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# IUT Journal of Advance Research and Development

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## Message from Pro Vice-Chancellor

Dear Reader,

It is with much joy and anticipation that we celebrate the launch of IUT Advance Journal of Research and Development (IUT-AJRD) with this inaugural issue. On behalf of the IUT-AJRD Editorial Team, I would like to extend a very warm welcome to the readership of IUT-AJRD. I take this opportunity to thank our authors, editors and anonymous reviewers, all of whom have volunteered to contribute to the success of the journal. I am also grateful to Dr. A.K.Ray for making IUT-AJRD a reality.

Finally, I wish to encourage more contributions from the scientific community and industry practitioners to ensure a continued success of the journal. Authors, reviewers and guest editors are always welcome. We also welcome comments and suggestions that could improve the quality of the journal.

Thank you.

***Biplab Halder***.
Pro Vice-Chancellor
ICFAI University, Tripura

## Chief Editor's Notes

The Chief Editor and Editors of the research journals of Management, Engineering, Law, and Education streams i.e. IUT Advance Journal of Research and Development (**AJRD)** would take it as their duty to express the deep gratitude to the contributors and readers of current volume. Keeping in view the interest of readers and contributors ,teachers and students, research scholars (both internal & external), institutions and society, it was decided to initiate a research journal ,on by yearly basis. I express my heartiest congratulations and gratefulness to entire team of **ICFAI University**, Tripura, and the Pro -Vice Chancellor particularly, for his encouragement and the manifestation of IUT-**AJRD**.

I find it really appreciable that despite several other commitments of team members, how efficiently and coolly they handle the events and overcome a number of hurdles in the way, while bringing out this volume of the journal. Once again I express my best wishes and feel personally obliged to entire team of the journal ,for taking all kinds of pain in bringing out the inaugural volume of the journal. Also, I request humbly to the readers and contributors of our journal to continue encouraging us with the same supporting spirit. Comments and suggestions for the improvement of IUT-AJRD are always welcomed.

Thanking You,

Prof. A.K.Ray

Chief Editor

# Contents

# Focus

**Dear readers,**

We feel delighted to bring forth first issue of the IUT Journal of Advance Research and Development."**Great things are not done by impulse, but by a series of small things brought together".** Said Vincent Van Gogh. Keeping in tune with this basic philosophy, the current issues has addressed several contemporary well researched ideas of different disciplines like Rural Management, Business Management, Engineering and Education, which will stand in great stead in bringing forth new dimensions.

This issue commence with a research paper entitled, The Impact of Educational Levels of Father and Mother on the Achievements in Mathematics of Class IX Students by . Y. Reddy. The findings of this paper revealed that father education and mother education have significant influence on the achievement in mathematics of IX class students.

The second paper entitled, Need for Strengthening Credit Co-operatives in India by Dr. Subrata Mukherjee .This paper focused that credit co-operative is the only medium looking after the credit requirement of the poor and marginalized farmers and access to finance to financial services is the means to ameliorate the problems of poverty.

The third paper entitled, Identifying the Different Strategies of Network Service Providers, Customer Perception and the Satisfaction Level towards Mobile Number Portability by Mr. Nipesh Debnath and Dr. Dhananjoy Datta. Their investigation indicated that according to the age group there is no difference between the perception and satisfaction level of the peoples towards mobile number portability and also according to the gender there is no difference between the perception and satisfaction level of the people towards mobile number portability.

The fourth paper entitled, Measuring the speculation of stock and index by Dr. Bijay K, Bhattacharya. The study has focused that it may enable one to grasp year wise speculation level of individual stock as well as the overall stock market. The concept can also be extended to hourly, daily or monthly calculation of speculation.

The fifth, paper entitled The Impact of Tourism upon the Socio-Economic Environment: A Case Study of Kohora Range of the Kaziranga National Park by Dr. Syed Sajidul Islam, basically emphasized upon the Socio-Economic Impact of tourism upon the

local inhabitants, dwelling on the fringes of the Kaziranga National Park, practically on the periphery of the Kohora Range of the Park.

The sixth paper entitled, Jhumias Rehabilitation through Rubber plantation: A Strategy for Poverty Eradication by Prof. A.K.Ray and Dr. Sukanta Sarkar, focused on the effects of rubber plantation on the poverty level of jhumias in Tripura. Rehabilitation of jhumias through rubber plantation is a successful story in Tripura. Rubber Block Plantation for socio-economic settlement of the Jhumias has been considered a great s

The seventh paper entitled, A Comparative Study of the Existing Higher Secondary English Curriculum under TBSE, CBSE and CISCE by Anirudhha Chakraborty which examined the Higher Secondary English curriculum under CBSE, TBSE and CISCE which are running in different schools of Tripura by constructing and standardizing a rating scale and by administering it on some randomly selected students of Higher-secondary schools.

The next article entitled ,Making Indian Engineers world-Class by Prof. Biplab Halder revealed that for attaining excellence in engineering, it is imperative that we should provide high quality education and training to our 'Engineers in Making', so that in near future our Indian Engineering achieves the 'Zenith'.

. The Ninth paper entitled, Educational Revolution in Ethiopia: A Strategy for Human Capital Formation by Dr. Sukanta Sarkar attempted to highlight the growth and challenges of higher education in Ethiopia. The results indicate that higher educational institutions are increasing vary rapidly. It is evident from the study that Ethiopia's higher education infrastructure has mushroomed in the last 15 years. In 2000 there were just two universities, but since then the country has built 29 more, with plans for another 11 to be completed within two years.

The Tenth paper entitled ,The Role of Science and Technology Education at Network Age Population for Sustainable Development of Tripura by B.V. Srikanth and Abhijit Biswas discussed some of the scientific challenges facing in Tripura such as lack of strong science leadership and capacity, lack of science support, brain drain, science illiteracy, lack of access to research publications, education science crisis and finally the digital divide.

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Chief Editor

**IUT Journal of Advance Research and Development (IUT - JARD)**

Volume 01 Number: 01 October, 2015 – March 2016

# The Impact of Educational Levels of Father and Mother on the Achievements in Mathematics of Class IX Students

**Dr. B. Yella Reddy**

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**Abstract:**

*As achievement test is a formal assessment the test helps teachers to understand the level of comprehension of the students and helps him to estimate the capabilities of the students. The main objective of the present study is to study the influence of father education and mother education on the achievement in mathematics of IX class students. Achievement in mathematics test developed by Naveen, P (2010) was adopted for the present study. A sample of 300 IX class students representing all categories of secondary schools in Chittoor District have been collected by following the standardized procedures. Also 't' and 'F' (ANOVA) tests were employed for analysis of the data. There is significant influence of father education and mother education at 1 percent level of significance on the achievement in mathematics of IX class study.*

**Keywords:** Achievement, Education, Mathematics, Mother's Education and IX Class Students. .

**Introduction:**

Mathematics plays a very important role in the life of human beings. Without the knowledge of mathematics, it is difficult to learn other school subjects, more specifically science subjects. In the modern scientific world, mathematics occupies important place in the school curriculum. Hence, the achievement in mathematics is crucial for every pupil, studying in the school. If the teacher teaches in a planned and methodical way, it is expected that achievement of children is certainly going to be satisfactory. In the study of mathematics, the emphasis should be more on the development of general problem-solving ability rather than finding a solution to a particular problem. Knowledge is useful, only when one is able to apply it effectively. The ability to apply it, in turn, needs power to think effectively. Therefore, the pupil should attack problems logically in the spirit of discoverer.

The progress and improvement of scientific method and mathematics are linked to the prosperity of whole human civilization. To arouse and maintain the interest of students in mathematics, therefore, the elements of curiosity, motivation, imagination, novelty, originality and usefulness are required. 'Interest' is a motivating force that arouses, sustains and regulates concentrated efforts. There is a need and accountability on the part of the teacher to arouse this 'interest' in pupils.

Achievement is considered as a key factor for personal progress. The whole system of education revolves around academic achievement. Academic achievement depends on a number of variables. Certain researchers found gender, literacy level of the family and family income as contributors significantly to academic achievement. A great deal of research works have been done to assess the relationship of academic achievement with intelligence, anxiety, stress and other variables.

In recent years, society's interest and concern for academic achievement has increased. In an adolescent's social system, academic achievement is gaining a prominent value, particularly in India.

The academic achievement represents the outcome of a complex variety of factors and cannot be traced to the existence of only one personal attribute. Academic achievement, as currently is used a fuzzy term that may mean any one of a dozen unspecified things. The sum total of information a student has at his command, when he finishes a course of instructions, the getting of a passing grade in a course regardless of what may lie behind the grade or the score on a test that has 'performance' in its title.

**Review of Literatures:**

James and Marice (2004), Panchalingappa (2004), Naveen (2010) , Manpreet Kaur, Ram Niwas and Rai, (2015) reported that mother's education of individuals do not have significant difference on academic achievement.

Srinivasan and Arivudayappam (2004), Reddy (2008), Naveen (2010), Padmini (2010), Raju (2010), Sujatha (2011), Sekhar, (2012), Ravi, (2014) and Shaik (2015) reported that father's education of individuals do have significant impact on academic achievement. However, Manjuvani and Mohan (2002), Anice and Marice (2004), Behera and Roul (2004) and Nagappa and Panchalingappa (2004) reported that father's education of individuals do not have significant difference on academic achievement.

Gakhar and Aseema (2004), Mehera (2004), Dwivedi (2005), Reddy (2008), Padmini (2010), Swamy (2010), Raju (2010) and Sekhar (2012) reported that mother,s education of individuals do have significant difference on academic achievement.

**Scope of the Study:**

The main intention of the present study is to find the relation of achievement in mathematics of IX class students with father education and mother education almost for the first time.

**Objective of the Study:**

To study the impact of father,s education and mother's education on the achievement in mathematics of IX class students.

**Tools for the Study:**

1. The achievement in mathematics test was adopted from **Naveen, P (2010).** The tool was highly reliable for the investigation. The total items are 100. For the purpose of scoring one mark is awarded for each correct answer and the total marks obtained by each student are marked on the right top corner of the sheet.
2. Personal data regarding the student – 1. Name, 2. Father's education, 3. Mother's education.

**Data Collection:**

The sample for the investigation consisted of 300 class IX students in Chittoor district. The stratified random sampling was applied in three stages. The first stage is management i.e. government, private and aided and second stage is locality i.e. rural and urban and third stage gender i.e. boys and girls. It is a 3X2X2 factorial design with 300 sample subjects. The investigator personally visited schools with the permission of the head masters of the schools. The IX class students who attended to the school on the day of collection of data are considered for the purpose of the investigation. It was

provided to the concerned class IX students of the schools. The IX$^{th}$ class students were given necessary instructions about the instruments and motivated to respond genuinely to all the items. The achievement in mathematics test and personal data sheet were administered. The data on each variable in the investigation is properly coded to suit for computer analysis. The analysis was carried out on the basis of objectives of the investigation and hypotheses formulated by employing appropriate statistical techniques. The inferential statistical technique 't' and 'F' (ANOVA) tests were employed to test hypotheses.

**Results and Discussion:**

**1. Father's Education:**

The relationship of achievement in mathematics of IX$^{th}$ class students, with their father's education is studied in the present investigation. On the basis of father's education, the students are divided into three groups. The father's education is 10$^{th}$ class and below formed the Group – I, Group – II formed with father's education is intermediate and graduation and Group – III formed with father's education is above graduation. The corresponding achievement in mathematics of IX$^{th}$ class students of the three groups were analyzed accordingly. The mean values of achievement in mathematics of IX$^{th}$ class students for the three groups were tested for significance by employing 'F' – test. The following hypothesis is framed.

**Hypothesis – 1**

There would be no significant impact of 'father education' on the achievement in mathematics of class IX students.

The above hypothesis is tested by employing 'F' - test. The results are presented in **Table – 1.**

**Table – 1: Influence of Father's Education on the Achievement in Mathematics of IX$^{th}$ Class Students**

| S. No. | Father's Education | N | Mean | S.D. | 'F' - Test |
|---|---|---|---|---|---|
| 1. | Group – I | 31 | 38.07 | 19.72 | 16.737** |
| 2. | Group – II | 80 | 50.38 | 18.03 | |
| 3. | Group – III | 189 | 54.21 | 11.45 | |

** Indicates significant at 0.01 level

It is found from the **Table – 1** that the computed value of 'F' (16.737) is greater than the critical value of 'F' (4.680) for 2 and 297 df at 0.01 level of significance. Hence the **Hypothesis – 1 is rejected** at 0.01 level ie at 1 percent level of significance. Therefore it is concluded that the father education has significant influence on the achievement in mathematics of class IX students.

**2. Mother's Education :**

The relationship of achievement in mathematics of class IX students with their mother's education is studied in the present investigation. On the basis of mother's education, the students are divided into two groups. The education of mother is illiterate formed with Group – I and Group – II formed with mother's education are literate. The corresponding achievement in mathematics of IX$^{th}$ class students of the two groups were analyzed accordingly. The mean values of achievement in mathematics of IX class students for the two groups were tested for significance by employing't' - test. The following hypothesis is framed.

**Hypothesis – 2**

There would be no significant impact of 'mother's education' on the achievement in mathematics of IX class students.

The above hypothesis is tested by employing't' - test. The results are presented in **Table – 2.**

**Table – 2: Influence of Mother's Education on the Achievement in Mathematics of class IX Students**

| S. No. | Mother's education | N | Mean | S.D. | 't' - Test |
|---|---|---|---|---|---|
| 1. | Group – I | 96 | 55.17 | 13.53 | 3.039** |
| 2. | Group – II | 204 | 49.80 | 15.73 | |

** Indicates significant at 0.01 level

It is found from the **Table – 2** that the computed value of 't' (3.039) is greater than the critical value of 't' (2.58) for 1 and 298 df at 0.01 level ie at 1 percent level of significance. Hence the **Hypothesis – 2 is rejected** at 0.01 level. Therefore it is concluded that the mother's education has significant influence on the achievement in mathematics of $IX^{th}$ class students.

Thus, it is clear that there is significant influence of father's education and mother's education at 1 percent level of significance on the achievement in mathematics of class IX students.

**Conclusions:**

In the light of the findings, the following conclusions are drawn:

The education of father and mother has significant influence on the achievement in mathematics of class IX students. The findings of the present research have raised some important questions related to the educational needs of the students with special reference to their achievement in mathematics of class IX students.

1. Father education is the highly influenced in achievement in mathematics of class IX students. High father's education group students have better performance than the low father's education group students. The administrators to provide educational facilities for the fathers.
2. Mother's education also highly influenced in achievement in mathematics of class IX students. Low mother's education group, students have better performance than the high mother education group students. The administrators to provide educational facilities for the mothers.

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**IUT Journal of Advance Research and Development (IUT - JARD)**

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# Need for Strengthening Credit Co-operatives in India

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**Abstract:**

*In any economic model we find a paradigm shift since their inception and passage of time but the principles of Cooperative remains the same since their conception and development over hundred fifty years. Cooperative stands on the solid footing of individualism as also on private property and their resources are pooled by cooperators for joint action to get several benefits; but Socialism and Communism seeks to abolish private ownership of property and abolition of all rights of inheritance. To ameliorate the socio-economic condition of the downtrodden and marginalized sections of the society the role of cooperative enterprises is beyond any question.*

*Credit Cooperative played a significant role in India for developing the agricultural economy. Lack of resources, accountability and professionalism, leadership, reluctance of government for implementing the financial package; are the challenges the co-operatives are facing today. Concerted Government policies, better service condition of the employees, harmonization of various government programmes, improving non-performing assets are the means to develop the co-operative movement. Inspite of several weaknesses, why there is a need for resuscitation of the credit co-operatives. This is only because credit co-operative is the only medium looking after the credit requirement of the poor and marginalized farmers and access to finance to financial services is the means to ameliorate the problems of poverty.*

Key Words: Credit, Co-operative, Government, Policies and Poverty.

**Introduction:**

Analysis of economic performance determines the ability to survive as viable institutions over the years but analysis of economic or financial performance cannot be the only standard of assessment, since economic or financial success is not an end in itself for institutions like co-operatives. This consideration is all the more relevant for organization that have been created for other purposes than that of being successful in financial terms, as is the case of co-operative banks.

Other relevant factors considered for determining performances include broader socio-economic effects that their operations have on their members – customers. Hence, assessing co-operatives include both economic and non-economic factors which need consideration. However, such an assessment is extremely difficult to perform because, it would require having precise information concerning the bank's economic and social involvement in the regions where they operate and the value derived by other beneficiaries from their operations. Moreover, in methodological terms it would raise the counterfactual problem of comparing real situations. Co-operative banks exist with hypothetical situations in which they do not exist (or vice - versa) under circumstances that are identical in all other respects.

**Objectives of the Study:**

1. To study the role of Primary Agricultural Credit Societies (PACS ) in agricultural credit.
2. To study Dr. Prakash Bakshi's Report and its impact on PACS, and
3. To study the deficiencies of PACS and its way out.

**Data Collection :**

This is an empirical study based on various reports of Reserve Bank of India on Short Term Credit Co-operatives. We have used secondary data on PACS published by National Federation of State Cooperative Banks Ltd and National Cooperative Union of India. The impact of Dr. Prakash Bakshi's Report on PACS, the deficiencies of PACS and its way out has been discussed on the basis of primary data collected on PACS in different districts of West Bengal and discussion with the office bearers of All Bengal Co-operative Banks Employees Federation and with the office bearers of All India Co-operative Banks Employees Federation.

**Results and Discussion**:

**Present Position of PACS in India:**

Primary Agricultural Credit Societies (PACS) being the lowest tier of the three tier structure of the Cooperative Credit. PACS operate under the District Central Cooperative Banks. From the "Performance of Primary Agricultural Credit Societies" ending on 31.03.2009 published by National Federation of State Cooperative Banks Ltd reveals that as on 31.03.2009 there were 95,633 PACS operating in India with total membership of 13.235 crores covering 6,05,922 villages.

No other credit institution can be compared with the huge existing infrastructure, network and potential in catering rural credit in India. The numbers of borrowers from the PACS as per this report were 4.29 crores in the year 1999-00 which was increased to 7.94 crores in the year 2007-08. The paid up capital of the total number of PACS operating in India was Rs 7,005 crores as on 31.03.2009. The cooperative sector have always been used by the politicians to gain cheap popularity and to gain political mileage rather than to improve the ailing and frail condition of the PACS and make the cooperative sector more vibrant. The nominal growth rate of deposits of the PACS was 8.20% during 1999-00 to 2008-09. In terms of volume of the total deposits increased from Rs 12,459 crores to Rs 26,243 crores during the same period.

The nominal growth rate of borrowing of the PACS as per the above report was 8.70% during 1999-00 to 2008-09. In terms of volume the borrowings was increased from Rs 22,350 crores to Rs 48,919 crores during the same period. The working capital of the PACS increased from Rs 42,710 crores in the year 1999-00 to Rs 94,579 crores in the year 2008-09. The nominal rate of growth of loans outstanding was 8.70% during 1999-00 to 2008-09. Total number of godowns managed by PACS are 65,289 with total capacity of 2,41,13,026 tonnes. Out of 95,633 PACS 64,872 PACS are viable and 23,046 are potentially viable. If the government becomes serious with atleast these PACS which are viable or potentially viable then also the number would be far more than the total number of banks comprising Commercial, Private and foreign banks.

**Indian Cooperative Movement at a Glance 2009-2010**

| | |
|---|---|
| Villages covered by cooperatives | 98% |
| National Level Cooperative Federations | 20 |

| | |
|---|---|
| State Level Cooperative Federations | 390 |
| District Level Cooperative Federations | 3,571 |
| | |
| **Number of Cooperatives [All Level]** | **610,020** |
| Primary Agricultural & Credit Cooperatives [All Types] | 147,991 |
| Primary Non-Credit Cooperatives [All Types] | 458,068 |
| | |
| **Number of Cooperatives [All Level]** | **610,020** |
| Primary Agricultural & Credit Cooperatives [All Types] | 147,991 |
| Primary Non-Credit Cooperatives [All Types] | 458,068 |
| | |
| **Membership of Cooperatives [Grassroots Cooperatives]** | **249.367 million** |
| Membership of Primary Agricultural Credit Cooperatives | 181.150 million |
| Membership of Primary Non-Credit Cooperatives | 68.150 million |
| | |
| **Share of Indian Cooperatives in National Economy [Selected indicators]** | |
| Total Agricultural Credit Disbursed by Cooperatives | 16.9% |
| Short-Term Agricultural Credit Disbursed by Cooperatives | 20% |
| Fertilise**r** Distributed by Cooperatives | 36% |
| Fertiliser Produced by Cooperatives | 28.3% |
| Installed Capacity of Fertiliser Manufacturing Units | 30.3% |
| Installed Number of Sugar Factories [324 Coop Sugar Mills] | 48.2% |
| Sugar Production by Cooperative Sugar Mills | 39.7% |
| Wheat Procurement by Cooperatives for National Food Stock | 24.8% |
| Paddy Procurement by Cooperatives for National Food Stock | 14.8% |
| Milk Procurement to Total Production by Cooperatives | 7.85% |
| Ice Cream Manufacture by Cooperatives | 45% |
| Edible Oil Marketed [branded] by Cooperatives | 49% |
| Fishermen in Cooperatives [Active] | 23% |
| Direct Employment Generated by Cooperatives | 1.22 million |
| Self-Employment Generated by Cooperatives [Persons] | 16.58 million |

***Source:*** National Cooperative Union of India, New Delhi. A Profile. 2012

**3. Recommendations of the Previous Committees – Capoor Committee, Vyas Committee, V.K.Patil Committee, Vaidyanathan Committee:**

1. To increase borrowing membership and volume of business as essential steps for improving the performance of co-operative and to set up more than one society in an area where feasible.
2. To reduce the state's interference in the management and business processes of co-operatives.
3. To evolve sound personnel policies encompassing proper manpower planning and assessment, objective and transparent policy for recruitment and training of staff.
4. To determine the credit cycles on the basis of past experience of the regions.

5. Rectify imbalance between finance for production and that for post harvest operations.

## 4. Comment on the Report of the Expert Committee on Three Tier Short Term Co-operative Credit Structure (STCCS) – Dr. Prakash Bakshi's Report:

It seems to me that the Report of the Expert Committee on three tier STCCS echoes the voice of the government or tries to justify the decision of government rather as expected from an independent expert in the field of banking.

Report of the Expert Committee on three tier STCCS justifies the loan waiver scheme in 2008 and states that the success of co-operatives in reaching out to new farmers or those who had gone out to the active credit fold of the banking system is the real impact of the implementation of the Vaidyanathan Revival package and implementation of the agricultural debt waiver and debt relief scheme in its true spirit. I have not come across any banker who justifies the debt waiver scheme. Even Nobel Laureate Md Yunus have reiterated the fact that debt waiver creates financial impediments in the working of the rural banks (in India Co-operative Banks are the only rural banks which operated in villages). The repayment of the loan can be rescheduled for longer time horizon instead of waiving it off and regarding implementation of Vaidyanathan Committee Report which demanded a financial assistance of Rs 13,596 crores but only Rs 8,661 crores was released as on 31.03.2011. Justice delayed means justice denied.

The Expert Committee is of the opinion that the STCCS which was primarily constituted for provision of agricultural credit must provide atleast 15% of the agriculture credit requirement in its operational area, gradually increasing to atleast 30%. The committee reported that only 17% of the agricultural credit comes from co-operative banks and 72% of agricultural credit comes from commercial banks but the fact is that the average size of loan from commercial banks was Rs 74,876 as on 31.03.2009 (as per Report of Trends and Progress of Banking, RBI) and Rs 1,44,525 as on 31.03.2012 (as per the Expert Committee Report, Source not mentioned in the Report). Average size of loan of PACS is Rs 13,862 as on 31.03.2009 (NAFSCOB) and Rs 28,467 as on 31.03.2012 (as per the Expert Committee Report). From the survey conducted in Purba Medinipur district of PACS average size of loan is Rs 13,160 as on 31.03.2012. Why the difference in the average size of loan is so drastic? This is only because "indirect finance" to agriculture constitutes:-

1. Loans to corporate, partnership forms and institutions engaged in agriculture and allied activities (dairy, fisheries, animal husbandry, poultry, bee-keeping and sericulture).
2. Loan upto 5 crore to producer companies set up exclusively by only small and marginal farmers under Part IXA of Companies Act, 1956 for agricultural and allied activities.
3. Bank loans to PACS, Farmer's in Service Societies and large sized Adivasi Multi Purpose Societies.

The production credit in Agriculture sector has overlooked the requirement of small and marginalized section resulting in the formation of Task Force under the chairmanship of Umesh Chandra Sarangi to look into the matter for increasing informal credit in the agriculture sector.

The Committee speaks for diversion of agricultural loan for non-agricultural purpose where only 65 – 70% of the cost of cultivation is provided as loan then how a person with his meager income can manage? From the data available from field survey we found that average income of family purely depended on agriculture varies from Rs 2,000 –Rs 5,000 which constitute at around 30% of the sample covered in the survey and they are in existence due to the various Government sponsored scheme.

The Expert Committee presents a comparative position of deposits across agencies as on 31.03.2011 stating that the cost of deposit is higher in case of co-operative banks because Current Account Saving Account( CASA) deposit is low in co-operative banks as compared to commercial banks. One has to go beyond the study of ratio because the people who are associated with co-operative banks are low income people depositing in terms deposit and not the businessmen opening CASA. At one hand the committee stresses to give agricultural credit and on the other hand wants to increase CASA but this is self contradictory.

The committee recommends that in case any central co-operative banks fails to mobilize the additional capital either from members or from any other source, there would be no alternative but to adopt the following two options:- Consolidation of banks wherever feasible and, If consolidation fails, closure on liquidation.

The committee estimated that 209 central co-operative banks of the 370 central co-operative banks will have to mobilize as an aggregate Rs 4,024 crore by 2014-15 and Rs 6,498 crore by 2016-17 to achieve CRAR of 7% and 9% respectively bankwise these amounts range from Rs 1.84 lakh to Rs 282 crore.

My question is whether the amount required for achieving CRAR is a big amount and whether any committee was formed when single company kingfisher airlines one of the biggest advocator of capitalism forces to sacrifices Rs 7,000 crores of commercial banks then whether the amount required for stabilizing co-operative is a big issue considering number of marginal people getting the help from these banks. If the recommendations of Vaidyanathan committee was properly implemented or if only 20% of the amount of loan waiver provided by government for resuscitation of co-operatives then no committee would have required to look after the condition of central co-operative banks.

**Recommendations for Improvement:**

**(a) Capital Deficiency**

Co-operatives are not able to achieve economies of scale due to capital inadequacy. Co-operatives are now in a vicious cycle of low capital, low investment, low business and low return. This also affects modernization. The members who are associated with the co-operatives are not in a position of infusing further capital either due to inability or due to apprehension of not getting any return. Infusion of capital has to take place in order to revive the co-operatives.

**(b) Lack of Political Will**

Amount of exposure to a single corporate house, Kingfisher Airlines, is Rs 6,360 crores [Table-I]. If this amount of loan is provided to PACS all the PACS which were declared as non-viable by Vaidyanathan Committee would have turned into viable ones.

On an average only 70% of the cost of cultivation is given as loan [Table II]. This loan amount can be increased by giving loan on collateral securities of land and on production. Today PACS are perhaps the only institutions providing purely agricultural credit. The people who are associated with the co-operatives belong to the marginalized section of the society. Without improving their economic conditions the co-operatives cannot be strengthened.

**(c) Coming out of the Shell / Lack of Awareness**

People who are associated with co-operatives only know about co-operatives. The strength of co-operative should be properly highlighted. After the global crisis in 2008 even the American government had to make a bailout package of $800 billion which shows the failure of capitalism. There is no country where organizations with Co-operative Principles are not functioning. Md Yunus has said in his biography that Bill Clinton called him when he was the governor of Arcansas to implement the principles of Grameen Bank for the development of economic conditions of the people.

**(d) Lack of Uniformity in Accounts Maintenance**

There is no uniformity in maintenance of accounts and the schedules in the Annual Reports. NABARD should seek guidance from The Institute of Chartered Accountants of India to develop guidelines regarding maintenance of accounts and schedule in line with the IFRS Standards.

**(e) Recruitment of Staff**

Banking sector requires skilled staff. Recruitment of employees should be from the State Staff Selection Commission. Professionalism can be developed half way if employee selection is proper and proper training is imparted. If recruitment is *ad hoc* or unethical considerations are practiced then it becomes all the more difficult to develop the conditions of co-operatives in the country.

**(f) No Vision / Mission of Government on Co-operatives**

The Planning Commission has to develop proper vision on the development of co-operatives and mission should be set and achieved in each budget. Where there is not even an utterance of a single word about co-operatives in the budget speech for development how one could expect to see the development of co-operatives.

**(g) Capital Draining**

The recent incident that took place in West Bengal on Sarada Group of Companies where lakhs of poor people lost their hard-earned money by investing in the chit fund companies. Government is not encouraging investing in small savings in post offices or banks and giving more emphasis of investing in stock market.

**Conclusion:**

By reducing the base income of identifying BPL; poverty and illiteracy cannot be improved. Financial illiterate people are now in a dilemma where to invest and these chit fund companies are alluring the people with higher interest rates and collecting money from door to door.

People are withdrawing money from PACS and even selling their precious lands to invest in these chit fund companies. This policy is also affecting the credit societies operating in the villages and steps have to be taken to prevent draining of capital.

**Table I: Bank wise exposure to Kingfisher Airlines [Rs crore]**

| | |
|---|---|
| State Bank of India | 1,600 |
| Punjab National Bank | 800 |
| IDBI | 800 |

| | |
|---|---|
| Bank of India | 650 |
| Bank of Baroda | 550 |
| United Bank of India | 430 |
| Central Bank of India | 410 |
| UCO Bank | 320 |
| Corporation Bank | 310 |
| State Bank of Mysore | 150 |
| Indian Overseas Bank | 140 |
| Federal Bank of India | 90 |
| Punjab and Sind Bank | 60 |
| Axis Bank Ltd | 50 |
| **Total** | **6,360** |

If unapplied interest is added more than Rs 7,000 crore

*Source:-* http://profit.ndtv.com/news/industries/article-banks-to-recover-rs-1-000-cr-from-kingfisher-airlines-in-current-quarter-sbi-317957

**Table II: Statement of Cost of Cultivation of Paddy in East Midnapore**

| | **Activities** | **Kharif (Rs.)** | **Rabi (Rs.)** |
|---|---|---|---|
| 1. | Irrigation | N.A. | 1,500 |
| 2. | Ploughing | 1,000 | 1,000 |
| 3. | Sowing of Seeds | 300 | 300 |
| 4. | Plantation of Crop | 2,000 | 3,000 |
| 5. | Fertilizers & Insecticide | 1,500 | 2,600 |
| 6. | Cleaning of Weeds | 500 | 1,000 |
| 7. | Harvesting | 2,800 | 2,600 |
| Total cost for 46 decimal of land (100 decimal = 1 acre of land) | | 8,100 | 12,000 |
| Production (Kg of paddy) | | 800 | 1,200 |
| Cost per decimal | | 176 | 261 |
| Loan per decimal | | 130 | 170 |

*Source:* Primary Data collected from field survey.

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# Identifying the Different Strategies of Network Service Providers, Customer Perception and the Satisfaction Level towards Mobile Number Portability

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**Abstract:**

*Mobile Number Portability gives privilege to consumer to change their service provider according to their choice. In this regard, the present study aims to investigate the perception, satisfaction level of the consumers and different strategies of network service providers towards Mobile Number Portability service. Accordingly a well-structured questionnaire was prepared to analyse the response from different users about mobile number portability process. Total 80 respondents were selected for the survey; all of those belong to the different age groups and different gender. Simple Random sampling method was used for data collection. Different statistical techniques were used during data analysis like Percentage analysis, Chi-square test and IBM SPSS (19.0 versions) software was used to calculate the required observations. Present investigation indicates that according to the age group there is no difference between the perception and satisfaction level of the peoples towards mobile number portability and also according to the gender there is no difference between the perception and satisfaction level of the people towards mobile number portability. As per this study, it can also be conclude that with respect to Mobile Number Portability the telecom companies like Airtel, Idea, Vodafone, Reliance, BSNL and Aircel are facing stagnant competition and co-operate with each other under the regulated policies of the government of India.*

Key words: Service, Portability, Strategies, Perception, Satisfaction.

**Introduction:**

Mobile number portability (MNP) is a process that allows users to choose desired network or service provider. Telephone regulatory authority of India (TRAI) provides facility of portability within a short time. During the process mobile number remains same but service provider change. Mobile number portability attracts a wide range of customers by providing suitable parameters and different schemes. Mobile number portability is a cost effective method with different ways. This is also known as 'Recipient-Led' porting. Process might be lead to distortion of competition level in between different service providers, especially in the markets with new comers that are yet to achieve scalability of operation.

Telecom Regulatory Authority of India (TRAI) has revealed that the country's mobile subscriber base has increased from 893.84 million in December 2011 to 903.73 million in January 2012. Telecom operators added 9.88 million mobile subscribers in January 2012. The overall tele-density reached 77.57 per cent. Broadband subscriber base increased from 13.30 million at the end of December 2011 to 13.42 million at the end of January 2012.

Mobile Number Portability is a technique to solve various problems. After 4 times of just announcements, Mobile Number Portability (MNP) finally arrived and it is starting from Haryana state from25th November 2010.Mobile number portability (MNP) enables mobile telephone users to retain their mobile telephone numbers when changing from one mobile network operator to another. The much awaited Mobile Number Portability (MNP) finally launched in Haryana. The MNP service inaugurate by the Union Minister of Communications & IT Mr.KapilSibal by making the inaugural call to Shri Bhupinder Singh Hooda, the Chief Minister of Haryana from a ported mobile number in

function held at Rohtakcity. The mobile number portability (MNP) will be launched across India by January 20, 2011.

Review of Literature:

Buehler et.al (2005) examines the causes and effects of mobile number portability (MNP) and provides a survey of its implementation in Europe and we first examine the competitive effects and the costs of introducing MNP. Buehler (2007) examines the consequences of introducing mobile number portability (MNP). As MNP allows consumers to keep their telephone number when switching providers, it reduces consumers' switching costs. However, MNP may also cause consumer ignorance if telephone numbers no longer identify networks.

Shin (2007) revealed that subscribers perceive the switching barrier still as high, discouraging subscribers from switching carriers. While MNP lowered switching costs considerably, a significant level of switching costs still remains despite MNP. Kumaravel (2009) describes that Impact of Mobile Number Portability on Mobile Users Switch over Behavior-Indian Mobile. The most challenging job for the present day is that retain existing mobile customers. The mobile operator's ability to retain its customer has a direct impact on its profitability and effectiveness

Jain (2010), in his paper highlighted the importance of mobile number portability which enables mobile telephone users to retain their mobile telephone numbers when changing from one mobile network operator to another. This paper provides an in-depth description of how it affects the switching cost for consumer, it also include various flavours of call routing implementation, mobile messages to a number once it has been ported.

**Objectives:**

1. To examine the relationship between the customers age, gender with their perception and satisfaction level towards mobile number portability, and
2. To find out the different strategies of network service provider.

**Methodology:**

For completing this study both primary and secondary data were used. Primary data were collected through questionnaire and face to face interaction with the respondents and Secondary data was collected from the different web sites. The main research instrument was questionnaire and approach was survey method. Total sample size was 80 and sample unit were user of mobile at Agartala city. Through simple random sampling method sample size was selected. Data were analyzed through Chi-square test and percentage method.

**Hypothesis:**

Part-A

H0: There is a no relation between gender and customers perception towards mobile number portability.

H1: There is a relation between gender and customers perception towards mobile number portability.

Part-B

H0: There is a no relation between gender and customers satisfaction level towards mobile number portability.

H1: There is a relation between gender and customers satisfaction level towards mobile number portability.

Formulate an analysis plan- For this analysis the significant level is 0.05. Using sample data, If the calculating value is > the level of significance (0.05) then we reject the alternative hypothesis and accept the null hypothesis.

Results and Discussions:

**Table No-1: Number of Respondents Response**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Age * Perception | 80 | 100 | 0 | 0 | 80 | 100 |
| Age * Satisfaction | 80 | 100 | 0 | 0 | 80 | 100 |
| Gender * Perception | 80 | 100 | 0 | 0 | 80 | 100 |
| Gender * Satisfaction | 80 | 100 | 0 | 0 | 80 | 100 |

Source: Field Survey

Data in table 1, shows the sample size of the study. It means what is our total sample size, out of this how many respondents are not giving the proper response and how many are given valid response we can find.

**Table no-2: Perception of the Respondents according to their Age Groups.**

| Respondents age | | Perception | | | Total |
|---|---|---|---|---|---|
| | | Good | Medium | Bad | |
| Age | Less than 25 years | 11 | 8 | 6 | 25 |
| | 25- 35 years | 22 | 8 | 5 | 35 |
| | 36- 45 years | 7 | 3 | 4 | 14 |
| | 46- 60 years | 5 | 0 | 1 | 6 |
| Total | | 45 | 19 | 16 | 80 |

Source: Field Survey

From table 2 we came to know about perception of the respondents according to their age group.

**Table no-3: The Value of Chi-Square Tests Showing the Relationship Between Age and Perception.**

H0: There is no relationship between age and perception.
H1: There is a relationship between age and perception.

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 5.322[a] | 6 | 0.503 |
| Likelihood Ratio | 6.617 | 6 | 0.358 |
| Linear-by-Linear Association | .790 | 1 | 0.374 |
| N of Valid Cases | 80 | | |

Source: Field Survey

From this chi-square test of table 3, we can see that the Linear-by-Linear association significant value is0.374 which is >.05 means the value is not significant. So we can say that there is no relationship between the respondents perception according to their age group.

**Table No-4: Satisfaction Level of the Respondents according to their Age Groups**

| Respondents age | | Satisfaction | | | Total |
|---|---|---|---|---|---|
| | | High | Medium | Low | |
| Age | Less than 25 years | 18 | 2 | 5 | 25 |
| | 25- 35 years | 17 | 9 | 9 | 35 |
| | 36- 45 years | 8 | 3 | 3 | 14 |
| | 46- 60 years | 6 | 0 | 0 | 6 |
| Total | | 49 | 14 | 17 | 80 |

Source: Field Survey

From table 4, we came to know that the satisfaction level of the respondents according to their age group.

**Table No-5: Relationship between the Age and Satisfaction**

H0: There is no relationship between the age and satisfaction
H1: There is a relationship between the age and satisfaction

Chi-Square Tests

| | Value | Df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 8.334[a] | 6 | .215 |
| Likelihood Ratio | 10.595 | 6 | .102 |
| Linear-by-Linear Association | .306 | 1 | .580 |
| N of Valid Cases | 80 | | |

Source: Field Survey

From this chi-square table by seeing the Linear-by-Linear association significant value 0.580 which is >.05 means the value is not significant. So we can say that there is no difference between the respondents satisfaction level according to their age group.

**Table No-6: Perception of the Respondents according to their gender**

| | Perception | Total |
|---|---|---|

| | | Good | Medium | Bad | |
|---|---|---|---|---|---|
| Gender | Male | 26 | 9 | 7 | 42 |
| | Female | 19 | 10 | 9 | 38 |
| Total | | 45 | 19 | 16 | 80 |

Source: Field Survey

From table 6, we came to know about the perception of the respondents according to their gender.

**Table No-7: Relationship between the Respondent's Gender and Perception**

H0: There is no relationship between the respondent's gender and perception
H1: There is a relationship between the respondent's gender and Perception

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 1.195[a] | 2 | .550 |
| Likelihood Ratio | 1.197 | 2 | .550 |
| Linear-by-Linear Association | 1.118 | 1 | .290 |
| N of Valid Cases | 80 | | |

Source: Field Survey

Above chi-square table shows that the Linear-by-Linear association Significant value is 0.290 which is >.05 means the value is not significant. So we can say that there is no difference between the respondents perception according to their gender.

**Table No-8: Satisfaction level of the Respondents According to Their Gender**

| | | Satisfaction | | | |
|---|---|---|---|---|---|
| | | High | Medium | Low | Total |
| Gender | Male | 26 | 8 | 8 | 42 |
| | Female | 23 | 6 | 9 | 38 |
| Total | | 49 | 14 | 17 | 80 |

Source: Field Survey

From table 8, we came to know about the satisfaction level of the respondents according to their gender.

**Table No-9: Relationship between the respondent's gender and satisfaction**

H0: There is no difference between the respondent's gender and satisfaction
H1: There is a difference between the respondent's gender and Satisfaction

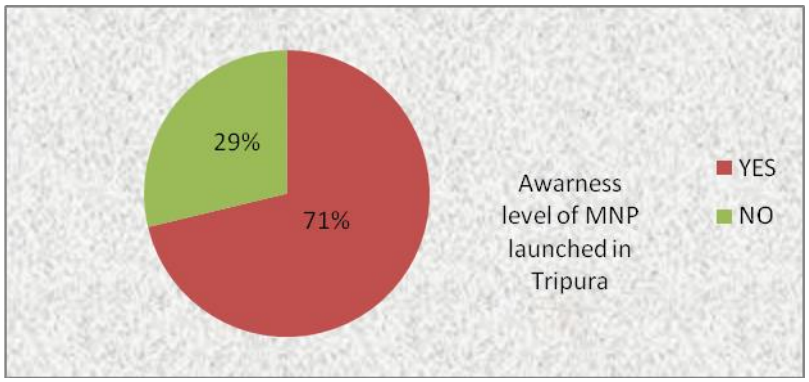
Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 0.329[a] | 2 | 0.848 |
| Likelihood Ratio | 0.329 | 2 | 0.848 |
| Linear-by-Linear Association | 0.107 | 1 | 0.743 |
| N of Valid Cases | 80 | | |

Source: Field Survey

From table 9, we can see that the Linear-by-Linear association significant value is .743 which is >.05 means the value is not significant. So we can say that there is no difference between the respondents satisfaction level according to their gender.

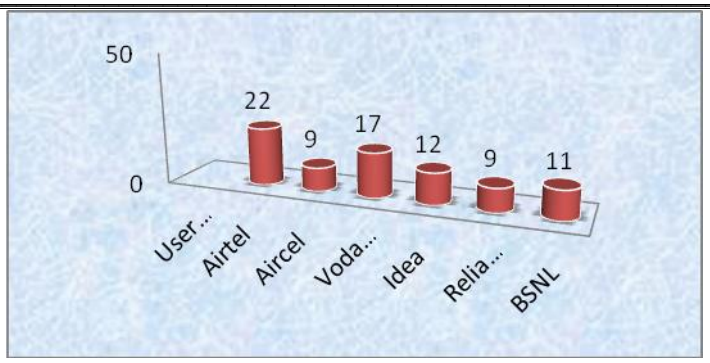
Graph No-1: Awareness Level of MNP launched in Tripura




Source: Field Survey

Graph No 1: This graph shows that out of 80 respondents 71% respondents are aware about the mobile number portability service available in Tripura and 29% respondents are not aware about the service.

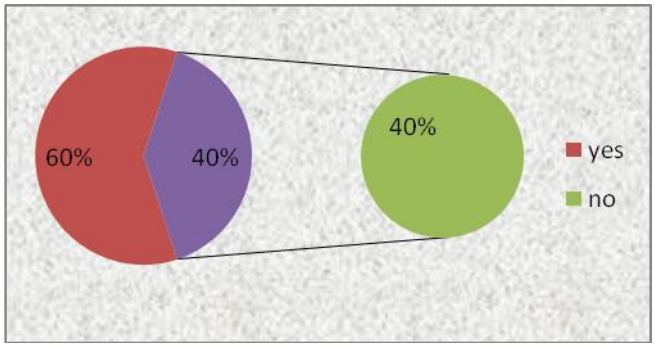
Graph No-2: Market Share of Network Service provider




Source: Field Survey

Graph No 2: Out of 80 respondents which network service provider are having how many user. Like Airtel have 22 user, Aircel have 9 user, Vodafone have 17 user and idea, reliance, BSNL have 12, 9, 11 user respectively.

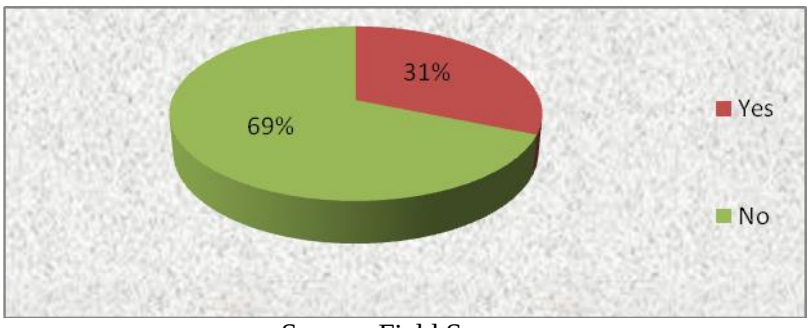
Graph No-3: MNP is beneficial for respondents or not




Source: Field Survey

Graph No 3: According to the respondents perception and satisfaction level out of 80 respondents 60% respondents are saying mobile number portability service is beneficial and 40% respondents are saying mobile number portability are not beneficial.

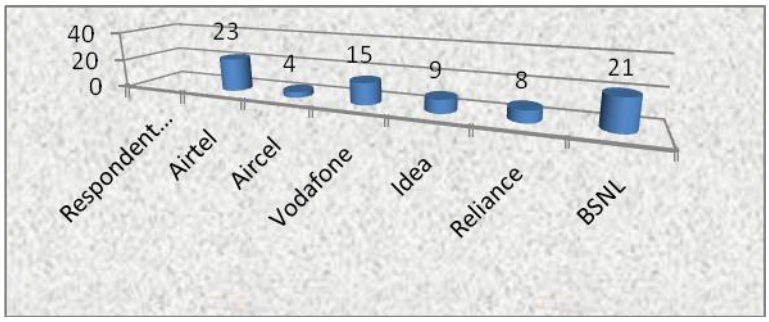
Graph No-4: Respondents like to change Current Network Service Provider




Source: Field Survey

Graph No4: Out of 80 respondents 31% respondents are like to change their current network service to another network service through mobile number portability and 69% respondents are satisfied with their current network service provider.

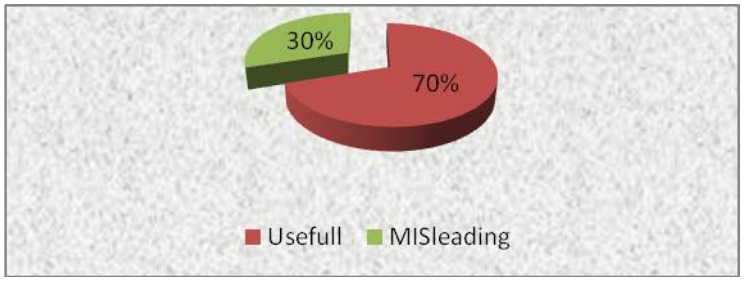
Graph No-5: Respondents interested for MNP




Source: Field Survey

Graph No 5: Out of 80 respondents 23 Like to portable his/her number in Airtel service, 4 like to portable in Aircel, 15 like to portable in Vodafone, 9 likes to portable in idea, 8 like to portable in reliance and rest 21 like to portable in BSNL.

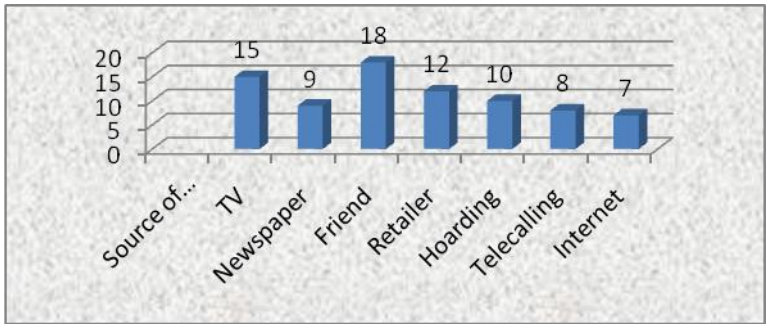
Graph No-6: Facility of Mobile Number Portability




Source: Field Survey

Graph No 6 shows that out of 80 respondents 70% respondents think that the facility of mobile number portability is useful and 30% respondents are think that it is not useful.

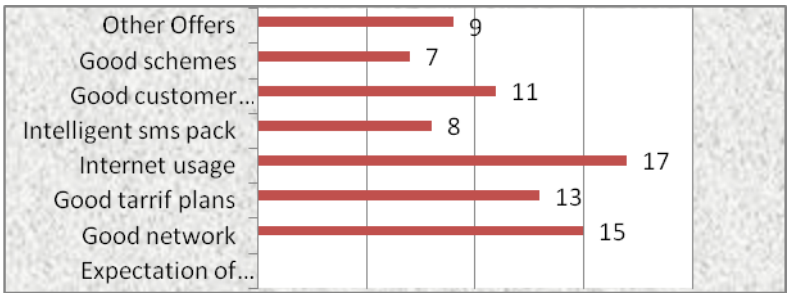
Graph No-7: Sources of Information




Source: Field Survey

Graph No 7: Out of 80 respondents 15 respondents are motivated with the TV add to switch their network, 9 are motivated through newspaper, 18 respondents are motivated with their friend, 12 are motivated through retailer, 10 are motivated through hoarding,8 are motivated through tele calling and 7 respondents are motivated through internet.

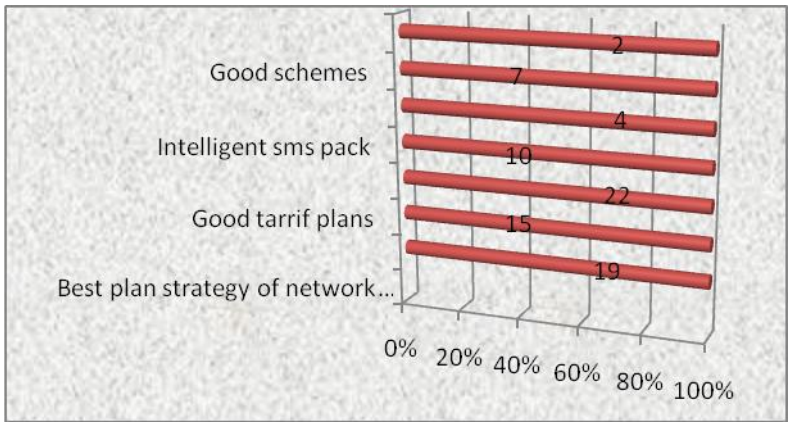
Graph No-8: Expectation of the Respondents from the new Service Provider




Source: Field Survey

Graph No 8: From this graph we can see that the expectation of the respondents from the new service provider. 15 respondents expectation is good network, 13 respondents expectation is good tariff plans, 17 respondents expectation is internet usage, 8 respondents expectation is intelligent sms pack, 11 respondents expectation is good customer care, good scheme and other offers expectation is 7 and 9 respondents respectively.

Graph No-9: Strategy of Network Service Providers




Source: Field Survey

Graph No 9: Through this graph we can understand that what is the strategy of network service providers to pull the customers to their service.

**Conclusion and Suggestions:**

Present investigation indicates the customer perception towards mobile number portability and their level of satisfaction with mobile number portability. From this thesis we can conclude that according to the age group there is no relation between the perception and satisfaction level of the peoples towards mobile number portability. And also according to the gender there is no relation between the perception and satisfaction level of the people towards mobile number portability.

Apart from this we also can conclude that if any mobile network service provider develop efficient internet usage plan and also plan for voice call, the network service provider can retain the old customer and at that time the service provider can attract new customer also.MNP has given the legal way to the telecom companies to compete by drawing each-others' customers but this is not going to affect a lot because the average customer in Agartala is not more interested because of distinctive pattern of use. As per this study, the Mobile Number Portability observed in

Agartala telecom market is due to the network issues observed for few operators like Reliance Communications, Aircel etc. it may be due to poor network or may be the absence of the network in some areas.

Various suggestions are:

1. To attract the customers mind and maintain the good perception about the Mobile Number Portability the Network service provider should develop different strategies.
2. The network service providers should satisfy their existing customer as well as satisfy the new customers also, then only they can retain the old customers and at that time they can attract the new customers also.
3. The network service providers should increase the awareness level about the Mobile Number Portability through different source of communication.
4. The network service provider should provide good network service to their customers.
5. The network service provider should develop different internet usage pack for different group of customers.

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# Measuring the Speculation of Stock and Index

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**Abstract:**
*The stock market without speculation matter is an absurd proposition. Nowhere in the world, has the stock market been able to get out of this factor. Naturally, it is often felt how the speculation can be measured or at least light can be thrown on the matter to realise the speculation level of both individual stock and stock market itself with respect to certain period.*
*Here, in this article an attempt has been made to throw light on the speculation matter in a simple yet understandable way to ordinary retail investor. Mainly, simple arithmetical concept has been used to arrive at a decision. Market value, book value and earning power of share and index value have been considered for measure of the speculation matter in the stock market. The study has focused that it may enable one to grasp year wise speculation level of individual stock as well as the overall stock market. The concept can also be extended to hourly, daily or monthly calculation of speculation.*

**Key Words:** Book value, Market value, Measure of speculation, Stock market, and Sock speculation.

**Introduction:**

The price of the stock of a company in trading hours in stock exchange continuously fluctuates over time. This movement develops out of demand and supply factor and consequently price continuously moves up and down. Sometimes it is noted that price is moving abnormally even for a few successive trading sessions or even for some considerable period, disregarding its contemporary earning status. However, in reality**,** the market price of a stock though is assumed to hover around its book value yet the price is found either appreciably in higher or lower level. The book value has been considered as the fair value because of following reasons. The valuation of shares can be made by two well established methods: - (1) book value or asset backs method (2) the yield valuation method.

Book value of a share is the accounting value of a company. It is the total value of a company's assets that shareholders would theoretically receive ,if a company were liquidated. By being compared to the company's market value of share, the book value of share can indicate whether a stock is under or overpriced. Whereas, yield valuation method takes into account the future earnings a company is expected to generate for its investors. It is considered the true value of the company from an investment point and is calculated by taking into account the present value of the earnings that a company is expected to generate in the future, along with the future sale value of the company. If all of the future earnings are accurately known along with the final sale price, the company's true value can be calculated. In real life situation it is quite difficult ,if not impossible.

We have, for simplicity and quick understanding, adopted the term book value**.**

To begin with, if the market price remains static very few people will purchase the share since the persons will not stand to gain practically nothing other than dividend from purchasing that share in short term (even dividend yield of good dividend paying companies are not very attractive as the price of such stocks are quite high with respect to dividend per share). But in real life, the price of a share fluctuates continuously. It may be significantly higher or lower than book value.

Apart from book value other factors actually play a crucial role in determining the market price of a share. This is expectation parameter that cannot be quantified and associated with a lot of internal (company policies, programmes, performance etc), external (macro- economic policies), institutional (policies of regulators & government), political, global economic & motivational factors and they collectively contribute to the price of an equity share. Thus ,all these collectively give birth to speculation factor.

Thus, the price of a share is subjected to so many events both past and future. Past events are known but future events within the domain of short, medium, and long terms can only be projected on the basis of some assumptions. These uncertain factors give rise to speculation with different degrees with different persons, entities and institutions. The most powerful lobby usually controls the price.

**Objectives of the study:**

The speculation factor is so intimately associated with stock and stock market, the need for realisation of the same is felt in our mind. The objective of this paper is to measure the speculation of stock and index.

**Way to understand the speculation level of a particular stock:**

The speculation on earning power leads to change in Price/Earning Ratio (P/E) concerning the stock. The P/E represents the price one intends to pay for one share on the basis of current earning per share (EPS) of a particular stock. This earning remains static for a certain period and changes when the earning of next period is published. But till then the price does not remain static. It changes continuously. Thus, some driving force is there to change the price continuously. P/E ratio is a peculiar situation where one factor (P or Price) is real time value whereas the other one E is expressed as historical value concerning the recent past.

To explain the whole story behind one's intention to buy a particular stock, we have to go deep into the matter. One shows his interests not only on the basis of present earning but he has something in his mind and that is the future earning prospect of a particular stock; in other words whether earning power will increase/decrease in the coming days in view of the present business and economic activities. The moment the term future enters the arena some amount of uncertainty simultaneously enters in the matter and speculation begins to play actively in the minds of the investor and the P/E factor of a particular stock begins to fluctuate in the market as it (speculation) is different for different entities.

**How the Speculation can be measured**

Now an attempt may be made to measure the speculation factor so that a comparison can be made with respect to past as well as the status of the same in recent times. It can be assumed that market price (MP) less book value (BV) is a cost which one investor intends to incur additionally over the book value for acquire of the particular stock in respect of present and future earning prospect. In

other words (MP-BV) can be considered as speculation price (SP) which may be positive or negative depending on the situation.

As future earning is quite unpredictable and varies from difference in rate of return expected by various persons or entities, we have for simplicity excluded it and focused more on current (generally immediate last accounting quarter/half year/year) earning status (however the future earning prospect continue to play in disguise in the minds of the investors and affects the price).

On a particular point when one trades a particular stock, its future earning prospect is most important on the basis of information available. As individual perceptions differ from person to person overtime and therefore the market price fluctuates. Ultimately persons or entities with better money power dictate the direction of movement of the stock. Thus there exists a tug of war and hence speculation changes.

Simply SP is individually unable to explain the whole speculation matter. A rising or falling EPS may alter the market price hence the SP. The simple absolute difference of SP over previous period will not guide us to measure the speculation accurately. It may so happen that both EPS and market price may have changed but with different degree. Decision based only on SP will differ when SP/EPS will be considered. Gray area of Table 2 can be noted. This speculation price (SP) should be divided by the Earning per Share (EPS) to arrive at SP/EPS ratio.

This enables us to understand to what extent with respect to current (and/or future earning prospect) earning, the investor is willing to pay additionally (either +ve or –ve) over and above the book value to acquire the stock. SP/EPS represents for every rupee of earning the difference of rupee (+ve or –ve) he intends to invest with respect to the book value. This can be termed *as speculation factor*. It can be also expressed as the speculation factor of individual stock. This is actually the speculation status of the stock under market condition.

As stock market is reflective of overall sentiments, no stock can escape this influence. It is to be accepted that unless a relation with index is established, the true picture under the market condition cannot emerge. Thus SP/EPS, when compared with change in index in the period under consideration a better relation can be achieved to arrive at a decision. Thus {(SP/EPS)/ Change in Index} reveals a better approach. It focuses to what extent change of SP/EPS is caused by per unit change in index. The higher is the value the higher is the speculation or more is inertia of speculation.

**Assumptions:**

1. Book value (asset backing method) is supposed to be the fair value of the equity share.
2. Future earnings are quite unpredictable, for simplicity we have excluded future earnings and have given more attention towards current (generally immediate last accounting quarter/half year/year) earning status (however the future earning prospect continues to play in disguise).
3. The speculation of stock is influenced by market sentiment (though sometimes stock behaves as if its speculation aspect is independent of index status or market sentiment).

**Methodology:**

Data has been collected from secondary source of indiabulls.com and indiainfoline.com and other reputed websites. Simple statistical tools like mean, median etc. Used for data analysis. Also graphs have been prepared to explain the secondary data.

**Results and Discussion:**

**Table1:** The Sensex Stock Reliance Industries Ltd and resultant speculation status with respect to previous year.

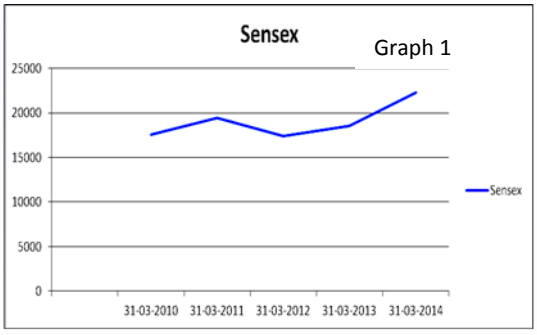
| Date | Sensex Closing value | Book Value(BV) | Closing Price( | EPS | SP=CP-BV | SP/EPS | Sensex Difference | (SP/EPS)/change in sensex | Speculation |
|---|---|---|---|---|---|---|---|---|---|
| 31- | 17528 | 441.86 | 1074.6 | 49. | 632.79 | 12.7 | | | |
| 31- | 19445 | 496.46 | 1047.8 | 61. | ↓551.34 | ↓8.9 | 1917 | 0.0046 | |
| 31- | 17404 | 556.3 | 748.25 | 61. | ↓191.95 | ↓3.1 | -2041 | 0.0015 | ↓ |
| 31- | 18568 | 619.93 | 773.70 | 65. | ↓153.77 | ↓2.3 | 1164 | 0.0020 | ↑ |
| 31- | 22254 | 675.85 | 929.50 | 68. | ↑253.65 | ↑3.7 | 3686 | 0.0010 | ↓ |

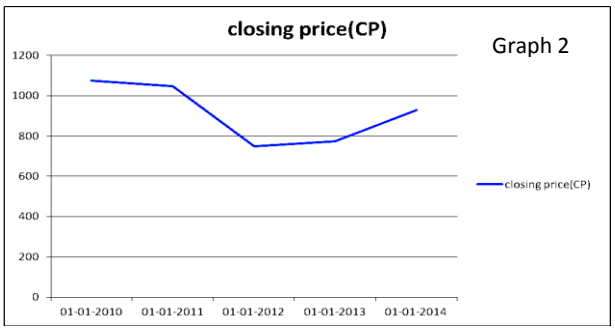
Source: http://EconStats Bombay Sensex monthly Index and Correlations with SP500. _ stock markets.htm

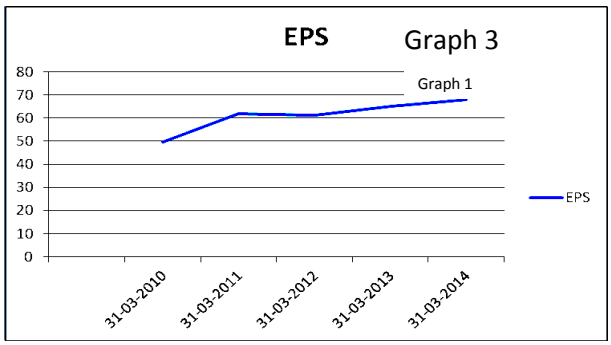
http://www.nseindia.com/products/content/equities/equities/eq_security.htm

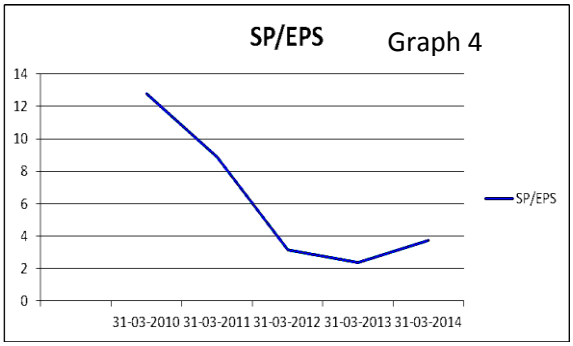
The data in Table 1 here indicate that the speculation of RIL based on (SP/EPS)/change in Sensex is different in 2013 and 2014 from speculation based on either SP or SP/EPS. The data here indicate that the speculation of RIL based on **(SP/EPS)/change in Sensex.**

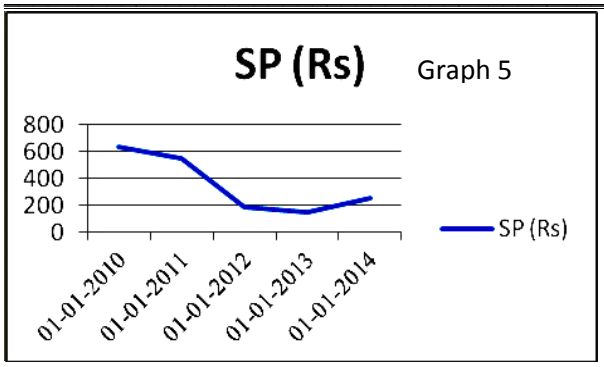
Let us discuss this example of Reliance Industries Ltd to develop the idea in a following graphical ways.

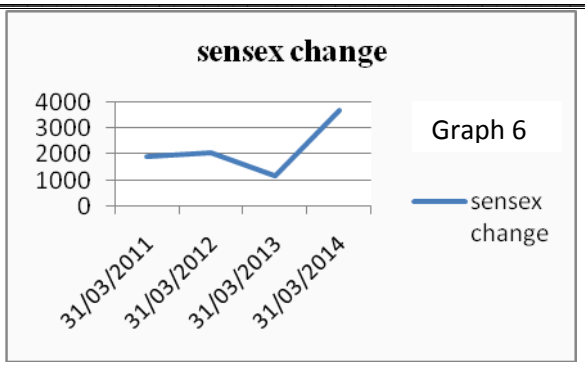


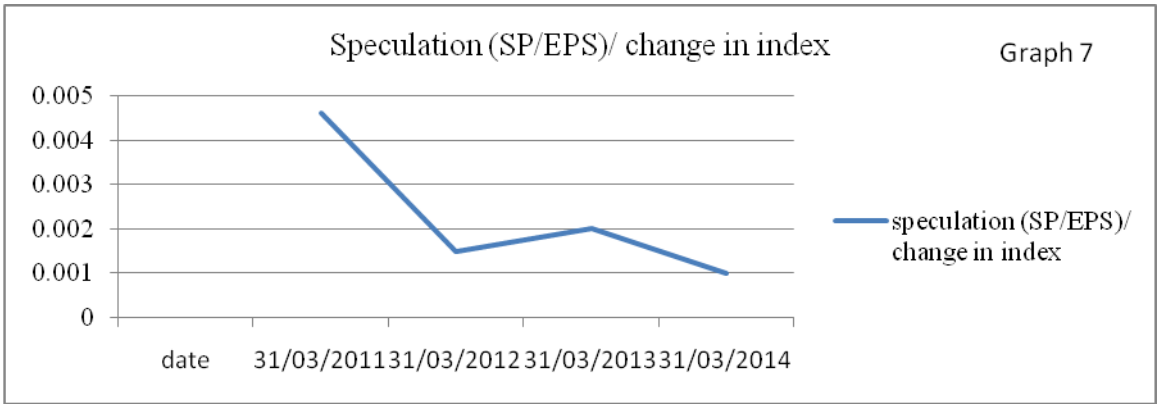






We have developed seven 1-7 graphs out of the tables shown here in above. Now, let us try to explain the speculation matter in the light of the data and graph prepared by us. A few situations may be developed to explain the speculation matter of RIL in recent years.

(1) The Sensex Graph (Graph1) during the study period is more or less a rising curve. While the Speculation Price Curve (Graph 5) SP reveals a different story with downward trend till beginning of 2014. It indicated that rising Sensex had failed to impress the speculators or big investors during 2010 to early 2014. Two things may come into the picture (i) the earning power may decline and subsequent poor speculation, in other words both have declined, but earning decline is lesser than speculation decline, (ii) the earning may rise but the speculation has been hit by the speculators because of various micro and macro economic factors in respect of this stock.

Here in our situation it has been noticed over years in this period the Earning Graph (Graph 3) is very much impressive. But it has failed to ignite the speculation aspect of the stock till beginning of 2014 (second point).

(ii) Another attempt may be made in a slight different way to measure the speculation. The Graph SP/EPS (Graph 4) and EPS graph (Graph 3) over time period may be compared to arrive at a decision. As we have noted that EPS over the study period has risen significantly. But the downward trend of SP/EPS Graph indicates that with rising earning the speculation per rupee of earning has declined for reasons best known to speculators or big investors. The sensex behaviour at Graph1 is unable to provide impetus to them.

The SP/EPS Graph is affected by index (Sensex) level as SP is also affected by index (Sensex). Turmoil in the economic front either national or global may affect the index vigorously. In such situation both the earning power and sentiment in regard to the script may be affected severely and a more or less flat nature of curve may appear. It will be unwise to develop the idea that the script has ignored the market sentiment and speculation has been remained stagnant. Thus third attempt is a better one to explain the speculation.

(iii) Third one is more accurate as it takes into account the 'Sensex Change Factor' during the period under consideration. Here {(SP/EPS)/Change in Sensex} considered for evaluation of speculation factor. This will accommodate the fact that for a unit change in sensex how much units of (SP/EPS) are changed. In other words, for a unit change in sensex, on speculation, how much amount, the investors are willing to pay over and above the book value for a single rupee of earning in the period under consideration. Graph 6 and 7may be noted.

The table 1 show that for Reliance Industries Ltd the speculation went down in 2012, but situation was retrieved in the following year and in 2014 it was again down. However, SP value or SP/EPS speaks different for 2013. Example of Wipro can be also noted.

Table 2: **Year wise Speculation Status of WIPRO**

| **Date** | **Sensex** | **Book Value** | **Closing Price** | **EPS** | **SP=CP-BV** | **SP/EPS** | **Sensex difference** | **(SP/EPS)/difference in sensex** | **Speculation wrt previous year** |
|---|---|---|---|---|---|---|---|---|---|
| 3/31/2010 | 17528 | 124.25 | 424.08 | 19.91 | 299.83 | 15.06 | | | |
| 3/31/2011 | 19445 | 91.62 | 478.3 | 19.68 | 386.68↑ | 19.65↑ | 1917 | 0.0103 | |
| 3/31/2012 | 17404 | 109.88 | 439 | 19.64 | 329.12↓ | 16.76↓ | -2041 | 0.0082 | down |
| 3/31/2013 | 18568 | 107.86 | 437.15 | 22.24 | 329.29↑ | 14.81↓ | 1164 | 0.0127 | up |
| 3/31/2014 | 22254 | 130.27 | 542.6 | 29.47 | 412.33↑ | 13.99↓ | 3686 | 0.0038 | down |

**Source** http://EconStats Bombay Sensex monthly Index and Correlations with SP500. _ stock markets.htm

http://www.nseindia.com/products/content/equities/equities/eq_security.htm

SP values and SP/EPS values say speculation is in opposite direction for 2013 and 2014. But overall speculation based on (SP/EPS)/difference in Sensex w.r.t previous year was up in 2013 and down in 2014.

**Table 3: Year wise SP/EPS of a Few Reputed Companies**

| **Date** | **DLF** | **Hero Motor** | **NTPC** | **TCS** | **WIPRO** | **ACC** | **Sensex** | **Difference in sensex** |
|---|---|---|---|---|---|---|---|---|
| 3/31/2010 | 36.66 | 16.97 | 12.40 | 24.45 | 15.06 | 7.19 | 17528 | |
| 3/31/2011 | 17.58 | 15.60 | 9.96 | 27.57 | 19.65 | 11.52 | 19445 | 1917 |
| 3/31/2012 | 7.40 | 19.95 | 6.53 | 18.15 | 16.76 | 13.85 | 17404 | -2041 |
| 3/31/2013 | 34.16 | 13.62 | 3.02 | 21.07 | 14.81 | 11.36 | 18568 | 1164 |
| 3/31/2014 | 4.61 | 20.88 | 1.08 | 20.04 | 13.99 | 16.81 | 22254 | 3686 |

**Source:** http://EconStats Bombay Sensex monthly Index and Correlations with SP500. _ stock markets.htm

http://www.nseindia.com/products/content/equities/equities/eq_security.htm

(We have calculated separately the aforesaid table for each stock and then the SP/EPS has been calculated)

**Table 4: Speculation with respect to Previous Year**

| Year | DLF | HEROMOTO | NTPC | TCS | WIPRO | ACC |
|---|---|---|---|---|---|---|
| 2011 | 0.0091 | 0.0081 | 0.0052 | 0.0144 | 0.0103 | 0.0060 |
| 2012 | 0.0036 | 0.0098 | 0.0032 | 0.0089 | 0.0082 | 0.0068 |
| 2013 | 0.0293 | 0.0117 | 0.0025 | 0.0181 | 0.0127 | 0.0098 |
| 2014 | 0.0013 | 0.0057 | 0.0003 | 0.0054 | 0.0038 | 0.0046 |

It can be seen (Table 4) that speculation of different stock did not follow the same pattern with reference to index. **.** Speculation of NTPC was down in 2012 to 2014, whereas the same for ACC was up in 2012, to 2013 and down in 2014. Similarly, speculation of TCS was up in 2013 but down in 2012 and 2014.

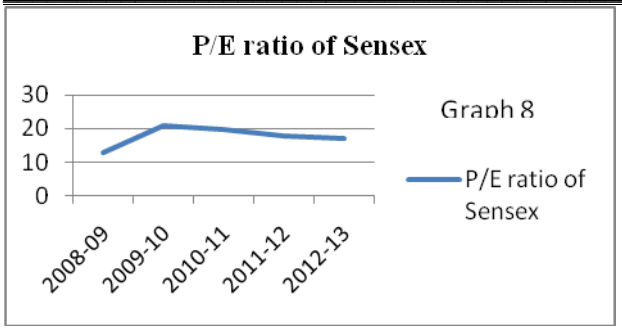
**Speculation matter in respect of overall stock market situation:**

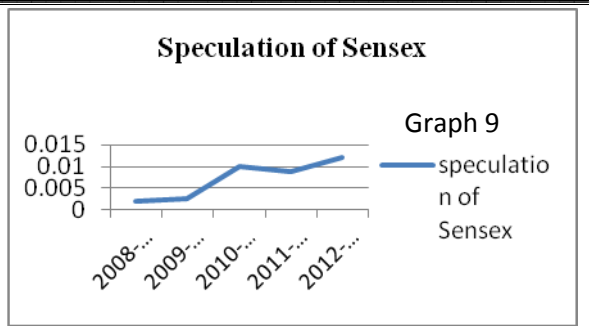
This view can be simplified and extended to arrive at a decision whether speculation regarding overall stock market in current situation is higher/lower or static in comparison to past situations. In such situation overall P/E ratio (market price/earnings per share) connected with index is to be taken. As individual speculation price enabled us to determine speculation level of individual stock, here in this situation somewhat crude value will emerge as we are relying on only market price. But, it will nevertheless offer a good result for comparison purpose. P/E itself has the ability to focus light on speculation level but comparison alongside index will reveal more accurate state of affairs. The following table 5 illustrates that speculation was up in 2009-10 with respect to 2008-09. It again jumped in the next year and declined in 2011-12, up again in 2012-13. If we try to evaluate only on the basis of P/E ratio the result will be different. Graph 8 and 9 may be noted.

**Table 5: Sensex Speculation**

| year | Sensex (closing value) | P/E Ratio of Sensex | P/E Ratio/ Sensex change | Speculation |
|---|---|---|---|---|
| 2007-08 | 15644.40 | 20.18 | | |
| 2008-09 | 9708.50 | 12.68 (↓) | 0.0021 | |
| 2009-10 | 17527.80 | 21.05 (↑) | 0.0027 | up |
| 2010-11 | 19445.20 | 20.04 (↓) | 0.010 | up |
| 2011-12 | 17404.20 | 17.85 (↓) | 0.0087 | down |
| 2012-13 | 18835.80 | 17.19 (↓) | 0. 012 | up |

Source: http://EconStats Bombay Sensex monthly Index and Correlations with SP500. _ stock markets.htm **.**Year wise speculation of based on P/E ratio/ Sensex change was different from that based on simple P/E ratio.




**Speculation aspect in respect of CNX midcap stock**

**Table No: 6 CNX Midcap**

| **Date** | **02-01-2007** | **01-01-** | **01-01-2009** | **04-01-2010** | **03-01-2011** | **02-01-2012** | **01-01-2013** | **01-01-2014** |
|---|---|---|---|---|---|---|---|---|
| CNX Midcap (Yearly | 5520 | 4748 (772 *) | 2280 (2468*) | 5877 (3597*) | 7492 (1615*) | 6218 (1274*) | 6033 (185*) | 8114 (2081*) |
| P/E | 18.83 | 25.6 | 9.63 | 16.35 | 20.18 | 14.53 | 17.91 | 14.88 |
| P/B | 3.4 | 5.11 | 1.39 | 2.68 | 2.75 | 1.53 | 1.9 | 1.71 |
| P/Div | 1.24 | 0.82 | 2.46 | 1.05 | 1.1 | 2.03 | 1.47 | 1.72 |
| (P/E)/ CNX | | 0.03 | 0.0039 | 0.0045 | 0.0125 | 0.011 | 0.097 | 0.0072 |
| speculation | | | Lesser than | More than | More than 2010 | Lesser than 2011 | More than | Lesser than 2013 |

Source: http://www.nseindia.com/products/content/equities/indices/historical_pepb.htm

P/B= Market Price/Book Value, *Sign has been ignored as we are more concerned about absolute change. (P/E) factor divided by change in index offers the result in a somewhat different form wherein we will be able to determine the true speculation situation with respect to status of index. The higher will be the value the more will be the speculation. Here for midcap in 2009 the speculation was more if we analyse on the basis of index change, but the (P/E)/index change says different thing with respect to 2008; in terms of (P/E)/index change it was in a state of less speculation of course with respect to change of index.

**Findings and Points Developed Out of This Study:**

For individual stock, comparison of speculation price (SP) graph against index graph reveals speculation level ,but if EPS graph alongside is considered ,a better comparison of the situation can be obtained. It enables the system to grasp the idea whether speculation is giving due importance to earning power?

A better revelation can be achieved if SP/EPS graph when compared with index. This is simply a better idea of the speculation as it takes into account the earning position with respect to speculation price at the particular point of index. Whether or not, the speculation has really a solid foundation. As, a ratio is compared against an index, a stock split or bonus or both cannot make the comparison ridicule. A declining curve indicates that at any point the impact of denominator is greater than numerator.

A far better comparison is achieved if the ratio {(SP/EPS) / Change in Index} is considered as it takes into consideration of the overall market sentiment with respect to individual speculation in

connection with its earning power. It enables us to know if the stock is more speculative or not in view of growth or decline of index. Comparison with previous year's data shows light on speculation level of the stock in respect of earning and overall market sentiment. The concept can be used not only for the yearly matter it can be extended to measure the speculation level hourly, daily, fortnightly or monthly basis if suitable softwares are used to measure all the relevant data**.**

For overall market situation, P/E graph vs. Index Graph apparently discloses the speculation level; however {(P/E) / Change in Index} Graph indicates whether in respect to past situation(s), the current speculation level is higher or lower in a better and accurate way. (Stock split, buy back of shares and merger or acquisition affect the number of shares and book value of the same and earning power in equivalent manner and the market price theoretically is expected to follow the same path. However, such incidents affect investors' sentiment and eventually the speculation matter.)

**Benefits:**

we have shown here the average yearly estimation. The same principle can be extended to hourly or day to day basis and general investors can draw an idea about the speculation level of the stock in current situation. These will reveal how the stock may behave under the then situation.

**Conclusion and Suggestions:**

It is to be noted that stock movement is not a natural phenomenon, it is a well-orchestrated man made process and naturally any amount of stock movement cannot be predicted precisely beforehand. In such situation the whole of stock market activities will vanish. In spite of so many uncertainties in the stock market the aforesaid the method may emerge as helpful tool in the estimation of stock movement as it may develop a meaningful projection of the stock movement if suitable software is developed to measure the hourly or daily or monthly speculation level (however the EPS should be taken as the same of last accounting period, usually quarterly). The regulatory body may also apply the concept to curb undue speculation in a particular stock at a particular time.

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# The Impact of Tourism on the Socio-Economic Environment: A Case Study of Kohora Range of the Kaziranga National Park

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**Abstract:**

*The word 'Tourism' suggests the "movement of an individual from his place of origin to any other place for a fixed duration of time, basically for the purpose of leisure and pleasure and back, and it should not be connected with any remunerative activity or with the intentions of setting up a permanent residence there." The study basically emphasizes upon the Socio-Economic Impact of tourism upon the local inhabitants, dwelling on the fringes of the Kaziranga National Park, basically on the periphery of the Kohora range of the Park. The author therefore has tried to make an honest attempt to see the social and economic impact of tourism upon the consumption behaviour of the local inhabitants and service providers, from the perspective of the Kohora range of the Park. It is indeed true that as a tourist destination of repute and as a World Heritage Site, the Kaziranga National Park is developing more and more and also the arrivals have been enhanced manifold which has positive impact on the economic as well as social lives of the local inhabitants of the Kohora range, but the point to contemplate and ponder is whether everything concerning the National Park is truly fine and normal.*

**Key Words:** Consumption Behavior, Impact, Kohora, Socio-Economic and Tourism.

## Introduction

Tourism has become one of the most important economic activities that throng a series of countries on the global forum. Tourism is one of the world's largest and fastest-growing industries. The World Tourism Organization's 2020 vision envisages the fact that by next year, tourism movement would experience an upheaval by many millions, citing the instance of " Dark Continent" Africa, which will expect nothing less than 47 million arrivals. The development of tourism brings with it a variety of changes in the consumer culture of both the tourists as well as the hosts. These changes in consumption result from the gradual development of any area or region into a prominent tourist destination. Costa (1993) has suggested that when the tourists' journey involves crossing cultural and societal boundaries, vital and emphatic consumption changes occur among both the hosts as well as the guests.

Mathieson and Wall (1982) have noted, "The consequences of tourism have become increasingly complex and contradictory… (and) are manifested in subtle and often unexpected ways". Research on the impacts of42 tourism on the societal structure and its framework is wide, varied and manifold. For example, Ryan (1991) suggests that the greatest impacts of tourism will be wherever there is a greater gap between the culture and the income level of both the host and the tourist. For example, an Englishman traveller in the USA will make very little or no impact among the local masses, but the same person will have a far greater influence and make a far reaching impact when he tours, either a developing or under developed country.

Kaziranga National Park is an ideal habitat for a variety of wildlife, the most notable being the rhinos, along with the wild Asiatic buffaloes, elephants, and a wide variety and different types of

deer, monkeys and birds. It enjoys a pleasant and salubrious climate all throughout the year with a cool winter from November to January and a warm summer. The monsoon, though dominant during the months of June-August, lasts for several months and mild showers are experienced throughout the year. Viewing wildlife at Kaziranga National Park with its vast open space, the presence of the mighty Brahmaputra and the beauty of the adjoining Mikir hills, commonly called as the Karbi hills, make a trip to this park a total and complete jungle

**Scope of the Study:**

The present study is empirical in nature .The study focuses basically on the impact that tourism makes upon the local environment from the perspective of the socio-economic consumption system and risk perception while focusing on the potentials of tourism development at Kaziranga National Park of Assam. The study is being proposed keeping into consideration the following parameter:

1. **Jurisdiction of the Study**: The present study encompasses the activities that happen in and around the Kohora range of the Kaziranga National Park only.
2. **Coverage of the Study**: The people thriving in and around the vicinity of the Kohora range of the park and their role in different activities pertaining to it will be assessed. Moreover the impression generated by the agents and local inhabitants would also be assessed and gauged.

**Objectives of the Study:** The study has been pursued with the following objectives in view:-

1. To identify the influence of tourism in the social activities in Kohora range;
2. To identify the influence of tourism in the economic activities in Kohora range;
3. To find out the reasons of change, if any, in the values of the native traditions in the study area.

**Methodology of the Study:**

The study is basically an exploratory in nature. Further it follows the action oriented programs of research. By going through the various available literatures within the proximity of the researcher it is evident that the impact of tourism on the socio-economic environment of the natives of Kaziranga National Park has not been explored, hence the study attempted to explore this untapped aspect.

**Types of Respondent:**

The present study includes, the local businessmen, inhabitants of the adjoining areas, and different types of service providers, ranging from hoteliers, restaurateurs, lodge owners, and jeep drivers to elephant keepers of Kohora and Bagori ranges and also in a discreet way some foreign as well as the domestic tourists who traverse through Kaziranga National park during the course of the study.

**Universe of the Study:**

As the proposed study will focus upon the impact of tourism on the socio-economic environment of Kohora range of the Kaziranga National Park, for the purpose of the proposed study, the local inhabitants of the Kohora range, specially the different types of service providers, ranging from hoteliers, restaurateurs, lodge owners, and jeep drivers to elephant keepers have been identified as the potential respondents.

**Sample and Sample Unit:**

A stratified sample of 25% has been selected using the method of convenient sampling design from the population which shall consist of all those individuals who come under the purview of the study, basically the lodge owners, shop keepers and the other service providers. However, since the visit of the tourist to a tourist spot during a specific period is difficult to ascertain, hence a judgement sampling has been sought to collect data to understand the changes, if any, occurred in the periphery of the Park to satisfy our two sub-objectives. Further to find out the changes, if any, from the tourist point of view; the researcher has approached those tourists who have visited the place more than once. Hence, a judgemental sampling technique will be adopted. Apart from this based on judgemental sampling only, data has been collected from the local residents of Kohora range to grasp data required to satisfy the third objective.

The final sampling has been done as follows:

| Sl.No. | Nature of the Respondents | Total Available (as per data provided by ATDC, Kohora Branch) | Sample Selected (25% Stratified) |
|---|---|---|---|
| 1 | Lodge/Restaurant owners | 216 | 54 |
| 2 | Shop keepers | 8 | 2 |
| 3 | Jeep Drivers/Providers | 24 | 6 |
| 4 | Others | 24 | 6 |
| Total | | 272 | 68 |

Further 100 local inhabitants (houses) of Kohora Range has been selected on convenient sampling out of 428 houses (source: as per Sarba Shiksha Abhijan office at Kohora) for carrying out the study to address the objectives.

**Data Requirement:**

**i) Primary Data:** The present study has been mainly based on primary data. For the first two objectives of the study, Structured Interview method has been used to collect the necessary information. The respondents were requested to give their opinion, based on five point scales, in respect of their degree of acceptance of various items included in the interview schedule which was framed keeping in view the objectives and research questions mentioned above. For the economic impact, the study has taken into consideration variables like, income level, growth of ventures, extension of services, price fixation for such services, shopping environment, demand creation through quality and promotion, source of supply and supply constraints, if any.

On the other hand for the social impact, the study has considered variables like life style, changes in consumption habits, language modulation, active coping in terms of rational and emotional thinking. For the third objective another set of interview schedule has been prepared for the local residents. Certain variables like changes in culture, values, etc. were covered in this interview schedule so as to have an adequate data base for achieving the third objective of the study. Necessary reliability and validity study has been done during the course of the pilot survey and necessary

changes in the schedule were made. Finally, data has been collected from the local inhabitants dwelling on the periphery of the Kohora range of the Kaziranga National Park.

**ii) Secondary Data:** Secondary data has been made available from books, journals and monographs, compiled and authored by competent writers pertaining to the travel and tourism sector. Articles, both of national as well as international standards have been used to gather relevant and informative data. Further the data available with the statistics compiled by the Department of Economics and Statistics, Government of Assam, Assam Tourism Development Corporation (ATDC), statistics compiled by the regional Sarba Siksha Abhijan office, etc. were the source of secondary data for the period under consideration.

**Period:** For reviewing the socio-economic changes of the areas under consideration, a period of 10 (Ten) years has been considered starting from 2001 to 2010 in order to establish a meaningful range for the study. However, the period mentioned above has been considered only for the psychological changes of the respondents ignoring the physical changes.

**Analysis:**

For the analysis, data collected from the respondents has been tabulated first and for the objectives, both primary and secondary data has been taken into consideration. For satisfying the two objectives, simple mathematical and statistical tools like percentage, average etc. has been used to see the changes, if any, have been occurred during the period.

**Results & Discussions:**

**a) Responses of the Service Providers**

**Table I: - Demography of the Respondents**

| Demographic Variables | Classification | Number |
|---|---|---|
| Gender | Male | 68 |
| | Female | 0 |
| Age | 21-30 years | 16 |
| | 31-40 years | 28 |
| | 41-50 years | 16 |
| | 51-60 years | 4 |
| | Above 60 years | 4 |
| Business Tenure | 0-5 Years | 38 |
| | 6-10 years | 26 |
| | 10 years and above | 4 |
| Chain Affiliation | Yes | 16 |
| | No | 52 |
| Priority Markets | All | 32 |
| | Domestic Tourists | 34 |
| | Foreign Tourists | 2 |

**Table II: - Respondents' Views( Number) about Kaziranga National Park**

| Variables | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| 1) The number of domestic tourists visiting the Kaziranga National Park has increased over the years. | 60 | 8 | | | |
| (2)The number of Foreign tourists visiting Kaziranga National Park has increased over the years | 48 | 16 | 4 | | |
| 3) There have been marked changes over the years regarding tourism development in and around the areas of Kaziranga National Park. | 30 | 28 | 2 | 8 | |
| 4) Private resorts and travel agencies are more into the hospitality and tourism business around the Park. | 54 | 12 | 2 | | |
| (5) The advent of tourists has resulted in the generation of more employment opportunities among the local natives. | 56 | 12 | | | |
| (6) The environmental issues have made a deep impact upon the campaigns regarding tourism communications | 10 | 38 | 14 | 6 | |
| (7)It is the Foreign tourists who prefer to intermingle more with | 20 | 42 | 4 | 2 | |
| 8) Foreign tourists enjoy a new and unique experience by dealing with the locals. | 38 | 28 | 2 | | |
| (9)The foreign tourists behave in the most polite manner when they interact with the various service providers. | 48 | 16 | | 4 | |
| (10)The domestic tourists seldom behave in a rude, arrogant and haughty manner when they deal with the various service providers. | 14 | 42 | 4 | 8 | |

**Table III: - Respondents' Feelings( Number) towards Kaziranga National Park**

| Variables | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 1) Government accommodation properties are more in Kaziranga compared to those owned by private parties. | | | 2 | 64 | 2 |
| (2) The presence of poachers and anti social elements has created havoc in the smooth conduction of the business affairs around the KNP | 8 | 16 | 16 | 24 | 4 |
| (3) Often demands are made to the various service providers nestling in the area by different groups. | | 2 | 4 | 62 | |
| (4) The involvement of tourists has created a major development in the social lives of the local folk. | 36 | 28 | 4 | | |
| (5) The locals interact more with the domestic tourists visiting the Kaziranga National Park | 12 | 30 | 10 | 16 | |
| (6) The attachment of the locals is more with the domestic tourists because they feel it easier to deal with them and also get more familiar with their thoughts and ways. | 18 | 18 | 28 | 4 | |

**Table IV: - Respondents' Opinion(Number) towards Socio-Economic Changes**

| Variables | Highly Positive | Positive | Neutral | Negative | Highly Negative |
|---|---|---|---|---|---|
| (1)Change in the Income Level from 2001 till 2010 | 50 | 16 | | 2 | |
| (2)Change in the Social Status from 2001 till 2010 | 44 | 16 | 8 | | |
| (3)Change in the Economic Status from 2001 till 2010 | 44 | 22 | 2 | | |
| (4)Change in the Social Structure from 2001 till 2010 | 30 | 30 | 8 | | |
| (5)Change in the Economic Structure from 2001 to 2010 | 36 | 30 | 2 | | |
| (6) Change in the Life style from 2001 till 2010 | 36 | 30 | 2 | | |
| (7) Change in the Spending habits from 2001 till 2010 | 26 | 34 | 8 | | |
| (8) Change in the saving habits from 2001 till 2010 | 26 | 30 | 12 | | |
| (9) Change in the Social | 36 | 26 | 6 | | |

| | | | | | |
|---|---|---|---|---|---|
| outlook from 2001 till 2010 | | | | | |
| (10) Change in the Economic Outlook from 2001 till 2010 | 40 | 26 | 2 | | |

As obtained from Table I, majority of the service providers were from the age group of 31-40 years, with 28 ( 41.17%) out of the total 68, corresponding to this category.16 (23.52%) each belongs to the categories, 21-30 years and 41-50 years respectively and 4 (5.88 %) each belong to the age groups 51-60 years and Above 60 category respectively. It can be seen from Table I, that majority of the respondents ie 38(55.88 % )in number are in the tourism business for a maximum up to 5 years, 26 (38.23 %) others are in the segment for the last 6- 10 years where as only 4 (5.88%) are experienced of being in the travel field for more than 10 years.

Revealed from Table I, bulk of the respondents, totalling 52 (76.47 %) in number comment that they do not have any chain affiliations, branches or sister concerns and are sole proprietors. Only 16 (23.53 %) say that they have got chain affiliations and networks with other organisations. As experienced from Table I, 34 (50 %) respondents comment that their priority market is the domestic tourists, where as 32 (47 %) others say that they cater to one and all, and do not have any specific priority for any group.2 (3%) others prefer foreign tourists as their priority market.

Data obtained from Table II reveals the fact all the respondents do agree to the fact that the number of domestic tourists visiting the Kaziranga National Park has increased over the years, with 60(88.23 %) respondents strongly favouring this thought and 8 ( 11.77% ) others simply supporting it. Correspondingly Table II also elicit that the number of foreign tourists visiting the park has increased over the years.48 (70.58 %) respondents strongly support this view and they are supported by 16 (23.53 %) others who simply agree.4 (5.88%) individuals remain silent. As observed here, bulk of the respondents agree that there have been marked changes over the years regarding tourism development in and around the areas of the Kaziranga National Park, with 30 (44.11%) numbers strongly agreeing to this thought, ably supported by the general agreement of 28 (41.17 %) others.2 (2.94%) persons remain neutral where as 8 (11.76%) others disagree to the fact.

Facts visualized from Table II depict that all the respondents do agree to the fact that the private resorts and travel agencies are more into the hospitality and tourism business around the park with 54 (79.41%) service providers responding strongly and 12 ( 17.64 %) others lending simple support. Only 2 (2.94 %) respondents remain mute over the matter. Relevant data extracted from the Table, establishes beyond doubts that the advent of tourists has resulted in the generation of more employment opportunities among the local natives with 56 (82.35 %) respondents strongly echoing this view and 12 (17.65 %) others simply agreeing to it. Valid information obtained from Table II showcases that 38 ( 55.88 %) respondents agree that the various environmental issues have made deep impacts upon the various campaigns regarding tourism communications around the range, with 10 ( 14.70 %) respondents strongly supporting it.14 (20.5 %) others remain mum on the issue and 6( 8.82%) other respondents do not agree to this.

Table II portrays that, majority of the respondents agree it is the foreign tourists who prefer to intermingle more with the locals, with 42(61.76%) commenting in favour of this view and they are ably supported by the strong agreements of 20 (29.41%) others. Only 4 (5.88%) remain neutral and 2 (2.94%) respondents do not agree. Also it is indeed true that foreign tourists enjoy a new and unique experience by dealing with the locals with 40 (58.82 %) respondents strongly agreeing to this idea, and they are backed by the simple agreements of 28 (41.18%) others.

As has been explicitly expressed from Table II, 48 (70.58%) respondents view the foreign tourists to behave in the most polite manner when they interact with the various service providers. They get the support of 16 (23.52 %) others who too agree simply on these lines where as 4 (5.88 %) others do not agree to this fact. Similarly, majority of the respondents, 42(61.76%) in numbers agree that the domestic tourists seldom behave in a rude and haughty manner when they deal with the various service providers where as 14(20.55%) others strongly echo this view.4 (5.88%) others refrain from speaking their minds where as 8 (11.76 %) respondents do not agree to the view in context. It has been established that the Government accommodation properties are less in Kaziranga compared to those owned by the private parties. This view has been shared by 66(97.06 %) individuals and 2 (2.94 %) others remain silent. This fact has been highlighted by the figures in Table III.

As manifested in Table III, there is a mixed bag of reactions when the topic pertaining to the presence of poachers and anti- social elements is concerned and whether their presence has created havoc in the smooth conduction of the business affairs around the KNP with 24 (35.29%) respondents disagreeing to the fact and 4 (5.88%) others vehemently opposing the thought. 16(23.52) respondents remain neutral, where as 16 (23.52%) others agree to the thought; another remaining 8 (11.76 %) respondents do agree in a strong manner. Similarly, 62 (91.17 %) out of the total 68 respondents absolutely deny the fact that very often demands of various sorts are made to the various service providers nestling in the area by the various groups.4 (5.88%) others refrain from making any comment and 2 (2.94%) others do agree to this.

It has been clearly proved that the involvement of tourists has created a major development in the social lives of the local people, with 36 (52.94%) respondents strongly agreeing to this and they are supported by the views of 28(41.17%) others. Only 4 (5.88%) respondents try to remain silent. This fact is revealed clearly from Table III.

As shown from Table III , 30(44.11%) respondents say that the locals interact more with the domestic tourists visiting the Kaziranga National Park and they get the strong support of 12 (17.64 %) others. 10 ( 14.70 %) individuals do not comment anything where as 16 (23.52% ) others disagree to the opinion. Majority of the respondents strongly feel that the attachments of the locals is more with the domestic tourists because they feel it easier to deal with them and also get more familiar with their thoughts and ways. This view is shared by 36 (52.94%) respondents, out of which 18 (26.47 %) agree with tremendous emphasis.28 (41.17%) other respondents remain neutral and only 4 (5.88%) disagree to the current point of discussion.

Table IV lays emphasis upon the facts that there has been tremendous change in the income level of the service providers from 2001 till 2010 and this view has been strongly shared by 66 (97.06%) respondents out of the total 68, with only 2(2.94%) respondents speaking on a negative tone. 44( 64.72%) respondents speak highly positively regarding the change in the Social as well as the Economic status of the service providers during this tenure and they are simply supported by the positive remarks of 22( 32.36%) others. 2 (2.94%) individuals remain neutral. Table IV has clearly elucidated the fact that there have been marked changes in the social structure during these 10 years, and 60 ( 88.23 %) respondents speak positively about the matter with only 8( 11.77% ) remaining neutral. There have been marked changes in the economic structure during these 10 years, and 66 (97.06%) respondents speak positively about the matter with only 2 (2.94 %) remaining neutral.

During these 10 years, there has been a gradual change in the life styles of the local population, and this fact was narrated by the highly positive responses of 36 (52.94%) service providers, where as 30 ( 44.11 %) other too join in the support base .Only 2 (2.94 %) remain neutral.

There have been considerable change in the spending habits of the service providers from 2001 till 2010, and this fact is elicited by the positive responses of 34 (50 %) respondents, highly positive responses of 26 (38.23%) others and where as 8 (11.76 %) others remain silent spectators. Table IV also displays that there have been tremendous changes in the saving habits of the service providers from 2001 till 2010, and this fact is elicited by the positive responses of 30( 44.11 %) respondents, highly positive responses of 26 ( 38.23%) others and where as 12 (17.64 %) others remain silent spectators.

As depicted from the figures in Table IV, 36(52.94%) respondents remain highly positive to the fact that there has been a comprehensive change in the social outlook of the service providers from 2001 to 2010, and they are supported by the simple positives obtained from 26 ( 38.23%) others. Another 6 (8.82 %) respondents do not make any utterances on the matter. Table IV also illustrates that the majority of the respondents, totalling 40 (58.82 %), agree strongly that there has been a considerable change as far as the economic outlook of the service providers are concerned over a period of these 10 years in context. Another 26 (38.23%) also echo the same and speak in a positive vein where as a mere numbers of 2 (2.94 %) respondents refrain from opining anything.

**b) Responses of the Local Inhabitants**

**Table V: Respondents' Feeling (Number) towards Kaziranga National Park**

| Variables | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| (1) The number of domestic tourists visiting the Kaziranga National Park has increased over the years. | 30 | 70 | | | |
| (2) The number of Foreign tourists visiting Kaziranga National Park has increased over the years. | 40 | 60 | | | |
| (3) There have been marked changes over the years regarding tourism development in and around the areas of Kaziranga National Park. | 20 | 80 | | | |
| (4) The advent of tourists has resulted in the generation of more employment opportunities among the local natives | 54 | 46 | | | |
| (5) It is the Foreign tourists who prefer to intermingle more with the locals. | 10 | 70 | 10 | 10 | |
| (6) Foreign tourists enjoy a new and unique experience by dealing | 12 | 50 | 30 | 8 | |

| | | | | | |
|---|---|---|---|---|---|
| with the locals | | | | | |
| (7) The foreign tourists behave in the most polite manner when they interact with the various service providers | 38 | 52 | 10 | | |
| (8) The domestic tourists seldom behave in a rude, arrogant and haughty manner when they deal with the various service providers. | 20 | 20 | 38 | 22 | |

**Table VI: - Respondents' Opinion( Number) Regarding the Social Changes**

| Variables | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| 1) The advent of tourists has brought about a few remarkable changes in the living standards of the local community | 40 | 60 | | | |
| (2)The presence of poachers and anti social elements has created havoc in the smooth conduction of the business affairs around the KNP | 6 | 20 | 26 | 46 | 2 |
| 3) The involvement of tourists has created a major development in the social lives of the local folk. | 20 | 70 | 6 | 4 | |
| 4) The locals interact more with the domestic tourists visiting the Park | 14 | 70 | 16 | | |
| 5) The attachment of the locals is more with the domestic tourists. | 10 | 70 | 20 | | |
| 6) The flow of tourists to Kaziranga has made some deep penetration into the existing values of social life around the Kohora range. | 32 | 60 | 8 | | |
| 7) The tourists have imbibed a lot of the native cultural traditions and have confessed to have been enriched by what they have learned and experienced. | 20 | 70 | 10 | | |
| 8) The locals have got a very good experience of the alien culture, got used to many concepts unknown earlier and have inculcated many values in them from their attachment with the tourists. | 40 | 50 | 10 | | |

As obtained from Table V, all the respondents do agree to the fact that the number of domestic tourists visiting the Kaziranga National Park has increased over the years, with 30 (30 %) respondents strongly favouring this thought and 70 ( 70 % ) others simply supporting it. Similarly, it is also true that the number of foreign tourists visiting the park has increased over the years.40 (40 %) respondents strongly support this view and they are supported by 60 (60 %) others who simply agree. Reliable facts and figures from Table V state that bulk of the respondents agree that there have been marked changes over the years regarding tourism development in and around the areas of the KNP, with 20 ( 20 % ) numbers strongly agreeing to this thought, ably supported by the general agreement of 80 ( 80 % ) others. It has been established beyond doubts that the advent of tourists has resulted in the generation of more employment opportunities among the local natives with 54 (54 %) respondents strongly echoing this view and 46 (46 %) others simply agreeing to it. This fact has been emphasised through Table V.

Revelations from Table V suggests that 70 (70 %) respondents agree it is the foreign tourists who prefer to intermingle more with the locals, with 10 (10 %) respondents strongly supporting it.10 (10 %) others remain mum on the issue whereas 10 (10 %) other respondents do not agree to this. Also as picturized in the Table, it is indeed true that foreign tourists enjoy a new and unique experience by dealing with the locals with 50 ( 50 % ) respondents agreeing to this idea, and they are backed by the simple agreements of 12 ( 12 %) others.30 ( 30 % ) other respondents prefer to remain neutral whereas 8 ( 8 % ) others do not agree to it at all.

There is a mixed bag of reactions when the topic pertaining to the presence of poachers and anti- social elements is concerned and whether their presence has created havoc in the smooth conduction of the business affairs around the KNP with 46 ( 46 % ) respondents disagreeing to the fact and 2 ( 2 % ) others vehemently opposing the thought. 26 (26 %) respondents remain neutral, where as 20 (20 %) others agree to the thought; another remaining 6 (6 %) respondents do agree in a strong manner. This fact is explicitly revealed through table VI.

As explained through Table VI , it has been clearly proved that the involvement of tourists has created a major development in the social lives of the local people, with 70 (70%) respondents agreeing to this and they are strongly supported by the views of 20 (20%) others. Only 6 (6%) respondents try to remain silent whereas 4 (4%) others disagree with the topic. Majority of the respondents do agree upon the fact that the advent of tourists has brought about a few remarkable changes in the living standards of the local community with 40 (40%) individuals strongly echoing this view and getting admirably supported by the simple agreements of 60 (60%) others.

It has been emphatically highlighted through Table VI , 70 (70%) respondents say that the locals interact more with the domestic tourists visiting the Kaziranga National Park and they get the strong support of 14 ( 14 %) others where as 16 ( 16 % ) others disagree to the opinion. Similarly, majority of the respondents strongly feel that the attachments of the locals is more with the domestic tourists because they feel it easier to deal with them and also get more familiar with their thoughts and ways. This view is shared by 80 (80 %) respondents, out of which 10 (10 %) agree strongly with tremendous emphasis. 20 (20 %) other respondents remain neutral.

As depicted through Table VI, 60 ( 60 % ) respondents agree to the fact that the flow of more tourists to the Kaziranga National Park has made some deep penetration into the existing values and norms of social life and they are strongly backed by 32 ( 32 % ) others. 8 (8 %) respondents remain silent over this view. Similarly, it has been observed and felt through the same Table that the tourists

have imbibed a lot of the native cultural traditions and they have confessed to have been enriched by what they have learned and experienced. This fact is shared by 70 (70 %) respondents who speak on a positive note, and they have been lend strong support by another 20 (20 %) respondents. Only 10 (10 %) respondents do not speak their mind. It is worth mentioning hereby the fact that the locals have got a very good experience of the alien culture, got used to many concepts earlier unknown to them and have inculcated many values in themselves from their attachment with the tourists. It is echoed strongly by 40 (40 %) respondents, and backed by another 50 (50 %) individuals; Only 10 (10 %) respondents are reluctant to give a taste of their mind.

**Conclusion:**

Perhaps one of the most disturbing findings of this study was the acceptance of a changing moral fabric. In particular, the view that degradation of local moral codes of behaviour was inevitable and could not be resisted. One possible outcome of this study might indeed be a change in the view of the locals that degradation of local moral codes of behaviour is not inevitable and could instead be resisted. It should also be noted that these changes, while associated with tourism in this study, have many sources and are decidedly complex. Clearly, additional research and work on tourism development such as that found in Kohora would respond to this call and potentially provide the opportunity for true customary behaviour.

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# Jhumia's Rehabilitation through Rubber Plantation: A Strategy for Poverty Eradication in Tripura

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***Abstract***

*Shifting cultivation in a variety of forms has been practiced successfully and safely for centuries, fully adapted to the specific climatic conditions prevailing in a given forest region. It is a traditional method of cultivation.* The main objective of the thesis is to analysis the effect of rubber plantation on the level of poverty of jhumias in Tripura. *A total of 600 jhumia households (who are rehabilited by rubber plantation) are selected from different villages (where jhumias rehabilitation programme is implemented) of the four TRPC working districts of Tripura, i.e. South Tripura, North Tripura, West Tripura, & Dhalai District.*

*Rubber Block Plantation for socio-economic settlement of the 'Jhumias' has been considered a great success. Incidences of poverty are decreases after rehabilitation. Head count index shows that value of headcount ratio for jhumias is one; it means that all jhumias are falls under poverty line. After rehabilitation of jhumias through rubber plantation, value of headcount ratio is zero, i.e. all are above the poverty line. Poverty gap index shows that for jhumia's, its value is 0.7, i.e. 70 percent jhumias are falls under poverty line. Poverty Gap Index of Rubber growers demonstrates that no one falls under poverty line. Human Poverty Index of Jhumias illustrated that 46.36 percent jhumias falls under poverty line and 16.44 percent are under poverty line after rehabilitation.*

**Keywords:** Development, Jhum cultivation, Jhumias, Poverty, & Rubber plantation**.**

## Introduction

Jhum cultivation is an old technique of cultivation. It is an agricultural technique which involves cutting and burning of forests or woodlands to create fields. It is the subsistence agriculture that typically uses little technology. Initially, Jhum cultivation worked well, as Jhum cycle was ranging from 20 to 30 years but with the increase in size of population and rise in their demand for land, the Jhum cycle has been reduced to 5-6 years. It has caused serious land degradation and ecological problems. As Jhum requires tremendous amount of physical labour, the cultivators in an effort to divert their minds indulge in singing and dancing. The dance depicts their life style, mode of cultivation, culture and traditions. Their 'working song' serves as an inspiration for them to work harder (Tripura, 2013).

**Table 1: Number of Households and Persons Dependent on Jhum, Tripura, 1968 to 2007**

| Year | Source of the Estimate | No. of Households | No. of Persons |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1968 | J. B. Ganguly | 25,000 | - |
| 1978 | Benchmark Survey 1978 | 46,854 | 2.59 lakh |
| 1987 | Benchmark Survey 1987 | 55,049 | 2.88 lakh |
| 1999 | Department of Tribal Welfare | 51,265 | - |
| 2007 | Forest Department | 27,278 | 1.36 lakh |

Source: Government of Tripura

Tripura has registered a much lower productivity in rubber production even in terms of national average, despite being the second largest natural rubber producer in the country. Tripura has the potential for rubber cultivation in 76,637 hectare of land. But so far only 61,082 hectares is brought under rubber cultivation, which is only eight per cent of the total area of the state (The Times of India, April 19, 2013). The area coverage under rubber plantation has shown an increasing trend during the period from 1976-77 to 2011-12 in the state. It has rapidly increased from 574 hectares in 1976-77 to 3,590 hectares in 1981-82 then increased to 10,085 hectares in 1986-87. It was further increased from 17,860 hectares in 1991-92 to 61,082 hectares in 2011-12 (Rubber Board, Tripura).

**Table 2: Poverty Ratio in Tripura and India**

| **Year** | **State** | **Rural** | **Urban** | **Total** |
|---|---|---|---|---|
| 2004-05: | Tripura | 44.50 | 22.50 | 40.60 |
| | All India | 41.80 | 25.70 | 37.20 |
| 2011-12: | Tripura | 16.53 | 7.42 | 14.05 |
| | All India | 25.70 | 13.70 | 21.90 |

Source: Planning Commission; Govt. of India

The table 2 shows that poverty in Tripura and India decreased in 2011-12, compare to 2004-05. In 2011-12, where 14.05 percent people in Tripura falls under poverty line and 21.9 percent people in whole India lies under poverty line.

In December 2005, Planning Commission constituted an Expert Group under chairmanship of the eminent economist Prof. Lt.Suresh D. Tendulkar to review the methodology for estimation of poverty. Based on the estimates of the Tendulkar Committee, the final set of new poverty ratio for Tripura in 2004-05 comes about 44.50 percent for rural areas and 22.50 percent for urban areas; The all India similar poverty ratio of 41.80 percent for rural areas and 25.70 percent for urban areas, respectively. The total poverty ratio combining the rural and urban stood at 40.60 percent for Tripura against 37.20 percent for all India in 2004-05 as per the new expert group estimates.

**Objectives of the Study**

The study is mainly focused on the effects of rubber plantation on the poverty level of jhumias in Tripura. The objectives of the paper are as follows:

1. To examine the transformation of the jhumia's economy in Tripura in terms of some education and health indicators, and
2. To compare the incidence, depth and severity of poverty among jhumias with the overall incidence, depth and severity of poverty in the state.

**Methodology**

The present study is an empirical study based on both primary and secondary data. Primary data has been collected with the help of a well structured questionnaire from 600 jhumia households collected randomly (who are rehabilited by rubber plantation) selected from the four districts of the state where jhumias rehabilitation programme is implemented by government.

There are eight districts in Tripura and Tripura Rehabilitation Plantation Corporation (TRPC) is mainly working in four districts, namely, South Tripura, West Tripura, North Tripura and Dhalai . The samples households are selected from the 24 randomly selected villages from four districts of Tripura where jhumias are transformed into rubber cultivators**.** From each village, 25 households are randomly selected. Therefore, the total sample households to be selected from each district are 150 and the total sample sizes of the state are 600.

The secondary data has been collected from the various annual reports of the Tripura Rehabilitation Plantation Corporation, internet pages, various news paper clips, journals, various published or unpublished reports and working papers available at different state and national level institutions.

**Result and Discussions**

**Section 1**

Shifting cultivation is a certain method of farming where forest is burn by fire. The traditional method of Jhum had been banned in Tripura few years ago and the government had introduced various rehabilitation packages for the hardcore Jhumias. The Rubber Board played a major role in the 'World Bank Assisted Rubber Project' implemented from 1992 with the main objective of expanding and strengthening the rubber plantation sector to increase production of smallholdings, improves processing and increase on-farm and off-farm employment and income.

Rubber Block Plantation for socio-economic settlement of the 'Jhumias' has been considered a great success. An international organization like World Bank has commended it as outstanding. The scheme has so far adopted about 3000 families along with their 20000 dependents and settled them permanently with 3251 hectares of rubber plantation area in 53 different parts of the state. According to Tripura Human development Report, 2007, traditionally, most of the tribal population practiced shifting or jhum cultivation and were termed jhumias. The term jhumia is a generic term used for tribal people dependent on shifting cultivation as the primary source of livelihood. Ganguly (1968) showed that in 1961 there were about 25,000 families who were dependent on jhum for their livelihood.By 1978, this number had increased to 46,854 families, of which about 23,292 families were primarily dependent on jhum for their livelihood. In 1999, according to the Department of Tribal Welfare, 51,265 families were dependent on jhum, and the large majority of them were fully dependent on jhum. The big concentration of jhumia families was in Dhalai and South District. The total count shows a cleard decline in the number of jhumia families.

**Table 3: Number of Families Resettled under Various Schemes, 1986.87 to 2004.05**

| Plantation | Total Number of Families |
|---|---|
| Horticulture | 8,962 |
| Rubber | 9,445 |

| | |
|---|---|
| Tea | 795 |
| Coffee | 557 |
| All | 18,959 |

Source: Human Development Report of Tripura, 2007; p. 39.

The table 3 shows that more number of jhumias are resettled by horticulture and rubber plantation. The Tripura experiment is modeled on the experiences of the Kerala rubber economy, where the 'Rubber for the Poor' project attempted to provide tribal and other marginal farmers with a steady income. Rubber has the potential of providing jhumias with a substantial income. Apart from income benefits, the jhumia rehabilitation schemes are also significant because they contribute to skill development in several ways.

Jhumias are cultivated for own consumption and for earning income, both. Jhum cultivation is a family cultivation. TRPC is the main institution for assisting jhumias for rubber plantation. Tribal Welfare Department provides fund for running the programme. Jhumias children are involved in various family activities and helps their family in the paddy lands. So school attendence are very less and many children did not go to school. After rehabilitation more number of children are going to school regularly. The main reasons are increasing awareness and higher income. More number of students are also not now depends on the school teachers for study purpose. The popularity of home teacher is increasing continuously. Biri and aclohal are more popular among the households. It is the components of the culture. More number of households is affected by malaria/ stomach Disease. The popularity of primary health centre/ hospital is increasing continuously. Number of illiterate household is very less. More number of respondents have basic knowledge of writing, speaking and normal artihmatic culculation after rehabilitation. The reason behind this is the own awareness, needs of the job and the assistance from the departments.

## Section II

### Headcount Index

By far, the most widely used measure is the headcount index, which simply measures the proportion of the population that is counted as poor, often denoted by $P_0$. Formally,

$P_0 = N_P/N$*:* where $N_p$ is the number of poor and N is the total population (or sample).

(a) Headcount Index of Jhumias

Headcount Poverty Rates of 600 Samples, Assuming 1.25 US$ per day (US $ = Rs. 65)

**Table 4: Measurement of Poverty of Jhumias**

| **Per Day Income** | **Highest Income (monthly)** | **Minimum Income (monthly)** | **Average Income (monthly)** | **Headcount Poverty Rate ($P_0$)** |
|---|---|---|---|---|
| $1.25 (Rs.2,437**)** | 2,022 | 473 | 783.15 | 1 |

Source: Field Survey

$N_P = 600$

$N = 600$

$P_0$ = Number of poor/ total population (or sample)

= 600/ 600

= 1

The table 4 shows that headcount ratio of jhumias are one, it means all jhumias were fallen under poverty line.

(b) Headcount Index of Rubber Growers

Headcount Poverty Rates of 600 Samples, Assuming 1.25 US$ per day (US $ = Rs. 65) (Rs. 2,437)

**Table 5: Measurement of Poverty of Rubber Growers**

| Per Day Income | Highest Income (Monthly) | Minimum Income (Monthly) | Average Income | Headcount Poverty Rate ($P_0$) |
|---|---|---|---|---|
| $1.25 (Rs.2,437**)** | Rs. 48,000 | Rs. 4300 | Rs. 16,500 | 0 |

Source: Field survey

$P_0$ = Number of poor/ total population (or sample)

= 0/ 600

= 0

The table 5 shows that headcount ratio is zero; it means none family falls under poverty line after rehabilitation by rubber plantation.

**Table 6: Poverty Ratio Comparing Survey and Government Estimates**

| **Survey Estimate** | | |
|---|---|---|
| **Headcount Index** | **Value** | **Percentage (%)** |
| Headcount Index of Jhumias | 1 | 100 |
| Headcount Index of Rubber Growers | 0 | 0 |
| **Government Estimates** | | |
| Poverty in Tripura (as per Planning Commission, Govt. of India) | -- | 14.05 (in 2011-12) |

The table 6 shows that in Tripura 14.05 percent people lives below poverty line according to Planning Commission of India. Headcount index shows that 100 percent jhumias were below poverty line, but after rehabilitation of jhumias through rubber plantation situation has been changed. After rehabilitation no jhumias lives below poverty line.

**Poverty Gap Index**

This measure is the mean proportionate poverty gap in the population (where the non-poor have zero poverty gaps). Some people find it helpful to think of this measure as the minimum cost of eliminating poverty (relative to the poverty line). The poverty gap index is a percentage between 0 and 100 percent. Sometimes it is reported as a fraction, between 0 and 1. A theoretical value of zero implies that no one in the population is below the poverty line. A theoretical value of 100 percent implies that everyone in the population has zero income.

(a) Poverty Gap Index of Jhumias:

The poverty gap index ($P_1$) may be written as

$$\mathrm{PGI} = \frac{1}{N}\sum_{j=1}^{q}\left(\frac{z - y_j}{z}\right)$$

Where,

$N$ is the total population, $q$ is the total population of poor who are living at or below the poverty line, $z$ is the poverty line, and $y_j$ is the income of the poor individual $j$. In this calculation, individuals whose income is above the poverty line have a gap of zero.

Where, N = 600

*$P_1$ = 0/ 600 = 0*

Assuming 1.25 US$ per day (US $ = Rs. 65)

**Table 7: Poverty among Jhumias in Tripura**

| **Per Day Income** | ***$G_i$* = Poverty line (*z*) less actual income (*yi*)** | ***$\sum G_i$*** | ***$\sum G_i/z$*** | ***$P_1 = 1/N \sum G_i/z$*** |
|---|---|---|---|---|
| $1.25 (Rs. 2437**)** | - | 992304.2 | 407.1827 | 0.678638 |

Source: Field survey

The table 7 shows how the poverty gap is computed, divided by the poverty line, and averaged to give $P_1$, the poverty gap index. According the value of $P_1$, 68 percent jhumias were fallen under poverty line.

(b) Poverty Gap Index of Rubber Growers

The poverty gap index ($P_1$) may be written as

$$\mathrm{PGI} = \frac{1}{N}\sum_{j=1}^{q}\left(\frac{z - y_j}{z}\right)$$

Where ,

$N$ is the total population, $q$ is the total population of poor who are living at or below the poverty line, $z$ is the poverty line, and $y_j$ is the income of the poor individual $j$. In this calculation, individuals whose income is above the poverty line have a gap of zero.

Where, N = 600

$P_1 = 0/ 600 = 0$

**Table 8: Poverty among Rubber Growers in Tripura**

| **Per Day Income** | $G_i$ **= Poverty line (z) less actual income (*yi*)** | $\sum G_i$ | $\sum G_i/z$ | $P_1 = 1/N \sum G_i/z$ |
|---|---|---|---|---|
| $1.25 (Rs. 2437**)** | *0* | *0* | *0/600* | *0* |

The table 8 shows that after rehabilitation no jhumias are fallen under poverty line.

**Table 9: Poverty Ratio Comparing Survey and Government Estimates**

| **Survey Estimate** | | |
|---|---|---|
| **Poverty Gap Index** | **Value** | **Percent (%)** |
| Poverty Gap Index of Jhumias | 0.68 | 68 |
| Poverty Gap Index of Rubber Growers | 0 | 0 |
| **Government Estimate** | | |
| Poverty in Tripura (as per Planning Commission, Govt. of India) | -- | 14.05 |

The table 9 shows that in Tripura 14.05 percent people lives under poverty line as Planning Commission of India. Poverty Gap Index shows that 68 percent jhumias were lived below poverty line and after rehabilitation through jhumias, no one lives below poverty line.

***Human Poverty Index***

The Human Poverty Index was an indication of the standard of living in a country, developed by the United Nations to complement the Human Development Index and was first reported as part of the Human Development Report in 1997. It was considered to better reflect the extent of deprivation in developed countries compared to the HDI. Calculating the HPI is more straightforward than calculating the HDI. The indicators used to measure the deprevations are already normalized between 0 and 100.

While the HDI measures average achievement, the Human Poverty Index measures deprivations in the three basic dimensions of human development captured in the HDI:

(a) A long and healthy life- vulnerability to death as a relatively early age, as measured by the probability at birth of not surviving to age 40.

(b) Knowledge- exclusive from the world of reading and communications, as measured by the adult illiteracy rate.

(c) A decent standard of living- lack of access to overall economic provisioning, as measured by the unweighted average of two indicators, the percentage of the population not using an improved water source and the percentage of children under weight-for-age.

Calculating the Human Poverty Index of Jhumas

1. Measuring deprivation in a decent standard of living

An unweighted average of two indicators is used to measure in a decent standard of living.

Unweighted average= ½ (population not using an improved water source) + ½ (children under weight-for-age).

From the survey of the study we know that:

Percentage of population not using an improved water source= 66%

Percentage of children under weight-for-age= 30%

Underweighted average= ½ (66) + ½ (30) = 33+ 10= 43%

2. Calculating the HPI

The formula used to calculate the HPI is as follows:

$HPI= [1/3 (P_1^{\alpha} + P_2^{\alpha} + P_3^{\alpha})]$

Where:

$P_1$= Probability of birth of not surviving to age 40 (times 100)

$P_2$ = Adult Illiteracy rate

$P_3$ = Unweighted average of population not using an improved water source and children Under weight- for-age

$\alpha = 3$

On the basis of the field study it has been found that

$P_1$= 15%

$P_2$ = 60%

$P_3$ = 43%

$HPI = [1/3 (15^3 + 60^3 + 43^3)]^{1/3}$

$= [1/3 (3375+ 216000 + 79507]^{1/3}$

$= [1/3 (298882)]^{1/3}$

$= [99627.3]^{1/3}$

$= 46.36$

Calculating the Human Poverty Index of Rubber Growers

After the Rehabilitation of Jhumias

1. Measuring deprivation in a decent standard of living

An unweighted average of two indicators is used to measure in a decent standard of living.

Unweighted average= ½ (population not using an improved water source) + ½ (children under weight-for-age).

From the survey of the study we know that:

Percentage of population not using an improved water source= 26%

Percentage of children under weight-for-age= 5%

Underweighted average= ½ (26) + ½ (5) = 13+ 2.5= 15.5%

2. Calculating the HPI

The formula used to calculate the HPI is as follows:

$HPI = [1/3 (P_1^{\alpha} + P_2^{\alpha} + P_3^{\alpha})]$

Where:

$P_1$= Probability of birth of not surviving to age 40 (times 100)

$P_2$ = Adult Illiteracy rate

$P_3$ = Unweighted average of population not using an improved water source and children Under weight- for-age

$\alpha = 3$

A sample calculation: Field Survey

$P_1$= 8%

$P_2$ = 5%

$P_3$ = 15.5%

$HPI = [1/3 (8^3 + 5^3 + 15.5^3)]^{1/3}$

$= [1/3 (512 + 125 + 3723.9]^{1/3}$

$= [4360.9]^{1/3}$

$= 10.44$

**Table 10: Poverty Ratio Comparing Survey and Government Estimates**

| **Survey Estimate** | | |
|---|---|---|
| **Poverty Gap Index** | **Value** | **Percent (%)** |
| *Human Poverty Index* of Jhumias | 46.36 | 46.36 |
| *Human Poverty Index* of Rubber Growers | 10.44 | 10.44 |
| **Government Estimate** | | |
| Poverty in Tripura (as per Planning Commission, Govt. of India) | -- | 14.05 |

The table 10 shows that in Tripura 14.05 percent people lives under poverty line as per Planning Commission of India report. Poverty Gap Index shows that 46.36 percent jhumias were lived below poverty line and after rehabilitation through jhumias, 10.44 percent lives below poverty line.

**Conclusion**

Rehabilitation of jhumias through rubber plantation is a successful story in Tripura. Rubber Block Plantation for socio-economic settlement of the Jhumias has been considered a great success. The major quantity of rubber produced in the State is now transported to other States for consumption. Government agencies are working well for development of rubber plantation. Government agencies, i.e. Rubber board, Tripura Rehabilitation Plantation Corporation, Tripura Forest Development and Plantation Corporation are assisting jhumias for rubber plantation. They always encourge jhumias for

rubber plantation. Out of those institutions, TRPC specially established for rehabilitation of jhumias through rubber plantation

Headcount index shows that 100 percent jhumias lives below poverty line and after rehabilitation through jhumias, no one lives below poverty line. Poverty Gap Index shows that 70 percent jhumias lives below poverty line and after rehabilitation through jhumias, no one lives below poverty line. Poverty Gap Index shows that 46.36 percent jhumias lives below poverty line and after rehabilitation through jhumias, 10.44 percent lives below poverty line.

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# A Comparative Study of the Existing Higher Secondary English Curriculum under TBSE, CBSE and CISCE

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**Abstract:**

*Language is the basis in dealing any other subject especially followed in schools. In school situation also where teaching- learning process runs on, the teacher and the taught utilise any language in clarifying and conceptualising related ideas, concepts, images and illustrative viewpoints. Therefore, it is prominent to certify that students performing in any language in a better way can obtain a good amount of knowledge and practice in other subject areas also. Further, English language occupies an important place in curriculum under different board structures. Therefore, it is imperative that students should find a good practice in this subject especially in all types of school performances. Taking this point as one of the views by the present researcher, the problem stands on a significant platform in a greater way. This is nothing but judging and making suggestions for resetting the English curriculum irrespective of boards of Secondary Education so that students become knowledgeable and skilful in a better way with practices through English. The overall purpose of the researcher was to examine the Higher Secondary English curriculum under CBSE, TBSE and CISCE which are running in different schools of Tripura by constructing and standardizing a rating scale and by administering it on some randomly selected students of Higher-secondary schools. The subsidiary purpose of the researcher was to know the differences among the curriculum structures under these three Boards; or, whether there was any scope of improvement in these concerned curriculum structures.*

**Key words:** Council, Curriculum, English, Higher Secondary, Senior Secondary,

.

**Introduction:**

Curriculum refers to the means and materials with which students will interact for the purpose of achieving identified educational outcomes. Arising in medieval Europe was the trivium, an educational curriculum based upon the study of grammar, rhetoric, and logic. The later quadrivium (referring to four subjects rather than three as represented by the trivium) emphasized the study of arithmetic, geometry, music, and astronomy. These seven liberal arts should sound a lot like what you experienced during your formal education.

The emphasis on single subjects persists even today. Very likely you moved from classroom to classroom, particularly throughout your secondary education, studying a different subject with each teacher. Yet there was more to your education. Perhaps you participated in athletics, or the band, or clubs, or student government, or made the choice not to participate in any extracurricular activities. All of these (including the option not to participate) are part of what we might call the contemporary curriculum. But there is more.

Some educators would say that the curriculum consists of all the *planned experiences* that the school offers as part of its educational responsibility. Then there are those who contend that the curriculum includes not only the planned, but also the *unplanned experiences* as well. For example,

incidents of violence that have occurred at a number of schools across the nation are hardly a planned component of the curriculum. However, the manner in which violence is addressed before, during, and after the actual event sends a very definite message about how people in our culture interact and how the laws of our nation are applied.

Another perspective suggests that curriculum involves *organized* rather than planned experiences because any event must flow of its own accord, the outcome not being certain beforehand. For instance, competitions, whether academic or athletic, can be organized, but the outcomes will depend on a myriad of factors that cannot be planned.

This brings us to the notion of emphasizing outcomes versus experiences. This shift to the notion of outcomes is very much in keeping with the current movement toward accountability in the public schools, that is, the perspective that there are indeed specific things that the schools are supposed to accomplish with children. District personnel, school administrators, and you as one of many teachers are to be held accountable by the public/taxpayers for ensuring that those objectives are met.

Curriculum, it turns out, is indeed much more than the idea of specific subjects as represented by the trivium or the quadrivium. And, as we will see in the next section, it can be characterized not only by what it does include but also by what it intentionally excludes.

**Importance of Curriculum:**

**(a) In Elementary Schools:**

In elementary schools, the curriculum is primarily drawn by the educational boards or some central society. They study the needs of the kids and all other feasibilities before selecting courses and drafting a curriculum. Here, the students have least choice in their subjects and study based on a universal curriculum, which works on all sections of the students' psyche and aid in the total development of the student. No area is left untouched. Hence, the curriculum aids in the proper development, while the child comes to terms with his or her own inclination. Therefore, at primary school levels, the curriculum aims at providing a structured platform, which gives every child an equal opportunity to excel.

**(b) In High Schools:**

At high school levels, teenagers can take their own liberty in choosing their path. Though complete autonomy does not rest with a student, a level of choice is very evident. This helps in the development of the teenager, with added importance of being given the field of his own choice. At this stage, the development is more focused and rampant, enhanced through a proper curriculum. Without an effective curriculum, a student would not be able to understand or meet the challenges of the society.

**(c) At College and Higher Education:**

At a higher stage of education, an unprecedented autonomy is provided to the students. The students can opt for a more focused curriculum, based on their choice of subjects. A student will graduate, post-graduate or attain a doctorate based on the choice of his subjects and the mode of his study, both or either one determined by him. The curriculum here is reduced to just a framework that is very flexible yet very important. The curriculum chosen by the student will go on to determine the

shape of his career. A curriculum prepares an individual with the knowledge to be successful, confident and responsible citizens.

**Factors Influencing Curriculum:**

Many factors affect curriculum planning, some of these include politics, computer technology, the economy and religion and culture:

**(a) Politics:**

Changes in government or political strategies and policies affect the planning of appropriate curriculum. Curriculum in schools and colleges needs to be approved and meet the standards of the State. In addition, educational institutes require funding from the Government in order to have the right supplies and appropriate learning materials.

**(b) Computer Technology:**

Due to the huge impact that technology has over society, it is also a factor that can affect the school curriculum as a lot more lessons are being taught using computer programs. A lot of learning centres use computer technology to help children interact and learn new skills. This is one of the major, and most changing, factors that can affect curriculum in educational institutes.

**(c) The Economy:**

The state of the economy will affect the curriculum and schools as a whole because if there is a dip in the economy, cuts may be made by the government with regards to schools. The recent recession is a major reason why school facilities and parts of the curriculum could be cut as there is not enough money to keep up with all a particular school's needs.

**(d) Religion and Culture:**

It is very important to consider the range of students that will be attending the school or college when planning the curriculum. Due to the diverse cultures and religions that attend educational institutions, it is important to consider whether the curriculum could offend their views or ways of living.

**English Curriculum:**

The English course for Classes XI and XII highlights the approach to language training within an academic and professional context. The content emphasizes language competencies and effective workplace communicative skills that may be considered an associate life skill. Therefore, the comprehensive English curriculum will enable students to use significantly complex language in the contexts of higher studies or employment. English language skills are a vital key to success. These skills are valued by employers and further education and are a platform on which to build other employability skills. Better English skills can mean a better future.

**According to NCF 2005:** The language environment of disadvantaged learners needs to be enriched by developing schools into community learning centres. A variety of successful innovations exists whose generalization needs exploration and encouragement. Approaches and methods need not be exclusive but may be mutually supportive within a broad cognitive philosophy. Higher-order skills (including literary appreciation and role of language in gendering) can be developed once fundamental competencies are ensured.

Further, according to NCF 2005: A set of work-related generic competencies (basic, interpersonal and systemic) could be pursued at all stages of education. This includes critical thinking, transfer of learning, creativity, communication skills, aesthetics, work motivation, work ethics of collaborative functioning, and entrepreneurship-cum-social accountability.

Indeed, today's job market, offering employment, for example, in hotels, hospitals, construction, or manufacturing, welcomes workers with specific occupational skills, and, more importantly, the ability to understand and interact orally, to fill out job applications, and to use manuals or catalogues, successful participation in training programs, in specialized forms of English. Then, again, at the managerial level, increasingly a proficient command of English is necessary to interact efficiently and appropriately with English-speaking colleagues, clients, customers or employees; and, for students, it will be the achievement of a higher level of competency in the global language, for their higher academic pursuits in India and abroad.

**The Present Problem:**

The researcher was intended to survey the basic problems related to his study. These problems are:-

- What is the English curriculum pattern of Higher Secondary stage prescribed by TBSE, CBSE and CISCE?
- Is there any significant difference among the existing Higher Secondary English curriculum under TBSE, CBSE and CISCE?
- What are the probable drawbacks in the existing Higher Secondary English curriculum under TBSE, CBSE and CISCE?

Now, the problem taken by the researcher is stated below –

"A Comparative Study of the Existing Higher Secondary English Curriculum Under TBSE, CBSE and CISCE."

**The Importance of the Present Problem:**

The present problem, as stated by the researcher, has certainly some importance in the context of the education system functioning in the state. In this study the researcher has gone for a comparative study of the existing Higher Secondary English curriculum under TBSE, CBSE and CISCE. The significance of the study is manifold. Through this study the researcher would try to find out the contrasts and similarities of the existing English curriculum and to find out the possible ways for betterment of Higher Secondary English curriculum under TBSE, CBSE and CISCE which may help the teachers, students and even the concerned boards in strengthening the curriculum of English at the Higher Secondary level and also to identify and adopt different methods of teaching in the classroom.

**Objectives:**

Following are the objectives related to the study:

1. To compare the existing Higher Secondary English curriculum under TBSE, CBSE and CISCE, and
2. To suggest possible ways for betterment of Higher Secondary English Curriculum under TBSE, CBSE and CISCE.

**Methodology:**

**(a) Selection of Issues:**

In order to judge the reliability of the rating scale, the researcher selected a number of issues related to the area of study. And for judgement, the researcher depends on several judges or experts. In this context, by mentioning to the reliability of ratings, Freeman (1962) indicated, "Reliability of ratings is usually dependent upon having a sufficient number of qualified judges, five to seven being the number frequently recommended, but infrequently obtained." Therefore, six experts were taken into consideration by the researcher, of whom three belonged to higher-secondary schools and the other three belonged to colleges.

The experts were asked to put tick-marks on each item which they justified as the appropriate one. The items were recognized on the basis of six major dimensional structures and as such, total numbers of items under each structure were considered for making the final form of the scale. Thus, the topical areas, as well as the numbers of items on a particular area were fixed according to the consensus of experienced and aged higher-secondary and college teachers**.**

**Selection of the Type of Rating Scale:**

As a measurement technique, the rating scale was intended to measure the kind of impressions the objects or persons had made upon the raters. Though there were several types of rating scale, the researcher preferred numerical scale only because it was the easiest scale to construct and to apply to the objects, persons, events, etc. to be rated.

The researcher also knew that the graphic type of rating scale was the most widely used scale and it had many advantages too in administration. But there was somewhat greater labour of scoring in connection with some formats of graphic scales. To avoid this, the numerical rating scale was selected which was again simplest in terms of handling the results. There was another advantage of that scale which was mentioned by Singh (1998) – "When the numerals are provided along with different categories of scale points, this may represent equal intervals in the mind of the rater and their ratings may come nearer to the interval measurements which, in turn, may facilitate some common statistical analysis."

Thus, for the present study, the numerical rating scale was used. The students and the teachers as raters, were supplied with a sequence of numbers, which was well defined. They were to rate the existing curriculum on the basis of the impression already present in their mind.

The numbers, as assigned by the researcher, to certain categories of the scale, were stated below:

**Table1: Scale with Numerical Anchors**

| **Numerical Anchors** | **Meaning** |
|---|---|
| 5 | Certainly |
| 4 | Occasionally |
| 3 | Not Sure |
| 2 | No |
| 1 | Never |

**Editing the Constructed Items:**

As the items were selected by the researcher himself, a rigorous editing by some experts comprising of subject and measurement was necessary. So he took expert advice of different experienced and aged teachers in Tripura, who were practicing in higher-secondary schools, and colleges. The scale-items were shown to them, who kindly edited all items cancelling irrelevant and weak items relating those items which served the particular objective successfully. Items which were considered to be too easy or too difficult for the pupils of higher-secondary classes were also eliminated by the editors.

**Final Selection of Items:**

The researcher accepted for his rating scale those items which were passed by at least sixty percent of the experts. Surplus was eliminated. While finalising the scale, some points had been taken into consideration, such as touching various dimensions of teaching-learning situations, keeping the length of scale such that it could be administered in a regular period of some specific minutes, arranging the items in such a way that they do not generate monotony among students, etc.

**Results and Discussion:**

Item analysis and determination of reliability and validity for the rating scale of comparative study of higher secondary English curriculum under CBSE, TBSE and CISCE. The satisfactoriness of a test or rating scale, whatever be its purpose, depends upon the case with which the items of scale have been chosen. There are many approaches to study and analyse the issues . But the present researcher was concerned with those aspects of issues analysis which were primarily dependent upon statistical method. Item/issue analysis was treated under five heads-

- Item Selection
- Item Difficulty
- Item Validity
- The Test Reliability
- The Timing of the Test.

In Item Analysis, it is important that it should be carried out on a scientifically selected sample which is as representative as possible of the candidates who will be sitting for the test will be proper. In selecting the group, such factors as type of schools, geographical distribution, age and sex of candidates and level of ability should be taken into consideration. So the Rating Scale for Curriculum structure of Higher Secondary English administered for Item Analysis over a sample of 60 students studying in higher-secondary stage and 20 teachers, selected from four schools of west Tripura district. These schools were drawn from CBSE, TBSE and CISCE Boards. The sample selected was a representative one that included pupils and teachers from all the main educational boards in operation in Tripura.

The distribution of the sample was as given below in table no. 2

**Table 2: Sample Distribution (Pupil Wise)**

| **Areas** | **Number of Pupils** | | |
|---|---|---|---|
| CBSE | Schools | No. Of Students per school | Total |
| | 4 | 6 | 24 |

| | | | |
|---|---|---|---|
| TBSE | School | No. Of Students per school | Total |
| | 4 | 6 | 24 |
| CISCE | School | No. Of Students per school | Total |
| | 2 | 6 | 12 |
| | **Total – 60** | | |

Source: Primary Data

**Table 3: Sample Distribution (Teacher Wise)**

| **Areas** | **Number of Teachers** | | |
|---|---|---|---|
| CBSE | School | No. Of Students per school | Total |
| | 4 | 2 | 8 |
| TBSE | School | No. Of Students per school | Total |
| | 4 | 2 | 8 |
| CISCE | School | No. Of Students per school | Total |
| | 2 | 2 | 4 |
| | **Total – 20** | | |

Source: Primary Data.

In the Chapter 'Presentation and analysis of data' teacher wise scores had been analysed at first and then the Mean of the total score had been identified.

**Table No. 4: Mean of the Total Score (Teacher Wise)**

| ***T1*** | ***T2*** | ***T3*** | ***T4*** | ***T5*** | ***T6*** | ***T7*** | ***T8*** | ***T9*** | ***T10*** |
|---|---|---|---|---|---|---|---|---|---|
| 71 | 81 | 77 | 88 | 91 | 92 | 89 | 90 | 89 | 97 |

| ***T11*** | ***T12*** | ***T13*** | ***T14*** | ***T15*** | ***T16*** | ***T17*** | ***T18*** | ***T19*** | ***T20*** |
|---|---|---|---|---|---|---|---|---|---|
| 87 | 88 | 89 | 91 | 89 | 89 | 87 | 92 | 79 | 92 |

If we calculate the Mean of the score of the teachers then we get,

**Mean = 87.4**

**b.** Student wise Scores had been analysed then and the Mean of the total score had been identifdied.

**Table No 5: Mean of the Total Score (Student Sise)**

| ***S1*** | ***S2*** | ***S3*** | ***S4*** | ***S5*** | ***S6*** | ***S7*** | ***S8*** | ***S9*** | ***S10*** |
|---|---|---|---|---|---|---|---|---|---|
| 82 | 73 | 56 | 89 | 87 | 71 | 84 | 71 | 69 | 72 |

| ***S11*** | ***S12*** | ***S13*** | ***S14*** | ***S15*** | ***S16*** | ***S17*** | ***S18*** | ***S19*** | ***S20*** |
|---|---|---|---|---|---|---|---|---|---|
| 80 | 76 | 87 | 65 | 84 | 81 | 75 | 73 | 59 | 76 |

| ***S21*** | ***S22*** | ***S23*** | ***S24*** | ***S25*** | ***S26*** | ***S27*** | ***S28*** | ***S29*** | ***S30*** |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 74 | 71 | 68 | 63 | 83 | 89 | 78 | 88 | 83 | 64 |

| ***S31*** | ***S32*** | ***S33*** | ***S34*** | ***S35*** | ***S36*** | ***S37*** | ***S38*** | ***S39*** | ***S40*** |
|---|---|---|---|---|---|---|---|---|---|
| 62 | 64 | 62 | 64 | 55 | 81 | 80 | 84 | 58 | 68 |

| ***S41*** | ***S42*** | ***S43*** | ***S44*** | ***S45*** | ***S46*** | ***S47*** | ***S48*** | ***S49*** | ***S50*** |
|---|---|---|---|---|---|---|---|---|---|
| **49** | **77** | **69** | **74** | **74** | **64** | **71** | **82** | **76** | **66** |

| ***S51*** | ***S52*** | ***S53*** | ***S54*** | ***S55*** | ***S56*** | ***S57*** | ***S58*** | ***S59*** | ***S60*** |
|---|---|---|---|---|---|---|---|---|---|
| **87** | **80** | **85** | **83** | **52** | **88** | **83** | **86** | **61** | **51** |

**Mean = 73.45**

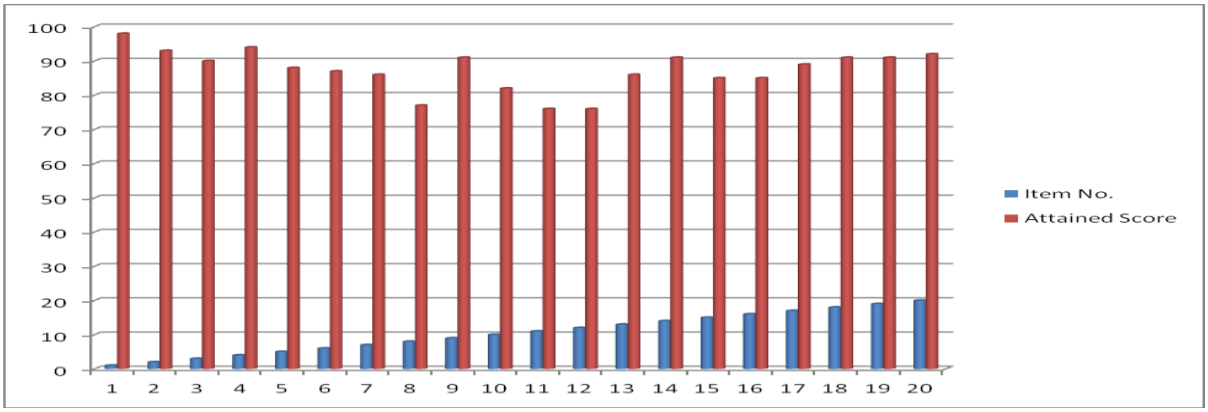
By comparing the Mean of the both the teachers' and the students' scores in Table No. 4 and Table No. 5, it is found that there is a difference. The teachers' responses were somewhat biased and traditional whereas the students had given impartial answers which indicate the difference.

**Results and Discussion:**

It has been already reported that the comparative study of the curriculum would be done on the basis of the evaluation or rating made by the students and teachers of English of higher secondary schools. The researcher had gone for different comparative studies for the accomplishment of his study. By comparing the Mean of the both the teachers' and the students' scores the researcher found that there is a difference. The teachers' responses were somewhat biased and traditional whereas the students had given impartial answers which indicate the difference.

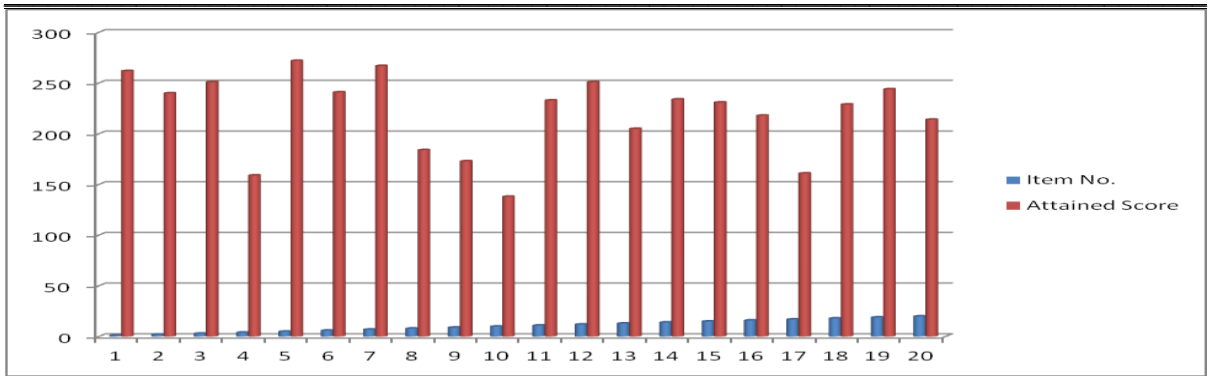
The Item wise Scores had been analysed for both the teachers and the students.

Graph 1: The findings have been represented here graphically –




Now let's have a look what were the responses of the students -

Graph 2: The findings have been represented here graphically.



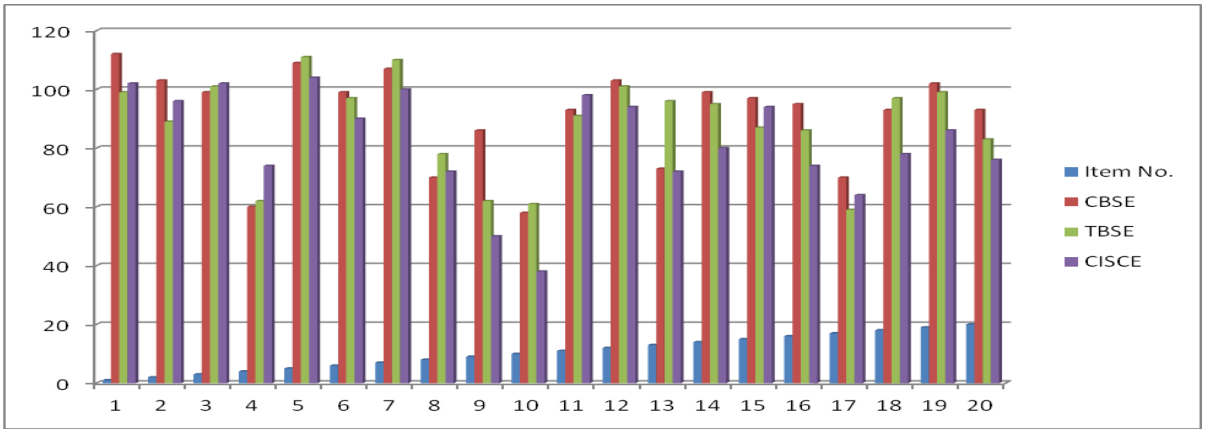

The researcher had undergone a thorough analysis of the collected data for a comparative study of the responses of the ***students*** under different boards –

By analysing it was found that the students of different boards have expressed their different opinions regarding the questions set by the researcher related to their curriculum of Higher Secondary English. According to the collected data it was found that the students had almost similar opinions regarding the following items –

- Their English teacher reciting the poem properly; (Item No. 3)
- Their English teacher's use of textbook in maximum (Item No. 7)
- Their existing English syllabus is quite up to date (Item No. 11)

In other items the students have given their responses where considerable variations were observed.

Graph 3:- Variation of Opinions




Source: Primary Data

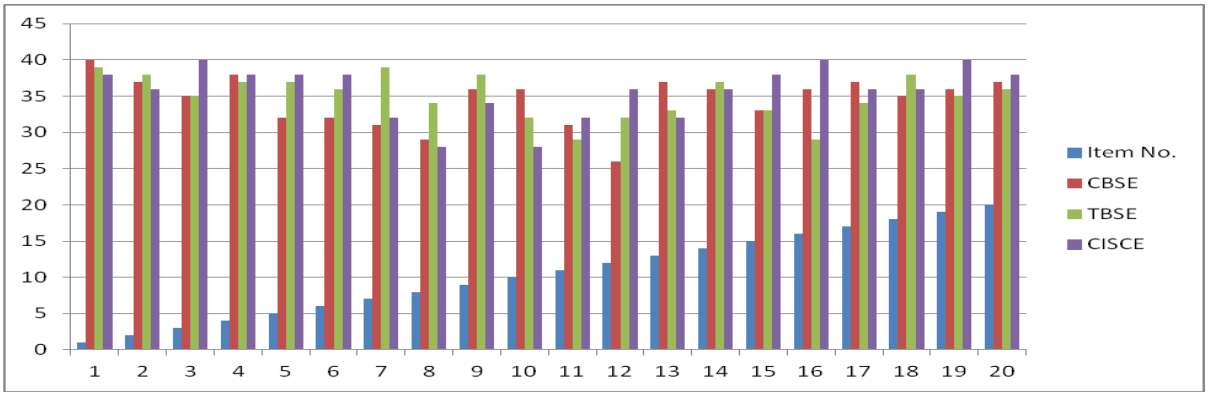
The researcher had undergone a thorough analysis of the collected data for a comparative study of the responses of the ***teachers*** under different boards –

By analysing the above table it can be found that the teachers of different boards have expressed their different opinions regarding the questions set by the researcher related to their curriculum of Higher Secondary English. According to the collected data it was found that the teachers had almost similar opinions in almost every item except the following item –

- frequently comprehending any subject matter (Item No. 16);

This shows that the teachers, in whichever board they are working, have almost same opinions except the above mentioned item.

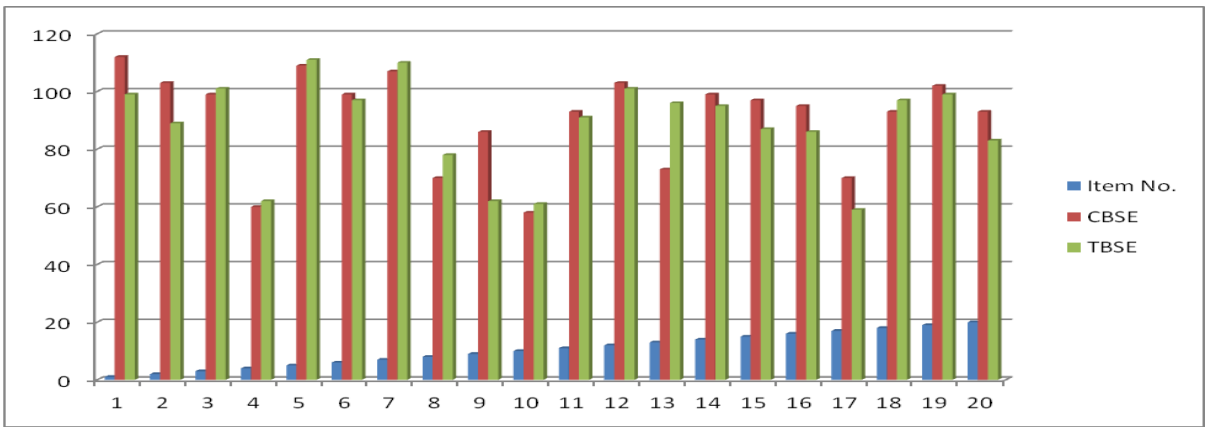
Graph 4:- Similarity of Opinions




***Source: Primary Data***

It can be clearly observed here that the teachers of all the three boards have almost same opinions. The chances of variations are very limited.

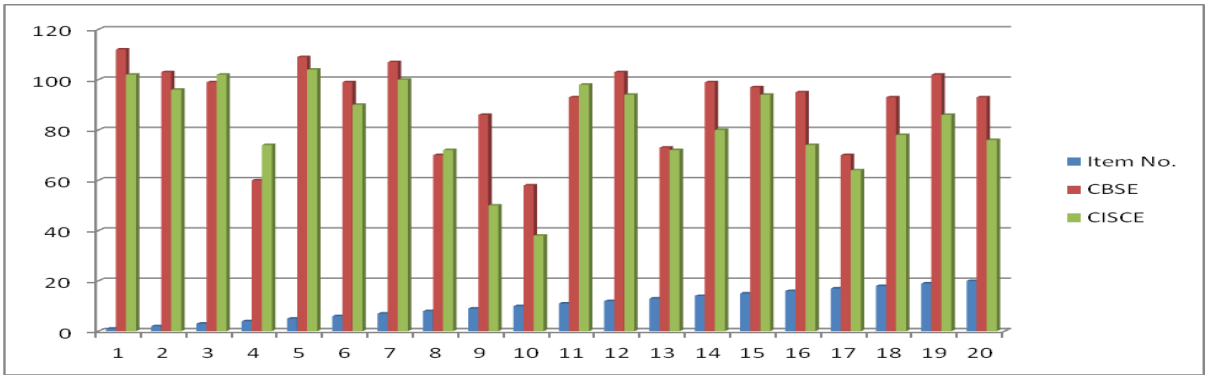
Graph 5: Some More Clear Conceptions Regarding the Variations of Opinions between the CBSE and TBSE students-




***Source: Primary Data***

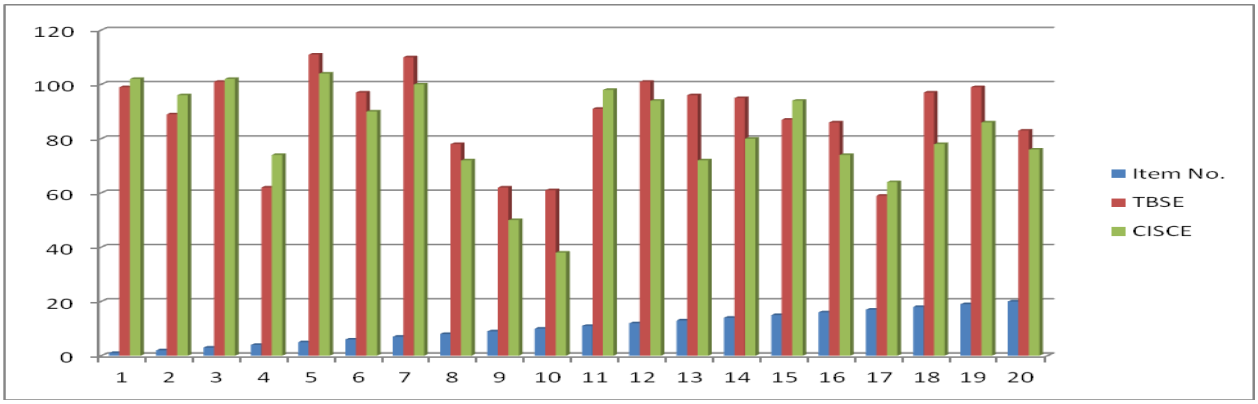
The above graph clearly reflects the students under CBSE and TBSE have given varieties of opinions regarding different questions set by the researcher.

**(ii)** The Variations of Opinions between the CBSE and CISCE students-



The above graph clearly reveals the differences of opinions between the students of CBSE and CISCE regarding various aspects of the English Curriculum in the Senior Secondary level. The

**(iii)** The Variations of Opinions between the TBSE and CISCE students-




***Source: Primary Data***

The above graph clearly reveals the differences of opinions between TBSE and CISCE students regarding various aspects of the English Curriculum in the Senior Secondary level.

Some more clear conceptions regarding the similarities of opinions of the teachers (Board wise) had been discovered while analysing the collected data from the teachers. These have been represented hereunder in the following Tables.

**Table No. 6: Comparison between CBSE and TBSE**

| Item No. | Score (CBSE) | Score (TBSE) |
|---|---|---|
| 1 | 40 | 39 |
| 2 | 37 | 38 |
| 3 | 35 | 35 |
| 4 | 38 | 37 |
| 5 | 32 | 37 |
| 6 | 32 | 36 |
| 7 | 31 | 39 |
| 8 | 29 | 34 |
| 9 | 36 | 38 |
| 10 | 36 | 32 |
| 11 | 31 | 29 |
| 12 | 26 | 32 |
| 13 | 37 | 33 |

| | | |
|---|---|---|
| 14 | 36 | 37 |
| 15 | 33 | 33 |
| 16 | 36 | 29 |
| 17 | 37 | 34 |
| 18 | 35 | 38 |
| 19 | 36 | 35 |
| 20 | 37 | 36 |

***Source: Primary Data***

As per the teachers of CBSE and TBSE, the researcher could not find any significant differences of opinions.

**Table No.7: Comparison between CBSE and CISCE**

| **Item No.** | **Score (CBSE)** | **Score (CISCE)** |
|---|---|---|
| 1 | 40 | 38 |
| 2 | 37 | 36 |
| 3 | 35 | 40 |
| 4 | 38 | 38 |
| 5 | 32 | 38 |
| 6 | 32 | 38 |
| 7 | 31 | 32 |
| 8 | 29 | 28 |
| 9 | 36 | 34 |
| 10 | 36 | 28 |
| 11 | 31 | 32 |
| 12 | 26 | 36 |
| 13 | 37 | 32 |
| 14 | 36 | 36 |
| 15 | 33 | 38 |
| 16 | 36 | 40 |
| 17 | 37 | 36 |
| 18 | 35 | 36 |
| 19 | 36 | 40 |
| 20 | 37 | 38 |

***Source: Primary Data***

In the table above it is found that the teachers found the existing English curriculum of CISCE more interesting and attractive in comparison to CBSE English.

**Table No. 8: Comparison between TBSE and CISCE**

| Item No. | Score (TBSE) | Score (CISCE) |
|---|---|---|
| 1 | 39 | 38 |
| 2 | 38 | 36 |
| 3 | 35 | 40 |
| 4 | 37 | 38 |
| 5 | 37 | 38 |
| 6 | 36 | 38 |
| 7 | 39 | 32 |
| 8 | 34 | 28 |
| 9 | 38 | 34 |
| 10 | 32 | 28 |
| 11 | 29 | 32 |
| 12 | 32 | 36 |
| 13 | 33 | 32 |
| 14 | 37 | 36 |
| 15 | 33 | 38 |
| 15 | 33 | 38 |
| 17 | 34 | 36 |
| 18 | 38 | 36 |
| 19 | 35 | 40 |
| 20 | 36 | 38 |

***Source: Primary Data***

As per the above table it is found that CISCE English teachers comprehend any subject matter more frequently than TBSE English teachers.

**Conclusions and Recommendations:**

The data on the comparative study of higher secondary English curriculum showed that there are considerable amount of differences in the teachers' opinion and the students' opinion. The teachers' responses seemed to be guided by professional approach and biasness whereas the students gave their responses in an open minded way. But some significant differences were observed among the English curriculum under CBSE, TBSE and CISCE. Although there were variations but it was very difficult on the part of the researcher to draw conclusions regarding which board was better than the other. But one thing was obviously sure that the English curriculum under all the three boards are rich enough but with certain areas to be improved. The use of teaching aids should be given priority and also the students' participation in classroom activities should be more.

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# Making Indian Engineers World-Class

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(Based on the Presentation given on the occasion of 47th Engineers' Day on 15th Sept, 2014)

**Introduction:**

For attaining excellence in engineering, it is imperative that we should provide high quality education and training to our 'Engineers in Making', so that in near future our Indian Engineering achieves the 'Zenith'. Engineering professionals are most sought after profession in the country and the society as a whole even today. Manufacturing sector contributes roughly 25 % of GDP, Agriculture 15% and Services sector 60% of GDP. But the underlying statement is that engineering is pervasive and is indispensable for all the sectors.

Automation is today's buzzword and no economy can progress unless and until it does not embrace advanced technologies, as today we are living in a competitive world where substitutes for various products at an economical prices are available. Thus to withstand the forces of competition, it is extremely essential that we strive to create an army of well qualified and trained engineers so that we can produce goods and services at competitive prices, thereby, taking our country to the top of the pyramid on a global level. Rapid developments are taking place in all the sectors of the economy, be it agriculture, telecom, power, energy, construction, automobiles, etc. and engineering is acting as a catalyst in steaming this development.

Engineers are being trained by the engineering colleges across the country. We have excellent academic institutions already made great impact in the world. B.Tech programs of IITs are excellent and sometimes better than many renowned US Universities. We have NIT's and other good Engineering Colleges run by Central and State Governments as well as by Private bodies.

At this juncture, it is important to have a brief talk about history of Engineering Education in India

A. Pre Independence:

Following are the earlier days Engg colleges.

1. Rorkee- 1847 2. Shibpur-1856 3. Guindy- 1794 4. Poona-1854 5. IISC-1908 by TATAs on advice from Swami Vivekanda ( Also MBA started by Havard University) 6. BHU (1916)

   There were 24 Engineering colleges in India in 1947.

B. Post Independence:

   Immediately after independence 5 IITs and 20 NITs were set up by the Govt.

   IIT Guahati was set up in 1995 and now we have 16 IITs and expected to have 30 NITs.

   1977-78 No of colleges - 562 Intake- 1,34,894

   2008-09 No of colleges – 2388 Intake – 8,20,000

This phenomenal growth of numbers of engineering colleges has put great load on the quality of the products that these Engineering colleges are producing. There is a substantial degradation of quality of Engineering graduates these newly established Engineering colleges are producing.

As per the report prepared by World Bank, NAASCOM & McKinsey hardly 25 % of our engineering graduates are employable. Rest 75 % is not fit for employment in multinational companies. For country to excel in manufacturing and to accommodate 60 crores employable population we have to engage all these engineers to be employable with the required skill and who in turn as leader in Engineering and technology will uplift other youngsters of the population down the line. Our mean age is about 26 years now and we have tremendous demographic advantage.

Process of Becoming Engineer:

1. Learning and teaching
2. Practical- Experiment
3. Project
4. Services to society/Industry

For making Indian Engineering world-class we have to first understand what the requirement for becoming a world class engineer is and build the institution towards achieving those output out of the process. In building such institution we require the support of following:

1. Resources - Funding
2. Governance
3. Value- Value based education & value based management of the institution
4. Government regulation-policy
5. Engineering Colleges with good infrastructure, lab etc
6. Industry support for doing internship
7. Support from the society& industry for encouraging and respecting PG & PhD in Engineering
8. R & D organization
9. Good faculty- well qualified, research & consultancy driven motivated Engineering Faculties
10. Good infrastructure-lab
11. Curriculum- flexibility in deciding the curriculum

As per the survey done by the World Bank team by approaching industry across India and then also comparing the similar study done by in US following are the 3 factors which are responsible for making engineer employable &making world class engineer: These are obtained based on questionnaire sent to various industries in East, South, North and western part of India and then factor analysis was done to reduce the parameters and subsequently the results are enumerated below for your perusal.

1. Core Employability Skill ( mainly comes from society and from childhood-Nation Building as Swami Vivekanda said more than hundred years back)

a) Integrity
b) Self-discipline
c) Reliability
d) Self-motivated
e) Entrepreneurship skills
f) Team work

g) Understands and takes direction for work assignments
h) Willingness to learn
i) Flexibility
j) Empathy
k) Understanding professional & ethical responsibilities- 2008 financial debacle happened due to unethical and greedy nature of those in the helm of affairs in Lehman brothers and other leading Banking and financial institutions.

2. Professional Skills- Technical skills as imparted in Engineering Education with a stress

a) Use modern engineering tools
b) Apply Math/Physics/Chemistry/Biology/Engineering knowledge
c) Creativity and innovation
d) Engineering Problem solving
e) Design a system to meet needs
f) Design & Conduct experiments
g) Knowledge of Contemporary issues
h) Customer service
i) Life Long learning

3. Communication Skills
    a) Communication in English effectively
    b) Written communication
    c) Reading
    d) Technical writing/ Technical report writing skill
    e) Experiment/Data Analysis
    f) Verbal Communication
    g) Basic Computer skill-Ms Word etc
    h) Advance computer- Excell-usage of statistical package available with add on, various CAD/CAM packages, Structural design package , DBMS, ERP

Skill Gaps in 3 factors -

Survey indicated that there is skill gap there in all the 3 factors. In technical Institutions and engineering colleges training are being imparted in Communication skills and improvements are found visible. But regarding Core Employability skill still there are gaps and not much formal training are given for improving Core competency Skill.

Skill Gaps:

Higher Order Thinking Skill are lagging: For becoming a nation for "Making Indian Engineering world-class" we have to work not only bridge the above basic gaps in above 3 factors but also achieve further.

Now let us understand the factors and attributes which make world class engineer. It is absolutely true that India still producing a large nos of very bright and world class engineers which is evident from the great work done by our engineers in US at NASA, Microsoft, Bell Lab, Nokia, Oracle etc. In India In Nuclear power, in software sector India is ahead and going equal and

sometimes exceeding others In Physics our Engineer and scientists worked in Switzerland at the CERN on proving Higgs Boson theory and discovering Gods particle. Professor SatyenNath Bose worked in 1926-27 with Einstein and made Bose Einstein theory which describes the one of the particle which follows Bose Einstein Statistics and other one follows Fermi Dirac equation. These are being taught in thermodynamics and are part of physics.

Professional skills mapping is done & hieratical orders of the level of cognitive skills identified are as follows by the World Bank study:

Higher-order Thinking Skills: 1. Creating /Innovating
2. Identify, formulate and solve technical /engineering problems
3. Design a system component, or process to meet desired needs
4. Use appropriate /modern tools, equipment, technologies to the specific job
5. Design & conduct experiments and analyze and interpret data

Basically Higher order Thinking skills are 1. Creating/Innovating
2. Analyzing
3. Evaluating

Lower order skills

Low –Order Thinking Skills: 1. Applying
2. Understanding
3. Remembering

In details terms it is

1. Apply knowledge of Mathematics/Science/Enggineering
2. Knowledge of Contemporary issues
3. Technical skills
4. Basic computer like word processing etc
5. Advance computer like spread sheet-excel, CAD/CAM, DBMS package etc.

It is found through the surveys that Indian Engineers lack in higher order thinking skills very much which are absolutely essential for making world class engineers. While Indian engineering education system imparts fairly good training by imparting low order thinking skill through the existing curriculum and system but we as nation we have to prepare ourselves to impart skills to our engineering students for developing skills in Higher order of thinking as analytical, evaluation and innovation/creativity.

We do import Sub marine, Aircraft and very costly & sophisticated items and export garments, iron ore etc as low tech products. It causes balance of payment problem for nation like ours where we import almost entire requirement of energy in the form of crude oil.

How do we bridge this Gap?

It is to be done by improving:

1. Curriculum
2. Teaching-learning process- less spoon feeding and more through self learning and participation learning &problem solving

3. Assessment evaluation- Problem solving and not asking theory question
4. Internship for longer period with industry with machine, design, creative technical work. Drawing lessons from Medical education where budding doctor in the form of student are constantly work with senior doctor as intern and learn the practical aspect of treatment and surgery.
5. Rigorous practical hands on skill oriented training
6. Emphasis on extra curriculum activities by involving students for doing community work to understand the demand of skills and build empathy for the need of the society, connect with the society.

Strategic &Policy Implications:

1. Improve quality of technical education: a) Pedagogy b) Education policy c) Education Management.
    i) Teaching learning process- more project work, more task and student to work as a team.
    ii) Assessment- Emphasis on applicability and problem solving rather than memorizing text books. Emphasis to be given more on analyzing , out of box thinking , creativity, innovation. Assessment more on higher order thinking and not measure memorized knowledge.
2. Improve the skill by imparting skill on core competencies skill
3. Improving communication skill
4. Setting up of Engineering Council on line with MCI, Pharmacy council, Architecture council etc.
5. Industry to come forward and recruit M.Tech and PhD in Industry. This will attract bright students to do M.Tech and PhD and who interns will able to teach and do research in engineering colleges. Presently there are dearth of M.Tech& PhD in Engineering. We require an environment where students by choice goes for doing M.Tech and PhD.
6. Industry and education institution collaboration.
7. Collaboration of engineering colleges with IITs and quality foreign University.
8. Collaboration with R & D organization
9. Engineering Colleges to do more research and publish in international and national journals, exploitable patents and innovative products.
10. Engineering Colleges Faculties to do consultancy and involve students to work on those real life projects.

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# Educational Revolution in Ethiopia: A Strategy for Human Capital Formation

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**Abstract:**

*This paper attempts to highlight the growth and challenges of higher education in Ethiopia. The results indicate that higher educational institutions are increasing vary rapidly. It is evident from the study that Ethiopia's higher education infrastructure has mushroomed in the last 15 years. In 2000 there were just two universities, but since then the country has built 29 more, with plans for another 11 to be completed within two years. The major changes include: massification of education, greater diversity in terms of program provision and student types, matching programs to labour market needs, shrinking resources, heightened accountability and indirect steering of higher education. Thus, the paper suggests that government should take initiatives for improving quality of higher education with better faculties and market needs.*

Keywords: Employment, Higher education, Human resource, & Public University.

**Introduction:**

Ethiopia is a country located in the Horn of Africa. With over 100 million inhabitants, it is the most populous landlocked country in the world, as well as the second-most populous nation of the African continent after Nigeria. It is one of the founding members of the UN, the Group of 24 (G-24), the Non-Aligned Movement, G-77 and the Organisation of African Unity. According to the IMF, Ethiopia was one of the fastest growing economies in the world, registering over 10 percent economic growth from 2004 through 2009.

Education in Ethiopia had been dominated by the Orthodox Church for many centuries until secular education was adopted in the early 1900s. Access to education in Ethiopia has improved significantly. Approximately three million people were in primary school during 1994-95 and by 2008-09, primary enrolment had risen to 15.5 million (an increase of over 500 percent). The literacy rate has increased in recent years: according to the 1994 census, the literacy rate was 23.4 percent, while it was 39 percent (male 49.1percent and female28.9percent) in 2007 estimates (Ethiopia, 2016).

Education is the centre of economic and political development. It is vital to competitiveness in an increasingly Globalizing knowledge society. In the case of Africa, education plays a critical capacity building and professional training role in support of all the Millennium Development Goals. Sub Saharan Africa, with about 740 million people, some 200 public universities, a fast increasing number of private higher education institutions and the lowest tertiary gross enrollment ratio in the world (about 5 percent), is now paying greater attention to issues of quality at the tertiary level (Materu, 2013).

It is very evident that gender issues have received high priority in education policy in Ethiopia since the new government came to power in the early 1990s. The Women's Policy primarily aims to institutionalize the political, economical, and social rights of women by creating an appropriate structure in Government offices and institutions, so that the public policies and interventions can be gender-sensitive and can ensure equitable development for all Ethiopian men and women (Melese & Fenta, 2009).

**Objectives**: The main objectives of this paper are

a) to study the current educational system in Ethiopia;
b) to anayse various initiatives of Ethiopian Government for extension of higher education; and
c) to identify various challenges before Ethiopian higher education.

**Data Collection and Methodology:** The paper basically based on secondary data, and these information's were collected from various Government report, research paper, official website etc. The data has been analysed on the basis of simple statistical analysis methods like mean, ratio calculation etc.

**Results and Discussion:**

Higher education is of paramount importance for economic and social development. Knowledge, advanced skills and training provide the capacity and expertise to the human resources required base for leadership, management, business and professional positions. The institutions serve as the major research establishments that generate, adopt and disseminate knowledge. Although its contribution in the last fifty years was laudable in many respects, but higher education in Ethiopia was not earnestly and fully participating in the development efforts of the country (Yizengaw, 2003).

Higher education is crucial for the production of vital human resources, such as teachers, healthcare professionals, lawyers, engineers, managers, businessmen, and researchers. It is an essential for knowledge and skills development and adaptation and dissemination them in the practical field. It also helps to provides relevant and quality community and public services in a society (Yizengaw, 2010).

Higher education plays an essential condition in eradication of poverty. It does this in four ways: (a) education eradicates poverty through the direct contributions to economic growth generated by its influence on a nation's productivity and international competitiveness; (b) education reduces poverty through redistribution of wealth and empowerment of women; (c) it strengthens the entire education sector through creating trained teachers, school principals and system managers; and (d) it contributes importantly towards the attainment of the Millennium Development Goals of World Bank (Document of the World Bank, 2003).

Education is an important component of Human Development Index (HDI). . Developed countries have higher rank in HDI because of better education, health and per capita income. For formulation of human capital, education plays a vital role. Human capital is important for economic development of any nation. Education of any country creates more number of technical and scientific personals. As a result, not only total production of a country increases but also productivity of per person increase substantially. More over education more health conscious and a health man can only take part in the production and development process of the country.

**Ethiopian Educational System:**

The educational sector of Ethiopia has been given powerful impetus after the overthrow of the military government in 1991. Since then education has been a development priority on the national agenda. The Government adopted the Education Sector's Development Programmes in 1997 together with the Education and Training Policy. The Education and Training Policy has focused on expanding access to educational opportunities. The educational reforms are intended to achieve universal primary enrolment by 2015, with local language used as the language of instruction in the primary grades (Lasonen et al., 2005). There is a significant body of literature that suggests that different students have different styles and language of learning in which they learn more effectively (King, 2011).

The educational system in Ethiopia is organized through formal schooling system. The first and second cycle primary education is demarcated by internal (classroom) examination at the end of each cycle and by a National Examination (external examination) at the end of the second cycle. The secondary education begins from 9th grade and ends by 12th grade. At the end of 12th grade students

sit for the Ethiopian School Leaving Certificate Examination which is administered once a year in March-April with results due in August or September.

Government schools are elementary Grades 1 to 8, secondary 9 to10 and by selection to pre-university 11 and 12. Classes in cities are in shifts., i.e. morning, afternoon and evening. Class size officially is 50 but often is many more. The Grade 10 exam (School Leaving Certificate) cannot be retaken at school. After Grade 10, students are streamed into pre-university i.e. in Grades 11 & 12 or they go for Technical & Vocational Education Training Colleges. In entry level, grades are continuously being revised upwards as more students pass through the system and Government College's and University is unable to accommodate all would-be entrants. Undergraduates are not always given either their choice of course or location of University (Ethiopian educational system, 2016).

Higher education institutions are monitored by a Higher Education Institutions Board that approves their plans and budgets. They are then free to recruit their own staff whose performance is assessed in terms of input by teachers and peer-group staffs. The oldest university is the University of Addis Ababa established in 1940. In past centuries the Ethiopian Orthodox Church dominated the education system.

The Government finances virtually all public tertiary systems that include the provision of free non-academic services to regular students. Full-time students pay no significant tuition fees, although part-time and private students do pay relatively higher fees. Part-time students are charged tuition of Birr 30 to 50 per credit hour, or Birr 90-150 for the normal three credit course load taken each semester. Some institutions charge evening students additional amounts (Munyua et. al., 2010).

Universities operate on a semester system. Two semesters of 16 weeks each comprise the academic year, which runs from September to July. An academic credit system is used, and students normally take 15 to 18 credits each semester. A total of 101 credits are required for graduation and degree award is normally after three years. Private higher education is a rapidly expanding part of Ethiopia's higher education system, increasing by 40 percent between 1999-2000 and 2001-2002. Private higher institutions are a relatively new phenomenon. All of the private colleges offer diploma programs, a half dozen of them have mounted degree programs, and one has initiated a Master's degree program. During a phase of rapid national enrolment growth, private players constitute a critical component of the government's higher education expansion strategy (Document of the World Bank, 2003).

The Ethiopian Education and Training Policy states in article 3.31 that: "Continuous assessment in academic and practical subjects, including aptitude tests will be conducted to ascertain the formation of all round profile of students at all levels". In the implementation of this policy, the Federal Democratic Republic of Ethiopia further promulgated Higher Education Proclamation in 2009. Among other things, the policy covers important issues related to students' assessment in Article 22 where institutional quality enhancement through student evaluation and assessment and other means of quality enhancement strategies were stressed. Furthermore, Article 41 provides mode of students' assessment in HEIs. Assessment of students' learning outcomes is one of the focuses of Ethiopian universities senate legislations. In order to harmonize the Ethiopian HEIs academic policies including student assessment, currently, the Ministry of Education has issued the "Harmonized Academic Policy of Ethiopian Public Higher Education Institutions" (Chalchisa, 2014).

**Changing Scenario of Higher Education:**

The rapid changes in the higher education context driven by political, economic and socio-cultural forces in the latter part of the 20th century have generated concern for quality and created challenges to the implicit and self-evident traditional views about assuring quality in universities. The major changes include: massification of education, greater diversity in terms of program provision and student types, matching programs to labour market needs, shrinking resources, heightened accountability and indirect steering of higher education (Kahsay, 2012).

Higher education is going through a decisive phase of reform and expansion. As a system it is increasingly required to respond and gear adequately to the development needs of the society and the country. The Harare declaration of 1982, adopted by Ministers of Education and those responsible for

Economic Planning, stressed the need for the African Member States to ensure that changes in the organization of higher education and its curricula and research activities would enable it to make a more substantial contribution to development and to improvements in the education system.

Higher education institutions along with other institutions in the society are intimately involved in the transformation of the society and have to make hard political and economic choices. For the last 15 years, public investment towards the expansion of higher education, re-search and extension in agriculture has been so enormous. In reality, these higher education and research institutions were not sufficiently responsive to rural transformation. To evaluate the role of higher education and re-search institutions in stimulating rural transformation and to identify main training constraints accountable for their poor performances in institutional learning and rural transformation is of paramount importance

Ethiopian higher education is relatively young. Higher education started a little over 50 years ago. Currently there are six universities and five colleges/institutes, under the Ministry of Education. Graduate level training started in Addis Ababa University in 1979, followed by Alemaya University in 1984. As the system extended, enrollments also grew. In the period between 1996 and 2003 the annual intake of students in the undergraduate programs grew from about 9,000 to over 18,000 just in the Ministry of Education sponsored institutions. The participation rate and the total student population in higher education are extremely low. The Ministry of Education is the federal institution mandated for oversight and regulatory provisions in the education sector. The quality, relevance and meeting of standards by all higher education institutions (both public and private) are regulated by the Ministry (Yizengaw, 2003).

From 1994 onwards a succession of new policies was designed and implemented leading to major quantitative and qualitative changes in Ethiopian higher education. In 1994, the Education and Training Policy was the first framework for systems reform and transformation. The importance of higher education for country development was stressed in this policy. In 2003 the first Higher Education Proclamation was established, followed by a new version in 2009. The Ethiopian higher education degree structure uses the following degrees: (a) Bachelor degree (BA/BSc); educational programs for bachelor degrees last either three, four or five years, (b) Medical Doctor (MD) or Doctor of Veterinary Medicine (DVM) degree five or six years; (c) Master's degree (MA/MSc); educational programs of two years and (d) Doctorate (PhD) degree of minimum three years.

**Table 1: Full Time Academic Staff in the 2000-2001 Academic Year**

| Faculty | Ethiopians | Expatriates | Total |
|---|---|---|---|
| Professors | 21 | 17 | 38 |
| Associate Professors | 118 | 13 | 131 |
| Assistant Professors | 201 | 11 | 212 |
| Lecturers | 310 | 3 | 313 |
| Assistant Lecturers | 78 | - | 78 |
| Graduate Assistants | 35 | | 35 |
| Total | 763 | 44 | 807 |

Source: Mariam N. (2002). Education and Education Policy in Ethiopia, p.3

Table 1, shows that teaching staff are divided in two segments: local teachers and expatriates. As there are shortages of skilled teachers, so Ministry of Higher Education, Ethiopia ,appoints large number of Indian teachers in various universities.

Due to introduction of university education, students participating in regular programs were provided with free room and board and were given pocket money. All enrolled students are eligible to enter into an agreement with the Government that stipulates their responsibility for repayment of these costs and the terms that are in effect. The Ethiopian government has been working to diversify higher

education revenues and increase the overall budget (Higher Education Finance and Cost-Sharing in Ethiopia, 2010).

Table 2,shows the location of different universities of Ethiopia and it is clear from this information that universities are established in Ethiopia in a planned way , so that all provinces and cities are covered.

Table 2: List of Public Universities in Ethiopia

| Sl.No. | University | Location | Website | Abbrev |
|---|---|---|---|---|
| 1 | Adama University | Nazret | http://www.adama-university.net/ | ADU |
| 2 | Addis Ababa University | Addis Ababa | http://aau.edu.et | AAU |
| 3 | Addis Ababa Science and Technology University | Addis Ababa | - | AASTU |
| 4 | Adigrat University | Adigrat | - | AGU |
| 5 | Aksum University | Axum | http://aksumuniversity.org/ | AXU |
| 6 | Ambo University College | Ambo | http://www.ambou.edu.et/ | AUC |
| 7 | Arba Minch University | Arba Minch | http://amu.edu.et | AMU |
| 8 | Asosa University | Asosa | - | ASU |
| 9 | Bahir Dar University | Bahir Dar | http://www.bdu.edu.et/ | BDU |
| 10 | Bule Hora University | Bule Hora | - | BHU |
| 11 | Debre Birhan University | Debre Birhan | http://www.dbu.edu.et/ | DBU |
| 12 | Debre Markos University | Debre Markos | http://www.dmu.edu.et/ | DMU |
| 13 | Debre Tabor University | Debre Tabor | - | DTU |
| 14 | Dilla University | Dilla | http://www.dillauniversity.edu.et/ | DU |
| 15 | Dire Dawa University | Dire Dawa | http://www.ddu.edu.et/ | DDU |
| 16 | Gonder University | Gonder | http://www.uog.edu.et/ | UOG |
| 17 | Haramaya University | Haramaya | http://www.haramaya.edu.et/ | HRU |
| 18 | Hawassa (Debub) University | Hawassa | http://www.hu.edu.et/ | HU |
| 19 | Jijiga University | Jijiga | http://www.jju.edu.et/ | JJU |
| 20 | Jimma University | Jimma | http://www.ju.edu.et/ | JU |
| 21 | Mada Walabu University | Robe / Bale | http://www.mwu.edu.et | MWU |
| 22 | Mekelle University | Mekelle | http://www.mu.edu.et/ | MU |
| 23 | Metu University | Metu | - | MEU |
| 24 | Mizan Tepi University | Mizzan | | MTU |
| 25 | Semera University | Semera | http://www.su.edu.et/ | SU |
| 26 | Wachamo University | Wachamo | | WCU |
| 27 | Welkite University | Welkite | | WKU |
| 28 | Wolaita Sodo University | Sodo | http://www.wsu.edu.et/ | WSU |
| 29 | Woldiya University | Woldiya | | WDU |
| 30 | Wollega University | Nekemt | http://www.wuni.edu.et/ | WOU |
| 31 | Wollo University | Dessie / Kombolcho | http://www.wu.edu.et/ | WU |

Source: Official Website of Ministry of Higher Education, Republic of Ethiopia

There are more than 30,000 graduate students and 116,000 undergraduates at the institutions of higher learning in the country. Development cannot be ensured without education. As the regional

Government has set education top on its agenda, more than eight million students are currently attending schools at various levels. The expansion of higher education in the regional state is crucial in producing trained manpower in all sectors and meeting the development and growth goals of the country.

**Table 3: Comparative Staff and Student Ratios for the Year-2001–02**

| Institution | Staff/Student Ratio |
|---|---|
| Jimma University | 9 |
| Debub University | 11 |
| Alemaya University | 12 |
| Mekele University | 14 |
| Addis Ababa University | 13 |
| University of Nairobi | 15 |
| Bahir Dar University | 16 |
| University of Ghana | 19 |
| University of Ibadan | 19 |
| Makerere University | 20 |
| University of Khartoum | 21 |
| Cairo University | 28 |

*Source:* Ministry of Education (2002a); World Bank (2004a).

Table 3 shows the situation of staff/student ratio in various leading universities in Africa. From the table it found that ratio of Ethiopian universities are better than other African universities.

Ethiopia's higher education infrastructure has mushroomed in the last 15 years. But the institutions suffer from curricula being abandoned due to funding cuts, unqualified . The rapid growth of higher education system has come at a cost, but it is also steadily moving forward all the same. Twenty years ago the Ethiopian Government launched a huge and ambitious development strategy that called for "the cultivation of citizens with an all-round education capable of playing a conscious and active role in the economic, social, and political life of the country". In 2000 there were just two universities, but since then the country has built 29 more, with plans for another 11 to be completed within two years.

The quality of these new universities varies widely; from thriving research schools, to substandard institutions built to bolster the regime's power in hostile regions. The University of Jimma, for example, has come first in the Ethiopian Ministry of Education's rankings for the past five years, and is held up as evidence of Agricultural Development Led Industrialization's (ADLI's) efficacy since its establishment in 1999. The most recent development at Jimma, the department of materials science and engineering, opened for students in 2013, and has quickly expanded to become one of the top research schools in the sub-Saharan region.

This success is much-needed. At eight percent, African higher education enrolment is significantly lower than the global average of 32 percent, and Ethiopia trails even further behind, with fewer than six percent of college-age adults at university. Research in science, technology, engineering, and mathematics is starting from a particularly low base in Africa. The World Bank reported last year that though the Sub-Saharan region has "increased both the quantity and quality of its research" in recent years, much of this improvement is due to international collaboration, and a lack of native Africans is "reducing the economic impact and relevance of research" (The Guardian, June 22, 2015).

**Ministry of Higher Education:**

Accordling to the official website of Ministry of Higher Education, Ethiopia, H.E. Shiferaw Shigutie Wolassa is Minister of Education for the Federal Democratic Republic of Ethiopia as of July 2013. Prior to his current position he served the country in senior management roles since 1993.

The higher education Ministry Management consists of the following Directorates, Offices, Services and Agencies:

a) Communication affairs Directorate; Planning,
b) Resource Mobilization and Education Management Information Systems Directorate; and
c) Procurement & Material Management Directorate;

Financial Administration Directorate;

a) Internal Audit Service; Legal Service; Ethics Liaison & Complaint Handling Office; Gender Directorate;
b) Ethiopia UNSCO Agency;
c) Minster's Office;
d) HRDA Directorate; and
e) Foreign Relations & Scholarship Office

**Government Initiatives:**

In the early 1990s, the government identified the need for strengthened, re-oriented and revitalized human resource development as a key to the success of socio-economic policies and strategies. The need was felt during the transitional period (1991-1994) when a serious shortage of trained, able and adaptable workforce and leaders at different levels within the new government structure was encountered. In 1995 the government took the initiative to organize a national conference on issues of higher education at Nazreth. Heads of institutions, regional institutions' board members, renowned persons and education experts and other stakeholders participated in the conference. This conference was the first and comprehensive undertaking in building stakeholder consensus and bringing to the fore issues, problems and challenges of the higher education as a basis for policy and strategy formulation for the sector in Ethiopia.

As a follow-up and consolidation of the Nazareth meeting, a larger and more focused conference was held at Debre Zeit in 1996. As a result, a document outlining the Future Directions of Higher Education in Ethiopia was prepared. In 2000, the government initiated another detailed study on Higher Education Capacity Building, as one component of the overall National Capacity Building Programs study. The Higher Education Proclamation was a major step forward in showing policy and strategy directions of the sector in Ethiopia. It has also established two important agencies, namely Higher education Relevance and Quality Assurance Agency and Ethiopian Higher Education Strategy Center (Yizengaw, 2010).

The Government of Federal Democratic Republic of Ethiopia has taken on a variety of measures since 1991. The Ministry of Education introduced a program approach in its educational planning since 1997. The Education Sector Development Program has been implemented with the support of donors, including USAID, since 1997. The Ministry of Education has launched the General Education Quality Improvement Program a multi donor trust fund. The Ethiopian Government is allocating four percent of its GDP for education (Ethiopian Ministry of Education, 2011).

**Challenges Before Government:**

The future directions of Higher Education in Ethiopia ,document identified the major challenges and problems of the higher education sector in Ethiopia as: (a) Lack of clarity in vision and mission, (b) Problems of quality and relevance of programs of studies and research, (c) Lack of clear program and institutional evaluation mechanisms, (d) Financial and resource constraints, (e) Lack of alternative ventures in resource mobilization in addition to the public purse, (f) Inefficiency in resource utilization, and (g) Poor quality and commitment of the leadership of the sector at all level (Yizengaw, 2010).

The educational status of women in Ethiopia is among the lowest in the world. There are fewer females than males at every level of the educational system. Their proportion decreases progressively at each level in the pyramidal educational system. Women's exclusion from participation in education limits their ability to improve their socioeconomic status. Women's exclusion from participation in education limits their ability to improve their socioeconomic status. Ethiopian cultural, economic, political, and social institutions serve as obstacles to women's higher

education in Ethiopia. Ethiopian educational policy and practice tend to reproduce traditional gender structures and social relations (Habtu, 2012).

The main challenges of Ethiopian higher education are: (a) Access to higher education remains relatively limited and admission targets have not been met; (b) Post-Graduate admissions are too low leading to serious constraints on the system in terms of local staff availability because of the rapid system expansion; (c) Share of female academics remains low; (d) Open and distance education remain hardly developed; (e) Under-Graduate enrollments evolve more rapidly than qualified teachers putting serious constraints on working conditions and the quality of education; (f) Shortages of qualified staff particularly pronounced in science and technology areas where enrolments are expected to increase sharply; (g) Academic staff is very young and only a small number has Ph.D; (h) Constraints in tapping resources through the internet and sharing experiences; (i) Private institutions relevance and quality is not in line with governments expectancy; (j) Lack of strong technology transfer system which is based on the need of the industry; (k) Higher education management and leadership system is not at the required level; and (l) Number of female teachers is limited (Deuren et. al., 2013).

In 2012, the World Bank sponsored study – Education in Ethiopia: Achievements and Challenges, has rightly indicated the key challenges the country has been experiencing, as it tries to move forward. These are: (i) A low primary education completion rate is constraining enrollment at the secondary level; (ii) Due to inequitable access for rural populations and girls are at a particular disadvantage; and (iii) The learning achievement of students is disappointingly low: The major obstacle on the country's future path, among others, is producing qualified high school and university graduates. The regime appears content with lower level enrollment figures in lower grades. Donors and the World Bank push a lot of financing something remains properly unexplained (Gebremedhin, 2012).

**Conclusions:**

The educational sector has been given powerful impetus after the overthrow of the military government in 1991. Ethiopian higher education is relatively young. The Education and Training Policy has focused on expanding access to educational opportunities. Higher education institutions are monitored by a higher education institutions board that approves their plans and budgets. Universities operate on a semester system. From 1994 onwards a succession of new policies was designed and implemented leading to major quantitative and qualitative changes in Ethiopian higher education. Teaching staff are divided in two segments: local teachers and expatriates.

The Education Sector Development Program has been implemented with the support of donors, including USAID, since 1997. The Ministry of Education has launched the General Education Quality Improvement Program a multi donor trust fund. The main challenges of Ethiopian higher education are: limited access to higher education remains; less post-graduate admissions; less developed open and distance education; shortages of qualified staff particularly pronounced in science and technology areas; academic staff is very young and only a small number has PhD; lack of strong technology transfer system; less number of female teachers.

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# The Role of Science and Technology Education at Network Age Population for Sustainable Development of Tripura

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**Abstract:**

*Tripura can make faster progress in education by using Science and Technology ( S&T). The states in India that achieved sustainable development have given a high priority to Science and Technology education in formulating education policy. Tripura has no more alternatives in order to gain development, except properly utilizing its population. This paper has defined a 'network age population' for Tripura and suggests that this population is required to provide science and technology based education with some revision of education policy in order to ensure the sustainable development. This paper also aims at discussing some of the scientific challenges facing in the region of Tripura such as lack of strong science leadership and capacity, lack of science support, brain drain, science illiteracy, lack of access to research publications, education science crisis and finally the digital divide.*

**Key Words:** Digital divide, Leadership, Network age population, Research publications, and Sustainable development

**Introduction:**

India's development planning are proceeded by channelling substantial resources to Science & Technology(S&T) education, training and research. The country today has a vast S&T infrastructure comprising Universities, Colleges, National Laboratories and Institutes, numbering more than 200 universities and over 12,000 colleges. With its flagship nuclear and space programmers, high profile information technology services and pharmaceuticals, Indian S&T has come a long way from its modest beginnings. The issue of regional disparity has been a major concern for India's policy makers. To act as an engine of development, S&T must take the lead to steady improvements in human conditions by expanding the range of people's choices, a notion that the concept of Human Development tries to capture. The technological transformations that followed liberalization and the emergence of the global marketplace have raised the stakes for all states to be able to create, adapt and use S&T innovations. But what is the role of S&T in the socio-economic context of regional development? Are states capable enough to reap such advantages? How does one measure such capabilities?

The more seriously we examine the 'route map', the more closely the discussion on sustainable development comes to resemble a debate on the right concept for structuring national and even global society. The notion of sustainable development in Tripura relies on a transparent process of debate and learning involving the whole of society, in a way, largely unknown until now. As a result, sustainable development is one of the most demanding, but also one of the most complex, concepts which political thinking can give rise to.

Sustainable development as a new standard poses the challenge of thinking in the medium to long term, instead of the short term. It challenges societies to work in an interactive and cooperative way, instead of in categories defined by self-interest. It challenges them to reconcile conflicting rationalities in work practices in science and politics and to link efficiency, fairness and provision. Sustainable development, as a concept, allows us to appreciate better how we can optimize the process of shaping the future and that politics, aided by science and technology (S&T), can take a more active role in that process. S&T analysis and research can make the possible consequences of decisions or lack of action clear. The "learn and search" process for the most suitable pathways to sustainability can be organized more efficiently by means of such signposting. This places S&T firmly on the sustainable development agenda for Tripura.

**The Role of Science and Technology (S&T) in Development:**

India is one of the top-ranking countries in the field of basic research. Indian Science has come to be regarded as one of the most powerful instruments of growth and development, especially in the emerging scenario and competitive economy. In the wake of the recent developments and the new demands that are being placed on the system, it is necessary for Tripura to embark on some major science projects which have relevance to national needs and which will also be relevant for tomorrow's technology. The Department of Science & Technology plays a pivotal role in promotion of science & technology in Tripura. The department has wide ranging activities ranging from promoting high end basic research and development of cutting edge technologies on one hand to service the technological requirements of the common man through development of appropriate skills and technologies on the other.

While it is both the private and public sectors that constitutes the engine of innovation, the national policies also create environments that can encourage or constrain the ability of firms to innovate. The more innovative firms are, the more they are profitable and the more value-added they create in a nation. It is, therefore, vital for countries to put in place policies to create an effective and efficient national innovation system (NIS). Four conditions need to be met for building an effective national innovation system. These are a) strong and competitive pressures on domestic firms; b) the presence of high quality human capital; c) well-developed links between industry, institutions and academia; and d) openness and access to foreign technologies. These determinants of an NIS indicate that innovation involves far more than science and technology. It cannot be denied, however, that a forward-looking S&T policy can be developed to foster an appropriate mix of these determinants. Indeed, the first step towards, and the necessary pre-requisite to any good NIS is an effective S&T policy. In recognition of this, all advanced and industrializing countries consciously foster an S&T policy.

The Composite Index of S&T comprises three sub-indices: Scientific Manpower, Health and Infrastructure. The S&T Infrastructure Index comprises nine indicators that measures the strength of a state's S&T infrastructure. This, in turn, reflects the state's technological progress. Recent breakthroughs, particularly in biotechnology, have led to transformations that are intertwined with economic globalization leading to a historic shift from the industrial to network age. A new map of technology creation and diffusion is emerging. Better infrastructure facilities help in economic growth and the development process. To capture this dimension, we have included nine indicators: Industrial R&D units per lakh population, total research institutes per million population, research institutions in agriculture per million population, engineering research institutes per million population, medical

science research institutions per million population, defense research institutions per million population, per capita infrastructure availability, distance to computer training centers and internet kiosks.

The Welfare Index evaluates the society's overall well-being and/ or standard of living. It comprises two sub-indices, namely, Asset and Wellbeing.

- **Components of Asset:** Asset comprises six indicators – TV set, computer, telephone, mobile phone, internet and cable. The proportion of each state's population that owns these durables are evaluated and the indicators reveal the overall affluence of the society
- **Components of well-being:** As the name suggests, this Index evaluates the overall wellbeing of society, which in turn reflects the wellbeing of the state as a whole. To measure the Wellbeing, we have included nine indicators: People below poverty line, literacy rate, per capita consumption expenditure (in Rs.), per capita expenditure on education, per capita expenditure on health per capita expenditure on telephone , per capita expenditure on mobile , per capita expenditure on internet and per capita expenditure on cable. By this analysis, the higher the value of the Index, the better the level of wellbeing of the region.

**Current Situation of Science and Technology in Tripura:**

Over the last three decades, numerous studies, reports and memoranda have made dire predictions about what is likely to happen if governments, businesses and consumers do not change their patterns of behavior in Tripura. These studies and reports have made it clear that a 'business as usual' approach will lead to significant environmental problems, economic crises and social tensions. This outlook has made sustainability a popular term in political debate. In essence, it means "sustaining the ability of a system to function in the long term.

Underlying this term is the need for societies to check whether patterns of behavior and political, technological and economic decisions do not damage the prospects for future generations to enjoy a full economic and social life, without serious impairment to environmental endowments and life support systems. Science and technology are increasingly recognized to be central to both the origins of sustainability challenges, and to the prospects for successfully dealing with them. Decision makers, at all levels, need timely, reliable access to the knowledge generated by science and engineering to introduce rational policies that reflect a better understanding of complex technical, economic, social, cultural and ethical issues concerning the society, the earth, and its environment".

Tripura State Council for Science and Technology (TSCST) has been registered in the year 2001 under Societies Registration Act-1986. Chief Minister is the Chairman and Minister for Science, Technology & Environment is the Vice-Chairman and other 39 members are nominated by the Government and drawn from both the Central & State Government's Departments or its Agencies, Autonomous Bodies, Undertakings, Academic Institutions, NGO's and Social Organizations. Minister for Science, Technology & Environment is Chairman and Commissioner and Secretary (Science, Technology & Environment) is Member Secretary of the Executive Committee. This organization was set up for implementation of science popularization and promotion activities, Remote Sensing Applications, implementation of Science & Societal Programmes, Patent information etc.

The Department of Science &Technology and Government of Tripura have taken the initiatives like :Remote Sensing & GIS application, Societal Application of Technologies, Preparation of Block Level Atlas of Problems for S&T intervention, Promotion of low cost Sanitary

Napkins, Introduction of equipment/machineries for the benefit of Artisanal potters, Promotion of medicinal plants cultivation through self helps groups, Solid Waste management through Vermi composting, Rural Technology Park, Activities of the year of scientific awareness, Science Exhibition and Patent related services & awareness.

**Present Status and Problem in Science Education:**

The state of science teaching in schools and colleges in Tripura is far from satisfactory. Science once the most sought-after subject at secondary, college, and university levels in the country is losing its appeal in an alarming shift of choice. Qualified teachers and properly equipped laboratories are few and far between and could hardly be found in most of the schools. The teaching methodology and teachers cannot inspire the serious and meritorious students to take up science for their higher studies. As a result, enrolment in secondary and post secondary science has steadily fallen over the last 10 years. This is alarming and if we cannot stop this trend, we will very soon be facing a situation where science and scientific enterprises in our State will be seriously jeopardized, leaving us as a nation of traders.

Nowadays, science education is loosing its importance, quality, and priority which is alarming, especially when development can only be achieved through assimilation and application of technology. In the past a science teacher in Tripura regularly implied a person with strong background in science and mathematics. Unfortunately, today students in Tripura can earn a B.Sc degree without mathematics. Moreover, science students are opting for non science subjects for their higher education because of demand in the job market. We have been unable to impress young with students the importance, beauty and joy of science. Our industries, including information and communication technology, do not perform anywhere near expectations. This must have resulted in the setback of science enrolment. In the name of globalization, multi-national companies are penetrating into the country with their products, for which we are acting as agents or salespersons only. This has perhaps increased students' interest in business studies. Even students with strong skills in physics, chemistry, and mathematics are opting for Business Studies, Economics and Commerce.

**Industries Linked to Science and Technology:**

Although most industries use science and technology to some degree, ten industries have been identified by the Organization for Economic Co-operation and Development (**OECD**) as having a strong linkage to science and technology. Organization for Economic Co-operation and Development (**OECD**) organizes these industries into two categories: knowledge-intensive service industries, which incorporate science, engineering, and technology in services or the delivery of services, and high-technology manufacturing industries, which spend a relatively high proportion of their revenues on R&D.

According to the Organization for Economic Co-operation and Development (**OECD**), knowledge-intensive service industries include communications services, financial services, business services (including computer software development), education services, and health services. High-technology manufacturing industries include aerospace, pharmaceuticals, computers and office machinery, communications equipment, and scientific (medical, precision, and optical) instruments.

**Reason for Decline in Science Enrolment:**

Some of the problems identified as common in both secondary and higher science education include lack of laboratory space, lack of funding, and inexperienced and qualified teachers also poor salaries and lack of motivation. There are fewer science-based jobs in the state of Tripura. Science education is regarded as difficult and only attracts top students in schools and colleges. Science education is made more difficult by poor and unattractive teaching and too much unnecessary workload with poor or no laboratory facilities, no computing, or Internet facilities. Even students with strong skills in physics, chemistry, and mathematics are opting for business studies, economics and commerce. In a typical private university, more than 50% of the students are enrolled in BBA studies because it is easier to get good grades and good jobs. We need to write good and quality science books. Higher salary and other benefits of teachers should be given due consideration.

Commitment of the government to create a science and technology-driven economy to face challenges of the 21st century is important. We can organize competitive events to popularize science among children. One important way for students to find joy in science is through common place scientific experiments. However, experiments are not emphasized in schools and colleges, partially due to insufficient funds for purchase of scientific instruments and constructing laboratories. It is true that equipping every school laboratory with imported scientific instruments and consumables is a significant investment; scientific instruments from indigenous materials may be used as an alternative.

**Discussion:**

Improving the quality of life for poor populations in developing countries relies on availability of resources to meet basic human needs and the economic, political institutional and technical capacity to produce and provide equitable access to these resources such as current environmental trends are toward degradation of resource systems .The "business as usual with a treatment plant at the end" approach has mediated, but not reversed, the problems generated by a highly consumptive Industrial engine, Technology can be a positive force for sustainable development by providing new "tools" or expanding the use of existing tools but should be understood as involving a social process with costs and benefits, Demographic momentum means that global population will continue to grow.

Many question about the long-term capability of the Earth to support current or Increased population or the ability of technology to Intervene and expand the Earths carrying capacity sufficiently to meet the demand over the long term, Poverty and environmental humiliation are intertwined, most notably in developing countries Rapid population growth existing inequalities in land tenure, conversion of farm land to non-agricultural purposes, unsustainable production practices used by commercial and subsistence farmers, and inequitable food distribution policies all contribute to this demonstration of poverty, In practice, aid allocation is often determined by practical considerations such as foreign policy objectives and commercial needs, which may not necessarily be consistent with the principles of sustainable development, Development is not necessarily synonymous with growth in industrial countries.

Sustainable development may mean a shift from quantative and material growth to qualitative and nonmaterial growth, in most developing countries it will mean a coordinated measure of both types of growth, Justice, whether defined in terms of development benefits, income, consumption levels, or overall economic Indicators, IS a consistent (although not always apparent) underpinning of sustainable development, The concept of a "sustainable society" challenges many

aspects of existing social reality, power relations, economics and marketing, Appropriate measurement methods for evaluating efforts for sustainable development will need to be broad-based and at a minimum should account for human development factors, quantity and quality of natural capital, social satisfaction, and self -dependence factors

**Conclusion:**

Education is to be considered as a key agent of development, either as a way of developing human capacity, increasing the skilled workforce for modernization, and as a matter of personal freedom, developing capability and empowerment. Above all, education is a human right and, as such, should receive priority in the allocation of national resources. It is very short-sighted to keep education bound and gagged to the role of manufacturing skilled manpower, or to judge one's success by the number of either children or adults who have efficiently undertaken a 'learning package'.

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The manuscript should be a length of about 3000 words, neatly typed in single space, on A-4 size papers. It should be submitted in duplicate and the first page should carry only the title of the paper, author [s]' name [s], designations, official address, phone/fax numbers and e-mail addresses.
1) **Abstract:** Each manuscript should carry an abstract of about 150-200 words.
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# ABOUT THE PUBLISHER

The Institute of Chartered Financial Analysts of India (ICFAI Society) was established in 1984 as a not-for-profit educational society in Andhra Pradesh, India. ICFAI University refers to the universities sponsored by the Institute of Chartered Financial Analysts of India and is established in the state of Uttarakhand, Tripura, Sikkim, Meghalaya, Mizoram, Nagaland, and Jharkhand under respective State legislations. The University Grants Commission (UGC) has recognized the above seven ICFAI universities established under State legislations in terms of Section 2(f) of the UGC Act 1956.

The Institute of Chartered Financial Analysts of India University, Tripura (IUT) or The ICFAI University, Tripura was established in 2004 through an Act of State Legislature (Tripura Act 8 of 2004). UGC has approved the university under Section 2(f) of the UGC Act, 1956 and hence included in the list of universities maintained by UGC under Section 2(f) of the UGC Act, 1956. The campus at Kamalghat Sadar, Tripura is a blossoming green campus spread over 32 acres and is nearest to the state capital Agartala. The university is a member of the Association of Indian Universities (AIU), New Delhi, the Federation of Universities, India and the Association of Commonwealth Universities, London. Consequently, these universities can confer degrees at Bachelor's, Master's and Doctoral levels.

Presently the university has following faculties- Faculty of Management Studies; Faculty of Science and Technology; Faculty of Education; and Faculty of Law. The ICFAI University, Tripura is committed to provide new career-oriented educational programs at Bachelor's and Master's level in management, finance, science and technology, education and other areas. University offered the following programmes in Bachelor's and Master's level-

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- Postgraduate Programmes: MBA, MBA (Rural Management), Executive MBA, MCA, BCA-MCA Integrated, MA (Education), LLM.
- Ph.D programme: Management

The university has received the approval of National Council for Teacher Education (NCTE) to offer a Bachelors Program in Education. The Distance Education Council (DEC) has approved the programs of the university. The Bar Council of India has given its approval for three year and five year Law Courses to award degrees in law.