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Editor

Dr. Sarita Kumari

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Ranchi University, Ranchi, Jharkhand, India



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A comparative study of Socio Economic Situation of Male and Female Private College Teachers of Garhwa District

Neelima Jayaswal

Assistant Professor, Department of Economics, Doranda College, Ranchi,
Jharkhand, India

Abstract

The present paper assess socio-economic situation of 60 male and female private college teachers of Garhwa district. The results highlighted that: Most of the teachers were working in the college from 6-10 years; the educational level of most of the teachers is Ph.D.; more female than male had khapra and asbestos houses while more male than female had RCC houses and the main source of income of teachers is salary, However, more male than female had income from business and agriculture. It is recommended that the college should make the working condition more attractive to retain experienced teachers.

Introduction

Socio economic situation represents individuals' sociological and economic background. With respect to teachers, socio economic situation combines their educational experience, work experience and family's economic access to resources. The household income from other sources, such as agriculture and business are taken into account.

Historically, SES has been conceptualized and measured in various ways. Taussig (1920) conceptualized SES as the occupational status of the father. Later, Cuff (1934) adopted a score card proposed by Sims (1927) as a measure of SES; this included questions about items possessed by the home, parents' education, father's occupation, and other relevant information. Moving on from these early studies, development of instruments for measuring SES has become more complicated, including more advanced methods such as factor analysis or model-based approaches (NCES [National Centre for Educational Statistics] 2012). By the 1980s, one general agreement had emerged: SES should be a composite variable, typically measuring education, income, and occupation, since these

three indicators reflect different aspects of family background (Brese and Mirazchiyski, 2013).

SES plays a crucial role in children's reading ability development. Many studies have made discoveries regarding the relationship between SES and reading ability (Hoff, 2003; Noble et al., 2006; Rowe and Goldin-Meadow, 2009). SES contributed to variance in phonological skills and vocabulary in the early developmental stages.

There are three main factors that social scientists use to calculate socio-economic status:

- **Income:** This is how much a person earns, including wages and salaries, as well as other forms of income such as investments and savings. The definition of income is sometimes expanded to include inherited wealth and intangible assets as well.
- **Education:** A person's level of education has a direct impact on their earning ability, with higher earning power leading to more educational opportunities that in turn increase future income potential.
- **Occupation:** This factor is more difficult to assess because of its subjective nature. White-collar professions that require a high degree of skilled training, such as physicians or lawyers, tend to require more education and thus return more income than many blue-collar jobs

Objectives

The main objective is to assess the socio-economic situation of male and female private college teachers of Garhwa district. This main objective is divided into:

- To measure the length of service of male and female private college teachers of Garhwa district.
- To know the levels of education of male and female private college teachers of Garhwa district.
- To know the type of house of male and female private college teachers of Garhwa district.
- To know the sources of income of male and female private college teachers of Garhwa district.

Research Questions

- What is the length of service of male and female private college teachers of Garhwa district?

- What are the levels of education of male and female private college teachers of Garhwa district?
- What is the type of house of male and female private college teachers of Garhwa district?
- What are the sources of income of male and female private college teachers of Garhwa district?

Test Materials Used to Collect Information from Teachers

- Personal Data Questionnaire
- Socio –Economic Interview Schedule

A brief description of the above test materials are as follows:

- **Personal Data Questionnaire:** This questionnaire was prepared by the Research Scholar to elicit information on respondents' name, address, religion, caste, marital status, number of children etc.
- **Socio–Economic Interview Schedule:** This was prepared by the Research Scholar. This Interview schedule elicited socio-economic situation of the respondents, like income, education and occupational details.

Sample

The sample of the study was selected from various male and female teachers working in various private colleges of Garhwa district. Stratified random sampling technique was used. The factors of stratification were: Gender (Male and female) and location of colleges (Urban and rural). Thus, there were 2 x 2 strata. From each stratum, 15 cases were selected making a total of 60 teachers.. The sample design is presented in Table 1.

Table 1 : Sample Design

	Male	Female	Total
Urban	15	15	30
Rural	15	15	30
Total	30	30	60

Procedure

- Went to the various rural and urban located private colleges of Garhwa.
- Met Principals of the private colleges.
- Obtained list of working teachers in the private colleges.

- Selected 30 male and 30 female teachers from urban and rural located colleges.
- Asked permission for data collection.
- Administered test materials.
- Gave thanks.

Results

The responses of the teachers were coded and transferred into SPSS software and analysis was done. The results are presented under the following points.

- Length of service of male and female private college teachers.
- Levels of education of male and female private college teachers.
- Types of house of male and female private college teachers.
- Sources of income of male and female private college teachers.

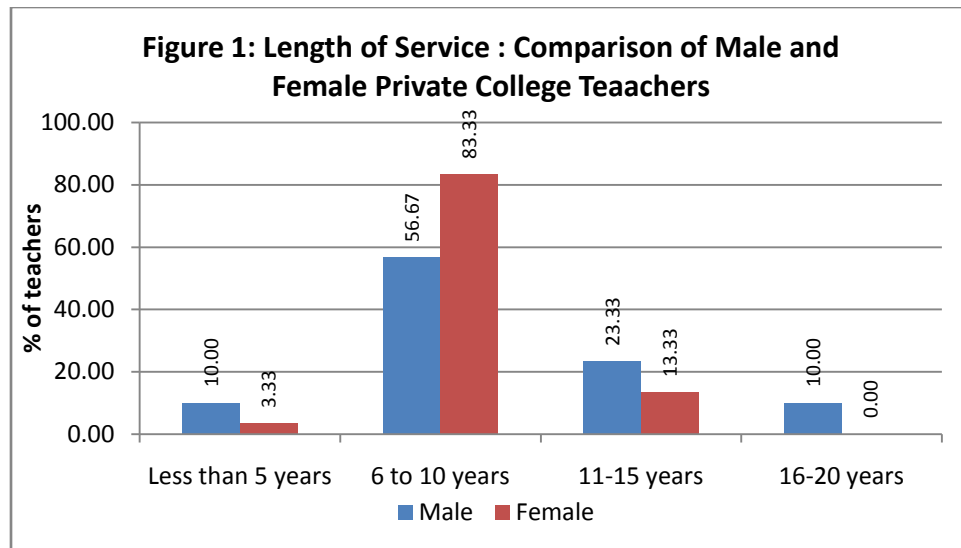
The Length of Service of Male and Female Private College Teachers

The length of service of the male and female private college teachers are shown under:

- i. Less than 5 years
- ii. 6 to 10 years
- iii. 11-15 years
- iv. 16-20 years

The results are presented in Figure 1. It is seen that:

- a. 10% male and 3.33 % female private college teachers are working from less than 5 years.
- b. 56.67% male and 83.33 % female private college teachers are working from 6-10 years.
- c. 23.33% male and 13.33 % female private college teachers are working from 11-15 years.
- d. 10% male and none of the female private college teachers are working from 16-20 years.

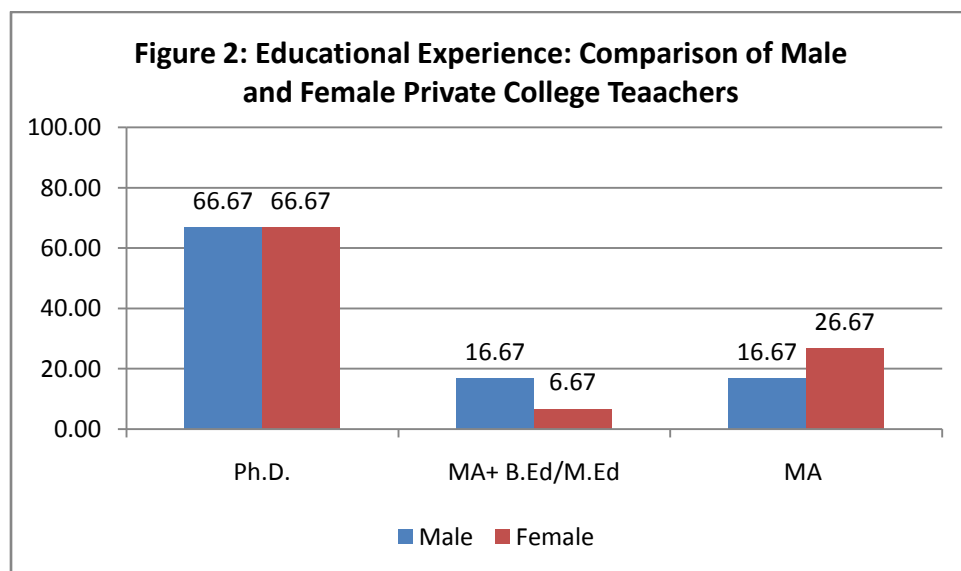


Levels of Education of Male and Female Private College Teachers

The levels of education of male and female private college teachers are shown under: Educated up to Ph.D., Educated upto Ph.D. + B.Ed. / M.Ed. and Educated up to MA/M.Sc./M.Com.

The results are presented in Figure 1. It is seen that:

- 66.67 % male and 66.67 % female private college teachers are educated up to Ph.D. level.
- 16.67 % male and 6.67% female private college teachers are educated up to Ph.D. + B.Ed. / M.Ed. level.
- 16.67 % male and 26.67% female private college teachers are educated up to MA/M.Sc. / M.Com. Level.

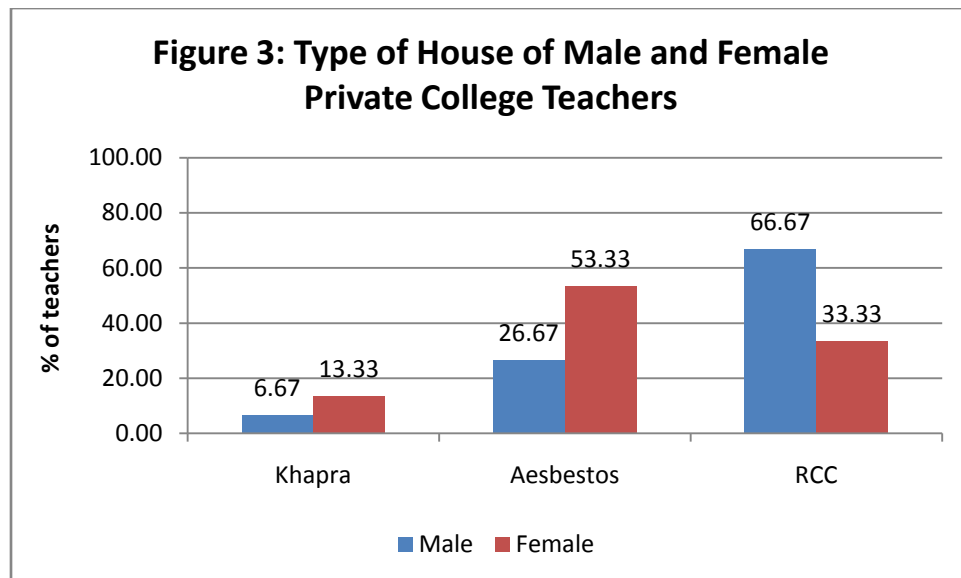


Types of House of Male and Female Private College Teachers

The type of house of male and female private college teachers are shown under: Khapra house, Asbestos house and RCC house.

The results are presented in Figure 3. It is seen that

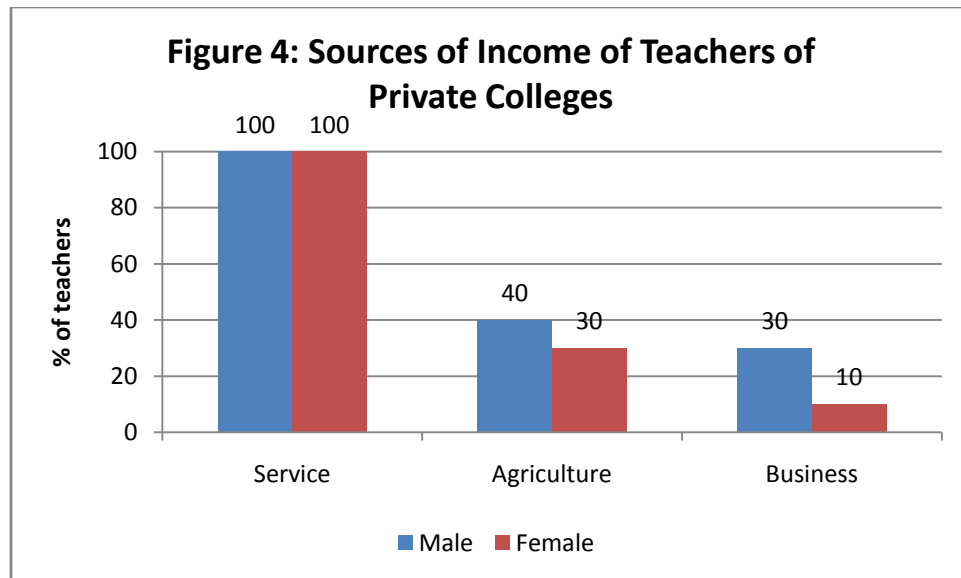
- a. 6.67 % male and 13.33% female private college teachers are living in Khapra house.
- b. 26.67% male and 53.33 % female private college teachers are living in asbestos roof house.
- c. 66.67% male and 33.33% female private college teachers are living in RCC roof house.



Sources of Income of Male and Female Private College Teachers

The sources of income of male and female private college teachers are presented under: Salary, Income from business and Income from agriculture. The results are presented in Figure 4. It is seen that:

- i. Salary is the main source of income of all male and female teachers.
- ii. 40 % male and 30 % female teachers had income from business.
- iii. 30 % male and 10% female teachers had income from agriculture.



Conclusions

On the basis of above results, the following conclusions can be drawn:

- Most of the teachers were working in the college from 6-10 years.
- The educational levels of most of the teachers are Ph.D.
- More female than male had khapra and asbestos houses while more male than female had RCC houses.
- The main source of income of teachers is salary. However, more male than female had income from business and agriculture.

Recommendations

- The percentage of male and teachers is declining after 10 years of service. However, not even single women had service more than 16 years. They may be shifted to other sources of livelihood. The college should make the working condition more attractive to retain experienced teachers.
- The teachers are engaged in business and agriculture. This may have impact on quality of teaching. If the economic gain is enhanced, teachers will devote more time on students.

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Problems faced by Women cricketers in India

Ajay Kumar

Research Scholar, Radha Govind University, Ramgarh, Jharkhand, India

Abstract

Men developed cricket in historical times to showcase their own masculinity and male characteristics. It was to be played at the exclusion of women. As a result, men have always tilted the game in their favour and the favour of the already existing patriarchy. For any sport to succeed it needs resources as well as viewers. The former was non-existent for women's cricket associations due to the male dominated control over the game. This resulted in the latter suffering as well. The dream of every cricketer is to play in front of a packed audience in some of the historical grounds in the world. The Indian women have experienced this privilege when they played the 2017 World Cup finals. This was in front of 28,000 people at Lord's as well as in the 2020 t20 World Cup finals in front of 86,174 people at the Melbourne Cricket Ground. One can only ponder as to whether the results of these finals would be different had the women been given more resources, opportunities and experience.

Keywords: Showcase, masculinity, patriarchy, audience, privilege, opportunities

Introduction

There many problems for women cricketer in India problems faced by them as follow:

- **Historical imbalance:** For any sport to succeed it needs resources as well as viewers. The former was non-existent for women's cricket associations due to the male dominated control over the game. This resulted in the latter suffering as well. This is the historical imbalance.
- **Lack of resources and viewers:** Viewers determine whether advertising agencies want to be involved in fixtures. They also influence sponsors to see the worth in financing a player. The excuse given by most viewers for not supporting the women's team is that they are just not as good as the men.

Attracting new viewers is difficult due to a lack of resources. Indian men playing cricket matches is promoted on social media

platforms as a priority. This is such that even non-cricket lovers are aware of a match. Women cricketer is on the other hand lack popularity on social media. They also do not have the available resources to reach out to audiences. This results in a lack of awareness with regards to women's matches.

- **Lack of Initiative and Mismanagement:** Indians have always considered Australia to be the pioneer in the development of the women's game. Cricket Australia cleared the schedule of the men's cricket team during the 2nd edition of the Women's Big Bash League. This lead to a record high – 637,000 viewers for a match between the Melbourne Renegades and the Sydney Thunders, One of the key reasons why Indian women lose the big world tournaments is the fact that they are unable to perform in front of large crowds. This is because they are simply not exposed to such situations regularly. This was best stated by the former captain, Mithali Raj after the 2017 World Cup final loss. She stated "Everybody was nervous and I think that resulted in our defeat".

A separate board of cricket used to handle women's cricket in India However, recently in the interest of the game, the Board of Control of Cricket in India (BCCI) and the International Cricket Council (ICC) has taken women's cricket under their wings. The management of women's cricket by the BCCI is poor. There is no proper Under-16 team to introduce players to the game and no test matches organized for the senior team. The situation is even more dire at junior levels. Facilities provided to women cricketers are a fallacy in comparison to the men's. Hence, Gender discrimination is clearly visible for all.

Solutions to help Women's cricket in India

- **Raise Awareness:** Modern day female cricketers are just as capable as men in various aspects of the game. This is emphasized by the performances of Harmanpreet Kaur, Smriti Mandhana, Jhulan Goswami and Shefali Verma to name a few. For example, the fielding is just as agile and eye catching as any of the men's matches. The recognition of these female superstars and their performances is key for the continual growth and development of the game. This will begin with a change of attitude, belief and perception over the game.

- **Active Role by the BCCI in Women Cricket:** In order to increase the popularity of the women's game; the BCCI plays a very

important role. One of the key areas of focus should be raising the awareness of the women's game and their achievements to the general public. This would create a sense of pride among Indians. The cricketing boards of England and Australia are both sources of inspiration. Their initiatives on contracts, facilities, promotion and training have had a positive outcome for the game in their respective countries.

The BCCI encouraging people to watch and attend women's cricket games by offering subsidized tickets is a possible initiative. This creates an atmosphere at the stadium similar to that in a men's game. Holding women's cricket matches after-work hours similar to the men's t20 games, would surely result in a greater number of viewers as well as a greater number of people attending the match. The introduction of a contract system for women cricketers in India is a positive step adopted by the BCCI. Women cricketers will then be sure of their financial security and they will have an incentive to perform better and earn a Grade A contract. The contract system is the same as followed for the Indian men's cricket team. The women earn a lesser sum of money, but it still shows significant progress.

- **Initiatives by Government for Women Cricket:** It is still possible for the state governments of various state cricket boards, as well as the central government to make certain special provisions to promote the interests of women cricketers. By doing so, cricketing boards across the nation may be find more incentive to promote women's cricket. This also instils a sense of responsibility and accountability on cricket boards like the BCCI to ensure growth of women's cricket in India.

Fortunately, the situation is not all dire as the popularity of women's cricket in India is on an upwards trend. More and more viewers are realizing that supporting women's cricket is as important as supporting the men. The performance of the Indian women is justifying this newfound support. The world currently views the Indian women's cricket team as a threat due to regular wins against the top sides like Australia and England.

Conclusion

We are well aware of the concept of gender equality in modern times, however, with the nation's favourite sport and pass time showcasing clear instances of gender discrimination toward females, Indian institutions cannot sit idly. Indians must see the deprivation of

the women's game as a degradation of the sport as a whole. It is time to inject a much-needed boost of resources, coaches, facilities and advertising to women's cricket in India.

Thus, with greater initiative from the BCCI, sports broadcasters as well as cricket fans themselves, the women cricketers of India are sure to reach greater heights and achieve the same level of fame, respect, stardom and instil the same amount of pride in all Indians as enjoyed by the Indian men's team.

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Trade and Economies of BRICS countries

Dr. Chhaya Rani Tewary

Assistant Professor, Department of Economics, R. K. Mahila College, Giridih,
Jharkhand, India

Abstract

This paper examines the importance of foreign trade of BRICS economies. To examine it, trade dependence index, export prosperity index, import penetration index and marginal propensity to import has been calculated for two selected years i.e. 2010 and 2020. Results shows that BRICS countries are closely related to foreign trade and trade is important for these countries, Results of these indices shows that trade is important for the BRICS countries, but different indices show different results. Trade Development Index shows that BRICS Countries are not dependent so far trade openness is concerned. The results of import penetration show that all BRICS countries have different level of reliance of domestic product in foreign market.

Similarly marginal propensity to import result shows that not uniform among all BRICS countries. All BRICS countries depends moderately on import to fulfil domestic demand

Keywords: *BRICS, Trade dependence index, Export propensity, Import penetration Marginal propensity to imports, GDP, Export, Import domestic demand*

Introduction

The BRICS countries namely Brazil, Russia, India, China and South Africa are considered the five foremost emerging economies in the world. The term BRICS was coined in 2001 by Goldman Sach, head of global economic research. BRICS countries have held annual summits since 2009, with comparable areas of interest and ambitions to the more established group of seven (G7) of which Russia was also a member from 1997, until it was expelled following the annexation of in 2014. According to the World Bank 47 and the original BRICS countries make up 41 of the 12 largest economies in the world (with the other being South Korea).

In 2021, the BRICS countries with the highest estimated GDP per capita were Russia and China, with between 11,000 and 12,000 US dollars per capita person. Brazil and South Africa's GDP per

capita are thought to be closer to the 7,000 mark, while India's GDP per capita is just over 2000 US dollars. This is a significant contrast to figures for overall GDP where China has the largest economy by significant margin, while India is the second largest. The reason for this disparity is due to population size. In 2021, it is estimated that the BRICS countries have a combined population of 3.23 billion people which is over 40 percent of the world population. The majority of these people live in either China or India, which have a population of roughly 1.4 billion people each. Economic indicators of BRICS Countries reveals their Economic status in the world. The GDP of Brazil 1990 was 22699.24 current US \$ billion which increased to 84746.98 US \$ billion in 2020. The annual GDP growth is 2.9 percent in 1990 which increased to 4.5 percent in 2010 but while India's GDP per capita is just over 2000 US dollars. This is a significant contrast to figures for overall GDP. The GDP of Russia is 516.81 US dollar billion in 1990 which is increased to 1483.85 US dollar billion in 2020.

The annual growth of GDP of Russia is -3.01 in 1990 it is same in 2020. GNI per capita purchasing power parity is 8010 US dollar in 1990 which is increased to 29110 US dollar in 2020 which is 21,100 US dollar more than 1990. The merchandise trade of Russia to GDP is 18 percent in 1990 which is increased to 32 percent in 2020. The GDP of India is 320.98 US dollar billion in 1990 which is increased to 2660.25 US dollar billion in 2020 which is 2339.27 US dollar billion more 1990. The annual growth is 58 percent in 1990 which is increased to 7.31 percent in 2020. The GNI per capita purchasing power parity is 1190 US dollar which is 6440 US dollar in 2020, which is declined similarly; GDP in current US dollar billion is 360.86 which are increased to 14722.73 US dollar billion. The annual growth is 3.9 percent in 1990 which is increased to 10.6 percent in 2010 but again declined to 2.3 percent in 2020. The GNI per capita purchasing power parity is 1190 US dollars which is 6440 US dollars in 2020, which is declined similarly, GDP in current 0 US dollar billion is 360.86 which is increased to 14722.73 US dollar billion. The annual growth is 3.9 percent in 1990 which is increased to 10.6 percent in 2010 but again declined to 23 percent in 2020.

The GDP per capita purchasing power parity is 980 US dollar in 2010 and 17090 US dollar in 2020 which is 16110 US dollar more than 1990. The merchandise trade GDP of China is 13 percent in 1990 and is 24 percent in 2020.

The GDP of South Africa is 115.55 US dollar billion in 1990 which is increased to 335.44 US dollar billion which is increased more than doubled. The annual growth of GDP is -0.3 percent in 1990 which is increased to 3.0 percent in 2010 but it is in negative -6.4 percent in 2020. GNI per capita purchasing power parity is 6830 US dollar in 1990 which is increased to 13,140 US dollar in 2020. The merchandise trade of GDP is 30 percent in 1990 which is increased to 51 percent in 2020. The GDP of China in current US dollar billion is 360.80 in 1990 which is increased to 14722.73 US dollar billion in 2020 which is 14361.93 US dollar billion more than 1990. The annual GDP growth is 3.9 percent in 1990 which is increased to 10.6 percent in 2010 and it is 2.3 percent in 2020.

GNI per capita purchasing power parity in 980 US dollar in 1990 which goes up to 17090 US dollar in 2020. The merchandise trade of GDP is 32 percent in 1990 and increased to 49 percent in 2010 but goes down to 32 percent in 2020.

Table 1. The comparison of quantity GDP growth trends of BRICS economies

Countries	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	No of Quarters
Brazil	1.3	1.6	-0.3	-10.9	-3.9	-1.1	1.1	3
Russia	2.6	2.9	1.4	-7.8	3.5	-1.8	-0.7	-
India	4.6	3.3	3.0	-24.4	-7.4	0.5	1.6	3
China	6.0	6.0	-6.8	302	4.9	6.5	18.3	2
South Africa	0	0.1	-0.1	-17.5	-5.9	-4.2	-3.2	-

Source: CEIC, CRA, Research groups

China growth recovery is based on strong fundamental performance and it is the top most amongst all the G-20.

It is also noteworthy that China, though the first to be affected by the pandemic has been able to control it effectively since Q2 2020 which has added its economic performance. The gradual pick up in India, Brazil, and visibly lower growth in Russia and South Africa. Clearly suggest that there is a significant in the recovery pattern amongst the BRICS countries. The role of pandemic control has been instrumental in this regard.

The originator of the acronym BRICS in 2001 Jim O' Neil recently revisited grouping to analysing the performance of the BRICS countries over the last two decades observing that the BRICS

countries have witnessed diverging fortune in the last two decades in terms of economic growth he said that performance of emerging countries including the BRICS would be the most decisive factor in determining the Global economic growth for the next decade. The combined size of the BRICS Economics is now larger than that of European Union and are approaching the size of the United States. This reinforces the position of the BRICS economic in the current Global economic landscape. At this junction the prospect for the COVID-19 pandemic and response to the structural changes induced by the pandemic. This current crisis unlike the global financial crisis (UFC) of 2008-09 has not just harmed the global economy but has also exposed the fragilities of social fabrics, amplifying the issues related to the unemployment poverty gender disparity and immigration trends The World Economic Outbreak (WEO), April 2021 which projected an improved Global growth outlook warns of adverse and employment and earning impact of certain groups specially in low income and developing countries over the past decade the BRICS countries (Brazil, Russia, India, China and South Africa have gain more weight in Global affairs(see Hooijmaaijers & Keukeleire, 2016, Kakonen 2019a Kirton & Larionova 2018, Lukin 2019a, Roberts et al 2017, Stuenkel, 2015)

they have Steadily developed a dialogue and cooperation process on various levels since 2006 and annual Summit take place since 2009 and what started as the BRICS (Brazil Russia India and China) grouping became bricks from 2011 onwards (Hooijmaaijers & Keukeleire, 2016)

Theoretical Note

1) **Trade Dependence Index:** The trade dependence index is a measure of the importance of international trade in overall economy. it is also known as openness index. It can give an indication of the degree to which an economy is open to Trade dependence Index is the value of total trade (imports plus Exports) as a percentage of GDP.

Mathematical Formula

$$\frac{\Sigma_s X_{ds} + \Sigma M_{sd}}{GDP_d} \times 100$$

Where d is the country under study s is set of all other countries x is total bilateral exports and M is total bilateral imports and GDP is gross domestic product of (country d)

In words the numerator is total export from d+ total imports to d and the denominator is the GDP of d of Range 0 value between zero and 100.

2) **Import Penetration Index:** The import penetration rates shows to what degree domestic demand (the difference between GDP and new exports is satisfied by imports. It may provide an indication to the degree of vulnerability of certain types of external shocks

Import Penetration is the ratio of total imports to domestic demand as a percentage Range of value from 0 (with no import) to 100% when all domestic demand is satisfied by imports no domestic production and no exports.

Mathematical definition

$$\frac{\sum_s M_{sd}}{GDP_d - \sum X_{ds} + \sum M_{sd}} \times 100$$

3) **Export Propensity Index:** The index shows the overall degree of reliance of domestic produces on foreign markets. It is similar to trade dependence index but array provide a better indicators to vulnerability certain types of external shocks (e.g. falls in export prices or change in exchange rates)

The export propensity is the ratio of exports to GDP as percentage it ranges from zero (with no exports) to 100 (with all domestic production exported)

Mathematical Formula

$$\frac{\sum_s X_{ds}}{GDP_d} \times 100$$

Where d is the country under studies is the set of all other countries, X is the total bilateral exports and GDP is gross domestic product of (country d) .In numerator is total exports from d, and denominator id the GDP of d.

Marginal Propensity to Import Indicators

The Marginal Propensity to import (MPM) is measure of the extent to which imports are reduced by change in incomes with

higher MPM, is an economic downturn with a fall in GDP, there will be a significant fall in imports as concerned with a lower MPM. More generally a higher MPM reduces the multiplier effect of an increase GDP. Marginal Propensity to Import is the ratio of the change in total imports to the change in GDP over a defined period (typically one year). Marginal Propensity to Import has range between 0 (with no part of extra GDP spent on additional imports) when whole extra GDP created is spent on imports.

Mathematical Formula

$$\frac{\Delta \Sigma_s M_{sd}}{\Delta GDP_d}$$

Where d is the country under studies is the set of all other countries, Δ is the change operator, M_{sd} is the total bilateral imports and GDP is gross domestic product (of country d). In Words, the numerator is the change in total imports to d over a given period (usually one year), and the denominator is the change in GDP of d over the same period.

Review of Literature

Tomas Hult, summaries the basics of the BRIC countries including the impact on the BRICS by the world economy, organizing by the BRICS, economic and population change in the BRIC countries, key strengths and weakness of the BRIC countries, and key issues for countries and firms to consider when doing business with the BRIC countries.

Jimm O' Heil (2001) viewed Brazil, Russia, India, and China as the countries from whom much of the world economic growth was expected to come. These emerging economics were forecasted to realize fast economic growth and be larger than some of the developed economics. In 2010 this BRIC group officially becomes a BRICS after joining South Africa the strength of the BRICS economies of encreavy importance to the global economy. BRICS collective contribution to the world GDP increased from 11% in 19 to 25% in 2011.

Ben Shepherd (2017) reports that BRICS countries have emerged as important players in global service trade in the past decade BRICS services exports are growing faster than the developed countries their share in global. Services market also expanding rapidly yet they still lag behind traditional major player and

much works remain to tap into their potential ones. This paper provides data on sector and models of supply for each BRICS country and analysis intra- BRICS trade. The analysis suggests that BRICS can better integrate into the global services economy by improving services regulations and reducing trade costs.

Bas Hooijimaaiers (2021) explored the bilateral trade relations of BRICS countries between 2009 to 2019. This paper contributes to the debate on the institutionalization of the cooperation between BRICS countries by Examine the degree to when the pledges in the various BRICS declaration and joint state meant for intensification of intro- BRICS economic cooperation for strong statement.

Christina majaski (2020), described the importance of BRIC nations in the global economy. Author acknowledges the dominance of the BRICS growth in global economy. In 1990, BRIC countries accounted for 11% in global domestic product. By 2014, this figure rose to nearly 30% these figure include a high in 2010, following a plunge in value, surrounding to 2008 financial crises, BRIC countries by Jimm O'Neil of Goldman Sachs in 2001. By 2050 these economies could be wealthier than most of the current major economic powers This growth is due to lower labour and production costs in these countries.

The BRIC initialization expended to include South Africa as the fifth nation in 2010.

Irina Nabriela (eds) (2014), This paper analysis the importance of the BRICS groups as representative of emerging countries in the global economy. It is worth noting that the financial crisis had no strong effect on the BRICS group and it had a much better economic performance then developed countries. The main factor that lead to the economic expansion of the group where and increased input factors and enormous scale of population of resources.

For example Brazil and Russia are mainly based on huge resources mineral resources and speculation made in international market China has an advantage of cheap labour and resources at low prices and last but not the least all the BRICS countries except Brazil show very high rate of investment the current concern is to estimate whether the bricks countries will have the same upward trend given the weakness identified within them the high level of consumption political difference ideologies over exposure to commodities etc.

V Erokhin, Gao Tianmung (2020) give a General overview of current integration initiative of the European economic Union from another side and BRIC as an umbrella format of collaborations between China Russia and other countries In the case of trade in goods and Agricultural Products the paper covers the two major rising economic powers with the development of China and Russia which are the Eurasia economic Union and BRIC the authors treat their development in relation to the notification of existing approaches to agriculture trade and establishing food security in BRIC format.

Chen Jai gul (2010) admits the current International Financial crisis the likes of which likely will never met in hundred years BRIC.

D Nayyar (2016) met this paper outlines the contours of global economic development since 1980 to analyse underlying factors and consider future implications. The increased economic significances of developing countries reflected to their share of world output manufacturing and trade is striking but development driven by revenue by Rapid economic growth has been most uneven.

Saji Thazhugal Govindan Nair (2020) the aim of this paper is to identify the impact of economic integration on trade competitiveness and Demonstrate effect on Trade and investment performance of member Nations The study complies some price indices to provide a systematic assessment of competitiveness in the BRICS region In the panel regression Framework estimates the impact of integration on Trade competitiveness and the external sector performance of BRICS Nation. The finding of the research highlight the prospectus of strong closer and sustained integration in BRICS and more the assessment of export and investment experience of BRICS Nation particularly China and India provides for the evidence in support to the logical design and strategic use of their foreign trade policy the economic partnership that wants to sustain this high road to global economic space needs and promote their partnership in other interest areas to under make cooperation more competitive in price terms.

Methodology

Exports imports data of the BRIC countries has been collected from Direction of Trade statistics International Monetary Fund electronically. For the period of our research Twenty years (2000-2020) First section of BRIC countries has been analysed using simple tool i.e. average, growth and percentage in the section II it further analyse trade and economics of BRIC countries for the period of 10

years (i.e. 2010-2020) using different index such as Trade Dependence Index, Import Penetration Index Export Propensity Index and Marginal Propensity to Import. All these four indexes are calculated taking the trade related data exports and imports for ten years. This is a quantitative research.

The first index is trade dependence index for this study. The GDP data is from World Development Indicators (WDI) while the trade data is from Direction of Trade Statistics (DTI) All of the data is in (millions of US dollars). To calculate Trade Dependent Index we add the total exports to total imports to obtain total trade dividing this number by GDP and multiplying by 100 to convert to a percentage.

The second index is import penetration index. The GDP data is from the World Development Indicators (WDI) while the trade data is from Direction of Trade Statistics. The GDP data was originally in US billion dollars which is converted to million US dollars, for the convenience of calculation The fourth column in the table is in domestic demand calculated as GDP less export plus import, this the denominator of the import penetration ratio.

The third index is export propensity for the BRIC economics. The source of data is same for the other indexes. The third column of the table presents the export propensity value. Taking the ratio of export to GDP multiply 100 to convert to percentage term all for index are calculated for the year between 2010 and 2020.

The fourth index is Marginal Propensity to Imports. All of the data is in compatible units (millions of US dollar) To calculate the Marginal Propensity to import (MPM) we take the first difference in GDP and imports means for each year we subtract from the value of GDP to the value of preceding years GDP and similarly for the MPM for 2020 (relative to 2010) is the change in imports(\$_) divided by the change in GDP(\$_) this gives the value for the concerning country.

Objective

The objective of this research is to analyse the trade for BRIC Nations for the period of twenty years to examine their current share in international trade and how these five countries are contributing to the world. The second objective of this research is to examine the trade and economics BRIC countries means how these five economies are depend on international trade or how much this countries does have trade openness. Secondary this papers also the

degree of vulnerability to certain type of external shocks. Later on it also examine the vulnerability to certain external shocks by major better index i.e. export propensity index. This paper will expand literature to concerning topic.

Findings

Trade Dependence Index

Trade dependence Index for Brazil we find 0.6 percent in 2010 and 0.44 percent in 2020. We can see from the table, that indicator has removed less than percent over the ten years for Russia TDI is 39.37 percent in 2010 and 38.37 percent in 2020 so it is remain fairly constant over the ten years . For India, TDI is 35.26 percent and 24.19 percent in 2010 and 2020 respectively. China and South Africa had 48.82 percent in 2010 and 31.64 percent in 2020, and similarly. South Africa had 42.95 percent in 2010 and 26.40 percent in 2020. The Trade Development index of China and South Africa has not constant during the period of our study. We can see from the table that BRICS countries are not much dependent on foreign trade or so far is trade openings is concerned BRIC economies are unpredictable. (Table 3)

Import Penetration Index

Brazil has 0.29 percent of import penetration in 2010 which means import satisfied 0.29 percent of demand in Brazil in 2010 and with the remaining percentage is satisfied by domestic demand. In 2020, 0.19 percent is import penetration means only 0.19 percent are satisfied by import rest percentage of aggregate demand of Brazil is satisfied by domestic production. It shows loss dependence on import which is a very good sign for any country in the world. 16.19 percent of aggregate demand is satisfied by imports rest 83.81 percent is satisfied by domestic production, in 2020 it was 16.80 percent which says that only 16.80 percent of the aggregate demand in Russia is satisfied by imports with remaining 83.2 percent satisfied by domestic demand.

Similarly import satisfied 19.45 percent of the aggregate demand in India in 2010 and with remaining percentage satisfied by domestic production aggregate imports rest 86.64 percent satisfies demand by domestic production. China has 23.61 percent in 2010 and 49.69 in 2020 by of aggregate demand are satisfied by imports and with remaining 76.39 percent and 50.31 percent are satisfied by

domestic production. Import satisfied 21.24 percent of aggregate demand in South Africa in 2010 and with remaining 78.76 percent satisfied by domestic production. Similarly 1.06 percent of aggregate demand satisfied by imports rest demand is satisfied by domestic production.(Table 4)

Export prosperity Index

The index shows the overall degree of reliance of domestic products on foreign market. For BRICS countries, this percentage is in between 0.3036 percent to 25.60 percent this 2010 and 2020 year. Brazil had 0.3036 percent in 2010 which says that degree of reliance of domestic products in foreign market is very low, where have 25.60 percent of South Africa shows the very degree of reliance of domestic products on foreign market. Rest BRIC countries degree of reliance is in between, the percentage above is minimum degree of reliance of Brazil in 2010 and maximum degree of reliance of domestic products on foreign market of South Africa in 2020 (Table 5).

Marginal Prosperity to Import

As per the table (5) Brazil has 0.0013 percent in 2020 which means 1 dollar might results a \$ 0.65 increase in imports in Brazil. Similarly in Russia in 2020, an increase in GDP by 1 \$ can result roughly a \$ 0.24 increase in imports. In India in 2020 an increase in GDP by 1\$ might result in roughly a \$ 0.017 increase in imports. In China in 2020, an increase in GDP by 1\$ results roughly a \$ 0.077 increase in imports. In South Africa, an increase in GDP results \$ 1.04 in imports.

In India in 2010 and with remaining percent satisfied by domestic production. In 2020 only 13.36 percent aggregate demand is satisfied by imports rest 86.64 percent is satisfied by domestic production. China has 23.61 in 2010 and 49.69 percent in 2020, satisfied by of aggregate demands are satisfied by imports and with the remaining 76.39 percent and 50.31 percent are satisfied by domestic demand. Import satisfied 21.24 percent of aggregate demand in the South Africa in 2010 and, with remaining 78.76 percent satisfied by domestic production; similarly 1.06 percent of aggregate demand satisfied by import rest demand is fulfilled by domestic production. (Table 6)

Table 1 Indicators of BRICS Countries

Countries	Indicators	1990	2000	2010	2020
Brazil	GDP current US\$ billion	22699.24	33815.97	66488.28	84746.98
	GDP Growth (Annual %)	2..9%	4.5%	4.5%	3.3%
	GNI PPP(Current International \$ billions	6520	8800	13860	14,550
	GNI PPP per capita PPP(Current International \$ billions	971.30	1538.13	2712.17	3093.02
	Merchandise Trade (% GDP)	14%	17%	18%	26%
Russia	GDP Current US \$ billion	516.81	259.71	1524.42	1483.50
	GDP Growth (Annual %)	-30%	10.0%	4.5%	-30%
	GNI PPP(Current International \$ billions	1185.49	974.63	2836.59	4264.86
	GNI PPP per capita PPP(Current International \$ billions	8010	6650	19860	29110
	Merchandise Trade (% GDP)	18%	58%	43%	39%
India	GDP current US\$ billion	320.98	468.39	1675.62	2660.25
	GDP Growth (Annual %)	5.5%	3.8%	8.5%	7.3%
	GNI PPP (Current International \$ billions	1034.99	2190.69	5173.30	8891.69
	GNI PPP per capita PPP(Current International \$ billions	1190	2070	4190	6440
	Merchandise Trade (% GDP)	13%	20%	34%	24%
China	GDP current US\$ billion	360.86	1211.35	6087.16	14722.73
	GDP Growth (Annual %)	3.9	8.5	10.6	2.3
	GNI PPP (Current International \$ billions	1117.59	3642.99	12325.79	24111.00
	GNI PPP per capita PPP(Current International \$ billions	980	2890	9210	17090
	Merchandise Trade (% GDP)	32%	39%	49%	32%
Countries	Indicators	1990	2000	2010	2020
	GDP current US\$ billion	115.55	151.75	417.37	335.44
	GDP Growth (Annual %)	-0.3%	4.2%	3.0%	-6.4%

South Africa	GNI PPP (Current International \$ billions)	251.36	374.17	648.44	779.11
	GNI PPP per capita PPP (Current International \$ billions)	6830	8320	12660	13140
	Merchandise Trade (% GDP)	30	29	46	51

Source: World Development Indicators (World Bank)

Table 3 Trade Dependence Index of BRICS Countries

Countries	Year	GDP Current US\$ Billion	Exports	Imports	TDI
Brazil	2010	66488.24	201915.29	192491.33	0.5931
	2020	84746.980	211260.76	168469.41	0.44
Russia	2010	1524.420	379007.70	221288.27	39.37.
	2020	1483.500	33788.479	231429.51	38.37
India	2010	1675.620	222906.89	350780.01	35.26
	2020	2660.250	275600.42	368030.02	24.19
China	2010	6087.160	157844.420	1393909.27	48.82
	2020	14722.730	2598024.03	2060258.10	31.64
South Africa	2010	417.370	91345.90	87937.93	42.95
	2020	335.440	85877.49	2680.08	26.40

International Economic Indicators, World Bank Trade and Production data for the BRICS Countries (2010-2020)

Converted into million US \$ original data of GDP IN US \$ billion, Calculated by Author

Table 4 Import Penetration Index of BRICS Countries

Countries	Year	GDP	Exports	Imports	Domestic Demand	Import Penetration
Brazil	2010	66488240	201915.29	192491.33	66093833.38	0.29
	2020	84746980	11260.76	168469	84704188.65	0.19
Russia	2010	1524420	379007.70	221288.27	1366700.57	16.19
	2020	1483500	337884.79	231429.51	1377044.72	16.80
India	2010	1675620	222906.89	350780.01	1803493.12	19.45
	2020	2660250	275600.42	368030.02	2752679.6	13.36
China	2010	6087160	1578444.20	1393909.27	590265.07	23.61
	2020	14722730	2598024.09	2060258.10	14184964.07	49.69
South Africa	2010	417370	91345.90	87939.93	413962.03	21.24
	2020	335440	85877.49	2680.08	252242.59	1.06

Source: World Development Indicators World Bank, Trade and production data for BRICS Nation

Calculated by Author

Table 5 Export Propensity of BRICS Countries

Countries	Year	GDP	Exports	Export Propensity
Brazil	2010	66488240	201915.29	0.3036
	2020	84746930	211260.76	24.92
Russia	2010	1524420	379007.70	24.86
	2020	1483500	337884.79	22.77
India	2010	1675620	222906.89	13.30
	2020	2660250	275600.42	10.35
China	2010	6087160	1578444.20	25.93
	2020	14722730	2598024.03	17.64
South Africa	2010	417370	91345.90	21.88
	2020	335440	85877.49	25.60

*Calculated by Author***Table 6 Marginal Propensity to Import of BRICS Countries**

Countries	Year	GDP	Imports	A GDP	A Imports	MPM
Brazil	2010	66488240	192491.33	18258.740	-24021-59	
	2020	84746980	1683469.41			0.0013
Russia	2010	1524420	221288.27	-40920	10141-24	
	2020	1483500	231429.51			0.24
India	2010	1675620	350780.01	984360	17250-01	
	2020	2660250	368030.02			0.017
China	2010	6087160	1393909.27	8635570	666348-83	
	2020	14722730	2060258.10			0.077
South Africa	2010	41722730	87937.93	-81930	-85257.13	
	2020	335440	2680.80			1.04

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Changing agricultural land use and probability of agro based industries in Kosi plain

Nishant Ketu

Research Scholar, Department of Geography, B. N. Mandal University,
Madhepura, Bihar, India

Abstract

The growth of agriculture depends on the efficiency of resource use and technological progress in the sector with an appropriate cropping pattern. The change in cropping pattern in particular span of time clearly indicate the changes that have taken place in the agricultural development. These changes are brought about mostly by socio-economic influence and in most of the situation, the physical environment reduces the choice of certain crops altogether or by reducing their level. Land use in an area is the cumulative outcome of historical event, the interaction of economic forces with the natural environment and values of society. The agricultural activities of man are restricted to the land surface with a limited soil cover, scanty ground and surface water resources and differences in relief and climate. High yielding varieties of rice, wheat and maize have changed the agricultural land use in the study area, Kosi plain.

Key words: Agriculture, Land use, Probability, Industries

Introduction

Man utilizes soils with the purpose of obtaining maximum profits and many a time without caring much about its future fertility. Soils are largely influenced by the village practices and production activity of man. Man utilizes soils with the purpose of obtaining maximum profits and many a time without caring much about its future fertility. The importance of soils has been increasingly realized and therefore, keeping the soils in sound health is the major concern of the farmers and soil scientists all over the world. Study area, Kosi plain is an agricultural region. The Green Revolution has changed the agricultural land use pattern and crop association region. There is probability of agro-based industries, like rice mills, flour mills, oil mills, jute mills, food processing mills etc.

Study Area

Study area, Kosi Plan is a physical region. It is an integrated part of the middle Ganga plain. It is located between 25° 15' N to 26° 35' N latitude and 86° 19' E to 88° 32' E longitude, extending over an area of 19960 square km with a total population 16919186 according to 2011 census. Study area is bounded on the north by international boundary of nepal on the south by Bhagalpur and khayaia district, on the east by west Bangal state and on the west by Madhubani and Darbhagas districts in political form kosi plain consists of purnea and Kosi divisions and its seven districts like purnea, Katihar, Araria kishangaj, Sahrsa, Madhepura and Supaul.

Methodology

Methodology is the formulation of systematic and logically coherent method of search for knowledge. A method is a system of explicit rules and procedures. Among the various methods, the method of science is the most commonly used in geographical research both Qualitative and Quantitative have been applied in this research paper. Data related to land use pattern changing cropping pattern and per hectare yield have been collected by field survey. Secondary date like demographic pattern have been procured by the district gazetteers and census based books of the concerned districts.

Hypothesis

The hypothesis is a powerful tool in research process to achieve dependable knowledge. It helps the research to correlate theory to observation and observation to theory. In this research paper the following hypotheses have been tested with relevant information and data.

1. Pattern in the study area is influenced.
2. High yielding varieties of rice, wheat and maize have changed the cropping pattern and crop association region.
3. There is probability of agro-based industries.

General land use pattern

Land use in any area is the cumulative outcome of historical events, the interaction of economic forces with the natural environment, and the value of society. population and land associated with each other. whatever peoples have done in the past period to satisfy their basic needs on attempt on the land to provide

food, clothing, shelter, transportation and defence cleared the land and replanted it. The nature of the changes made in any single area depends on what was there to begin with and non- people have used the land. General land are pattern in the study area reflects as

Net sown Area	72.05
Orchang grows and trees	4.58
Current fallow land	2.35
Cultivable waste land	3.10
Uncultivable waste land	4.70
Non Agricultural use	13.22
Total	100.00

Sources calculated by scholar during field survey. As per above table maximum proportion of net sown areas and non-agricultural area, study area showy intensive subsistence farming area.

Changing Agricultural Land use

High yielding variation of rice, wheat, maize has changed the agricultural land use pattern in the study area in the respect of cropping season crop association region and per hectare yield. Old varieties of rice. Wheat, barley, khesari have loose their existence in the study area. High yielding varieties of rice, wheat, maize, juts, oil seeds, pulses and banana have introduced in cropping fields. Bhadai season crops have as existence in the study area. Rabi season, early Agahani seasons and garht season crops are more popular in the study area. Maize and banana are emerging as new crops.

Table given below shows the variation of per hectare yield is pre green Revolution and post green revolution period

Crop	yield (Per hectare in kg)	yield (per hectare in kg)
	1970	2021
Rice	1800	3400
Wheat	1100	2900
Maize	2000	4800

Source calculated by scholar during field survey

Probability of Agro Based Industries

Study area Kosi Plain have all suitable facilities for establishment and development of agro band industries there are adequate raw materials like rice, wheat, Maize, oil seed, pulses, banana, mango, bamboo etc. Study area has efficient rail and road transport rates. Kosi plain is dense populated area these local wide market is available for products of agro-based industries.

Study area has probability for the following agro-based industries:

1. Rice mills
2. Flour Mills
3. Oil Mills
4. Jute Mills
5. Milk chilling plants
6. Paper Mills
7. Card Board Factors
8. Tea Processing Plants
9. Food Processing Plants etc

Katihar, Purnea, Forberganj, Araria, Kishanganj, Banmankhi, Motihari, Saharsa, Madhepura, Tribeniganj, Supaul, Pipara, Simrahi are suitable places for establishment and development of agro based industries.

Conclusions

Land use pattern in the study area is influenced by its land man ration. Impact of the green revolution on agriculture is positive in the study area. High yielding varieties of rice, wheat and maize have changed the agricultural land use pattern, cropping season, crop association region and per hectare yield. High proportion of net sown area and non-agricultural use are indicators of intensive subsistence farming in the study area. There is probability of agro based industries.

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Protection of Artificial Intelligence under Patent Laws

Dr. Jyothi Vishawanath

Associate Professor, University Law College, Bangalore University, Bangalore,
Karnataka, India

Arindam Maitra

LLM 3rd Semester, University Law College, Bangalore University, Bangalore,
Karnataka, India

Abstract

The Artificial Intelligence (AI) refers to the intelligence displayed by the machine, which is opposite to natural intelligence. Today's AI enables several features in the smart phones we use in our day lives like the Face recognition techniques. There are several machine learning algorithms and different functions in AI help in personalizing the user's timeline on Facebook, Twitter, Instagram and any other social media platforms.

Patent law assumes that the inventors are human beings rather than a machine. The laws in different countries, which grant patent rights to be exercised to individuals, are based on the fact that the human beings are instrumental in bringing the change to the system rather than machine. Patenting refers to inventions being - new and novel, original and non-obvious and useful. The challenge, which many courts and governments face that AI made inventions, cannot be patented.

Key policy issues with regards to patenting of AI inventions are being discussed in this article. New laws are required to be framed by different Governments to protect the inventions under the AI as the new buzzword in automation in different countries.

Introduction

The Artificial Intelligence (AI) refers to the intelligence displayed by the machine. This is opposite to natural intelligence that living beings including humans and animals are born with, and this has made significant inroads to our daily lives. The Encyclopaedia Britannica defines AI as the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. This involves automating our daily tasks, which can be performed by a human being with machine controlling and executing

the tasks. Human interference is reduced to zero while executing these tasks. This results in minimizing the defects and reduction of bias caused by human beings.

The fundamental recognition of IPR has been adopted in the International Covenant on Economic, Social, and Cultural Rights (ICESCR), which recognizes two rights- the right of the general public to enjoy the benefit of scientific progress; and the protection of moral and material interests of the person producing such progress. Article 4 of the Paris Convention specifies the right of the inventor to be named in the patent and also the right of priority.

AI used in day-to-day life

Today's AI enables several features in the smart phones we use in our day lives like the Face recognition techniques. There are several machine learning algorithms and different functions in AI help in personalizing the user's timeline on Facebook, Twitter, Instagram and any other social media platforms. AI helps in finding out friend's suggestions and similar news in Facebook. Tools like Grammar and Spell-checks that help compose and identify messages on smart phones or laptop and ensure ease of typing use AI.

Search engines like Google uses Page ranking algorithm to scan the entire web not just the text but also the video and the images. The Page Rank algorithm outputs a probability distribution used to represent the likelihood that a person randomly clicking on links will arrive at any particular page. Page Rank can be calculated for collections of documents of any size. It is assumed in several research papers that the distribution is evenly divided among all documents in the collection at the beginning of the computational process. The Page Rank computations require several passes, called "iterations", through the collection to adjust approximate Page Rank values to more closely reflect the theoretical true value.

Classification of AI

The AI has been broadly classified into three main types:

1. Artificial Narrow Intelligence (ANI)
2. Artificial General Intelligence (AGI)
3. Artificial Super Intelligence (ASI)

Amongst all of these AI, AGI systems can think like human capabilities. In other words, in a AGI system machines would be

capable of understanding the world in the same capacity like human beings.

AI has been used to develop newer vaccines, drug design, discovery of materials, space technology and design of ships, rockets and submarines.

In the past few years, different inventions have involved with AI, this is one of the biggest threats patent systems all over the world have faced.

Patent Law

Patent law assumes that the inventors are human beings rather than a machine. The laws in different countries, which grant patent rights to be exercised to individuals, are based on the fact that the human beings are instrumental in bringing the change to the system rather than machine. This is one of the major problems most of the patent applications are faced whenever AI system as inventors has been lodged in more than 100 countries.

The challenge, which many courts and governments face that AI made inventions, cannot be patented. This has serious ramifications since sponsors and businesses would be less incentivized to pursue meaningful research with the AI inventors where the return on investment could be limited.

In 1883 Paris Convention for the Protection of Industrial Property, the foundations of the international patent system were established. Even by 1994, AI-generated inventions were still almost unheard of when the World Trade Organization finalized its Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). The 1883 and 1994 treaties mandate international patent standards today.

The TRIPS agreement protects “any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application”¹.

The inventions, which are patentable, involve the following:

- new and novel
- original and non-obvious
- useful

The new and novel refers to something, which is unique and has not been discovered earlier. This is considered the 'inventive step' in European patent law or 'conception' in U.S. patent law.

The patent should be original, not obvious to someone skilled in the art.

1. https://www.wto.org/english/docs_e/legal_e/27-trips_04c_e.htm
2. <https://www.cpp.edu/research/technology-transfer/patentable.shtml>

The useful criteria require inventors to demonstrate in the patent application how the invention would be used by others and should have some kind of industrial application. U.S. patents call such application as 'best mode' wherein there is a commercial application of such an invention. In other words, the inventor is not holding back the knowledge and the explanation of the patent from the general public.²

Case Laws:

United States:

1. Thaler v. Commissioner of Patents

There has been an ongoing debate on whether Artificial Intelligence can be recognized as an "inventor". The Australian former *Patents Act 1952* (Cth) (which was superseded by the current Act) referred to the existence of an "actual inventor" - that is, a person with a legal personality. The *Statute of Monopolies 1623* (UK) (which is foundational to the principles of the current Act) which highlights the relationship between rewarding ingenuity and acts of invention by the "true and first inventor" was also referred. It was noted that the word "inventor" was not defined in the Act. The Full Court maintained that in case of AI, human authorship is paramount.

Can an artificial intelligence (AI) system be a named inventor on a United States patent? No, says a federal appeals court in a decision issued earlier this month. The case, *Thaler v. Vidal*, arose from two patent applications filed in 2019 by Stephen Thaler, naming an AI system he calls DABUS (for "Device for the Autonomous Bootstrapping of Unified Sentience") as the "inventor."

After the U.S. Patent and Trademark Office (PTO) informed Thaler that the applications were incomplete because they did not list a human inventor, he filed a complaint in a federal district court in Virginia. In September 2021, that court ruled against Thaler, citing

“the overwhelming evidence that Congress intended to limit the definition of ‘inventor’ to natural persons.”

Thaler then appealed to the Court of Appeals for the Federal Circuit, which on August 5, 2022 issued a ruling affirming the district court’s decision. The Federal Circuit noted that while it might initially seem that resolving Thaler’s claims would require “an abstract inquiry into the nature of invention or the rights, if any, of AI systems,” in fact there was no need to “ponder these metaphysical matters.” Rather, the Federal Circuit focused its attention on the statutory interpretation of the term “inventor.”

The U.S. Patent Act defines an inventor as “the individual or, if a joint invention, the individuals collectively who invented or discovered the subject matter of the invention.” While the Patent Act does not define an “individual,” the Federal Circuit cited a 2012 Supreme Court decision that held, in relation to text associated with a different statute, that an “individual” is ordinarily understood to be a human being. The Federal Circuit concluded that in passing the Patent Act, “Congress has determined that only a natural person can be an inventor, so AI cannot be.”

2. Sewall v. Walters

The U.S. patent law does not mandate a particular level of control or input by humans, but the law frames questions of inventorship and patentability in terms of human creation and requires conception. Such conception has been applied to include the formulation of ideas in the mind of the inventor, reflected in the case of *Sewall v. Walters*. This is reflected in the wording “whoever” and “person”, which operates in conformity to the approach of the Copyright Office of not granting protection to AI-generated works. Additionally, Section 115 requires that the correct inventor(s) be named in a patent application.

3. Townsend v. Smith

The landmark case *Smith* emphasises the importance of ‘conception’ for an outcome to be construed as valid. This case indicates that the invention must have been conceived (a definite and complete idea of the operative invention) in the mind of the inventor before it can be materialised and patented. Such a requirement poses difficulty in granting patents to AI; or requires the legal systems to make an exception for AI.

4. *Alice Corporation v. CLS Bank International*

In the case of *Alice Corporation v. CLS Bank International*, the decision of the apex court of the United States created a setback for the patent laws for many years. Holding that an abstract idea on a computer that aids in settlement risk is not sufficient to obtain a patent, thus invalidating any efforts taken to recognize AI as a patent owner. The only solace that can be sought in the entire judgement was the opinion of Judge Newman, who called for more clarity on the enforcement of low-quality software patents.

Free Software Foundation, acting as amicus curiae, delivered an interesting opinion that the test to determine whether an invention by artificial intelligence would fall within the ambit of the machine-or-transformation test.

5. *Schillinger v. United States*

In *Schillinger v. United States*, decided by the United States Supreme Court, holding that a suit for infringement of a patent cannot be considered against the United States because an infringement of a patent is a tort, and the United States has not surrendered sovereign immunity for intentional torts. This judgment should be considered for the purpose of infringement. This raises doubts on how the legal systems handle matters of infringement of patents by AI systems.

USA has addressed the concern inherent in machine-generated works, noting that a determination of the line between human and machine participation would be a “crucial question”. As noted, the U.S. framework suggests that finding the line between whether an AI was merely a tool or whether an AI independently conceived and executed work is difficult.

European Union (EU)

The European Union has also adopted a similar approach. European Patent Convention (EPC), under Article 58, provides that a natural or a legal person can file an application. However, the article allows for applicants (those equated to legal status by the law governing), whereby AI can be allowed as long as the law grants the status. However, no such grant has been afforded so far, rendering the alternate inapplicable. Article 60(1) EPC is concerned with safeguarding the proprietary interest of the inventor, and any introduction of AI will require legal systems to discuss the interests of the programmers of the AI as well.

EU has commissioned reports, which recognise the Asimov Rules and require legal systems to initiate structured public dialogues to discuss the consequences of the technology. The report also raises the possibility of applying existing legal principles to AI with amendments. The AI Experts' Open Letter to the EU Commission on AI Robotics rejects the need to establish legal personhood for AI systems and attempts to award legal personality stemming from a superficial understanding of the technological and legal landscape in which AI systems operate.

India

Direct recognition of intellectual property law is found in the 7th schedule of the Indian Constitution. Indian Patents Act, 1970 forms the primary consideration as Section 2(1)(j) defines "invention", which is required to be re-evaluated (in light of the judicial decisions) which require a 'mental act' element; whether the law can eliminate this requirement for AI-generated inventions (AI as first and true inventor). Section 6 is an important provision for evaluation as it addresses requirements to apply for patents. The provision employs the term "person", which extends to entities as well. However, the law will also have to respond with additional incentives for AI, in terms of legal responsibility and enforceability of rights.

Section 3(k) provides that the computer program or algorithm cannot be patented. This section raises red flags for the final output as AI programming language is mainly algorithm-based (whether the output of a non-patentable algorithm is eligible for a patent).

For an invention to be patentable, it is necessary that the invention must be a new product or process and useful. In *Bishwanath Radhe Shyam v. Hindustan Metal Industries*, it was held that the step must not be a mere workshop improvement but new and useful. The primary question involves developing criteria to qualify 'new' inventions for AI.

To seek injunctions to prevent infringement, the patent holder must show he would suffer irreparable injury if the injunction was not granted. This judgement would increase the burden of proof on AI to show significant injury, and yet the courts will have to evaluate if such consideration is sufficient to grant an injunction.

In ***Franz Xaver Huemer Vs. New Yash Engineers***, the court noted the negative impact on markets and the economy if patents were granted and not utilised for commercial purposes. The exclusive

right granted to the inventor over his invention includes his right to assign his invention or transfer any interest in his invention in favour of any other person in consideration of monetary gain. How can AI negotiate the terms of usage regarding the patent? Moreover, will this require a need to reconsider the existing contract law.

<https://www.theippress.com/2022/06/29/the-recognition-of-artificial-intelligence-as-inventor-under-patent-laws-a-review-of-law-and-precedent-of-united-states-european-union-and-india/>

Additionally, patent law requires full disclosure of the steps involved; it is pertinent that the market has actual knowledge of the invention, and not just the benefits conferred. The programming language of AI can pose an obstacle to such disclosure.

What is Patentable and what is not patentable

If the invention cleared the USPTO's definition of what is **not** patentable, then it must also meet the following characteristics of patentable innovations:

- new and novel
- original and non-obvious
- useful

Let us discuss each of these characteristics of a patentable innovation separately.

New and Novel

The patent process confirms uniqueness to your innovation but you must prove it to the patent examiner. Novelty is part of the patent review process conducted by the examiners. They compare the claims in a patent filing with what has already been patented, what is called the prior art. You should know the prior art in your respective field and the level of uniqueness of your research before spending the time and resources on submitting a patent application.

It is a common question to ask, "How do I know when I've discovered something unique?" The patenting process considers the concept of "new combinations" when evaluating ideas. When existing knowledge is combined in new ways, the result can be an innovation and patentable. What the patent examiner is looking for is new insight gained from the combination of existing knowledge in new ways or applied to a new set of problems.

This is considered the ‘inventive step’ in European patent law or ‘conception’ in U.S. patent law. Conception is the “...formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention.” U.S. Judge Learned Hand stated this as “The test of invention is *the originality of the discovery*, and discovery depends upon the mental act of conceiving the new combination, for substantially every invention is only a combination.”

Original and Non-Obvious

Moving to the next criteria, the question is whether the concept is original, not obvious to someone skilled in the art. What does ‘someone skilled in the art’ mean? The patent examiner is looking to see if this invention is trivial, would it appear to be obvious to anyone with an average level of training in the field or professional knowledge. U.S. patent law is linked to the concept in economics of the ‘reasonable person’ or rational consumer. This fictional person is meant to be representative of someone that should they be presented with your innovation, would consider it to be unique, original.

Useful

The useful criteria require inventors to demonstrate in the patent application how the invention would be used by others. To be useful, the invention must have a useful purpose such as “made or used in some kind of industrial application. In addition, in U.S. patents the application must also describe what is called ‘best mode’. Best mode is the practical method or commercial application of making or practicing the invention. This requirement is to ensure the inventor is not holding back from explaining to the public (or one skilled in the art) how to make or practice the invention.

Governments issue patents as a trade-off to inventors. A patent issued protects the inventor’s right “to exclude others from making, using, offering for sale, etc. the patented invention for a limited time”, i.e. the length of the patent life. In return for this period of protection, the patent must include sufficient information, such as the ‘best mode’ for one skilled in the field to be able to make use of the information at the time the patent expires. In this manner, the public benefits from the inventor’s efforts while the inventor receives a level of protection against infringers and competitors while the concept matures from idea to a commercial product or innovation.

Innovations then are much more than improvements to existing technologies. They are truly novel, unique, and non-obvious for patenting purposes. Patentable ideas must be more than an idea, they must be well thought out so that the protected information in the patent is useful to others at the conclusion of the patent protection period. In fact, patents represent one of the important ways that man teaches others their unique solutions to problem solving.

Patent law is based on the assumption that inventors are human; it currently struggles to deal with an inventor that is a machine. Courts around the world are wrestling with this problem now as patent applications naming an AI system as the inventor have been lodged in more than 100 countries¹. Several groups are conducting public consultations on AI and intellectual property (IP) law, including in the United States, United Kingdom and Europe.

If courts and governments decide that AI-made inventions cannot be patented, the implications could be huge. Funders and businesses would be less incentivized to pursue useful research using AI inventors when a return on their investment could be limited. Society could miss out on the development of worthwhile and life-saving inventions.

Rather than forcing old patent laws to accommodate new technology, we propose that national governments design bespoke IP law — AI-IP — that protects AI-generated inventions. Nations should also create an international treaty to ensure that these laws follow standardized principles, and that any disputes can be resolved efficiently. Researchers need to inform both steps.

Machines that are able to invent were not a consideration for drafters of the world's first patent legislation, the Venetian Patent Statute of 1474. Nor were they contemplated in the 1883 Paris Convention for the Protection of Industrial Property, which established the foundations of the international patent system. Even by 1994, AI-generated inventions were still almost unheard of when the World Trade Organization finalized its Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). The 1883 and 1994 treaties mandate international patent standards today.

The TRIPS agreement protects “any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application” (see [go.nature.com/3n4khc2](https://www.go.nature.com/3n4khc2)). In its wording, ‘inventions’,

‘new’, ‘inventive step’ and ‘capable of industrial application’ are terms of art, each with a legal definition. In essence, an object is not patentable if any of these requirements is not met (see ‘What is patentable?’).

AI and Inventorship in different Countries

The United States is one of multiple jurisdictions where Thaler has sought to obtain patents listing DABUS as the inventor. It has been a bumpy road. A U.K. appeals court, the European Patent Office, the Federal Court of Australia, and the German Federal Patent Court have all declined to allow patent applications that do not list a human inventor. (The German court did, however, identify a potential path forward under which an application could list Thaler as the inventor, while also recognizing that DABUS played a role in the invention.)

The most notable exception to date has been in South Africa, where in July 2021, the Companies and Intellectual Properties Commission (CIPC) granted a patent listing the inventor as DABUS. However, South Africa differs from the other jurisdictions mentioned above in that it does not have what is known as a “substantive patent examination system” through which the government evaluates the merits of a patent application before granting a patent. Rather, as Meshandren Naidoo and Christian E. Mammen noted in *Patently-O*, in South Africa “all that is required in a formal examination (also known as a registration-based system) is for the application forms and fees to be in order with the specification documents attached. If these affairs are in order, the patent will summarily be granted by the CIPC.”

A Key Policy Issue: Patentability of AI Inventions

As they should, patent offices and courts in the U.S. and elsewhere have focused on applying patent laws as they are currently written. That means, however, that they are not being asked to fully engage with some of the more fundamental patent policy questions that are arising as AI systems become increasingly sophisticated.

What happens when, as Thaler asserts occurred with DABUS, an AI system outputs an invention that no person conceived? Putting aside what the current language of the U.S. Patent Act and the associated regulations requires or prohibits, as a policy matter, should an invention that would be patentable if AI were not involved

become unpatentable for the sole reason that it was created using AI?

A first option is to declare AI inventions unpatentable, But this would require defining what an “AI invention” is, and lead to a proliferation of disputes regarding whether inventions are within that category. The risks and costs associated with these disputes would undermine the incentive at the heart of the patent system, which aims to promote innovation by providing a time-limited set of exclusive rights in exchange for disclosures of inventions to the public. For example, to the extent that AI can create new disease-fighting drugs that would have otherwise remained undiscovered, it would be bad policy to disincentivize pharmaceutical researchers and companies from investing time, effort, and capital in AI-based drug-discovery approaches.

A second option is to conclude that the use of AI should not render unpatentable an otherwise patentable invention. This would preserve the innovation-promoting incentives that the patent system was designed to foster, but it would lead to complex questions of inventorship. As the International Association for the Protection of Intellectual Property stated in a 2020 resolution, “given the ability of AI systems to ‘learn,’ traditional notions of inventorship may be challenged.”

Under this second option, it seems reasonable to attribute inventorship to the natural persons behind the AI, thereby avoiding the many problems that would arise if AI systems were deemed inventors. Of course, this attribution process would raise its own substantial complexities given the varying roles people play in designing, programming, training, and evaluating the outputs of AI systems. And it would require rethinking the current framework under which, as the U.S. PTO explains in a widely referenced but non-binding guidance document, the “threshold question in determining inventorship is who conceived the invention.”

The upshot is that AI will be a core part of the process of creating a growing number of inventions in the coming years. If patent systems are to be maximally effective in their crucial role as drivers of innovation, they will need to engage with this new reality.²

Conclusion

From the literature study, it can be inferred that the novelty, originality and non-obviousness of a patent refers to a man made

inventions rather than a machine made inventions. As we are moving in an age where machine can learn and do things, this opens a new area for patenting which has not been covered by the laws in most of the countries. As automation is the new buzzword for the 21st century, there is a need to rethink the framework and revisit the laws. With the growing number of inventions in AI, this will be the new driver for the millennium. Technologies keep changing at a fast pace and there is a need to upgrade the laws so that the rights of the inventor is covered and common public is benefitted of the new technology.

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Cost-benefit Analysis of Liquefied Petroleum Gas (LPG) and Electric Cooking Use in Nepal

Rajendra Kumar Pokhrel

PhD, Associate Professor, Department of Economics Education,
Mahendra Ratna Campus (Tribhuvan University), Kathmandu, Nepal

Abstract

Electric cooking has high prospects in Nepal as many hydroelectric projects are likely to produce electricity in the near future. Majority of Nepalese urban households depend on LPG for cooking. Electricity is the cleanest sources of fuel for cooking. It has many benefits as reduction of the cost of cooking, promotes health and healthy environment, fuel savings, time saving and global environmental benefits due to greenhouse gas reduction. Electric cooking is increasing at very fast rate leading to increase in import of it. Nepal has huge hydropower potential; efforts should be made to replace LPG by electric cooking which is comparative or even better in terms of convenience, cost and aesthetic value. To achieve it, there is need to increase hydroelectricity production, improve electricity transmission & distribution system, house-wiring quality, connection capacity, policy interventions and other infrastructures. Additionally, to replace LPG use, it should be much cheaper in terms of life cycle cost. The fuel dependency is one of the main reasons for Nepal's trade deficit with India. The Government of Nepal has recently started promoting electric induction stoves for cooking as an alternative to LPG. Induction stoves are pollution free and help to reduce dependency on LPG in Nepal. This study includes a cost-benefit analysis of induction stoves to LPG stoves in urban area of Dang district. The study involved the use of data for LPG and electricity consumption for households that have been trying to adopt induction cooktops.

The results show that about one-thirds of households in the study are benefited economically from the adoption of electric cooktopspin place of LPG.The use of an electric induction cooktops is much cheaper (around 50 %) than the LPG in term of running cost.

Keywords: Cost-benefit analysis, electric cooking, LPG, electric cooktops, fuel switching, air pollution

Introduction

Majority of urban household is dependent on LPG for cooking purposes in Nepal. Electric cooking has high prospects in Nepal as many hydroelectric projects are likely to produce electricity in the near future. Nepal's hydroelectricity generation has been expanding remarkably. According to energy economists and policymakers, Nepal's trade deficit can be addressed by minimising the imports of petroleum products. It has a large economic cost to the economy as there is no local production, so all of it is imported, leading to negative impact on balance of payment situation. In 2077/78, Nepal imported 477752.0 MTLPG contributing to 2.5 percent of Nepal's total import bill of NPR 1.5 trillion. Simply replacing Liquefied Petroleum Gas (LPG) with electricity for cooking can alleviate the country's trade deficit. Electric cooking is smokeless and does not produce indoor air pollution reducing carbon dioxide emissions and hence minimise respiratory diseases. Hydroelectricity is considered renewable source of energy. Nepal is the country of high potential for hydropower generation from Runoff River that is perennial in nature. Several studies have shown that electric cooking is cost effective compared to that of LPG.

Majority population in Nepal depend on solid biomass fuel for cooking (CBS 2016) which causes household air pollution. The data shows that there is high annual premature death of around 22,841 people (WHO, 2016). There is an urgent need to promote electric cook stoves to save human health and environment from adverse effect of household air pollution generated from biomass and LPG fuel for cooking. To reduce LPG use, electric cooking is a viable solution with respect to health and economic implications of prevailing cooking practices, the probable electricity surplus scenario of the country. Consumer's preference on the adoption of electric cooking, willingness to pay, preferred financial mechanism and the impact on the existing electricity infrastructure present prospects of transition to clean cooking (EECMU, 2021).

Nepal imports nearly 260,000 tons of Liquefied Petroleum Gas (LPG) and other fossil fuels annually from India resulting to Nepal's trade deficit with India. The Government of Nepal has initiated promotion of electric induction stoves for replacing LPG as these are pollution free and are meant to reduce Nepal's dependence on LPG (Dahal, 2020). In 2077/78, Nepal imported 477752.0 MT LPG.

Dang district is located in inner terai in Lumbini Province of Nepal. It is bordered by Pyuthan, Rolpa, Salyan, districts to the north, Uttar Pradesh of India to the south is, Argakhachi and Kapilvastu to the east and to the west are Surkhet and Banke district. The district covers 2955 sq. km and has a population of 548151(CBS, 2011). According to preliminary report, 2021 the size is 676277 (CBS, 2021). Total number of HHs is 1,16,347. Ghorahi is the district headquarters of Dang. The study included a cluster of households in Dang District, There are two Sub-Metropolitan cities, one urban municipality and seven rural municipalities. Tharu occupies the majority of population 29.52%, chhetri 24.91%, Magar 13.6%, Brahman 10.25% and others.

Most of the households in Nepal can gain economic benefit from the electric cook stoves. The switching from the use of LPG to electric cooking can be smoother and more efficient if households are made aware of the benefit. So, electric cook stoves could be a good, clean source of fuel while also reducing the trade deficit and hence can help to identify fuel-switching opportunities. This study includes a cost-benefit analysis for replacing LPG stoves with induction stoves for households in urban areas of Dang District, Nepal.

Objectives of the Study

The overarching goal of this article is to analyse cost and benefit of liquefied petroleum gas (LPG) and electric cooking use in Nepal. The specific objectives are:

- to analyse cost benefit of replacing LPG use by electric cooking.
- to examine the socio-economic and environmental benefits of using electric cooktops as perceived by the consumers.

Literature Review

Ensuring access to and use of clean cooking fuels for all is a key Sustainable Development Goal (SDG 7). The range of possibilities for cooking with clean modern energy is increasing rapidly on a global basis. LPG is extremely popular among household cooks. Use of LPG can result in forest protection and reduction of other climate-warming elements. The supply of LPG has enabled a very large number of households to access clean and convenient fuel in Nepal (Parikh et al, 2020).

Some Asian countries have been successful in reaching very high electrification rates (Bhattacharyya, 2012). Electric cooking

through specialized electric appliances is increasing now in areas where the power supply is reliable. Being Landlocked country, Nepal may benefit from utilizing electricity for cleaner household energy, because of high hydroelectricity production potential of its own, whereas, LPG have to be imported (Parikh et al, 2020).

Ecuador is the country with growing hydro-electric capacity launched the induction stove program in 2015, aimed to replace LPG-based cooktops with an electric system for 80% of all households by 2018 (Gould et al., 2018). Study has shown electric cooking to be the most efficient fuel in terms of energy consumption as it was almost half the cost of cooking with LPG (EECMU, 2021).

Nepal joined Sustainable Energy for All (SE4ALL) initiative in 2012 to meet the target of clean energy to all by 2030. The initiative was led by the UN Secretary General's to ensure the promotion and development of sustainable energy. The National Planning Commission formulated action plans to achieve the SE4ALL goal. In 2013, the Nepal government developed a national goal to provide Clean Cooking Solutions for all by 2017 as a complement to the SE4ALL initiative. The Constitution of Nepal (2015), states that the government will adopt policies regarding the protection, promotion and use of natural resources to guarantee appropriate, affordable and sustainable energy to citizens. Various relevant policies and strategies advocate in favour of the promotion of clean and renewable-energy technologies including for cooking, raising awareness, providing adoption subsidies and establishing more effective policy frameworks. Growing interest in cleaner cooking fuels among policy makers, civil societies and development partners is subsequently creating new opportunities for the promotion of modern cooking fuels such as electricity. Growing interest in cleaner cooking fuels among policy makers; civil societies and development partners are creating new opportunities for the promotion of electric cooking.

The Government of Nepal is committed to provide Clean Cooking Solutions for All. In January 2013, the Prime Minister announced an ambitious mission of CCS4ALL, throughout the country. The initiative was incorporated in the government's policy and program for fiscal year 2071–2072 BS (World Bank, 2016). The Government aims to provide clean cooking technologies of at least tier -3 to all households by 2030 (MoPE 2017). Likewise, the Government of Nepal has already made commitment for global

Sustainable Energy for All and Sustainable Development Goals (SDGs). The SEforALL and SDG-7 call for secure affordable, reliable, sustainable and modern energy for all which includes cooking energy as well.

The inefficient and heavy use of solid biomass fuel contributes to health impact as well as economic cost, deforestation, greenhouse gas emission, time loss, and drudgery. Cooking and heating fires using solid fuels are a major global emission source of black carbon and other aerosol species (Bond et al., 2004).

The results show that about two-thirds of households in the study would not benefit economically from the adoption of electric induction stoves if there is no subsidy on the electricity. Future analysis of the economics of a transition to induction cooking could be improved through the collection of more precise data on LPG consumption, baseline electricity consumption, LPG prices, and the economic discount rate (Dahal, 2020).

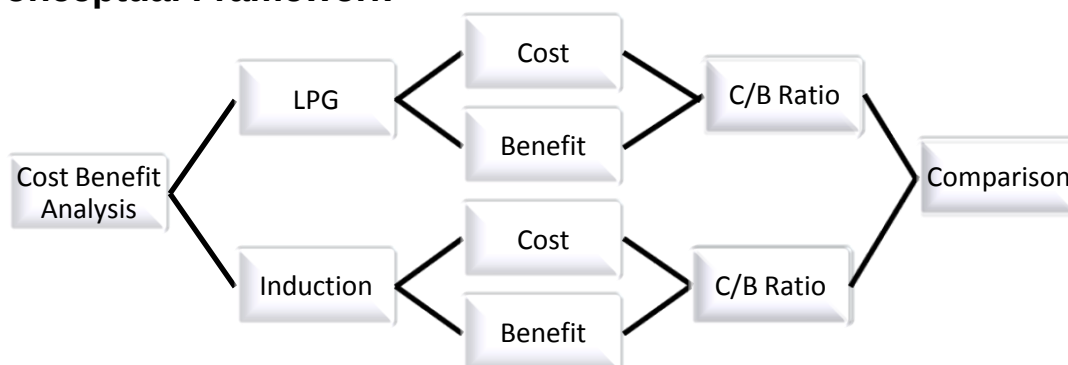
Currently, the priority is to replacing conventional fuels with cleaner fuels. This fuel switching approach is opening new doors to modern cooking fuels such as electricity (Vaidya, 2020).

In the year 2019, the Nepal Electricity Authority (NEA) achieved the highest generation of hydropower ever (NEA, 2019). Several other ongoing hydropower projects are expected to be completed soon. Nepal is comparatively better than many other developing countries towards providing electricity access to its people (Islar, Brogaard & Pedersen, 2017). Electricity is the clean source of fuel and would help in reducing the trade deficit with India by decreasing fuel imports. Nepal imports most of its LPG from India.

This study considers the following research questions:

RQ1: Is electricity cheap enough to replace cooking gas?

Conceptual Framework



Methodology

The research is both descriptive and analytical. The qualitative and quantitative data were collected through the questionnaire survey and cooking diary. The data were collected using Kobo Toolbox app. The collected data were downloaded in excel sheet from which analysis using charts and graphs was possible. The survey was conducted to collect information on the fuel consumption patterns of the households in Dang district. The district covers 2955 sq. km and has a population of 548151 and total number of HHs is 1,16,347 (CBS, 2011). 400 HHs as sample was *selected* by using Morgan table (confidence level 95% and P-value 0.5) from the 1,16,347 HHs of Dang district. Sampling is purposive in nature. The survey also collected the information on different cooking and non-cooking events that the households experienced.

Results and Discussion

Energy/Fuel Users of LPG and Electric Cooktops for Cooking

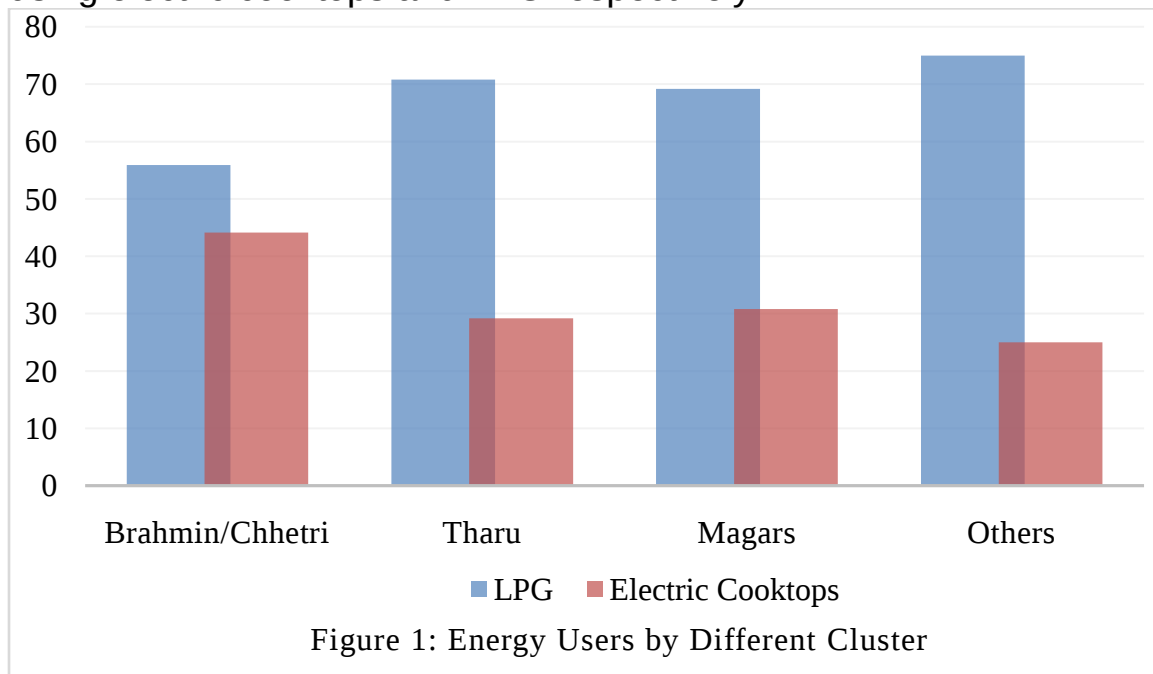
Dang district is located in inner terai in Lumbini Province of Nepal. It is bordered by Pyuthan, Rolpa, Salyan, districts to the north, Uttar Pradesh of India to the south is, Argakhachi and Kapilvastu to the east and to the west are Surkhet and Banke district. The district covers 2955 sq. km and has a population of 548151 (CBS, 2011). According to preliminary report, 2021 the size is 676277 (CBS, 2021). Total number of HHs is 1,16,347. 400 HHs as sample was *selected* by using Morgan table from the 1,16,347 HHs. The goal of this study is to perform a cost-benefit analysis of fuel-switching from LPG stoves to electric induction stoves. Table 1 presents the number of households adopted electric induction cooking and LPG. This study assumes that in the future, the households would switch to electric induction cooking, and this cost-benefit analysis would help them understand the financial benefits to switch.

Table 1: Energy Users by Different Castes.

Energy/ fuel	Category of Consumers Users (HHS)								Total	
	Brahman/ Chhetri		Tharu		Magars		Others			
	N	%	N	%	N	%	N	%	N	%
LPG	76	55.89	85	70.8	36	69.2	69	75	266	66.5
Electric Cooktops	60	44.12	35	29.2	16	30.8	23	25	134	33.5
Total	136		120		52		92		400	100

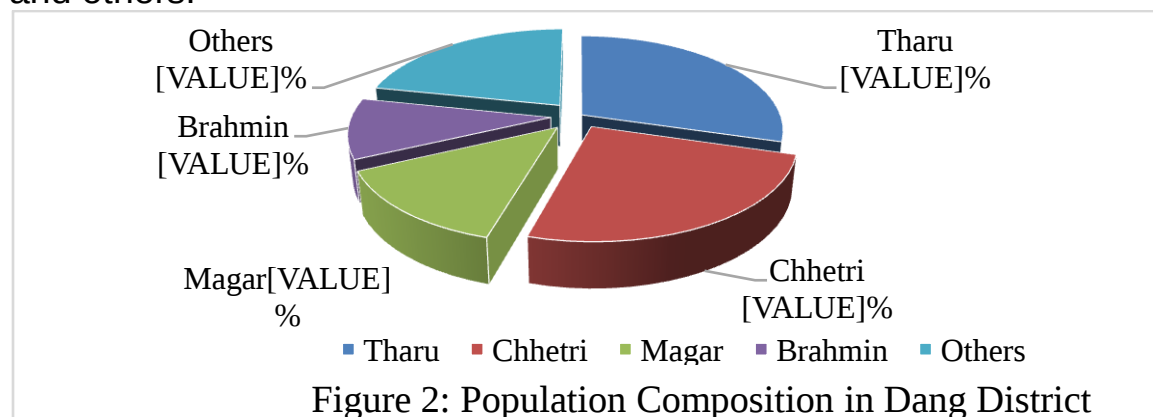
Source: Field Survey, 2021

Table 1 presents the number of households using electric cooktops and LPG cooking. Out of total 400 households 66.5% use LPG and only 33.5% use electric cooktops for cooking. Among different categories of energy users, Brahmin and Chhetri 55.89% have been using LPG and 44.12% household switch on electric cooktops. Likewise, among Tharu households only 29.2% have been using electric cooktops and majority i.e. 70.8% are using LPG. Similarly, Among Magars 30.8% and 69.2% households have been using electric cooktops and LPG respectively.



Source: Field Survey, 2021

There are two Sub-Metropolitan cities, one urban municipality and seven rural municipalities. Tharu occupies the majority of population 29.52%, chhetri 24.91%, Magar 13.6%, Brahman 10.25% and others.



The results show that about one-thirds of urban households in the study have been using electric cooktops. They would be benefitted economically from the adoption of electric induction stoves if there is no subsidy on the LPG.

Cost and Benefit of LPG and Electric Cooking Use: Comparative Analysis

The finding shows that 90 units of electricity save around a cylinder of LPG use. If valued in terms of money, the time saving on electric cooktops provides benefit than LPG use. There are other benefits of electric cooktops in terms of good health, convenience and clean environment. So, the demand for electric cooktops is increasing day by day. In case of use of LPG only for cooking purpose, a family requires around 1 cylinder per month. It costs around 1900 (including delivery charge) per month. Relatively, electric cooking use is much economic i.e. NRS 855 than LPG use (Table2). In case of induction cooktop use the cost saving is much higher.

Table 2: Fuel cost for Cooking a Comparative Analysis

Fuel	Quantity	Price (Rs)	Monthly expenditure (in Rs.)
LPG	14.2 kg (net/cylinder)	1900 (including delivery charge)	1900
Induction cooktop	90 unit	9.50/unit	855

Source: IOE 2019

LPG has a specific calorific value of 46.1 mega joules per kilogram. Every cylinder with 14.2 kg of cooking gas gives 181.9 kilowatt-hours of energy from electricity. But considering heat transfer efficiency from the burner to pot, the LPG stove has just 40 percent efficiency only compared to 84 percent efficiency with induction stoves. If efficiency factor is considered one cylinder of LPG is equivalent to 86.59 kilowatt-hours (86.59 units) electricity consumption from an induction cooktop. If converted on money, the use of an electric induction cook stoves is much cheaper than the LPG in term of running cost.

Cost-benefit analysis of LPG and electric cooktops motivate to replacing LPG stoves with induction electric cooktops in urban households of Dang district Nepal.

Electricity Access Situation Nepal

Nepal is one of the fastest electrifying countries in the world, with access to electricity increasing at an annual rate of 4.3% much higher than the 0.8% global average. According to the Government of Nepal's Economic Survey 2019/20, in mid-March 2020, 90% of Nepal's population had access to electricity. According to World Bank (2019), 71.7% of the households in Nepal are connected to the national grid while 23% of households are using an off-grid source to meet their energy needs. About 5.2% of the households do not have electricity access in Nepal, and majority of these populations are living in the most remote and hard to reach regions of the country.

At present, there is about 1,200 MW installed capacity of electricity in Nepal. The Government has target to achieve 15,000 MW by 2030. Currently, there are 172 projects with total capacity of 4642 MW in different stages of construction after having issued electricity generation licence. It indicates that Nepal is getting ready for electric cooking with commitment for Electric Stove in each house in Nepal (GoN, 2018).

Conclusion

This study is performed a cost-benefit analysis of replacing LPG stoves by induction stoves. The results show that about one-thirds of urban households in the study have been using electric cooktops. They would be benefitted economically from the adoption of electric induction stoves if there is no subsidy on the LPG. The use of an electric induction cook stoves is much cheaper (around 50 %) than the LPG in term of running cost. Electric cooking is smokeless and does not produce indoor air pollution reducing carbon dioxide emissions and hence minimise respiratory diseases. Electric cook stoves could be a good, clean source of fuel while also reducing the trade deficit. Cost-benefit analysis of LPG and electric cooktops motivate to replacing LPG stoves with induction electric cooktops in urban households of Dang district Nepal.

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Medicinal values of some potherbs sold in dry form in daily haats of different areas of Ranchi, Jharkhand, India

Dr. Arpana Sharma

Associate Professor, Department of Botany, School of Science,
YBN University, Ranchi, Jharkhand, India

Abstract

Several biweekly and daily haats (small market with rural look) are a regular feature of Getalsud area Villagers, specially the tribals, from surrounding areas comes here to sell agricultural- and forest-produce. One can easily notice that some potherbs are sold here in dry form. These dry plants serve as diet supplements for the poor who cannot afford the cost of fresh vegetables. The specific taste of these Sag provide an off season satisfaction to the palate of rural folks. They have immense medicinal value and serve also as diet supplement for the locals. In the present study such potherbs were identified and information's about their medicinal value has been compiled.

Key words: Dry Potherbs, Identification, Medicinal value

Introduction

The capital town of Jharkhand, Ranchi comprises of various pockets of tribal villages amidst the urban dwellings. Hence, the culture of haats still persists here with some impact of urbanisation. Notable haats are witnessed in Dhurwa area on Tuesday and Friday, in Morhabadi area on Wednesday and Saturday, in Upper Bazar area on Wednesday and Saturday, in Nagari area on Tuesday and Friday, in Kanke area on Wednesday and Saturday evening, in Boria area on Wednesday and Saturday morning and in Namkum area on Saturday. Besides, in several places like Lalpur, Lowadih, Hinoo and Infront of Raj Bhawan daily haat are abuzz with trade activities. Local folks come from, as far as 20 to 25 kms to sell and purchase agriculture and forest produce, including varieties of potherbs, both cultivated and wild. Some of these potherbs (Sag) are sold in dried forms. The

aim of present survey is to identify these dried vegetables and to as per the submission of Aboriginal people.

Material and Methods

Village markets of Ranchi were surveyed. Vendors and buyers of dried Sag were interviewed to know their local names and the specific areas where they grow. Village vaidyas and other knowledgeable persons were also interviewed to know the medicinal properties of the plants, if any. During the course of study from year 2004 to 2006, almost all haats of Ranchi were visited in different seasons. Live samples were collected and herbaria were submitted to the Department of Botany P.P.K. College Bundu, Ranchi with proper voucher number. Plants were identified scientifically". Recent nomenclature of these taxa was confirmed. Their medicinal uses were matched with those referred by Jain.

Enumeration

1. *Alternanthera sessile* (L.) R.Br.ex DC. (Marantaceae)

Local Name: Gaundari sag

Habit: Found in all season but mostly after rainy season.

Medicinal property: Laxative, acts as a blood purifier. It assists in curing liver disorder, Protects from heat stroke if dried form is eaten with stale rice (Botha Bhat) in summer.

2. *Brassica campestris* (L.) Clapham. (Brassicaceae).

Local Name: Sarson sag.

Habit: Found in winter season as crop.

Medicinal property: Used as prophylactic against cough and cold, a good laxative. Dried form also has same property and eaten during change of season.

3. *Brassica nigra* (L.) Koch. (Brassicaceae).

Local Name: Sarson sag, Rai mani, Kohamani

Habit: Found in winter season as crop.

Medicinal property: Used in pneumonia to keep the body warm. Used as prophylactic against cough and cold, act as a good laxative.

4. *Cassia occidentalis* L. (Caesalpinaceae).

Local Name: Kasaundi sag.

Habit: In late rainy season as weed.

Medicinal property: Prepared dry sag is used in stomach problems like gastric and as coolant to body in summer. It is also used as a blood purifier.

5. *Cassia tora* L. (Caesalpinaceae).

Local Name: Chakonda sag

Habitat: Rainy season as weed.

Medicinal property: Sag is helpful in stomach problems and night blindness. Dried form is useful in insomnia and bodyache due to weariness.

6. *Centella asiatica* (L.) Urban (Apiaceae).

Local Name: Beng sag, Brahmi.

Habit: Round the year in wet land as weed.

Medicinal property: Very popular sag of the area, Consumed in case of amoebic dysentery, jaundice, leprosy, and also to retain memory power, also used in 'Ranu' of Haria [Rice beer]. Dry form is used in summer as coolant to body, as liver tonic and antamoebic.

7. *Cicer arietinum* L. (Fabaceae).

Local Name: Chana sag, Moroejang.

Habit: Winter season as crop.

Medicinal property: Very good laxative also in dry form, Keeps digestive system in order.

8. *Dacus carota* L. (Apiaceae).

Local Name: Gajara sag.

Habit: Winter season as crop

Medicinal property: Dried sag is a good laxative.

9. *Ficus virens* Ait. (Moraceae)

Local Name: Putkal sag

Habit: Soft stem twig in March-April. Trees found on roadside and forest.

Medicinal property: Young leaves of this tree are quite effective in diarrhoea and dysentery. Also dried and preserved to use in odd seasons.

10. *Marsilea minuta* L. (Marsileaceae, Pteridophyta)

Local Name: Sushni sag, Sunsunia sag

Habitat: Round the year at marshy places and inside water bodies.

Medicinal property: Sag is eaten to get relief from weariness. It is very effective in case of insomnia even in dry state.

11. *Meyna spinosa* Roxb. (Rubiaceae)

Local Name: Sarla sag, Kanta sag.

Habitat: Young leaves February to April in Forest.

Medicinal property: Only dry sag is eaten, Effective in dysentery.

12. *Hygrophila auriculata* (Schum.) Heine. (Acanthaceae)

Local Name: Kuila ara sag

Habit: Wet land in rainy season as weed.

Medicinal property: Sag is used in jaundice, bodyache and also acts as blood purifier.

13. *Ipomoea batatas* (L.) Lam. (Convolvulaceae)

Local Name: Kanda sag.

Habitat: Winter as crop.

Medicinal property: Sag is used only in dry form Good laxative and tonic.

Results and Discussion

Out of these thirteen sags sold in dried forms, five are parts of cultivated crops. *Alternanthera sessilis*, *Centella asiatica*, *Hygrophila auriculata* and *Marsilea minuta* which are aquatic in nature and are also sold in dry conditions 5 as potherb in Ranchi district of Jharkhand. Present survey reports about 'Kanda sag (*Ipomoea batatas*) and Sarala sag (*Meyna spinosa*) which are always used in dry conditions. The use of *Alternanthera sessilis* in case of chronic liver disorder was reported from Madhya Pradesh and Chhattisgarh. The use of *Centella asiatica* in case of insanity is reported from Arunachal Pradesh'. However only fresh potherbs are used in 7 such cases, Some of these dry leafy vegetables are 8,9 analysed. They are found rich in protein, mineral and fiber.

The present work indicates how local folks have developed an alternative of green vegetables. These dried sags are cheap and nutritious and also have medicinal properties. They can also be

stored round the year and serve as ready to cook vegetable in off seasons.

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Impact of Micro-Finance in Rural Bihar

Pratibha Kumari

Research Scholar, Dept. of Commerce, Lalit Narayan Mithila University,
Darbhanga, Bihar, India

Abstract

Poverty is a important problem in most of the third world countries as well as in Indian States (especially in Bihar). Indian Government with its concern started manifold poverty alleviation programmes but in which microfinance is very popular. Stat government of Bihar was also introduced micro-finance through SHGs to boost up Rural livelihoods programme which is called JEEVIKA. JEEVIKA and SHGs increased over the ear but the progress is slowed. Bank there is an increase in the Bank Credit from the previous year. But certain development in recent years has brought a new focus on the problem of regulation in the field of micro-finance.

Keywords: *Micro-finance, SHGs, JEEVIKA, Rural Development in Bihar, Bank Credit, Poverty.*

Introduction

Poverty is one of the major problems prevent in the developing countries including India of the world. Reducing poverty is the fundament objective of economic development. It is estimated poverty more than one billion people in the developing Nations live in absolute poverty. Most of the third world countries have recently been pursuing various policies and programmes to pull out poverty, important obstacles to sustainable economic development. Among these policies and programmes one of the most important and effective one that is Micro-Finance.¹

Microfinance has been initiated in all developing and under developed countries having poverty- stricken people. This kind of policy ignited by Dr. Muhammad Yunus who designed a credit programme to series the poor with his graduate Students in Chittagong University in 1972. This piloted programme Pater in 1983 named "Grameen Bank", in 2006 Nobel Foundation awarded Noble Prize to Dr. Muhammed Yunus and his Grameen Bank.² Furthermore this credit programme has become a model for most of the developing countries those who are actively engaged in the process of eradicating poverty

from their soil. Currently microfinance has been widely spread all over the world as an effective tool to reduce poverty. It is found that microfinance has reached about 80 million households and about, 2000 micro-finance institutions are functioning in developing countries of Asia, Africa, Europe and Latin America. Hence, in this regards India has been seriously pursuing this new model of Microfinance over the last couple of years to eradicate poverty with the help of National Bank for Agriculture and Rural Development (NABARD).

Objectives and Methodology

The objectives of the study are to examine the appearance of microfinance in India and to analyze the performance of micro-finance to eliminate poverty in rural Bihar through JEEVIKA programme. The study is also based on secondary sources of data. The main sources of data are different books, Government reports and journals for meaningful suggestions and conclusion.

Microfinance in India

In our country, the history of microfinance approaches has emerged over the past decade as establishment of Syndicate Bank in 1921 in private sector. During the early years, Syndicate Bank concentrated on raising micro deposits in the form of daily/weekly basis and sanctioned micro loans to its clients for shorter period of time. But microfinance came to limelight only when Dr. Yunus gave it a mass movement in Grameen Bank experiment. Microfinance a novel approach to provide saving, investment, credit and other financial services with the aim to raise income levels and improve living standards of poor in rural areas.³

Microfinance mainly operates through Non-Government Organizations (NGOs) Self-Help Groups (SHGs) and now supported by the state, to create links between commercial Banks and other credit agencies in India. Microfinance through SHGs provides credit to poor people with the means to find their own way out of poverty. Recognizing their importance, both Reserve Bank of India (RBI) and National Bank for Agriculture and Rural Development have been spreading the promotional and linkage of SHGs to the banking system through refinance support, and initiating other effective policies and system.⁴

Microfinance is an important tool, and is commonly use in addressing issues to women for poverty alleviation, financial support to micro entrepreneurs, gender development etc. in all states including

Bihar in India. Microcredit special cell (MCSC) of the Reserve Bank of India, the borrowed amounts up to the limit of Rs. 25000 could be considered as micro credit products and this amount could be gradually increased up to Rs. 40,000 over a period of time which roughly equals to \$ 500 - a standard for South Asia as per international perceptions. Therefore, Microfinance through Self Help Groups (SHGs) has been recognized internationally as the modern tool to combat poverty and rural development. In Indian States, Microfinance and SHGs are effective in reducing poverty, empowering women and creating awareness which finally results in sustainable development.

Microfinance and JEEVIKA in Bihar

In our country there is wide range of poverty prejudices and social tapes and always women have been neglected to the status of a second class citizen. The women as a class continue to be at the losing end. According to the report of NABARD (2012-13) indicates that population of Bihar below poverty line (BPL) in the country. To reduce poverty state government is implementing a number of rural developments programmes. Through such programmes are run by the agencies of micro finances through SHGs, JEEVIKA, PMAY, MANAREGA and PDS can do and it is also a contributory factor for women empowerment in rural areas. But the study is going to explain only two programmes such JEEVIKA and MANAREGA.

Rural livelihoods mission (JEEVIKA) is an initiative of the Bihar government to reduce poverty in rural areas by providing support for livelihood activities. Another important significant of the project is to empower rural women in Bihar both economically and socially. It aims at increasing income of the rural poor by developing institutional capacity through SHGs which can access better services from banks and other public agencies. The Central Ministry of Rural Development has restructured the Swarna Jayanti Gram Swarozgar Yojna (SGSY) into National Rural Livelihood Mission (NRLM) in April 2013. The Bihar Rural Livelihood Promotion Society (BRLPS) functions under the overall framework of NRLM. The JEEVIKA programme of BRLPS had started initially in a limited number of districts.

It is clear from the table that how the items of JEEVIKA increased during the period of 2011-12. JEEVIKA has organized households from 55704.

Self Help Groups, number of Village Organizations (VOs) increased from 3476 , number of SHG, Credit linked with Banks from 25621, and Bank Credit Increased from Rs. 123 Crores to Rs. 123 Crore in the 'expenditure of beneficiaries from 2011-12 It means rural groups of JEEVIKA shows a positive impact on employment generation. The problems of poverty, unemployment and women empowerment in the economy can be solved in this way if JEEVIKA through SHGs continuously provide in upward direction.

Progress of JEEVIKA

Items	2011-12
No. of SHGs formed	55704
No. of VOs formed	3476
No. of SHGs Credit Linked with Banks	25621
Bank Credit (Rs. Crore)	123

Source: JEEVIKA, Government of Bihar, Patna

Help to these poor workforce in Rural Bihar

JEEVIKA has started preparations for Bihar Transformative Development Project which it calls JEEVIKA II. This project aims at Scaling up the JEEVIKA model across the State by further improving value chain and human development interventions. The new projects design reflects the ongoing pursuit of the State government for achieving a transformed rural Bihar through the agency of empowered women collectives. Therefore, JEEVIKA has strengthened its core livelihood interventions through the above discussed activities in rural Bihar.

Conclusion

From the above discussion we can say Microfinance can be called a powerful approach to provide saving and investment facility to the poor in rural Bihar. In the state, livelihoods mission that is call JEEVIKA mainly operates through SHGs, NGOs and Credit agencies. It has positive impact on women empowerment and provides poor people with the means to find their own way out of poverty. Hence, lending to the poor through micro-credit is not the end of the problem but beginning of new approach. If effectively handled, it can create miracle in the field of poverty alleviation in rural Bihar. But it must be handled with capacity building programmes. Without any special skills with the clients of microcredit, the loan is being used in consumption and

procurement of non-productive assets. Therefore, it is very important to provide skills development training programme like handicraft, carpentry, goat rearing, weaving, poultry, horticulture farming and many agricultural training through State Government of Bihar for rural development.

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Effect of different artificial diet on the development of *Apis mellifera* colonies during dearth period

Sushma Kumari

Research Scholar, Dept. of Zoology, Lalit Narayan Mithila University, Darbhanga, Bihar, India

Abstract

*The performance of different artificial diets for the proper development of *Apis mellifera* colonies during period was studied with seven treatments and three replication in Randomised Block Design during two consecutive years, 2009 and 2010.*

T ₁ –Sugar syrup	250 ml/week
T ₂ - Sugar syrup	250 ml/ twice week
T ₃ - Sugar syrup	500 ml/week
T ₄ -T ₁ + $\frac{1}{2}$ capsule Tetramycin (500 mg) +1/2 capsule vitamin B. complex	250 ml/week
T ₅ -T ₁ + Extract of mahua	250ml/week
T ₆ - T ₁ + Pollen substitute (A) Recommended	T ₁ + 100 g/ week
T ₇ - T ₁ + Pollen substitute (B) indigenous	T ₁ + 100 g/week

Pollen substitute (A)

The ingredients of pollen substitute (A) were indigenous and locally available.¹ It is comprised of soyabean meal (100g) ,yeast powder (10g) ,natural pollen (5g), skimmed milk powder (5g), sugar(22.59g) honey (22.5g) and glycerine(1g).² The required quality of each component were accordingly weighted as per their quantity and made dough.³

Sugar Syrup

The sugar syrup was prepared by boiling sugar and water (1:1)⁴. This syrup was given after cooling in feeder.⁵

Extract of Mahua

Mahua fruit was soaked overnight then crushed and extract was mixed with sugar syrup.⁶

Pollen substitute (B)

The gram flour (sattu) was given as pollen substitute.⁷

Feeding Method

The sugar syrup was applied in feeder while pollen substitutes after making doush given on top bar.⁸ The diets were given to selected colonies of sunset at different doses mentioned above in the colonies at fortnightly interval, starting from month of June to October.⁹ These bees were also allowed to feed on natural flora in addition to artificial diet.

Observations were recorded on different parameters in each treatment for measuring the development of honeybees colonies i.e. brood area, pollen area and honey stores at fortnightly intervals from June to October in 2009 and 2010. The brood area and pollen area were measured in cm² while honey stores in kg. The data were statistically analyzed in Factorial Randomised Block Design (FRBD) to find out the effect of factors and their interactions.

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Tribes of Jharkhand

Dr. Rajiv Kumar

Asst. Prof., Dept. of Commerce, Langta Baba College
(Vinoba Bhave University, Hazaribag), Mirzaganj, Giridih, Jharkhand, India

Abstract

Human have lived since the stone age in the area now occupied by the Indian state of Jharkhand.¹ There are 30 different groups of scheduled tribes in Jharkhand maintaining their distinctive social, cultural, economic and ethnic identity to suit the exigency of time present Jharkhand area has been known as Atavika Rajya (Ashokan Rock edicts), Sawana-La-Pha (in Fahian days), Jharkhand (Chaitanya Mahaprabhu days), Jungle-mehal or Khukhra or kokrah (in "Turko-Afghan or Mughal days) and Chutia Nagpur (in British days).² By whichever name this area was known (apart from Bang, Ang and Kalingathe adjoining states) this part of the country shaped its destiny with peculiar oriental features of Indian social organization.³

Introduction

Jharkhand is a state in eastern India. In 2000, with the passage of Bihar Reorganisation act creating Jharkhand as a new Indian state.⁴ According to 1991 census the total tribal population of Jharkhand is 60,44,010 (Male-30,59,715 and Female 29,84,295), which is 27.67% of the total population of the Jharkhand State.⁵ There are 30 different groups of the Scheduled tribe in Jharkhand.⁶ These tribal groups lead their life in different socio-cultural and economic settings.⁷ The Scheduled tribes of Jharkhand are divided into two categories i.e. (i) Major tribe, and (ii) Primitive tribe. Baiga, Banjar, Bathudi, Bedia, Bhumij, Binjha, Chero, Chick Baraik, Gond, Gorait, Ho, Karmali, Kharia, Kharwar, Khond, Kiran, Kora, Lohra, Mahli, Munda, Oraon and Santal tribes are major tribes.⁸ Whereas Asur, Birhor, Birjia, Korwa, Mal Paharia, Parahiya, Sauria Paharia and Savar, Hill Kharia are Primitive tribes. (i) Agricultural stage. (ii) Stagnant Population and (iii) low level of literacy. The Socio-economic condition of major tribes of Jharkhand is better than Primitive tribes.⁹

The economy of the Scheduled tribes of Jharkhand mainly depends on agriculture and forest.¹⁰ The agriculture of Jharkhand

mainly depends on monsoon.¹¹ Even today some Birhor of Jharkhand mainly depends upon minor forest produces for their survival.¹² They prey animals and birds in the forest. They also collect honey, root, bark, fruits etc. from the forest.¹³

Most of the SauriaPaharia tribe, who reside on the hill top practise shifting cultivation and grow Maize, Barbatti, Arhar, Sutani etc. Chik Baraik, Karmali, Lohra and Mahli are artisan tribes. The traditional occupation of Chik Baraik has been cloth weaving. But at present their traditional occupation of cloth weaving is on the verge of extinction. Mahli tribe has been associated with bamboo craft. This tribe prepares basket and other household appliances from the bamboo. The traditional occupation of Karmali and Lohra tribes has been to prepare iron implements for the purpose of agriculture and household requirements. Banjara tribes of Jharkhand earns livelihood by singing and dancing on the occasion of marriage, birth, etc. in nearby villages.

The tribals of Jharkhand also rear cow, ox, buffalo, goat, pig, fowl, duck, etc. to supplement their income. Due to industrialization, some tribes have given up their traditional occupations and work as unskilled labourers in factory, mines, brick kiln, construction of building, dam, road, etc. Some tribals of Jharkhand are associated with the production of lac, cocoon, etc. The tribal economy in Jharkhand depends on agriculture, forest, animal husbandry and cottage industries. The establishment of industries in Jharkhand has also provided employment to the tribal people. Some tribal people work in government and private sectors. The economic condition of tribals of Jharkhand is pitiable. About 85% of tribal population of Jharkhand is leading their life below the poverty line.

Population Growth Trend in Jharkhand

Table of Statement Showing Growth of Population in Jharkhand

1881	49,54,979	
1891	53,35,141	9.5
1901	56,15,938	6.00
1911	66,23,329	10.99
1921	62,43,349	0.16
1931	72,44,846	10.04
1941	81,56,0009	12.57
1951	94,66.153	16.06
1961	1,07,36,428	13.42

1971	1,42,28,238	32.52
1981	1,75,85,661	23.59
1991	2,18,48,860	24.25
2001	2,69,09,428	23.16

Density of Population

Uneven distribution of population also becomes obvious by the analysis of density of population, Average per sq.km. density of population in the state of Jharkhand has been 338. The highest density of population has been noted in the dist. Of Dhanbad 1167 (person per sq.km.) because of concentration of good number of urban centers which have developed on account of the development of coal resources and related industries.

Objective of the Study

His purpose of this study is to make an in depth study of the working of TRIFED since inception and evaluate its work in and examine its impact on the life and conditions of the tribal population in the State Jharkhand. An attempt has been made to be comprehensive and hence there is the choice of the following indicators or TRIFED:

1. To examine the socio economic condition of the tribal population of the state of Jharkhand.
2. To examine the different measures and steps taken by the central and state Govt. for the upliftment of the tribals.
3. To examine the working of TRIFED and its impact on the tribal Economy at Jharkhand.
4. To examine organization, objectives and Function of TRIFED.
5. To examine their impact on the life and conditions oldie tribal population.
6. Growth at TWEED
7. To suggest ways and means to improve the working at TRIFED.

This study will also present an action plan for TRIFED.

Hypothesis

1. In Jharkhand there has been an inadequate socio-economic development of tribals.
2. There has been an inadequate allocation for tribal development.

3. There has been an insignificant growth at TRIFED.
4. No Significant increase in the:
 - (a) Tribal income
 - (b) Per-capita income of the tribals during plan period.
5. No significant improvement in the contribution of government.
6. TRIFED'S capacity to act at the grass-root level and to identify people's need and to mobilize local resources in the village.
7. TRIFED not a homogenous entity; it has a mixed ideology. It is capable developing an innovative model at tribal development.
8. TRIFED have shifted their approach to weaker section i.e. from charity to development approach or social Justice Approach.

Methodology

Methodology Use of appropriate methodology ensures better and accurate result in social science research. The research will adopt both quantitative well as qualitative techniques for the study. The research scholar will collect relevant information pertaining to her research project from the publications of TRIFED.

Besides information regarding life, economic and social conditions of tribals in Jharkhand will be gathered from the census reports of Government of India and other publication in this regard.

Besides, interview with officials of TRIFED and its beneficiaries will be arranged to have on the spot knowledge of TRIFED's performance and its problem. In the final analysis, I will give my own impression regarding the working of TRIFED.

Data from secondary source form the basis of study. Primary source has been used to suggest measures for TRIFED revival. The details have been taken from my individual visit and study at different places.

Government and non-government agencies supply the statistical data. I will get both the state and central government publications from the government machinery. They have been obtained from the national accounts statistic, the annual survey of tribal affairs, the central statistical organization, the ministry of information and the National council of applied economic research, Reserve Bank of India.

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Socio-Culture Impact of Globalization in Dalit and Backward Classes

Dr. Vinay Kumar Sinha

Assistant Professor, Department of Sociology
K.S.T. College, Salempur, Sohsarai, Nalanda, Bihar, India

Abstract

Today our country is Slipping into new-liberal economic globalization, a world economic order which has gradually been altering the characters of ruling class through the imposition on multi-national companies on the helm of economic affairs, Right from production to distribution of commodities and services alike. Under the distribution of commodities and services alike, under the new base the entire superstructures, of which culture is a component, have been experiencing fundamental changes. Naturally our Socio-Culture landscape is getting altered with coming to fore of disturbing developments in the social fabric in which our identities and modes of life are alarmingly charging.

Introduction

A pleasure seeking, money mined depoliticized mindset devoid of indigenous cultural memory is coming in lace. Cultural plurality, the traditional specialty of the Indian society is seemed to have fast been eroding giving place to different type of culture based on consumerism and profit making without having cares for common good and welfarism our post colonial period is becoming one dimensional and spirit of strengthening National Sovereignty is an hold. Media oriented technologies spectacular shows hold sway in our media where in icons and images are created perpetually and forgotten. The impacts of all these alarming changes 'Ushering in India's Social fabric have been influencing the culture of Dalits and Backward class people in manner which is diametrically opposed to the impact it leaves on the economically and socially affluent classes.¹

On international level the growing loss of united Nation's authority to handle 'regional and international security affairs' is the worst of all that has taken place under the area of globalization and a near total throwback, to political ethical value has taken shape. We

witness on national scene an uninterrupted rise of divisive communal and casteist forces-cast massacres in Bihar, Separatist tendencies in U.P., Tamilnadu, Communal tendencies in Gujarat and unintermitted terrorist action in Jammu and Kashmir State being the explicit examples. The political-Social encouragement of vested interests, which have unfortunately, felled off from acting against them.²

Above all are the general economic political, Social and cultural Scenarios that have been taking place in the globalization with the distinct impacts on various cultural groups and collective. The paper is a probe into the impacts of globalization on the Socio-culture of traditionally Dalit and backward classes people.³

Introduce to Globalization, Socio-cultural Globalization and position of Dalits and backward class in cast structure

Globalization is the process of interaction and integration among people, companies and governments worldwide. This increase in global interactions has caused a growth in international trade and the exchange of ideas and cultures. Generally Globalization has accelerated since the 19th century due to advances in transportation and communication technology.⁴

Different people in different periods of time interpreted globalization a different forms as it is believed that human history is in itself a process leading to globalization. The capitalistic economic foundation of globalization is laid as early as in 16th century and following 5 stages are laid.

1. 1400 - 1750 emergence of nationalism in Europe
2. 1750 - 1875 initial phase of internalization
3. 1875 - 1925 conceptualization of the world as one international society.
4. 1925 - 1965 cold war, emergence of united nation organization and third world countries 1969 – 1992 space exploration.

Socio-cultural globalization is when a transmission of ideas, people and goods around the world have reached to such an extent that it leads to more inter-connectedness between people of different cultures.⁵ Currently our world is becoming more interconnected to each other as most countries have trade relations; societies of different cultures are learning more about each other. Transnational corporations have become worldwide etc. Therefore, with our world becoming more globalized it has led to many discussing the topic

Whether or not socio-cultural globalization brings more positive impacts on our Third world (like India) or more negative.⁶

Dalit also called in term Harijan and Scheduled cast who have been subjected to untouchability under caste structure Dalits were excluded from the four-fold Varna system of Hinduism and were seen as forming a fifth verna.⁷

Backward class is a collective term used by the government of India to classify caste structure. It is one of several official classifications of the population of India. The other backward class is found to comprise 52% of the country's population by the Mandal Commission.

Of so many areas which have come under encompass of invasion globalization. Culture is one of them important sector experiencing the most service and perennial impacts of globalization. In general precept the ruling class culture usually dominates the culture milieu of a society is the acknowledge fact of the modern sociology and consequently once this culture is altered or begins to proceed in a distinct direction its impacts on the culture group people are realized in a big way. In this era of globalization the old 'base' of the Indian society followed after independence till 1990-91 has been receiving severe alteration. A type of invasion made on it by the imperialist culture-of the western European and American countries that have distorted the Indian value system and imposed upon India a distinct culture ever realized by the Indian people in their post. The massive odd inspects of imperialist culture on the culture of India's ruling circle have affected the Dalit and backward class culture with more serious affects whereby its culture hegemony to have Dalits and backward classes united as a collective against the existing exploitative economic and social mechanism of the Indian society has appeared to be losing its relevance.

Today India is slipping into new-liberal economic globalization, and to that sequel its cultural landscape is getting altered with coming to fore of disturbing developments in the social fabrics in which our identities and modes of life are alarmingly changing what has been realized in that stead a pleasure seeking. Money Minded, depoliticized mindset devoid of indigenous cultural memory in coming into place and cultural plurality is fast eroding. Our post colonial period is becoming one dimension and spirit of strengthening national sovereignty is on hold. Media oriented technologies spectacular show, hold away in our media wherein icons and images are created

perpetually and forgotten. A near total throw back to political and ethical value has taken shape and on national scene an uninterrupted rise of divisive communal and casteist forces are being witnessed nurtured by the mental and martial resources of India. The continuation of separatist movements in Jammu and Kashmir commencement of new ultra nationalist group in the North-east regions, complicating ethnic problems therein, caste massacres in Bihar, separatist tendencies in U.P, Gujarat and Tamilnadu etc, are fresh reminder of ugly faces with politic-socio encouragement of vast interest, which unfortunately are fall outs of vote bank politics and which keep the hand of state off from acting are the resultant effects of the new cultural imposition on India.

On international and national scene India finds itself in grip of old conxwena. On national plane we are increasingly face to face with invention of cultural imperialism which has invaded us not through the Known forms of physical coercion or violence but through seductive power of images, massages and mythologies etc. and we have to do a lot to exert to undo this onslaught.

The above briefly stated facts are the depictees of the general scenario which globalization has created and has still been creating in a developing country like India. How and to what extent the culture of Dalit and backward class culture is affected will be realized in the Ushering changes taking place in their various segment and their cultural milieus.

The Indian society, of which Dalits and backward classes are inseparable components is a class divided society the culture that dominates on indiological-political plank is the culture of the ruling class, a class which is the owner of the means of production and the real driver of the political power whose execution is made by political institutions representing its own class interests. However, the specialty of the ruling class in a class divided society based on the principle of individual ownership of the means of production is its lower numerical strength and the culture it brings on fore, therefore, represents the minority culture. Distinct so it there is perceived a culture, which represents the classes which are ruled. But their numerical strength is far greater than the ruling class. The ruled class culture, the culture of the majority people has to be perceived from common people perspective and with board outlook, to have a review of the cultural invasion of globalization on the Dalit and backward class culture. Naturally encompasses in its told the culture of the

exploited class. Because as an infrastructure the culture of the ruling segment adopts itself corresponding to the changes ushering in the economy under the precinct of globalization but the common people's culture remains the sector of most victimized under the economic change-every economic - reform in favour of globalization resulting into increasing economic, social political and cultural adds of the common masses. To concentrate on bringing forward the people's culture heritage to carry it forward as contemporary people's culture means giving emphasis on "values" - useful for the people. "Values" of nature includes martial values, Political values, aesthetic values, international values, civilization values etc. Nursing an attitude for maintaining values in different fields is nothing but an exposition and manifestation of culture which if interacted with values of other's will lead to friendship through cultural cooperation. The factors, to be considered for upliftment of values, have been located as attitude to political field - political culture. attitude to economic field, economic cultural, attitude to social field culture, attitude to aesthetic field aesthetic culture, attitude to international relational - culture of international relation, attitude to international trade- culture, attitude to good governance - culture to governance etc.

In regard to socio and Political culture has proved itself an injurious Phenomenon for Dalit and backward classes for its anti-Indian constitution stand. In the constitution of India the concept of justice Social economic and political embodies a sense to provide occasion to every Indian citizen such Political economic and social milieus in which exportation, whether economic, Social and political would be an impossibility basis has to extent maximum benefits to dalit and backward class people, because to provisions make them free from aye - old social, economic and political subjugation. But the economic precept of globalization under which unrestricted accumulation of wealth is permitted and creation of increasing gap between poverty and riches has become its characteristic. The culture that assumes a shape appears to be anti-Dalit and anti-backward classes. Under the security of globalization the age old exploitative mechanism becomes more exploitative under modernized managerial and Mechanical act up instead of being eroded. There is complete defiance of the directive principles of state policies which assure to Indian citizen's living wages, healthy working conditions, responsibility of state to provide employment compulsory and universal education to all children's up to the age of 14 years etc.

The ingredient of globalization, privatization of every sector including the service sector deprives the poor people, among whom majority belongs to Dalit and backward classes people, from being educated, the task to impart education has gone to private sector educational institutions who extract heavy fee that is beyond the financial approachability of these collectives. Under globalization the educational possibilities for Dalits and backward classes people have been increasingly reducing and growth in illiteracy, reduction in percentage in educated persons, higher and technical both rampant unemployment and to that sequel deceleration in income have been becoming the general features. Now, has been thrown to a complete darkness under privatization. Now their culture is being led to a direction where the determining factors would be poverty, illiteracy, Unemployment etc. and a culture based on such inhuman factors will necessarily assume a form of an inhuman culture in which caste and group tension individual cleavage, discrimination between caste and castes, Tweek sexes etc, would be dominating factors.

Marketization and openness as in separable parts of globalization have been yielding impacts on the culture plurality of the Indian masses. Where by the traditional sprits of living together peacefully and harmoniously appears to be invaded by distinct type of culture that is the culture of consumerism and of exploiting every thing including the physical beauty of girls and women to beget money. Economic planning now is done not keeping in view, the concept of welfarism to provide facilities to the economical weaker section of the masses but in that stead economic planning has assumed a distinct form which endeavours to exploit human and material resources to produce optimum profit to the produces. Under the globalized economy attempts are being to alter every provision in labour laws which imposes no conditions on the owners and a complete hire and fire policy is being promoted on that stead. The majority of unorganized labourers comes from the rank of Dalit and Backward classes, and the new work culture the globalization has been imposing on the working masses has been gradually changing the entire industrial and agrarian scenes against the accepted principle of welfarism. The Substitution of the economic and work culture of welfarism by the culture of consumerism without having care for common good has been making out post-colonial culture one dimensional and the spirit of strengthening nation sovereignty is on hold. The impacts of all these alarming changes ushering in Indian's

social fabric have been influencing Dalit and backward classes culture in a quite distinct manner than its impacts on the affluent classes.

The growing loss of the authority of the national policy in deciding the growth strategy and in that stead empowerment of market forces acting as the main harbinger to decide what form the growth strategy will take have culminated into variety of social and economic conflicts. These conflicts have divided Dalit and Backward classes to wage united struggle for redressal of their economic, political and social demands. What has been developed under this precinct of globalization are cast violence, communal strife, regional conflicts etc., which is severe danger for brotherly culture and the culture and to live untidily amidst diversities. The old concept of unity amidst diversities has come under severe stack.

On international level a new precedent of undermining United Nations has appeared under globalization. The imperialist world has launched severe offensive against those weaker nations who disobey its new-colonial dictates. Military action against Iraq, Afghanistan and Treat to Iran etc, are the instances of global action to subjugate weaker nations. Complete smashing of the culture of Iraq is example of the extent to which imperialism can go. The imperialist slogan of conflict between culture between the culture of Christianity and the culture of Islam is the most heinest strategy that imperialism has adopted to dismantle culture unity of common people of who are the main motive forces to fight imperialism out.

Under globalization the cultural offensive from imperialism has its economic and political missions and that is to create would submissive to imperialism, and this mission can be achieved by dividing unprivileged section of people among whom Dalit and Backward class people constituted Majority. These political and economic gimmicks of part of imperialism have to be defeated for general uplift of downtrodden masses. Dalits and Backward class people have to become the main harbingers of this revolutionary transformation in a globalized would.

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The study of Indian foreign policy: with special reference to India-Pakistan relations (1999-2013)

Om Prakash Sahu

UGC-NET, Research Scholar, Ph.D. Registration No.- KU1230367,
Registration Date- 20/03/2013, Department of Political Science,
Kolhan University, Chaibasa, Jharkhand, India

Abstract

Foreign policy and state are the two wheels of the international relations. Foreign policy set up some principles, decisions, business relations, cultural relations, political relations for securing the goals of national interest. These interests of nations are known as national interest. Every nation to secure its national interest adopts the strategy of foreign policy.

Introduction

Foreign policy has been defined by Modeiski as, “The system of activities evolved by communities for changing the behavior of other states and for adjusting their own activities to the international environment.”

Huge Gibson has defined foreign policy as “a well rounded, comprehensive plan, based on knowledge and experience, for conducting the business of government with the rest of the world, It is aimed at promoting and protecting the interests of the nation.”

According to Hartman “it is a systematic statement of deliberately selected national interests.”

According to Coulombis and wolfe “Foreign policies are synthesis of the ends and means of nation-states.”

According to Appadorai and M.S. Rajan, there are three fundamental objectives of India’s foreign policy:

1. The preservation of India’s territorial integrity and independence of foreign policy.
2. Promoting international peace and security.
3. Economic development of India.

While keeping in view the fundamental objectives of India’s foreign policy India has adopted and pursued certain principles to realize these objectives, The Principles of India’s foreign policy and

its objectives are closely interlinked with each other. Some of these principles are discussed below:

Non Alignment- Non alignment is the event of international politics which came in the international platform after the Second World War. Non-alignment is the most important feature of India's foreign policy. India keeps itself out from the any military alliance formed by USA and Soviet Union. The independence of Asian and African countries contributed to the growth of the policy of non Alignment, finally the newly independent states wanted to live in peace therefore they concentrated on their development and continued with the policy of non alignment.¹

Panchsheel- India desired peaceful and friendly relations with all countries, while signing a peace agreement with China on 28 April, 1954 and since then it has become a guiding principle of India's bilateral relations with countries also. Panchsheel includes the following five principles of foreign policy:

1. Mutual respect for each other's territorial integrity and sovereignty.
2. Non-aggression against each other.
3. Non-Interference in each other's internal affairs.
4. Equality and mutual benefit.
5. Peaceful co-existence.

These Principles of Panchsheel were later incorporated in the Bandung Declaration, signed in the Afro-Asian Conference held in 1955 in Indonesia. They are the core Principles of Non-Alignment and still guide the conduct of India's foreign policy.²

Policy of Resisting Colonialism, Imperialism, and Racism- India considers colonialism and imperialism as the threat to international peace and security, India raised her voice for the independence of Indonesia and organized Asian Relations Conference for this purpose. Due to India's consistent efforts through NAM and other international forums, 14 African countries were liberated from the yoke of colonialism in 1964. At India's initiative, NAM set up the Africa Fund in 1986 to help the frontline states, which were victims of aggression of South Africa for supporting the cause of fight against Apartheid. The end of racialism in South Africa in 1990 was a great success for Indian Policy.³

Peaceful Settlement of International Disputes- One of the ore elements o India's foreign policy is its unflinching faith in the

political solution and peaceful settlement of International disputes. This principle has been included in the Constitution of India, under the Directive Principle has been included in the Constitution of India, Under the Directive Principles of State Policy as well as in the Charter of the UN.

Support to UN, International Law and Justice- India has deep respect for the international law and the Principles of Sovereign equality of nations and non-interference in the internal affairs of other nations as espoused by the UN.

India-Pakistan Relations – A brief history

With the partition of British India, two separate nations, India and Pakistan were formed. Since the very beginning, the immediate violent partition, wars, terrorist attacks and various territorial disputes overshadowed the connection.⁴

1947/48 – The first India-Pakistan war over Kashmir is fought, after armed tribesmen (lashkars) from Pakistan's North-West Frontier Province (now called Khyber-Pakhtunkhwa) invade the disputed territory in October 1947. The Maharaja faced with an internal revolt as well as an external invasion, requests the assistance of the Indian armed forces, in return for acceding to India. He hands over control of his defence, communications and foreign affairs to the Indian government. Fighting continued through the second half of 1948. The war officially ended on 1 January 1949, when the United Nations (UN) arranged a ceasefire, with an established ceasefire line, a UN peacekeeping force and the recommendation that a referendum on the accession of Jammu & Kashmir to India be held.⁵

1965 – India and Pakistan fight their second war. The conflict begins after a clash between border patrols in April in the Rann of Kutch (in the Indian state of Gujarat), but escalates on August 5, when between 26,000 and 33,000 Pakistani soldiers cross the ceasefire line dressed as Kashmiri locals, crossing into Indian-administered Kashmir.⁶

Infantry, armour and air force units are involved in the conflict while it remains localized to the Kashmir theatre, but as the war expands, Indian troops cross the international border at Lahore on September six, The largest engagement of the war takes place in the Sialkot sector, where between 400 and 600 tanks square off in an inconclusive battle.⁷

By September 22, both sides agree to an UN-mandated ceasefire, ending the war that had by that point reached a stalemate, with both sides holding some of the other's territory.

1971 – India and Pakistan go to war a third time, this time over East Pakistan. The conflict begins when the central Pakistani government in West Pakistan, led by Zulfikar Ali Bhutto, refuses to allow Awami League leader Sheikh Mujibur Rahman, a Bengali whose party won the majority of seats in the 1970 parliamentary elections, to assume the premiership.

A Pakistani military crackdown on Dhaka begins in March, but India becomes involved in the conflict in December, after the Pakistani air force launches a pre-emptive attack on airfields in India's northwest.

India then launches a coordinated land, air and sea assault on East Pakistan. The Pakistani army surrenders at Dhaka, and its army of more than 90,000 become prisoners of war. Hostilities lasted 13 days, making this one of the shortest wars in modern history. East Pakistan becomes the independent country of Bangladesh on December 6, 1971.

1998 – India detonates five nuclear devices at Pokhran. Pakistan responds by detonating six nuclear devices of its own in the Chaghai Hills. The tests result in international sanctions being placed on both countries. In the same year, both countries carry out tests of long-range missiles.

1999 – Indian Prime Minister Atal Bihari Vajpayee meets with Nawaz Sharif, his Pakistani counterpart, in Lahore. The two sign the Lahore Declaration, the first major agreement between the two countries since the 1972 Simla Accord. Both countries reaffirm their commitment to the Simla Accord, and agree to undertake a number of 'Confidence Building Measures' (CBMs).

Some of the diplomatic gains are eroded, however, after the Kargil conflict breaks out in May. Pakistani forces and Kashmiri fighters occupy strategic positions on the Indian side of the LoC, prompting an Indian counter-offensive in which they are pushed back to the other side of the original LoC.

In October 1999, General Pervez Musharraf, the Pakistani chief of army staff, leads a military coup, deposing Nawaz Sharif, the then prime minister, and installing himself as the head of the government.

2001 – Tensions along the Line of Control remain high, with 38 people killed in an attack on the Kashmiri assembly in Srinagar. Following that attack, Farooq Abdullah, the chief minister of Indian-administered Kashmir, calls on the Indian government to launch a full-scale military operation against alleged training camps in Pakistan.

In July, Pakistani President Pervez Musharraf and Indian Prime Minister Atal Behari Vajpayee meet for a two-day summit in the Indian city of Agra. That summit collapses after two days, with both sides unable to reach agreement on the core issue of Kashmir. On December 13, an armed attack on the Indian parliament in New Delhi leaves 14 people dead. India blames Lashkar-e-Taiba and Jaish-e-Muhammad for the attacks.

The attacks lead to a massing of India's and Pakistan's militaries along the LoC. The standoff only ends in October 2002, after international mediation.

2002 – President Musharraf pledges that Pakistan will combat extremism on its own soil, but affirms that the country has a right to Kashmir.

2003 – After Musharraf calls for a ceasefire along the LoC during a UN General Assembly meeting in September, the two countries reach an agreement to cool tensions and cease hostilities across the de facto border.

2004 – Vajpayee and Musharraf hold direct talks at the 12th SAARC summit in Islamabad in January, and the two countries' foreign secretaries meet later in the year. This year marks the beginning of the Composite Dialogue Process, in which bilateral meetings are held between officials at various levels of government (including foreign ministers, foreign secretaries, military officers, border security officials, anti-narcotics officials and nuclear experts). In November, on the eve of a visit to Indian-administered Kashmir, the new Indian Prime Minister, Manmohan Singh, announces that India will be reducing its deployment of troops there.

2006 – India redeploys 5,000 troops from Jammu and Kashmir, citing an "improvement" in the situation there, but the two countries are unable to reach an agreement on withdrawing forces from the Siachen glacier.

In September, President Musharraf and Prime Minister Singh agree to put into place an India-Pakistan institutional anti-terrorism mechanism.

2008 – India joins a framework agreement between Turkmenistan, Afghanistan and Pakistan on a \$7.6bn gas pipeline project. A series of Kashmir-specific CBMs are also agreed to (including the approval of a triple-entry permit facility).

In July, India blames Pakistan's Inter-Services Intelligence (ISI) directorate for a bomb attack on the Indian embassy in Kabul, which kills 58 and injures another 141.

In September, Pakistani President Asif Ali Zardari and Indian Prime Minister Singh formally announce the opening of several trade routes between the two countries.

In October, cross-LoC trade commences, though it is limited to 21 items and can take place on only two days a week.

On November 26, armed gunmen open fire on civilians at several sites in Mumbai, India. The attacks on the Taj Mahal Palace & Tower, the Oberoi Trident Hotel, the Chhatrapati Shivaji Terminus, Leopold Cafe, Cama Hospital, Nariman House Jewish community centre, Metro Cinema, St Xavier's College and in a lane near the Times of India office, prompt an almost three-day siege of the Taj, where gunmen remain holed up until all but one of them are killed in an Indian security forces operation. More than 160 people are killed in the attacks.

Ajmal Kasab, the only attacker captured alive, says the attackers were members of Lashkar-e-Taiba. In the wake of the attacks, India breaks off talks with Pakistan.

2009 – The Pakistani government admits that the Mumbai attacks may have been partly planned on Pakistani soil, while vigorously denying allegations that the plotters were sanctioned or aided by Pakistan's intelligence agencies.

Pakistani Prime Minister Yousaf Raza Gilani and Indian Prime Minister Singh meet on the sidelines of a Non-Aligned Movement (NAM) summit in Sharm el-Sheikh, Egypt, issuing a joint statement charting future talks, Singh rules out, however, the resumption of the Composite Dialogue Process at the present time.

The Indian government continues to take a stern line with Pakistan, however, with its coalition government saying that it is up to Pakistan to take the first step towards the resumption of substantive talks by cracking down on activist groups on its soil.

In August, India gives Pakistan a new dossier of evidence regarding the Mumbai attacks, asking it to prosecute Hafiz

Mohammad Saeed, the head of Jamaat-ud-Dawa, an Islamic charity with ties to Lashkar-e-Taiba.

2010 – In January, Pakistani and Indian forces exchange fire across the LoC in Kashmir, the latest in a string of such incidents that have led to rising tension in the area.

In February, India and Pakistan's foreign secretaries meet in New Delhi for talks. This meeting is followed by the two countries' foreign ministers meeting in Islamabad in July.

In May, Ajmal Kasab is found guilty of murder, conspiracy and of waging war against India in the Mumbai attacks case. He is sentenced to death.

2011 – In January, Indian Home Secretary GK Pillai says India will share information with Pakistan regarding the 2001 Samjhauta Express bombing. The two countries' foreign secretaries meet in Thimpu, Bhutan, in February, and agree to resume peace talks "on all issues".

2012 – In November, India executes Pakistani national Kasab, the lone survivor of a fighter squad that killed 166 people in a rampage through the financial capital Mumbai in 2008, hanging him just days before the fourth anniversary of the attack.

2013 – In January, India and Pakistan trade accusations of violating the ceasefire in Kashmir, with Islamabad accusing Indian troops of a cross-border raid that killed a soldier and India charging that Pakistani shelling destroyed a home on its side.

Future of India-Pakistan relationship

- India and Pakistan are neighbours. Neighbours can't be changed. Thus, it is in the better of interest of both the nations that they bring all the issues on the drawing board and resolve them amicably.
- India wants Pakistan to act more strongly on the terrorism being sponsored from its soil.
- Also, India wants Pakistan to conclude the trial of 26/11 sooner so that the victims are brought to justice and the conspirers meted out proper punishment.
- India has genuine concerns, as there are internationally declared terrorists roaming freely in Pakistan and preaching hate sermons as well as instigating terror attacks.

- With the international community accusing Pakistan of breeding terrorism on its soil, Pakistan cannot remain in denial state and thus, needs to act tougher on terrorism-related issues.

Conclusion

India-Pakistan relations have been and will continue to be, at least in the foreseeable future, tensed. These tensions can be resolved only at the bilateral level through negotiations and a discussion once a conducive environment for talks is created.

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Retahari Maun: Problem and Development of Heritage

Vijay Kumar

Research Scholar, Dept. of Geography B.R.A. Bihar University Muzaffarpur,
Bihar, India

Abstract

Retahari Maun is one of the famous natural wet land and ox-bow Lake of river Gandak in Bairiya block of West Champaran district of Bihar. It's have rich and prosperous natural resources as well as magnificent nature beauty too. The green and lusty ecology and eye catching sites are present here to attract any one. The natural surroundings and joyful persons with abundant resources are the gift of nature. This Maun is full of water during rainy season which supply water for the irrigation nearby crop fields. Even drought and flood does not effect the crops due to availability of water for whole year. All types of trees and fruits are available. Seasonally Vegetables, wheat, rice and sugarcane is important crops. People are engaged in all types of activities for their daily livelihoods. Fishermen always look in calm water on small dingy with their fishnet, aarsi, ghana, gohi, sarvat, gotinga in order to catch the fishes. Verities of birds are also found here. In evening watching flying birds in sky give a magnificent view. The sun rising and sun set is most magnificent view of this Retahari Maun. With lot of flora and fauna this Maun is also suffering from some problems too like the use of Mahajal (big fish net) which destroy the small fish verities with their egg and larva. People also reclaim the dry areas in the Maun for their personal purposes. Eutrophication is natural and ecological problem of this Maun. Growth of cane pipe is also a big issue for this Retahari Maun. Land refilling and siltation or deposition of silt, clay and mud from upper to lower areas also changes the ecological environment of this Maun. Development and protection of these Retahari Maun is very important for the ecological purposes.

Introduction

Retahari maun is situated in Bairia block of West Champaran district of Bihar; -It's an ox bow lake of river the Gandak. Its catchment area comes under following panchayat namely Bhitaha, Bagahi, Tumkdiya, Ojhwalia. It is also connected with famous Sareya

Maun From western side and linked in east with Nakkhi River. It is very reach in terms of water resources and its well suited ecology. It is surrounded by following villages in east Bhitaha, Shahi Tola, in south Bagahi, Damka, Motihari Tand in West Tumkadiya, Ojhwaliya and Makhua and in North of its Makhua, Malkauli Patkhauri, Shukul Tola, Mathiya and Chhotki Bhitaha is situated.¹

It is also said that the water of this river is very digestive like water of Sareya maun. Its length from east to west is near about 7 km and its width is near about 1 km. Due to its very depth the water is never dried up even in summer season. It has vast area of 10 km² having great potentiality to irrigate the surrounding agricultural lands.² The most fertile land of this area is never affected from flood or draught due to its special geographical position, because in these areas there are so many small rivers, channels and ponds and lakes which are directly connected to each other during rainy reasons making a water garland. All these small and medium water bodies linked to each other and flow towards the river Gandak. Apart from these Tirhut canal is also present in the north of this Retahari Maun.³ Tirhut canal having a cemented canal too which is popularly known as Chhotki Nahar Just passing from this area, so there is no reason for flood. Another benefit is that it has sufficient water for all seasons.⁴ So all type of crops are growing here like Rabi crops Wheat, pea, Mustard gram, Sugar cane, pulses like Arhar, Bakla, Kharif crops - Rice (Agahani, kartika, Bhada), Jute, Dhaincha, Maize, Bajra. All seasonal vegetables like Smooth gourd, Bottle gourd, Bitter gourd, Ridge gourd, pumpkin, onion, Brinjal, Potato, Tomato, Pea, Lady Finger, cauliflower, Cabbage Beans, Banana, Nenua etc. Cucumber, Radish Spinach are grown are called Jayad crops. Rice and wheat are main crops though it is 6 km from Bettiah, head quarter of West Champaran district, now people used to grow vegetables more. Due to changes in land use pattern, people inclined towards cash crops like chilly, Coriander, Turmeric, Onion, Maize, sunflower, mustard and sugarcane too. People earlier who was dependent on sugarcane now they also do the cash crop farming.⁵

Many people having Mango and litchi orchards too, It is also beneficial to this area, having mixed fruits orchard like stone apple, Mango, Litichi, Black berry, Sahtut, Banana Jack fruit, Custard apple, etc. In mango Jarda and sabuja is the famous and delicious Juicy fruits of this area. In catchment basin of Retahari maun there are

several types of trees and bushes like, Budhi, Khaira, Semal, Peepal, Narkat, Arandi, Bamboo, Pater, Munjh Babul. These are also used to make brooms, teeth picker, ropes, and different decorative items.

In Retahari maun Lotus, lily, white lily, purain ka Patta, Singhara (water caltrop or water chestnut), wild rice, karmi, Kochila, water cress, white lotus, Victoria Amazonica, Nymphoides, Water Hyacinth, Duck weeds, water cabbage etc are found in abundant.

The people used to sale Singhara, Lotus and purain ka patta at commercial level. The use of pipe cane (Narkat) is also famous so it's also sold as mat of pipe cane, flute, balloon flute, web cleaner, etc. Mat is also made of pater and jhaua. Brooms are also made.

Pissciculture (Fish rearing) is the major economic activities of this wet land. In this vast area of Retahari maun fishing is done by some people at private and Government (dak) auction for wetland bodies at large scale. Verities of fishes are found in this natural water bodies like Rohu (Labeo Rohita), Catla (Indian carp), Kajuli, Tengra, mangur, Singhi, Pothia, Charnga. Nakta, Pateya, Bagha, chanwa, Rewa, Musaha gardi, prawn (Jhinga), Silver carp, Grass carp, Bighead carp, Black carp, Common carp, Dhalo, Bulla, Dhoti, Tengsi, chand tara, etc. People at community based they do the Pissciculture.

Apart from this so many other aquatic animals are also found like tortoise, crabs, Aitha (escargot), Ghongi, (Snails), shituwa (shells).

Aquatic birds also found here. Many birds like

Northern Pintail-	Anas acuta
Green winged Teal -	Anas crecca
Indian Peafowl -	Pavo cristatus
Blue Breasted Quail-	Synocius Chinensis
Rain Quail -	Coturinx Coromandelica
Kalij Pheasant -	Lophura Leucomelanos
Rock Pigeon -	Columba livia
Pied Cuckoo -	Clamator Coromandus
Asia Koel -	Cuculus Canorus
Water Cock -	Gallicrex Cinerea
Common Crane -	Grus Grus

Eagle, Mynah, Sparrow, owl, Kingfisher, Bulbul, Dove, Woodpecker, parrot, House crow, Some Times Siberian crane also

looks, butterfly, Grasshopper also looks. Monkey Bat, some time in rainy season deer also came, Boar (wild pig) also seen (during rainy season.)

The whole area is bounded with metallic road all through its bank, so major economic activities are also done. The main problem of this Retahari maun are encroachment of bank areas on name of own property or gairmajarua land. The local inhabitants having less sense of this panoramic tourist spot. People, mainly men even today go for open toilet, harnessing the local fish with the help of mahajal (Big net). All Small fish and their egg and larva destroyed due to fetching net which leads to destroy the verities of small fishes. Water haycintha is also a terror for this wet land which covered the maximum area of water bodies. Some time people used to take out them from maun but, this is not sufficient measures to clean the water bodies.

Excess use of chemical fertilizers and insecticides, pesticides weedicides also destroying the aquatic life of many organisms, some fishes are found dead and floating over water. Eutrophication leads more dangerously to this water bodies.

Narkat (Pipe cane) having rapid growth due to this a large part of area is covered by Narkat.

Due to rapid growth of narkat spread at large parts and it is not suitable for fisherman to catch fishes from that areas. In pipe cane spread area nothing is grown.

Some times due to local politics the people of majority are harnessing the water bodies without the advice of government body. It leads to the conflict among villagers which is not good at any cost.

Often viewed as the water bodies drained, filled and converted to other purposes, the main cause of area loss and degradation include major changes in land use, especially an increase in agriculture and grazing and continuous filling land for infrastructure development, air water pollution and excess nutrients led to eutrophication. The deterioration of ecological environment of Retahari maun leads to change and damage of ecological environment of animals and plants, which make more and more species, especially rare organisms, lose living spaces endangered and even died. The species of fishes decreased, aquatic vegetation decreased, aquatic organism decreased by a wide margin.

Protection of Retahari maun mainly depends upon local people local administrative authority. With the support of local governing bodies local administrative authority and with the help of local people to improve contractual capacity, drew up plans of protection activity of water bodies. People must know the important of water bodies for present and future generation. Restoration refers to restoration and reconstruction of retrograde or lost water bodies. In recent years plenty of researches on eutrophication control and ecological restoration have been done. Management, participation, conservation and awareness among people only can change the scenario and protect it for the future.

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The Educational Development of Muslim Girls

Dr. Farzana Nikhat

Ph.D. (Psychology), BRA Bihar University, Muzaffarpur, Bihar, India

Abstract

Muslim girls are lagging behind their male counterparts and as compared to other religious minorities except those listed under 'Other' in the census 2001. However, education of Muslim girls cannot be seen in isolation from the overall situation of female lag in education in India, the rural urban, regional and inter group disparities and the poverty of the households. This needs examination of the present educational status frame work, across communities, across report, 2001. It may be stated that educational or economic backwardness is not confined to one community. It cuts across religion, regional and caste boundaries. Our society is highly stratified and we find extreme disparities in education and economic development among all the sections of our society Muslim have to be seen as a part of our social structure rather than studying them in isolation. Also, Muslim cannot be viewed merely form the point of view of a religions entity but also as a society consisting of several socio-economic groups and very wide dispersal across the states and regions.

Introduction

The population of Muslim women who are illiterate is substantially higher for rural North India than for the entire country more than 85 percent reported themselves to be illiterate. Fewer than 17 percent of Muslim women ever enrolled completed eight years of schooling and fewer than 10 percent completed higher secondary education, which is below national average.¹

The census 2001 has for the first time, given the literacy rate of different religious groups. Preliminary analysis of census 2001 date on literacy and educational attainments of different religious groups corroborate the findings of the earlier sample studies. Muslims are educationally backward compared to the majority (Hindus) and the other minority groups (Jains, Sikhs, Christians and Buddhists), But then educational or economic backwardness is not limited to Muslims who according to some scholars are somewhat ahead of the

scheduled castes and scheduled tribes. Further regional variations are mind boggling and uneven economic development of different regions of the country has resulted uneven distribution of educational facilities and uneven literacy rates and educational attainment levels of these populations.²

At the all India level except the Muslims, all other religious groups have higher literacy rates than the Hindus who are a majority group. Jains have the highest literacy rate of 94.1% followed by Christians (80.3%) and Buddhists (72.7%), Sikhs (69.4%), Hindus (65.1%) and Muslims at 59.1%. The SC/ST who constitute 24.4% of the country's population have literacy rate of 52.2%. Rural urban literacy differentials are market for all groups, the gap is the widest amongst Hindus and lowest among the Muslims. Male-female disparities in literacy rates is 22 percentage points for India as a whole; it is 23 percentage points amongst Hindus 17.5 percentage points amongst Muslims and 24.7 percentage points amongst the SC/ST. Regional variations are tremendous making development a crucial variable.³

The National Policy on Education, 1986 and Revised Programme of Action 1992

Need to take special steps to advance education of Muslims was noted in the National Policy of Education 1986. Its programme of action (Revised 1992) and led to formulation of the Area Intensive Educational Development as a Central Government Scheme of the MHRD, NPE, 1986 states the following with regard to minorities:- "Some minority groups are educationally backward or deprived. Greater attention will be paid to the educations of these groups in the interest of equality and social justice. This will naturally include the constitutional guarantees given to them to establish and administer their own educational institutions, and protection to their languages and culture.

Programme of Action, 1992

The Programme of Action (POA) 1992, first took note of the existing programmes for the Muslim minorities and also suggested a large number of short terms, medium term and long-term measures to promote education of minorities.

Short Term Measures

- i. A crash programme for school improvement will be implemented on priority basis in minority concentration areas.
- ii. UGC scheme of coaching centers for students belonging to educationally backward minorities to be revamped and expanded to cover more minority concentration areas.
- iii. Women community polytechnics to be set up in minority concentrated areas on priority area.
- iv. Special attention to be paid to locate schools in minority concentration areas so that minority children have access in matters of admission.
- v. Facility of Urdu medium girls school should be provided with in schools with required number of students in belonging to backward minority.

Medium Term Measures

- i. Centrally sponsored scheme of Area Intensive Programme for educationally backward minorities.
- ii. Centrally sponsored scheme of modernization of Madarsa education by introduction of Science, Mathematics, English/Hindi in traditional Madarsa and Maktabas on voluntary basis.
- iii. A centrally sponsored scheme of language teachers funded by the Government of India.
- iv. A suitable incentive scheme should be devised to encourage states in achieving the targets in respect of minority education.

Long Term Measures

- i. Scheme of appointment of regional language teachers in minority institutions for National Integration and implementation of three language formula.
- ii. A scheme of remedial coaching in minority institutions. The scheme should also provide for remedial classes.
- iii. Minority managed institutions be given representation in the scheme of computer literacy.

Programmes for Development of Minorities

It was only in late seventies that backwardness of education of Muslim minority started receiving attention and resulted in some action on the part of the state. The Minorities Commission was set up in 1978. It was a non statutory body until 1992, when parliament

enable the National Commission for Minorities Act and set up the first statutory commission in 1993 called the National Commission for Minorities (NCM).

i. The National Minorities Development and Finance Corporation (NMDFC) was set up in 1994 to provide special focus to economic development of minorities, namely, Muslims, Christians, Sikhs, Buddhists and Parsi's. The main objective of the NMDFC is to promote economic and development activities for the benefit of the 'backward section' among minorities, giving preference to women and occupational groups.

ii. The NMDFC reaches the beneficiaries through state channelizing Agencies (Sc As) nominated by the states and through Non Governmental Organization (NGOs)

iii. The Maulana Azad Education Foundation (MAEF), set up in 1989 and fully funded by MSJE, promotes education among educationally backward minorities. It provides financial assistance for establishment and expansion of schools residential schools and colleges, provision of laboratory and infrastructure facilities establishment of computer and vocational centers, construction of hostel building and Maulana Azad National scholarships for meritorious girls students as well as Maulana Azad Literacy Awards.

Prime Minister's High-Level Committee on Social, Economic and Educational Status of Muslims Community in India 2005

The Prime Minister's High-Level Committee on Social, Economic and Educational Status of Muslims Community (Sachar Committees) in India was set up in 2005 under the Chairmanship of Justice Rajinder Sachar which submitted its report in 2006 (hereto referred as Sachar Committees). This committee noted with concern the low socio economic status of Muslim minority higher poverty, lower literacy and educational attainments, higher unemployment rates, lower availability of infrastructure and lower participation in decision making, in civil services including police, Judiciary and in elected bodies, and above, all a perceived sense of insecurity and discrimination.

Conclusion

Education will be used as an agent of basic change in the status of women. In order to neutralize the accumulated distortions of the past, there will be a well-conceived edge in favour of women. The National Education System will play a positive, interventionist role in

the improvement of women. It will foster the development of new values through redesigned curricula, text books, the training and orientation of teacher, decision makers and administrators, and the active involvement of educational institutions. Women's studies will be promoted as a part of various courses and educational institutions will be encouraged to take up active programmes to further women's development.

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Swamiji's vision of Education in special reference to scheduled Tribes

Rashmi Kumari

Research Scholar, Dept. of Political Science, Tilka Manjhi Bhagalpur University,
Bhagalpur, Bihar, India

Educate our people so that they may be able to solve their own problems. Until that is done all these ideal reforms will remain ideas only” **-Swami Vivekananda**

India is a land of unity in diversity. Swami Vivekanand was the one who revealed the true foundation of this culture.

Swami Vivekanand was not only a great social reformer but also an educator. His mission was the service of mankind through social service, mass education, religious revival and social awakening through education. His contribution to educational thought is of supreme importance if education is observed as the most powerful instrument of social change. Swami Vivekananda said that the individual development is not a full development of our nation. So he needs to give education to the society or common people. According to him “The education is not only to the well-to-do persons only but also to the poor people. He said “I consider that the great National sin is the neglect of the masses and that is one of the causes of our downfall. He considered education as the birth right of every human being. Without mass education the desirable socio-economic changes in our country is not possible. He wanted to bring drastic change in the Indian society so as to ensure all-round piece of progress in the living and thinking of people of country who were traditionally backward and suffered from slavery, illiteracy, poverty, orthodox beliefs and practices leading them in utter backwardness.¹ He wanted to remove these evils of the society. He said “All power is within you, you can do anything and everything.”For this change he laid stress on education as a powerful weapon. He suggested that education should aim at reforming the human mind; it should not be for filling some facts into the brain. It should be the preparation of life.² Swami Vivekananda was the founder of Ramkrishna Mission, serving the society in India and abroad irrespective of caste, creed, colour, religion and nationality. Education, health, relief and

rehabilitation, rural and tribal developments are the field in which this organization is working. India has the world's largest tribal population and it is also the most economically and educationally underprivileged in our country. One of the first steps to developing any community is education.³

Education is one of the most powerful means to bring socio-economic development among scheduled tribes and it cannot be over-emphasized.⁴

So, in present peace of research work I have taken into consideration of Swami Vivekananda views of educating the masses for the socio-economic growth of the country. Education is the only primary means of change towards both growth and development. It is in fact an effort not only for financial improvement of tribes (who constitutes 8.2 % of total population of the country) but also for internal strength of the tribal societies which support them in addressing the new challenges of life.⁵

Constitutional provisions for the education of Scheduled Tribes

The constitution makers were very much concerned with the problems of minorities. So, the constitution of free India has provided adequate safeguards for these people-

Article-29, to protect the cultural and educational rights of the minorities. This provision also acquires a special meaning to the tribal people who constitute one of the important cultural minorities in the country.

Article-46 (Part IV) lays down that the "State shall promote with special care the educational and economic interests of the weaker section of the people and in particular of the scheduled castes and scheduled tribes and shall protect them from social injustice and all forms of exploitation.

Article-154 empowers the state to make any special provision for the advancement of any socially and educationally backward classes of citizen or for SCs or STs. Untouchability is abolished under Article-17 and its practice in any form is punishable offence.

Article-350 state that it shall be the endeavor of every state and every local authority within the state to provide adequate facilities for institution in mother tongue at the primary stage of education to the children belonging to the minority group.

Educational status of scheduled tribes

Literacy

Literacy rate is one of the most popular and important way to measure the development of that area. Literacy rate of the tribal population in India is not just considerably low but below average.

District	Literacy	
State	1991	26.78
Ranchi	288	34.61
Lohardagga	194	32.45
Gumla	127	37.33
Singhbhum	457(east) 180 (west)	32.14(east) 27.40(west)
Palamau (Sub-plan area)	192 district	25.40
Dumka	241	22.40
Sahebganj	382	16.66
Godda	408	20.94

“The table shows the literacy as recorded in the census report of 1991, may be said to be the encouraging comparatively.” The level of literacy in sub-plan area was 21.3 % in 1971 as against 19.9% in Bihar as whole. According to 1981 census the state literacy percentage is 26.2. The literacy percentage in the sub-plan area shows wide variations in that it is higher in Ranchi 35.0, Lohardagga 26.5, Singhbhum 34.6, but lower in Gumla 26.1, Palamau 19.9, Dumka 23.6, Sahebganj 18.8 and Godda 13.9 as compared to state average.

Education

Education in the tribal areas has its own characteristic features. Some groups have comfort metalized themselves from outside influences. On the other hand, there are high responsive groups and do not lag behind on comparative basis in literacy. The Paharias, Birhors, Asurs have less than 5% literacy while Oraons, Mundas, Santhals stands on the same footing as non-tribals. The average literacy percentage in the sub-plan area is 27.4%, but in certain tribal community this percentage is extremely low like the primitive tribes.⁶ The vast working force of illiterates, uneducated and unskilled person acts as drag on the development of the state as well as their own development. The tribal's are still reluctant towards the enrolment of their Childs in school. The cross enrolment ratio scheduled tribe

children expressed as a percentage of their total population at the close of the sixth five year plan as compared to that of the children of all communities is estimated to be as the Follows.

Age Group	Communities	Boys	Girls	Both
6-11	All communities	108.57	72.03	90.95
	scheduled Tribes	100.00	6.00	83.79
11-14	All communities	65.00	23.34	44.85
	Scheduled Tribes	59.20	25.35	41.77

Thus the vast majority of tribal's is still not much enthusiastic towards the education and to get the facilities provided by the government in the field like residences Schools, stipends of uniform and books etc.

Scheme and programme for tribal development

Post- Matric Scholarship for Scheduled Tribe Students:

This scholarship provides financial help to ST students studying at post matriculation level to complete their education. This scheme covers professional, technical as well as non-professional and non-technical courses in various recognized institution by providing them financial support. Students having family income not more than Rs.1,0800 per year, are entitled for this scheme. This scheme is in operation since 1944-1945, and implemented by state government and UTs administration with 100% central assistance.

Hostel for ST students 'girls' and 'boys': A plan for providing hostel accommodation for ST girls was started during third five years plan period and for the boys" this programme was launched in 1989-1990 and both these schemes merged in 10th five year plan into a single scheme. Aim of this scheme is to facilitate hostel accommodation to the peripheral ST students who are unable to pursue their education due to their financial condition and location of their residence.

Rajiv Gandhi National Fellowship Scheme (RGNF): RGNF scheme for scheduled caste and scheduled tribes was introduced in the year 2005-2006. It is formulated and funded by Ministry of Social Justice and Empowerment and Ministry of Tribal Affairs. The scheme is open to candidates who belong to scheduled caste and scheduled Tribe and wish to pursue higher studies such as regular and full time M.Phil. and Ph.D. in Sciences, Humanities, Social sciences, Engineering and Technology. There are 2000 slots for Scheduled

caste and 667 slots for scheduled Tribe candidates every year for all the subjects.

Vocational Training Center in Tribal Areas: Aim of this scheme is to develop the skill of ST students depending on their qualification and present market trends. This vocational training would enable them to get suitable employment or enable them to become self sufficient. These centers are managed by concerned State Governments only.

National Overseas Scholarship Scheme for ST: This scheme was introduced in 1954-55. This scheme provides financial support to those meritorious tribal students who wish to pursue their studies in abroad (Masters, Doctorate, Post-Doctorate) in certain subject.

Scheme of Top Class Education for ST Students: This is a central sector scholarship Scheme for ST students was introduced by Ministry of Tribal affairs in 2007-2008 to encourage meritorious students of tribal community for pursuing studies at degree or Post Graduate level in any of the institutes identified by the Ministry of Tribal Affairs for the purpose.

Ashram School in Tribal Sub-Plan Area: This scheme was started in 1990-1991 with a view to provide education with residential facility to ST students. Ministry of Tribal Affairs provides construction cost, state Government is responsible for running and overall maintenance of these Ashram schools including selection of medium of instruction.

Tribal Research Institute: The ministry was set up in 1999 after the bifurcation of Ministry of Social Justice and empowerment with the objective of providing more focused approach on the integrated socio-economic development of the Scheduled Tribes, These schemes comprising economic, educational and social development through the State Governments/Union Territory Administrations.

Book Bank: In order to reduce dropout rate among ST students from professional institutes/ universities, funds are allotted for purchase of books under this scheme. While selecting students for 'Book Bank' scheme, it is seen by the implementing authorities that 30% of the beneficiaries are girl students at least 30% are disabled.

Coaching for ST: Under this scheme free coaching classes are provided to ST students to enhance their skill and capabilities for

various competitive examinations, so that they can compete with main stream students in all competitive examinations.

Challenges of Tribal Education

In spite of constitutional provisions and persistent efforts, tribal communities continue to lag behind the general population in education. Socio-cultural, economical, geographical issues are the obstacle in the path of their development. Most of the tribal communities are economically backward. Instead of school they prefer to send their children to work to supplement the family income. Parents are not willing to send their daughters to co-educational institutions. Besides this in most of the states official/regional languages are used for class room teaching and these languages are not understood by the tribal children at primary level.

Most of the schools located in tribal areas are not equipped with teaching learning materials even minimum sanitary provisions are not maintained. Lack of trained teachers and communication with teachers plays pivotal role to discourage tribal children to come to school.

Suggestions

1. Government should spread awareness among the tribals about the importance of education.
2. School in tribal areas should have adequate class room, teaching aids, electricity, water supply, separate toilet for girls and boys, play ground etc.
3. Seperate schools for girls should be established in tribal areas, as some parents hesitate to send their daughter in co-educational institutions.
4. Proper monitoring by high level officials should be done at regular interval for the smooth functioning of school administration.
5. In initial stages, medium of instruction should be one that is familiar to them, and then gradually they can be encouraged to take up regional languages.
6. Students should be taught to safeguard their own rights and the rights of their community and resolve to combat exploitation against their people.
7. Educated tribals should be recruited as a teacher in tribal areas. So that they can better understand their problems and respect their culture.

8. Proper counseling and guidance should be given to the tribal parents to understand the importance of education.

Finally we can say that education is the only means which can help individuals overcome all barriers and prepare themselves for life. As Vivekanand said “Education is not the amount of information that is put into your brain and runs riot there, undigested, all your life. We must have life-building, man-making, character-making assimilation of ideas. If you have accumulated five ideas and made them your life and character, you have more education than any man who has got by heart a whole library....if education is identical with information, the libraries are the greatest sages in the world and encyclopedias are the Rishis.”

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Cognitive Function of Schizophrenia

Dr. Ram Chandra Singh

Ph.D. (Psychology), Patna University, Patna, Bihar, India

Abstract

The purpose of present study is to assess the cognitive function of normal subjects and subgroups of schizophrenia, by using WCST (Wisconsin card sorting Test). The sample included seventy- five , right handed, male subjects, who were divided into three groups- normal control, paranoid schizophrenia and undifferentiated schizophrenia. After initial screening using GHQ-12 for normal control & BPRS for schizophrenia WCST was administered to all of them, according to standard procedure. The finding was as follows: All groups were well matched except for marital status and occupation. The performance of normal control on WCST was better than schizophrenic patients, suggesting that cognitive functioning in schizophrenics is impaired. Paranoid schizophrenic patients performed better than undifferentiated schizophrenic patients, indicating that paranoid schizophrenics are relatively less impaired than undifferentiated schizophrenics, with respect to cognitive functions, as measured by WCST performance. Thus to conclude, Schizophrenic patients have impaired cognitive functioning in comparison to normal and paranoid schizophrenics have relatively less impairment than undifferentiated schizophrenics WCST.

Introduction

Cognitive functioning refers to a host of neuro-cognitive activities that are associated with the prefrontal cortex such as planning, problem solving, shifting, cognitive set and alternation between two or more tasks. Wisconsin card sorting Test (WCST) Developed by Heaton (1989) is considered to be one of the most sensitive and widely used test in neuropsychological assessment of Frontal Lobe function. Robinson and his colleagues (1980) and Drewe (1974) have found that WCST is a clinically useful test for discriminating frontal and non-frontal lesions and is a better single discriminate than even the Halstead Reita Neuropsychological Test Battery. It is also found to be specifically sensitive to DLPFC, dysfunction in schizophrenia as well as in neurological patients

Abbruzzese et al 1995).¹ Goldberg and Weinberger (1987) reviewed four studies with special interest in working out the integrity of behavioural functions thought to be mediated by prefrontal areas- the deancepelon, medial temporal lobe basal ganglia. WCST elicited impairment in schizophrenic patients with regularity.²

Methods and Materials

Sample: Based on purposive sampling, a group of fifty mate schizophrenia patients between the age ranges of 20-55 years (Group B twenty five paranoid & Group C twenty five Undifferentiated Schizophrenia) who were diagnosed according to the ICD₁₀ were selected from different wards of RINPAS. Similarly twenty five normal controls (Group A) were selected from different localities of Ranchi.

Tools

- Socio-demographic& clinical data sheet- Handedness preference schedule
- General Health Questionnaire 12 (GHQ12)- Wisconsin card shorting Test(WCST)
- Brief Psychiatric Rating Scale (BPRS)

Procedure

All the subject who were included in this study were assessed using the socio-demographic clinical data sheet. After applying Brief Psychiatric Rating Scale (BPRS) clinical populations was selected and after getting required score on GHQ-12 normal control groups subjects were selected. All the subjects were assessed on Handedness Scale and only right-handed individuals were included in the study. After initial screening of subjects WCST was administered as per the standard process.

Analysis of Data

The data obtained was analyzed using the computer software program, statistical package for social sciences 13 (SPSS- 13.0).With different parametric and non-parametric measures being used, wherever applicable.

Results

Table 1: gives descriptive information about the socio-demographic characteristics of entire sample, which was further divided into 3 groups- Normal control, Paranoid schizophrenia and undifferentiated schizophrenia, the mean age of normal controls,

paranoid schizophrenics and undifferentiated schizophrenics were 30.68 ± 4.91 , 41.52 ± 5.46 and 29.92 ± 4.79 respectively. Statically no significant differences were observed among 3 groups. No significant difference was found in education, domicile and socioeconomic status of the subject ($P > 0.005$). However there was significant difference in marital status and occupation indicating subjects from normal group to be more represented in the married and employed category ($P < 0.005$).

Table 1: Group comparison of socio-demographic profile (N = 75)

Variable	Normal Group Mean $\pm$ SD/n(%)	Paranoid Schizophrenia Mean $\pm$ SD/n (%)	Undifferentiated Schizophrenia Mean $\pm$ SD/n (%)	χ^2 /f	df	P/Post hoc test
Age	30.68 $\pm$ 4.91	41.52 $\pm$ 5.46	29.92 $\pm$ 4.79	0.63	-	NS
Marital status						
Unmarried	13(52)	12(48)	5(20)	6.33*	2	0.042
Married	12(48)	13(52)	20(80)			
Education						
Up to Matric	21(84)	23(92)	22(88)	0.76	2	0.69
Above Matric	4(16)	2(8)	3(12)			
Occupation						
Unemployed	11(44)	19(76)	21(84)	10.29*	2	0.006
Employed	14(56)	6 (24)	4(16)			
Domicile						
Rural	7(28)	10(40)	7(28)	4.20	4	0.38
Semi urban	5(20)	7(28)	10(40)			
Urban	13(52)	8(32)	8(32)			
Socio Economic status (SES)						
Low SES	4(16)	3(12)	4(16)	3.07	2	0.47
Middle SES	18(72)	19(76)	17(68)			
High SES	3(12)	3(12)	4(16)			

* $P < 0.05$

NS= Non Significant

Table. 2 : Gives a summary of the group differences in the sub-groups of schizophrenia on various clinical variables. The mean age of onset of illness in paranoid schizophrenia and undifferentiated schizophrenia were 49.84 ± 4.17 and 24.44 ± 4.73 respectively. The difference between the two groups were significant ($p < 0.05$). However there was no significant difference in BPRS of the groups.

Table 2: Group comparison of clinical characteristics (N=50)

Variable	Paranoid schizophrenia	Undifferentiated		
Mean $\pm$ SD	schizophrenia	Mean $\pm$ SD	t(df=48)	P
Age of onset illness	49.84 $\pm$ 4.17	24.44 $\pm$ 4.73	20.12*	0.001
BPRS Scores	16.44 $\pm$ 2.39	15.64 $\pm$ 1.80	1.33	0.189

* $P < 0.05$

Table 3: shows the difference in performance between normal controls, paranoid schizophrenics and undifferentiated schizophrenics on WCST. Significant difference was found between normal subjects and undifferentiated schizophrenics on different the parameters of WCST. Significant difference was also observed on all the measures of WCST except on number of trials administered and trials taken to complete first category between normal subjects and paranoid schizophrenics. The normal control showed better performance in comparison to other two groups of schizophrenia. Other than this significant difference was also observed between undifferentiated schizophrenics and paranoid schizophrenics on all the parameters of WCST. Within the schizophrenics showed poor performance in comparison to paranoid schizophrenia.

Table 3: Group differences in performance on WCST

Variable	Normal (a)	Paranoid Groups	Undifferentiated	F	Post
Mean $\pm$ SD	Schizophrenia (b)	schizophrenia(c)			hoc
Mean $\pm$ SD	Mean $\pm$ SD				
No. of trials is administered	116.52 $\pm$ 16.78	114.32 $\pm$ 18.60	128.00 $\pm$ 0.00	6.45	a < c*
Total no. of correct	76.28 $\pm$ 15.11	59.12 $\pm$ 15.83	48.60 $\pm$ 10.92	24.46	a > b*a > c*
Total no. of errors	40.24 $\pm$ 20.53	59.68 $\pm$ 22.19	75.44 $\pm$ 9.34	23.28	a < b*a < c*
% Errors	32.96 $\pm$ 14.27	48.96 $\pm$ 14.21	72.68 $\pm$ 7.85	64.07	a < b*a < c*
Perseverative Response (PR)	24.24 $\pm$ 16.80	47.64 $\pm$ 27.47	66.92 $\pm$ 28.21	18.69	a < b*a < c*
%PR	19.92 $\pm$ 12.48	38.64 $\pm$ 20.09	60.08 $\pm$ 20.14	31.36	a < b*a < c*
Perseverative Errors (PE)	15.88 $\pm$ 12.27	31.48 $\pm$ 20.57	57.16 $\pm$ 23.56	28.86	a < b*a < c*
% PE	12.76 $\pm$ 9.42	23.52 $\pm$ 12.21	49.76 $\pm$ 19.26	44.62	a < b*a < c*

Discussion

Characteristics of Entire Sample

There were three groups of male right handed subjects. Group A comprised of 25 normal controls. Group consisted of 25 paranoid schizophrenics' patients and Group C comprised of 25 undifferentiated schizophrenic subjects. All groups will match with age, education, SES. The mean age onset of illness within the schizophrenic group had significant difference, which was in keeping with previous study findings that undifferentiated schizophrenics usually have early age of onset of illness. The three groups differed in mental status; undifferentiated schizophrenics being more represented in unmarried category, possible reason behind this may be that their early age of onset of illness might have not allowed them to take responsibilities of married life. There was significant difference among three groups in occupation. Normal group had a higher representation in employed group and schizophrenics patients (paranoid and undifferentiated) had a higher representation in

unemployed groups. The probable reason may be their during illness, frequent hospitalizations, which might have affected their stability in working area.

Severity of symptoms

Insignificant difference in scores of BPRS scale between paranoid and undifferentiated schizophrenics suggest that both the groups had a grossly similar severity illness, before the study period.

Comparison of performance all the three groups on WCST

There was significant difference between normal group and undifferentiated group on different variable of WCST undifferentiated schizophrenic group showed poor performance of different the measures of WCST. Significant difference was also observed between normal and paranoid group of different WCST variables except on (number of trials administered and trials taken complete first category.) one possible explanation may be that paranoid schizophrenics relatively less impaired compared to others subgroups of schizophrenia. So they can attend to the task and grasp the concept.³

But unlike normal, they are unable to effectively allocate attention resources for complex information processing due to deficits in working memory (universal to all categories of schizophrenia). Thus they are not able to utilize the feedback provided by the examiner and subsequent performances are hampered. A large number of studies have demonstrated that working memory functions are impaired in patients with schizophrenia. Also working memory tasks have been found to be correlated with WCST. Verbal working memory and visual spatial working memory may account for a major component of the impaired performance in WCST. Significant difference between the performance of paranoid and undifferentiated schizophrenics was found on all the measures of WCST. To corroborate these findings the studies of Seltzer et al. (1997) can be cited, who found poorer performance of undifferentiated schizophrenic patients with respect to number of categories completed WCST in their study. Similar findings were reported by Rosse et al. (1991).

Borstein et al. (1990) in their study have also observed significant difference between paranoid and undifferentiated schizophrenic patients on the measures of perseverative error

of WCST. Undifferentiated schizophrenic patients had more preservative error than paranoid group. The better performance of the paranoid schizophrenics group may be partially explained by their later age of onset of illness. The cluster of greater impairment and earlier onset of schizophrenia in the undifferentiated group may reflect a neuro developmental disease process. Moreover, to examine the meaning of this difference, the studies of Langellet. al. 1987 can be cited. Which concludes that paranoid shows the greatest advantage over non paranoids on functions subserved by the left frontal (LF) regions. These findings converge with the results of the study conducted by Gur et al. 1994, that highlights that paranoid schizophrenic patients had normal cranial, brain and ventricular cerebra spinal fluid (CSF) volumes, which accords with the evidence that this group of patients (paranoid schizophrenia) is less impaired as compared to other groups (non paranoid schizophrenics).

Conclusion

Thus it can be concluded that cognitive functioning of schizophrenics, are impaired in comparison to normal subjects. Within the schizophrenics subgroups the greatest impairment exists in undifferentiated schizophrenics patients.

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Relative impacts of species diversities on the quality of tasar silkworm

Prashant Kumar

Research Scholar, Department of Zoology, Magadh University, Bodh Gaya,
Gaya, Bihar, India

Abstract

The genetic diversity and genetic structure of three silkworm species were comparatively assessed based on markers. *The basic information's regarding tasar culture are available due to the earlier investigations the investigation regarding species diversity has not yet been fully carried out reported species differentiation in the genus Antheraea surviving in the temperate and tropical tasar producing belts of our country a matter of fact all the species of Antheraea owing to different physiogenetic make up are supposed to differ among themselves in their behavioral manifestations and also in their quantitative and qualitative characters has reported significant variation in the reeling characters of temperate and tropical tasar silkworm has investigated evident variations in the biochemical make up of different tasar silk producing insects belonging to family saturniidae of order Lepidoptera.*

Key words: Silk, Production, Sericulture, Cultivation

Introduction

The silk is an animal protein fibre produced by the silkworm for spinning a cocoon which provides a protective casing to the delicate silkworm during the most critical period of its life viz. the pupal stage during which it metamorphoses to a four winged adult moth and basically there are two different proteins which together form the silk fiber one is fibroin which constitutes the core of the fiber and the other is sericin, a waxy substance,¹ which encases the fibroin. Both the fibroin and sericin are present in the proportion of respectively. The presence of two proteins imparts the silk a dualistic structure which cannot be seen in other fibers. The fibroin is insoluble in boiling water. The sericin is soluble in hot water and is later removed to make the silk soft and glossy.² The silk has many properties. It is crystalline, homogeneous, hygroscopic, and light and is the strongest of all natural fibers. It is soft, lustrous, and hygienic and does not

catch fire as quickly as nylon and wool. The durability, the wash and wear properties, the softness, the fineness and the incomparable affinity for dyeing makes the silk-most superior in textile market.³

Review of Literature

The larva remains inside the cocoon and metamorphoses into a pupa. The pupal stage is the dormant stage demanding protection.⁴ The cocoon helps the inside animal to overcome the unfavorable environmental conditions and to get protection from natural enemies. The pupa rests inside the cocoon and at the approach of favorable conditions it emerges out as the adult form of the silk moth by piercing through the cocoon. Mostly, silk fibers are collected by reeling or spinning of the cocoon through suitable techniques to form a composite thread fit for weaving of silk fabrics. Sericulture is an agro-based industry suited to tropical and temperate climates. It is eco-friendly and nonpolluting. Both mulberry and non-mulberry sericulture require food plants, which are either nature grown or cultivated. In case of nature grown or natural forest, sericulture tends to preserve and conserve forest, thereby helping to save forest and forest ecosystem in a natural way. On the other hand, cultivation of host plants greatly contributes to forestation, conserves soil fertility and reduces soil erosion. Sericulture performs a very promising role for danger that the short-term benefits may override the long-term disadvantages, especially to the indigenous populations of forest regions. But sericulture seems to create forest through massive plantation of indigenous host plants to meet the food requirement of the silk moth larvae. Thus, sericulture through its practices and activities can act to regulate precipitation, conservation of biodiversity, preservation and creation of forest and forest ecosystem, control humidity and temperature of the environment and check environmental pollution to some extent.⁵

Materials & Methods

The present investigation includes four species of *Antheraea*. For experiment, the cocoons of four different species namely *A. mylitta*, *A. proylei*, *A. pemyi* and *A. roylei* were collected from Ranchi Seed Supply Station and carefully transported to the place of research centre. The selected cocoons after assortment were put in ventilated cages separately in hanging position in the form of garlands to provide natural disposition. After the emergence of male and female moths from the stored stock, the four species of

Antheraea were assorted carefully for the purpose of coupling. The male and female moths were put in bigger bamboo baskets for pairing.

Summary and Conclusion

Generally the Antheraea species are wild in nature and our study reveals that among the four Indian varieties of Antheraea species namely Antheraea mylitta, Antheraea proylei, Antheraea pernyi and Antheraea roylei could be domesticated which vary for different media condition in relation to their coupling performances.

Result & Conclusion

Non-mulberry sericulture is a forest-based industry uniquely suited to the economy and social structure of developing countries because of its minimum investment requirement, high employment, and foreign exchange earning potential. Non-mulberry production offers rural population an attractive source of income, arrests their migration to urban areas, thereby preserving their traditional skill and way of life. Vanya silk culture is neither detrimental to the food plants available in forests, nor disturbing the forest ecology. When Vanya silkworms are reared on the food plants, they feed on the leaves and the litters spread in and around the plant, resulting in effective nutrient recycling. In recent times, Vanya silks have assumed more importance in view of the scope for the transformation of this age- old tradition into industry with immense potential.

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Impact of change in lending pattern on employment in Jharkhand

Saraswati Pandey

Research Scholar, Department of Economics, Ranchi University, Ranchi,
Jharkhand, India

Abstract

Jharkhand was born in August 2000 by the division of Bihar. The geology of Jharkhand puts it in the richest states category in terms of mineral and ore deposits. Though industry-wise it is not a developed state yet, still it houses some of the best names in industry namely Tata Steel, HINDALCO of the AV Birla Group, BOC Gases, Uranium Corporation, SAIL, Heavy Engineering Corporation, Metallurgical Consultancy etc. Over a period of six years or so, there has been a spurt in credit demand in all the sector like industry (mostly SMEs), personal, agriculture and other Small Scale Industries. With an objective of overall development of the state, the government of Jharkhand pursued the banks to increase their lending to various quarters. The banks therefore resorted to indiscriminate lending and as a result the amount of bad loans in Jharkhand stood at around Rs 4500 Cr as on 30-09-2006. The study finds the reasons and solution to the problem of growing level of NPAs.

Key word: *Lending pattern, agriculture, micro & small enterprises*

Jharkhand is blessed with abundant natural and mineral resources as well as a cheerful and hard working human population, mostly of tribal origin with a rich cultural heritage and traditional knowledge.¹ Out of a total geographical area of 7.9 million ha, nearly 2.6 million ha are cultivated, while 2.3 million ha (29% of total area) are under forests. The area under assured irrigation is less than 10 percent. Out of a total population of 27 million, 21 million (78%) live in villages, while about 6 million (22%) reside in urban areas. Nearly 49% of the population lives below the poverty line. Rural poverty is greater than urban poverty. The most important rural professions are crop and animal husbandry, fisheries and agro-forestry. Nearly 67% of the total labour force is dependent on agriculture for their income and work security²

Priority Sector Lending and Employment

Priority Sector lending includes lending to those sectors that impact large sections of the population, the weaker sections and the sectors which are employment-intensive such as agriculture, and tiny and small enterprises.³ The categories under priority sector include agriculture, micro & small enterprises, education, housing, export credit, and others

Categories of Priority Sector

Table No.: Achievement In Important Parameters: Central Bank of India (2004-2006):

Particulars	As on 31.3.2004	As on 31.3.2005	As on 30.6.2005	As on 31.3.2006
Deposit	106422.00	108463.19	107659.40	120013.05
Advance	24214.00	26128.51	25718.54	33245.36
C.D. Ratio	22.75	24.09	23.89	27.70
Weaker Section	2871.00	3012.00	3012.00	3103.00
% To Total Credit	11.86	11.53	11.71	9.33
Minority Communities	1286.00	3805.00	375.50	3890.00
% To Total Credit	5.31	14.56	1.46	11.70
Sc & St	4970.00	5135.00	513.40	5247.00
% To Total Credit	20.53	19.65	2.00	15.78
Women	1230.00	1312.00	0.00	71.99
% To Total Credit	5.08	5.02	0.00	0.00

Source: Jharkhand S.LBC Report -2006

Agriculture lending (Direct Finance) and employment

Direct Finance to agriculture includes short term and long term loans given for agriculture and allied activities (dairy, fishery, piggery, poultry, bee-keeping, etc.) directly to individual farmers, Self Help Groups (SHGs) or Joint Liability Groups (JLGs) of individual farmers without limit and to others (such as corporate, partnership firms, and institutions) upto certain limits for taking up agriculture/allied activities.

Direct finance includes

- Short-term loans for raising crops, i.e. for crop loans including traditional/ non-traditional plantations and horticulture.
- Medium & long-term loans to farmers for agriculture and allied activities (e.g. purchase of agricultural implements and machinery, loans for irrigation and other developmental activities undertaken in the farm, and development loans for allied activities).

- Loans to farmers for pre and post-harvest activities, viz., spraying, weeding, harvesting, sorting, grading and transporting of their own farm produce.

- Advances up to Rs. 50 Lakh against pledge/hypothecation of agricultural produce (including warehouse receipts) for a period not exceeding 12 months, irrespective of whether the farmers were given crop loans for raising the produce or not.

- Bank loans to Primary Agricultural Credit Societies (PACS), Farmers' Service Societies (FSS) and Large-sized Adivasi Multi Purpose Societies (LAMPS) ceded to or managed/ controlled by such banks for on lending to farmers for agricultural and allied activities.

- Loans to small and marginal farmers for purchase of land for agricultural purposes.

- Loans to distressed farmers indebted to non-institutional lenders, against appropriate collateral or group security.

- Export credit to farmers for exporting their own farm produce.

- Loans to farmers under Kisan Credit Card Scheme

- Direct finance to agriculture is generating employment.

Finance to others (corporate, partnership firms and institutions)

Loans to corporate including farmers' producer companies of individual farmers, partnership firms and co-operatives of farmers directly engaged in Agriculture and Allied Activities, viz., dairy, fishery, animal husbandry, poultry, bee-keeping and sericulture (up to cocoon stage) up to an aggregate limit of 2 crore per borrower for the following purposes:-

- Short-term loans for raising crops, i.e. for crop loans. This will include traditional/non-traditional plantations, horticulture and allied activities.

- Medium & long-term loans for agriculture and allied activities (e.g. purchase of 1 agricultural implement and machinery, loans for irrigation and other developmental activities undertaken in the farm, and development loans for allied activities).

- Loans for pre-harvest and post-harvest activities, viz., spraying, weeding, harvesting, grading and sorting.

- Export credit for exporting their own farm produce.

- Loans to farmers for pre and post-harvest activities, viz., spraying, weeding, harvesting, grading and sorting.

Agriculture lending (Indirect Finance) and employment

Finance for Agriculture and Allied Activities granted to corporate, partnership firms and institutions engaged in agriculture and allied activities (dairy, fishery, animal husbandry, poultry, bee-keeping and sericulture (up to cocoon stage).

- The aggregate loan limit per borrower more than Rs. 2 crore in respect of borrowers under Finance to others listed under direct finance.

- Loans up to Rs. 50 Lakh against pledge/hypothecation of agricultural produce (including warehouse receipts) for a period not exceeding 12 months, irrespective of whether the farmers were given crop loans for raising the produce or not.

- Bank loans to Primary Agricultural Credit Societies (PACS), Farmers' Service Societies (FSS) and Large-sized Adivasi Multi Purpose Societies (LAMPS) other than those covered under direct finance to agriculture.⁴

Other Indirect Finance includes

- Loans up to Rs.5 crore per borrower to dealers /sellers of fertilizers, pesticides, seeds, cattle feed, poultry feed, agricultural implements and other inputs.

- Loans for setting up of Agri-clinics and Agribusiness Centres.

- Loans up to Rs. 5 crore to cooperative societies of farmers for disposing of the produce of members.

- Loans to Custom Service Units managed by individuals, institutions or organizations who maintain a fleet of tractors, bulldozers, well-boring equipment, threshers, combines, etc., and undertake farm work for farmers on contract basis.

- Loans for construction and running of storage facilities (warehouse, market yards, godowns and silos), including cold storage units designed to store agriculture produce/products, irrespective of their location (If the storage unit is a micro or small enterprise, such loans will be classified under loans to MSE sector).

- Loans to MFIs for on-lending to farmers for agricultural and allied activities as per the conditions specified in paragraph VIII of this circular.

- Loans sanctioned to NGOs, which are SHG Promoting Institutions, for on-lending to members of SHGs under SHG-Bank Linkage Programme for agricultural and allied activities.

- Loans sanctioned to RRBs for on-lending to agriculture and allied activities.

(A) Lending to Micro & Small Enterprises and employment:

Direct finance to MSE includes:-

i) Manufacturing Enterprises

(a) Micro (manufacturing) Enterprises: Enterprises engaged in the manufacture/production, processing or preservation of goods and whose original cost of investment in plant and machinery (excl. land & building and other items as per MSMED Act 2006) does not exceed Rs. 25 Lakh, irrespective of the location of the unit.⁵

(b) Small (manufacturing) Enterprises: Enterprises engaged in the manufacture/production, processing or preservation of goods and whose original cost of investment in plant and machinery (excl. land and building and other items as per the Act) is more than Rs. 25 Lakh but does not exceed Rs. 5 crore, irrespective of the location of the unit.⁶

ii) Service Enterprises

(a) Micro (Service) Enterprises: Enterprises engaged in providing/rendering of services and whose original cost of investment in equipment (excl. land and building and furniture, fittings and other items not directly related to the service rendered) does not exceed Rs. 10 Lakh, irrespective of the location of the unit.⁷

(b) Small (service) Enterprises: Enterprises engaged in providing/rendering of services and whose original cost of investment in equipment (excl. land and building and furniture, fittings and such items) is more than Rs. 10 Lakh but do not exceed Rs. 2 crore, irrespective of the location of the unit.⁸

Table No.: Districts Advance to ST & AC

S. No.	Districts	Advances	Advances to St & Sc (%)	Amount (Amt In LAC)
1.	Bokaro	1,285	3 %	39
2.	Deoghar	1,536	4 %	61
3.	Dhanbad	3,240	6 %	194
4.	Dumka	1,683	4 %	67
5.	East Singhbhum	14,486	10 %	1,449
6.	Garhwa	1,171	3 %	35
7.	Giridih	555	2 %	11
8.	Hazaribag	2,841	4 %	114
9.	Jamtara	431	2 %	9

10.	Latehar	782	2 %	16
11.	Palamu	784	2 %	16
12.	Ranchi	6,448	7 %	451
13.	Sahebganj	509	2 %	10
14.	Saraikela	561	2 %	11
15.	West Singhbhum	425	2 %	9
	Total	36,737	6.78 %	2,492

Source: Jharkhand SLBC Report 2005-2006

b) Other activities

- Loans for food and agro processing will be classified under Micro and Small Enterprises, provided the units satisfy investments criteria prescribed for Micro and Small Enterprises, as provided in MSMED Act, 2006.

- The small and micro (service) enterprises also include small road & water transport operators, small business, professional & self-employed persons, and other service enterprises engaged in activities as listed in the Act and satisfy the investment in equipment criteria i.e. not exceeding Rs. 10 Lakh and Rs. 2 crore respectively.

- Finance granted by commercial banks to MSE sector (both mfg. and services) which satisfy the definition of MSMED Act 2006 are eligible for being classified under priority sector lending.

- Bank loans to Micro and Small Enterprises (MSE) engaged in providing or rendering of services will be eligible for classification as direct finance to MSE Sector under priority sector up to an aggregate loan limit of 5 crore per borrower/unit, provided they satisfy the investment criteria for equipment as defined under MSMED Act, 2006

- Export credit to MSE units (both Mfg. and Services) for exporting of goods/services produced/rendered by them.

- All advances granted to Khadi & Village Industries (KVI) sector irrespective of their original investment in plant & machinery is also eligible for consideration under sub-target (60%) of MSE segment within the priority sector.

Indirect finance to MSE (mfg. as well as service) sector includes-

- Persons involved in assisting the decentralised sector in the supply of inputs to and marketing of outputs of artisans, village and cottage industries.

- Advances to cooperatives of producers in the decentralised sector viz. artisans village and cottage industries.

- Loans granted by banks to Micro Finance Institutions on or after, April 1, 2011 for on lending to micro and small enterprises (manufacturing as well as services) are eligible for priority sector status subject to the compliance of other guidelines.

(C) Micro Credit

- Loans of very small amounts, not exceeding Rs.50,000 per borrower provided directly by banks either to borrowers or indirectly through a SHG/JLG mechanism provided the borrower's household annual income in rural areas does not exceed Rs. 60,000/- and Rs.120,000/- in non-rural areas.

- Loans outstanding under loans for general purposes under General Credit Cards (GCC). If the loans under GCC are sanctioned to Micro and Small Enterprises, such loans should be classified under respective categories of Micro and Small Enterprises.

- Overdrafts, up to 50,000 (per account), granted against basic banking / savings accounts provided the borrowers household annual income in rural areas does not exceed 60,000/- and for non-rural areas it should not exceed 1,20,000/-.

- Loans sanctioned by banks directly to individuals for setting up off-grid solar and other off-grid renewable energy solutions for households.

(D) State sponsored organization for SC/ST

Advances sanctioned to State Sponsored Organisations for Scheduled Castes/ Scheduled Tribes for the specific purpose of purchase and supply of inputs to and/or the marketing of the outputs of the beneficiaries of these organisations.⁹

(E) Weaker Sections includes

- Small and marginal farmers with land holding of 5 acres and less, and landless labourers, tenant farmers and share croppers;

- Artisans, village and cottage industries where individual credit limits do not exceed Rs. 50,000 and beneficiaries of National Rural Livelihood Mission (NRLM).

- SC and ST and DRI beneficiaries.

- Beneficiaries under Swarna Jayanti Shahari Rozgar Yojana (SJSRY) and Scheme for Rehabilitation of Manual Scavengers (SRMS);

- Advances to Self Help Groups and distressed poor to prepay their debt to informal sector.

- Loans to distressed poor to repay their debt to informal sector against appropriate collateral or group security.

- Loans granted under (a) to (i) above to persons from minority communities as may be notified by Government of India from time to time.

Conclusion

The activity of “Bee-Keeping” is farming allied activity and therefore, would not be covered in either manufacturing or service activity. Piggery farm without bacon processing shall not be classified either as manufacturing or as service enterprise because this is a farming activity.

Thus all type of lending is generating employment directly or indirectly in Jharkhand and India.

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Women Representation at PRIs in Bihar: New Trends

Tridew Nirala

Doctoral Fellow, Dept. of Political Science, B. R. Ambedkar Bihar University,
Muzaffarpur, Bihar, India

Abstract

The position of women in politics has always been miserable. In pre-independence India, legal provisions made it difficult for women to participate actively in politics. There has been a drastic change in the area of women's participation in politics, in India by the 73rd and 74th constitutional amendments. However, in Bihar as per provisions to providing equal opportunity, a large chunk of women were made to enter into political affairs at the grassroots level through 50 percent reservation of seats for women in 2006. Nevertheless, it has found that phenomenon of 'proxy women leadership' emerged. Male family members (their guardians) are even now handling the issue from behind the curtain and being rest as only proxy candidate, especially SC women representatives. Here, we discussed some typical trends and possible realities about women's political participation at grassroots level especially in context of equal opportunity made by legal provisions to aim deepening democracy in village society of India, particularly in rural Bihar.

Key Words: Women Representation, Rural Politics, Proxy Leadership, PRIs, Rural Bihar

Introduction

Women's political participation is an important component of democracy. We are fortunate at this 21st century time to have the extraordinary leadership faces, as like of our First Lady Pratibha Devi Singh Patil, Foreign Minister Sushma Swaraj, Speaker of Lok Sabha Sumitra Mahajan, Chief Minister of West Bengal Mamta Banarjee and many so on committed to this issue. Along with Ex-Speaker of Lok Sabha Meera Kumari, four time Ex- Chief Minister of Uttar Pradesh Mayawati. The issue of women's political participation is on the front page of newspapers in established democracies worldwide and in those countries that are moving toward democracy. However, conditions for promoting democracy may not be very comfortable;

nevertheless, women's groups are finding that they can become a force for democratic change.

Low election turnouts and lack of citizen interest in community-based initiatives are trends common in society – particularly among the poorer sectors. Indigenous groups that attempt to counter citizen apathy and promote participation faced with legal restrictions, such as Law, which limit the ability of NGOs to operate¹. In the case of political participation of women's groups, they must develop strategic and gender sensitive ways to communicate effectively and organize women, of the most part, are poor, illiterate and live according to conservative values. In a country where socio-economic fabric is very complex like India, the principle of democratic decentralization needs to be promoted both in socio-political and economic spheres. Citizens need to have the right to participate in the decision-making process and for this, an appropriate institution, like PRIs at the grassroots level is essential to serve this purpose. The objective of PRIs is to act as an instrument of self-education for people and involve them in the decision-making process to ensure proper implementation of policies and programs meant for their development.

Historical Background

The existence of democratic governance at village level in India through political bodies traced back to the ancient period. The term 'panchayat', literally means an 'assembly of five' and 'Raj' refers to governance. The panchayat system has evolved from assemblies of senior village persons or caste elders to the council with political and judicial powers until now. Villagers was participated actively in decision-making and organizing various local programs. The first ever serious attempt to reform both general as well as tax administration during medieval time made by Sher Shah Suri. The Britishers, after the British Crown took over the reign of India, they (Britishers) introduced formally constituted municipal and village administration. In 1882, Lord Rippon, the then viceroy, introduced the reforms in local government through his famous resolution known as the Lord Rippon's Resolution of 1882. The Bombay Municipal Act was passed in 1888, which served as the model for municipal governments for large cities.

In 1907, the Royal Commission of Decentralization was constituted to study the financial and administrative relationships between the Government of India, the provincial governments, and

the authorities subordinate to them. The Government of India Act of 1919 provided for many changes. The local level government was transferred to Indian ministries to make the system more effective. As a result, several Acts related to Panchayat passed between 1921 and 1926, which aimed at making these bodies more genuine and loosening of official control on them. The Government of India Act, 1935, certainly provided improvements over the existing system, but these were minor improvements.

Early years after independence, the consecutive governments overlooked PRIs and the centralized planning overrode. These panchayats only entrusted with minor importance. The community Development Programme (CDP) introduced for faster pace of rural development with greater level of people's participation in the process of development, however it ignored functioning of participatory institutional set up with beneficiaries' involvement. The then Prime Minister of India Pt. Nehru inaugurated the first Panchayat of independent India on 24 Oct. 1959 at Naguar Rajasthan². It is needless to repeat the description of setting up of Balwant Rao Mehta Committee and establishment of three tier PRIs in almost all states in early 1960s on its recommendations.

The poor state of PRIs in the mid-60s was due to both the political and economic situation. The result of the Third Five-year Plan was a debt-ridden economy, leading to a political thought that centralized decision-making is the need of the hour. This approach of centralization of decision-making continued until the end of Indira Gandhi's term as the prime minister ended in 1977. For example, in 1971 the term 'community development' was replaced with a new term 'rural development' and this was not just a cosmetic change, but marked the end of both as "agents of change and development"³. This adversely affected the functioning of panchayats. Also irregularity in panchayat elections in various states started being reported. Things further worsened with the national emergency and panchayats in many states were literally breathing their last. The new government in 1977, after the Emergency, eyed PRIs with renewed interest, with a hope to restore democracy at all levels. The state level committees set up to study the existing PRS, reported that the system was suffering from a number of weaknesses. To take care of the system at the national level, the newly formed government set up a high-level committee on PRIs in 1977 under the chair of Ashok Mehta⁴. The committee remarked that the history of PRIs could be

summarized in three phases: (i) the period from 1959 to 1964, i.e., the period of ascendancy when the grassroots institutions took root, (ii) the period, 1964 to 1969, also called a phase of stagnation, and, (iii) the period, 1969 to 1977, which was the phase of non-performance.

The committee observed certain pertinent characteristics existing in the PRS, which had adversely affected the objective of PRIs. Some of these were: (i). Dominance by rich and high caste people, (ii) Influence of caste considerations, (iii) Corruption and (iv) Inefficiency and political interference. The committee came out in strong favor of PRIs and recommended certain measures for effective functioning:

- (a). Decentralized planning with district ZP is as the primary unit of decentralization.
- (b). A two-tier system of Panchayati Raj in place of the existing three-tier system with one body at the district level and one body at the Mandal level.
- (c). The PRIs should have power to collect taxes for financial self-reliance.
- (d). participation of political parties in a way that their mutual competition is converted into constructive Co-operation for rural development

The main reasons of the decline were – shift of development programs to governmental agencies, reluctance of state and national politicians for fear of erosion of power and inadequate devolution of functions and finances on the PRIs. In order to overcome these maladies, the idea of giving constitutional status to the PRIs spread among social scientist. A sub-committee of Parliament headed by P.K. Thungon⁵ officially recommended constitutional status to Panchayats. The then Rajiv Gandhi led government, after a wide national debate, resorted to place 64th constitutional amendment Bill in May 1989 providing for a constitutional status of elected local bodies at village, intermediate and district levels. Unformulated even after passed by Lok Sabha, the Bill turned down by a margin of two votes by Rajya Sabha in October 1989.

The National Front (a combined opposition) of S.R. Bommai in order to examine the basics of democratic decentralization through panchayats and self-Governments demanded to establish a committee. It examined the alternative panchayat legislation. The

committee further recommended for meaningful center state decentralization and devolution of 50 percent of the state's aggregate revenue resources to PRIs⁶. Again a bill on Panchayat was introduced in Lok Sabha by National Front Government (1989-91) however was never discussed. The Congress took up the issue again when it came back to power in 1991. After revival of Congress government under leadership of P.V. Narshimaha Rao in 1991, the Bill was finally introduced as the 73rd Amendment in 1992. The 73rd constitutional amendment Bill passed by both the houses in December 1992 and finally assented by the president in 1993.

Contemporary Legal Provisions: New Trends

The Amendment certainly aimed at enhancing people's participation in managing local affairs, besides empowering the weaker sections of the society, particularly women. The idea is not merely to transfer the economic and political power, but to make PRIs a people's movement in the true sense. One of the important aspects of the Amendment, that is relevant to this study, is reservation of seats for women. This has referred to by the scholars as 'political empowerment' of women. This has led to a sudden surge in the number of women in decision-making positions at the local level. From among the 15-20, lakh contesting in the polls, 7-8 lakh women and about 75,000 women as office bearers at all the levels of panchayats share the responsibilities in the development process⁷. Further, the State Finance Commission and Election Commissions have been assigned the responsibility of taking care of financial health of panchayats and of ensuring their timely elections. Women and their role in the polity have attracted larger number of researchers in the post-73rd Amendment period, because for the first time women in such large numbers were voted into power. Most of the literature of this period is in the form of field study reports, articles, newspaper clippings and books. The field studies have been conducted by research institutions such as the participatory Research in Asia⁸ (PRIA), the Institute of Social Sciences⁹ (ISS), and the Centre for Women development Studies (CWDS). Many of the empirical studies have reflected on the profile of women members as confirmed by Nirmala Buch¹⁰, according to whom, "a number of micro-studies have documented the profile and experience of these women". The available literature of this time generally reflects on the women's international political status, traces the history of PRIs

simultaneously dealing with the various committees and commissions formed at various points of time. Some of them specifically include the B.R. Mehta Committee, the Asoka Mehta Committee, the L.M. Singhvi Committee, the Committee on the status of women, the National Perspective Plan etc.

The working of the PRS, as evident from the quantum of available literature, has been of much academic interest to activists and scholars. Such activists and scholars are also critically reviewing the 73rd Amendment, which has been framed after taking into account the earlier lacunae. Despite all good intentions and positives aspects of the Amendment, media reports from across the nation as also articles and books highlight certain areas of concern, which need the attention of the planners and policy makers. Lack of funds, overwhelming bureaucracy, ineffective participation of women, undue interference by non-members on behalf of women members, irregularity in meetings are some of the commonly reported issues of PRS now days.

Conclusion

To conclude, the history of PRIs shows that these institutions have existed since the ancient times, but ancient literature makes no mention of women attending the village council. After the Independence and adoption of a democratic system of governance, the Government of India efforts have been to get people's political participation in development process through distribution of power at the local level. The 73rd Amendments is an effort towards bringing in structural adjustments to the system by introducing 33 percent reservations for women at all the three tiers in Panchayati Raj System.

As well as in Bihar, A large chunk of women were made to enter into political affairs at the grassroots level providing through 50 percent reservations of seats at Panchayati Raj Institutions for women in 2006. The AC Nielson ORG-MARG study showed also that about 87 percent of elected women representatives (EWRs) had contested only once and only 14 percent had been re-elected¹¹. Male family members (their guardians) are even now handling the issue from behind the curtain and being rest as only proxy candidate, especially SC women representatives. In Bihar, Provisions relating granting elected women representatives at least 10 years (on basis to be elected in every 5 year term) of continued opportunity by

extending the rotation term of reserved seats by provision can give them help and they negotiate their political space in a better manner. And now after that, there is need to point; the phenomenon of the political recruitment from mass of women in general, should be irrespective of the levels of political institutions or patriarchy practiced or hierarchy of caste system requires sensitization of women for political roles at grassroots level.

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Study of Josephson Effect between Bose Condensate

Kaushlendra Kumar

Research Scholar, Dept. of Physics, Magadh University, Bodhgaya, Gaya, Bihar, India

Abstract

Since its theoretical prediction in 1962,¹ the Josephson effect has played a major role in the physics and technology of superconductor.²

Key Words: *B.E. Condensate, superfluid, Josephson effect, Cooper pair, plasma frequency*

Introduction

The physics of the Josephson Effect becomes manifest when a weak link is created (e.g by tunneling or through a point contact) between two systems which have undergone some type of gauge symmetry breaking. In fact, the Josephson effect has also been observed in superfluid,³ and because of the profound analogies, its observation in the recently achieved⁴⁻⁷ Bose condensed atomic gases is generally expected. A system whose gauge symmetry has been spontaneously broken can be described by an order parameter that behaves in many respects like a macroscopic wave function $\Psi(r)$. In system whose gauge symmetry has been spontaneously broken can be described by an order parameter that behaves in many respects like a macroscopic wave function $\Psi(r)$. In the simplest cases, the order parameter reduces to a complex scalar, $\Psi = \sqrt{\rho}e^{i\phi}$ where $\rho(r)$ is the 'superfluid density' $\phi(r)$ and is the phase. For Bose-Einstein condensates of dilute alkali gases, $\phi(r)$ is wave function of the macroscopically occupied one-atom state.

In his epoch-making,¹ Josephson predicted that, between two weakly connected superconductors of phase $\phi_1 \phi_2$, and a nondissipative particle (Cooper pair) current flows between them whose value is

$$I(\phi)I_c \sin \phi \quad (1)$$

where I_c is the critical current and is the relative ($\phi(r)$ is assumed to be approximately uniform within each superconductor).

He also predicted that, in the presence of a nonzero chemical potential difference $\mu = \mu_2 - \mu_1$, the relative phase rotates as

$$\varphi = -\mu / \hbar \quad (2)$$

The Josephson relations can be obtained from very general considerations and apply to any pair of weakly linked systems that can be described by macroscopic wave function.⁸ They can be obtained as the equations of motion of the 'pendulum Hamiltonian'

$$H(\varphi, N) = E_J(1 - \cos\varphi) + \frac{1}{2} E_C N^2 \quad (3)$$

where $E_J = \hbar I_c$ is the Josephson coupling, $N = (N_2 - N_1)/2$ is the number of transferred particles and $E_C = \partial\mu / \partial N$ is the capacitive energy due to interactions. In the absence of external constraints, $\mu = E_C N$. In a superconducting link, the critical electric current is $2eI_C$ and the capacitive (or 'charging') energy is $E_C = (2e)^2 / 2C$, where C is the electrostatic capacitance. For trapped BECs, E_C can be obtained to a good accuracy from the Thomas-Fermi (TF) calculation⁹ of the chemical potential.

When both E_C and $k_B T \ll E_J$ and system is near equilibrium, the Josephson pendulum Hamiltonian can be approximated as a harmonic oscillator.

$$H(\varphi, N) \cong E_J \frac{1}{2} \varphi^2 + \frac{1}{2} E_C N^2 \quad (4)$$

whose frequency

$$\omega_{JP} = \sqrt{E_J E_C} / \hbar \quad (5)$$

is called the Josephson plasma frequency.

Given the intimate relationship between eqs. (1), (2) and (3), a derivative of the pendulum Hamiltonian (in particular of the $\cos\varphi$ dependence of the energy on the relative phase) may be regarded as equivalent to a derivation of the Josephson effect. At low temperatures, the collective dynamics of an inhomogeneous BEC is well described by the Gross-Pitaevskii (GP) Hamiltonian¹⁰

$$H[\psi, \psi^*] = \int d\mathbf{r} \left(\frac{\hbar^2}{2m} |\nabla\psi(\mathbf{r})|^2 + V_{\text{ext}}(\mathbf{r}) |\psi(\mathbf{r})|^2 + \frac{g}{2} |\psi(\mathbf{r})|^4 \right) \quad (6)$$

where $g = 4\pi\hbar^2 / m$ (a is the s-wave scattering length). Neglecting depletion,¹¹ the normalization can be taken as $\int d\mathbf{r} \rho = N_T$, N_T being the total number of atoms. The extremum condition

$\delta(H - \mu_0 N_T) / \delta \psi^* = 0$ (where μ_0 is the equilibrium chemical potential) leads to the well-known GP equation.¹⁰

Phase rigidity and broken gauge symmetry

The assumption of a uniform within each Bose condensate is implicit in most discussion of the Josephson effect. It seems therefore convenient to check explicitly that this is a physically meaningful approximation. To prove it, let us estimate the energy of a one-radian fluctuation of the phase across the condensate near equilibrium in a single spherical harmonic well [eq.(1)],

$$\frac{\hbar}{2m} = \int d\rho |\nabla \phi|^2 \cong \frac{\hbar}{2m} \frac{N_T}{4R^2} \cong 0.7 N_T^3 \frac{\hbar \omega_2}{2} \quad (7)$$

where $R = a_0(15aN_T/a_0)^{1/3}$ is the cloud radius estimated within the TF approximation.⁹ $a_0 = (\hbar/m\omega_0)^{1/2}$ is the harmonic oscillator length. For the last approximate equality one has typical parameter $a=5\text{nm}$ and $a_0=10^{-4}\text{cm}$. The characteristic temperature of such an oscillation can be as big as $10\mu\text{K}$.⁷ Since temperature as low as 100nK can be reached in current BEC setups, it is acceptable to view the phase of a condensate within one well as internally frozen and rigid. It is clear from eq. (7) that spatial fluctuations of the phase are energetically more costly the higher the value of the condensate density ρ . For this same reason, in the interstitial region between two wells, where $\rho(r)$ decreases appreciably, spatial phase variations require less energy and are thus easier to activate at low temperatures. Here lies the essence of low-energy Josephson dynamics. At low temperatures, the picture emerges of two wells, each with an internally uniform phase, whose relative phase

$$\phi = \int_1^2 d\mathbf{l} \cdot \nabla \phi \quad (8)$$

induced by local variation $\phi = (r)$ in the interstitial region, is the only active dynamical variable.

From the theory of phase transitions, one knows that some type of 'rigidity' is generally exhibited in the ordered phase below the critical temperature.¹² In the case of superconductors, superfluids and Bose-Einstein condensates (BECs), one may speak of 'phase-rigidity' because, given an electromagnetic gauge (or its equivalent for superfluids and BECs). The phase is determined everywhere once it has been fixed at a given point. Alternatively, since gauge and phase are intimately connected in quantum mechanics, one can say

that, given a choice of phase, one has lost the freedom to choose the gauge, hence the term 'gauge symmetry breaking'.

Long range phase coherence can be destroyed by thermal or quantum fluctuations. Simple pictures of how this occurs can be developed by analyzing the Josephson Hamiltonian (3), which may be viewed as a two-site reduction of the more general energy function (6). In equilibrium, good phase coherence between sites 1 and 2 is obtained in the harmonic limit (4). Then it is appropriate to speak of global phase coherence or rigidity in the combined double BEC system. Thermal fluctuations randomize the phase for $k_B T \geq E_J$. To see how quantum fluctuations can destroy the two site phase coherence, one notes that, since N and ϕ are canonically conjugate variables, N can be represented as $N = i\partial/\partial\phi$ in a quantum description. As a consequence, the capacitive term in eq. (3) plays the role of the kinetic energy for the phase variable. At zero temperature, quantum fluctuations can destroy phase rigidity between sites 1 and 2 if the interactions are sufficiently strong ($E_C \geq E_J$). In this limit, the relative particle number becomes a good quantum number eq. (3) and the two condensates behave as essentially independent. Because of the weak connection, it is much easier to destroy the relative phase coherence between condensate. One has already proved that internal coherence cannot be destroyed by thermal fluctuations at the experimental temperatures. On the other hand, long range coherence within each condensate is preserved from destruction by quantum fluctuations thanks to the three-dimensional character of the problem, for which the Mermin-Wagner theorem does not apply.

External Josephson Effect Semi-classical description

Let us assume that $V_{\text{ext}}(r)$ is such that our system has the structure of two weakly connected condensates 1 and 2. One assumes that the condensates are confined within spherical harmonic wells of the same frequency ω_0 . First one wishes to analyze the semi-classical dynamics. Then, N and ϕ can be treated as simultaneously well defined and one may write for the wave function the ansatz.¹³

$$\tilde{\Psi}(r, t) \sim \Psi_1(r; N_T/2 - N(t)) + e^{i\phi} \Psi_2(r; N_T/2 + N(t)) \quad (9)$$

where $\Psi_1(r;n)$ is the (real) equilibrium wave function for the isolated well i containing n basons. It is straightforward to show that, to lowest order in the overlap integrals $\int \Psi_1 \Psi_2$, the energy functional for $\tilde{\Psi}$ takes the form

$$H(\phi, N) \cong E_B(N) + E_J(N)(1 - \cos \phi) \quad (10)$$

where $E_B(N)$ is the bulk energy of the two isolated wells with N transferred atoms, and $E_J(N)$ is the Josephson coupling energy.

In the TF limit (9), the bulk energy $E_B(N)$ is mostly due to interactions, and it may be expanded as

$$E_B(N) \cong E_B(0) + \mu_0 \left(\frac{N_T}{2} \right) N^2 + \frac{1}{2} \mu_0^m \left(\frac{N_T}{2} \right) N^4 \quad (11)$$

since $\mu_0 \sim N_T^{2/5}$, the ratio between the third and second terms in the expansion is $0.32 N^2 / N_T^2$, which means that the last term can be neglected in a wide range of situations.⁹ To avoid complications stemming from possible resonance between Josephson oscillations and intrawell excitations, one requires, $\mu_0(N_T/2 + N) - \mu_0(N_T/2 - N) \ll \hbar\omega_0$ where one uses the result that the first normal mode of a spherical well lies approximately at $\hbar\omega_0$ above the ground state.^{14,15} This condition is realized when $N/N_T \ll 4.6N_T^{-2/5}$ for typical parameters. This upper bound is of order 2-10% for $N_T \sim 10^4$ - 10^6 .

Josephson coupling energy in one dimension

The expression for the coupling energy $E_J(N)$ in terms of ψ_1 and ψ_2 implicit in eq. (10) is rather complicated and difficult to handle, so it is desirable to find a simpler expression. Let us assume that the $(1 - \cos \phi)$ dependence for the energy of a Josephson link has already been proved by e.g., the arguments and focus on the particular $\cos \phi \ll 1$ where $\psi(r)$ is very close to ground-state wave function $\psi_0(r)$ with $\phi = 0$. In such case, the integrand $|\nabla \psi|^2$ in eq. (6) is mostly due to phase variation. In one dimension, one can then write

$$E[\phi] = \frac{\hbar}{2m} \int_1^2 dx \rho(x) |\phi'(x)|^2 \cong \frac{1}{2} E_J \phi^2 \quad (12)$$

where the phase term in eq. (3) has been approximated quadratically, and where the integration extends between two points beyond which the phase is practically uniform.

From eq. (1), one knows that a super current must flow between the two condensate whose value is

$$I \cong (E_J / \hbar) \phi \quad (13)$$

On the other hand, particle number conservation requires

$$I = (\hbar / m) \rho(x) \phi'(x) = \text{const} \quad (14)$$

Inserting the resulting expression for $\phi'(x)$ into eq. (13), one obtains a functional expression for the Josephson coupling energy in terms of the ground-state superfluid density

$$E_J = \frac{\hbar^2}{2m} \left[\int_1^2 \frac{dx}{\rho_0(x)} \right]^{-1} \quad (15)$$

where one has used the fact that, $\phi \ll 1$, $\rho \cong \rho \equiv |\psi_0|^2$

Three dimensions: electrostatic analogy

One assumes again that the $(1 - \cos \phi)$ dependence has already been proved and consider the case $\phi \ll 1$. Analogously to eq. (12), one can write

$$E[\phi] = \frac{\hbar}{2m} \int_{\text{ext}} d\rho(x) |\nabla_0(r)|^2 \cong \frac{1}{2} E_J \phi^2 \quad (16)$$

where the integration extends over the region exterior to the condensates (the results are quite independent of the precise location of the condensate borders). The phase within the condensates is assumed to be uniform. The only way for eq. (16) to have dependence on the total phase difference ϕ and not on the details of $\nabla \phi$ is that the condition $\delta E(\phi) / \delta \phi(r) = (\hbar^2 / 2m) \nabla \cdot (\rho \nabla \phi) = 0$ is satisfied, something which is guaranteed by current conservation ($(\hbar / m) \rho \nabla \phi$ is the particle current density). One may have noted that, except for trivial factors, this is the electrostatic equation for the electric displacement vector $D = \rho \nabla \phi$ in a medium with a non-uniform dielectric constant $\rho(r)$. Boundary conditions for $\phi(r)$ are given by its value at the borders of each condensation (ϕ_1 and ϕ_2), which act as conductors in this analogy. One has a system of two conductors held at a potential difference ϕ and a dielectric medium surrounding the. The $E[\phi]$ is essentially the energy of this capacitor. Potential theory tells us that $E[\phi] \sim \phi^2$, with E_J in eq. (16) playing the role of the mutual capacitance of the two conductors in the presence of such a dielectric.

Standard variational arguments can be invoked to prove that, for parallel plate boundary condition, 13

$$\int \frac{dx dy}{\int_1^2 dz \rho(x, y, z)} \leq \frac{m E_J}{\hbar^2} \left[\int_1^2 \frac{dz}{\int dx dy \rho(x, y, z)} \right]^{-1} \quad (17)$$

(here z is the longitudinal coordinate connecting the centers of the two wells, and x, y are the transverse coordinates). The lower bound is obtained by removing the positive term $(\partial\phi/\partial x)^2 + (\partial\phi/\partial y)^2$ from the energy functional (16), while the upper bound is derived by taking ϕ independent of x, y . If the equilibrium density can be factorized in the region controlling (a not very restrictive condition in practice), one can write $\rho_0(r) = f(x, y)g(z)$ and the two bounds become identical. Taking $r=0$ at the middle point of the double-well configuration and choosing $x=y=0$ to be the line connecting the two well centres, one can finally write¹³

$$E_J = A \frac{\hbar^2}{m} \left[\int_1^2 \frac{dz}{\rho_0(0,0,z)} \right]^{-1} \quad (18)$$

$A = f(0,0)^{-1} \int dx dy f(x, y)$ being an effective area. The factorization condition is much more general than it might appear at first sight, since it only has to be satisfied in the interstitial region near the top of the barrier giving the dominant contribution E_J . There $V_{\text{ext}}(r)$ has a saddle point and thus it can be decoupled in longitudinal and transverse coordinates. Since interactions are negligible in the bottleneck region connecting the two wells, one concludes that the wave function must be factorizable.

WKB calculations

In order to proceed, one needs an estimate $\rho_0 |\psi_0|^2$ in the region of interest. Here we reproduce sketchily the WKB calculation of ref. [13]. For two identical wells in equilibrium, the ground state wave function is symmetric in z . Focusing on the $x=y=0$ line giving the dominant contribution, one writes

$$\psi_0(z) = \frac{B}{\sqrt{p(z)}} \cosh \left[\frac{1}{\hbar} \int_1^2 dz' p(z') \right] \quad (19)$$

where $p(z) = [2m(V_{\text{ext}}(0,0,z) - \mu_0)]^{1/2}$ and B is a constant to be determined from the work of ref. [16]. Introducing eq. (19) into eq. (18) one obtains

$$E_J \cong \frac{\hbar A |B|^2}{m} \left[2 \tanh\left(\frac{S}{2}\right) \right]^{-1} \quad (20)$$

where $S = \int_1^2 p(z) dz / \hbar$ is the dimensionless instant on action. One finally gets [13]

$$E_J \cong \frac{e^{-S}}{\tanh(S/2)} \left(\frac{N_T}{2} \right)^{1/3} \left(\frac{15a}{a_0} \right)^{-2/3} \frac{\hbar \omega_0}{2} \quad (21)$$

The $N_T^{1/3}$ dependence can be understood qualitatively by noting¹⁴⁻¹⁶ that $A \sim R^{2/3}$ and $B \sim R^{1/2}$. Since in the TF approximation.⁹, $R \sim N_T^{1/5}$ one obtains $E_J \sim N_T^{1/3}$. Knowing that the critical temperature satisfies $k_B T_C \cong N_T^{1/3} \hbar \omega_0$ ¹⁷ one may rewrite eq. (21) as (for large S and typical parameters)

$$E_J \cong k_B T_C e^{-S} \quad (22)$$

which is reminiscent of the Ambegaokar- Baratoff formula for superconductors² if one notes that e^{-S} is the probability amplitude for a particle to traverse the barrier.

Josephson plasma frequency

From (3) and (11), one has $E_C = 2\mu'_0(N_T/2)$, which in the TF approximation 9 reads

$$E_C \cong \frac{4}{5} \left(\frac{N_T}{2} \right)^{-3/5} \left(\frac{15a}{a_0} \right)^{2/5} \frac{\hbar \omega_0}{2} \quad (23)$$

from (5), (21) and (23), one obtains

$$\omega_{JP} \cong \left(\frac{2a}{15aN_T} \right)^{2/15} \frac{e^{-S/2}}{\sqrt{\tanh(S/2)}} \omega_0 \quad (24)$$

Since, usually $\omega_0 = 2\pi \cong 10 - 100 \text{ Hz}$, one concludes that $\omega_{JP} / 2\pi \leq 10 \text{ Hz}$.

The ratio E_J/E_C is a good measure of the classical character of the relative phase ϕ . From (21) and (23), one finds

$$\frac{E_J}{E_C} \left(\frac{2a}{15aN_T} \right)^{1/15} \frac{N_T a_0}{a} \frac{e^{-S}}{\sqrt{\tanh(S/2)}} \quad (25)$$

By varying S , system can be driven from the classical regime ($E_J \gg E_C$) to the strong quantum limit ($E_J \ll E_C$). However, in the latter case, quantum effects are only important if one operate at ultralow temperature $k_B T \leq E_C$. From eq. (25), one concludes that, for typical

number, S must be roughly ≥ 10 for quantum fluctuations to be important.

Internal Josephson Effect

It is possible to couple different hyperfine states of an atom (say $|F_m\rangle$ and $|F'm'\rangle$) through laser light. In particular, by applying a laser pulse, one may force an atom initially in state $|F_m\rangle$ to evolve in a controllable way towards another state $|F'm'\rangle$. If such a pulse is applied to a macroscopic condensate, then the whole ensemble of atoms evolves coherently. Thus it is possible to prepare a condensate in which each atom is in the same coherent superposition of the two states. Such an experiment has been realized by Hall *et. al.* 19 with the $|1,-1\rangle$ and $|2,1\rangle$ states of ^{87}Rb (hereafter, $|A\rangle$ and $|B\rangle$). Using this type of techniques, it will be possible to study the novel and potentially, extremely rich 'internal' Josephson effect; which bears some analogies with the physics of superfluid $^3\text{He-A}$, as noted by Leggett.²⁰

The analysis of the spatial (external) Josephson effect is based on the knowledge of $V_{\text{ext}}(r)$, where r one can be varied continuously between wells. A similar study of the internal Josephson effect would not be practical. Fortunately, all that is really needed is the value of the matrix element connecting states $|A\rangle$ and $|B\rangle$ which can be known by other means. Then, it is most convenient to employ a two-site description of the Josephson link, We write^{21,22}

$$H = \frac{\hbar\omega_R}{2}(a^\dagger b + b^\dagger a) + \frac{u}{a}[(a^\dagger a)^2(b^\dagger + b)^2] \quad (26)$$

where $a^\dagger(b^\dagger)$ creates one atom in state, u accounts for the interactions, and ω_R is the Rabi frequency. For simplicity, one assumes that the two atomic energies, as well as the interspecies interactions, are equal, and neglect the interspecies interaction. Particle number conservation requires $a^\dagger a + b^\dagger b = N_T = 2N_0$.

To establish the connection with the pendulum Hamiltonian, one notes that, since particle eigenstates admit a representation, $\Phi_N(\varphi) = (2\pi)^{-1/2} \exp[-iN\varphi]$ one may write for eq. (3)

$$\langle N+1 | H | N \rangle = -E_J / 2 \quad (27)$$

A similar analysis for the two-site Hamiltonian²³ yields

$$\langle N+1 | H | N \rangle = -(\hbar\omega_R / 2) \langle N_A + 1, N_B - 1 | a^\dagger b | N_A, N_B \rangle$$

$$= -(\hbar\omega_R / 2) \sqrt{(N_A + 1)N_B} \quad (28)$$

Noting that $N_{A,B} = N_0 \pm N$, and identifying eq. (27) and eq. (28), one arrive at

$$E_J(N) = \hbar\omega_R [N_0(N_0 + 1) - N(N + 1)]^{1/2} \quad (29)$$

In the limit $1 \ll N \ll N_0$ eq. (29) becomes

$$E_J(N) = N_0 \hbar\omega_R \quad (30)$$

which is a clear manifestation of the phenomenon of Bosonic amplification. The identification of eq. (26) with the pendulum Hamiltonian is completed by noting that (apart from constant energy shifts) the interaction term can be written uN^2 , i.e. $u - E_c/2$.

Conclusion

We have presented an overview of the physics of the Josephson Effect between Bose condensed systems, with emphasis on the recently achieved BECs in trapped alkali gases. We have mostly focused on those physical phenomena that are likely to be observed only (or more easily) in these novel systems. Thus, we have omitted the discussion of problems (such as, *e.g.*, steady particle flow under the action an alternating chemical potential) which may be viewed as straightforward applications of well known Josephson physics.² We have tried to underline the potential richness of the physics displayed by weakly connected BECs. One may have an external (spatial) and internal (hyperfine) Josephson effect. It seems possible to explore the crossover between collective Josephson behavior and independent boson Rabi dynamics. Finally, the observation of fascinating phenomena such as quantum self-trapping and macroscopic interference between separate Bose condensates seem also within reach of the emerging BEC technology. Everything indicates that the experimental and theoretical study of the Josephson Effect between Bose-Einstein condensates will leads us to the exploration of most exciting new physics.

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Vitamin A Supplementation Management of Measles: With Special Reference of Muzaffarpur District of Bihar

Shalini Kumari

Research Scholar, Dept. of Home Science, BRA Bihar University, Muzaffarpur,
Bihar, India

Abstract

Background: Measles is a leading cause of childhood morbidity & mortality. Vitamin A deficiency is a recognised risk factor for severe measles. The World Health Organization (WHO) recommends administration of an oral dose of 200,000 IU (or 1000,000 IU in infants) of vitamin A per day for two days to children with measles in areas where vitamin A deficiency may be present. **Objectives:** The purpose of this review to determine whether vitamin A when commenced after measles has been diagnosed is beneficial in preventing mortality & other complications in children. **Method:** Only randomized controlled trials in which children with measles were given vitamin A with standard treatment were considered. Study was assessed independently by the reviewer. **Results:** There was no evidence that vitamin A in a single dose of 200,000 IU was associated with a reduced risk of mortality among children with measles, pneumonia or diarrhoea. There was a 64% reduction in the risk of mortality in children who were given two doses of 200,000 IU of vitamin A. Two doses of oil & water based vitamin A were associated with a 82% reduction in the risk of mortality in children under the age of 2 years, with pneumonia as well as diarrhoea. **Conclusion:** Although the researcher did not find evidence that a single dose of 200,000 IU of vitamin A per day was associated with reduced mortality among children with measles, there was evidence that same dose given for two days was associated with a reduced risk of overall mortality. The effect was grater in children under the age of two years.

Introduction

The guidelines issued by the WHO in 2011 reiterate their earlier recommendations supporting the use of high dose vitamin A supplements (VAS) to reduce child morbidity & mortality in populations where clinical & subclinical vitamin A deficiency (VAD) is

a public health problem. A supplementation for all children diagnosed with measles, regardless of their country of residence, based on their age as follows:

- Infants younger than 6 months: 50,000 IU/day for 2 doses.
- Age 6-11 months: 100,000 IU/day for 2 doses.
- Older than 1 year: 200,000 IU/day for 2 doses.
- Children with clinical signs of vitamin A deficiency: The first 2 doses as appropriate for age, then a third age-specific dose given 2-4 weeks later.

A measles outbreak in Muzaffarpur district of Bihar exposes the state's failure to procure vitamin A for children. Arun Shah, a paediatrician in Muzaffarpur district of Bihar found an unusually high number of children infected with measles arriving at his clinic. Within a week, the number touched 17 indicating an outbreak of measles. Over the last three months, Muzaffarpur district has recorded ten measles outbreaks, affecting about 190 children, according to the local district health authorities. The outbreaks raise questions over the effectiveness & supplies of vitamin A supplementation programme. Bihar has not been able to procure vitamin A stocks since 2016. According to National Family Health Survey 4 (2015-16), Muzaffarpur has 80% coverage for the measles vaccine. But the number does not reflect the actual immunisation coverage. Dr. Pradeep Halder, Deputy Commissioner in the immunisation division of the Union Health ministry, pointed out that only when immunisation coverage is more than 95% can measles outbreaks be avoided.

Methods

A thorough review of existing relevant literature was carried out. Field visits & interviews with selected partners have been done. Data was collected by Districts Health Society Muzaffarpur Bihar & selected sites on scheduled dates.

Result & Discussion

There was no significant reduction in mortality in the vitamin A group when all the studies were pooled together. There was a 64% reduction in the risk of mortality in children who were given two doses of 200,000 IU of vitamin A as compared to placebo. Two doses of water based vitamin A were associated with 81% reduction as compared to 48% seen in two doses of oil based preparation. I did not find evidence that a single dose of 200,000 IU of vitamin A per

day, given in oil based formulation in areas with low case fatality was associated with reduced mortality among children with measles. However, there was evidence that the same dose given per two days was effective with a reduced risk of overall mortality.

Measles infection lowers the vitamin A levels in the body & if the child is already suffering from vitamin A deficiency, the complications could be even severe. Infection by the measles virus compounded by Vitamin A deficiency can lead to inflammation on the conjunctiva & cornea in the eye & in severe cases, lead to blindness, under nutrition levels in Bihar are among the highest in India. According to the National Family Health Survey-4 (2015-16) half of the Bihar's children below five years of age are stunted.

Vitamin A is essential for treatment of measles but the government is shying away from the duty. Proper vitamin A supplementation is the best way to minimize measles cases.

Conclusion

The government of Bihar needs to reach out to the children who are undoubtedly the hardest to reach & potentially the most vulnerable. They perhaps belonging to Scheduled Caste, Schedule Tribes & they need attention immediately. The guidelines for measles immunisation campaign issued by the Union Ministry Of Health & Family Welfare includes vitamin A as an important supplement for managing cases of measles should be followed properly. Overall high political commitment & coordination across departments, district-level micro-planning, timely & adequate supply of Vitamin A supplements (VAS), effective social mobilization & communication attribute in management of measles & VAD.

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How the psychology of a child is affected by the society in which he is living during development stages?

Dr. Kanchan Prabha Kumari

Senior Secondary Teacher (Home Science), S.Y Senior School, Nayagaon,
Sheohar, Bihar, India

Abstract

This study examines the development of a child through his/her infancy to reaching adulthood and the effects of society on it. Analysis of the psychology consists of the physical changes through which a child undergoes at different stages of life and the analysis also includes how a child's mental ability to grasp and understand changes throughout infancy to adulthood is affected abruptly by the peer. We take a look at the data which lists the changes that occur over the period and the exceptions that deviate from this data.

Introduction

Child development refers to the process through which human beings typically grow and mature from infancy through adulthood. The different aspects of growth and development that are measured include physical growth, cognitive growth, and social growth. Child development focuses on the changes that take place in humans as they mature from birth to about age 17. Child development involves the biological, psychological, and emotional changes that occur in human beings between birth and the conclusion of adolescence. Developmental change may occur as a result of genetically-controlled processes known as maturation, or as a result of environmental factors and learning, but most commonly involves an interaction between the two. It may also occur as a result of human nature and of the human ability to learn from the environment.

There are various definitions of periods in a child's development since each period is a continuum with individual differences regarding starting and ending. Some age-related development periods and examples of defined intervals include:

Development period	interval
Newborn	0-4 weeks
infant	4 weeks- 1 year
Toddler	12months-24 month
Preschooler	2-5 year

School-aged child	6-12 year
adolescent	13-19 year

Taking a look at the data on children belonging to different age groups in different sections of society, we can see that not all children develop at the same rate with the same mental state and the following information provides general guidance only.

Psychological changes a child goes through

- Physical Development
- Cognitive Development
- Emotional (Social) Development

Theories on children being subject to their environment and their behaviour being a function of their environment and upbringing:

i. Piaget's Stages of Cognitive Development

- Jean Piaget developed his cognitive-developmental theory based on the idea that children actively construct knowledge as they explore and manipulate the world around them.
- The four stages of Piaget's theory of cognitive development correspond with the age of the child; they include the *sensorimotor*, *preoperational*, *concrete operational*, and *formal operational* stages.
- The sensorimotor stage occurs from birth to age 2 and is characterized by the idea that infants "think" by manipulating the world around them.
- The preoperational stage occurs from age 2 to age 7 and is characterized by the idea that children use symbols to represent their discoveries.
- The concrete operational stage occurs from age 7 to age 11 and is characterized by the idea that children's reasoning becomes focused and logical.
- The formal operational stage occurs from age 11 to adulthood and is characterized by the idea that children develop the ability to think in abstract ways.

ii. Attachment Theory

- Attachment in infants is primarily a process of proximity-seeking to an identified attachment figure in situations of perceived distress or alarm for survival.

- John Bowlby and Mary Ainsworth were two prominent researchers who advanced the theory of attachment as related to human development.
- John Bowlby conceived of four stages of attachment that begin during infancy: preattachment, attachment-in-the-making, clear-cut attachment, and formation of reciprocal relationships.
- Ainsworth identified three types of attachment that a child could demonstrate: secure, avoidant, and resistant/ambivalent. Her colleague Mary Main later identified a fourth type, called disorganized attachment.
- In his experiments related to attachment, Harry Harlow raised baby monkeys away from their mothers; he gave them surrogate mothers made of wire and wood, to which they developed attachment bonds.

iii. Kohlberg's Stages of Moral Development

- Lawrence Kohlberg expanded on the earlier work of cognitive theorist Jean Piaget to explain the moral development of children, which he believed follows a series of stages.
- Kohlberg defined three levels of moral development: pre-conventional, conventional, and post-conventional. Each level has two distinct stages.
- During the pre-conventional level, a child's sense of morality is externally controlled. Children accept and believe the rules of authority figures, such as parents and teachers, and they judge an action based on its consequences.
- During the conventional level, an individual's sense of morality is tied to personal and societal relationships. Children continue to accept the rules of authority figures, but this is now because they believe that this is necessary to ensure positive relationships and societal order.
- During the post-conventional level, a person's sense of morality is defined in terms of more abstract principles and values. People now believe that some laws are unjust and should be changed or eliminated.
- Kohlberg's theory has been criticized for its cultural and gendered bias toward white, upper-class men and boys. It also fails to account for inconsistencies within moral judgments.

Abusive Household

Emotional and psychological abuse in children is defined as behaviors, speech and actions of parents, caregivers, or other significant figures in a child's life that have a negative mental impact on the child.

According to the U.S. government, "emotional abuse (or psychological abuse) is a pattern of behavior that impairs a child's emotional development or sense of self-worth."

Examples of emotional abuse include:

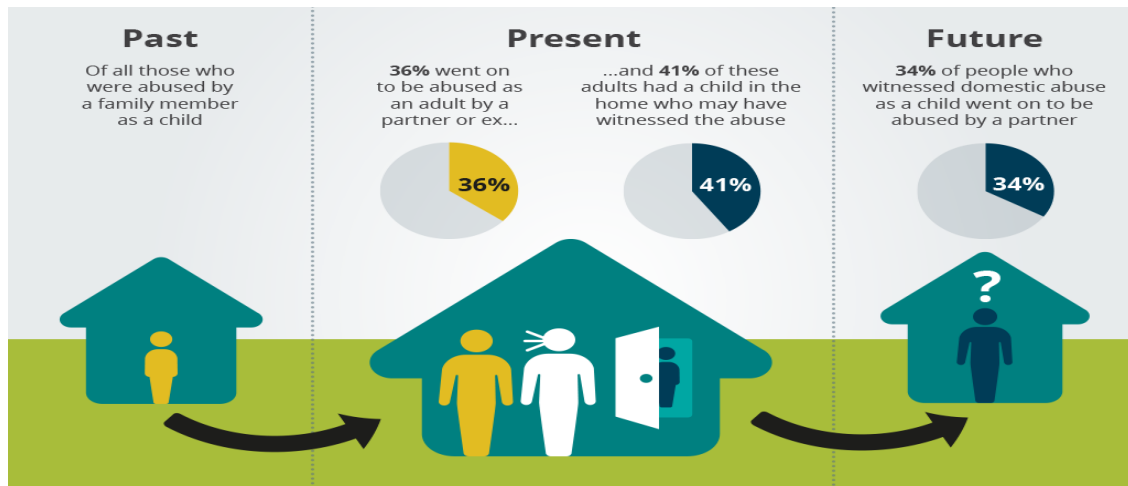
- name-calling
- insulting
- threatening violence (even without carrying out threats)
- allowing children to witness the physical or emotional abuse of another
- withholding love, support, or guidance

It's very difficult to know how common child emotional abuse is. A wide range of behaviors can be considered abusive, and all forms are thought to be underreported.

Child help estimates that every year in the United States, more than 6.6 million children are involved in referrals to state Child Protective Services (CPS). According to the Centers for Disease Control and Prevention (CDC) Trusted Source, in 2014, over 702,000 children were confirmed by CPS as having been abused or neglected.

Child abuse occurs in all types of families. However, reported abuse appears to be most common in families that are:

- having financial difficulties
- dealing with single parenthood
- experiencing (or have experienced) a divorce
- struggling with substance abuse issues



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Goals of Product and Price Mix

Ritu Rani

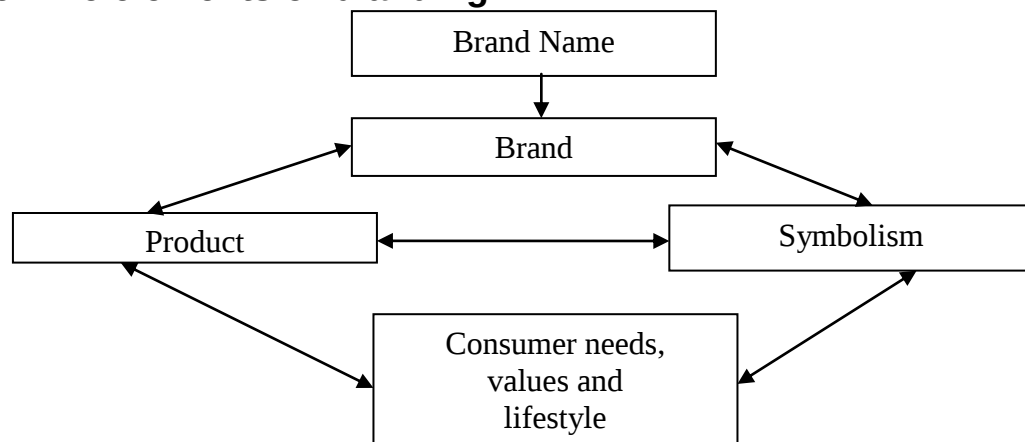
Research Scholar, Department of Commerce, B.N. Mandal University,
Madhepura, Bihar, India

Abstract

Determine the gap between your unit cost and the retail price of the competing unit. This will give you an indication of the per unit dollar amount the marketplace may make available to cover distribution and thorough understanding of all your costs, add distribution and buyer margins to find a retail price. Backward research the retail price of competing products, work backwards through typical margins to the wholesale price, the price you would have to sell it for in order to be competitive. For example, take the retail price, subtract 40 to 50% to find the retailer's cost; subtract 25 to 30% to find the distributors cost, then subtract 15 to 20% to find your cost. In determining price attach a dollar value to everything it takes to get your product to market: ingredients, packaging (containers, shipping boxes, etc), production, labeling, marketing and sales staff, advertising, materials, promotions, public relations, etc.), overhead, administration, salaries, benefits, etc. consider and factor in the intangibles: Quality, image market position, It the price competitive.

The utility (desirability) of your product creates value that is measured by price. The actual dollar amount of the price is determined by the cost to produce the product, the cost of business operating expenses, the desired profit you want to make, the level of service provided, the image you are creating, the price of competing products and the demand for your product. Price is determined through an assessment of your manufacturing, distribution and margin (profit) costs.

Figure: The elements of branding



Source: Broadbent and Cooper (1987)

Conduct a distribution channel cost benefit analysis evaluate what each component of the channel requires versus the benefit it will deliver to your business.

- Perceptions of Value: Examine your strategies for: Positioning, Packaging, Promotion, Place, Pricing, Partnering
- Margin: Revisit your margin strategy and question assumptions and goals, Summary: points to remember, Pricing

Know your costs – be honest – make assumptions known

Today's marketplace demands information – lack of knowledge is like flying blind Price and market research is not a onetime task – must be profit level.

Next, determine your manufacturing costs. Conduct a full and honest financial assessment of all the elements of your business and your product. State all your assumptions. Seek assistance from an accountant or from a business consultant.

A use this formula to determine what it costs to produce your product; Total manufacturing cost equals Direct Costs plus Indirect costs.

1. **Direct costs include:** Raw materials, Direct labour, What you pay (or should pay) yourself, Staff (part time and full time), Benefits, etc., Packaging and shipping, Promotion, Advertising, Public relations, Trade shows, Direct mail, etc.

2. **Indirect costs include:** Allocated overhead (allocate to the product on a percentage basis), Heat, electricity, telephone and other utilities

The actual amount will come only when you set your price and find that you can actually sell your product for that amount.

It covers the difference between the retail price and manufacturing. Distribution and margin (profit) costs. To estimate the gap these percentages generally apply: retail price per unit minus 40/50%=the retailer channel cost per unit 25/30%=the wholesaler channel cost per unit 5/10% = the broker channel cost per unit 10/15%=your manufacturing cost per unit 10/15%= your margin (profit) cost per unit.

- I. Make your pricing decision by reviewing your pricing strategy (objectives) and all product elements.
- II. Review cost assumptions and history.
- III. Examine how you have allocated overhead.
- IV. Markets.

Conclusion

Organic foods are a fast growing segment of the natural food market. The natural foods customer is well educated and label conscious. The market entry process begins with research similar to that for specialty retailers. Gift basket businesses these businesses are often part of a food, floral or gift retail business. Markets can be local or regional, corporate or consumer. Research companies, determine how your product fits and make contact with the buyer. Gift basket buyers are always on the lookout for new products; they may keep you on a vendor list for future reference depending on client needs. It is important to note the seasonality of this business. For example, buyers often make decisions in the spring for baskets which will be delivered in December.

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Agricultural Production and Marketing: A Study from Odisha

Pramod Kumar Das

Research Scholar, P.G. Dept. of Social Science, Fakir Mohan University,
Balasore, Odisha, India

Abstract

Agriculture is one of the most important sectors in the economy of India. Similarly, the economy of Odisha has remained mainly agrarian, dominated by agriculture and allied sub-sectors that contributed 17.59% of Gross State Domestic Product (GSDP) as against 14.19% at national level in 2010-11 (Odisha Economic Survey, 2011-12). This paper starts with the objectives of knowing the production of different crops as well as analysing the agricultural marketing in Odisha. The methodology of this study is of secondary data in nature. The study period is taken as from 2006-07 to 2010-11. It is found that the production of different crops in Odisha went to 9,373,000 MT in 2010-11 from 9,203,000 MT in 2006-07. The Odisha State Marketing Federation has been functioning as the apex organisation with 51 regional cooperative marketing societies (RMC).

Key Words: Agricultural, Marketing, Production

Introduction

Agriculture is one of the most important sectors in the economy of India. Similarly, the economy of Odisha has remained mainly agrarian, dominated by agriculture and allied sub-sectors that contributed 17.59% of Gross State Domestic Product (GSDP) as against 14.19% at national level in 2010-11 (Odisha Economic Survey, 2011-12). Moreover, this sector provides employment as well as sustenance, directly or indirectly to more than 60% of the states' total workforce. Therefore, the agriculture sector is still the mainstay of the economy of Odisha. The state government has framed the State Farmers' Commission to review the current status of agriculture and its performance as well as strengths and weaknesses, to evaluate conditions of different agro-climatic zones etc. The production of different crops in Odisha went to 9,373,000 MT in 2010-11 from 9,203,000 MT in 2006-07.

Literature Review

Singh et al. (2002) have studied on India's agricultural economy and small-holder farmers. In relation to their aggregate land-holding, the holdings smaller than 1.0 ha contribute proportionately more to the national grains production.

Rabindra (2012) has examined that access to right information and its proper utilisation for the framing community is the order of the day which needs to be practised in the state of Odisha.

Objectives

The objectives of this study are as follows:

- (i) To know the production of different crops in Odisha.
- (ii) To analyse the agricultural marketing in Odisha.

Methodology

The present study is based on only secondary data. Magazines, journals, books, reports, internet etc are the source of secondary data. The study period is taken as from 2006-07 to 2010-11. The data is analysed both in actual and percentage figures. Again, the data is depicted through table.

Results and Discussion

(A) Production of Different Crops in Odisha

The production of different crops in Odisha from 2006-07 to 2010-11 is highlighted through table-1.

Table-1: Production of Different Crops in Odisha

Year	Production of Different Crops (000 MT)
2006-07	9,203
2007-08	9,857
2008-09	8,655
2009-10	8,747
2010-11	9,373

Source: Odisha Economic Survey

From the table-1, it is found that the production of different crops in Odisha went to 9,373,000 MT in 2010-11 from 9,203,000 MT in 2006-07. The highest and lowest production of different crops in Odisha was 9,857,000 MT and 8,655,000 MT in 2007-08 and 2008-09 respectively for the period of study.

(B) Agricultural Marketing in Odisha

For agricultural produce, suitable marketing facilities are required to help farmers to get remunerative returns for their surplus

produce. Lack of marketing infrastructure leads to distress sales of farm produce as well as disincentive for farmer's efforts. In this regard, "Establishment of Krushak Bazar" has been introduced for the purpose of creating primary rural markets, launching of rural campaigns and also training of farmers. The Odisha State Marketing Federation has been functioning as the apex organisation with 51 regional cooperative marketing societies (RMC). The different agencies like the Odisha State Tribal Development Co-operative Corporation (TDCC), the Odisha State Oilseeds Growers' Federation etc are playing major roles.

Findings

The production of different crops in Odisha went to 9,373,000 MT in 2010-11 from 9,203,000 MT in 2006-07. The highest and lowest production of different crops in Odisha was 9,857,000 MT and 8,655,000 MT in 2007-08 and 2008-09 respectively for the period of study. The Odisha State Marketing Federation has been functioning as the apex organisation with 51 regional cooperative marketing societies (RMC).

Conclusion

For the growth of agricultural sector, agricultural marketing is one of the prime movers of the surplus produce. Therefore, the growth of agricultural production and adequate marketing infrastructure are necessary for enhancement of farmers' income and welfare.

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