचूर्णकश्चेण्याः उदाहरणं अपि चम्पुरामायणे संप्राप्यते। समासवहुलः समासमुक्तो वा अलंकृतः निरलंकृतो वा अतिदीर्घः ह्रस्वो वा वाक्यानां प्रयोगैः भोजेन गद्यकार रूपेणापि स्वप्रतिभां दर्शयते।।

चम्पुरामायणाभिधेये काव्ये अस्मिन् कविः वाल्मीकि वर्णितामेव रामकथां नवीनतया चम्पुकाव्यशैल्या वर्णयति। नूनमस्मिन् काव्ये कविः कवित्वस्य प्राधान्यमदात्।।

**सन्दर्भसूत्रानि -**

1. साहित्यदर्पणः , षष्ठपरिच्छेदः
2. चम्पुरामायणम् , बालकाण्डम् (1/4)
3. तत्रैव , बालकाण्डम् (1/37)
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6. तत्रैव , बालकाण्डम् (1/15)
7. तत्रैव , बालकाण्डम् (1/114)
8. साहित्यदर्पणः , प्रथमपरिच्छेदः
9. चम्पुरामायणम् , किष्किन्ध्याकाण्डम् (4/18)

**आधारग्रन्थाः**

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## FINANCIAL PERFORMANCE APPRAISAL OF STEEL AUTHORITY OF INDIA (SAIL) –A MAHARATNA COMPANY USING ACCOUNTING RATIOS

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### Introduction:

The economy of India is growing fast and its pace is majorly dependent on public and private sectors. Policy makers are trying to identifying key areas for infrastructural and technological development so that growth of CPSEs may be focused on. Primary objective of the policy makers is to upgrade, improve and strengthen the position of CPSEs. Therefore, several initiatives were taken such as disinvestment, professionalization of CPSEs Board of Directors, entering into Memorandum of Understanding (MoU) etc. Owing to this fact, Government of India has come up with the model of Ratna Category.

### Categorization of CPSEs

Public sector companies are divided into three categories:

- Maharatna
- Navratna
- Miniratna CPSEs
  - Category I
  - Category II

As of 23 October 2019, there are 10 Maharatnas, 14 Navratnas and 73 Miniratnas. There are nearly 300 CPSEs (central public sector enterprises) in total. (Department of Public Enterprises, 2009)

The performance of CPSEs was never satisfactory as the pathway was never so smooth for this sector and the opening of the economy has further changed the market scenario. Today, private sector assumes bigger role in shaping the industrial landscape. Consequently, the CPSEs are compelled to face more competition from both domestic as well as multi- national corporations. In order to display a turnaround story, today's CPSEs are undergoing the process of transformation and improvement in terms of organization, finances and operations. (KPMG, n.d) Therefore, it is necessary to identify major variables and analyze their performance in order to appraise the financial growth of CPSEs on a regular basis.

### Literature Review

Awarding additional financial autonomy has bestowed comparative advantage and free hand to compete globally and come up as corporate giants. Therefore it is important to study their performance on regular basis and Kumar (1991) made an attempt to study 17 Private, 5 state owned and 1 central public sector companies in order to analyze the activities of the selected companies in relation to ROCE, ROA, financial structure, fixed assets and working capital management. Similarly Ahuja and Majumdar (1998) tried to identify various variables in order to evaluate impact using Regression analysis analyze the performance of 68 state owned enterprise in manufacturing sector from

1987 to 1991. Ratio is an important tool to compare line-item data from a company's financial statements to reveal insights regarding profitability, liquidity, operational efficiency, and solvency. Sahu (2002) and Pervej (2017) in their study tried to explore the usefulness of current and quick ratios. The researchers aimed to frame a model involving these ratios. Seetharaman (2010) in his study has applied econometrics approach to evaluate and appraise the financial performance of public sector enterprises and the findings of the study advocated that liquidity consideration is an important factor from investment point of view.

### **Statement of the Problem**

Due to heavy investment on social overheads, inefficient management, poor labor relations, under-utilization of capacity etc, large no of the public sector units are suffering from inefficiency and slower growth rate. It cannot deny that the survival, growth, diversification and organizational success of a business are majorly dependent on the sound financial management. In past few years, It was observed that many financial problems were faced by central public sector enterprises (CPSEs) which require critical and diagnostic approach. Therefore, the main purpose of this paper is to identify major variables and analyze their performance in order to appraise the financial growth of CPSEs in Maharatna category with special reference to Steel Authority of India Limited.

### **Research Gap**

Review of literature was done with an aim to identify and highlight various gaps in the previous researches carried out in the field of CPSEs in Maharatna category. It is observed that large numbers of studies are done on the financial performance analysis of various industries, both from public and private sector but very few studies till date have been conducted to appraise the financial efficiency CPSEs in Maharatna category in general and SAIL in particular. The researcher has made an attempt to bridge the gap in the identified area through this study.

### **Scope of the Study**

Present study covers financial performance of SAIL during the study period 2004-05 to 2015-16 and covers different aspects of financial performance of Steel Authority of India Limited like profitability, liquidity, solvency, expenses and management efficiency.

### **Significance of the Study**

The study aims to analyze the financial performance of Steel Authority of India Limited, which is a Central Public Sector Enterprise in Maharatna category and India's largest steel producing company. (SAIL, n.d.) The study is expected to help and assist the Policy maker, management, the potential investors, the financiers, and the government at large, to take valuable decisions and also provide insight to financial institutions, banks and long-term lenders to understand the financial capability and soundness of the CPSEs.

### **Objectives of the Study**

1. To evaluate financial performance of SAIL with respect to liquidity, solvency, expenses and turnover.

Several ratios have been taken into consideration while evaluating the financial performance of Steel Authority of India Ltd.

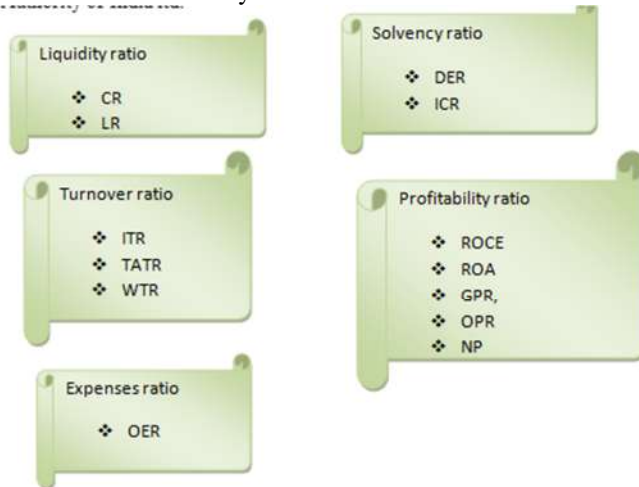


Figure 1 List of Ratios used for the Financial Performance of Steel Authority of India  
Source: Prepared by researcher

### Data analysis and Interpretation:

Table 1 Liquidity ratios of Steel Authority of India

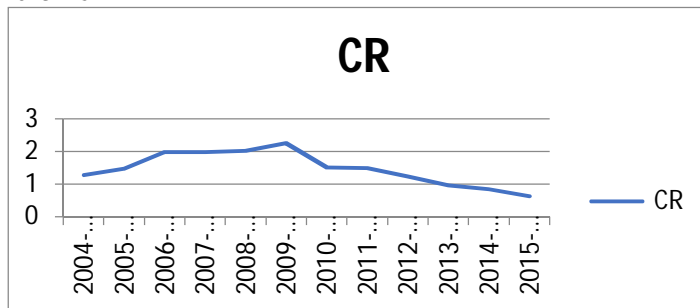
Year	CR	LR
2004-05	1.28	0.48
2005-06	1.47	0.88
2006-07	1.98	1.48
2007-08	1.98	1.47
2008-09	2.03	1.44
2009-10	2.26	1.75
2010-11	1.51	1.05
2011-12	1.49	0.79
2012-13	1.23	0.53
2013-14	0.95	0.43
2014-15	0.83	0.32
2015-16	0.62	0.44

Source: calculated by the researcher from annual reports of SAIL

### Current Ratio (CR)

Current ratio is considered as one of the best tool for judging short term financial policies of the company and ideally it should be 2:1 (Sharma and Gupta.,2014) As it is evident from table 1 and figure.2 that the company has a Lower Current Ratio over the period of study except from 2006-07 to 2009-10. CR in 2004-05 was 1.28 and showed

an increase 14.8% in 2005-06 but was lower than the ideal ratio. The increasing trend continued till 2009-10 where SAIL had already witnessed an increase of 76.56% in Current ratio from 2004. However, this trend was discontinued in the following years and a sharp fall of 33% was seen in 2010-11. Ironically, it was this year when SAIL was declared as a Maharatna CPSE and this would enhance and empower their managerial capacity to a larger extent. Even then the falling trend continued till the end of the study period i.e. 2015-16



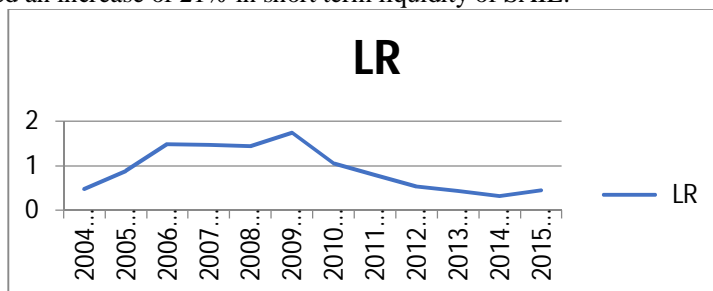
**Figure 2 showing trend line of Current ratio of SAIL**

Source: prepared by the researcher from Table 1

The current ratio of SAIL (except from 2006-2007 to 2009-10) has been less than 2:1 during the entire study period. It has become even worse in latter period of the study where it has gone to as low as 0.62:1 in 2015-16. A fall of 52% has been observed in CR of SAIL from 2004 to 2015. A very low CR is indicative of the fact that the company may be indulged in over trading and may further result into shortage of sufficient working capital. This may even negatively affect the performance of the company in long run as well.

- **Liquid Ratio (LR)**

Acid test ratio or quick ratio reveals the immediate ability of the company to meet its short-term obligations and ideally it should be 1:1 (Sharma and Gupta, 2014). The above table 1 and figure.3 shows that the quick ratio of the SAIL has been fluctuating from 0.48 in the year 2004-05 to 0.44 in the year 2015-16. From 2004 onwards LR of SAIL showed an increasing trend till 2006-07 when it was 1.48. But the scenario started changing soon when LR of SAIL started falling down. However, year 2009-10 again witnessed an increase of 21% in short term liquidity of SAIL.



**Figure 3 showing trend line of Liquid ratio of SAIL**



Source: prepared by the researcher from Table 1

Figure 4.3 clearly indicate from 2010 onwards the company was inefficient and struggled hard to pay off its current obligations during the latter period. From the table it is evident that throughout the study period, SAIL was unable to meet out its short term obligations efficiently and smoothly except for the years (2006-07 to 2010-11). Moreover, in post Maharatna period i.e. from 2011-12 to 2015-16 it was even unable to maintain its ideal ratio. The researcher strongly believes that though blockage of too much fund in quick assets is not advisable for a manufacturing concern but shortage of it shows over trading and may also create a doubt in the minds of creditors and financial institutions.

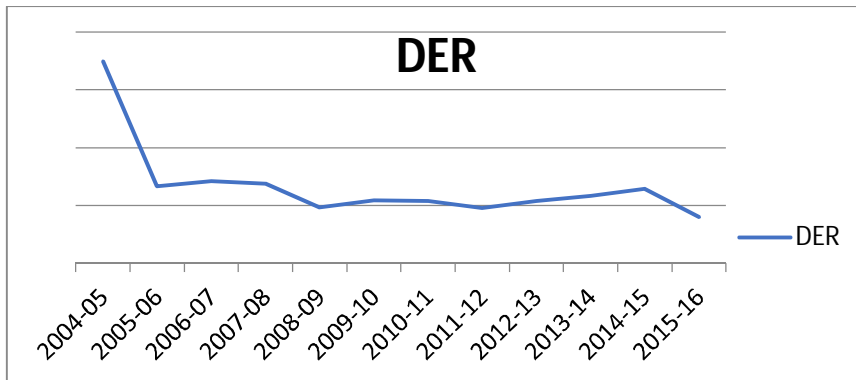
**Table 2 Solvency ratios of Steel Authority of India**

Year	DER	ICR
2004-05	3.49	14.26
2005-06	1.33	12.94
2006-07	1.42	28.64
2007-08	1.38	45.68
2008-09	0.97	37.15
2009-10	1.09	22.73
2010-11	1.08	13.68
2011-12	0.95	7.79
2012-13	1.08	5.09
2013-14	1.17	4.20
2014-15	1.29	2.61
2015-16	0.8	-2.51

Source: calculated by the researcher from annual reports of SAIL

#### **Debt-equity Ratio**

Debt equity is the comparison of shareholders fund and long term debt of a concern. Lower the ratio, better is the situation for the creditors as it portrays a sound and safe capital structuring policy of the company. High proportion of owner's fund provides a larger margin of safety for creditors. (Sharma and Gupta. 2014) The debt equity ratio of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 4 clearly shows that in year 2004-05, DER was high up-to 3.49 which means that SAIL was largely trading on equity for the purpose of finance the but it started declining gradually and the very next year saw an unprecedented fall of 61.89 % in DER of SAIL. Such decrease is favorable from creditor's point of view but it can result into severe reduction of wealth maximization of the shareholders due to forgone tax leverage benefits. From 2006-07 to 2008-09, a fall of 31% in DER was recorded indicating that SAIL had reduced using debt instrument by 31% in its capital structure. However, in the following years there was an increase of 11% in DER which means that SAIL had again started using debt. One of the possible reasons for increasing debt financing is that whenever there is higher return on investment, the companies starts raising funds from debt instruments.



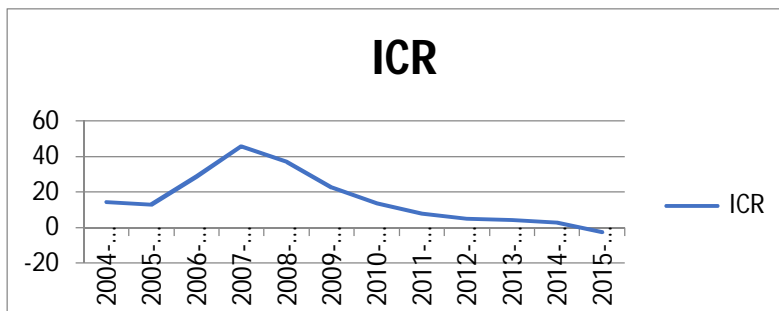
**Figure 4 showing trend line of Debt-Equity ratio of SAIL**

Source: prepared by the researcher from Table 2

The fluctuating trend showed that SAIL was always altering its DER in order to strike an optimal capital structure and consequently it was lowest in year 2015-16. Figure 4 clearly depicts that in the past years, SAIL has reduced its dependence on debt instruments as a source of finance. It also reveals that management of SAIL has started lowering the trading on equity and preferably going for other sources like retained earning instead which is sign of strong and healthy capital structure.

#### **Interest Coverage Ratio (ICR)**

Interest coverage ratio is used to test the firm's debt servicing capacity. ICR indicates the number of times interest is covered by the profits available to pay the interest charges. Since the taxes are computed after interest, interest coverage is calculated in relation to before-tax earnings (Pandey, I.M. 2010). ICR of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 5 clearly shows that in the beginning of the study period i.e. from 2004-05 to 2005-06, ICR was higher ranging from 14.26 to 12.94 which indicated that SAIL was strong enough and had sufficient capability to meet out its obligation of interest but a too high ICR is never desirable. In 2006-07 and 2007-08 ICR of SAIL was unprecedentedly high up-to 28.64 and 45.68 times which means that SAIL was not using Debt as source of financing and this would have even resulted into negative tax leverage as well. Realizing the importance of debt financing and benefits of trading on equity, Management of SAIL started increasing Trading on equity and which resulted into fall of ICR in following years continuously.



**Figure 5 showing trend line of Interest Coverage ratio of SAIL**

Furthermore figure 5 showed a better position of SAIL in interest paying capacity when ICR was in two digits figure. However, the scenario started changing in the latter years when the ICR started declining gradually and unfortunately it was recorded lowest in the year 2015-16. (i.e.-2.51). It means that in the latter years, SAIL was unable to earn sufficiently and it also affected its capacity to meet its fixed interest bearing charges effectively due to weakening solvency position.

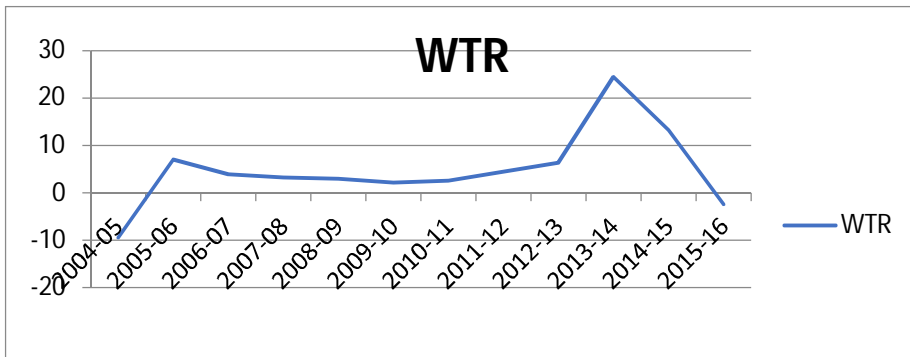
**Table 3 Activity/Turnover ratios of Steel Authority of India**

Year	WTR	TATR	ITR
2004-05	-9.5	0.97	7.35
2005-06	6.97	1.00	5.48
2006-07	3.94	0.85	5.50
2007-08	3.17	0.76	6.12
2008-09	2.94	0.82	5.31
2009-10	2.16	0.62	4.46
2010-11	2.57	0.57	4.34
2011-12	4.40	0.61	3.88
2012-13	6.32	0.53	3.11
2013-14	24.41	0.51	3.03
2014-15	13.17	0.46	2.82
2015-16	-2.49	0.56	2.9

Source: calculated by the researcher from annual reports of SAIL

### **Working Capital Turnover Ratio (WTR)**

Working capital ratio indicates the velocity of utilization of net working capital and is directly related to sales. A higher ratio indicates efficient utilization of working capital (Sharma and Gupta., 2014). The Working capital ratio of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 6 clearly shows that in 2004-05 WTR was -9.5 which is highly unsatisfactory and clearly reveals that SAIL was unable to utilize its working Capital effectively in the beginning of the study period. However, the situation improved in 2005-06 and consequently an increase was seen when WTR was recorded as 6.97. Unfortunately, the efficiency of SAIL in using working Capital and increasing trend of WTR, both started falling sharply from 2006-07 onwards. From 2007-08 onwards a continuous fall in WTR was recorded and researcher strongly believes that fall to a greater extent in WTR is not appreciable as it shows inefficient working capital management..



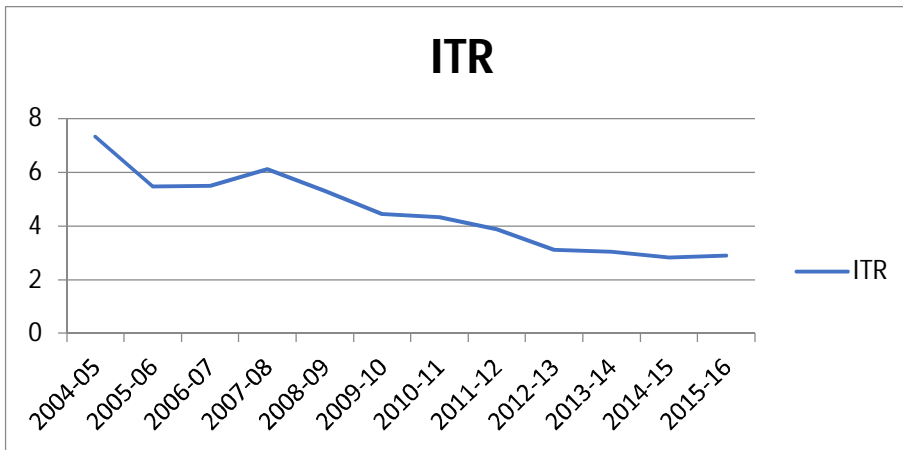
**Figure 6 showing trend line of Working Capital Turnover ratio of SAIL**

Source: prepared by the researcher from Table 3

However, year 2013-14 saw an unprecedented increase of 24.41 times which again was an alarming situation. The researcher says this because it is generally believed that neither too high nor too low WTR is favorable for the firm. A too high WTR means insufficient investment in Capital Budgeting. With the efforts of management of SAIL, though WTR started reducing but somehow it has gone to negative in 2015-16 i.e. -2.49. Governing body of SAIL needs to pay attention to this fluctuating trend of WTR and ensure effective working capital management.

### **Inventory Turnover Ratio (ITR)**

ITR is an indicator of whether the firm has used the inventory efficiently or not and also give a clear picture about whether only required minimum funds have been locked in inventory or not. Firm has to keep an eye on ITR because a very low inventory turnover means excessive inventory accumulation than warranted by production and sales or simply larger stock lying unsold. But, one should note that a very high inventory turnover may be the result of a very low level of inventory stock which results in early stock out. (Sharma and Gupta., 2014) The inventory turnover ratio of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 7 clearly shows that though in beginning of the study period, SAIL witnessed a relatively higher ITR but then it started declining gradually. SAIL has witnessed a fall from 7.35 in 2004-05 to 5.48 in 2005-06. This fall may be owing to over investment in relatively poor quality of raw material, obsolete technology and unskilled manpower. However, from 2006-07 an increase in ITR was seen till the end of 2007-08.



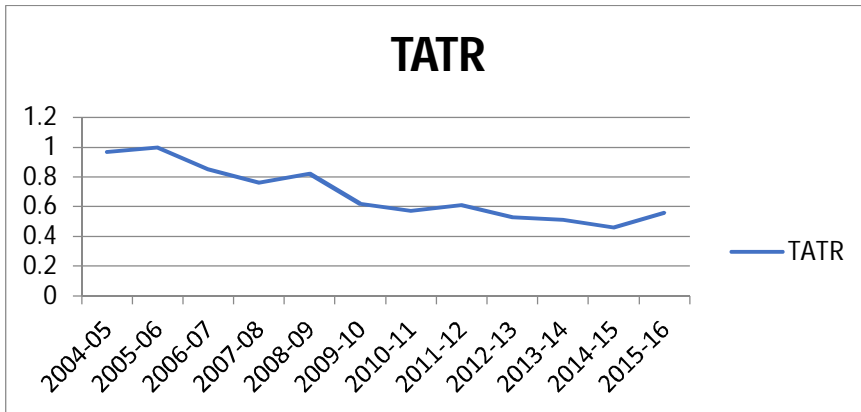
**Figure 7 showing trend line of Inventory Turnover ratio of SAIL**

Source: prepared by the researcher from Table 3

But sooner this increase was discontinued as from 2008-09 onwards, ITR has fallen sharply owing to unsatisfactory rate of stock turnover and also shows inefficiency of management in maintaining satisfactory inventory turnover during the later period of the study. The researcher strongly believes that a neither too high nor too low inventory turnover ratio is desirable and therefore SAIL must practice proper inventory management in-order to avoid issues like over stock accumulation, accumulation of obsolete technology, stock-out situation, selling inventory at lower price etc.

#### **Total Assets Turnover Ratio (TATR)**

The total asset turnover ratio measures the potential and capability of a company to use its total assets efficiently and effectively in order to generate the sales. Higher ratio implies better and strong ability of the firm to generate sales out of its total assets. (Sharma and Gupta, 2014) The Working capital ratio of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 8 shows that throughout the study period the TATR of SAIL is not satisfactory. Though there was an increase from 0.97 in 2004 to 1.00 in 2005 but the rate was unsatisfactory. A mere increase of 3% in TATR showed that SAIL was unable to utilize its total assets efficiently in generating sales. Furthermore, 2006 registered a decrease of 15% in TATR which continued for the next year too. It was in 2008-09, that SAIL showed an increase of 7% but this figure was too low to cover up the past failure. The researcher strongly believes that TATR has a significant role to play in overall financial performance of a concern and figure 4.8 clearly draws a downward trend which implies that SAIL was unable to use its total assets for generation of sales and the situation was further deteriorating in later period which needs attention of management at the earliest.



**Figure 8 showing trend line of Total Assets Turnover ratio of SAIL**

Source: prepared by the researcher from Table 3

Though trend line of SAIL showed a falling TATR but in some of the years (2011 and 2015) it has also utilized its total assets efficiently. After analyzing the picture at large, it can be concluded that the SAIL was unable to utilize its total assets properly and majority of it was either unused or inefficiently used. There is a need of proper assets management policy in order to ensure optimal Total assets turnover ratio.

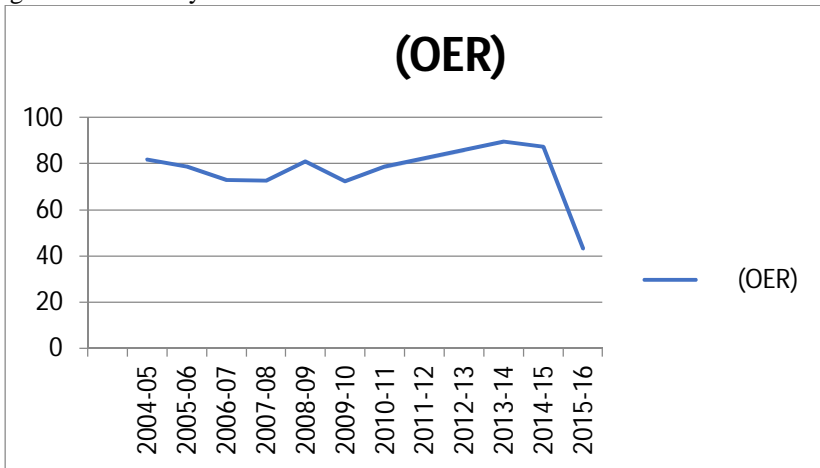
**Table 4 Expenses Ratio of Steel Authority of India**

Year	(OER)
2004-05	81.66
2005-06	78.64
2006-07	72.88
2007-08	72.69
2008-09	81.06
2009-10	72.49
2010-11	78.68
2011-12	82.44
2012-13	85.81
2013-14	89.48
2014-15	87.28
2015-16	43.27

### Operating expense ratio (OER)

The operating expense ratio (OER) is a measure of what it costs to operate a piece of property compared to the income that the property brings in. (Operating ratio,n.d.) The OER of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 9 clearly shows OER of SAIL was around 81.66% 2004 which was too high for a manufacturing concern and therefore was a matter of concern. Management of SAIL paid heed to the

issue which resulted into decline of OER to 72.88% in year 2006 which clearly indicated an increase in profitability by 10% as the cost of operation declined. OER of SAIL showed a fluctuating trend throughout the study period but from 2013 onwards it has started falling down. In year 2010 when it was awarded Maharatana status, OER was 78.68% and instead of reducing the OER, somehow SAIL showed an increasing trend till 2014. Such increase implies that there is continuous fall in overall profitability and SAIL was greatly affected due to this. Probable reason for it could be increase in cost of raw material, costlier import, or other economical variable which affects the costing of steel industry.



**Figure 9 showing trend line of OER ratio of SAIL**

Source: prepared by the researcher from Table 4

Figure 9 depicts that there is fluctuating trend in throughout the study period but more surprisingly it has even gone to the lowest i.e. 43.27% in 2015-16. This fall implies that cost of operation has decreased owing to several reasons like technological up-gradation and advancement, cheaper raw material reducing overheads and increased sales. The researcher strongly believes that SAIL as largest producer in Indian steel industry has better access to managerial expertise and stronger hold in market both domestically and internationally. Such higher Cost of operation only signifies mismanagement and ignorance of the top-level management, policy-makers and bureaucrats and therefore remedial steps must be taken for it.

**Table 5 Profitability ratios of Steel Authority of India**

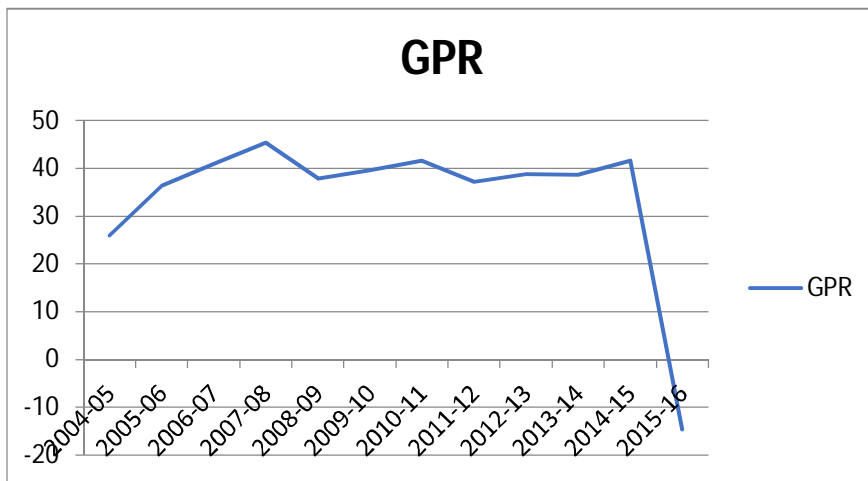
Year	GPR	OPR	NPR	ROA	ROCE
2004-05	25.92	21.78	11.32	11.08	21.58
2005-06	36.37	11.79	13.72	13.93	34.51
2006-07	40.88	18.00	17.41	17.41	41.48
2007-08	45.29	18.53	18.09	15.53	33.49
2008-09	37.85	10.37	13.63	11.21	24.34
2009-10	39.60	17.80	15.80	10.84	23.61

2010-11	41.58	14.43	11.17	6.75	14.72
2011-12	37.16	10.72	7.44	4.59	10.73
2012-13	38.85	8.59	5.06	2.82	7.02
2013-14	38.67	4.94	5.55	2.94	6.84
2014-15	41.60	6.61	4.60	2.21	6.08
2015-16	-14.62	-9.25	-10.58	2.15	-7.25

Source: calculated by the researcher from annual reports of SAIL

### Gross Profit Ratio (GPR)

The gross profit ratio demonstrate the efficiency with which firm produces each unit of product. Therefore, high gross profit margin ratio is a sign of good management and firm's positive performance. It can be a result of many factors like higher sales price, lower cost of goods sold, variation in sales price and costs etc (Sharma and Gupta., 2014) The GPR of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 10 clearly shows that there was increase in GPR from 2004 to 2007. The period of four years witnessed an increase of 74.72% in GPR. It clearly reveals that in the beginning of the study period, SAIL's gross profitability was highly appreciable. However there was a decrease of 16% in GPR in 2008-09. In 2009 with an increase of 4% SAIL somehow tried to cover up the loss but a fluctuating trend of GPR of SAIL was regular phenomenon from 2008 onwards.



**Figure 10 showing trend line of Gross Profit ratio of SAIL**

Source: prepared by the researcher from Table 5

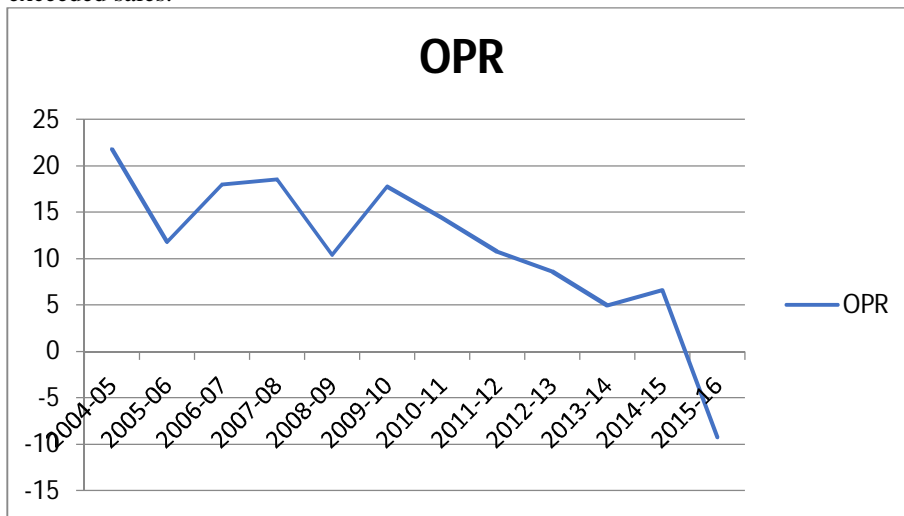
Even after getting Maharatna Status in 2010, the downward trend of GPR continued. The inefficiency of management and continuous fall in gross profit resulted into negative GPR of -14.62 % in 2015-16. It clearly indicates that SAIL was unable to maintain its gross profitability owing to various reasons like purchase of costly raw materials, inefficient and under-utilization of plant and machinery, over investment in



plant and machinery, higher labour cost, overheads, labour turnover technological disruptions, macroeconomics shock etc.

### Operating Profit Ratio (OPR)

The operating profit margin ratio indicates how much profit a company makes after paying for variable costs of production such as wages, raw materials, etc. It is expressed as a percentage of sales and shows the efficiency of a company controlling the costs and expenses associated with business operations (Operating Profit., n.d). The OPR of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 11 clearly shows that though in 2004 OPR was relatively higher which is certainly favorable for the firm but gradually it started declining. There was a fall of 46% in OPR from 2004 to 2005. However the situation improved with an increase of 52% in OPR 2006-07. It is noteworthy that from 2007 onwards OPR of SAIL is continuously decreasing which implied that operating cost of production is increasing which further implies that cost of productions has exceeded sales.



**Figure 11 showing trend line of Operating Profit ratio of SAIL**

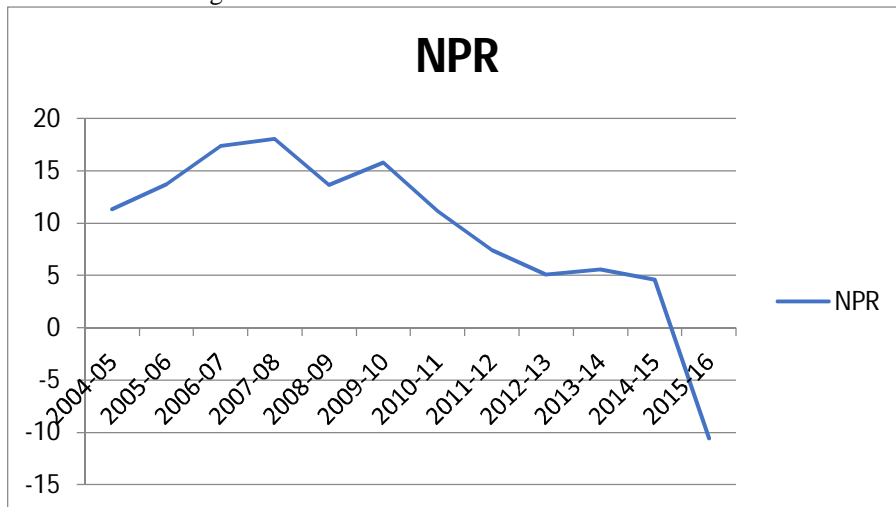
Source: prepared by the researcher from Table 5

Moreover in 2015-16, it has even gone to negative which technically means almost no operating profit earned resulting into loss of 9%. It further suggests that there was a fall of 40% in operating profit from 2014 to 2015. The researcher has also observed an overall 100% decrease in OPR from 2004 to 2015 which implies that during the study period, OPR of SAIL was deteriorating.

### Net Profit Ratio (NPR)

Net profit (NP) ratio is a useful tool to measure the overall profitability of the business. A high ratio indicates the efficient management of the affairs of business (accounting for management.org .n.d). The NPR of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 12 clearly shows that there was decrease in NPR of 2.4% in year 2005-06 but fair upward trend was seen in 2006 and 2007 continuously. However a fall in NPR

was again recorded in 2008 by 24%. The researcher strongly believes that the fluctuation in NPR of SAIL is majorly due adverse and inappropriate planning regarding manufacturing, selling, administrating and other activities of the company. Though 2009-10 marked an increase of 15% again but the increasing trend of NPR was not continued for long.



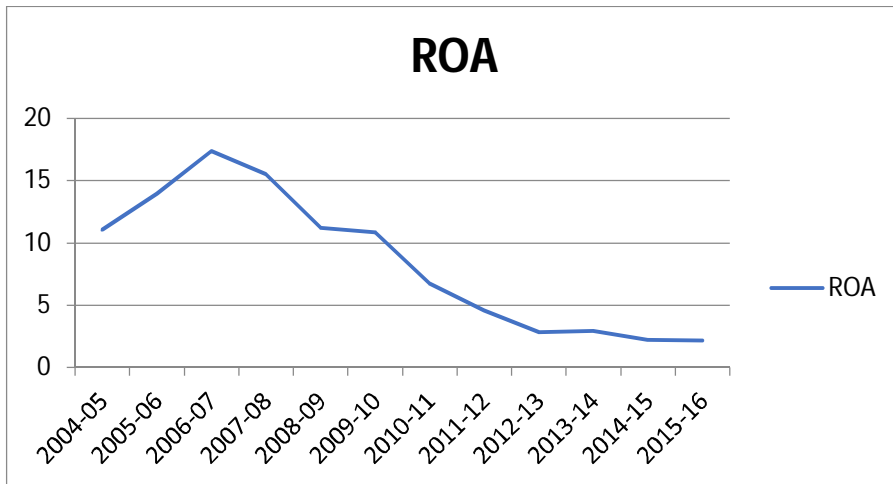
**Figure 12 showing trend line of Net Profit ratio of SAIL**

Source: prepared by the researcher from Table 5

Figure 4.12 depicted a fluctuating trend of NPR of SAIL but the situation become even worst in the latter years of the study when the figure shrinked to single digit. Furthermore, it was observed that in year 2015-16, SAIL NPR was -10.58% which implies that SAIL had witnessed a loss of nearly 11%. The researcher holds an opinion that this fall in NPR is mainly due to low demand, higher office and administrating cost, sluggish economic environment and higher overheads

### **Return on Assets (ROA)**

Return on assets (ROA) also referred to as "return on investment" is an indicator of how profitable a company is relative to its total assets. The higher the ROA number, the better, because the company is earning more money on less investment (Return on Assets n.d). The ROA of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 13 clearly shows that in the initial period of the study the Figures of ROA are showing increasing trend. In 2004-05, ROA was 11.08 which increased to 13.93 in 2005-06 signifying an increase of 25% in ROA. It implies that return on assets employed is 25% in 2005 which even continued in 2006 at the same rate of return. It means that SAIL was efficiently utilizing its resources for the purpose of investment and was even earning fair return on it. But there was fall of 27% in ROA in 2007-08.



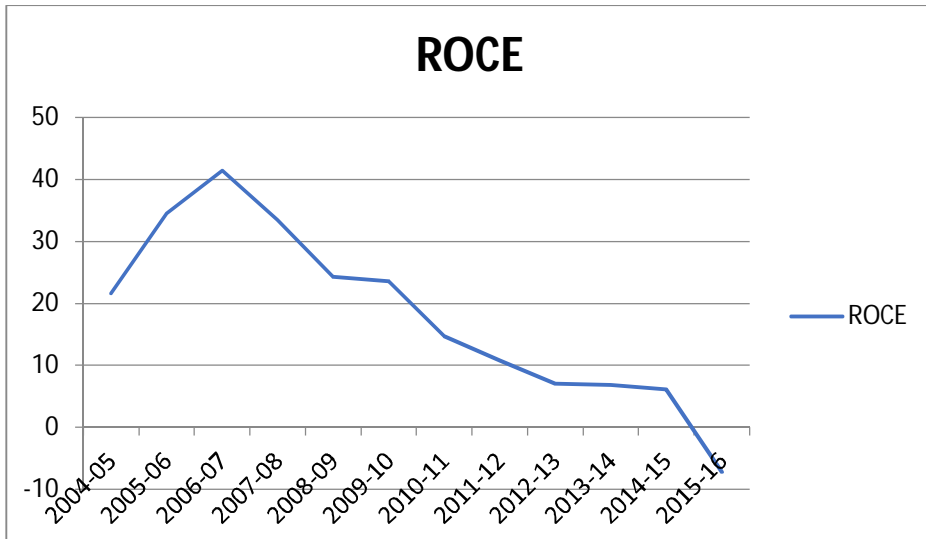
**Figure 13 showing trend line of Return on Assets ratio of SAIL**

Source: prepared by the researcher from Table 5

As evident from the table, unfortunately this downfall is still continued from 2009 onwards. SAIL's ROA is continuously decreasing and has even gone to minimum of 2.15 % in 2015-16. During post Maharatna status period, ROA has not shown any sign of improvements. Researcher has an opinion that such situation is not favorable for the company in long run and may also result into idealness of assets, improper utilization of assets or inability of the assets in significantly contributing in sales generations.

- **Return on Capital Employed (ROCE)**

ROCE defines the relationship between profits earned by the firm and the capital employed into it. A high percentage of return on capital employed is satisfactory (Sharma and Gupta, 2014.). The ROCE of SAIL is being evaluated from 2004-05 to 2015-16 and Figure 14 clearly shows that there was increase in ROCE from 2004 to 2006. From 2004 to 2005, there was an increase of 60% in ROCE which further increased by 20% in 2006-07. However, there was a decreasing trend of GPR from 2007 onwards. SAIL witnessed a fall of 19% in 2007 for the first time during the study period. Moreover, such fall continued for the coming years and the situation started worsening. From 2007-08 onwards, in the time span 9 years, SAIL has recorded a fall 85% in ROCE till end of 2014-15.



**Figure 14 showing trend line of Return on Capital Employed ratio of SAIL**

Source: prepared by the researcher from Table 5

In 2010, even after getting Maharatna Status, SAIL could not positively maintain its ROCE which continued to fall. The researcher strongly believes that inefficiency of management in capital structuring and ineffective investment decision making is responsible for the fall in ROCE and has even resulted into negative ROCE (-7.25) in 2015-16. Companies with negative ROCE have a highly Negative working capital which exceeds the size of their Net fixed assets. Therefore Management of SAIL needs to pay attention to falling ROCE of the company

#### **Conclusion:**

##### **➤ Findings from Trend analysis of SAIL using Liquidity Ratios.**

A fall of 52% has been observed in CR of SAIL from 2004 to 2015. A very low CR is indicative of the fact that the company may be indulged in over trading and this may further result into shortage of sufficient working capital. This may even negatively affect the performance of the company in long run as well. Moreover, in post Maharatna period i.e. from 2011-12 to 2015-16 it was even unable to maintain its ideal Acid test ratio. The researcher strongly believes that though blockage of too much fund in quick assets is not advisable for a manufacturing concern but shortage of it shows over trading and may also create a doubt in the minds of creditors and financial institutions.

##### **➤ Findings from Trend analysis of SAIL using Solvency Ratios**

SAIL has reduced its dependence on debt instruments as a source of finance. It also reveals that management of SAIL has started lowering the trading on equity and preferably going for other sources like retained earning instead which is sign of strong and healthy capital structure.

##### **➤ Findings from Trend analysis of SAIL using Turnover ratio**

The calculated values of WTR are comparatively low which is highly unsatisfactory and clearly reveals that SAIL was unable to utilize its working Capital effectively in the

beginning of the study period. Governing body of SAIL needs to pay attention to this fluctuating trend of WTR and ensure effective working capital management. Also, the researcher strongly believes that a neither too high nor too low inventory turnover ratio is desirable and therefore SAIL must practice proper inventory management in-order to avoid issues like over stock accumulation, accumulation of obsolete technology, stock-out situation, selling inventory at lower price etc. There is a need of proper assets management policy in order to ensure optimal Total assets turnover ratio.

➤ **Findings from Trend analysis of SAIL using Expenses ratio**

The researcher strongly believes that SAIL as largest producer in Indian steel industry has better access to managerial expertise and stronger hold in market both domestically and internationally. Even than if such higher Cost of operations persists, it only signifies mismanagement and ignorance of the top-level management, policy-makers and bureaucrats and therefore remedial steps must be taken for it.

➤ **Findings from Trend analysis of SAIL using Profitability Ratio**

It was concluded that overall Profitability of SAIL was not so promising because from 2007-08 onwards, in the time span 9 years, SAIL has recorded a fall 85% in ROCE till end of 2014-15. In 2010, even after getting Maharatna Status, SAIL could not positively maintain its ROCE which continued to fall. The researcher strongly believes that inefficiency of management in capital structuring and ineffective investment decision making is responsible for the fall in ROCE and has even resulted into negative ROCE (-7.25) in 2015-16. Companies with negative ROCE have a highly Negative working capital which exceeds the size of their Net fixed assets. Therefore Management of SAIL needs to pay attention to falling ROCE of the company

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**AN ANALYSIS OF RETURNS FROM PRIMARY MARKET: AN EVIDENCE  
FROM INITIAL PUBLIC OFFERS LISTED ON BOMBAY STOCK  
EXCHANGE OF INDIA**

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**ABSTRACT :**

In today's monetary age various financial investment plans, opportunities and alternative options are available for the purpose of value addition and wealth creation. Out of all available options, two options are related with the capital market segment means investment in primary market and secondary market. Both types of markets have their own advantages and limitations in terms of profitability, risk and liquidity. In course of the primary market the risk is limited, but return can be higher along with the benefits of liquidity. So this research study tries to find out the answer of two questions – First - what is the real return given by the primary market to their investors? And second is this return varies on the basis of the year, issue size, issue price, subscription status, or any other factor? In this quantitative study we are trying to find the answer to these questions with the help of available data from Indian Capital Market for the last six years. Analysis and interpretation is made on the basis of Initial Public Offers of equity shares made by limited companies, which are listed on the Bombay Stock Exchange (BSE)

**KEY WORDS :** Bombay Stock Exchange, Initial Public Offer, Listing Returns, Oversubscription, Issue Size

**JEL CODE:** E2, G2, G3

**1. INTRODUCTION**

Money market and capital market are two vital components of the financial market of an economy. Through these market, central and state Government, banks, financial institutions (domestic and foreign) and other corporate entities are used to collect funds from investors for their requirements. In this way all these participants are main beneficiaries of the financial market. With the benefit of these the economy of the country is also on the move because it helps in capital formation in form of savings and investments. Money market helps in collection of the short term funds, while the capital market helps in the collection of the long term funds. The capital market of a country broadly can be divided in two components – primary market and secondary market. In the primary market corporate entities invite application from general public to subscribe the new securities issued by them. Generally, these securities are in form of equity shares or debentures. By investing in the equity shares public get chance to participate in the management and profits of the company and also additional benefit of wealth creation through increase in the market price of such shares. In case of investment in debt they are entitled to get timely interest and repayment of debt without any risk. When a public limited company first time decided to raise capital from general public by the issue of equity shares then this is known as Initial Public Offerings (here

referred as IPOs). With this issue, equity shares of the company listed in a recognized stock exchange and public can freely sale and purchase these share from such exchange. All the transaction of the stock exchange is known as secondary market.

### 1.1 Listing Gains/Returns:

Listing Gain or Return is basically a difference between the offer price of security by a company through an IPO and its listing price. Listing price is a particular closing price of such security in a recognized stock exchange on the first day it's trading. If listing price is more than offer price then it is listing gain, if listing price is less than its offer price then there is a listing loss. If securities acquired through an IPO are not sold on the listing day and hold for the period of one year or more than it is a short term or medium term or long term capital gain. For this quantitative research study the offer price and listing price of the IPOs is used to measure the performance of the primary market (new issue market) from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct. 2019

### 1.2 BSE:

Bombay Stock Exchange (BSE) is situated in Mumbai, Maharashtra (India). This stock exchange is one of the oldest Stock Exchange in the Asia and ranked as world's 11<sup>th</sup> largest stock exchange. It was established in 1875. Like other stock exchanges of the world, this exchange is also working as online trading platform. BSE also owns its basic stock price index, that is known as the BSE Sensex. This popular index was launched in 1986.

## 2. LITERATURE REVIEW:

Review of literature is the critical analysis of work related with this research study. There are several books, research papers, research articles, and other material is available on this topic and other related topics. Contribution of some of them is as under:

**Rock & Kelvin (1986)** demonstrated that retail uninformed investors might suffer from a winner's curse problem. They might get all the allocation that they have asked for in IPOs, which are going to earn a very low return on the day of listing, but may be rationed out in IPOs, which will give a very high return on the day of listing, because of the high demand those issues, will generate.

**Ritter (1991)** found that the underpricing of IPOs that have been widely decimated appeared to be a short run phenomenon.

**Narsimham & Ramana (1995)** analyses the performance of 103 IPOs and found that the initial returns from the IPOs are higher.

**Shah (1995)** reported that under pricing on an average was 105.6% above the offer price on equally weighted basis and 113.75% if weighted by size of the issue.

**Raghuram Rajan & Henri Servaes (1997)** examined data of IPOs completed between 1975 to 1987. They found that higher underpricing leads to increased analyst following. Analysts are overoptimistic about the earnings potential and long term growth prospects of IPOs.

**Pandey & Arun Kumar (2001)** explored the impact of signal on underpricing. They found that realized excess initial returns from IPOs were high at approx. 68%.



**Jaitely (2004)** studied the extent of underpricing shortly following the deregulation of new issue market and found that first day return was on an average 72%.

**Ghosh (2005)** noticed the factors explaining IPO under pricing and his study supported the signaling theory.

**Pandey (2005)** examined the difference in underpricing of IPOs caused by difference in allocation mechanism. He found that initial returns were higher on fixed offer pricing.

**Marisetty & Subrahmanyam (2005)** reported that under pricing was higher for companies affiliated to private foreign and private Indian groups.

**Ansari V, Ahemed (2006)** found that 40.9% return was available on the first day and 84% issues were underprices during the year 2005.

**Ishwara (2009)** analyzed 107 IPOs in the financial year 2007-08 and showed that the market forces and individual companies performance reflect stock performance.

**G. Sabarinathan (2010)** found that some interesting changes in the features of the IPOs during the period 1993-94 to 2008-09. The changes in features in the terms of issue size, issuing company's size, the stage of evolution of the issuing company, issue price and the nature of business/industry in which issuing company is engaged.

**Sanjay Sehgal (2013)** found that the Indian IPOs seemed to be overvalued initially and as more information flows into the system reducing the degree of uncertainty, the pricing moves back to the equilibrium value resulting in a negative return between the second trading days to the end of 6<sup>th</sup> month.

**K. Hema Divya (2013)** analyzed the performance of Indian IPOs during the financial year 2010-11 and found that the performance of IPOs varies in accordance with the market i.e. bullish to bearish.

**Shah Sweety Nishant & Mehta Disha Harshadbhai (2015)** suggested in their study that investor should invest in new issues as IPOs are underpriced in initial days.

**Kaur Manpreet, Singh Simranjit & Prakash Neetu (2017)** reported that the IPO and FPO behave differently in differently in different phases, the behavior of IPO and FPO after one month of listing is different as compare to after three years of listing.

**Yadav Ajay & Goel Sweta (2019)** found that undervaluing of the IPOs depends on the data creation and possession scattering which will profit the issuing firms.

### **3. OBJECTIVES:**

It is necessary to determine objectives before starting any research study. There are two main objectives of this study:

- i. To evaluate the overall performance of IPOs (primary market) of equity share listed in BSE from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct. 2019.
- ii. To evaluate the performance of IPOs (primary market) of equity share listed in BSE from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct. 2019 on the basis of time (listing year), issue size, issue price and subscription status.

### **LIMITATIONS:**

- a. This research study is based on Indian IPOs listed, from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct. 2019.
- b. This research study is based on only mainstream Indian IPOs, BSE SME Platform IPOs are not considered,

c. This research study is based on the performance of IPOs listed on BSE.

#### 4. HYPOTHESIS

Hypothesis is basically an assumption, which is useful to clear the objective of the research study. For the comprehensive analysis and to get a fair conclusion of above objectives we can take following null hypothesis:

First Null Hypothesis (Ho1): “There is no significant correlation between the subscription status and the listing gains from Indian IPOs listed from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct. 2019.”

Second Null Hypothesis (Ho2): “There is no significant correlation between the Issue Size and the listing gains from Indian IPOs listed from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct. 2019.”

Third Null Hypothesis (Ho3): “There is no significant correlation between the Issue Price and the listing gains from Indian IPOs listed from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct. 2019.”

#### 5. RESEARCH METHODOLOGY:

##### 5.1 Research Period and Sample Size:

This research study is based on all the mainstream IPOs listed, during the period of last six financial years from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct. 2019. During this period there were total 128 IPOs are listed in BSE, so record and analysis of all the IPOs made with various tools.

##### 5.2 Data Sources:

This quantitative and analytical research study is mainly based on published data. The main source of data is the website of BSE and market regulator SEBI. Some data also collected from various newspapers and annual reports of the companies.

##### 5.3. Analytical Method and Tools:

For the Analysis or interpretation of data and testing the hypothesis it is essential to use statistical and accounting methods or research tools. So following formulae and tools are used in this study: to measure the performance of both type of the market.

$$a. \text{ Listing Returns (Gain/Loss) (In Rs.)} = \text{Listing Price} - \text{Offer Price}$$

$$b. \text{ Listing Returns (Gain/ Loss) (In \%):} \\ = \frac{\text{Listing gain or Loss (In Rs.)} * 100}{\text{Offer Price in IPO by the Issuing Company}}$$

$$c. \text{ Net Monetary Gain/Loss (In Crore Rs.):} \\ = \text{Total Funds Raised/ Size of all IPOs} * \text{Listing Returns (Gain/ Loss) (In \%)}$$

$$d. \text{ Weighted Listing Returns (Gain/ Loss) (In Rs.):} \\ = \frac{\text{Issue Size} * \text{Listing Returns (Gain/ Loss) (In \%)}}{100}$$

$$e. \text{ Weighted Average Listing Returns (Gain/ Loss) (In \%):} \\ = \frac{\text{Total Weighted Listing Returns (Gain/ Loss) (In Rs.) of all the IPOs of that Section} * 100}{\text{Total Issue Size of all the IPOs of that Section}}$$

$$f. \text{ Student's } t\text{-Test:}$$

*For the test of Hypothesis*

$$\left[ \frac{r}{\sqrt{1-r^2}} \right] * \sqrt{n-2}$$

## 6. IPOs LISTING RETURNS: DATA & ANALYSIS:

Let us start the analysis of the data to find the real returns from Indian IPOs on various bases in last few years.

### 6.1 Year wise Returns:

**TABLE 01: YEAR WISE NET MONETARY RETURNS AND WEIGHTED AVERAGE LISTING RETURNS FROM IPOs LISTED ON BOMBAY STOCK EXCHANGE  
(FROM 1<sup>st</sup> APRIL 2013 TO 31<sup>st</sup> OCTOBER 2019)**

Financial Year	Total No. of IPOs	Total Funds Raised/ Size of all IPOs (In Crore Rs.)	Net Monetary Gain/Loss (In Crore Rs.)	Weighted Average Return (In %)
2013-14	04	8,684.42	1,246.94	14.36%
2014-15	06	1,432.93	311.26	21.72%
2015-16	24	14,268.87	2,158.35	15.13%
2016-17	26	26,421.89	4,859.53	18.39%
2017-18	42	75,262.1	5,241.47	6.96%
2018-19	18	20,469.73	1,547.24	7.56%
2019-20*	09	9,091.42	1,265.34	13.92%
<b>TOTAL</b>	<b>128</b>	<b>1,55,631.26</b>	<b>16,630.13</b>	<b>N.A.</b>
<b>OVERALL AVERAGE RETURN PER IPO (In Crore Rs.)</b>				<b>129.92</b>
<b>OVERALL WEIGHTED AVERAGE RETURN</b>				<b>10.69%</b>

*\*Till 31<sup>st</sup> October 2019; Source: BSE Data Base and NSE Data Base*

### Analysis:

On going through the above table it is clearly visible that in these years, total 128 numbers of IPOs are launched by Indian companies, however the year wise numbers are not consistent. In the year 2017-18 it is highest at 42 and in 2013-14 it is lowest at 4 only. The amount raised is also not consistent, it is maximum at Rs. 75,262 Crore in 2017-18 and minimum in 2013-14 at Rs.8,684 Crore. Yearly average fund raised stood at Rs.23,443.27 Crore. In the terms of the net monetary gain, in the year 2014-15 the investor gained a attractive return of 21.72%, but in year 2017-18 this is lowest at around 7%. However in the term of the amount this gain is highest in the year 2017-18. In this way the overall return in this period is above the normal return.

**6.2. Subscription wise Returns:**

**TABLE 02: SUBSCRIPTION WISE NET MONETARY RETURNS AND  
WEIGHTED AVERAGE LISTING RETURNS FROM IPOs LISTED ON  
BOMBAY STOCK EXCHANGE  
(FROM 1<sup>st</sup> APRIL 2013 TO 31<sup>st</sup> OCTOBER 2019)**

Subscription (In Times)	Total No. of IPOs	Total Funds Raised/ Size of all IPOs (In Crore Rs.)	Net Monetary Gain/Loss (In Crore Rs.)	Average Return per IPO (In Crore Rs.)	Weighted Average Return (In %)
0.76-1.00	06	13,665.2	-1,210.44	-201.74	<b>-8.86</b>
1.01-2.00	30	36,906.9	-1,060.28	-35.34	-2.88
2.01-3.00	11	11,659.5	185.29	16.75	1.58
3.01-4.00	04	12,109.9	236.12	59.03	1.95
4.01-5.00	04	10,214.5	1,653.09	413.27	16.18
5.01-6.00	03	2,507.92	91.24	30.41	3.64
6.01-7.00	05	12,520.5	1,621.56	324.31	12.95
7.01-8.00	05	2,303.58	-31.95	-6.39	-1.39
8.01-9.00	05	2,210.5	232.77	46.55	10.53
9.01-19.00	08	16,501.5	1,317.75	164.72	7.99
19.01-29.00	03	1,567.09	233.18	77.73	14.88
29.01-39.00	06	5,118.09	1,083.71	180.62	21.17
39.01-49.00	07	4,204.04	1,194.85	170.7	28.42
49.01-59.00	04	4,631.06	1,701.39	425.35	36.73
59.01-69.00	06	2,648.23	674.95	112.49	25.49
69.01-79.00	04	3,507.09	1,055.12	263.78	30.09
79.01-89.00	04	6,025.33	2,351.43	587.86	39.03
>89.01	13	7,329.1	5,301.37	407.8	<b>72.33</b>

*Source: BSE Data Base and NSE Data Base*

**Analysis:**

On going through the above table it is clearly visible that six issues are undersubscribed and the return from these issues is also negative. Total 30 issues are lies between full subscription and double subscription category; these are also listed in loss. In the terms of the amount the average listing return from all this 36 IPOs is also negative. As the oversubscription gradually increasing the return is also gradually increasing. Issues oversubscribed from 3 times to 19 times are giving a fair positive return (excluding a minor negative return of 1.39% at 7 to 8 times oversubscription group).

There is a significant growth in the positive return when issues are oversubscribed between 19 to 89 times. These issues are giving a remarkable return to the primary market investor from 14% to 39%. There are 13 issues belongs to the category of oversubscription of more than 89 times, these issues are giving a bumper return of more

than 72% to the primary market investor. In the terms of the average return per IPO and the net monetary gain, the performance of this category issues is the best.

## 6.2 Issue Size wise Returns:

**TABLE 03: ISSUE SIZE WISE NET MONETARY RETURNS AND  
WEIGHTED AVERAGE LISTING RETURNS FROM IPOs LISTED ON  
BOMBAY STOCK EXCHANGE  
(FROM 1<sup>st</sup> APRIL 2013 TO 31<sup>st</sup> OCTOBER 2019)**

Issue Size (In Crore Rs.)	Total No. of IPOs	Total Funds Raised/ Size of all IPOs (In Crore Rs.)	Net Monetary Gain/Loss (In Crore Rs.)	Average Return per IPO (In Crore Rs.)	Weighted Average Return (In %)
≤ 100	06	346.27	128.11	21.35	37%
101-200	10	1,604.35	466.75	46.68	29.09%
200-300	10	2,467.91	64.04	6.40	2.59%
301-400	13	4,653.37	245.15	18.86	5.27%
401-500	23	10,560.81	1,150.25	50.01	10.89
501-600	11	6,110.84	1,186.11	107.83	19.41%
601-700	07	4,446.26	1,684.75	240.68	<b>37.89%</b>
701-800	01	764.30	116.63	116.63	15.26
801-900	02	1,729.36	5.56	<b>2.78</b>	0.32%
901-1000	04	3,828.17	143.69	35.92	3.75%
1001-1100	04	4,179.02	882.40	220.6	21.11%
1101-1200	06	6,838.63	923.74	153.96	13.51%
1201-1300	05	6,115.63	737.48	147.50	12.06%
1301-1400	02	2,695.6	718.82	359.41	26.67%
1401-1500	01	1,454	302.87	302.87	20.83%
1,501-2000	08	14,230.63	3,457.69	<b>432.21</b>	24.30%
2,001-5,000	08	26,823.46	3,326.53	415.82	12.40%
5,001- 10,000	06	45,411	1460.29	243.38	3.22%
≥10,001	01	11,372	-518.56	-518.56	<b>-4.56%</b>

Source: BSE Data Base and NSE Data Base

### Analysis:

On going through the above table it is clearly visible that the returns from very small size of the IPOs (issue size of < Rs. 200 Crore) are very good. However the returns from the small size and mid size IPOs (issue size of Rs. 200 to 1,000 Crore) are fluctuating in nature. Average listing return from this IPOs are moving from lowest of 0.32% to the highest of 19.41%, with the exception of 7 issues belongs to the size of Rs. 700 Crore to Rs. 800 Crore, are able to give an extra ordinary return of 37.89% to the investors.

Average listing return from large size IPOs (issue size of Rs. 1,000 to 5,000 Crore) are consistent and reasonable. The returns from this group are moving from 12% to 27%. But the average listing return from very large size 6 IPOs (issue size of Rs. 5,000 to

10,000 Crore) are very low at only 3.22%. One IPO with over size of Rs. 11,372 Crore is giving a negative return.

### 6.3 Issue Price wise Returns:

**TABLE 04: ISSUE PRICE WISE NET MONETARY RETURNS AND  
WEIGHTED AVERAGE LISTING RETURNS FROM IPOs LISTED ON  
BOMBAY STOCK EXCHANGE**

(FROM 1<sup>st</sup> APRIL 2013 TO 31<sup>st</sup> OCTOBER 2019)

Per Share Issue Price (In Rs.)	Total No. of IPOs	Total Funds Raised/ Size of all IPOs (In Crore Rs.)	Net Monetary Gain/Loss (In Crore Rs.)	Average Return per IPO (In Crore Rs.)	Weighted Average Return (In %)
10-100	11	10,895.67	1,881.25	171.02	17.27%
101-200	23	9,657.91	1,244.90	54.13	12.88%
201-300	24	22,315.33	5,389.07	224.54	<b>24.15%</b>
301-400	12	17,729.76	3,045.73	253.81	17.18%
401-500	14	11,500.84	1,769.92	126.42	15.39%
501-600	06	9,034	181.46	30.24	2.00%
601-700	08	18,031.29	201.56	25.19	1.18%
701-800	10	22,843.05	-196.53	-19.65	<b>-0.86%</b>
801-900	09	7,931.12	831.65	92.41	10.49%
901-1000	05	14,776.37	-128.58	<b>-25.72</b>	-0.87%
≥1001	06	10,916	2,451.15	<b>408.53</b>	22.45%

*Source: BSE Data Base and NSE Data Base*

#### Analysis:

On going through the above table it is clearly visible that the returns from lower and normal price of the IPOs (issue price of Rs.10 to Rs. 500 per share) are very good. The returns from this group are moving from 12% to 24%. However the returns from the higher price IPOs (issue price of Rs.500 to Rs. 1,000 per share) are fluctuating in nature. Average listing returns from this group of IPOs are moving from lowest of -0.86% to the highest of 10.49%. But the average listing returns from very high price 6 IPOs (issue price of more than Rs. 1,000 per share) are very good at 22.45%.

## 7. TEST OF HYPOTHESIS

**TABLE 05A: First Null Hypothesis (Ho1):** “There is no significant correlation between the subscription status and the listing gains from Indian IPOs listed, from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct. 2019.”

Student's T – Test	$\left[ \frac{r}{\sqrt{1-r^2}} \right] * \sqrt{n-2} = 14.44$
Critical Value	1.658
Result	Calculated Value > Critical Value 14.44 > 1.658 Ho : Rejected
Alternative Hypothesis Accepted	“There is a significant correlation between the subscription status and the listing gains from Indian IPOs listed, from 1 <sup>st</sup> April 2013 to 31 <sup>st</sup> Oct. 2019.

*Source: Own Computation on the basis of BSE Data Base and NSE Data Base*

**TABLE 05B: Second Null Hypothesis (Ho2):** “There is no significant correlation between the Issue Size and the listing gains from Indian IPOs listed from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct. 2019.”

Student's T – Test	$\left[ \frac{r}{\sqrt{1-r^2}} \right] * \sqrt{n-2} = 1.42$
Critical Value	1.658
Result	Calculated Value < Critical Value 1.42 < 1.658 Ho1 : Accepted

*Source: Own Computation on the basis of BSE Data Base and NSE Data Base*

**TABLE 05C: Third Null Hypothesis (Ho3):** “There is no significant correlation between the Issue Price and the listing gains from Indian IPOs listed from 1<sup>st</sup> April 2013 to 31<sup>st</sup> Oct.2019.”

Student's T – Test	$\left[ \frac{r}{\sqrt{1-r^2}} \right] * \sqrt{n-2} = 0.62$
Critical Value	1.658
Result	Calculated Value < Critical Value 0.62 < 1.658 Ho1 : Accepted

*Source: Own Computation on the basis of BSE Data Base and NSE Data Base*

## 8. KEY FINDINGS AND CONCLUSION:

On the basis of above analysis and test of hypothesis we can observe that

- ✓ During this period total 128 IPOs are launched by Indian companies, however the year wise numbers and the amount raised are irregular. In the terms of the net monetary gain, in the year 2014-15 the investor gained a attractive return of

21.72%, but in year 2017-18 this is lowest at around 7%. In this way the overall return in this period is above the standard return.

- ✓ There is a major positive correlation between the oversubscription and the listing gain of Indian IPOs. It means that as long as the oversubscription increases, the rate of the listing gains also increases and vice-verse. Undersubscribed and very lower subscribed issues are not succeed to give positive return to the investors. On other hand issues with a huge amount of oversubscription are succeed to give massive return to investors.
- ✓ In the terms of the issue size, very small size issues are giving good return, but the return from small and mid size IPOs is not assured and showing fluctuations. The returns from large size IPOs are more certain and regular as compare to the small and mid size IPOs. So it signifies that there is no certain relationship between the issue size and the listing returns.
- ✓ The returns from lower and normal price of the IPOs are very good at 12% to 24%. However the returns from the higher price IPOs are variable in nature, moving from lowest of -0.86% to the highest of 10.49%. But the average listing returns from very high price IPOs are tremendous. So it means that there is no definite association between the issue price and the listing returns.

Well developed and regulated primary market is indispensable for smooth economic growth of a country. In India we have the presence of this type of market. But from an investor's point of view, a market providing maximum return with minimum risk is the best investment option. All type of investors is always risk averse. An application made in the IOPs of various companies is best example of investment with safe and limited return. Listing returns definitely depends upon the subscription status; subscription status depends upon the always gives a very good investments opportunity to the primary market investors. performance of the company.

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## CHARACTERISTIC FEATURES OF MILK POURERS IN CHITTOOR DISTRICT

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In this article, an attempt is made to present the socio-economic profile of pourers in dairying in Chittoor district, Andhra Pradesh. The focus is on the age, education, religion, caste affiliation, nature and size of respondent households, occupation pattern, earners and dependents, source of income, land holding pattern, assistance availed, number of animals held, production of milk and the factors which have motivated them to undertake dairying.

### 1. Age of Respondents

The respondents are distributed on the basis of age and presented in the Table1. A look at the Table shows, of the 250 respondents, the highest 84 or 33.60 per cent are in the age group of 30-39 years followed by 78 or 31.20 per cent in the category of 40-49 years, 36 or 14.40 per cent in the frequency of 50-59 years, 32 or 12.80 per cent in the class

**Table: 1. Distribution of Respondents on the basis of Age**

Age	Number of pourers	Per cent
20-29 years	32	12.80
30-39 years	84	33.60
40-49 years	78	31.20
50-59 years	36	14.40
60 and above years	20	8.00
Total	250	100.00

**Source:** Sample survey.

interval of 20-29 years and the rest 20 or 8 per cent in the group of 60 and above years.

### 2. Level of education

The educational background of respondents is furnished in the Table2. A glance at the Table reveals that 96 or 38.40 per cent are illiterates and the remaining with varying levels of education. The educational status among the rest is SSC – Post- graduation and above. The highest 66 or 26.40 per cent of respondents are with below SSC, 34 or 13.60 per cent with SSC, 24 or 9.60 per cent graduates, 22 or 8.80 per cent post-graduation and more and the balance with

**Table: 2. Educational Status of Sample Respondents**

Level	Number of pourers	Per cent
Illiterate	96	38.40
Below SSC	66	26.40
SSC	34	13.60

Intermediate	8	3.20
Graduate	24	9.60
PG and above	22	8.80
Total	250	100.00

**Source:** Sample survey  
Intermediate qualification.

### 3. Religion

The religion of respondent is stated in the Table 3. It can be observed from the Table that a dominant 226 or 90.40 per cent are Hindus. The Christians are 16 or 6.40 per cent in the aggregate respondents. The Muslims have constituted 8 or 3.30 per cent. The proportion of Muslims is insignificant due to the fact that their tradition and custom do not encourage them to

**Table: 3. Religion wise Categorisation of Respondents**

Religion	Number of pourers	Per cent
Hindu	226	90.40
Christian	16	6.40
Muslim	8	3.20
Total	250	100.00

**Source:** Sample survey take up dairying

### 4. Caste

The respondents are classified into 4 categories based on caste/level of income. These details are shown in the Table 4.. It can be observed from the Table that the respondents belonging to open or forward caste constituted 53 or 21.20 per cent. The respondents in the Backward Castes category have formed the highest 139

**Table: 4. Caste Category wise Classification of Sample Respondents**

Caste category	Number of pourers	Per cent
OCs	53	21.20
BCs	139	55.60
SCs	47	18.80
STs	11	4.40
Total	250	100.00

**Source:** Sample survey

or 55.60 per cent. The Scheduled Castes have accounted for 47 or 18.80 per cent. The Scheduled Tribes are 11 or 4.40 per cent. A number of reasons are attributed for varying percentages among the respondents. The incentives provided by the formal agencies may be one of the reasons for BCs to undertake dairying on a large number as compared to OCs. The BCs, SCs and STs are provided assistances for acquiring cows, buffalos, chaff cutters, building sheds, provision of fodder/feed etc at free of cost or concessional rate.

### 5. Nature and size of Family

The respondent families are segregated into nuclear and join on the basis of number of persons in the house hold. These are presented in the Table 5. The respondents with

nuclear family are 168 or 67.20 per cent. The joint family respondents account for 82 or 32.80 per cent.

**Table: 5. Nature of Family of Sample Respondents**

Nature of family	Number of pourers	Per cent
Nuclear	168	67.20
Joint family	82	32.80
Total	250	100.00

**Source:** Sample survey

The sample respondents are classified into four groups and the particulars are reported in the Table 6. The respondents with a size of 4-8 persons have ranked first followed by less than 4 persons, 8-12 persons and 12 and above. The share of these is 134 or 53.60 per cent, 80 or 32 per cent, 33 or 13.20 per cent and 3 or 1.20 per cent.

**Table: 6. Family Size of Women Pourer Respondents**

Family size	Number of pourers households	Per cent
Less than 4	80	32.00
4-8	134	53.60
8-12	33	13.20
12 and above	3	1.20
Total	250	100.00

**Source:** Sample survey

## 6. Occupational pattern

The previous occupation of respondents is presented in the Table7. The previous occupation of the highest 92 or 36.80 per cent of respondents was house wife. It means that they have looked after house hold activities. The agricultural daily wage labour to present vocation was found in 86 or 34.40 per cent of respondents. The unemployed have under took dairying as pourers. They account for 72 or 28.80 per cent.

**Table:7. Particulars of Previous Occupation of Sample Responds**

Occupation	Number of pourers	Per cent
Unemployed	72	28.80
Housewife	92	36.80
Agricultural daily wage labour	86	34.40
Total	250	100.00

**Source:** Sample survey

The respondents are divided into those who have taken up dairying has main activity and those who have taken up dairying as subsidiary vocation. The details are furnished in the Table 8 A glance at the Table reveals that the highest 144 or 57.60 per cent of respondents have undertaken dairying as subsidiary activity. Those who have taken up dairying as main occupation have constituted 106 or 42.40 per cent. since the respondents have taken up this an activity allied to agriculture. This is so because some

of the agricultural produce like grass may be used as feed/fodder for cattle and buffalos. Hence, it is popular as subsidiary vocation among the respondents

**Table: 8. Main and Subsidiary Occupations of Sample Respondents**

Vocation	Number of pourers	Per cent
Main	106	42.40
Subsidiary	144	57.60
Total	250	100.00

**Source:** Sample survey

### **7. Earners**

The respondents are classified into earners and dependents. These are show in the Table 9. Out of the total number of respondents 154 or 61.60 per cent are dependents while the rest 96 or 38.40 per cent earners. The dependents are one and half times to earners. It means that in these house holds the persons unsuitable for earning are more in number. Consequently the dependents are more than earners. This situation is unwelcome from the view point of pourers because the dependents are to be fed by earners.

**Table: 9 Earners and Dependents Members in the Family of Respondents**

Item	Number of pourers	Per cent
Earners	96	38.40
Dependents	154	61.60
Total	250	100.00

**Source:** Sample survey

### **8. Alternate source of income**

The respondents are categorized into different groups based on the source of income. it can be observed from the Table 10. That the highest 74 or 29.60 per cent have agricultural as an

**Table: 10. Alternate Source of Income of Family Members of Respondents**

Source	Number of pourers	Per cent
Employment	66	26.40
Business	65	26.00
Agriculture	74	29.60
Wage labour	45	18.00
Total	250	100.00

**Source:** Sample survey

alternate source of income. Next is part time employment as an alternative source of income for the family. These have accounted for 66 or 26.40 per cent closely followed by business who have constituted 65 or 26 per cent. Forty five or eighteen per cent earn alternate income as wage labour.

### **9. Land holding pattern**

The respondents are classified into two groups and the particulars are shown in the Table 11. A look at the Table reveals that the respondents who have involved in land based agricultural activity constituted 148 or 59.20 per cent. The rest, 102 or 40.40 per

cent may be either in industry or service sector. Those who have involved in agriculture is more when compared to others. This is so because agriculture is dominant in rural India. Further, agriculture and dairying go together or hand in hand. Land ownership pattern among the respondent women pourers is depicted in the Table 12. A cursory glance at the Table reveals that the highest 136 or 54.40 per cent have ownership rights over the land cultivated by them. The remaining 114 or 45.60 per cent have cultivated land on lease basis. This reflects the situation which prevails at the all India level. In the olden days, the leased lands dominate the owner cultivation lands. This has come down due to execution of land reforms in the country and also migration of land owners from rural to urban India. In this context, we may state that some of the land owners have either sold their lands or leased out to tenants. This is an account of dependents of agriculture on monsoons, unremunerative prices for agricultural products, soaring wage rates etc. All these are demonstrated in the sample respondents.

**Table: 11. Involvement of Respondents in Land based Agricultural activities**

Involvement in land based agricultural activities	Number of pourers	Per cent
Yes	148	59.20
No	102	40.80
Total	250	100.00

**Source:** Sample survey

**Table: 12. Ownership of Land among Sample Respondents**

Ownership	Number of pourers	Per cent
Own	136	54.40
Lease	114	45.60
Total	250	100.00

**Source:** Sample survey

The land cultivated by sample respondents is furnished in the Table 13. The highest 123 or 49.20 per cent of respondents cultivate land in the range of 1.00-1.50 acres followed by 94 or 37.60 per cent in the frequency of less than 1 acre,

**Table: 13. Extent of Land Cultivated by Sample Respondents**

Extent of land in acres	Number of pourers	Per cent
Less than 1 acre	94	37.60
1.00 - 1.50 acres	123	49.20
1.50-2.00 acres	23	9.20
2.00-2.50 acres	10	4.00
Total	250	100.00

**Source:** Sample survey

23 or 9.20 per cent in the order of 1.50-2.00 acres and the least 10 or 4 per cent in the level of 2.00-2.50 acres.

The pourers may use family labour and also hired labour while conducting dairying. In this context, the extent of use of family as well as wage labour is important. The use of these categories of labour by the respondents is depicted in the Table 14. It can be observed from Table that 141 or 56.40 per cent of respondents employed family

members in organizing dairy activities. The respondents who employee hired labour have constituted 109 or 43.60 per cent.

**Table: 14. Use of Family Labour and Hired Labour in Dairying by Sample Respondents**

Nature of labour	Number of pourers	Per cent
Family members	141	56.40
Family hired labour	109	43.60
Total	250	100.00

Source: Sample survey

#### 10. Financial assistance

The The financial assistance may be in cash or kind. The quantum of financial assistance also differs with regard to nature and extent of activity and purpose. It can be observed from the Table 15 that, out of 250 respondents, 140 or 56 per cent have availed financial assistance from the government or its institutions while the remaining 110 or 44 per cent have not availed any financial support from formal institutions.

**Table: 15. Number of Respondents who have availed Financial Support**

Response	Number of pourers	Per cent
Yes	140	56.00
No	110	44.00
Total	250	100.00

Source: Sample survey

#### 11. Animals and milk

The number of animals held by respondents is presented in the Table 16. It can be observed from the Table that the highest 81 or 32.40 per cent of respondents have two milk animals. Next is followed by 78 or 31.20 per cent of respondents with one animal followed by 43 or 17.20 per cent with 4 animals, 29 or 11.60 per cent with 3 animals and the least 19 or 7.60 per cent with 5 animals. The milk produced by respondents, on an average per day is presented in the Table 17. It can be observed from the Table that the highest 70 or 28 per cent of respondents have produced, on an average per day, 5 liters of milk. It is followed by 59 or 23.60 per cent of respondents have accounted for 5-10 liters of milk, on an average per day. Thirty seven or 14.80 per cent of pourers have produced milk in the range of 15-20 liters on, an average per day.

**Table: 16. Distribution of Respondents on the basis of Number of Milk Animals held**

Number of animals	Number of pourers	Per cent
1	78	31.20
2	81	32.40
3	29	11.60
4	43	17.20
5	19	7.60
Total	250	100.00

Source: Sample survey

**Table: 17. Production of Milk, on an average per day by Sample Respondents (liters)**

Milk produced per day	Number of pourers	Per cent
5	70	28.00
5-10	59	23.60
10-15	31	12.40
15-20	37	14.80
20-25	14	5.60
25-30	26	10.40
30 and above	13	5.20
Total	250	100.00

**Source:** Sample survey

Further, 31 or 12.40 per cent of respondents have produced milk in the order of 10-15 liters, 26 or 10.40 per cent in the level of 25-30 liters, 14 or 5.60 per cent in the range of 20-25 liters and the lowest 13 or 5.20 per cent in the frequency of 30 and more liters, on an average per day.

The number of animals held and the milk produced by the sample respondents, on an average per day, is presented in the Table 18. To know the relationship between the number of animals and quantity of milk is examined with the help of chi-square test and Karl Pearson's co-efficient of correlation (r). A look at the Table shows that Karl Pearson's co-efficient of correlation (r) is said to be 0.81 per cent, which is significant at one per cent level. The 6 Probable Error (PE) is found to be 0.00. As 'r' is greater than that of 6 PE, it infers that ordinarily, higher the number of animals, the higher will be the milk, on an average per day. In other words, lesser the number of animals, the lower will be the milk, on an average per day. We may sum up that the relationship between number of animals and the milk produced per day, on

**Table: 18. Relationship between Number of Animals and Milk Produced by Respondents in the post period**

**(Liters)**

Milk produced per day	Distribution of respondents on the basis of number of animals held by them					Total	Chi-square	p value
	1	2	3	4	5			
5	44 (17.60)	26 (10.40)	0 (0.00)	0 (0.00)	0 (0.00)	70 (28.00)	295.92**	0.00
5-10	23 (9.20)	31 (12.40)	5 (2.00)	0 (0.00)	0 (0.00)	59 (23.60)		
10-15	10 (4.00)	9 (3.60)	9 (3.60)	3 (1.20)	0 (0.00)	31 (12.40)		
15-20	1 (0.40)	8 (3.20)	5 (2.00)	23 (9.20)	0 (0.00)	37 (14.80)		
20-25	0 (0.00)	7 (2.80)	3 (1.20)	4 (1.60)	0 (0.00)	14 (5.60)		



25-30	0 (0.00)	0 (0.00)	7 (2.80)	10 (4.00)	9 (3.60)	26 (10.40)		
30 and above	0 (0.00)	0 (0.00)	0 (0.00)	3 (1.20)	10 (4.00)	13 (5.20)		
Total	78 (31.20)	81 (32.40)	29 (11.60)	43 (17.20)	19 (7.60)	250 (100.00)		
Pearson's correlation coefficient (r)							0.81**	0.00

**Note:** Figures in brackets indicate the percentage to total

\*\* Significant at 1 per cent level.

**Source:** Sample survey

an average is positive and highly significant at one percent level. The association between number of animals held and the milk produced per day, on an average, by respondents is also explained with the help of chi-square value. The relationship between these two factors is 295.90 per cent, which significant at one per cent level.

The expenses incurred the respondents are divided into several categories. These are exhibited in the Table19. It can be gauged from the Table that the highest 82 or 32.80 per cent of respondents have incurred expenses on the maintenance of animals in the range of Rs.1000-2000 on, an average per day. These are followed by respondents 56 or 22.40 per cent of respondents in the order of Rs. 2000-3000, 48 or 19.20 per cent of pourers in the level of less than Rs. 1000, 27 or 10.08 per cent of samples in the frequency of Rs. 5000 and more, 20 or 8 per cent of respondents in the range of Rs. 3000-4000 and the least 17 or 6.80 per cent of respondents in the frequency of Rs. 4000-5000

**Table: 19. Distribution of Respondents on the basis of Expenses incurred over the maintenance of Cattle**

Range (Rs.)	Number of pourers	Per cent
Upto 1000	48	19.20
1000-2000	82	32.80
2000-3000	56	22.40
3000-4000	20	8.00
4000-5000	17	6.80
5000 and above	27	10.80
Total	250	100.00

**Source:** Sample survey

The association between the number of animals held and expenses incurred on them in the post period on an average per month is reported in the Table20. It can be observed from the Table that the value of chi-square between number of animals held and the expenses incurred on them, on an average, per month is 182.98 which is significant at one per cent level. It may be inferred that the relationship between the two variables is dependent in the post period. Similarly, the Pearson's co-efficient of correlation is 0.64 which is significant at one percent level. The 6 PE (r) is found to be Zero. The entire

value of the former is more than the latter. It means the association between them is highly significant. We may say that, normally, more the number of

**Table: 20. Relationship between Number of Animals and Expenses incurred in the post period**

Number of animals	Distribution of respondents on the basis of expenses						Total	Chi-square	p value
	Upto 1000	1000-2000	2000-3000	3000-4000	4000-5000	5000 and above			
1	22 (8.80)	45 (18.00)	8 (3.20)	2 (0.80)	1 (0.40)	0 (0.00)	78 (31.20)	182.98**	0.00
2	22 (8.80)	29 (11.60)	19 (7.60)	5 (2.00)	4 (1.60)	2 (0.80)	81 (32.40)		
3	2 (0.80)	2 (0.80)	10 (4.00)	8 (3.20)	1 (0.40)	6 (2.40)	29 (11.60)		
4	2 (0.80)	6 (2.40)	17 (6.80)	5 (2.00)	8 (3.20)	5 (2.00)	43 (17.20)		
5	0 (0.00)	0 (0.00)	2 (0.80)	0 (0.00)	3 (1.20)	14 (5.60)	19 (7.60)		
Total	48 (19.20)	82 (32.80)	56 (22.40)	20 (8.00)	17 (6.80)	27 (10.80)	250 (100.00)		
Pearson's correlation coefficient (r )								0.64**	0.00

**Note:** Figures in brackets indicate the percentage to total

\*\* Significant at 1 per cent level.

**Source:** Sample survey

animals held, more will be the expenses and lower the number of animals, lower will be expenses incurred on them, on an average, per month. The perceptions of respondents on the consumption and dispose of the milk are reported in the Table 21. It can be observed from the Table that, of the number of respondents, 148 or 59.20 per cent both consume and sell milk while the remaining 102 or 40.80 per cent only sell. This may be an account of their poor economic situation. These pourers are unable to consume milk due to necessary of funds. This trend is unwelcome. There is a need to improve the level of income and thereby keep some of the milk for the consumption of the members of the family. It is believed that it further improves their health condition.

**Table: 21. Consumption and Sale of Milk by Respondents**

Item	Number of pourers	Per cent
Yes (consumption and sale )	148	59.20
No (sale)	102	40.80
Total	250	100.00

**Source:** Sample survey



## **12. CONCLUSION:**

It may be concluded more than 50 per cent are in the age of less than 40 years. This is due to the fact that dairying requires some physical activity to feed the animals and milking the milk. More than 60 per cent are literates. Among the religion, Hindus account for a dominant share. Of the respondents, BCs have account for more than 50 per cent. Respondents with nuclear family account for a dominant share. Out of the respondents, family with 4-8 members is familiar. There is shift in the occupational pattern of respondents. The dairying as subsidiary occupation is popular. Of the respondents, 40 per cent are the earners. Among sources of income, agriculture as an alternate source of income ranked first. Around 60 percent of the respondents are involved in land based agricultural activities. Fifty four per cent of the respondents are having the own land. About half of respondents cultivate land in the range of 1.00-1.50 acres. More than half of the pourers employed family labour. Majority of respondents have not avail any assistance. The proportion of respondents with 2 animals came first. The respondents, the highest 28 per cent came first with 5 liters of milk on an average per day. The association between the number of animals held and the milk produced per day, on an average is dependent in the post period. The hypothesis is supported by both the correlation co-efficient and chi-square value. More than 50 per cent of respondents have incurred expenses up to Rs.2000 per day, on an average. The relationship between them is positive and highly significant. Nearly 41 per cent of pourers do not consume milk.



## ALLEVIATION OF TERRORISM THROUGH NUDGING OF SOCIAL INTERACTIONS

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### ABSTRACT

Terrorism has proved to be a far more serious problem than we anticipated 10 or 12 years ago. After more than a decade of terrorism to observe and nearly 10 years of research on the topic, we can say few things for certain. One is that terrorism has increased in volume and severity, although despite the increasing bloodshed, terrorists still operate within self-imposed constraints. Although terrorism is a widespread phenomenon, it affects the world unequally. There is no single factor that explains why some societies suffer higher levels of terrorist violence than others. Terrorists share a common demographic profile and certain common attitudes, but we do not know enough about them as individuals to identify a common terrorist personality. There are many ways using to prevent terrorism. This study analyses how social behaviour can be influenced without Coercion to numb the propensities leading to terrorism.

**KEY WORDS:** Terrorism, Axioms, Nudging, Coercion Jel Classificatio: B55, D74, D87

Terrorism is a major social problem and a biggest threat around the world. Terrorism is an act of violence or the threat to use violence with the objective to create fear to bring about political change. Terrorist acts are resorted to with the twin aims of creating panic in the general population as well as to weaken the confidence of the public in the government and the political leadership. It is designed to have far reaching psychological effects far beyond the immediate victims of an attack. The reasons behind terrorism can be historical, cultural, religious, economic and social. The problem of insurgency or terrorism is not a new phenomenon; it has been followed as a means to achieve political or social goals since the early annals of history. However, it is only since the last few decades that it has assumed such dangerously vast proportions. The last few decades have seen such terrorist events and activities that it has brought the subject of terrorism to the forefront across the globe. However, the definition of terrorism varies with the context, culture and the aims of the terrorists and the outlook adopted by the target groups or countries.

There is no clear definition for terrorism. Terror, terrorism, terrorist – the dictionary tells that the words are rooted in fear. Briefly it can be said that terrorism is a state of mind rather than activity. The word violence is inter-connected with terrorism. Violence is a word derived from Latin violare, which means to violate or to go against the socially accepted norms or to misuse it. The basic idea of terrorism is to impose one's own interpretations of religious teachings, politico-economic and socio-cultural values and norms through violence in the society.



The UN defines terrorism a “Criminal acts intended or calculated to provoke a state of terror in the general public, a group of persons or particular persons for political purposes, whatever the considerations of a political, philosophical, ideological, racial, ethnic, religious or other nature that may be invoked to justify them”. Terrorism can be briefly defined as “the systematic use of murder, injury, and destruction or threat of same to create a climate of terror, to publicize a cause and to intimidate a wider target into conceding to the terrorists aims”.

The 1790s was the period when the term was first coined, which referred to the terror witnessed between revolutionaries and their opponents during the French Revolution. The Jacobin party of Maximilian Robespierre carried out a Reign of Terror involving mass executions by the guillotine which is well known as Anarchist form of Terrorism. The emphasis of terrorist activities gradually shifted from Europe to the Middle East, Africa and Asia, after the two World Wars.

The late 1950s show the growth of Left-wing extremism, based on their belief that terrorism is the only strategy of a revolutionary movement for the weak in the Third World countries, surfaced in Europe and spread all over the world. The Red Army Faction in West Germany and Japan, Black Panthers in the USA, the Naxals and Maoists in India and several other left extremist groups grew up in different parts of the world during the 1960s. International terrorism is marked by a large number of transnational terrorist groups, mostly motivated by the Islamist fundamentalist ideology with the Islamic State of Iraq and Syria (ISIS) also having Al-Qaeda at the forefront and Taliban in Afghanistan as its close ally. With more and more aggressive actions caused by religious and right-wing terrorist groups appears to be an enduring feature of life.

#### **STATEMENT OF THE PROBLEM**

Terrorism has proved to be a far more serious problem than we anticipated 10 or 12 years ago. After more than a decade of terrorism to observe and nearly 10 years of research on the topic, we can say few things for certain. One is that terrorism has increased in volume and severity, although despite the increasing bloodshed, terrorists still operate within self-imposed constraints. Although terrorism is a widespread phenomenon, it affects the world unequally. There is no single factor that explains why some societies suffer higher levels of terrorist violence than others. Terrorists share a common demographic profile and certain common attitudes, but we do not know enough about them as individuals to identify a common terrorist personality. There are many ways using to prevent terrorism. This study analyses how social behaviour can be influenced without Coercion to numb the propensities leading to terrorism.

#### **SIGNIFICANCE OF THE STUDY**

Terrorism is a global threat that can never be justified. Terrorists are not concerned about destroying innocent lives, including those of women and children, as their intention is often to maximize the loss of life and property to draw greater attention to their cause.

There is a lot of knowledge that can be useful to addressing terrorism, including its prevention and its aftermath, but don't have immediate answers. Here the study examine that the terrorism can be alleviating through the psychological activities such as promotion of mixed neighborhoods, cultural exchange and terrorism can also stem from extreme poverty or income inequality. Nudging to influence individual and thereby

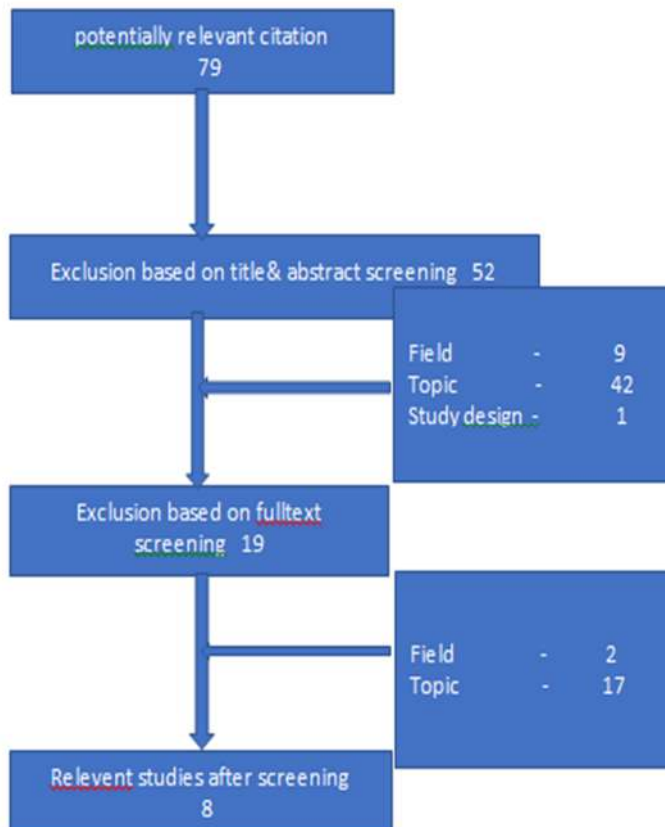
social behaviour for prevention and alleviation of terrorism requires us to identify the forces or social dynamics that are promoting it.

### **OBJECTIVE**

- To study about avoidance of terrorism through nudging

### **RESEARCH METHODOLOGY**

The study investigates the current state of art of the literature regarding nudging in the field of terrorism through a literature review. In order to analyse the avoidance of terrorism by nudging the qualitative method is applied here. There are 79 articles correspondence to various characteristics of terrorism and nudging. From this 24 articles were selected for depth analysis. All potentially relevant articles were screened using the eligibility criteria. The screening based on title and abstract resulted in 52 exclusions. The remaining 27 articles were subjected to a full text examination, resulting in another 19 articles being excluded. After the first screening, a total number of 8 articles were found to fit the eligibility criteria and were subjected to the full scoping review.



The other step of the study consisted analytical framework. This framework is guided by the four stages of the policy design cycle. As shown in table 1, each of the stages in the design cycle put forward relevant questions for the scoping review.

a. Table 1: Methodological Framework

<b>2. POLICY DESIGN CYCLE STAGE</b>	<b>3. RELEVANT QUESTIONS</b>
4. Stage: 0 5. EXPLORATORY STAGE	6. What research method is applied? 7. In what journal are the articles published? 8. Which country does the article relate to? 9. What policy sector does the article cover?
10. Stage :1 11. UNDERSTANDING THE ISSUE	12. 13. What heuristics are addressed in the article?
14. Stage :2 15. OBJECTIVE SETTING	16. 17. What goals are set out?
18. Stage :3 19. INSTRUMENT DESIGN	20. 21. What types of nudges are applied?
22. Stage :4 23. MONITORING, EVALUATION AND IMPROVEMENT	24. 25. What are the outcomes of nudging?

For the purposes of this study an additional stage 0 is included in the analysis. Stage 0 explores the general features of the selected articles, and considers the research methods, as well as the journal, country (ies) and policy field(s) that were covered. The other stages pertain to nudging in particular. Stage 1, understanding the issue, focuses on the types of heuristics found in the articles. Stage 2, objective setting, explores the different types of goals set out for the application of nudges in the articles. Stage 3, instrument design, maps the types of nudges applied in the studies. The final stage 4 relates to the evaluation stage of the policy design cycle and covers the extent to which nudges achieve particular policy outcomes such as effectiveness and efficiency.

The dawn of the 21st century has witnessed the rise of a most serious crisis in the form of global terrorism. Irrespective of their position, influence and progress, all nations across the globe have experienced the disastrous impact of terrorism. India has been a particular victim of this form of warfare for at least the last four decades. In simple words terrorism is the use of violence especially murder and bombing, in order to achieve political aims or to force a government to do something. This study examines



the causes of terrorism and how social behaviour can be influenced without coercion to numb the propensities leading to terrorism.

### **Alleviation of terrorism through the use of Socio Economic Nudges: Recommendations**

The study examines how social behaviour can be influenced without coercion to numb the propensities leading to terrorism. Nudging is a form of soft paternalism whereby governments manipulate the choice architectures of citizens to steer them toward desired outcomes (including eating better, voting more often, being less aggressive and violent, being more compassionate, living healthier, and leading more fulfilling lives).

From the perspective of social activists, public health officials, social marketers, and government tractors, the more subtle forms of nudging help mitigate populist backlash against nanny states which are view aggressive and intrusive in mandating by force of law that citizens do what's best for them or face repercussions. Such examination is needed as decades of violent counterterrorism have yielded unsatisfactory results in regard to the alleviation of terrorism.

Improvements in our understanding of human and social behaviour and their interconnectedness give us hope. Applications of behavioral economics are now acknowledged as major public policy tools with the development of a concept called 'nudge' (Thaler & Sunstein, 2009), which can be defined as a salutary deflection of individual choice through a change in the environment in which choice is made without suppressing freedom of choice.

Nudges have been applied successfully: (a) reduction of spillage in men's urinals; (b) increase in organ donation (Abadie & Gay, 2004; Johnson & Goldstein, 2003; Kurtz & Saks, 1996; Thaler & Sunstein, 2009); and (c) enhancement of income tax payments, army recruitment and diversity in the police force.

A few Research survey in early 2017 points to animosity against Muslims being lower among those who personally knew Muslims; and a study by Barrett (2013) shows how Bhutanese refugees from different faiths overcame their religious prejudices when forced by circumstances to live in close proximity and cooperate in the implementation of community programs. The amenability of the brain to respond to nudges can be explained by research in neuroscience in regard to the social brain which has revealed that humans react differently when the environment around them changes to turn genetic predispositions 'off' or 'on' and affect the structure and the level of activity of the inherently plastic brain. This can have implications for violence, crime, compassion etc. Thus, the social environment, which is a function of the vector of individual actions, is affected, with further implications for individual actions. This vicious loop involving individual actions and the social environment can converge to a social equilibrium or lead to divergence.

Nudge as any aspect of the choice architecture that steers people's behavior in a predictable way, without forbidding any options or significantly changing their economic incentives.

Nudging techniques come in many forms, summarized succinctly in Sunstein's article Nudging: A Very Short Guide. These techniques include setting default rules, framing, social proof, simplifying procedures, increasing the ease and convenience of desired behaviors, use of alerts, disclosures and reminders, eliciting implementation



intentions or soliciting pre-commitments. Here is a catalogue of **ten important nudges** very possibly, the most important for purposes of policy along with a few explanatory comments.

### **NUDGING ACTIVITY OR RECOMMENDATIONS TO AVOID TERRORISM**

The study focused on the prevention of terrorism through the nudging of social interaction. There are some types of nudging methods which can be use for avoiding terrorism. They are:

#### **Promotion of Mixed Neighbourhoods**

As members of hostile religious or racial communities would not like to live next to each other, any direct action to promote mixed living in a democracy is doomed to failure. However, something can be salvaged from this seemingly impractical suggestion.

#### **Mixing of neighborhood on the basis of religion**

For example, consider a typical religiously segregated Indian city. One possible nudge would consist of posting honest and helpful Muslim government officers without any prejudices in Hindu areas and vice-versa in order to break stereotypes that each community has formed of the other community. The number of such postings should be increased gradually as any sudden and artificial change in the environment is bound to be unwelcome.

One can see how such a nudge would impair the dynamics that fuel hatred and subsequently terrorism: first, when members of one community are handpicked and stationed as government officers to work in another community, the exposure of the latter to the former is not only strengthened because of the high frequency of interactions but leave a positive impression on the latter. Though the tendencies to form negative impressions of the other community from isolated interactions will continue, these might be overwhelmed by the significant positive impression created in a planned manner and designed to overcome existing bias.

#### **Mixing of neighborhood on the basis of race**

In the case of India, there is racial segregation between western parts of the state. In America, For instance, in comparison with dominant white Americans, black American status looks lower when status is computed using the dimensions of wealth and educational achievements. Negative stereotypes that one community forms of the other might start breaking down. One immediate positive consequence is a gradual dilution of the tendency to seek housing only in the community's ghetto, which in due course of time might lead to such ghettos getting converted to cosmopolitan settlements characterized by bias alleviating intermingling of communities. Thus, as inter-community interaction picks up, hatred would be replaced by feelings of neutrality and warmth. Mixed neighbourhoods can also be facilitated, as in the case of Bhutanese refugees in Eastern Nepal, by the government engaging in large infrastructure creation programs or community development efforts. A balance in religious or racial composition of recruits for these programs would ensure that people with different religious affiliations or racial origins would spend enough time with each other so that their biases, chiefly bred by lack of information and hasty negative generalizations, would melt away.



### **Cultural Exchange**

Culture can play an important role in preventing the development of a terrorist mentality, in dissuading would be terrorists and in cutting them off from wider support. Its potential, however, is still underestimated. Culture is also becoming increasingly a target of terrorism. No specific world, national, regional or local culture can be qualified as terrorist but extremist interpretation of some of its elements can be invoked to justify terrorist acts.

#### **Cultural exchange between hostile nations based on races**

Most interactions between members of two nations characterized by wariness or hostility towards each other involve government representatives who then spread their unfavourable impressions to the masses. The cycle of every increasing hate between nations can be broken by making the common man understand that his counterpart in an 'enemy nation' is on average as honest, compassionate and as motivated by self interest as she is. In other words, a continuing stream of 'people to people interactions' which continue with equal vigour in the face of ups and downs in diplomatic relations among nations is called for. Of course, the government holds the key to entry documents such as visas, but carefully planned meetings or camps on neutral ground involving citizens from hostile countries would do wonders in melting hostility.

Organizations such as the United Nations and Bill and Melinda Gates Foundation can take the lead in organizing events such as summer camps and other fora on neutral ground where members of different national communities can mix, and discover each other's culture as well as common ground. Once stereotypes are rejected, hatred might slowly get transformed into neutrality and harmony.

Going by Mukherjee (2016) genetic characteristics vary more within than between communities. Hostilities between nations are of great value to political leaders: support can be garnered by pointing to brave stands against enemy nations. When a foreign country and its population are painted as an evil enemy by the government and media, it inevitably draws a fitting response from the government, media and finally the common man from the other side.

#### **International gathering of religious scholars**

There are some countries with a specific religion. Religious heads of state visit other countries to create unity and harmony among people. The international gathering of religious scholars is aimed at promoting tolerance and peace between the two faiths. This may change the attitude of one particular religion to another. There are many religious terrorist groups in the world today. The ISIS and Al Qaeda are some of them. The cultural exchange between two religious groups can avoid the intensity of religious based terrorism. The recent visit of Pope Francis in UAE will help to bridge the rift between the two religions.

The international gathering of religious scholars is aimed at promoting tolerance and peace between the two faiths, said the Muslim Council of Elders.

The difference in cultural and religious background is enough cause for dislike or wariness. With frequent and more intense reactions, misapprehensions and false appreciation should give way to greater understanding and compassion. For any two hostile countries, a lobby of citizens can emerge in each country which is thus well disposed towards the common citizens of the other country and can thus counter the



propaganda carried out by media and government in their own country. Culture in all aspects, the arts, heritage, religion, the media, science, education, youth and sports can play an important role in preventing the development of a terrorist mentality, in dissuading would be terrorists and in cutting them off from wider support. Its importance in this respect, however, is often underestimated.

### **Out-Group Influences**

Social Identity Theory (SIT) is one of the well-developed social psychological models of group interactions including inter-group violence. Group members, according to the theory, engage in violent collective action as well as non-violent strategies such as social creativity to enhance their status.

### **Comparison between in- group and out-group**

One of the social creativity strategies is to reinterpret the dimensions of comparison between groups so that the status of the in-group looks better relative to out-group. In-group members can elevate the importance of positive in-group characteristics and downgrade those dimensions on which an out group looks better than the in-group.

For instance, in comparison with dominant white Americans, black American status looks lower when status is computed using the dimensions of wealth and educational achievements. Some social psychologists argue that black social empowerment movements of the 1960s shifted dimensions of comparison to street toughness and physical prowess because these dimensions made black Americans from the ghetto look better relative to white Americans. Such redefinitions are necessary to allow members of a stigmatized group to maintain a positive self-esteem, which is needed for their mental well being. Social psychologists also contrast social creativity largely viewing it as positive with violent collective action against an out-group (largely viewing it as negative).

However, cultural scientists studying strategies used by minorities to cope with their marginalization have observed that social creativity strategies often work hand in glove with violent collective action. A study of African American social movements shows that social creativity strategies that result in development and propagation of myths of black ghetto males as hyper masculine tough guys who fearlessly confront an oppressive and unjust police can also promote and perpetuate collective violence against the police. A similar dynamic can be seen at work among Muslim social and religious movements. Most of the creative Muslims thinkers argued that spirituality and family values count for more than material wealth and individual freedom and that while the West has material wealth and individual freedom; Muslims have spiritual wealth and strong family bonds. Good Muslims, on the other hand, are perceived to be highly religious and family people.

While social creativity is often seen through the lens of an underprivileged minority group as the group's valiant struggle to construct a positive image for their marginalized group, it can also be seen as an attempt by an out group to affect core social identity beliefs of another group. Thus, by collectively stereotyping blacks as brutes, white Americans were able to influence blacks to redefine their core social identity beliefs in what it means to be a good black American. This suggests that by understanding social identity dynamics, a dominant group can affect core social identity beliefs of a marginalized group. This is contrary to the argument often offered as a definitive

conclusion by some social scientists that it is not possible for the West to positively affect core social identity beliefs of Muslims, and that only other Muslims can engage in the battle of ideas against jihadists. It suggests that the West can actually play an active role in positively affecting the social identity beliefs of Muslims.

### **Nudging Corporate Social Responsibility to Prevent Economic Alienation**

Corporate social responsibility or CSR is a corporation's initiative to assess and take responsibility for the company's effects on environmental and social wellbeing. CSR is the continuing commitment by business to behave ethically and contribute to the economic development while improving the quality of life of the workforce and their families as well as that of the local community and society at large.

Terrorism can also stem from extreme poverty or income inequality. Suffering groups or communities often feel alienated by the economic policies of the government which they see as promoting powerful lobbies such as large corporations, especially those operating in land intensive sectors such as real estate and mining. The result is terrorism often directed at all government officials, the powerful lobbies themselves or even all rich citizens. This sort of terrorism is known as Naxalism in India; it has also been frequently observed in Latin America. However, the solution to the problem is similar to the other cases: creation of an environment where hate is replaced by a more benign feeling.

At present there are many companies adopt CSR strategies. The major companies that use CSR activities:

**Google:** Google earned RI's highest CSR score much in part due to their data center using 50% less energy than others in the world. They also have committed over \$1 billion to renewable energy projects and enable other business to reduce their environmental impact through services such as Gmail.

**Nuskin:** One of their more well known and major initiatives is called Nourish the children. The program began in 2002 and it lets company sales leaders, employees and customers to donate nutrient- rich meals to needy children. The company also operates the force for good foundation which works to offer children relief from illiteracy, poverty, and disease.

**Johnson & Johnson:** Their initiatives range from leveraging the power of the wind to providing safe water to communities around the world.

**Disney:** Company focuses primarily on the community, the environment and volunteerism aspects of CSR. The company is also known for protecting the environment, giving proceeds from nature films to plants trees in the rain forest and protects thousands of acres of coral reef.

**TOMS shoes:** for every pair of shoes is donated and that effort has now extended to vision care for the community and help those who are in less fortunate circumstances.

Terrorism has links with underdevelopment of a group or community or region or nation and the bad elements exploit the sentiments of the poor to join against the injustice as it a weak link. Nudging of corporate social responsibility can prevent the bad tendency. Terrorism in this case can be seen as resulting from the resentment by the have-nots (poor) of the haves (rich). The rich can regain the trust of the poor by investing in the wellbeing of their communities. This can result in increase in demand, due to growth in incomes of those who are presently poor, for the products of the rich. Moreover, the

feelings of hostility harboured by the poor would weaken and they would stop colluding with those, such as Naxalites or terrorists, attempting to railroad the plans of the rich. However, if the discount rates of the rich are high they might not value the future returns from the mentioned investments greatly. Thus, big business has to be nudged by governments and well-endowed NGOs through incentives, such as tax rebates and prizes, to undertake Corporate Social Responsibility (CSR) projects such as housing and employment generation schemes in poor or tribal communities.

### **CONCLUSION**

The study on 'controlling terrorism through the nudging of social interaction' explains how 'nudge theory' can be applied to alleviate the incidence of terrorism. Nudges, which bring about a change in the environment in which individual choice is exercised, do not just modify the behaviour of individuals in a society but thereby influence the social environment which has been shown to impact both the human brain and behaviour.

The study also finds out the causes and types of terrorism and the goals and priorities of terrorists. It uses an axiomatic system which captures present day individual and social behaviour and then elaborates on the resultant social dynamics which lead to growth of terrorism inducing intercommunity hatred. It also suggests nudges for utilizing the bidirectional causality between the human brain and social environment to render one or more axioms toothless and diminish the societal propensity for terrorism.

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## **A COMPARATIVE STUDY ON INFLUENCE OF PHYSICAL FITNESS TRAINING AND YOGIC EXERCISES ON THE SPORTS PERFORMANCE OF HANDBALL PLAYERS**

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### **Abstract**

The research study based on the experimental research investigation among the handball players of Gulbarga university. the research problem is entitled as “A comparative study on influence of physical fitness training and yogic exercises on the sports performance of handball players” the researcher wanted to find out the influence of the physical fitness training and yoga practice on the sports performance among the handball players of Gulbarga university and also measure the significance effect of the training of physical fitness and yoga practice on the sports performance among the sample of the study. he also intended to find out the significance difference in the effect on the sports performance. The research hypothesis also stated that there would be effect of physical fitness training and yoga practice on the sports performance groups. There would be significance difference in the effect of physical fitness and yoga groups on the sports performance among handball players. the study also comparing the effect of training of physical fitness and yoga practice on the sports performance. total sixty handball players were selected for the study and divided into two equal groups one for physical training and other one for yoga practice for five weeks. The investigator made pre and post tests on sports performance among sample through measuring the speed, endurance, strength abilities. The standard physical training and yoga practice schedules prepared by the researchers and the pre post data of sports performances calculated through the SPSS software.





**Key words** – Physical Fitness Training, Yoga Practice, Sports Performance.

## INTRODUCTION

### Physical Fitness Defined

Actually, different definitions have been offered by the educationists, but physical fitness defined by the American Association for Health, Physical Education and Recreation is “That state which characterizes the degree to which the person is able to function. Fitness is an individual matter. It implies the ability of each person to live most effectively with his potentiality of function and depends upon the physical, mental, emotional, social and spiritual components of fitness which are related to each other and are mutually inter dependent”.

#### *Physical fitness training methods*

- Strength training
- Circuit training
- Fartlek training

Circuit Training is a variation of Interval Training. It is a very old tactic, some might say it's out-dated, but people still practice it and get fantastic results. It is ideal for when you are trying to cut fat while continuing to build muscle. Circuit training is where you do a cardio activity, then periodically, you do a bodyweight activity. A example would be, jog for 1 minute, do 10 push-ups, then jog for again repeating the cycle for 20-40 minutes. In circuit training, there aren't really suggested times or reps you should do, that is really up to what you are able to endure.

Circuit training is an excellent way to improve mobility, strength and stamina. The circuit training comprises of 6 to 10 strength exercises that are completed one exercise after another. Each exercise is performed for a specified number of repetitions or for a set time before moving on to the next exercise. The exercises within each circuit are separated by a short rest period, and each circuit is separated by a longer rest period. The total number of circuits performed during a training session may vary from two to six depending on your training level (beginner, intermediate, or advanced), your period of training (preparation or competition) and your training objective.





Looking for a way to infuse your fitness routine with some new energy and excitement? Whether you're a seasoned athlete or just getting started with physical activity, circuit training is a great way to challenge your body in a variety of ways while boosting the fun factor.

### MEANING AND CONCEPT OF YOGA:

The word 'yoga' has many etymologically, it means integration. The term Samatva of Bahgaradgita conveys the same meaning certain other terms like hemostatic equilibrium, balance, harmonious development etc. more or less suggest the something. The word yoga has been derived from the root "Yuj". It means to join two thing is known as Yoga. 'Joining Prana and Apana.' Prana is situated in the heart and Apana is situated in Anus. Joining these and talking then to Sahasra Chakra is known as yoga. 'Joining Shakti with Shiva' 'Joining Soul with God.' 'Joining moon with sun.'

The science which gives us knowledge about all these is called the science of yoga. The Geeta defines2 yoga as the eventless of temper "Sidhyasidhayoh Samo Bhuta Samatvan yoga uchyate"

### Definition of Yoga:

According to Patanjali3 "Yogashchitta vritinirodha" i.e. withdrawal of sense organ from the worldly objects and their control is yoga. Therefore, it can be said that control of sensory and motor organs and mind, is called yoga.

According to Geeta4 "Yogakaramsukaushlam" To get excellence and the perfectness in any Karama is yoga. Patanjali has attempted to define the term "yoga" therefore carries the sense of purposeful action, an action undertaken in order to achieve a specific end.

### Modern Definition5 :

"Yoga is that type of education in which we can get all round development of human being through yogic activities like health development, mental development. Physical development, emotional balance, social development and to attain the moksha is called yoga."

According to Satyananda Sarswati (1963) 6 "Yoga is not an ancient myth but most valuable in heritage of the present. It is essential need of today and culture of tomorrow."

## **METHODOLOGY**

**Significance of the study** - This study based on the experimental design two groups, the investigator intended to know the effect of physical fitness training and yogic exercises on the sports performance of the Inter Collegiate Hand ball players.

### **Statement of the problem**

“A Comparative Study On Influence Of Physical Fitness Training And Yogic Exercises On The Sports Performance Of Handball Players”

### **Method of the study**

The present study is based on experimental research, the researcher interested to find out the effect of Physical fitness training and yogic Practice on the sports performance of Inter Collegiate Handball Players. There will be pre and post tests will measure the effect of the independent variables on the dependent variables of sample, the sample group divided into two groups, Physical fitness group and Yoga group, pre test will measure the Motor fitness variables, the both groups training session three days for a week, five weeks practice /training to both Physical fitness training and yoga group, after five weeks of practice the post tests will be conducted for the assessment of the effect of the independent variables on the dependent.

### **Objective of the study**

- To find out the impact of the Physical fitness training on the sports performance among Hand ball players.
- To find out the impact of the Yogic Exercise on the sports performance of sample group.
- To find out the impact of the yoga exercises on the dependent variables of the sample sub groups.
- To measure the significance difference of physical fitness training and Yoga practice groups sports performance levels.
- To find out the influence of physical fitness and yogic practices on the sports performance among Inter Collegiate hand ball players.

### **Hypothesis of the study**

- There would be significant effect of Physical fitness training on the dependent variables among sample group.
- There would be significant effect of Yoga on the Dependent variables of the sample groups.
- There would be significant effect of physical fitness on the sports performance among sample groups,
- There would be significant effect of Yoga on the sports performance of sample groups.
- There would be significance difference in the sports performance in pre and post tests of the study among the sample groups.

### **Variables of the study**

#### **Independent Variables**

- Physical fitness training
- Yogic exercises

#### **Dependent Variables**

Sports performance measuring factors

- Speed
- Endurance
- Strength

The following are the motor ability tests have been used in the study.

### **Sample of the study**

The present research study consisted the total sixty handball players of Gulbarga University Karnataka. In the sixty handball players divided into two equal groups one for physical fitness training group and other one for yoga practice group.

### **Tools**

- ❖ Physical fitness training plan consist the circuit training which focus on the selected fitness variables of the study.
- ❖ Yoga Practice plan – the asanas like, suryanamaskar, mayurasana, etc, which develops the fitness variables of the present study.

The following are the motor ability tests have been used in the study. Motor Ability Test

Sl.No.	Motor Ability	Test	Unit of Measurement
1.	Speed	50 Yard Dash	Time
2.	Endurance	12 Min. Run and Walk	Distance
3.	Strength	Pull ups	Score

### Statistical techniques

- ❖ Mean
- ❖ Standard deviation
- ❖ T tests

**Table No 1 Showing the significance difference of speed ability among Physical fitness training group and Yoga practice group in pre and post tests**

Variable	Sample groups	Pre Test		Post test		T value
Speed	Physical Fitness Training	Mean	7.057	Mean	6.460	1.282**
		SD	1.666	SD	1.167	
	Yoga Practice	Mean	7.097	Mean	6.884	.513
		SD	1.512	SD	.981	

The table showing the effect of physical fitness training and yoga practice on the speed variable among the handball players. the physical fitness training has the significant effect on the speed ability the t value is 1.282\*\* significant at 0.01 levels. The yoga practice is not has the significance effect on the speed ability. The t value is .513 not significant at 0.01 levels. The is significance in difference in pre and post test of physical fitness training group.

**Table No 2 Showing the significance difference of Endurance ability among Physical fitness training group and Yoga practice group in pre and post tests.**

Variable	Sample groups	Pre Test		Post test		T value
Endurance	Physical Fitness Training	Mean	1922.72	Mean	2114.96	2.773**
		SD	300.98	SD	198.16	
	Yoga Practice	Mean	1929.48	Mean	2043.84	1.863**
		SD	3.01.20	SD	220.26	

The table showing the effect of training groups on the sports performance variable endurance. The physical fitness group has the significance effect on the endurance ability in post tests after the physical fitness training. The t value is 2.773 significant at 0.01 levels. The yoga practice has also showing the significant effect on the endurance ability among handball players. The yoga groups t value is 1.863\*\* significant at 0.01 levels. The both groups of the study are having the significant effect on the endurance ability among handball players.

**Table No 3. Showing the significance difference of strength ability among Physical fitness training group and Yoga practice groups in pre and post tests**

Variable	Sample groups	Pre Test		Post test		T value
Strength	Physical Fitness Training	Mean	11.190	Mean	13.04	4.832**
		SD	1.011	SD	1.540	
	Yoga Practice	Mean	11.040	Mean	12.11	3.412
		SD	.789	SD	1.011	

The table showing the significant effect of physical fitness training on the strength ability of handball players of the study. there is difference in pre and post tests mean score of physical fitness training group, the t value is 4.832\*\* significant at 0.01 levels. The yoga practice group also has the significance on the strength ability of the handball players in pre and post tests. The t value is 3.412\*\* significance at 0.01 levels. The yoga practice also increased the strength, the physical fitness training is more effect on the testing variable than the yoga practice.

### **Conclusion of the study**

The study showing the effect of physical fitness training and yoga practice on the sports performance among the handball players of Gulbarga university. the physical fitness training groups and yoga practice groups are analysed in pre and post tests and compared the data to find out the effect on the sports performance variables

- ❖ The physical fitness training groups has the significance effect on the speed ability among the handball players. the yoga group has no significance effect on the speed ability.
- ❖ The physical fitness training groups and yoga practice groups are having the significance effect on the endurance ability of handball players. the physical training groups has the more effective than the yoga practice in the development of endurance
- ❖ The physical fitness training has more effect on the strength development and the yoga practice. The both groups are having the significant effect but the physical fitness training is better than the yoga practice in the development of strength among handball players of gulbarga university.

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## STUDY ON ALGAL BIODIVERSITY IN AND AROUND PATAN (NORTH GUJARAT), INDIA

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### ABSTRACT:

Macro-Micro algae are one of the most diverse groups of living organism that are located all across the oceans, rivers, ponds, and lakes. Algae play a significant role in maintaining the aquatic ecosystem and form the base of a food chain or food web. Algae are mostly classified as Rhodophyta (red algae), Phaeophyta (brown algae) or Chlorophyta (green algae) depending on their pigments, nutrient and chemical composition. The algae species that are in and around Patan and document the presence of valuable algal species. A total of thirty algal species were partially identified namely Nostoc Commune, Chroococcidiopsis Cubana , Ulothrix aequalis, cymbella hustedtii, Spirogyra ternata, Oscillatoria limosa, Mesotaenium sp., Oscillatoria fracta, Gomphonema sp., Spirogyra Pratensis, Oscillatoria peronate, Cladophora glomerata , Closterium sp.

**KEYWORDS:** Algae, Biodiversity, ecosystem, Patan

### INTRODUCTION

The aquatic environment mostly contains over 80% of world's animal and plant species and thirty-four of the thirty-six phyla of life are represented in the aquatic ecosystem. Algae represents for more than any other aquatic plant species with about 150,000 of algal species classify in the intertidal zones and tropical waters of the oceans and other freshwater resources. It is one of the primary sources of natural products contributing for one of the biggest food resource. Algae play a vital role in maintaining aquatic ecosystem and form the base of food web or food chain. Algae are located everywhere on earth: in the sea, lakes, and rivers, on soil, walls and trees (Ianora et.al, 2006) macro-micro algae or seaweeds are floating and submerged plants of shallow marine meadows and still water bodies. Algae possess thallophytic structure its look like lack true leaves, roots and stems. Algae contain photosynthetic pigments and use sunlight to produce oxygen and food from carbon dioxide and the water and are autotrophic in nature (R.k. jha and x. Zi-rong, 2004).micro and micro algae are generally classified as chlorophyta (green algae), phaeophyta (brown algae) or rhodophyta (red algae), depending on their pigments, nutrient and chemical composition. These algae are most useful sources of proteins, vitamins, minerals, antioxidants, and polyunsaturated fatty acids, etc. (Mark l.wells et.al.2017). Freshwater microalgae are produced edible oils, they are suitable for vegetarians, children, and pregnant women. Different micro-macro algal species content high protein and are one of the main reasons to consider them as an unconventional



source of proteins. Microalgae are capable of synthesizing all amino acids. Most of the microalgae are examined average and equal quality, sometimes plant proteins are even superior in comparison to conventional. (Dajana j. Kovac. Et al., 2013).

Moreover, microalgae are used as single-cell protein. Spirulina is the most dominating species among the microalgae there are used as single-cell protein. Microalgae can play as a vital role and they are a potentially great source of natural compounds, which could be used as functional ingredients (Indira priyadarshani, Biswajit rath, 2012). These algae are one of the potential sources of feed and foods and they are provided by nature with the potential to feed an ever-growing and affluent population. They also contain many unique and valuable biochemical properties and that play a vital role in many aspects of daily lives from nutrition through to the energy production.

## MATERIALS AND METHODS

### *Collection of Samples*

Algal samples were collected in a sterile plastic bottle from different water bodies in and around the city of patan. Patan is one of india's most famous cities for patola and rani ki vav. It is a great historical place located on the bank of the endorheic Saraswati River. Which is mostly what remains of the ancient sarasvati river. The city lies between latitude 23°51'00"N and longitude 72°07'30"E. The sample collection from different river, lake, and pond in and around patan city.

### *Identification and preservation of Algae Samples*

Samples collected from different sites were washed thoroughly with running tap water for the removal of any form of solid materials. Samples were then preserved using a standard preservative of 5% formalin. (Jaap bloen at.1986) the sample stored in glass containers for further use. Microalgae are observed under an Olympus microscope for identification and microphotograph. Identification of the algae samples was carried out mostly through standard books, standard monographs, and some web resources.



*Map of Patan city*

## RESULT AND DISCUSSION

The study in different water bodies of Patan showed a rich diversity of filamentous and non-filamentous algae belonging to various classes. The sites also contained a large



amount of micro-algae and diatoms. Such algae that are discussed below were identified during the course of study.

**1. *Nostoc commune***

**Classification:**

**Class - Cyanophyceae**

**Order - Nostocales**

**Family - Nostocaceae**

**Genus - *Nostoc***

The thallus structure is multicellular, colonial, filamentous and unbranched. The young colonies are always microscopic, solid, spherical, irregular and hollow. The filament sheathed and are held together by a gelatinous sheath. The cell is rounded along with the filament structure larger specialist nitrogen-fixing heterocyst cell found between the ordinary cells. Reproduction takes place by vegetative and rarely asexual.

**2. *Chroococcidiopsis Cubana***

**Classification:**

**Class - Cyanophyceae**

**Order - Chroococcidiopsidales**

**Family - Chroococcidiopsidaceae**

**Genus - *Chroococcidiopsis***

The cell structure is spherical. Cell has a diameter of two to six mm and is surrounded by thin, colorless, and extracellular. Thylakoid distributions are irregular throughout the cell. Heterocysts are mostly formed in very low concentrations of nitrogen. The cell division occurs in two possible ways. The first being successive binary division in different planes or by irregular cell division by multiple fissions. *Chroococcidiopsis* sp. Produces nitrites or ammonia through nitrogen fixation.

**3. *Ulothrix aequalis***

**Classification:**

**Class - Ulvophyceae**

**Order - Ulotrichales**

**Family - Ulotrichaceae**

**Genus - *Ulothrix***

The plant body Structure is unbranched and filamentous. The cells of the filaments are arranged like end to end. Mostly body structure is cylindrical or barrel-shaped. The apical cell is rounded at its terminal end whereas the basal cell is elongated. The basal holdfast attaches the filament to the substratum. The cell wall structure is composed of pectin, cellulose, and mucilage. Each and every cell has a single girdle-like, parietal chloroplast. Reproduction is done by means of vegetative, asexual and sexual methods.

**4. *Cymbella hustedtii***

**Classification:**

**Class - Bacillariophyceae**

**Order - Cymbellales**

**Family - Cymbellaceae**

**Genus - *Cymbella***

The shaped like orange segments in valve view. The raphe is curved from the central area to the poles mostly in parallel with the long edge of the valve but deflects towards

the long edge at the cell poles rarely join to surfaces with gelatinous stalks. The chloroplasts color is golden-brown. Cells structure is slightly too strongly curved dorsiventrally, appearing like an orange slice. It can be colonial, almost forming branched mucilage stalks or as single cells. The plastid has two h-shaped plates that connect toward the dorsal side of the girdle forming an enlarged bridge. Reproduction is occur by Asexual.

**5. *Spirogyra sp.* (*Spirogyra ternate*, *Spirogyra pratensis*)**

**Classification:**

**Class - Zygnematophyceae**

**Order - Zygnematales**

**Family - Zygnemataceae**

**Genus – *Spirogyra***

The thallus structure is simple, filamentous, branching and multicellular. The cells of the filaments are longer than breadth. Each cell body is cylindrical. The chloroplasts are one or several band-shaped, spirally arranged within the cell. A single pyrenoid present in each of chloroplast. The septum with or without folded structure and 3-4 chloroplasts making 1-3 turns in each cell. Reproduction takes place by vegetative and sexual.

**6. *Oscillatoria Sp.* (*Oscillatoria limosa*, *Oscillatoria peronata*)**

**Classification:**

**Class - Cyanophyceae**

**Order - Oscillatoriales**

**Family - Oscillatoriaceae**

**Genus – *Oscillatoria***

The alga structure is multicellular, filamentous, unbranched. A cell is cylindrical, the length is shorter or greater than breadth. The cell color is blue-green, blackish or olive. Filaments consist of extremely thin sheath enclosing unbranched trichome. Trichome are a single row of cell. In the plant body gelatinous disc or gas vacuoles found between trichome cell. Cell division occurs in a rapid sequence transversely to the trichomes axis. Reproduction occurs by only vegetative type.

**7. *Mesotaenium sp.***

**Classification:**

**Class - Zygnematophyceae**

**Order - Zygnematales**

**Family - Mesotaeniaceae**

**Genus - *Mesotaenium***

The cells unicellular, solitary or aggregated within the common gelatinous matrix with simple structure. Cells size is small to medium, long or short cylindric, straight or slightly curved, with broadly rounded ends. The chloroplasts one or two per cell, axial plate or band, rarely parietal, with 1 or 2 pyrenoids. Nucleus along the center of chloroplast band, or between chloroplasts if two present. The cell wall is two-layered. Asexual reproduction usually only by transverse cell division.

**8. *Gomphonema sp.***

**Classification:**

**Class - Bacillariophyceae**

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**Order - Cymbellales****Family - Gomphonemataceae****Genus - Gomphonema**

The Cell Structure Mostly narrowly-lanceolate to rhombic-lanceolate, asymmetrical to the apical axis, with a gibbous middle portion. The headpole is rostrate to narrowly-rounded and Footpole rounded. Raphe straight, filiform for most of its length, slightly lateral near the axial area. Center area narrow, linear, small, irregularly rectangular in shape, unilaterally enlarge and formed by one short stria being slightly more distant from others. The Striae is radiate at the center and towards. The headpole and radiate towards the footpole. Reproduction is take place by Asexual.

**9. *Cladophora glomerata*****Classification:****Class - Bacillariophyceae****Order - Cymbellales****Family - Gomphonemataceae****Genus - Gomphonema**

The thallus structure is multicellular each cell possess multi nucleus. The thallus is filamentous and branched growth. The filaments are mostly profusely branched. The Cells carry many parietal round chloroplasts, which usually join into a net-like structure. Plant body attached to the substratum with the help of holdfast. Holdfast is found in the basal part of the thallus. Reproduction is done by Asexual and Sexual.

**IMAGE OF ALGAE:**

**Image of *Oscillatoria limosa***



**Image of *Spirogyra ternata***



Image of *Nostoc commune*

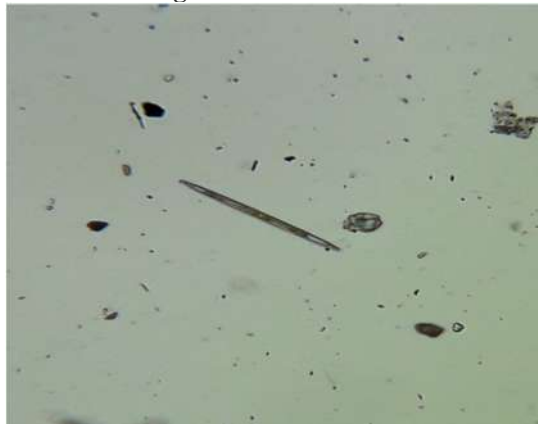


Image of *Closterium Sp.*

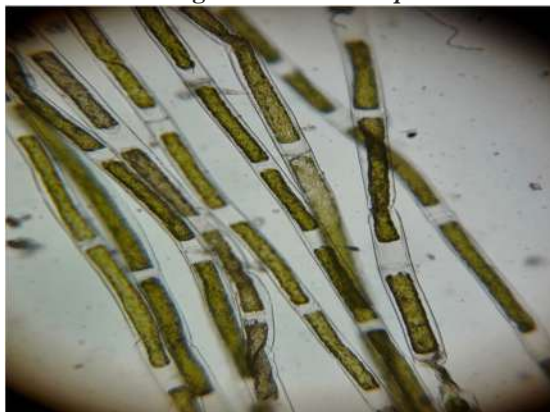


Image of *Cladophora glomerata*



Image of *Cymbella hustedtii*



Image of *Oscillatoria peronata*

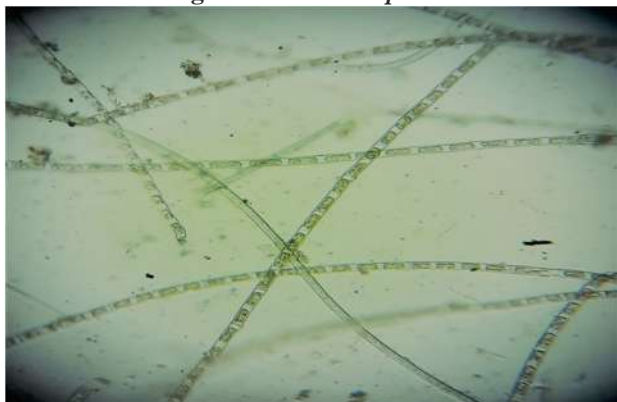


Image of *Ulothrix aequalis*



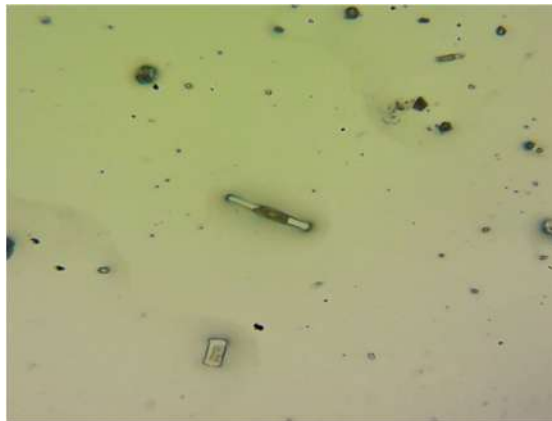


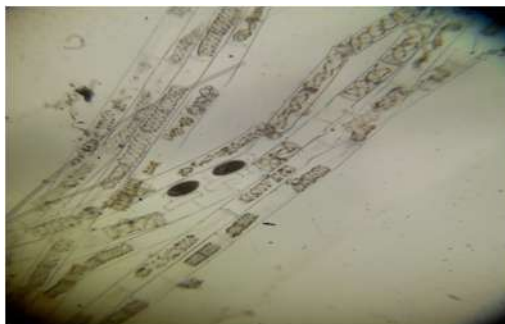
Image of *Gomphonema* sp.



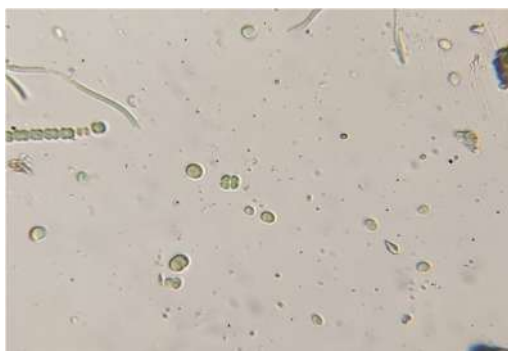
Image of *Oscillatoria Fracta*



Image of *Mesotaenium* Sp.



**Image of *Spirogyra pratensis***



**Image of *Chroococcidiopsis cubana***

## **CONCLUSION**

Algae are an integral part of the ecosystem that serves for various purposes such as fodder, photosynthesis and also as waste management. The areas around Patan has several water sources consisting of both stagnant and free flowing and therefore, a rich source of various forms of filamentous algae. A total of thirty algal species documented the presence of valuable algal species. Therefore study on such algae can play an important role in ecological management.

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## A COMPARATIVE STUDY ON AGGRESSION AMONG KHO KHO PLAYERS OF GULBARGA UNIVERSITY

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### Abstract

The present research study focused on the aggression factor among kho kho players of Gulbarga University. the research investigator intended to know the significance difference in psychological factor among the sample of the study. The aggressiveness behavior is the one of the most influencing factor on the sports achievement among the sports players. The behavior of the sports players makes him stronger and bold in actions, which makes the sports players self confident than others and the sportsman should have the sense of sports rules and regulation which makes the balanced aggressive behavioral action needed in the sports field. The research study objectives – to measure the aggression level among the kho kho players of gulbarga university, to compare the aggression among the sample sub groups and find the significance difference. To find out the influence of gender on the psychological factor of kho kho players of gulbarga university. The study hypothesis also stated that – there would be significance difference in aggression levels among the kho kho players. There would be influence of gender on the psychological factor. The fifty kho kho male and female in equal numbers taken as sample of the study, the research investigator given the information about the study and the testing tool of aggression.

The research investigator used the basic statistical techniques like, mean, standard deviation and t tests to calculate the data.

**Key words – Aggression, Gender.**

### Introduction

Aggression and sports performance

Aggression is an act of hostility or violence, aggression as behaviour intended to cause harm or pain. If an athlete intends to fracture the nose-it is aggression. Aggressive behaviour can differ from men to women athletes.

There are many possible ways of defining and interpreting “Aggression”, dependent on which method is used. Baron claims that *“hostility is a form of behavior with the intention of destruction or injuring an additional*

source of revenue organism who is moved to steer clear of such behaviour". Aggression may be looked as a form of behavior; hence, in the daily life of human being aggressive behavior is a common thing. As a result, aggression emerges naturally in the social, political and religious context. Generally, to predominate each other people behave aggressively. The aggressive behavior studies needed for children as well as youth's development and academic performance and outcomes.

Aggression behaviour is usually learned much like other forms of social behavior. It means, there is no inborn aggressiveness in human beings, but the aggressive responses of human being are acquired similar to other complex forms of social behavior. Bandura rightly points out this phenomenon when he claims that aggressive behaviours are learned either directly or by observing the behavior of others in the society. Berkowitz puts forth aggression as act with intention directed to harm others. Conceptualizing aggression in such terms helps to capture effectively its essence, even though it is not possible to present this form in precise manner in real contexts. Dollard and his mates claim that any aggressive behavior aims towards the injury of the person against whom he is motivated. They believe that aggression is the action which has definite aim that inflict others rather than being noxious stimuli. However, one cannot find similarity in the exact nature of this response from one occasion to the next. Anticipations of penalty can be provoked to the indirect forms of aggression and can never think of direct attack on the target. According to the researchers, many aggressive forms were theoretically interchangeable.

In some cases such as accidental harms, these are not aggressive behaviours as they are not purposeful actions. Likewise, the pain aroused in sexual acts cannot provoke to in act for the pleasure like the dental procedure. In the same way, Baumeister claims that "*the soreness manage in sexual masochism is not hostile since the casualty is not enthused to keep away from it – undeniably; the pain is energetically importune in the overhaul of a superior objective*" (1989). Violent acts of aggression are intended to do extreme harm which may also result in death. All violent actions can be categorized as the results of aggression, but all aggressive behaviors are not necessarily to be violent.

The common definition of the aggression is feeling or emotional element which is ready to hurt others it may be psychologically or physically. The overload of the emotional pressure releasing on others.

R. A. Baron and D. Byrne have suggested that aggression behaviors motivated out of good always try to avoid harm or injury to another living being. Aggression behaviours are expressed in terms of anger, jealousy, hated etc. and the person motivated with such patterns wishes to injure others. The

aggressive behaviors are directed to humiliate, dominate or put another person down instead of expressing one's honest emotions or thoughts.

These actions are not needed in society, but they are bound in their limits; and they can never go beyond accepted moral standards. It can be witnessed in a disobedient player who is trained by a coach with specific disciplines by benching him or her.

Socio-biologists like Buss, and Buss & Kenrick argue that evolution can be seen in the aspects of social behavior. They go a step further and include aggression also in the category of evolution.

The Nature of Human aggression Most of us are familiar with acts of aggression, either through personal experience or through the mass media. A report in the July 11, 1973, New York Times indicated that 34 percent of adult women in one congressional district of New York city were the victims of serious crimes in 1972.

Faulkner (1971) many researcher shown that the balanced aggressive behavior makes the sports players get success in the sports competitions, the rough behavior also gives them most effecting strength to hurt the opponents in the physical or psychological ways Silva and Weinberg (1983).

#### **METHOD OF THE STUDY**

The research investigator tried to find out the influence of gender on the psychological factor of the study. the study focused on the aggression factor among the kho kho players of Gulbarga university.

Statement of the problem

A comparative study on aggression among kho kho players of Gulbarga University

#### **Objectives of the study**

- ❖ To measure the aggression levels among the male and female kho kho players of Gulbarga University.
- ❖ To compare the aggression among the sample sub groups and find the significance difference
- ❖ To find out the influence of gender on the psychological factor among kho kho players.

#### **The study hypothesis**

- ❖ There would be significance difference in aggression levels among the kho kho players.
- ❖ There would be influence of gender on the psychological factor.
- ❖ There would be significance difference in aggression among sample groups

#### **The sample**

The research investigator had randomly selected the male and female kho kho players as sample of the study, the sample divided into two equal groups of

twenty five male and twenty five female players. The kho kho players were given needful instructions about the research study.

### **Tools**

#### **Aggression**

The level of the aggression also has the impact on the sports players' performance and also difference among the difference sports. The Aggressions of the players under the study were tested by the Aggression Scale test developed by Guru Pyari Mathur and Raj Kumari Bhatnagar (2004).

The aggression scale used for the research study to measure the aggression among the sample of the study.

S.No	Responses	Score for Positive statements	Negative statements
1	Strongly Agree	5	1
2	Agree	4	2
3	Undecided	3	3
4	Disagree	2	4
5	Strongly Disagree	1	5

### **Statistical**

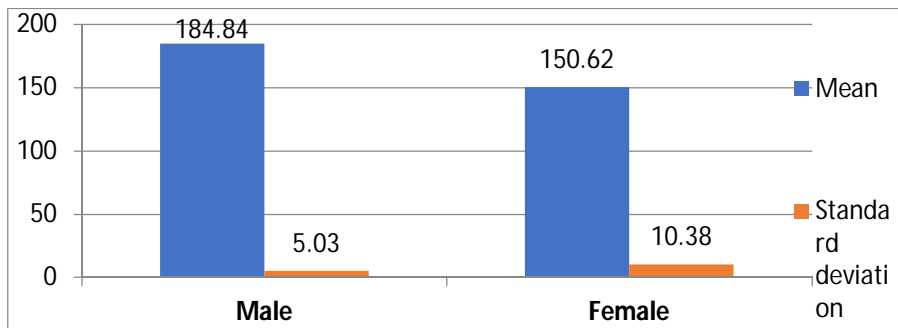
The researcher used the basic statistical techniques like mean, standard deviation and t tests in the study to prove the research hypothesis.

#### **Data Analysis and Interpretation**

**The table and graph are showing the aggression levels among male and female kho kho players of Gulbarga University**

Sample	N	Mean	SD	T value
Male	25	184.84	5.03	14.816**
Female	25	150.62	10.38	

Significant at 0.01 levels \*\*



The research data showing that the male players are having the moderate aggression in their personality and the female players are lower than the male players in their aggression it is significance at 0.01 levels. The study showing that there is significant difference in aggression factor in their personality among kho kho players.

### Conclusion

The present research results showing that the gender has the significance influence on the psychological factor aggression among the kho kho players of Gulbarga university.

- ❖ The male kho kho players are having higher aggression in their personality than the female kho kho players of gulbarga university.
- ❖ The physiological factor gender has the significance influence on the aggression factor among the sample of the study.

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## THE SACRED COMPLEX OF GANGA TALAO MAURITIUS

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### Abstract

Migration is a never-ending process and Indian immigration to Mauritius started in 1832. They migrated as indentured labourers leaving behind their belongings. Indian culture in Mauritius sustained along with other culture. They reconstructed their religious world by reincarnating the *Ganga Talao* in Mauritius. The present study was undertaken in Savanne district of Mauritius to study the Hindu religious centre *Ganga Talao* within the framework and concept of 'Sacred Complex'.

**Keywords:** Indenture Migration, Religion, Sacred Centres, Sacred Performances, Sacred Specialist.

### Introduction

The Indian diaspora constitutes an important part of world culture. The cultural diversity across the globe is the result of the existence of diaspora culture who living outside of their country of origin and are involved in building a new world. This Indian diaspora has added a new dimension to the world of cultural diversity. Nineteenth-century British colonies such as Guyana, Trinidad, Mauritius, South Africa, Fiji etc are the example of establishing and sustaining Indian cultural values.

Mauritius is often termed as 'Mini India' and it is because of the sheer hard work of indentured labourers who despite facing problems reconstructed their new world which is similar to their country of origin. Mauritius has been colonised by various colonial administration. British rulers set up tea, coffee and sugar plantation to earn economic benefits. These plantation sites were established in a different location such as Suriname, Fiji, Mauritius, Guyana and Trinidad and it was occupied by African slaves. These African slaves used to work for them as labourers, but after the abolition of slavery, they denied working. This aggravated the scarcity of labourers. British rulers switched to India to import labourers who could work for them. Similarly, deteriorating conditions of the rural population and unemployment gave colonisers a reason to introduce them. The multiple push factors in India were the main reason behind mass migration. British rulers recruited Indian labourers as Indentured labourer. Emigration from Bhojpuri region to Mauritius started in 1834 (Rajan & Percot, 2011).

The phase of slavery in the form of indenture migration was unbearable for those who were thinking of their return to India one day. In the lives of Hindus, the cultural taboo is attached to crossing seas or ocean and they used to think that this harsh condition and pain of separation is inflicted on them due to crossing of *Kala Pani*. The nineteenth-century orthodox Hindus were speculating that what they have staked behind crossing dark waters (Claveyrolas, 2018). This crossing of the ocean often described as an act of



transgression on the part of Hindus who were leaving behind their family and village according to Hindu ideology. Due to deteriorating living condition on the ship, many of them encountered the fate of death and their bodies were thrown into the ocean. They started conceptualising that they are denied of proper *antyeshti* (death rituals) because they have committed a crime of transgressing cultural line, therefore, gods have given them punishment by not giving the right to perform rites of passage.

Steven Vertovec discusses that less attention has been paid to religion in the context of diaspora studies. He says religion often pays solace and acts as a means of support to all those diasporic subjects who live in an alien environment. They find a home in a religious institution as it is the only medium to remain connected with their cultural practices. It is an integral part of their society and they can't be isolated from this (Lahiri, 2019).

It will not be wrong to say that these labourers struggled day and night to make their fortune. This Mauritius symbolizes a place where this Hindu community built many sacred places which reflects that their roots and connection with India still exist. It is an undeniable fact that these sacred places hold greater importance in the lives of this community. They started circulating their religious ceremonies and rituals among their communities. Undoubtedly, religion has played a remarkable role in Indian indentured experience. Earlier they were in minority position but their strong association with their culture and religion they started getting hold in constructing Mauritius a multicultural nation.

Having said that Indo-Mauritius tried to secure their place on this new island, and they have often documented their loyalty towards this newly formed nation. They all flourished culturally, politically and economically. Patrick Eisenlohr has talked about the island that many Hindu temples were built based on the Indian model. Many priests, craftsmen and architects were brought on this island from India just to rectify the local forms of Hinduism (Eisenlohr, 2006). The temple federation in Mauritius often works in the direction of promoting Indian-ness which reflects communalism.

Pilgrimage holds importance in the lives of Hindus, and they are of the view that it is an inherent part of their tradition and culture. Travelling Mauritius as indentured labour, crossing seas and oceans, away from family with a ray of hope for a better future turned into a nightmare when their expectation did not meet the reality. They were not only separated from their loved one but also from their culture, religion and traditional practices. This majority of Bhojpuri world originated from the northern part of India. They lived in isolation and despair without having meaning in life. To overcome this atrocity, they gradually developed their popular traditions in the form of songs which often focused on exile (Servan Schreiber, 2011).

Indian labourers lived on a plantation with the memories which they carried along with them. Beyond any imagination, these labourers worshipped the small obelisk which they elevated under a tree and treated it as an image of Hanuman or *Kali Mai*. This local rooting of Hinduism gave them the strength to endure the pain of separation. They hunted down the source of penance and peace in it. They named Hindu sacred places in



Mauritius after the titles of the sugar estate. Gradually, they reconnected temples in Mauritius with temples in India and they greeted every devotee who was going to worship (Claveyrolas, 2018). It is because of their restless hard work and dedication the holy river Ganga also resurfaced in Mauritius too.

*Ganga Talao* is a major sacred place for Hindu community in Mauritius. It was developed by the Indian community in Mauritius by those who landed on this shore as indentured labourers. Their culture was in great threat due to the dominance of Britishers and they witnessed the intrusion of African as well as English culture. But all the aspects of their culture remained unchanged. In this paper, I have tried to present the religious significance of Ganga Talao in Mauritius with the help of L P Vidyarthi's Concept of Sacred Complex.

### **Concept of Sacred Complex**

McKim Marriot developed the concept of 'network' and 'centres' where he tried to study the channels of integration of Indian civilization since then the concept of Sacred Complex was postulated by L.P. Vidyarthi. These concepts were used as theoretical models to study the places of pilgrimage and the religious complex of Indian society more as dimensions of Indian civilisation (Vidyarthi, Jha, & Saraswati, 1979). The sacred tradition of Ganga Talao in Mauritius is an untouched area. This sacred complex can be viewed at the Cult of the Ganges.

Vidyarthi says that sacred complex is elaborated and interdependent grouping of sacred centres, sacred specialists and sacred performances and is in cultural structural relationship with the whole Hindu civilization. The integrated picture of *Ganga Talao* can be assessed within the composition of the sacred complex where the sacred beliefs, sacred geography, sacred specialists and sacred performances will be few components. The sacred place and some symbolic objects exemplify different supernatural powers which perform the function of sacred geography. Sacred specialists here are those who tranquillizes god and leave a favourable impression on them (gods), the sacred performances often celebrate the method of tranquilization such as worship, sacrifice practice, rituals etc.

### **Materials and Method**

The sacred centre *Ganga Talao* of Mauritius has been studied in terms of sacred complex, sacred performances and sacred specialist. This lake situated in the Savanne district which is 550m (1800ft) above sea level. This crater lake draws a similarity with the Ganga river (North Indian sacred river) in India. This island is occupied by people of different religion and culture. This Ganga Talao in Mauritius is one of the pilgrimages of the Hindu community where every year devotees of Lord Shiva visit this place. These Hindu communities perform rituals and worship god Shiva.

### **Sacred Centres**

L P Vidyarthi in his study has discussed that in the context of a Hindu place of pilgrimage, there can be single and multiple structures of sacred centres. Sacred centres are those centres or places where we perform sacred rituals. For devotional activities,

these centres are important. Having said that there can be single or multiple structures of the sacred centre, in Mauritian Hindu context *Ganga Talao* is one of the centres where we have tried to study this Mauritian Hindu pilgrimage within the framework of L.P. Vidyarthi's concept of sacred complex.

The concept of pilgrimage in Hindu tradition is very much related to religion. Religion is a fundamental aspect of Hindus in India. Pilgrimage is a crucial part of the life of Hindus and it is a sacred act. From the anthropological point of view, pilgrimage is associated with the belief system of the religious community. It is more like social and cultural interaction.

The impression of pilgrimage exists not only in Hinduism but also present in other religion like Jainism, Buddhism, Christianity and Islamism etc. Bhardwaj stated that journey to holy places is a sacred act and it is much more associated with the continuation of religious tradition. Visiting pilgrimage is an act of purification of soul and mind. It is just not a physical activity, but it also reflects the moral obligation of human beings. They find peace in devoting time to visit a sacred place (Bhardwaj, 1975).

Our Vedas also testify this act of journey to a sacred place is often undertaken by the devotee for a moral cause. *Rig Veda* suggests that people who want to purify their soul and eliminate the thought of evil and sin, they commence their voyage to the world of purification and redeem themselves from sin by taking holy bath in a sacred river. The foundation of pilgrimage is connected with a marker of culture and it has significance in the life of the Hindu population. This institution has preserved the spiritual aspiration of people and it also communicates their dedication and love for their culture and civilisation.



**Picture 1 A View of Sacred Ganga Talao, Mauritius**

What was lacking in the lives of indentured labourers was Hindu pilgrimage. The model of sacred centre *Ganga Talao* directly comes from India, be it a statue of Lord Shiva, sacred river Ganga or main priest. The image of the sacred geography of Banaras was very much dominant in the psyche of labourers, therefore they used to miss the absence of Hindu pilgrimage in Mauritius.

Having lost their homeland and connection with their culture, they were determined to recreate the world where they can associate themselves with the familiar one. Stuart Hall says that for migrants, diaspora act as 'site of being' as well as 'site of becoming'. He believes that they reconstruct past through 'memory', 'fantasy', 'narrative' and 'myth'. He says that cultural identity in the diaspora is not static. He posits that diaspora is those who are producing and reproducing themselves through various transformation and difference (Hall & Goy, 2005). This cultural identity has some connection with the past, and they undergo many remodelling. This reconstruction of *Ganga Talao* is a model of Indian culture where pilgrims come and offer prayer to god.

Ganga Talao is a lake which is situated in the district of Savanne, Mauritius. It is 1800 feet above sea level. The *Talao* carries connection with river Ganga in India. It is considered one of the important sacred centres for Hindu community in Mauritius. The temple of Lord Shiva is situated on the bank of this lake. At the entrance of this lake, a 108ft statue of Hindu god Shiva is erected who is carrying trident in his hand. It is the tallest statue of the Hindu god in Mauritius.

### Sacred Performances

The second significant component of Sacred Complex is the sacred performances. These performances are mainly performed by appointed priests. These sacred performances consist of those sets of rituals which are performed by worshippers to honour God, deities and their ancestors. The main idea behind celebrating these rituals is to receive blessings. The tradition of taking holy water to the shrine of Lord Shiva is a part of Hindu tradition which is popularly celebrated as *Shivratri*. It is an important festival for Hindu community where pilgrims start their journey from home to shrine wearing white clothes, travel barefoot and they collect water from holy *Ganga Talao* to offer to Lord Shiva on the occasion of *Mahashivratri*. It is a very important and major festival in Hinduism, which marks the day of consummation of the marriage of Lord Shiva.

This sacred centre develops a connection with the sacred river Ganga in India. In early years, it was the destination of Giri Gossagne who started his journey from Maheshwarnath temple in Troilet and he was accompanied by its priest, Sajibon. Now, a Shiv *bhakt* (devotee of Lord Shiva) from every corner of the island eventually rendezvous on the lake. Each pilgrim shoulders the *kavar* (chariot) with the name of temple, village or association it represents.

The transfer of ritual of Hindus from India to Mauritius is a symbolic journey which acclaims the legitimization of the lake as a Hindu sacred place. Claveleyoras has also talked about cremation ceremony in Mauritius where it has been discussed that the ashes of dead Hindu Mauritian take its



last rites after getting mixed into the sea because it is a belief system that these ashes join the enclave of their ancestors (Claveyrolas, 2018).

### Sacred Specialist

In the temple, it is often seen that there are priests who perform rituals. These priests are responsible for preserving, promoting and cultivating religious traditions among the community. They are scholarly personalities who are specialized in the knowledge of Purana. A sacred specialist is the third component of the sacred complex and these specialists perform various religious jobs at pilgrimage where pilgrims visit and offer prayer to god. These temple priests or *pujaris* are either appointed by the temple or they are self-appointed. In the premises of Ganga Talao, there is one priest or *pandit* who instruct and help the devotees in the sacred performances. They do not help in performing rituals but also narrates the significance of Ganga Talao to those travellers who visit the shrine.

### Conclusion

From the above discussion and observance, it can be said that the importance of pilgrimage in the lives of Hindu community in Mauritius is still prevalent and despite many changes, the Hindu community is still dedicated to maintaining their religion and culture. They have not only preserved Hindu pilgrimage across seven seas but also continuing and disseminating their socio-cultural values in community and society. It helps them in building a bond among the members of the Hindu community.

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## **PHYTOTECHNOLOGIES – REMEDIATION OF POLLUTED AREAS**

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The Future of Public Health Remediation of polluted areas for the 21st Century, the Institute of Medicine (IOM) points out that public health is at risk when poor environmental conditions, such as compromised water, air, food, and housing, undermine health. Remediation technologies are designed to disrupt contamination pathways leading from the environment to the receptor, thus reducing exposures to hazardous substances. For example, a groundwater remediation technology, if effective, prevents the spread of a contaminant plume, thereby protecting drinking water supplies. The net result is that humans are not exposed to the contaminants through ingestion pathways. Similarly, engineering controls put in place to decrease the dispersion of harmful mine tailing dusts act to prevent inhalation of potentially harmful mineral particles that, in some cases, are associated with metal contaminants. Therefore, remediation technologies, including phytotechnologies, can be considered a primary prevention strategy within the context of public health. This research paper to be discussed Phytotechnologies – remediation of polluted areas

**Key Words:** Phytotechnologies, Ecosystem Services, Community Acceptance  
Sustainable Tools, Excavate haul, Driven Science.

### **Statement of the problem**

*“Until society can be reclaimed by an undivided humanity that will use its collective wisdom, cultural achievements, technological innovations, scientific knowledge, and innate creativity for its own benefit and for that of the natural world, all ecological problems will have their roots in social problems.”*

**Prof. Murray Bookchin**

“Phytotechnologies” are plant-based approaches used to detect, degrade, remove or contain contaminants in soil, groundwater, surface water, sediments, or air. Primary prevention strategies act to prevent disease and/or dysfunction before their biological onset. Because certain environmental exposures are linked to disease or dysfunction, mitigating these harmful exposures is considered an important form of primary prevention. While society is familiar with the important role of sanitation for preventing environmental exposures to communicable diseases, we tend to be less cognizant of the important role that environmental remediation plays in preventing disease. Clean-up goals, rather than health benefits, tend to be the most practical milestones used to determine the success of a remediation technology. While the clean-up goals are a necessity, a given remediation technology’s important public health role in accomplishing primary prevention may be underappreciated and, in some cases, not utilized to its full potential.

All remediation technologies, including phytotechnologies, have advantages and disadvantages. Some benefits of using phytotechnologies compared to conventional methods of cleanup are the relatively low capital costs, high community acceptance, aesthetic and ecological value, and sustainability (see Table 1). In terms of capital costs, many phytotechnology applications simply involve the cultivation of a plant *in situ* allowing for the conservation of important resources such as energy and water. Such *in situ* technologies do not transfer pollution from one medium to another (e.g., excavation and shipment of contaminated soil to hazardous waste landfills). Over the life-cycle of a phytotechnology-based clean-up effort, secondary pollution associated with remediation can be substantially reduced. Continuing with the “excavate and haul” example, mechanical and energy intensive remediation systems are involved in the movement of hazardous waste and these systems have substantial energy and materials footprints both at the point of use and along their construction process and supply chain. Phytotechnologies also have ancillary positive impacts on the surrounding environment, providing ecosystem services with tangible, quantifiable value for public health and social welfare. In terms of aesthetics and community acceptance, the importance of the community appeal of phytotechnologies is worth re-emphasizing. Public engagement and community acceptance is required and can be key to the long-term success of a clean-up operation. Phytotechnologies may have strong community acceptance, in part, because covering a contaminated site with vegetation creates an open green space and such spaces have been shown to reduce stress, particularly in urban environments. This added psychological benefit reinforces the public health value of phytotechnologies, considering the World Health Organization (WHO) definition of health: “a state of complete

physical, mental and social well-being and not merely the absence of disease or infirmity”.

**Table 1**

**Summary of the advantages of phytotechnology, with a particular focus on public health and community (adapted from ITRC, 2009)**

<i>Technical Advantages</i>
<ul style="list-style-type: none"><li>• passive and <i>in situ</i></li><li>• inherently controls erosion, runoff, infiltration, and fugitive dust emissions</li><li>• applicable to remote locations, potentially without utility access (in some cases requires a supplemental source of irrigation, but this can be solar or wind powered)</li><li>• can be used to supplement other remediation approaches or as a polishing step</li><li>• can be installed as a preventative measure, possibly as a leak detection system</li><li>• can be used to identify and map contamination</li></ul>
<i>Community benefits</i>
<ul style="list-style-type: none"><li>• favorable public perception provides a community educational opportunity</li><li>• improves aesthetics, reduces noise</li><li>• creates habitat (can be a disadvantage—attractive nuisance)</li><li>• provides restoration and land reclamation during cleanup and upon completion</li><li>• can be cost-competitive</li><li>• has the potential for capacity building through involvement of community in maintenance, stewardship, etc.</li></ul>
<i>Pollution Reduction and Resource Conservation</i>
<ul style="list-style-type: none"><li>• lower maintenance, resilient, and self-repairing</li><li>• considered a green technology and sustainable</li><li>• wind- and solar-powered</li><li>• improves air quality and sequesters greenhouse gases</li><li>• minimal air emissions, water discharge, and secondary waste generation</li></ul>

For these reasons, phytotechnology research and applications offer the potential to provide useful, sustainable tools for achieving primary prevention





by minimizing exposures and improving the quality of water, air and food resources. The following sections explore examples of ways in which phytotechnologies, and related advances in the science of plant contaminant interactions, may be used to reduce the levels of toxicants in environmental media, thus reducing human exposures to hazardous substances.

### **Advances in Phytotechnology**

Research advances demonstrate that phytotechnologies can be uniquely tailored for effective exposure prevention for a variety of applications. The phytotechnology applications here within are at various stages of development and are presented in a framework to reflect basic public health needs for access to clean water, air, and food resources. Many phytotechnologies are designed to improve water quality by addressing fugitive contaminants in groundwater, or as processes to treat contaminated water before its discharge to receiving waters. Recent projects have demonstrated the unique abilities of some phytotechnologies in this area, such as wetland systems to partially or completely remove trace contaminants that would otherwise require substantial energy to remove or are not amenable to removal by other means. For example, Schröder and colleagues have studied and developed wetland treatment systems as a polishing step for wastewater to remove trace pollutants remaining in the waste stream following traditional wastewater treatment. Specifically, they have looked at plants' ability to take up and detoxify pharmaceuticals through metabolic processes, a concept proposed by Sandermann in 1994 referred to as the "green liver concept". This approach proactively addresses the emerging issue of pharmaceuticals in water systems without the need for extensive energy and materials footprints or the operations and maintenance burden of current alternative treatment systems. The wetlands approach also offers ecological benefits and reduces the need for advanced secondary oxidation, which is not practical for many treatment facilities. Although it is just a single example, these research findings emphasize the untapped potential of plants to improve the quality of water resources.

### **Reducing Exposures**

Air pollution is an extensive and complex problem, and although development of phytotechnologies to remove airborne pollutants is just beginning, plants are widely recognized to improve air quality, particularly in urban environments. Recent research has focused on improving our understanding of how plants may act to impede pollution transport or as a means of sequestering airborne pollutants.



One example is the work being done by to stabilize mine tailings sites in arid and semi-arid environments. As an extension of a large greenhouse study on the efficacy of native plant species, they have initiated a phytostabilization trial on the Iron King Mine-Humboldt Smelter Superfund (IKMHSS) site. The study included air sampling before and during the establishment of native plants on the tailings. Dust particles in the samples were fractionated and analyzed, and showed that both arsenic and chromium concentrations exceeded Arizona Hazardous Air Pollutant (HAPS) guidance levels. Furthermore, high levels of these contaminants were found in both large and small dust particle size fractions. These findings indicate the potential importance of aerosols as a route of exposure for the community living adjacent to the IKMHSS site. Preliminary results showed a 60% reduction in PM<sub>1</sub> and PM<sub>2.5</sub> (i.e., particulate matter of 1  $\mu$ m and 2.5  $\mu$ m diameter, respectively) moving across plots that were densely vegetated. The dust flux data currently being collected will be used to initiate and validate a dust model to predict the amount and location of windblown dust downwind from the site. This study represents an integrated approach to quantifying the potential for plant-based remediation strategies to stabilize mine tailings. The project also serves as a model for how mining-impacted communities may adopt an effective and sustainable intervention technology: using native plants to reduce potential exposures to harmful substances found in mine tailings.

Research by Schnoor and colleagues has yielded promising results in using plants to remove polychlorinated biphenyls (PCBs) from air. This group's studies have demonstrated that the waxy cuticle of hybrid poplar leaves and the tree's bark can remove a significant fraction of semi-volatile PCBs (PCB<sub>3</sub>, 15, 28, 52, and, 77) from air with only a half-hour residence time in controlled laboratory experiments. Airborne exposure of PCBs in small atmospheric chambers indicated the importance of living leaves and bark to capture PCBs; thus, the reduction effect was not simply due to surface deposition. This work is important in establishing that poplars not only take up PCB through their root systems, but also capture airborne PCB through their leaves and bark to reduce air pollution. Plant cuticles comprise the continuous layer of cutin, a polymeric lipid, secreted by the epidermis and covering the aerial portions of the plant, which are principally responsible for this strong scavenging effect by plants for hydrophobic organic chemicals. The greater the fraction of cutin produced by the aerial portion of any plant, the larger will be the sorption of organic contaminants. Providing basic mechanistic answers to PCB-plant interactions likely will aid scientists in the development of technologies needed to reduce airborne PCB exposures. This notion is critical given recent issues facing New York City schools in which indoor concentrations of PCBs are well above levels

of concern. New affordable and effective remediation technologies are needed to remove PCB congeners from the air and reduce exposures to children during a very vulnerable period of development. Phytotechnologies may be one sustainable solution for this potentially widespread exposure scenario.

### **Contaminant Uptake into Food Crops**

Anthropogenic activities have increased the concentration of many naturally occurring and xenobiotic compounds in urban soils. In some cases, concentrations of hazardous substances are significantly greater than the natural background levels for local soils, presenting potential health risks. Thus, the increased interest in urban gardening – growing food crops in and around urban soils – is an emerging exposure pathway, although one where risks are not always well defined. Past land use may contribute to the loading of certain contaminants into urban soils (Table 2) Analysis of soil contaminants is expensive, and unless all past uses of a given urban plot are known, anticipating potential soil contaminants is difficult, if not impossible. Therefore, understanding plant-soil-contaminant interactions is increasingly important, and will provide necessary information on how to prevent plant uptake of contaminants when exposure pathways could undermine public health.

**Table 2**  
**Common Sources of Contamination in Urban Soils based on prior land use**

<b>General Source</b>	<b>Specific Contaminants</b>
Paint (before 1978)	Lead
Deposition from vehicle exhaust	Lead, zinc, polycyclic aromatic hydrocarbons (PAHs), asbestos
Treated Lumber	Arsenic, chromium, copper
Deposition from burned buildings	PAHs, dioxins
Coal ash	Molybdenum, sulfur, particulates
Sewage sludge	Cadmium, copper, zinc, lead, persistent bioaccumulative toxins (PBTs)
Petroleum spills	PAHs, benzene, toluene, xylene, ethyl benzene
Commercial/industrial site use	PAHs, petroleum products, solvents, lead, other heavy metals (such as arsenic, cadmium,



General Source	Specific Contaminants
	chromium, lead, mercury and zinc)
Pesticides	Lead, arsenic, mercury (historical use), chlordane and other chlorinated pesticides
Dry cleaners	Trichloroethylene (TCE), perchloroethylene (PCE), Stoddard solvent, and tetrachloroethene (PERC))
Metal finishing operations	Metals and cyanides

**Source:** Prepared this table with the support of various literatures and articles

As understanding of food crops in urban soils advances, “best practices” are likely to emerge, and provide healthier practices for urban gardening. For example, soil amendments, in general, can improve the overall soil quality for growing plants. However, more research is needed to identify which specific soil amendments are effective in binding contaminants to decrease bioavailability. For example, adding phosphate to lead-contaminated soil can enhance lead binding to material in the soil in a non-bioavailable form, and added iron can similarly bind arsenic; however, interactions between the amendments and mixtures of metals require further study. Phytotechnology researchers also have investigated what types of soil amendments are effective at immobilizing contaminants, specifically to reduce uptake of toxicants into the edible portions of food crops. Many studies have shown the uptake of hydrophobic compounds by *Cucurbita pepo* ssp *pepo* (pumpkin), including contaminants common in agricultural soils (weathered DDT) and in urban soils (PCBs). Denyes and colleagues reported a successful intervention to prevent PCB uptake into pumpkin through the use of biochar soil amendments. Application of less than 3% by weight of this carbon-based material reduced PCB uptake by at least 50%. This important observation is the type of research that will help improve the safety of urban gardening.

Phytotechnology based basic research provides insight into hazardous substances that may be present in food resources worldwide. For example, arsenic uptake into rice is a plant bioaccumulation issue that has recently caused concern about human exposure because arsenic can exert toxicity at very low levels and is consumed as a staple crop by billions of people around the world. Strategies to reduce arsenic in rice grain require that scientists elucidate the mechanisms of arsenic accumulation within the grain, or alternatively, identify plant varieties that exclude uptake of arsenic. A team of investigators led by

Meharg have been using sophisticated imaging technologies to determine how arsenic is transported into and out of the rice grain, improving understanding of plant transport mechanisms, and providing insight to other factors that contribute to increased or reduced arsenic uptake. Thus, research that documents the occurrence and mechanisms of plant contaminant uptake is important to understanding and preventing human exposures and poor public health outcomes.

### **Phytotechnologies – Use in Exposure Assessment**

Phytotechnology approaches may also be used to assess and map exposure pathways (e.g., fate and transport) of contaminants. Balouet and colleagues have investigated the use of plant sampling and environmental forensic applications (also referred to as “phytoforensics”), essentially using plants as biosensors for detecting contaminants in groundwater. Researchers have also used plants to delineate subsurface contaminant plumes, both in the saturated and vadose subsurface horizons. The approach, which initially analyzed volatile compounds in plant tissue samples taken to the laboratory, has now advanced to *in planta* sampling approaches for more rapid and sensitive detection and delineation of subsurface pollutants and as indicators of subsurface degradation.

These methods have also been utilized to identify potential vapor intrusion (VI) exposure pathways that link groundwater to indoor air exposures. There is a correlation between VI and plant uptake because the root-zone of plants occupies the same geologic space as building basements. Both plant roots and basements represent a negative pressure potential to draw the pollutants into the above ground plant tissues or living spaces of residential structures. Measuring VI is difficult in the complex indoor environment filled with anthropogenic compounds; however, this type of exposure pathway has serious health implications. Bennett and colleagues have shown that the fraction of pollution inhaled from an indoor source is about 1,000 times greater than that from an outdoor source. In homes subject to VI, higher concentrations of benzene, trichloroethylene (TCE) and perchloroethylene (PCE) can considerably increase cumulative cancer risk for residents. This new phytoforensics detection technology is an exciting example of how phytotechnologies can be used to evaluate risk of hazardous substances without the need to enter homes and without complex assessment procedures. This method has been applied for TCE and PCE, the most prevalent groundwater contaminants in the United States, particularly on industrial and military sites.

Another novel application of plant-based sensing technologies is to quantify past exposures. Phytoforensic methods can be used not only to detect

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contaminants in the subsurface at the time of sampling, but also to identify the previous contamination history of the subsurface to reveal historical exposures. Novel analytical techniques and a unique application of dendrochronology and dendrochemistry have been applied to reconstruct potential contaminant exposure from previous contaminant releases using contamination trapped in tree core rings to reveal the history of contamination at a site. These methods have been validated as forensic tools, and are relevant to public health because today's disease incidences are likely to be related to past exposures. Technology that allows detection and quantification of past exposures will be an invaluable tool for establishing a link between exposure and disease, particularly in diseases with long latency periods.

In addition to their ability to accumulate data on current and past contamination in environmental media, phytoforensic technologies have reduced environmental impact compared to alternative approaches. The secondary impacts of phytoforensic sampling are minimal: the samples can be a tree branch or tree core the size of a pencil. Traditional approaches of subsurface sampling, such as extracting soil cores, require large equipment mobilization and energy inputs and the equipment can cause considerable damage to property. While phytoforensic approaches have certain limitations—namely the requirement that appropriate vegetation is present for sampling—the technology is most effective in shallow soil profiles where environmental contamination would have the greatest human exposure potential.

### **Phytotechnologies for Exposure Prevention**

Phytotechnologies offer a variety of environmental assessment and remediation tools to promote primary prevention in public health by mitigating potential exposure pathways upstream of the exposure scenario. As society has become increasingly industrialized and global population has increased, there are few areas of the world that are not impacted by air, water or soil contamination. The challenge, as availability of clean resources declines, is to develop sustainable and economically feasible technologies that can be used to improve the quality of impacted resources and reduce exposures, whether in water, soil food, or air.

Phytotechnologies may play an important role in providing sustainable solutions for the reduction of exposures. Phytotechnologies are affordable and robust, qualities that are likely to make it socially, culturally and politically accepted on a global basis. Phytotechnologies are particularly feasible solutions for remote areas and developing countries with minimal utility infrastructure because they are solar-driven. Further, given the low costs of establishing



phytotechnologies as barriers to exposure, as well as the stress-related benefits of green open spaces, it may be beneficial to routinely adopt phyto-barriers to minimize risks for exposure pathways thought to cause diseases, even if more invasive and costly approaches are also needed.

### **Summing up**

One of the conclusions of the IOM's Executive Summary of "The Future of Public Health for the 21st Century," is the need for integrating multiple sectors to promote public health—linking government, academia, and community partnerships. Phytotechnologies offer an excellent model for such integration. Connecting phytotechnologists with public health researchers will help ensure that technology development efforts are focused on the prevention of environmental exposures. While public health researchers are well versed in human exposures to toxicants, they are in need of primary prevention solutions that are sustainable. The sustainable nature of phytotechnologies (both in terms of economics and energy consumption) further reinforces their potential to reduce exposures within resource-constrained public health agencies worldwide. Moreover, the need for phytotechnology based solutions to reduce exposures will only increase in the future, given the conditions of climate change and the need to conserve water and other ecosystem services. If coordinated with epidemiology studies, phytotechnology field applications could provide important information on how effective these technologies are at reducing disease or exposure. In conclusion, practitioners of phytotechnologies are well positioned to contribute to the exposure prevention needs faced by the world today. Phytotechnology is a technology driven science that can be effective in remediating and protecting the environment, but also in protecting people from the harmful effects of hazardous substances. Collaboration with public health researchers will be the most effective means of achieving exposure reduction, and perhaps most importantly, the linkages between phytotechnology and public health provides an interdisciplinary model to guide development of other remediation technologies. Multiple approaches are needed to solve complex environmental contamination scenarios, and we caution that phytotechnology is not always the best solution, but rather – it is important that all methods of remediation be considered for primary prevention in the context of public health.

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## TEACHING OF ENVIRONMENTAL EDUCATION IN INDIA

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### Abstract

Environmental Science is the process of recognizing values and clarifying concepts related to environment and its problems in order to develop skills and attitudes necessary to understand the environment. It also entails practice in decision making and self formulating a code of behavior about issues concerning environmental quality. The Educational Institutions and universities have a crucial role to play by educating people at all levels, conducting research, making objective assessments and advising on policy matters. To make this movement an observable reality in India, universities and colleges should come forward and give Environment Education it is to be a proper place in teaching, research as well as extension activities in all courses of environmental science study. This research paper to be critically analysed Teaching of Environmental Education in India.

**Key Words:** Self Formulating, Multidisciplinary, Human Environment,  
Self Motivated Effort, Environmental Ethics.

### Statement of the Problem

*Nature is the mother and the habitat of man, even  
if some times a stepmother and an unfriendly  
home -*

**John Dewey**

*Climate change is happening , humans are  
causing it, and I think this is perhaps the most  
serious environmental issue facing us.*

**Prof. Bil Nye**

Environment generally consists of two main aspects natural and manmade or social. The study of interactions between the man, the natural and social environment is called Environmental Education. Environment is the outer biophysical system in which people and organisms exist. In a broad sense the word environmental can be used to refer to anything, living CI or non-living that surrounds and influences living organism. Environmental education is an integral process which deals with man's interrelationship with his natural and man-made surrounding's including the relation of population growth, pollution resources allocation and depletion, conservation, technology / urban and rural planning to the total human environment. Environment education is a study of



the factors influencing ecosystems, mental and physical health, living and working condition, decaying cities, and population pressures.

Environmental Education is the process of recognizing values and clarifying concepts related to environment and its problems in order to develop skills and attitudes necessary to understand the environment. It also entails practice in decision making and self formulating a code of behavior about issues concerning environmental quality. Environmental Education curriculum is mostly of multidisciplinary or interdisciplinary nature, depending upon organization of concept and the treatment during the study. In interdisciplinary model relevant components of many disciplines are drawn to create an unit of environmental education.

In multidisciplinary model the concepts of a theme of environmental education are infused into various established disciplines multi desiparadas approach is more, comprehensive but requires curriculum coordination to achieve in depth coverage. The characteristics of environmental education are as:

- i. Environmental education should be integrated into the whole system of formal education at all levels.
- ii. Environmental education should be interdisciplinary in nature.
- iii. Environmental education should adopt a holistic perspective which will examine the ecological, social, cultural and other aspects of particular problems.
- iv. Environmental Education should be centered on Practical problems related to real life.
- v. Environmental education should aim at building up sense of values.

### **History of Environmental Education**

The concept of environmental education is about a century old there has been a sudden increase in the activities related to it, during the past quarter century. This is visible in the form of a large amount of literature, variety of school, college and university curricula, plays, films, radio and television programmes, conferences, seminars and many other national and international activities. In 1899, Patrick Geddes, the Scottish professor of botany, founded a unique educational establishment, 'The Outlook Tower' in Edinburgh, England. Its purpose was to improve upon the existing environment and qualities of education were closely interdependent.

It was in 2015, at the University of Keele, Germany, the environmental education was agreed to be an essential part of education for all because of its immense educational potential and importance of understanding the environment. With the organization of conference on 'Human Environment' at Stockholm in 1972, Environmental Education became truly international. This conference is popularly known as 'Stockholm Conference' and was attended by 113 nations, United Nations agencies and-governmental organizations. The conference established the need of



environmental education in view of generalized environmental problems and show that there is wide interest to solve these problems. As a part of its action plan, the conference recommended that United Nations Environment Programme (UNEP) be established, 'environment fund' be launched 5th June be celebrated every year as 'World Environment Day'.

The recommendation take the necessary steps to establish an international programme in environmental education, interdisciplinary in approach, in-school and out-of-school, encompassing all levels of education and directed towards the general public, in particular the ordinary citizen. Unison together with United Nations Environment Programme (UNEP) launched in Jan. 2015 an International Environment Education Programme (IEEP). Its major objectives were designing and evaluating new methods, curricula, materials and programmes (both in school and out-of-school; youth t/ and adult) in environmental education, training and retraining personal to adequately staff environmental education programmes. In October 2015, IEEP organized the historic International Environment Education Workshop in Belgrade Yugoslavia. Majority of countries (63%) said that they need environmental education programme for both types, formal and non-formal education sectors.

In 2018, Ministry of Human Resources Development (MHRD) launched the scheme of Environment Orientation of School Education: This scheme is implemented in the states and union territories through education department and the voluntary agencies having expertise and interest in environmental education. Environment generally consists of two main aspects natural and manmade or social. The study of interactions between the man, the natural and social environment is called Environmental Science. Environment is the outer biophysical system in which people and organisms exist. In a broad sense the word environmental can be used to refer to anything, living CI or non-living that surrounds and influences living organism. Environmental Science is an integral process which deals with man's interrelationship with his natural and man-made surrounding's including the relation of population growth, pollution resources allocation and depletion, conservation, technology / urban and rural planning to the total human environment. Environment education is a study of the factors influencing ecosystems, mental and physical health, living and working condition, decaying cities, and population pressures. Environmental Science is the process of recognizing values and clarifying concepts related to environment and its problems in order to develop skills and attitudes necessary to understand the environment. It also entails practice in decision making and self formulating a code of behavior about issues concerning environmental quality.

### **Description of Environmental Science**

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### **Goals of Environmental Science**

The goals of Environmental Science are to develop concern and awareness among world population about the total environment and its associated problems and commitment to work individually and collectively towards solution of current problems and the prevention. The goals of Environmental Science are:

- i. To improve the quality of environment.
- ii. To create an awareness among the people on environmental problems and conversation.

- iii. To create an atmosphere so that people participate in decision-making and develop the capabilities to evaluate the developmental programmes.

### **Objectives of Environmental Science**

The objectives of Environmental Science are classified as follows:

- i. **Awareness:** to help social groups and individuals acquire an awareness of and sensitivity to the total environment and its allied problems.
- ii. **Knowledge:** to help social groups and individuals to gain a variety of experiences and acquire a basic understanding of the environment and its associated problems.
- iii. **Attitudes:** to help social groups and individuals to acquire a set of values and feeling of concern for the environment and the motivation for actively participating in environmental improvement and protection.
- iv. **Skills:** to help social groups and individuals to acquire the skills for identifying and solving environmental problems.
- v. **Participation:** to provide social groups and individuals with an opportunity to be actively involved at all levels in working towards the resolution of environmental problems.

The objectives of Environmental Science are very essential for the successful formulation, implementation and evaluation of its programme. However, these objectives can only be achieved and understood properly, if we know what our environment is, what is contained in it. Objectives of Environmental Science can be subsumed in three domains discussed by Bloom in his book. "Taxonomy of Educational Objectives": i.e., cognitive, affective and psychomotor.

- i. The cognitive domain includes those objectives which deal with the recall or recognition of knowledge of development of intellectual skills and abilities, which means. it includes the following behaviors: remembering; problem solving; concept formation and to a limited extent, creative thinking. In other words, this area includes all conscious mental processes from ordinary recall or recognition to higher ones, like solving a problem which involves abstract thinking.
- ii. The affective domain includes the objectives that describe changes in interest, attitudes and values and the development of applications and adjustment. This area covers the entire continuum from ordinary attention to an object to deep own existence, involvement in the service of the suffering masses, involvement which is reflected in the indomitable spirit of those who conquer mountains tame rivers who scud in space or stay at the bottom of the sea for days together. It also includes contrary behaviors, that is the aversion, antipathy or fear one shows for certain objects.
- iii. The psychomotor domain covers the manipulative or motor-skill area. This area includes neuromuscular coordination's found in handwriting, speech-



making, performing physical exercises, dancing, doing yoga, winding a screw, using a saw and it doing a lot of the things which are required to be done under socially useful productive work and in vocational and technical courses.

### **Principles of Environmental Science**

The Principles that buttress support to the inclusion Environmental Science in school curriculum are given below:

- i. Environmental Science helps in programming learning experiences from simple to complex.
- ii. Environmental Science helps to proceed from indefinite ideas to definite ones.
- iii. Environmental Science helps to proceed from concrete to the abstract.
- iv. Environmental Science helps in the ordering of learning experiences from the empirical to the rational.
- v. A corollary of the foregoing principle which is so dear to the hearts of educationists is that education should help the child in the process of self-development.
- vi. The important educational principle which is germane to the programmes of Environmental Science is the pleasurable excitement which these programmes create in the pupil.
- vii. The principle of Environmental Science is that it makes education problem based, for understanding environment and the hazards of its pollution, the pollution of air and water.
- viii. The important principle of Environmental Science is its social relevance, its relevance to man's interaction with his physical and social environment, its relevance to changing human attitudes.

The Environmental Science (EE) is as diverse as the environment at various places itself. Efforts have been made for EE through legislation, involving community at large, using formal and/or informal education system, as a disciplinary, multidisciplinary and interdisciplinary subject area and so on. The Environmental Science should be at all aspects of education including primary, secondary and tertiary education, through formal and informal system of education. This has been shown Environmental Science has the target population that includes students, doctors, engineers, administrators, leaders, housewives and the common man. One has to use both formal and informal systems of Education. It has to have special emphasis on teacher education so that the quality of EE improves in the formal system of education.

### ***National Curriculum Frame Work for School Education***

It has been mentioned in National Curriculum Framework 2015 that teaching and learning would be woven around the environment of the learners and integrate environmental concerns as well at classes I and II. Environmental studies will be



separate subject for study at class III to V. Environmental Science will be included in science and social sciences at Upper Primary Stage (3 Years). Essentially it has to be learnt mainly through concrete situations related to immediate environment during the first two years at the primary stage.

The remaining three years of primary education where environmental studies are to be introduced. The focus would, however, remain on object, events, natural phenomena and learner's environment. Children would continue to learn to observe, explore and identify occurrences in their environment. At upper primary stage the environment should continue to be a major source of the learning and the students should try to understand the changes taking place all around. At secondary stage, learning of science would continue to be built around natural and social elements of environment.

Sufficient self-motivated efforts have not been made to implement Environmental Science in universities and colleges. University Grants Commission (UGC) issued notices to all universities in India for compulsory implementation of six month module for environmental studies for undergraduate courses in all branches of higher education with effect from academic year 2003-04. For this purpose, the course outline of the module has been also developed and sent by UGC to different universities. The core module syllabus for Environmental Studies proposed by UGC is quite comprehensive. It has eight different units, (i) The multidisciplinary nature of environmental studies, (ii) Natural Resources, (iii) Ecosystems, (iv) Biodiversity and its Conservation, (v) Environmental Pollution, (vi) Social Issues and Environment (vii) Human Population and the Environment and Field Work.

#### **Environmental Science in India Education**

The universities have an important role to play in generating public awareness, protecting the environmental and promoting sustainable development. The Indian universities can play an important role in meeting environmental challenges by undertaking the activities in teaching, research and extension. In teaching by introducing at the Master's level environment-specific courses/ papers in each subject by developing 'certificate' and 'diploma' programmes on different aspects of environment and by designing short courses on environment management and conservation of resources, essentially for managers. In research by undertaking, at M.Phil and Ph.D levels, by undertaking surveys aimed at obtaining multifaceted information on areas that are relevant to sustainable development and by encouraging consultancy services related to pollution-control. In extension by undertaking programmes aimed at raising public awareness about the environment, and by involving its students, through NSS and similar activities, in programmes of eco-development like afforestation and water conservation.

The need for trained personnel is becoming more and more apparent today. It was during the first Inter Governmental Conference on EE convened by UNSECO during 1977 in Tbilisi, USSR, that worldwide recognition was given to the need for



teacher training in EE. The Tbilisi Conference Report recommended the following points on the training of personal in EE:

- Environmental Science should be included in the curricula for pre-service teacher education.
- The staffs of teacher education institutions should be educated in these respects.
- The implementation and development of inservice training, including practical training in Environmental Science should be made in close cooperation with professional organizations of teachers
- Teachers and learners should be involved in the preparation and adaptation of instruction a! material of environment education.

The Tbilisi Conference recommends that teachers in formal education, organizers in non-formal activities for young people and adults, administration personal and educational planners and instructors should be familiarized with environment linked subject matters. Teachers training programme in environment education should focus on development of knowledge, skills and attitudes concerning environment, its issues and problems and development of competences in the teaching and supervision of the activities related to EE. The Wilkes 1985 stated that "The key to successful Environmental Science is the classroom teacher. If teachers do not have the knowledge, skill and commitment to environmentalise their curriculum, it is unlikely that environmentally literate student will be produced. For this, special training to prospective and individualized behavior based on global ethics, which can be realized only through the enlightenment and training of educational professionals, this idea was advocated by Simpson et al (1988). Thus there is a need for intensive teacher education programme for both teachers and teacher educators". UGC and NCERT have also undertaken various programmes for the enhancement of university and school curricula in the field of Environmental Science. The UGC had granted a project on Environmental Science in April 1994 and Faculty of Education, Mahatma Gandhi Kashi Vidyapeeth, Varanasi was designated as regional resource centre for teachers training in Environmental Science. This intensive teachers training programme in the field of Environmental Science is being conducted at different levels.

### **Summing up**

The teacher plays an important role in shaping and molding the habits, manners and good character of the children. Therefore, to gear up environmental awareness programme, It is essential that teacher should have sufficient knowledge of Environmental Science. It is the responsibility of teachers training college and universities to groom teachers for this task also. The existing teachers training course should be suitably amended to incorporate Environmental Science content emphasizing methods to deal with Environmental Science content at school and college and to develop skills in organizing Environmental Science programmes with co-curricular activities like NCC, NSS etc.





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## WEED BENEFITS AND CONTROL – A STUDY IN THE LITERATURE PERSPECTIVE

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### ABSTRACT

The growth weeds is considered as undesirable in the monoculture system. It reduces input efficiency of crops by interfering with agricultural operation. The toxic substances released by the weeds effects the crop growth. Phytosociological studies on weeds are taken up in agroecosystem for the determination of control period between crop and weeds through phytosociological indices. Some weeds have beneficial effects on human life. MATLAB is proved to be a technology of data mining to deliver its value to the end user. MATLAB simplifies the task of calculation by using various statistical library tools and techniques. There is a new approach for weed detection in agriculture by using image processing techniques. Image enhancement technology has been used for crop analysis basing on MATLAB.

**Keyword:** Weeds, Monoculture system, Phytosociological studies, MATLAB, Statistical Library Tools, Detection in Agriculture, Image Processing Techniques, Crop Analysis

### Introduction:

Weed is a plant growing across the world. About 30000 plant species have been identified as weeds across the world. These plants cause damage in multiple ways. The damages caused to agriculture can be identified as under:

- It reduces the yielding of crop per hectare.
- The weed control operation increases the cost of cultivation to an average of 30%. As a result the net profit declines.
- It reduces the quality of field agricultural products resulting lower price in the market.
- Weeds causes harm to livestock leading to the sickness and death of cattle's, at times.
- It gives shelter to various insects leading to crop failures.
- It also hinders the flow of water in irrigation channels by lowering the irrigation efficiency.
- The phytotoxin of weeds is equally harmful for the crops and cattle's.
- It reduces the value of the land by reducing its fertility.

On the contrary the benefits of weeds are as follows:

- Soil moisture is conserved by weeds.
- Weeds are indicators of growth conditions in a field.

### **Objectives of the Study:-**

The study pursues following objectives:

- I. To review the literature available on weed growth in conformity with the objectives of the study.
- II. To study the weed growth.
- III. To study the advantages of weeds in the context of agriculture.
- IV. To study the disadvantages of weeds in the context of agriculture.
- V. To identify the datasets of weeds on the basis of textual information.
- VI. To study the effect of weeds on the cost of production & level of profit.
- VII. To study the MATLAB tools used to analyse the dataset.
- VIII. To understand the dataset having details of weeds grown with crop weeds, size of weeds, by using MATLAB.
- IX. To study statistical tool box for processing the raw text in the context of weed growth and control.
- X. To study the use of MATLAB to visualize and analyse the data pertaining to weed control.

The literature pertaining to the study are reviewed as under.

- Weeds grow on soil along with crop plants. But this growth of weed is not desirable in the monoculture system. These undesired plants deplete the nutrients, water and space allotted for the intended crop. It causes huge reduction in crop yield. Weeds, in crop field, reduce input efficiency, interfere with agricultural operations, impair quality and act as alternate hosts for several insect pests and diseases. Some weeds release toxic substance which affects the crop growth. On the other hand, as part of the primary producers within farming systems, weeds also considered as important components of the agroecosystem. Proper weed identification can help in selecting right herbicide to control a particular weed. Sometimes correct identification can indicate that no action is needed. Preface be taken if the identified plant is not a troublesome weed. It helps in protecting the weeds of economic importance and conserving the biodiversity. "Hand book on Weed Identification" helps to identify the weeds easily. This treatise would be of great help to the agricultural scientists, researchers, quarantine officials, academicians and students.

There are 337 weeds described in the book so that the weed identification can be done easily. Weeds were introduced with the image of the weed, scientific name is given with its common name and family. The weed habits, type of stem, leaves in details containing shape, size, arrangements, colours, thickness of flowers & fruits are given in the handbook.( Naidu, 2012)

- The Statistics Toolbox, for use with MATLAB, is a collection of statistical tools covering numeric computing environment. The toolbox supports a wide

range of common statistical tasks from random number generation to curve fitting to design of experiments and statistical process control. The toolbox provides two categories of tools namely:

- a) Building-block probability and statistics functions,
- b) Graphical, interactive tools

The Statistics Toolbox has more than 200 M-files. A brief description is given as under:

**Probability Distributions:** The Statistics Toolbox supports 20 probability distributions. For each distribution there are five associated functions such as

- c) Probability density function (pdf)
- d) Cumulative distribution function (cdf)
- e) Inverse of the cumulative distribution function
- f) Random number generator
- g) Mean and variance as a function of the parameters

For most distributions, the Statistics Toolbox also provides functions for computing parameter estimates and confidence intervals.

**Descriptive Statistics:** The Statistics Toolbox provides functions for describing the features of a data sample. These descriptive statistics include measures of location and spread, percentile estimates and functions for dealing with data having missing values.

**Linear Models:** In the area of linear models, the Statistics Toolbox supports one-way, two-way, and higher-way analysis of variance (ANOVA). Analysis of covariance (ANOCOVA), multiple linear regression, stepwise regression, response surface prediction, ridge regression, and one-way multivariate analysis of variance (MANOVA) are other linear models. It supports nonparametric versions of one- and two-way ANOVA. It also supports multiple comparisons of the estimates produced by ANOVA and ANOCOVA functions.

**Nonlinear Models:** For nonlinear models, the Statistics Toolbox provides functions for parameter estimation, interactive prediction and visualization of multidimensional nonlinear fits, including confidence intervals for parameters and predicted values. It provides functions for using classification and regression trees to approximate regression relationships.

**Hypothesis Tests:** The Statistics Toolbox also provides functions that do the most common tests of hypothesis — t-tests, Z-tests, nonparametric tests, and distribution tests.

**Multivariate Statistics:** The Statistics Toolbox supports methods in multivariate statistics including principal components analysis, factor analysis, one-way multivariate analysis of variance, cluster analysis, and classical multidimensional scaling.

**Statistical Plots:** The Statistics Toolbox adds box plots normal probability plots, Weibull probability plots, control charts, and quantile-quantile plots to the arsenal of graphs in MATLAB. There is also extended support for polynomial curve fitting and prediction. There are functions to create scatter plots or matrices of scatter plots for grouped data and to identify points

interactively on such plots. There is a function to interactively explore a fitted regression model.

**Statistical Process Control (SPC):** For SPC, the Statistics Toolbox provides functions for plotting common control charts and performing process capability studies.

**Design of Experiments (DOE):** The Statistics Toolbox supports full and fractional factorial designs, response surface designs, and D-optimal designs. There are functions for generating designs, augmenting designs, and optimally assigning units with fixed covariates.

**Hidden Markov Models:** The Statistics Toolbox provides functions for analyzing hidden Markov models — models which are unknown to state information. These include functions for generating random data, calculating the most probable state sequence for an observed sequence, estimating model parameters, calculating posterior state probabilities, and calculating maximum likelihood estimates for parameters.

Statistical methods described in the book provides a mean to tackle the problem of weeds. It is an applied research by using statistical tool box by using MATLAB. (MathWorks, 2004)

- Chhattisgarh is commonly known as Bowl of Rice. Rice is grown as monocrop in the entire state. The soil in the region for growing rice can be classified as bhata, matasi, kanhar or black soil. Bhilai has been chosen as the place of study. Weeds grow with crop considered as undesirable plants. The instant study is a study on biodiversity of weeds in dry land. It is found that weeds belong to 21 families, 42 genus and 46 species.

Herbarium preparation and identification are the method and material of the study. Weeds were collected in different crop fields of Chhattisgarh region. The collected plants were identified by using 'Flora of Marathwada' (Naik, 1998), 'Flora of Bombay Presidency' (Cooke, 1958) and 'Flora of Maharashtra' (Almeida, 1996). Family wise categorization of weeds were made and presented in tabular form. The herbarium was prepared, labelled and stored in the herbarium of the Department. In Chhokatta and Bhilai region of Chhattisgarh, diversity of unwanted plant in crop fields is very common, dominant and easily available. But proper utilization of such weeds plant for the welfare of human being is least reported. Ethnomedicinal uses of these weed plants were referred in literature (Retnam et.al., 2006; Dhiman, 2006; Dyamock et.al, 2005; Prajapati et.al, 2003; Jain, 1991; Khare, 2004; Dhole et. al. 2009).

In study of the weeds flora of dry land crops in the Chhokatta and Bhilai areas, ten sampling site a total of 42 genus and 46 species from 21 families was identified in the 2 fields surveyed and mean value were recorded as data. The family with the highest number of species was Poaceae (6 spp), followed by Asteraceae(5), Amaranthaceae(4), Convolvulaceae(3), Papilionaceae(3), Euphorbiaceae(2), Lamiaceae(2), Acanthaceae(2), Solanaceae(2), Apiaceae(2),

Chenopodiaceae(2), and monogeneric families Papaveraceae, Capparidaceae, Asclepiadaceae, Cyperaceae, Verbenaceae, Malvaceae, Rhamnaceae, Zygophyllaceae, Mimoseae etc. (Shrivastava, Tikariha, and Patra,)

- Phytosociological studies of weeds are studies taken in agro ecosystem in order to allow the determination of period of control and/or coexistence between crop and weeds through phytosociological indices. Phytosociological surveys in the weed science is a conventional method of study. 46 species, 43 genus and 20 families were identified in the field surveyed. Plants grow widely in variable environmental conditions to form vegetation. The ecological amplitude of all the species growing in vegetation is not equal. Different plants respond differently towards the changing influences of ecological factors such as precipitation, relative humidity of atmosphere, availability of light, temperature, edaphic, topological and biotic factors. A thorough knowledge of the habit and habitat conditions in different adaptive features are essential to draw ecological conclusion. Density, frequency, abundance, relative density, relative frequency, relative abundance, IVI were noted by quadrats method then central tendencies, SE, SD and coefficient of variance were calculated. IVI ranges from 4.22 to 26.15, Mean 13.41, Median 9.99, Mode 25.77, SD were 36.58 while SE were 5.39 and coefficient of variance were 272.78

The weed flora and information based on weeds were collected from Durg and its neighboring areas located in and around Bhilai Steel Plant, Bhilai Industrial area, Chunkatta Bhilai Area etc. The extensive and intensive seasonal survey of weed flora in different habitat of waste were conducted done for the collection of weed flora and for the preparation of herbarium. Quadrat were placed month wise before in 10 places randomly, and mean value were recorded.

Taking a quadrat of 1M by 1M size; random sampling was made for the purpose of study. The presence or absence of each of the species in each segment or square of the quadrat were found and the data was tabulated. The plant species which touch the quadrat boundary were considered. Percentage Frequency, Density, Abundance, Relative frequency, Relative Density, Relative Abundance, Important Value Index (IVI), Mean, Median, Mode, Standard deviation, Standard error and Coefficient of variation are the statistical methods used in the study.

The findings of the study indicated that the density gives the numerical strength of a species in a community. Abundance on the other hand gives the number of individuals of a species in a habitat. Generally, frequency and abundance are co-related to find out the distribution of a species. Importance Value Index (IVI) is a measure of dominance and ecological success of a species. The families with the highest number of Dicotyledons species were especially from Acanthaceae, Asteraceae, Malvaceae, fabaceae, Lamiaceae, Chenopodiaceae, Solanaceae, Amaranthaceae Verbenaceae and Euphorbiaceae etc. The weeds belonging to Monocotyledons species were Poaceae, Cyperaceae of which Cynodon and Cyperus species from dominating in the state. (Anita Tikariha, A.K. Shrivastava and S. Patra.)

- The medicinal values of common weeds present in the crop fields is of relevance to cure ailments or therapeutic indications including headache toothache and eye inflammation. The phytochemical investigations are also required to invent drugs to serve the mankind. An ethnobotanical exploration was undertaken with an aim of identification and documentation of ethnomedicinally important weeds growing in Bilaspur district of Chhattisgarh. An exploration of weeds of Guru Ghasidas Central University campus was made to find out the weed flora of campus. An attempt was made to explore the therapeutic values of common weeds by consulting tribe of Bilaspur district of Chhattisgarh. By empirical reasoning, tribal and rural folks have screened and developed having knowledge of the local flora and their uses. Folklore claims were documented along with voucher specimens (Jain et al., 2006). The supportive plant specimens of folklore claims were collected, processed, critically studied, identified and preserved in the Herbarium.

84 number of weeds having ethnomedicinally importance, used to treat and cure for different day to day ailments were recorded. These weeds are also used by local healers, ojhas and vaidyas for different formulation and maximum pharmaceutical industries to synthesise different drug from weeds. Those plants are considered unwanted but these plants have medicinal value. Automatically increase in the biodiversity of weeds can be used for the welfare of human health by using it to treat and cure different major and minor diseases. There are 84 weed species belonging to 27 families were identified constituting the major part of the weed vegetation. The family Asteraceae and Fabaceae have are found the largest number of species (10 each) followed by Amaranthaceae and Acanthaceae. (Ashwini Kumar Dixita, Bhaskar Chaurasia, 2015)

- The common problems encountered by Indian agriculture includes control of obnoxious, undesirable, unwanted, useless, ugly and often persistent plants, injurious for crops. Interferes with agricultural operations increases labour and cost of production and finally reduce the crop yields. Such plants are known as weeds. Multiple losses are caused by the weeds within field in terms of crop yield, crop weeds competition for space, water, light and nutrients, increases in cost of agriculture production, reduction in price of farm produce, effects livestock product quality, reduction in land value, harbors to pests and diseases, bad effect on human health and soil productivity. On the other hand some weeds have also beneficial effect on human life. Weed is a serious problem for state agriculture. Survey, collection, identification, classification and preservation of weeds are essential for effective control.

Raigarh is the important district of Chhattisgarh. The soil of entire district is less fertile. On account of poor fertility soils, less organic composition of the soil, low irrigation facility, some of the areas are converted into industrial zones. The chemical industries are well developed in these zones, leading to air and water pollution. It also degrades the quality of the soil. Growth of weeds is seen in every crop. Weeds are intermixed with cereals, legumes, Fibre,



sugarcane, vegetables and fodder crops. Therefore the climatic, edaphic and biotic factors are constantly acted upon all the crops at every stage which reduces farm yield. Environmental factors such as low and high temperatures, wind velocity and rainfall are playing major role on agriculture practices. The annual rain fall is reducing constantly. Weed crop competition for moisture usually occurs along with other elements. It becomes increasingly critical with increasing soil moisture stress as occurring in the dry farming areas of semi arid and arid regions of Raigarh district. In dry land agriculture the actual evaporation from the weed crop fields is much more than the evaporation from a weed free crop field. Weed remove the soil moisture hence the yield in non irrigated fields is very less than the irrigated fields. Weed competition for moisture, nutrients are plenty. Weeds have an edge over crop plants. Crop likes Cotton, Maize, vegetables and sugarcane are prone to heavy weed growth at their seedling stage and consequently suffer badly at the fruiting stage. Rapid industrialization and urbanization of Raigarh district have direct impact on agriculture practice. Short supply of field workers is directly affects the weed control. Most of the farmers, erroneously assume that removing weeds any time during the growing season was good enough for obtaining full benefits of weeding in terms of increased crop-yield but contrary to it sub substantial scientific evidences are available that time of weeding a crop is as important as the weeding itself. The weeds that germinate either before or along the crop offer stronger competition to it then the later germinating ones. It has been observed that these early weeds accumulate dry matter faster than the crop seeding. In Maize, Sorghum and Bajara weeding is done 1/3 or 1/4 growing periods of crops which gives optimum yield. The hottest month during the last eight years is April. The average minimum temperature is 10°C and average maximum temperature is 42°C during last eight years. The mean of the maximum temperature of the month of May in last eight years is 44°C and the mean of minimum temperature is 21° C. The coldest month during the last eight years is February. The average temperature of the month February during last eight years is 10.94°C. The mean of the maximum temperature of the month of February in last eight years is 38° C and the mean of the minimum temperature is 10° C. The rainfall during monsoon is highly erratic, both in intensity and intervals between two successive rains. The average total rainfall in last eight years is 850 mm. The maximum rainfall recorded was 1015.8 mm in year 2001 and lowest rainfall. ( Sharma, Patel and Verma, 2017)

- According to the Food and Agriculture Organization, “Food security exists when all people have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” Food security is a major determinant of national security and self- sufficiency MATLAB plays an important role in crop yield estimation. In this paper, an attempt has been made to estimate crop yield for selected cash crops namely Rice, Groundnut, Soyabin, Ragi from the sample data collected from twelve talukas of Kolhapur district of Maharashtra. Analysis and estimation of yield



was done by using process tool constructed by MATLAB. This model can be used for estimating yield of any crop. This research aimed to assess these new techniques and apply them to the various variables.

Literature survey and personal interviews are taken from various people concerns with agriculture. In literature, survey books, PhD thesis, research papers, articles, conference papers were studied. There should be a standard input form to incorporate data through the desk top. Later on the data is processed with appropriate statistical tool to get results. After incorporating the data through input screen and entering the data in the database tables, the data in the database table is processed by using various queries of SQL. This data is then connected to MATLAB for data mining. MATLAB simplifies the task of calculation by using various statistical library tools and techniques. To check the validity of the data, before making the model using MATLAB, the data is analyzed in excel worksheet using all statistical methods.

In the paper, the author has exposed to basic technologies of Data Mining and basic description of Data Mining architecture to deliver value of data mining to the end user. One of the task remain incomplete is to yield forecasting based on available data. The author used Data Mining perspective which can be formulated and treated as a multidimensional regression task. This paper deal with appropriate regression techniques and evaluate the selected agriculture data. ( Raorane and Kulkarni, 2014)

- The purpose of the paper is to detect the weed in the crop grown in a field by using image processing. The image will contain crop and weeds in the field. The output will cover the pesticides to be used in the field according to the requirements. In order to detect the weeds in accurate a photograph is needed to have clear visions of the field. Photographs can be taken manually as attaching the camera in a tractor. After which image processing will be made by using MATLAB to detect the weeds in the field.

Following two methods were implemented for weed detection.

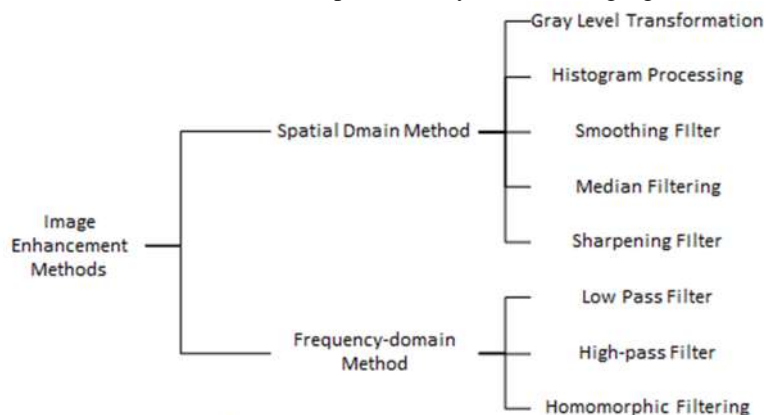
1. Inter row weed detection
2. Inter plant weed detection

The final result will contain the weed areas which will give inputs to the automatic sprayer, implemented using “Arduino Uno” microcontroller. The Arduino Uno is a microcontroller board based on the ATmega328 chip. It contains everything needed to support a microcontroller. It is needed to connect it with a USB cable or power with a AC to DC adapter or a battery to start it. Firstly the first row is to be checked by filtering output to find any weed blocks. If any blocks are found then inputs are to be given to the controller in a way that the sprayer goes to that block and sprays the herbicide. The only input is needed to be given to the sprayer is the time to be given to the motor in order to get to the weed block site. This can be given to the sprayer by using the function „delay” available in the Arduino Uno. The outputs from MATLAB is given manually as inputs to the Arduino Uno.

In the paper a method has been developed by which weed can be detected by using image processing. The input is given to the automatic sprayer which sprays only in the identified weed blocks. By doing so the use of weedcides are minimized leading to protect environment. ( Malemath, Hugar, 2016 )

- In view of the existing problems in agricultural products detection, this paper combines image enhancement algorithm with agricultural product feature recognition by MTALAB programming simulation, carrying out rapid and accurate agricultural products detection, which is more efficient than conventional agricultural products test methods.

Image enhancement technology is one of the research objects of digital image processing, which plays a significant role in improving image quality. But image enhancement is a paradoxical process. Image enhancement technology hopes to enhance edges and remove noise. On the other hand, removing noise will blur the edges to a certain extent, while enhancing edges will increase the noise. Therefore, it is necessary to balance the two for image enhancement. The image enhancement method can be represented by the following figure.



**Fig. 1** Image enhancement method

The combination of spatial domain method and frequency domain method are chosen for the study. The former processes the pixels directly which facilitates the recognition of the target area and the shape extraction while the later filters out unnecessary components to make the image smooth. Directly `im2bw` function is used to obtain image segmentation. Then the `bwboundaries` function is used to display the boundaries of the targets in the image. “`bwlabel`” function is used to mark successive areas in the image, pseudo-colorize them and display them with their digital markers.

This paper proposes a method to detect the characteristics and quantities of agricultural products easily. Through MATLAB simulation, the combination of image enhancement technology and image extraction technology are achieved.

The contrast and gray dynamic range of the image are improved to a considerable extent. As a result, the agricultural information is accessed conveniently at a faster rate. ( Cui, Ma, 2019)

### **Findings**

Available literature on weed are reviewed in conformity with the objectives of the study. The weed habits, type of stem, leaves in details containing shape, size, arrangements, colours, thickness of flowers & fruits are known from the literatures. In the study, 43 genus and 46 species from 21 families of weeds are known. On reviewing the literature, it is known that 84 weeds having ethnomedicinally important. Such weeds are used to treat and cure for different ailments.

The chemical industries cause air and water pollution. It also degrades the quality of the soil. Growth of weeds is seen in every crop. Weeds are intermixed with cereals, legumes, Fibre, sugarcane, vegetables and fodder crops. Therefore the climatic, edaphic and biotic factors are constantly acted upon all the crops at every stage which reduces farm yield. In dry land agriculture the actual evaporation from the weed crop fields is much more than the evaporation from a weed free crop field. Weed remove the soil moisture hence the yield in non-irrigated fields. Most of the farmers erroneously assume that removing weeds any time during the growing season was good enough for obtaining full benefits in terms of increased crop-yield but contrary to it sub substantial scientific evidences are available that time of weeding a crop is also important. It has been observed that these early weeds accumulate dry matter faster than the crop seeding.

Food security exists when all people have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." Food security is a major determinant of national security and self- sufficiency MATLAB plays an important role in crop yield estimation. Basic technologies of Data Mining and basic description of Data Mining architecture are applied to the dataset to deliver value of data mining for an end user.

Image processing via MATLAB tools is used to detect the weeds in the crop field so that the weeds get eliminated by spraying weedicides. MATLAB proved to be an important tool for the purpose of the study.

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## **A STUDY ON CUSTOMERS ATTITUDE TOWARDS SERVICE QUALITY OF PRIVATE TRANSPORT IN TIRUCHIRAPPALLI DISTRICT**

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### **ABSTRACT:**

Quality of service is very important, especially for the growth and development of service sector business enterprise. Due to the increasing importance of the service sector in the economy, the measurement of service quality became important. Undoubtedly owing to the belief that delivery of high service quality is a must for attaining customers satisfaction and a number of other desirable behavioural outcomes, recent years have incensed a flurry of research exploring the interrelationship between service quality, satisfaction and behavioural outcomes. This study was undertaken to know study the Customers' Attitude towards Service Quality of Private Transport in Tiruchirappalli District. Tiruchirappalli has a well-developed transport infrastructure. Being located almost at the geographic centre of the state Tamil Nadu India, Tiruchirappalli is well connected by Road, Rail and Air with most cities.

**Keywords:** Service Quality, Satisfaction, Private Transport.

### **I. INTRODUCTION:**

Consumers are individuals with likes and dislikes. When the preponderance of people in a particular group feel one way or another about a product, service, entity, person, place or thing, it is said to be a generalized consumer attitude that could affect the marketing of that person, product or entity in positive or negative ways. Marketers strive to influence consumer attitudes, and understanding the prevailing attitude is the first step to changing it if needed. Satisfying the customers is the main purpose of every business, but it is generally found that the customers are not satisfied with the Private Transport facilities and services. So, that the Private of India has been appointed committees from time to time to probe into the nature of customer service. The committee with one identical finding that, the customer is the important thing in transport sector. Hence, necessary steps are being taken to improve the transport system to suit the changing requirement of the customers. All these issues can be addressed by implementation of the right type of technology for the right purpose. It has facilitated the transport to reach to their customers without the physical presence. The drivers and conductor with respect to retaining the



existing customers, rendering innovative, technology- base, value- added, customized services to fulfill the customers' expectations and to enhance the customer level of satisfaction for sustainable development of the transport sector.

Currently, Tamilnadu transport has a dynamic and complex environment change in like private transport. Increasing development of Private transport and improvements in the kind and way services have been offered, increasing in fuel cost, maintenance cost and increasing development of technology in private transports offers a competitive. It requires that Private transport more attention to customer satisfaction. This goal will not be achieved without localized models and indicators through which one can make sure of customer satisfaction. However, appropriate studies have not been done to realize the dimensions of service quality. Hence, service organizations, especially transport, work hard to find effective ways to counter external changes in order to survive and they enhance their effectiveness by means of activating their services and creating and developing new ones. Thus, The importance of achieving high levels of quality lies in the number of economic and non-economic benefits resulting from quality commitment and lies in eliminating its problems and the causes of these problems.

## 2. BASIC CONCEPTS

### 2.1 Definition of Customer Attitudes

**Customer attitudes** are a composite of a person's beliefs about, feelings about, and behavioral intentions toward your business. Based in past experience with your business and those of your competitors, understanding **customer attitudes** can help you monitor and change their intentions about doing business with you.

### 2.2 Concept of service quality

Philip **Kotler** and Gary Armstrong defined the term '**service quality**' as "it is the ability of a **service** firm to hang on to its customer. That is, in their opinion customer retention is the best measure of **service quality**."

### 2.3 Private transport Sector

Tamil Nadu, a state in South India, has a highly developed, dense, and modern transportation infrastructure, encompassing both public and private transport. Its capital city, Chennai is well-connected by land, sea, and air and serves as a major hub for entry into South India. Chennai is home to around 35-40% of India's total automobile industry and hence it is known as the Detroit of Asia. It will become one of the world's largest auto hubs by 2018 with a capacity of over 3 million cars annually. Tamil Nadu has over 19.5 million registered vehicles with nearly 730% growth over the last two decades. Private bus services are operated in both short and long haul routes by central bus stand operators. There are two major bus terminus: the Chatram Bus Stand and the



Central Bus Station, both situated close to each other. The Central Bus Station is situated at a distance of 1 kilometre from the Tiruchchirappalli railway junction. The city also has an efficient local bus transportation system - both government-operated as well as private.

### **III. IMPORTANCE OF THE STUDY**

This study was conducted to understand the perception of service quality in the Private Transport in Tiruchirappalli District and also to evaluate how it helps in enhancing the reputation and attract customer loyalty. With the increased competition among the private transport, this study would help in defining a strategy to achieve the competitive edge and also satisfied customers. The study has taken the SERVQUAL tool for measurement of the service quality offered by the private players in the transport industry. The main assumption is Service quality is multi dimensional concept and these dimensions help in measuring the service quality. The responses were collected based on the five dimensions, namely assurance, reliability, responsiveness, tangibility and empathy. The study identifies that Reliability and Responsiveness are the most relevant factors for the service quality perception and they have compared the individual scores with the average mean value scored by the Private transport under the study.

### **IV. STATEMENT OF THE PROBLEM**

The Private transport have made transport more efficient and customer friendly. The Private transport always try to introduce new vehicles and maintenance the industries achieve expertise in their respective fields by offering quality service and guidance. Therefore, excellent service performance can improve the transport ability to lure affluent prospects, elevate the transport profitability, lower maintenance costs, and create greater customer loyalty. At this some key questions that the Private transport company have to ask themselves are “What are the factors that influence the customers to select a private transport? What is the extent of perceived service quality and the degree of loyalty of the customers? This research makes a modest attempt to find out answers to the above questions. In this context, the researcher has made an attempt to study the Customers’ Attitude towards Service Quality of Private Transport in Tiruchirappalli District.

### **V. THE GROWTH OF TRANSPORT SYSTEM IN INDIA**

Buses are an important means of public transport in India. Due to this social significance, urban bus transport is often owned and operated by public agencies, and most state governments operate bus services through a State Road





Transport Corporation. These corporations have proven extremely useful in connecting villages and towns across the country.

However, the share of buses is negligible in most Indian cities as compared to personalised vehicles, and two-wheelers and cars account for more than 80 percent of the vehicle population in most large cities. Many Indian states government have their own fleet of buses which are run under their State Transport Department

Bus rapid transit systems (BRTS), exist in several cities of the country. Buses take up over 90% of public transport in Indian cities, and serve as an important mode of transport. Services are mostly run by state government owned Transport Corporations. In 1990s all government State Transport Corporations have introduced various facilities like low-floor buses for the disabled and air-conditioned buses to attract private car owners to help decongest roads. The Ahmedabad Bus Rapid Transport System, in 2010 won the prestigious Sustainable Transport Award from the Transportation Research Board in Washington.

Rainbow BRTS in Pune is the first BRTS system in the country. Mumbai introduced air conditioned buses in 1998. Bangalore was the first city in India to introduce Volvo B7RLE intra-city buses in India in January 2005 . Apsrtc is the first transport corporation to introduce night service, online reservation, to nationalize passenger Road Transport Services in the country - 1932, to introduce long distance night express services and A/C Sleeper, Hi-tech, Metro Liner, Inter-City Services and Metro Express, depot computerisation - 1986, to appoint Safety Commissioner for improving the safety of passengers Bangalore is the first Indian city to have an air-conditioned bus stop, located near Cubbon Park. It was built by Airtel. The city of Chennai houses one of Asia's largest bus terminus, the Chennai Mofussil Bus Terminus

## VI. IMPORTANCE OF SERVICE QUALITY IN PRIVATE TRANSPORT

- The perceived total quality of private transport is the result of the combined effect of objective (actual travel time, actual travel costs, accidents, if any, etc.) and subjective factors in individual travel experiences accumulated over a longer period of time.



- Satisfied passengers perceive also the quality of the public transport service they receive as good. Traditional measurable quality and passenger satisfaction partly differ from one another.
- Passengers may feel overall private transport quality has deteriorated even if monitoring of the operator's quality criteria indicates it has remained unchanged or has even improved.
- Quality factors that are perceived to be in order and to which little attention is therefore paid in daily travel situations can easily be undervalued.
- Punctuality of service has a very high impact on passenger satisfaction and passengers' perception of private transport quality.

## **VII. THE DISTINCTION BETWEEN SERVICE QUALITY AND CUSTOMER SATISFACTION**

Sl. No.	Customer Satisfaction	Service Quality
1	Customer satisfaction is believed to have more conceptual antecedents.	Service quality has less conceptual antecedents.
2	Satisfaction judgments do require experience with the service or provider	Quality perceptions do not require experience with the service or provider.
3	Customer satisfaction judgments can be formed by a large number of non-quality issues, such as needs, equity, perceptions of fairness.	Expectations for quality are based on ideals or perceptions of excellence.
4	Customer satisfaction can result from any dimension, whether or not it is quality related.	The dimensions underlying quality judgments are rather specific.

**VIII. DIMENSIONS OF SERVICE QUALITY** The SERVQUAL scale is the principal instrument widely utilized to assess service quality for a variety of services. Parasuraman et al., (1988) have conceptualized a five dimensional model of service quality such as: reliability, responsiveness, empathy, assurance and tangibility. Their measurement instrument is known as SERVQUAL, which

has become almost the standard way of measuring service quality. Further, each item of SERVQUAL has been used twice: to measure expectations and perceptions of service quality. The central idea in this model is that service quality is a function of difference scores or gap between expectations and perceptions. The five dimensions of SERVQUAL Includes: **Tangibles:** Physical facilities, equipment and appearance of personnel. **Reliability:** Ability to perform the promised service dependably and accurately. **Responsiveness:** Willingness to help customers and provide prompt service. **Assurance:** Knowledge and courtesy of employees and their ability to inspire trust and confidence. **Empathy:** Caring and individualized attention that the firm provides to its customers.

## IX. CONCLUSION

Transport companies have to understand the changing needs of customers, their aspirations and expectations to create value. Transport sector should also have a strong customer relationship management system that would indicate the worth of the customer and be able to understand his needs while interacting with him, so as to manage customer relationship. To manage growth and continuity in business, human resources play an important role. Skill sets of employees need up gradation so as to make them more comfortable with the latest technology that will increase their comfort level while maintain customers to use the same in their day to day dealings. Efficient and knowledgeable employees are always a big boon for any transport company. Employees should be trained in customer psychology and behavioral aspects, so that transport can reach quick and prompt services. Establishing transport in every possible new route area would be a better way to progress. This would really help transport to create more accounts and give more profit.

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## **VULNERABILITIES OF THE ELDERLY IN THE FILMS AVTAAR & BAGHBAN : AN ETHICAL STUDY**

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### **ABSTRACT**

Aged are one of the vulnerable groups in our society. The older adults may become socially, economically and psychologically vulnerable. They are one of the insecure groups. As they are too weak to protect themselves, they can be harmed or injured or abused. In other words we can say, the personal integrity of the elderly can be violated. Film is one of the most effective mediums to make people aware of the vulnerabilities faced by the elderly adults of our society. Sometimes films contain important ethical features. In this article I have selected very famous two films, namely, Avtaar (1983) and Baghban (2003). Vulnerabilities and the struggle for a dignified late life of the elderly Avtaar Kishen and Radha Kishen in the film Avtaar; Raj Malhotra and Pooja Malhotra in the film Baghban have been highlighted in this paper. These are ethical issues, thus, I have tried to discuss it from ethical perspective. When we talk about neglect or lack of care, exploitation, abuse, we need to mention some ethical principles. While discussing the vulnerabilities of the elderly adults of those films I have tried to highlight on the ethical principles regarding this burning issue. In this context I have focused on The Ethics of Care and its relevance. And not just Care, Independence, Rights, self-fulfillment and Dignity – all these are necessary for the older persons.

**Key Words:** Ethical issue, Films , Old age, Vulnerabilities.

### **INTRODUCTION**

Aging is a universal experience for everyone, with diversity in meaning and interpretation. The idea of ageing arouses a variety of emotions. While the elderly face many common difficulties, their personal circumstances will be diverse and each individual will expect to be considered as unique as also his ageing experience. Their reactions to growing old and their perceptions of the phenomenon of growing old often display considerable diversity <sup>1</sup>. The aged are one of the vulnerable groups in our society. As the individual grows older his health begins to decline. At an advanced age, an individual may not be able to take care of himself in day-to-day life. He may also become financially

dependent, because he may not be able to earn his livelihood and large numbers from the disadvantaged sections of society do not have savings to fall back upon. An old person may become socially vulnerable, because he may find that his status in society has declined, and in his own family he may not receive the same importance. He may become psychologically vulnerable and experience loneliness, and may even become senile at a later age. He may be subject to the stress of anxiety over his future – failing health, declining mental abilities, depleted financial resources and the care and attention he will have at the time of his death. It is not suggested that all the aged become vulnerable and therefore, are in need of help. Some of the aged may continue to be healthy and self-reliant. Some of them may retain their financial independence, their social status and their psychological abilities. But many may not be so fortunate and would require assistance in a variety of ways **2**. Vulnerability implies that the personal integrity of the elderly can be harmed or violated because he or she is too weak to protect him or herself. What is central to vulnerability of elderly is the loss of power due to economic and social insecurity, chronic illness or inability to get long term formal or informal care. It is the fear that one is no more master of one's own life **3**. We find several dominant trends in Indian family in the last few decades. These are : **(a)** Increasing importance of nuclear family, **(b)** Transference of some functions ( e.g. educational, recreational, protective etc.) to some other institutions, **(c)** Fundamental change in family age structure, i.e. proportionately fewer children to care for and proportionately more elderly persons surviving. This has created the necessity of transferring support function from the family to the state. **(d)** Freedom to women due to their education and increasing economic independence. **(e)** Changing values of youth. Though they have respect for and fear of parents yet they want parental 'support' for achieving their individual interests **4**.

## **DISCUSSION**

Films can do more than entertain us. They can prompt and sustain philosophical reflection on important aspects of human experience and the ethical theory that is meant to inform it. The cinematic stories presented in these films may be essential for moral understanding **5**.

In this paper I shall highlight on two films, namely Avtaar and Baghban. As we proceed, we will see that examining film will do more than simply illustrate features of moral theory. Interpreting these popular films from the perspective of care will broaden our understanding of the theory. The philosophical substance of the films will add depth. As my interest in the selected films is primarily philosophical, the contribution of care to cinematic enjoyment will

tend to remain more implicit (Kupfer, J.H: 2012). **Avtaar** (1983) is a Hindi film. The central roles in this film were Avtaar Kishen and Radha Kishen which were played by Rajesh Khanna and Shabana Azmi. Avtaar was a poor man, he used to live with his wife and two sons, Ramesh and Chander. Avtaar worked in a factory and worked hard so that his sons could get the necessary education and live a better lifestyle. His sons grown up; Ramesh has married Sudha. Avtaar's sons and daughter-in-law neglected them. When Radha gets sick, their servant Sewak collected money from Sudha for Radha's treatment. But Sudha blamed them for stealing her money. And one day Ramesh informed them that their home was in the name of Sudha. Then, Avtaar leaved his home accompanied by Radha and Sewak. Few years later, Avtaar's fortune got changed. Avtaar started a business and creates industrial empire headed by himself and Radha and Sewak. Avtaar also set up a Home for older adults who were neglected by their children and other family members. Avtaar also managed to involve those neglected old persons in his factory so that they could earn their living 6.

The blockbuster Bollywood film, **Baghban**, one of the biggest cinematic hits in India in 2003, features the failed intergenerational reciprocity dissolving joint family system and chasm between the past and present envisioned as distinguishing the contemporary era. Just like a gardener ( Baghban) who plants trees and nourishes them in the hopes that he will be able to rest in their shade when he grows old, the movie's hero, Raj Malhotra ( played by the legendary Amitabh Bachhan), and his wife Pooja raise a family of four sons who are all now nicely settled in their professions. The father invests all of his income including his provident fund in his sons who, he believes, are the assets who will secure his future. Toward the film's opening Raj Malhotra declares: " With God's grace we have four children. That means we have four invaluable fixed deposits. Eight hands are enough to support me." But once their father's bank account is empty the sons and daughter-in-laws refuse to care for them properly. At the end of the film, the retired old father publishes a best-selling novel entitled "Baghban" based on the mistreatment received from the sons; gradually the father becomes millionaire and the sons come groveling back. But he does not forgive them. The film closes as the father addresses a captive audience gathered to celebrate the book, and his sons and daughter-in-laws listening meekly: " I am not a writer.... I have only written what life has shown me. Baghban is not about me or any one person. This book is about the silence that exists between the past and the future. This book is about every bridge that has broken between two successive generations. This book is about those bent shoulders on which some children sat and enjoyed the carnivals of the world. This book is about those shivering empty hands that once held the hands of their



young children and taught them how to walk....The world has changed. Life has changed. People of my age please remember-7

The father-author continues describing how the ways of the past have disappeared into the contemptible present: “ What unworthy relationships we used to be entangled in! We saw the lord’s face in our father’s faces. We found heaven in the feet of our mothers. But now people have smartened up. Today’s generation has become very intelligent and practical. For them every relationship is like a ladder which they step on to move up in life. And when that ladder loses its worth, then like broken furniture, broken utensils, torn clothes, yesterday’s newspaper, it is discarded into a storage *area*. But life does not move up like a ladder. Life grows like a tree. Parents are not like the first rung in a ladder. Parents are the roots of the tree of life. No matter how tall the tree might grow, how healthy and green it might be, cutting the roots will not allow it to remain healthy and green. That is why, today, I ask with great politeness and respect, that the children for whose joy a father happily spends every penny he has earned, why do these children hesitate to shine a little light for the parents when their eyes become weak? If a father can help his son to take the first step in his life, then why can’t that son help his father take the last step of his life? Why are the parents, who spend their entire lives bestowing pleasures on their children, punished with tears and loneliness?(Lamb, S:2012)

Older persons often define old age as a stage at which functional, mental and physical capacity is on the decline and people are more prone to disease or disabilities. They experience a decline in a wide variety of abilities such as vision, hearing, mobility and cognition that impact on various aspects of their everyday lives. As a result, they often need a greater degree of support in carrying out tasks and activities. The rise of smaller families and the increase in migration for work often mean that fewer children are at home to share physical, emotional and financial responsibilities for ageing parents and grandparents. This has the potential to lead to social exclusion, isolation, even abuse of older people 8. The advancing age brings along with it health concerns like frailty, morbidity and vulnerability to abuse, exploitation and neglect. Neglect and lack of care can have profound effects on elderly adults. Neglect of the elderly can be either physical or emotional. Abandonment or neglect of the elderly means that someone (or care giver) is not recognizing her/ his dignity as human being and treating her/ him accordingly. The problem of neglect poses ethical issues before the state, society to which elderly belong

and the individuals or the family members. These moral issues may be addressed from micro-ethical and from macro-ethical approach. The micro-ethical approach studies the individual aspect of elderly care and macro-ethical approach emphasizes the collective dimension of the care of the older persons (Sharma, K.L: 2017). It's a social problem, but at the same time its a moral issue. In this study, I have approached this moral issue from ethical perspective. **Care** is a kind of moral attitude. Care is an art of nurturance. Through care one tries to promote the well-being of another. An attitude which focuses on the well-being of another is the hallmark of a moral attitude. In this sense, care is a category of moral attitude 9. Care ethical perspective points out that human being is essentially dependent on others. Children are dependent upon parents, the elderly is dependent on their children or other care takers. Each human being goes through a process of dependency according to his or her age or physical or mental conditions. Parents have a moral responsibility to care for their children and children have moral responsibility to care for the elderly. Care perspective considers the family as the primary sphere in which to understand ethical behavior. It recognizes the prioritization of human relationship 10. Care ethics treat 'other' as a subject with emotion and feeling. Care ethics puts great weight on the significance of listening. In the ethics of care what becomes important is to allow others to speak so that a decision can be suitably taken in accordance with others' needs. Only after listening to the problem of the other, the emotion of the other, her vulnerabilities and the context from where the other is speaking can all be grasped and understood before arriving at any moral decision. Care is a concern for peace, for survival and for enrichment of all forms of life 11. Care ethics attempts to redefine existing ethical mode to bring about a change in handling moral issues so that the women, the old, the children and the marginalized will no longer be morally abused (Mukherjee, B: 2008).

### **Challenges faced by the Elderly in the Films:**

In the case of the films Avtaar and Baghban, sons and daughter-in-laws did not listen to the voice of Avtaar Kishen and Radha kishen, Raj Malhotra and Pooja Malhotra respectively. The adult children in those films did not even try to understand the needs of their old parents. They were not concerned about their responsibilities for their old parents. Adult and established children of the elderly in the films neglected their parents. Neglect of the elderly can be either physical or emotional. In Baghban, sons of Mr. Raj Malhotra and Pooja Malhotra ignored their calls for help, did not provide the necessary psychological care and adequate supervision. They tried to isolate old parents from their main stream of life. The same thing happened with Avtaar and Radha in the film Avtaar. The



son and daughter-in-law of Avtaar denied care, support, respect and love to their parents. Above all, Avtaar Kishen and Raj Malhotra remained integrated in society. Avtaar participated actively in his business which directly affected his well-being. He formed an association of senior citizens who were neglected by their family members. Avtaar and Radha developed opportunities for older persons and involved them in occupations, also provided protection and rehabilitation. Similarly, Raj Malhotra had access to community service which was appropriate to his personal preferences. Avtaar, Radha and Raj, Pooja – all of them finally developed a dignified late life.

## **CONCLUSION & SUGGESTIONS**

The fundamental aspect of human being is that they are individuals responsible for another. The respect for each other's dignity and recognition of the vulnerability enables the members of the society to create situations conducive to human growth and self-realization. The principle of human dignity is associated with human person. The article 1 of the Universal Declaration of Human Rights (UDHR), 1948, affirms the equal dignity of all human beings. All human beings are equal in their dignity and that this dignity accords them a special worth and value. We employ the notion of human dignity in two senses: descriptive sense and prescriptive sense. From descriptive sense it simply means that all human beings possess equal dignity, and therefore, are set apart from the rest of creation. In its prescriptive (normative) sense, dignity suggests that in view of their exclusive worth, they deserve respect (Sharma, K.L: 2017). Older persons should be able to live in dignity and security and be free of exploitation and physical or mental abuse. They should be treated fairly regardless of age, gender, racial or ethnic background, disability or other status, and be valued independently of their economic contribution. Older persons should be able to enjoy human rights and fundamental freedom when residing in any shelter, care or treatment facility, including full respect for their dignity, beliefs, needs and privacy and for the right to make decisions about their care and quality of their lives. Older persons should be able to live in environments that are safe and adaptable to personal preferences and changing capacities. Older persons should be able to reside at home for as long as possible **12**.

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## THE IMPACT OF ELASTICITY ON THE FIRM'S REVENUE – A PERSPECTIVE STUDY

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### Abstract

The elasticity is an important measure impacting on a firm's revenue. Hence, it is important for a firm to know how the proposed change in price of its product can affect its total revenue, when the product is to be sold in the new market condition at the new price. In this context, the measure of elasticity indirectly reflects how the buyers will react to the change in price and the new price to come. This implies that the elasticity of the product becomes a crucial measure to reflect what the percentage of income the firm can gain or lose, when the price change takes place for its respective product. This paper demonstrates in a new mathematically constructive approach as consistent with the existing accepted phenomena of elasticity that elastic product shows negative relationship between price change and change in total revenue; inelastic product can result in positive relationship between price change and change in total revenue; and unit elasticity product has no impact on change in total revenue as the response to a price change. Indicatively, this research paper explores three constructive, but similar and alternative, mathematical methods for the existing phenomena how the percentage of change in total revenue can be determined with respect to elasticity, and current and new prices and their respective quantities.

**Keywords :** Elasticity, Demand, Supply, Quantity, Market, Revenue

### 1. STATEMENT OF THE PROBLEM

Generally, the price, demand and supply analyses determine the equilibrium of a product in a market. The price as an independent variable determines both the demand and supply of a product and leads to market equilibrium. The elasticity is a measure of reflecting the changing rate of a quantity to a changing rate of price. Therefore, from a firm's perspective, the elasticity becomes a crucial measure in determining the price of the product, and any change in price affects the market and revenue of the firm. This implies that elasticity of the product has impacts on revenue of the firm, when there is a change in price of its product in the market. In this context this paper, provides the

theoretical explanation and modelling how the elasticity of a product has impacts on the firm's revenue.

In the theoretical term and application, the price elasticity of demand (Ed) and total revenue (TR) have close relationship, since they are determined by the two common variables, P and Q. In general application, if a product is with elastic demand in the market, the firm can increase its revenue by decreasing the price of its product, where the price decreases at a lower rate and its respective quantity increases at a higher rate, thus resulting in increase in total revenue. On the other hand, for an inelastic product, the firm can increase price and can respectively sell lower amount in quantity to earn more revenue from the product. Hence, knowing the relationship between the revenue of the firm and its product elasticity is vital for its management to make decision on pricing the product.

This paper highlights how the elasticity can be a determinant of assessing the approximate, but mathematically constructive, percentage change in income of a firm in terms of change in price. Further, the paper exhibits and concludes the relationships between the elasticity and percentage change in total revenue, and the role of percentage change in quantity and percentage change in price in determining the percentage change in total revenue.

The rest of this paper is organised as how elasticity becomes a determinant of total revenue of a product, and the concluding remarks.

## **2. ELASTICITY AS THE DETERMINANT OF TOTAL REVENUE OF A PRODUCT**

As there are different markets and firms in operations, it is important to know about how the elasticity becomes a crucial component in determining the revenue of the firm/market. To explore the relationship of elasticity to firm's revenue, consider the following revenue (TR) function of a firm/market.

$$TR = P \cdot Q \quad (1)$$

where TR = Total Revenue

P = Price of the product

Q = Quantity demanded for the product

Indicatively, variables P and Q are dependent on each other, since quantity becomes the function of price and price becomes the function of price as demand and supply become the two forces in determining the market equilibrium.

Therefore, differentiating TR for Marginal Revenue (MR) with respect to Q can result in

$$\frac{d(TR)}{dQ} = MR \cdot P + Q \left( \frac{dP}{dQ} \right) \quad (2)$$

$$\text{So that } MR \cdot P + Q \left( \frac{dp}{dQ} \right) \quad (3)$$

$$\text{But } E_d = \left( \frac{dQ}{dP} \right) \left( \frac{P}{Q} \right) \quad (4)$$

$$\rightarrow E_d = \left( \frac{Q}{P} \right) = \left( \frac{dQ}{dp} \right)$$

$$\rightarrow \left( \frac{E_d Q}{P} \right) = \left( \frac{dQ}{dp} \right)$$

$$\rightarrow \left( \frac{dP}{dQ} \right) = \left( \frac{P}{E_d \cdot Q} \right) \quad (5)$$

Substituting equation (5) in equation (3) can result in

$$MR = P + q \left( \frac{P}{E_d Q} \right) \rightarrow MR = P + \left( \frac{P}{E_d} \right)$$

$$MR = P \left( 1 - \frac{1}{E_d} \right) \quad (6)$$

Notably,  $E_d$  is always negative in mathematical calculation, while interpreting it in positive term.

$$\text{Therefore, } MR = P \left( 1 - \frac{1}{E_d} \right) \quad (7)$$

In equation 7, we can term that the MR is the result of multiplication of two components, namely: price (P) and elasticity  $E_c = \left( 1 - \frac{1}{E_d} \right)$ .

$$\text{Since } E_c = \left( 1 - \frac{1}{E_d} \right). \quad (8)$$

$$\text{Then } MR = P \cdot E_c \quad (9)$$

As the TR is calculated as the quantity of a good sold (Q) multiplied by its price (P), it gives a measure of money, without considering the cost incurred, a company can make by selling its product. Since a firm intends to maximize profits, and it has to aim for

increasing the TR. In this context, the firm can sell more items or raise the price of the product to increase its TR.

Now, it is possible to explore the relationship between the revenue and elasticity in the context of perfect (pure) competition market. In a perfect completion market, there might be various products, which can be primarily categorised into three types, based on the elasticity: (a) Inelastic, (b) Elastic, and (c) Unit-elastic products. As the MR in equation 7 consists of multiplying components of price and elasticity, the elasticity

component  $\left(1 - \frac{1}{E_d}\right)$  of equation 7 can be used to explore the impacting nature of elasticity on revenue.

Suppose consider an exhibit that the demand function of a product is given by

$$Q_d = -0.6P + 90 \text{ (in '000) and the initial quantity is 30 (000).}$$

Accordingly, it is known that the initial price of the product is:

$$30 = -0.6P + 90 \rightarrow P = (90 - 30)/0.6 = 100 \text{ and}$$

The respective elasticity is:

$$E_d = \left(\frac{dQ}{dP}\right) + \left(\frac{P}{Q}\right) = (0.6) \cdot \left(\frac{100}{30}\right) \rightarrow E_d = 2$$

Substituting  $E_d = 2$  in equation (8) can result  $E_c$  in a positive term, i.e.,

$$E_c = 1 - (1/2) = (1/2).$$

As the elasticity of the product is  $E_d = 2$  ( $E_d > 1$  and elastic in the market), the change in price for an elastic product implies that its elastic nature will definitely have the negative impacts on the firm's revenue.

Suppose, the initial market price increases by 5% from  $P = 100$  to 105, the quantity can fall to 27 ( $= -0.6 \times 105 + 90$ ) from 30 as 10% decrease. This implies that

The revenue of the initial price ( $P = 100$ ) and quantity ( $Q = 30$ ) is  $TR_0 = 3000$  and the revenue for the price changed ( $P = 105$ ) and respective quantity changed ( $Q = 27$ ) is  $TR_1 = 2835$ . Hence, the change in revenue as a percentage is:

$$\% \Delta TR = \left( \frac{TR_1 - TR_0}{TR_0} \right) = \frac{2835 - 3000}{3000} = \frac{-165}{3000} = 0.055$$

However, the reaction of suppliers to the price increase in the market has not been considered. It is obvious that the market equilibrium for a price increase reaches with the reaction of buyers and suppliers of the product to the price change. In this context, the approximate, but theoretically constructive, change in revenue of a firm can be determined with equation (9) above, i.e.

$$MR = P.E_c \quad (9)$$

$$\text{As } MR = \frac{\Delta TR}{\Delta Q} = P.E_c \rightarrow \frac{\Delta TR}{\Delta Q} = P.E_c \quad (10)$$

$$\text{So that } \% \Delta TR = \frac{\Delta TR}{TR} = \frac{P.E_c.\Delta Q}{TR} \quad (11)$$

According to the exhibit,  $P = 100$ ,  $E_c = (1/2) = 0.5$ , and  $\Delta Q = (27 - 30) = -3$ .

Therefore, substituting the above values, since the price change from  $P = 100$  leads to a change in income as:

$$\% \Delta TR = 100.(0.5).(-3) = -150$$

Hence, the approximate percentage change in TR

$$\% \Delta TR = \frac{\Delta TR}{TR} = \frac{-150}{(100)(30)} = \frac{-150}{3000} = -0.05 = -5\%$$

To find the percentage change in  $TR = \% \Delta TR$ , the equation (11) can be constructively used as a mathematical instrument as shown below.

$$\% \Delta TR = \frac{\Delta TR}{TR} = \frac{P.E_c.\Delta Q}{TR}$$

Equation (11) can be further simplified with  $TR = P.Q$  as shown below.

$$\% \Delta TR = \frac{\Delta TR}{TR} = \frac{P.E_c.\Delta Q}{TR} = \frac{P.E_c.\Delta Q}{P.Q.}$$

$$\% \Delta TR = \frac{E_c.\Delta Q}{Q} = E_c (\% \Delta Q) \quad (12)$$

In the above exhibit,  $E_c = 0.5$  and  $\% \Delta Q = (\Delta Q/Q) = (-3/30) = -0.1$ .

Therefore, alternatively using equation (12) can result in

$$\% \Delta TR = E_c (\% \Delta Q) = (0.5)(-0.1) = -0.05 = -5\%.$$

Further, it is possible to substitute  $TR = P.Q$  and  $\left(1 - \frac{1}{E_d}\right)$

$$\text{So that, } \% \Delta TR = \frac{P.\left(1 - \frac{1}{E_d}\right).\Delta Q}{P.Q.} = \frac{\Delta Q}{Q} \left(1 - \frac{1}{E_d}\right) = \left(\frac{\Delta Q}{Q} + \frac{\Delta Q}{Q}\right)$$

$$\text{Since mathematically } E_d = \left(\frac{dQ}{dP}\right) + \left(\frac{P}{Q}\right) = -\left(\frac{\Delta Q}{\Delta P}\right)\left(\frac{P}{Q}\right)$$

$$\% \Delta TR = \frac{\Delta Q}{Q} - \frac{\Delta Q}{Q} \left[ \left( \frac{1}{\left( -\frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q} \right)} \right) \right] = \frac{\Delta Q}{Q} + \frac{\Delta Q}{Q} \left( \frac{\Delta P \cdot Q}{\Delta Q \cdot P} \right)$$

$$\% \Delta TR = \frac{\Delta Q}{Q} + \frac{\Delta P}{P} \quad (13)$$

$$\% \Delta TR = \% \Delta Q + \% \Delta P \quad (14)$$

In the exhibit, when price change from  $P = 100$  to  $P = 105$ , then the change in quantity is moving from  $Q = 30$  to  $Q = 27$ .

$$\text{Hence, } \% \Delta Q = \frac{27 - 30}{30} = -0.1 = -10\% \quad \text{and} \quad \% \Delta P = \frac{105 - 100}{100} = 0.05$$

Using equation (14), now we can determine the percentage change in revenue ( $\% \Delta TR$ ):  
Notably, for a change in price of a product, how the revenue of a firm can get affected and determined in relation to respective change in quantity and relative elasticity is shown through two formulas above:

$$\% \Delta TR = \frac{P \cdot E_c - \Delta Q}{TR} \quad (11)$$

$$\% \Delta TR = \left( 1 - \frac{1}{E_d} \right) \cdot (\% \Delta Q) = E_c \cdot (\% \Delta Q) \quad (12)$$

$$\% \Delta TR = \% \Delta Q + \% \Delta P \quad (14)$$

It is also possible to explore how a price decrease can be useful to determine the percentage change in revenue ( $\% \Delta TR$ ).

Now consider the same exhibit of demand function above:  $Q_d = -0.6P + 90$  (in '000) with the initial quantity 30 (000). If the price falls by 10% and moves from  $P = 100$  to  $P = 90$ , the respective quantity can increase from  $Q = 30$  to  $Q = 36$ .

For using equation (11), the values of  $P = 100$ ,  $Q = 30$ ,  $TR = (100) \cdot (30) = 3000$

$$E_c = \left( 1 - \frac{1}{E_d} \right) \cdot \left( 1 - \frac{1}{2} \right) = 0.5 \quad \text{and} \quad \Delta Q = (36 - 30) = 6.$$

$$\text{Accordingly, } \% \Delta TR = \frac{P \cdot E_c - \Delta Q}{TR} = \frac{(100) \cdot (0.5) \cdot (6)}{3000} = 0.1 = 10\%$$

In the above exhibit,  $E_c = 0.5$  and  $\% \Delta Q = (\Delta Q / Q) = (6 / 30) = 0.2$ .

Therefore, alternatively, using equation (12) can result in

$$\% TR = E_c (\% \Delta Q) = (0.5)(0.2) = 0.10 = 10\%.$$

Similarly, for using equation (14), the values of  $\% \Delta Q = (\Delta Q/Q) = (36 - 30)/30 = 0.2 = 20\%$  and  $\% \Delta P = (\Delta P/P) = (90 - 100)/100 = -0.1 = -10\%$  needs to be substituted.

Accordingly, .

From the above, the following can be concluded:

***For an Elastic Product ( $E_d > 1$ ), there is negative relationship between the price change and total revenue change for a product of a firm, i.e.,***

***Increase in price for the product leads to decrease in revenue of a firm; and***

***Decrease in price for the product leads to increase in revenue of a firm.***

The same approach can be shown for the products with  $E_d < 1$  and  $E_d = 1$ .

Suppose consider the demand function of a product  $Q_d = -0.6P + 90$  (in '000) and the initial quantity is 60 (000).

Accordingly, it is known that the initial price of the product is:

$$60 = -0.6P + 90 \rightarrow P = (90 - 60)/0.6 = 50 \text{ and}$$

The respective elasticity is:

$$E_d = \left( \frac{dQ}{dP} \right) \left( \frac{P}{Q} \right) = (0.6) \cdot \left( \frac{50}{60} \right) = (0.6) \cdot \left( \frac{50}{60} \right) \rightarrow E_d = 0.5 \quad (\text{the product is}$$

***inelastic***).

Now assume that the price increases from  $P = 50$  to  $P = 55$ , and this leads to decrease in quantity from 60 ('000) to 57 ('000).

For using equation (11), the values of  $P = 50$ ,  $Q = 60$ ,  $TR = (50) \cdot (60) = 3000$

$$E_c = \left( 1 - \frac{1}{E_d} \right) = \left( 1 - \frac{1}{0.5} \right) = (1 - 2) = -1, \text{ and } \Delta Q = (57 - 60) = -3.$$

$$\text{Accordingly, } \% \Delta TR = \frac{P \cdot E_c - \Delta Q}{TR} = \frac{(50) \cdot (-1) \cdot (-3)}{3000} = 0.05 = 5\%$$

In the above exhibit,  $E_c = -1$  and  $\% \Delta Q = (\Delta Q/Q) = (-3/60) = -0.05$ .

Therefore, alternatively, using equation (12) can result in

$$\% TR = E_c (\% \Delta Q) = (-1)(-0.05) = 0.05 = 5\%.$$

Similarly, in using equation (14), the values of  $\% \Delta Q = (\Delta Q/Q) = (57 - 60)/60 = -0.05 = -5\%$  and  $\% \Delta P = (\Delta P/P) = (55 - 50)/50 = 0.1 = 10\%$  needs to be substituted.

Accordingly,

Now assume that the price decreases from  $P = 50$  to  $P = 45$ , and this leads to increase in quantity from 60 ('000) to 63 ('000).

For using equation (11), the values of  $P = 50$ ,  $Q = 60$ ,  $TR = (50) \cdot (60) = 3000$

$$E_c = \left( 1 - \frac{1}{E_d} \right) = \left( 1 - \frac{1}{0.5} \right) = (1 - 2) = -1, \text{ and } \Delta Q = -0.05 = -5\%$$



$$\text{Accordingly, } \% \Delta TR = \frac{P.E_c - \Delta Q}{TR} = \frac{(50).(-1).(-3)}{3000} = 0.05 = 5\%$$

In the above exhibit,  $E_c = -1$  and  $\% \Delta Q = (\Delta Q/Q) = (3/60) = 0.05$ .

Therefore, alternatively, using equation (12) can result in

$$\%TR = E_c (\% \Delta Q) = (-1)(0.05) = -0.05 = -5\%.$$

Similarly, in using equation (14), the values of  $\% \Delta Q = (\Delta Q/Q) = (63 - 60)/60 = 0.05 = 5\%$  and  $\% \Delta P = (\Delta P/P) = (45 - 50)/50 = -0.1 = -10\%$  needs to be substituted.

$$\text{Accordingly, } \% \Delta TR = \% \Delta Q + \% \Delta P = (5\%) + (-10\%) = 5\%$$

From the above, the following can be concluded:

***For an Inelastic Product ( $E_d < 1$ ), there is positive relationship between the price change and total revenue change for a product of a firm, i.e.,***

***Increase in price for the product leads to increase in revenue of a firm; and***

***Decrease in price for the product leads to decrease in revenue of a firm.***

Now consider the same demand function of a product  $Q_d = -0.6P + 90$  (in '000) and the initial quantity is 45 (000).

Accordingly, it is known that the initial price of the product is:

$$45 = -0.6P + 90 \rightarrow P = (90 - 45)/0.6 = 75 \text{ and}$$

The respective elasticity is:

$$E_d = \left( \frac{dQ}{dP} \right) \left( \frac{P}{Q} \right) = (0.6) \left( \frac{75}{45} \right) \rightarrow E_d = 1 \text{ (unit elasticity product).}$$

Now assume that the price increases from  $P = 75$  to  $P = 80$ , and this leads to decrease in quantity from 45 ('000) to 42 ('000).

For using equation (11), the values of  $P = 75$ ,  $Q = 45$ ,  $TR = (75) \cdot (45) = 3375$ ,

$$E_c = \left( 1 - \frac{1}{E_d} \right) = \left( 1 - \frac{1}{1} \right) = (1 - 1) = 0 \text{ and } \Delta Q = (42 - 45) = -3,$$

$$\text{Accordingly } \% \Delta TR = \frac{P.E_c - \Delta Q}{TR} = \frac{(75).(0).(-3)}{3375} = 0\% \text{ (no change in total revenue).}$$

In the above exhibit,  $E_c = 0$  and  $\% \Delta Q = (\Delta Q/Q) = (-3/45) = 0.067$ .

Therefore, alternatively, using equation (12) can result in

$$\%TR = E_c (\% \Delta Q) = (0)(0.067) = 0 = 0\%.$$

Similarly, in using equation (14), the values of  $\% \Delta Q = (\Delta Q/Q) = (42 - 45)/45 = -0.0667 = -0.67\%$  and  $\% \Delta P = (\Delta P/P) = (80 - 75)/75 = 0.0667 = 6.67\%$  needs to be substituted in it.

Accordingly,

From the above, the following can be concluded:

***For a Unit Elastic Product ( $E_d = 1$ ), there is no change in total revenue for the change in price of the product of a firm, i.e.,***

***Increase in price for the product leads to no change in revenue of a firm; and***

***Decrease in price for the product leads to no change in revenue of a firm.***

Indicatively, the products with different elasticity measures are available in perfect/ pure competition market, where huge numbers of buyers and sellers are available. Also, the market has no product differentiation, since all products have almost the same features and the buyers have no choice at all to buy a product selectively. In these markets, no buyer or seller can change the price of a product.

Similarly, in monopolistic and monopolistic competition market, the products have unique features of product differentiation with free entry to new entrants. Also there would be an artificial boundary to restrict new firms entering into the markets; and hence, there might be a considerably low level of influence in the supply on similar types of products. In these markets, the elasticity of the products always be greater than one ( $Ed = 1$ ).<sup>1</sup> Therefore, it is important to know, such as the types of products (whether the products are subject to product differentiation), which market (whether the market is perfect competition), etc., to make conclusion on change in revenue of a firm with respect to change in price and its relative elasticity.

### 3. CONCLUDING REMARKS

As the elasticity becomes a one of the important factors in determining a form's revenue with respect to a change in price of its product, it is important for the firm to know, before taking a decision on changing the price of its product, how the proposed change in price can affect its total revenue from the product to be sold in the new market at the new price. In this context, the measure of elasticity is very important that reflect how the buyers will react to the change in price and the new price to come. In this context, the elasticity of the product becomes a crucial measure to reflect what the percentage of income the firm can gain or lose, when the price change takes place for its respective product.

This paper demonstrates in a new mathematically constructive approach, but existing accepted fact, how the elasticity of a product can affect a firm's total revenue. This paper illustrates with an exhibit of considering three different types of products with elastic ( $Ed > 1$ ), inelastic ( $Ed < 1$ ), and unit elastic ( $Ed = 1$ ) nature.

The above said mathematical constructive method is also consistent with the existing accepted phenomena of elasticity that elastic product shows negative relationship between price change and change in total revenue, inelastic product can result in positive relationship between price change and change in total revenue, and unit elasticity product has no impact on change in total revenue as the response to a price change. In this context, this paper explores three mathematically constructive, but similar and alternative, methods for the existing phenomena how the percentage of change in total revenue can be determined with respect to elasticity, and current and new prices and their respective quantities.

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## EMERGENCE OF FEMINISM IN THE STARTING PERIOD OF ASSAMESE NOVEL: A STUDY OF 'HADHONA' AND 'ROHDOI LIGIRI'

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### **Abstract**

Feminism is one of important paradigm /trend developed in the field of literary criticism recently. Twentieth Century feminism generally an outcome of the women centric thinking of Nineteenth century. Basic thought of the feminism is the to giving equal status and respect to both men and women. It has been observed that the Assamese Novels have witnessed feminist thought or voice since its starting period. But raising a strong voice in the literature cannot be a feminist character. There is a scope to examine Dandinath Kalita's 'Hadhona' (1928) and Rajanikanta Bordoloi's 'Rohdoi Ligiri' (1931) from the critical feminist viewpoint which were written in the starting period of the Assamese Novel. Both the Novel were able to reflect the feminist idea through its character and stories. 'Rohdoi Ligiri' reflect the concept of equality between men and women through the Rohdoi character. As well as 'Hadhona' and its story is also based on the feminist ideology, but the 'Hadhona's feminism is a limited kind of feminism. This paper is an attempt to examine the reflection of feminist ideology and conception in the 'Rohdoi Ligiri' and 'Hadhona'.

**Key Word:** Feminism, Feminist Ideology, Assamese Novel, Equality

### **1.0 Introduction**

Feminist movement started in Europe in 18th century to provide equal respect and status to both men and women. But mainly the concept fully emerged as an alternative perspective in the 19<sup>th</sup> century and entered in the field of literary criticism in 20th century. Feminists are always against to the differentiation between man and women. It raises the alternative way to see both man and women as equal human being. Feminist literature and critics mainly raise the questions to the patriarchal society that what are their views on women. They basically want to establish women as an ideal human being.

If we observe the developmental stage of Assamese Novel, it has been seen that the trend was started with the publication of 'Bhanumoti' by Padmanath



Gohain baruah in 'Bijuli' in 1891. The first stage of Assamese Novel witnessed the presence of a strong feminist voice. There is a scope to analyze the emerging periods of Assamese Novel from feminist viewpoint such as Dondinath Kalita's 'Hadhona' and Rajonikanta Bordoloi's 'Rohdoi Ligiri'. Both are able to reflect the concept of equality between men & women through its story but it is not proper to say that both novels are pure examples of portraying the feminist discourse.

## 2.0 Objectives

- i) To discuss about reflection of feminist idea through the stories in both the novel.
- ii) To examine how the characters are portrayed.
- iii) To examine the reflection of feminist concept through the thinking of the character in the selected Novels.

## 3.0 Methodology

The study is descriptive and analytical in nature. The data for the research paper have been collected from both the primary and secondary sources. For the primary sources the subject matter of two selected novels are used and secondary sources were collected from different books, articles and newspaper.

## 4.0 Results and Discussion

### 4.1 Feminist Literary Criticism

Feminism is a social philosophy emerged in the western culture. Basic tenets of the feminism is to give equal status and respect to both men and women in the existing society. Feminism emerged in 18th century in Europe to demand the basic right of the women collectively; after that it emerged in USA in 19th century and the third world countries such as India, China, had witnessed some kind of movement in 20th century. Feminism always outlines its concept as to break all the barriers or hindrances which was created by the patriarchal society. From the historical background of the feminism, we can find three broad categories. These are-

- i) Individualist feminism
- ii) Socialist feminism
- iii) Revolutionary feminism

J.S Mill was considered as the proponent of individual feminism. He claimed that the disabilities of women are the main obstacles so everyone should eradicate these obstacles for individual and social benefits.

Socialist feminist was represented by Marx and Engels. Engels in 'The origin of the Family', 'Private property' and 'The state' claimed that

there is a need to think about existing social system and to giving equal respect to women and providing their all basic right.

Simon de Beauvoir in her 'The Second Sex' said that the Social backwardness of women is an outcome of the norms created by patriarchal society and it is unnatural so there is an urgent need of revolution.

The background of the feminist literary criticism based on the already established patriarchal norms in Literature. They also try to establish women as an equal partner not only in literature but also in every sphere of society such as social, political and economy. Richardson, Virginia wolf and some other philosopher able to provide their opportunity.

Some progressive female characters, drama, novels, since its starting period. There are some basic differences of it with the western feminism regarding the portrayed characters of Assamese literature. But it is also observed that some writer reflect the women's question very sincerely in literature and try to provide them an equal respect in both society and literature.

#### **4.2 Emergence of Feminism**

##### **Hadhana**

Dondinath kalita's 'Hadhona' was a political Novel based on the 16<sup>th</sup> decade of the 20th century. Dinabondhu the central figure of the novels highly influenced by the 1905 .partition of Bengal movement, Swadashi movement ect. The central theme of the 'Hadhona ' was a conflict of characters who wanted social reform and spread of women education through the Indian ideology against the urban Assamese Middle class. 'Pravawati' was the principal character of the story who wanted to reform the society and spread women education. And she was ideology of' Dinabandhu'. According to the story 'prabhawoti' came to the town with the hope of reform the society. Though 'Hadhana' was a political novel, there was also the emergence of feminist ideology. Despite the social barriers 'Prabhawati' was able to established her own ideology. Another important character of the story was Ukha . She was also inspired by the idea of the' Dinabandhu' and she loved him. Ukha proved her idealist role to break her marriage with the person who was selected by her parents without her permission and o she joined as a teacher in the school of dinabandhu. 'Ukha' and 'pravawati' both were intimate friends.' Prabha' chose her own way to emancipate women and the ideology of nationalism and at the end she fixed the marriage of ' Ukha' and ' Dinabandhu'.

There was an emergence of feminist ideology throughout the study of Hadhana but it was limited kind of emergence.<sup>1</sup>The hero of the story, Dinabandhu opened the girls school. he wrote to' Prabha' -----

”Lorar hikhyat koi suwalir hikhyat ami besi habodhan hobo lage. Poriyal aru dekhori mongol nariru porote nirvor kore.”

(“We should be more cautious regarding women’s education; welfare of family and country relies upon the education of women”)

Hadhana- pp-30

There was no doubt that ‘Dinabandhu’ was aware about the women education but he was against the women’s unlimited freedom given by western society. He wanted that kind of freedom to women which would easily accept our tradition. There was a difference between ‘Dinabandhu’ and ‘Prabha’. He determine some rules in his school .For example-

“If you are an independent female teacher, than you should be abided by these following regulation-

A. In the absence of any third person you wouldn’t serve any man.

B. Unless and until the person is a kith and kind, or if he isn’t suffering from any disease; he should not go to a female teacher’s room at night.”

School managing committee and ‘Prabha’ had opposed the rules determine by ‘Dinabandhu’ and they claimed that these were against the freedom of women and gave the example of Indian Women Association. The reflection of the concept of the women and the feminist view was very narrow in the novel.<sup>2</sup> But despite to some limitation of the writer was able to focus on a progressive agenda such as giving equal respect to women. Providing women education through the characters of ‘Dinabandhu’ and ‘Prabha’. There was difference between the thought of Prabha and ‘Dinabandhu’ regarding the freedom of women. But from the feminist viewpoint it was seen that above all the differences ‘Prabha’ followed the idea of ‘Dinabandhu’ and Was inspired by him.

From the character analysis it was observed that ‘Prabhawati’ played a strong feminist role. She always raised the question of women emancipation and women education. She wrote against Dinabandhu’s narrow thinking of women freedom-

”Apuni stree swadhinotar hima jiman thek koi dhorise hi ketiau jothesto hobo nuare.”

(The limit which you have drawn for female emancipation is constricted that it can never adequate)

Hadhana, pp-101

Prabha proved herself always a supporter of women emancipation. Despite facing lots of social hindrances and evil practice she maintained herself in her own way and never hesitated to make her dream.

It was also noticed that although 'Dinabandhu' was a limited kind of feminist, his role to women emancipation in late 20<sup>th</sup> Century was unforgettable.

The love story between 'Dinabondhu' and Prova we can see through feminists ideology. Though they had different opinion about feminism, being a admirer of his ideologies the way he led solitarily is a origination of personal ideology.<sup>2</sup>

### **Rohdoi Ligiri:**

RohdoiLigiri was published in 1930 after the two year of the publication of

Hadhona. Bordoloi expressed his views of women emancipation through how patriarchal society impact on women in his famous Novel 'NirmalBhakat'. In 'RohdoiLigiri', Bordoloi elaborated the societies general views towards women and raised some question on it. Through Rohdoi character the writer was able to focus on Rohdoi's pathetic conditions through how she went to the to the Royal palace, how she protested against the king ,how society behaved her as 'krishnadashi'. The story was able to prove that both men and women were equal for the 'Krishnadashi' formation of a volunteer group to her propagation of religion. 'Rohdoi' character was based on a feudal background and she was very independent and rigid to her own way

Through the character 'Rohdoi' the writer drew an independent and reformist type of women who opposed the so called social norms which dominated the women in that time specially the last period of Ahom rules. when 'dayram' said 'Rohdoi' that women should away from doing some work.such as riding buffalo.It was looking like unacceptable according to 'dayaram' then 'Rohdoi' replied that-

"Gukhainie Jodi bagh aru Hati r pithi tuthi furibo pare tente ami teur jiyori ba dashi hokole hati,ghura,mohot uthila nu ki jogor ligabo pare"

(if the goddess can work by riding Tigers and Elephants then why we can't go to the buffalo's as we are her Daughter ?)

Rohdoi Ligiri,p.p-4

Rohdoi proved herself through this statement as an independent feminist thinker against the society.



The story was able to show that how personals of Ahom kingdom engaged theme selves to dominate women by physically and mentally in the last period of Ahom rules.

The writer very sincerely portrayed how the society behaved women and how 'Rohdoi' transformed herself in different situations to save her.

'Rohdoi' ' from the very beginning was an independent and always raised her voice against the evil practices of society. she maintained herself as a feminist reformer till her 'Krishnaadashi' role. feminist thinking through it might be western or eastern always based on the providing equal respect, status and rights to both men and women.<sup>3</sup>The writer became absolutely successful to give a concept of equality between men and women in the society through the 'Rohdoi' character.

## **5.0 Conclusion**

'Hadhona' and 'Rohdoiligiri' both are relevant and successful to reflect the concept of women emancipation and giving equal respect to women from the feminist point of view. It has been find out that-

- i) Both the Novel was based on the feminist thinking but there was a limited kind of feminism in both RohdoiLigiri and Hadhona.
- ii) In both the stories the leading female character raised questions against the patriarchal society.
- iii) Both the Novel was able to raise the feminist paradigm in Assamese Literature.

## **End note:**

<sup>1</sup> **Gobinda pasad Sarma, A History of Assamese Novel, P.P-116**

<sup>2</sup> **Gobinda pasad Sarma, A Hisroty of Assaamese Novel, p.p-121**

<sup>3</sup> **Nagen Thakur, One Hundred year of Assamese Novel, p.p-100**

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