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Editorial

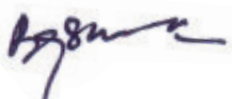
The Guru-Shishya tradition is an integral part of India's culture. Family is the first school of a child and his first guru is his mother and father. But the teacher who teaches the art of living is the master, the real socialization of the disciple is done by the guru only, that is why it is said that the guru is stolen from a friend. Or hoi poor or hoi leper. It is a matter of pride for every Indian to celebrate Dr. Radhakrishnan's birthday as a celebration, but in contemporary perspective, where is the respected Radhakrishnan and where today's teacher. The whole world was a school in Dr. Radhakrishnan's philosophy and the teacher had the responsibility to make the student self-reliant. In the present society, whether he is a teacher of school or college or university, he is living his life like a educated slave and making every effort to keep himself stable in the present material age. , Whether a school teacher or any other species. Most have been demoted below management, administration and politicians.

The purpose behind celebrating Radhakrishnan's birthday may have been that it would honor teachers. Earlier, the teacher used to give training to his students along with the subject as well as life values. Today the teacher has become a clerk. It is seen as a unit in elections or in any calculation work of governance, without teacher there can be no calculation, whether it is human or animal. According to Radhakrishnan, the duties of the teacher changed today, today calculation has taken the place of life values.

Today education has transformed into industry and the relationship between industry, management and consumer is not hidden from anyone. Today the teacher has been made a salesman, trying to market his art and his curriculum. The fault here is not of any one, but of the whole society in its entire perspective. Today, the basis of the evaluation of the teacher has become that how much number the students of his class bring, there is no assessment of social value, moral value, cultural value. If the teacher's students leave all these values and get 100% marks, then the teacher's CR is excellent, now you decide that the value is 100% marks.

Today, it is a matter of discipline. The teacher cannot scold children. Can not stand in its class. Without the permission of the administration, no innovation can be used, if it does, it will be investigated in the complaint, its suspension is fixed. He will also have to go through a media trial without being proved guilty in the investigation. In the investigation, he has to undergo an ordeal to prove his authenticity, his truth and his value, so today the teacher has also become an automatic machine and this is the root cause of the disintegration of the society. People say that the teacher is the creator of the future, when you have made him an automatic machine, how can he create the heroes of the future, this is the

only question before a society? Today, bureaucrats and bureaucracy decide in which direction the teacher has to go, people who have given direction to the society, today people have started giving direction to him. In the current contemporary materialistic society, some teachers are adopting the business trend and bidding for their knowledge. In the present perspective, the tradition of Guru-disciple is getting eroded. While the responsibility of the teacher has become very important in the present transitional time, on the other hand, in the administrative system, he has become like a lone government employee, whereas the need is to make it comprehensive. Society and the administrative system must incorporate comprehensiveness in their thinking perspective. It is believed that education could not be imagined even if there was no teacher. The foundation of education is laid by the teacher. That is why God was conceived in the form of teacher "Guru Brahma Guru Vishnu Gururdevo Maheshwara: Brahma Tasmai Sri Guruve Namah on Guru Sakshet" In this verse, Guru is compared to Brahma.



Professor Braj Gopal
Cheif Editor



Professor Akhilesh Shukla
Editor

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Role of NGO in Rehabilitation of Juveniles

● Aanchal Shukla
●● Akhilesh Shukla

Abstract- *This paper explores the extent to which non-governmental organizations are managed in the context of India. The paper is based mainly on secondary data analysis. The term child in need of care and protection is described under sub-section 14 of section 2 of the Juvenile Justice, Care and Protection of children Act, 2015. Children are the precious asset of our country and it's our responsibility to ensure that they have a safe environment to live in. The last decade has seen a huge leap in the rate of Juvenile crime in a developing country like us, India. Today, Juvenile crime is like a disease to our society which is becoming incurable. The criminal justice system of India treats everyone differently for different crimes and also gives some exceptions and leniency to some classes of people for personal reasons. These exceptions are mentioned in the Indian Penal Code. "Juvenile" has been defined differently in different Acts, but as per the latest Act. The Juvenile Justice, Care and Protection Act, juveniles are those who have not attained the age of 18 years. There is a juvenile justice system that treats juveniles differently than adults, because of our society believes that former is different from the latter, both in terms of responsibility and potential for rehabilitation.*

Key Words- Non government organizations, Juvenile, Responsibility, Rehabilitation

Introduction- A non-governmental organization (NGO) is a legally constituted, non-governmental organization created by natural or legal persons with no participation or representation of any government. In the cases in which NGOs are funded totally or partially by governments, the NGO maintains its non-governmental status by excluding government representatives from membership in the organization. Unlike the term "intergovernmental organization", "non-governmental organization" is a term in general use but is not a legal definition. In many jurisdictions, these types of organization are defined as "civil society organizations" or referred to by other names.

Apart from "NGO", often alternative terms are used as for example: independent sector, volunteer sector, civil society, grassroots organizations, transnational social movement organizations, private voluntary organizations, self-help organizations and non-state actors (NSA's). The constitution of India envisages for Indian children a happy and healthy childhood, free of abuse and exploitation. However, the reality of daily life for vast numbers of children is completely disconnected from this vision. In

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the case of juveniles facing the law enforcement machinery, the situation is even more poignant.

A brief note on India and the status of its children would necessarily give a broad framework, both to conceptualize the evolution of Integrated Child Protection Scheme of which Juvenile Justice System is an integral part] and have a critique of the same.

India has the highest number of children in the world. More than one third of the country's population is below 18 years. Approximately 40% of the total population is children. Some of the glaring realities of children in India are:

India has-

- highest rate of neo-natal deaths (around 35%) in the world
- 40% of child malnutrition in developing world
- 50% of the child mortality
- Reducing number of girls in 0-6 age group- *for every 1000 boys 927 girls*
- 46% children from ST and 38% SC out of school
- High school dropout specially among girls
- High rate of child marriage:
- 37% of literate & 51% of illiterate girls are married below 18
- 10% of literate & 15% of illiterate boys are married below 18
- Large number of child laborers
- Large number of sexually abused children

The grim situation of children in India, project a few Child Protection Issues for the Nation at large. They are:

1. Protecting children in difficult circumstances including natural disasters:
 1. Children in Need of Care and Protection
 2. Child in Conflict with Law
2. Elimination of child labour
3. Protecting children from being trafficked for commercial and sexual exploitation
4. Protecting children affected by HIV/AIDS

Generally, children in need of care and protection would refer to orphans, abandoned & destitute children, missing or run-away children, street & working children, children of sex workers, abused, tortured and exploited children, Children indulging in substance abuse, Children affected by HIV/AIDS, Children affected by natural calamities, emergencies and human made disasters, Children with disabilities, Child beggars, Children suffering from terminal/incurable disease, etc.

Methodology- This research is mainly based on secondary data analysis. Various organizational documents obtained from the selected non government organizations were reviewed and analyzed.

What are Non-Governmental Organizations- All over the globe there is an upsurge in the establishment of private, non-profit or non-governmental organizations. We are witnessing an unprecedented global associational revolution that is likely to prove significant in the twentieth century as was

the rise of the nation-state in the late nineteenth century. The role of development aid in this upsurge has been phenomenal except that such developments have been affected by the absence of a generally accepted transnational or trans-historical definition of these organizations (Chimanikire, 2003).

The term NGO is broad and ambiguous. It covers a range of organisations within civil society from political action groups to sports clubs. Its clear definite still remains contested. However, it can be argued that all NGO's can be regarded as civil society organizations though not all civil society organizations are NGO's. The concept of NGO came into usage in 1945 following the establishment of the United Nations Organizations which recognized the need to give a consultative role to organisations which were neither government nor member states (Willett, 2002) NGOs take different forms and play different roles in different continents, with the NGO sector being most developed in Latin America and parts of Asia. The roots of NGOs are different according to the geographical and historical context. They have recently been regarded as part of the "third sector" or not for profit organizations. Although there is contestation of the definition of an NGO, it is widely accepted that these are organizations which pursue activities to relief the suffering, promote interests of the poor, protect environment, provide basic social services and undertake community development (Cleary, 1997).

Such organizations should have certain fundamental features which distinguish them from others (Stephenson, 2003). For such organization to be recognised as not for profit, they should satisfy the following criteria:

First, an NGO should be privately set up and sufficiently autonomous in its activity that is independent of direct government control. Secondly, an NGO should be non-profit making, which clearly defines its voluntary character. Thirdly, it is not constituted as a political party with the aim of attaining political power. Fourthly, NGO should support development that is demonstrating its public interest character (Schiavo-Campo et al 2001).

According to Turner and Hulme "NGOs are generally registered organizations, community Groups, professional associations, trade unions, cooperate Charity organizations whose aim is to improve the well Being of their members and of those areas in which they Exists" (Turner and Hulme, 1997: 200).

The World Bank on the other hand sees NGO's as private organizations that pursue activities to relief suffering, promote the interest of the poor, protect the environment, provide basic social services, or undertake community development (WB 2001). In this paper the terms non-governmental organization and not for profit organizations will be used interchangeably under the umbrella of civil society.

There are certain features which differentiate NGOs from government agencies even if they are performing similar roles. NGOs have capacity to experiment and learn from experience, linking processes to outcomes and are also able to enlist the energies and commitment of

intended beneficiaries. Fowler (1988) has identified two key distinctive characteristics of NGOs.

Firstly, the relationship of the NGO with intended beneficiaries is based upon principles of voluntarism rather than those of control which is typical of government. This means that intended beneficiaries are involved in programme design and management and if this happens, the programmes stand a better chance of success as they are more likely to be relevant and attractive. (Korten, 1980: Oakley and Marsden, 1984). Secondly, it is argued that NGOs have a task oriented approach that permits them to achieve appropriate organization development, which encourages change and diversity rather than control and uniformity which may hamper progress.

The growth of this third sector is therefore informed by its comparative advantage over governments. The more specific claimed advantages of NGOs or not for profit organizations over governments include some of the following:

- i) achieving the correct relationship between development processes and outcomes;
- ii) reaching the poor, targeting their assistance on chosen groups;
- iii) obtaining true meaningful participation of the intended beneficiaries;
- iv) working with the people and then choosing the correct form of assistance for them, i.e. not being dominated by resources as the basis for the relationship;
- v) being flexible and responsive to their works;
- vi) working with and strengthening local institutions;
- vii) achieving outcomes at less cost (Tredt, 1998:129)

It should however, be noted that although NGOs in the eyes of the International donor community are cost effective and are better placed to reach the poor, there is very little evidence that support this assertion (Robinson, 1992, Farrington and Bebbington, 1993).

Role of Ngo and Voluntary Organizations- There is a considerable scope for Non-Governmental Organizations (NGOs) and voluntary agencies to work in the field of treatment, after-care and rehabilitation of juveniles in conflict with law and the children in need of care and protection. Voluntary Organizations have been playing a very important role for the welfare and development of Social Welfare Groups viz., Persons with rehabilitation Disabilities, Juvenile Delinquents/Vagrants, Alcoholics and Drug Addicts, Sex Workers/Child Sex Workers, Working Children, Street Children, Destitute/Deserted Women and Girls in social/ moral danger, Older Persons etc. who have special problems or living in difficult situations. In handling/reforming/rehabilitating/caring these special groups, the contribution of the voluntary organizations, which are in direct contact with these target groups, have been very vital. The role of voluntary organizations has been successful in the past as;

1. effective motivators in bringing the local government and the people together in working towards the well-being of the

- disadvantaged and the deprived;
- 2. pressure groups in impressing upon the Government to extend social sanctions in favour of the deprived;
- 3. an effective implementing force in translating the policies and programmes of the Government into action

Non-government organisations Their activities include:

- Non-formal education for the children of age group of 5-18 years;
- Saving schemes for children;
- Vocational training;
- Alternate media holding;
- Bal Sabhas;
- Creating awareness of child rights;
- Bal Mazdoor Union;
- Networking with other Non-Governmental Organisation;
- Documentation, Research and Advocacy Centre.
- Non-Formal Education
- Mid-day Meals
- Vocational Training
- Shelter Homes
- Recreation
- Health
- Rape Crisis Intervention Centre
- Aashray Adhikar Abhiyan addresses the issue of homelessness

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A Comparative Study of Academic Achievement of Senior Secondary Students of Different Boards in Relation to Intelligence, Creativity and Adjustment

● Raj Kumari Singh
●● Priyanka Gupta

Abstract- *This study was conducted to examine the Academic Achievement of the senior secondary school students of Moradabad in relation to their Intelligence, Creativity, and Adjustment. The sample of 600 12th class students was selected from various schools located in the rural and urban areas of Moradabad city. Analysis of Academic Achievement of XII standard student from various Boards via their Term End Exams Scores. Analysis of scores of Test of Intelligence administered from the test devised by R.K.Tondon; scores of Test of Creativity were administered from the test devised by Baqur Mehdi; scores of Test of Adjustment were administered from the test devised by A.K.P. Sinha & R. P. Singh; Correlation among the various variables of the study i.e. Academic Achievement, Intelligence, Creativity and Adjustment were taken in order to find the relation between the variables. the researcher found that there is some amount of relationship between the variables included in the study*

Key Words- Adjustment, Intelligence, Creativity, Academic Achievement, Senior Secondary.

Introduction- It is widely accepted that the learning process is instrumental in shaping one's personality and the way he/she deals with situations of life. The shift of thoughts from bookish knowledge to knowledge of life, in schools, has brought forth a sea of change. People have warmed up to the idea of education being the key to a well-rounded development instead of just a mean to acquire degrees and monetary success in life. Academic achievement of students needs to be evaluated and learnt in relation to various other aspects too like Intelligence, Creativity and Adjustment. School education must focus on these aspects too, which contribute immensely to the development of the young minds as they step into adulthood. The researcher wish to find the relationship in these variables by using various tools like for Analyzing Intelligence the test devised by R.K.Tondon will be used; for Creativity the test devised by Baqur Mehdi will be administered; and for understanding of Adjustment the test devised by A.K.P. Sinha & R. P. Singh will be implemented.

Literature Review- Kumar, A., & Rathour, M. S.(2020) in their research 'Comparative study of academic achievement of higher secondary students

-
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of Uttar Pradesh state in India', found that the said observed difference could have arisen due to chance errors. Verma, A., & Kumar, N. A. (2020) in their research 'Academic Achievement Of Higher Secondary School Students In Relation To Their Emotional Intelligence', found that academic achievement of higher secondary school students in relation to their low and high emotional intelligence differ significantly. They also concluded that there is significant positive correlation between academic achievement and emotional intelligence of higher secondary school students. Arora, R., & Chadha, P. A. B. (2020) in their research 'Emotional Intelligence as Predictor of Academic Achievement in Mathematics among Senior Secondary School Students', found that students were found emotionally intelligent. Academically, their performance was found affected with their emotional intelligence. It evidently shows that higher the level of emotional intelligence, higher will be the academic success. Dutta, S. A (2020) in her research 'Study on Emotional Intelligence of Higher Secondary School Students in West Bengal' found that there is significant difference in the Emotional Intelligence of higher secondary school students. The overall finding shows that significant difference exists in the Emotional Intelligence of higher secondary school students between - the male and female students, joint and unitary school students, govt. added and private school students. Kumar, M. (2020) in the research 'A Study of Problem Solving Ability and Creativity among the Higher Secondary Students', found that there is a considerable extent of creativity and problem solving among higher secondary school students. Even though they vary in different measures, both creativity and problem solving skills go hand in hand. Ayishajuhi, M. R., & Sreeletha, R. (2019) in the research 'Scientific Interest And Level Of Creativity Among Higher Secondary Students In Kanyakumari District', found that there was no significant difference in scientific interest and level of creativity among higher secondary students with respect to locality of school, medium of instruction, type of school and religion, but significant difference existed in the scientific interest and level of creativity among higher secondary students with respect to gender and type of family. Shokeen, A. (2017) in his study 'A study of mental health and social adjustment of senior secondary students', the findings reveal a positive significant relationship between the Mental Health and Social Adjustment in the adolescents.

Objectives Of The Study- The researcher wishes to conduct the study with the following objectives:

1. To find out the Correlation between the Academic Achievement and Intelligence of the Students.
2. To find out the Correlation between the academic Achievement and Creativity of the Students.
3. To find out the Correlation between the academic Achievement and Adjustment of the Students.

Research Methodology- One can define research as a scientific and systematic search for pertinent information on a specific topic. Research is

an art of scientific investigation. Research is an academic activity and as such the term should be used in a technical sense. The term research refers to systematic method consist of articulating the problem ,formulating a hypothesis, collecting the data, analysis the facts and reaching certain conclusion either in a form of solution towards the concerned problem or in certain generalization for some theoretical formulation. The system of collecting data for research projects is known as research methodology. Research Methodology represents the design of the research work.

Sampling Technique : Simple Random Sampling
 Sample Unit : Students of 12th Grade
 Sample Size : 600 students
 Sampling Ares : Moradabad City
 Research Type : Descriptive and Analytical
 Tools used for Analysis : Mean, Standard Deviation, Correlation

Hypothesis- It is important to have set hypothesis before one starts the research as they provide the testing grounds for the research and enables the researchers to identify the correctness of the research proccession. Following are the hypothesis for this research paper:

H01:There is no significant correlation between Academic Achievement and Intelligence of students from different genders.

H1:There is Some significant correlation between Academic Achievement and Intelligence of students from different genders.

H02:There is no significant correlation between Academic Achievement and Creativity of students from different genders.

H2:There is Some significant correlation between Academic Achievement and Creativity of students from different genders.

H03:There is no significant correlation between Academic Achievement and Adjustment of students from different genders.

H3:There is Some significant correlation between Academic Achievement and Adjustment of students from different genders.

Data Collection, Analysis And Findings- After collection of data the same was edited for the accuracy, utility, and completeness. In this chapter the analysis is done in two ways. Firstly, by simple tabulation of the responses and secondly by the statistical analysis of the data.

Details of Data Collected- Keeping in view the sampling details mentioned in the earlier stages the researcher has collected the data from various schools of different boards. The detailed summary of the data collected is as follows:

Figure 1: Summery of Data collected

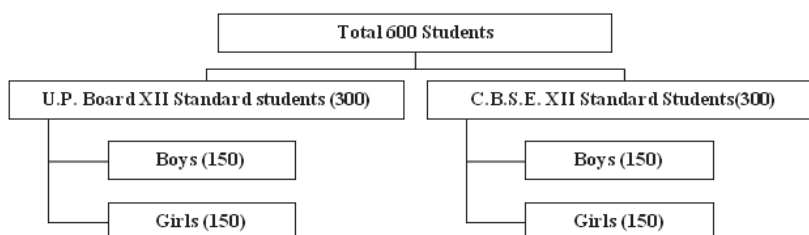


Table 01
Details of Senior Secondary School and Number of students
selected as sample

	School Name	XII Standard Students	
		Boys	Girls
U.P. Board		30	--
	K.G.K. Inter College	30	--
	Chitragupt Inter College	30	--
	R.N. Inter College	30	--
	Parker Inter College	30	--
	Baldev Arya Girls Inter College	--	30
	Pratap Singh Inter College	--	30
	Methodist Girls Inter College	--	30
	Kaushalya Inter Collage	--	30
	Arya Kanya Inter College	--	30
	Total	150	150
C.B.S.E.	R.S.D. Academy Public School	30	30
		30	30
	Rajender's Academy	30	30
	K.C.M School	30	30
	P.M.S. Public School	30	30
	Total	150	150
Grand Total		600	

As the required data has been collected from various school of U.P. Board and C.B.S.E. boards, respectively. Collected data comprises of 300 responses from XII standard students of U.P. Board and equal no. of responses from C.B.S.E. Board, making it a complete data of 600 responses.

Analysis: Analysis of the data means studying the tabulated material to determine inhabitant fact or meaning. It involves breaking down the existing complex factors into simple parts and putting the parts together in new arrangements for the purpose of interpretation. Analysis includes editing, organization, tabulation, and classification.

Editing: Editing means to put together the data in a methodical way. It implies checking of gathered data for accuracy, utility, and completeness.

Organization: Organization means to give some pattern to the collected data necessary for drawing conclusions.

Classification: It refers to the division of the information into different categories, class of head for use.

Tabulation: It is the part of statistical analysis of the data. The essential question in the data is counting the number of cases that falls into various categories or ranks in each set that occurs in the data.

Interpretation: The process of interpretation is essentially one of stating what the result shows, what is the answer to the original problem and what is their significances. Interpretation calls for a critical examination of the result of the analysis. The analysis without any interpretation has no meaning.

Statistical Analysis: In the scientific age like present one we must be objective, exact, and convincing in the analysis of the data. In other

words, to test the lying hypothesis, Analysis of Academic Achievement was done via their Term End Exams Scores, Analysis of scores of Test of Intelligence was administered from the test devised by R.K. Tondon. Analysis of scores of Test of Creativity was administered from the test devised by Baqur Mehdi and Analysis of scores of Test of Adjustment was administered from the test devised by A.K.P. Sinha & R. P. Singh. Once all these data were available researcher went on to find out the Correlation among the various variables of the study i.e. Academic Achievement, Intelligence, Creativity and Adjustment as follows:

Correlation between academic achievement and intelligence of the students - For finding out the Correlation between Academic Achievement and Intelligence of XII standard students from different boards the Karl Pearson's Correlation was used by the researcher. The Correlation calculated for Different Boards based on gender is shown in table below.

Table 02
Correlation between Academic Achievement and Intelligence for different Boards based on Gender

Academic Achievement vs Intelligence			
		N	Correlation (r)
Boys	CBSE	150	0.0094
	UP Board	150	-0.0531
Girls	CBSE	150	0.0052
	UP Board	150	-0.0505

As per Table 02, we obtained the Correlation 'r' between Academic Achievement and Intelligence for different Boards based on Gender, 'r' come out to be 0.0094 for Boys of CBSE boards, -0.0531 for Boys of UP Boards, 0.0052 for Girls of CBSE boards and -0.0505 for Girls of UP Boards. As per the Significance values is 0.159 at 0.05 level when N=150. Hence it was observed that Intelligence and Academic Achievement in both the gender did not show any significant relationship as the value is very low as well as not significant at 0.05 level. so we can say that Null hypothesis H01 (*There is no significant correlation between Academic Achievement and Intelligence of students from different genders.*) is accepted and Alternate Hypothesis H1 is rejected

Correlation between academic achievement and creativity of the students

For finding out the Correlation between Academic Achievement and Creativity of XII standard students from different boards the Karl Pearson's Correlation was used by the researcher. The Correlation 'r' calculated for total sample is shown in table below.

Table 03
Correlation between Academic Achievement and Creativity for
different Boards based on Gender

Academic Achievement vs Creativity			
		N	Correlation (r)
Boys	CBSE	150	0.0476
	UP Board	150	-0.0260
Girls	CBSE	150	0.0480
	UP Board	150	-0.0318

As per Table 03, we obtained the Correlation 'r' between Academic Achievement and Creativity for different Boards based on Gender, 'r' come out to be 0.0476 for Boys of CBSE boards, -0.0260 for Boys of UP Boards, 0.0480 for Girls of CBSE boards and -0.0318 for Girls of UP Boards. As per the Significance values is 0.159 at 0.05 level when N=150. Hence it was observed that Creativity and Academic Achievement in both the gender did not show any significant relationship as the value is very low and also not significant at 0.05 level. So null hypothesis **H02** (*There is no significant correlation between Academic Achievement and Creativity of students from different genders*) is accepted and Alternate hypothesis **H2** is rejected.

Correlation between academic achievement and adjustment of the students- For finding out the Correlation between Academic Achievement and Adjustment of XII standard students from different boards the Karl Pearson's Correlation was used by the researcher. The Correlation 'r' calculated for total sample is shown in table below.

Table 04
Correlation between Academic Achievement and Adjustment for
different Boards based on Gender

Academic Achievement vs Adjustment			
		N	Correlation (r)
Boys	CBSE	150	0.1632
	UP Board	150	0.1601
Girls	CBSE	150	0.1645
	UP Board	150	0.1611

As per Table 04, we obtained the Correlation 'r' between Academic Achievement and Adjustment for different Boards based on Gender, 'r' come out to be 0.1632 for Boys of CBSE boards, 0.1601 for Boys of UP Boards, 0.1645 for Girls of CBSE boards and 0.1611 for Girls of UP Boards. As per the Significance values is 0.159 at 0.05 level when N=150. Hence it was observed that Adjustment and Academic Achievement in both the gender do show low degree of positive relationship. So, the null Hypothesis **H03** (*There is no significant correlation between Academic Achievement and Adjustment of students from different genders*) is accepted and Alternate hypothesis **H3** is rejected.

Conclusions- The researcher has now come to this conclusion that although the value of correlation is not significant and Null hypothesis is accepted , but it can easily be observed that the student of CBSE Board belonging to both the genders, show better correlation as compared to students of U.P. Board. This could be because of better Staff, Infrastructure and family support offered in CBSE Boards as compared to that in U.P. Board. Also with more detailed study comprising of bigger sample a better idea of the situation can be obtained.

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Impact of the Online Teaching-Learning process amid COVID-19 Outbreak

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Abstract- *The whole educational system from elementary to tertiary level has been collapsed during the lockdown period of the novel coronavirus disease 2019 (COVID-19), not only in India but across the globe. The execution of lockdown and social distancing has been implemented as one of the preventive measures to spread the Covid-19 virus which has brought about complete loss of motion of worldwide exercises. Particularly the educational framework is totally closed due to this around 32 crore students stopped to move to schools/Colleges in India. The entire educational framework from rudimentary to tertiary level has been crumpled during the lockdown time. And to continue with the scholastic educational plan, there is a move from the traditional regular learning cycle to electronic learning or online learning. It can be noted that the world is completely dependent on information technologies during this crisis. The whole education system is fighting to survive in these crises. The present paper provides an insight into the process of electronic learning and its advantages along with the updated version of its usage. It tends to be noticed that the world is totally subjected to online system and Information and communications technology (ICT) in this emergency. This paper highlights some initiatives taken by the Government of India to provide uninterrupted education in the country. Thus, the current investigation gives knowledge into the cycle of online teaching and learning and its advantages along with limitations of its use. The paper also emphasizes the perceptions of teachers and students on online teaching-learning modes. Our reflections may assist policymakers in formulating interventions and strategies to reevaluate the obstacles and then negative feedbacks of the online education.*

Key Words- Online teaching, perception, pandemic, Covid-19

Introduction- “The Covid-19 has created many challenges and opportunities for the educational Infrastructure and online learning is the best solution during this.” - (Pravat, 2020a&b) The outbreak of Covid-19 in Wuhan started escalating in China in December 2019, and then was proclaimed as the public health emergency of international threat by the World Health Organization (WHO) on 30th January 2020. The WHO proposed an official name of the virus as Covid-19, an acronym for coronavirus disease 2019. This infection spreads amongst people (through touch, salivation, and so on.). Many nations around the globe requested to

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follow social distancing, and even physical separation to restrain the development of Covid-19. WHO declared Covid-19 as a pandemic on 11th March, 2020. The national authorities worldwide have responded to this crisis by executing travel bans, long lockdowns and shutting off the schools and Universities. 98.5% of the world's student's populations were severely affected on a nationwide or local basis in 172 countries (UNESCO, 2020). At the end of April 2020, educational institutions shut down in 186 countries, affecting approximately 74% of total enrolled learners on the planet. The recent data in September 2020 shows 52% of the world's student's population affected by school closures and 850 million learners out of the 48.7% of total enrolled learners and 53 countries were totally affected by school closures (UNESCO, 2020).

India is not an exception, as per the UNESCO report about 14 crore of Primary and 13 crore of secondary students are affected which are two mostly affected levels in India. Due to the sudden nationwide lockdown and closure of educational institutions (Schools and Universities), classes suspended and all examinations including entrance tests were postponed indefinitely. Thus Covid-19 Virus destroyed the schedules of every student, though it is an exceptional situation in the history of education.

During the present stressful situation when the entire humanity is sailing amid the storm, technology and e-learning platforms has played a major role. During the time of sudden and unplanned lockdown, technological development and the concept of ICT (Information and Communication Technology) have changed the lives of people. Immensely it has also brought a huge change in various fields (Nadikattu, 2020). This long lockdown has impelled educational institutions to cancel their classes, examinations internship etc. and to convert the educational process into conventional face to face model to online mode. Initially the teachers, educators and students were slightly disordered and confused. They didn't acknowledge how to manage and survive with the situation of this sudden drastic change. But later on both teachers and students perceived that the lockdown situation has taught so many lessons to adjust with the crisis. Covid-19 has generated many opportunities and challenges for the educators and learners. Educational institutions enhanced their technological knowledge and infrastructure (Pravat, 2020 a).

Online education has given them a ray of hope for teachers and students to continue their learning process. The teachers assigns work to their students through You-tube lecture videos, Whatsapp Group Chat, Google meet, Google classroom, G-Suit, Cloud meeting etc. The development in technologies has offered a favorable domain for teaching learning processes. E-learning offers teachers to change their pedagogical approaches. It enhances the teaching and learning procedures (Thamarana, 2016).

Objectives- The present research paper focused on the following objectives-

- To enlighten various advantages of online learning in this Covid-19 pandemic.

- To analyze various course of action taken by the Govt. of India for e-learning.
- To enlist some adverse impacts or challenges of online education and to put some practical and effectual suggestions.

Methodology- This paper has been prepared by the methodology of desk review or reading and analysis of data's and text. Under this method number of primary and secondary sources have been looked and analyzed.

Concept of Online learning and Initiative taken by the Government of India- Online learning or e- learning refers to the learning experience through the internet either in the synchronous or asynchronous environment where students engage with instructors or educators and with themselves in their convenient time and place (Singh and Turman, 2019).

Online education has greater flexibility in terms of time, place and pace of the study. Easier and more effective access is provided to a wider variety and greater quantity of information with lower financial cost (Chen, 2010 & Khurana, 2016). Digital and online learning is gaining popularity due to its various advantages in this educational crisis situation. The advantages of online education system include blended learning. Through Online learning, all educational institutions moved towards blended mode of learning. It encourages all teachers and students to become more technology savvy. For teachers, this is the time for their skill development of curriculum and pedagogy. They are trying to express their ideas through various modes like Whatsapp Group Chat, Google meet, Google classroom, G-Suit, Cloud meeting etc. Online education is more effective because it is accompanied by various teaching aids including pre-recorded lectures, online submissions. There are certain doubts solving sessions within students and teachers through online platforms. There are online assignments as well as online assessment too. The features are entirely different from the conventional way of teaching in schools and colleges. Online learning provides a wide range of resources for the learner that covers almost all topics and doubts (Bajaj and Sharma, 2018).

Online education is a new way of learning for our teachers and students and getting them better skilled and equipped in this fast and competitive world. E learning is the fantastic tool for teachers and students who really think to upgrade themselves. But the need of the hour is to be trained out educators through some courses and faculty development programs to increase knowledge base. Any of the working professional should train themselves through the programs launched by MHRD. ICT initiative of MHRD (eBroucher- <https://mhrd.gov.in/ict-initiatives>) is a unique platform which combines all digital resources for online education. The digital initiatives of MHRD for secondary as well as higher education during Covid-19 are listed as below:

The Detail Initiative taken by the MHRD, Government of India to enlighten the positivity of online education for Secondary as well as Higher Education

Sl.No.	Resource	For students/Researchers	For Institutions
1	SWAYAM (Massive Open Online Courses)	Earn credit through online courses	- Encourage your extraordinary faculty to develop online courses - Accept credits awarded under SWAYAM - Form SWAYAM local chapters
2	SWAYAMPARBHA (View digital courses on TV)	Watch high quality educational programs 24*7	- Provide facility for viewing SWAYAMPARBHA content
3	National Digital Library(e-content)	Access e-content on multiple disciplines	- Get your E-content listed - Form NDL Club
4	e-PGPathshala(Gateway for e-books upto PG)	Get free books and curriculum based e-content	Host e-books
5	e-Yantra(Engineering for better tomorrow)	Get hands on experience on embedded systems	- Create e-Yantra labs for training in embedded systems in collaboration with IIT Bombay
6	Diksha portal	e-learning contents for students, teachers, parents	- including Video lessons - Worksheets - Textbooks - Assessments
7	NROER (National Repository of Open Educational resources)	e-content mapped to the curriculum for class 1-12	- for students and teachers - in multiple languages - books - interactive modules - videos
8	FOSSEE(Free/Libre and Open Source Software for Education)	- Access and volunteer for the use of open source software - Become FOSSEE fellow	Run labs in open source
9	Spoken Tutorial(Tutorial in IT application)	Self-training in IT fields	Encourage eminent faculty to provide training content for self-learning
10	Virtual Labs(Web enabled experiments)	Try curriculum based virtual experiments	Develop virtual experiments for Virtual labs suited to course curriculum in gap areas
11	SAMARTH(University Enterprise Recourses Planning)	Student development Life Cycle	E-Governance for Institutions/Universities
12	VIDWAN(Expert Database and National Research Network)	Register on VIDWAN	- Get your faculty registered on VIDWAN - Monitor research outcomes at different levels
13	PDS(Plagiarism Detection Software)	Unique ideas, concepts and information without duplication.	- Encourage original information by preventing plagiarism. - Better research outcomes. - Reputation of the

Source: Ministry of Education Govt. of India (mhrd.gov.in)

Let us discuss in detail about some valuable e- learning platforms which were very effective and useful in this covid-19 health and educational crisis.-

- **Diksha Portal-** Diksha portal contains e-Learning content for students, teachers, and parents aligned to the curriculum, including video lessons, worksheets, textbooks and assessments. Under the guidance of its national boards of education (CBSE) and NCERT,

the content has been created by more than 250 teachers who teach in multiple languages. The app is available to use offline. It has more than 80,000 e-Books for classes 1 to 12 created by CBSE, NCERT in multiple languages. The contents can also be viewed through QR codes on textbooks. The app can be downloaded from IOS and Google Play Store.

Website: <https://diksha.gov.in> or <https://seshagun.gov.in/shagun>.

- **e-Pathshala**– This is an e-Learning app by NCERT for classes 1 to 12 in multiple languages. The app houses books, videos, audio, etc. aimed at students, educators and parents in multiple languages including Hindi, Urdu, and English. In this web portal NCERT has deployed 1886 audios, 2000 videos, 696 e-Books and 504 Flip Books for classes 1 to 12 in different languages. Mobile Apps is available.

Website: <http://epathshala.nic.in> or <http://epathshala.gov.in>.

- **National Repository of Open Educational Resources (NROER)**– NROER portal provides a host of resources for students and teachers in multiple languages including books, interactive modules and videos including a host of STEM-based games. Content is mapped to the curriculum for classes 1-12, including aligned resources for teachers. It has a total of 14527 files including 401 collections, 2779 documents, 1345 interactive, 1664 audios, 2586 images and 6153 videos on different languages.

Website: <http://nroer.gov.in/welcome>

There are some major Initiative taken by MHRD in the Higher Education also which are very remarkable in this health crisis of 2020 like-

- **Swayam**-Swayamis the national online education platform hosting 1900 courses covering both school (classes 9 to 12) and higher education (under graduate, post graduate programs) in all subjects including engineering, humanities and social sciences, law and management courses. The unique feature is that, it is integrated with the conventional education. Credit transfers are possible for SWAYAM courses (max. 20%). Website: <https://swayam.gov.in/>
- **SwayamPrabha**-SwayamPrabhahas 32 DTH TV channels transmitting educational contents on 24 x 7 basis. These channels are available for viewing all across the country using DD Free Dish Set Top Box and Antenna. The channel schedule and other details are available in the portal. The channels cover both school education (classes 9 to 12) and higher education (undergraduate, postgraduate, engineering Out-of-school children, vocational courses and teacher training) in arts, science, commerce, performing arts, social sciences and humanities subjects,

engineering, technology, law, medicine, agriculture.

Website: <https://swayamprabha.gov.in/>

- **e-PGPathshala-** e- PG pathshala is for postgraduate students. Postgraduate students can access this platform for ebooks, online courses and study materials during this lockdown period. The importance of this platform is that students can access these facilities without having internet for the whole day.

Website: <https://epgp.inflibnet.ac.in/>

As there are pros and cons to of each and every aspects , we need to point out the cones of this system through the challenges given below.

Challenges of Online-learning- Thus it was found that in the crisis situation of Covid-19, many initiatives were taken by the Government of India through which the education of students and ability of the teachers could be upgraded. But there are lots of obstacles in the path of online education especially in developing country like India which lack many of basic facilities. Certain challenges of online education include lack of online teaching skills in teachers and educators. Online class preparation of lesson plans is very time consuming which is also disturbed by inappropriate technical support and network connectivity problems. Many times traffic overload also jeopardizes these online educational platforms. Not only educators and teachers but the students are also facing difficulties and challenges due to their deficiency of proper learning attitude, lack of computers android phones and data pack. Many times, they face lack of self-discipline and self-motivation. They face inadequate learning environment at some of their homes during self-isolation (Brazendale et al., 2017).

Teaching Through Online mediums has become a challenging task for most of the teachers and educators. The main reason behind this is lack of resources is also becoming as a great hurdle for the e- learning process. Jimoyiannis and Gravani (2011) and Khalid et al., (2016) found in their studies that due to lack of motivation and shaky mental health issue, e-learning is not providing expected success in the global education system.

A study was conducted in China during the lockdown of Covid-19 pandemic. The study surveyed 3275 Chinese parents, student's beliefs and attitudes towards online learning experience. Most of the parents (92.7%) in this study reported that their children had surely experience online learning, and amongst them many (84.6%) spent less than a half-hour each time. The parents generally had negative beliefs about the values and benefits of online learning and preferred traditional learning in early childhood settings. They tended to resist and even reject online learning for three key reasons:

- the shortcomings of online learning,
 - young children's inadequate self-regulation, and
 - their lack of time and professional knowledge in supporting them
- (Chuanmei et al., 2020).

Another important study conducted in India, in Mizoram University on the perception of teachers and students and to the challenges faced by them in adopting with the online system. Total 78 teachers and 260 students

participated as a sample in this descriptive survey. Findings show that the major challenge while teaching online was unstable network connection and electricity connection. It was found that teachers were unable to read the face and mood of students and thus difficult to change the teaching pattern. Another great concern was that the Laboratory experiments were not possible through online learning. Some of the students had no essential resources to join online classes, so the difficulties with online education were both technical and ideological (Mishra et al 2020).

Another challenge of online learning is Socio-economic learning inequality among students. Students from lower socio-economic status are more likely to be exposed to a stressful environment in this lockdown period than their peers from higher socio-economic status. Additionally, parents from more advantaged background may be better equipped in terms of socio-emotional skills to handle problems emerging during a long confinement period. These should be the essential suggestions formulated by the government in this perspective.

Suggestions- The Indian Government and different stakeholders of education have explored the possibility of Open and Distance learning (ODL) by adopting different digital technologies. There is a need to take more concrete steps in this direction. Right now in the future we have to live with Covid-19 and post Covid-19 situation. Therefore there is a need to remove the obstacles in the path of online education. We need to upgrade the students from weaker section of our society. At current times, access to technology and internet is an urgent requirement. So, the digital capabilities and the required infrastructure must reach to the remotest and poorest communities to facilitate the students to continue their education. There is a need to deploy public funds to fix the internet gap and ensure that students continue to extract the learning digitally. The state governments/private organizations should come up with the ideas to address this issue of digital education and to address this issue of digital education.

Conclusion- The country is facing major crisis in every sector and this time one of the worst hit sectors is the education sector. Thus to ensure that there is no hiatus in the education and students, the government should plan accordingly. This should entail a plan to address specific academic needs and psychological needs as well as strategies to mitigate Covid-19 included issue on education of the children.

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Correlation Study of Principles of Justice, Nyaya Darshan and Indian Constitution

● Prakash Kumar Pathak

Abstract- Nature teaches about justice. Human being has carved the traits of justice by nature itself. Human civilization when started to get in existence on the Earth, principles of justice was based on first come and first serve logic. It can be illustrated in other words like when human being thought to begin to start their civilized life, they acquired land to live their livelihood. When they thought that there will be more land, there will be more food grains and then a principle was established that one, who first possessed the land, would become the owner of that part of the land, they acquire. By following this, many persons started to acquire land and became land owners. When a larger group of land owner accumulated in an area, they needed a set of rules so that they can lead their lives without any confrontation and conflict. They mutually carved a set of rules and it was duly ratified by all concerned and later this set of rules was known as law. To jurisprudence the law, a system of justice was carved out so that a systematic life can be led without any flaw. Principle of justice can be first traced in Indian Philosophic Diaspora through Nyaya Sutra in Nyaya Darshana propounded by Rishi Gautam. Nyaya Sutra is foundational Texts of the Nyaya School of Hindu Philosophy⁴. It is established fact in Shiv Purana that Nyaya sutra were propounded by Rishi Gautam on the direction of Lord Shiva itself.

John Rawls was an American Philosopher in his collaborated work 'A Theory of Justice'; John Rawls enunciated three principles of distribution. First one is Principle of Equality which postulates that no body's liberty will be compromised for any other benefit. It can be correlated with Art 14 – Right to equality – of Indian Constitution. Right to Equality – Art 14 - tells that the State shall not deny to any person equality before the law or the equal protection of the law within the territory of India. Second principle of distribution of John Rawls is principle of fair equality of opportunity which postulates that all people would be provided equality of opportunity in distribution of primary goods. It can be correlated with Art 16(1) of Indian Constitution. Art 16(1) describes that there shall be equality of opportunity for all citizens in matter of relating to employment or appointment to any office under the State. Third principle of distribution of John Rawls is Difference principle which implies that any departure from equal distribution of the primary goods can be justified only when it could be proved to bring greatest benefit to the least advantaged. It can be correlated with Art 16(4) of Indian Constitution which describes that State will not be prevented to make any provision for reservation of appointments or posts in favour of any backward class of citizens which in the opinion of the State is not adequately represented

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in the services under the State here for bringing greatest benefit to the least advantaged backward class. The Principle of difference was adopted to announce reservation in jobs for backward classes. For the same purpose, Art 16[14(A)] was also added by Seventy Seventh Amendment Act 1995 in which reservation in matters of promotion were allowed for Scheduled Casts and Scheduled Tribes.. Robert Nozick an American Philosopher in his “Anarchy, State and Utopia” told that Principle of initial acquisition and principle of voluntary transfer of labour can be rectified under principle of rectification in order to restore the justice if there is involuntary transfer of labour or if there is flaw in initial acquisition of property. Here Art 14 and Art 19 were given to enjoy full stream of Fundamental Rights of equality & that of freedom but by inserting Art 31C these two rights were rectified in Robert Nozick style for safeguarding socialistic principles- Art 39(b) and Art 39(c) of DPSP.

Key Words- synthesis, accumulated, jurisprudence, carved out, systematic, flaw, rational perceptive, initial acquisition, voluntary transfer, rectification, veil of ignorance, communitarian perceptive, libertarian perceptive.

Introduction- Justice is the reconciler and synthesis of political values (Liberty equality and fraternity) - uniting them all in an integrated whole. Justice is something that links, ties, binds individuals with other individuals, groups with other groups, quality with other quality so as to make an order or a system of Right. Justice is a word derived by Latin words 'Jungere', 'Jus'¹. Meaning of 'jungere' is to link, to tie or to bind. Meaning of 'jus' is a right to which a citizen was entitled by virtue of his citizenship. Ernest Barker in his book 'Principles of Social and Political Theory; 1951', has shown that justice represents a synthesis of the principle of liberty, equality and fraternity².

Nature teaches about justice. Human being has carved the traits of justice by nature itself. Human civilization when started to get in existence on the Earth, principles of justice was based on first come and first serve logic. It can be illustrated in other words like when human being thought to begin to start their civilized life, they acquired land to live their livelihood. When they thought that there will be more land, there will be more food grains and then a principle was established that one, who first possessed the land, would become the owner of that part of the land, they acquire. By following this, many persons started to acquire land and became land owners. When a larger group of land owner accumulated in an area, they needed a set of rules so that they can lead their lives without any confrontation and conflict. They mutually carved a set of rules and it was duly ratified by all concerned and later this set of rules was known as law. To jurisprudence the law, a system of justice was carved out so that a systematic life can be led without any flaw.

Spark of Principle of Justice in Philosophical Contribution of Saints- Indian philosophy is termed as Darshan. There are six schools of philosophy in Indian Diaspora. It is called shad darshanas. These six darshans are astik darshanas. Term Astika means one who believes in the existence of Paaraloka (other worlds). This school of Philosophy is based on the Vedas

proclaiming the existence of other lokas (worlds) punarjanma (rebirth), existence of a supreme power (God)³.

Six system of Indian Philosophy are called popularly as the shad darshanas are-

1. Nyaya Darshan by Rishi Gautama.
2. Vaisehika Darshana by Rishi Kanada
3. Samkhya Darshana by Kapil Muni
4. Yoga Darshana by Maharshi Patanzali.
5. Poorva Mimansa by Jaimini
6. Uttar Mimansa or Vedant by Badarayana or Vyasa

There are three fundamental systems of Nastika darshana also, they are –

1. The Materialistic school of charvaka
2. The system of Jainas
3. The Buddhistic system

The Nastik group assumes that reality is confined to what is given in common experience and described as positivistic or empirical in nature.

Principle of justice can be first traced in Indian Philosophic Diaspora through Nyaya Sutra in Nyaya Darshana propounded by Rishi Gautam. Nyaya Sutra is foundational Texts of the Nyaya School of Hindu Philosophy⁴. It is established fact in Shiv Purana that Nyaya sutra were propounded by Rishi Gautam on the direction of Lord Shiva itself. Nyaya Sutra is divided into five books, each book is subdivided into two chapters, each portion is consisting of a number of sutra. A sutra is a Sanskrit word that means “string or thread”, and represents a condensed manual of knowledge of a specific field or school. Each sutra is like a theorem distilled into few words or syllables around which teachings of rituals, philosophy, grammar or any field of knowledge can be woven. Nyaya Sutra consists of five books. First book has 61 sutras, second book has 140 sutras, third book has 145 sutras, fourth book has 118 sutras and fifth last book has 67 sutras. Total sutras in Nyaya Sutra are 531 only. There are several surviving manuscripts of Nyaya Sutra, with a slight difference in number of sutras of which chowkhamba edition is often studied⁵.

According to Nyaya Sutra, there are sixteen categories of knowledge. Perfection is attained by the correct knowledge about true nature of sixteen categories-

1. Pramana (Means of Right Knowledge)
2. Prameya (Object of Right Knowledge)
3. Samshaya (Doubt)
4. Prayojana (Purpose)
5. Drishtanta (Familiar instance)
6. Siddhanta (established tenet)
7. Avayava (members of an inference)
8. Tarka (reasoning)

9. Nirnaya (ascertainment or results)
10. Vada (discussion)
11. Jalpa (specific disputations)
12. Vitanda (Cavil)
13. Hetvabhasa (fallacies)
14. Chala (quibbles)
15. Jati (Futile rejoinders)
16. Nigrahasthana (Method of losing an arguments)⁶.

The Nyay Sutra asserts the premise that “all knowledge is not intrinsically valid”, “most knowledge is not valid unless proven”, and “truth exists whether we human beings know it or not.”⁷

The Nyay Sutra asserts and then discusses four reliable means of obtaining knowledge (Pramana)⁸.

1. Pratyaksha (Perception)
2. Anumaan (Inference)
3. Upmaan (comparison)
4. Shabd (Reliable Testimony)

Similar traces –of Principle of Justice by other Learned Writers of Philosophical Traditions- Other traces of Principles of justice in Hindu texts are Vatsayana's Nyay Bhashya – a classic commentary on the Nyay Sutra. Udyotakara's NyayaVertika (6th century CE) is written to defend vatsayana against the attacks made by Dignaga. Vachaspti Mishra's Nyayvartika tatparya tika (9th century CE) is next major text of this school. Vachaspati Mishra contributed two other texts also – Nyay shuchinibandha and Nyaysutradhara. Udayayana's (984 CE) Nyaytaataparya parishuddhi is an important commentary on vachaspati mishra's treatise. Udayana's other works are Nyayakusumanjali (first systematic account of theistic Nyaya), Aatma tatva viveka, kiranaavali and Nyayaparishishta.

Ganesh Upadhyay's Tattvachintamani(14th century CE) is the first major treatise of the new school of Navya-Nyaya. Annambhatta(17th century CE) tried to develop a consistent system by combining the pracheen Nyaya (Ancient school) and Navya Nyaya (New school) and vaisheshika to develop the nyaya-vaisheshika school. Annambhatt's Tarksangraha and Deepika are the popular manuals of Nyaya-Vaisheshika school⁹.

Indian texts on Nyaya Sutra are the primary evidence of existence of principles of justice in India. These texts are vast and rich. Their needs a deep research and study to know many things about our traditional gold of Indian Philosophy regarding principles of justice.

Principles of Justice in Purview of Western Political Theories- There is galaxy of luminaries who told the academic world about principle of justice. Right from Plato to Communitarian perceptive, several theories were came into existences which are examples of the fact that principle of justice can be expressed in various ways depending on rational perceptive. In the eyes of Plato there are three types of cities. City-1 is inhabited by money lovers or producers. It includes nothing to counteract the destabilizing effects of unnecessary appetites. For this, guardians (Soldier – police) are required.

When guardians are added in City-1 the result is City-2. City-2 contains the political and educational institutions necessary to produce such guardians. City-2 is not a real possibility. City-2 includes nothing to counteract the destabilizing effects of an untrammelled (unrestricted) love to honour. For this, Philosopher-kings are required. When philosopher kings are added in City-2, the result is City-3. City-3 contains the political and educational instructions necessary to produce philosopher-kings. City-3, is a real possibility-as Plato thinks so. In Plato's Republic, there is story of that city and the philosopher-kings who rule in it. Central to that story is an attempt to establish that justice pays-that we can achieve happiness in a just city, which is nothing but City-3¹⁰. Each soul has three primary kinds of desires- appetitive desire, spirited desire and rational desire. Appetitive ones take happiness to consist in the long term satisfaction of their appetites, spirited ones take it to consist in the satisfaction of desires for honour and approval; and rational-ones take it to consist in satisfaction of desire for truth and overall good. In the just city, each of these classes will have a distinct social role.

The appetitive class consists of producers or workers; the spirited class consists of guardians or soldier-police; and the rational class consists of philosopher-king rules. Justice for a city consists in the enforcement of a principle of specialization which restricts each class to the one social role for which it is naturally best fitted¹¹. Plato the disciple of Socrates described very magnificently that City-3 is the just city, Where we can achieve happiness with justice.

Aristotle identified three types of justice (a) Distributive justice (b) Retributive justice and (c) Commutative justice¹². The legislator should be concerned with distributive justice and the judges should be concerned with distributive justice and commutative justice. Distributive justice deals with allocation of honours and wealth. Its basic principle is treating equals equally and unequal's unequally or in another word, like cases to be treated alike¹³. Retributive justice deals with imposition of punishment and payment of damages. Commutative justice seeks to determine the amount of one sort of goods or services to be rendered in return for another sort in voluntary transaction of buying or selling. In modern time Retributive justice has been identified by David Miller based on three criterion of justice as below –

Rawls Theory of Justice- John Rawls an American Philosopher in his

Criterion of justice	Corresponding social order	Chief exponents
Protection of Acknowledged Rights	Hierarchical order	David Hume
Distribution according to desert (based on birth or ones contribution to the social good)	Competitive Market	Herbert Spencer
Distribution according to Need	Solidarity community	Peter Kropotkin

celebrated work, 'A Theory of justice' has pointed out the principle of justice. He said that justice is the first virtue of a good society. John Rawls worked out a conception of justice that provides a reasonably systematic alternative to utilitarianism¹⁴. Rawls has attacked utilitarianism. Utilitarianism is a school of thought founded by Jeremy Bentham which prescribes 'greatest happiness of the greatest number' as the goal of legislation and public policy. Rawls has evolved a unique methodology for arriving its unanimous

procedure of justice. Individuals are placed behind a 'veil of ignorance'. They are totally unaware of their wants, interests, skills and abilities. These are also unaware of the conditions of discrimination and conflict in society. Each individual will hypothetically place himself or herself in the least advantaged position. Hence each of them will demand greatest benefit for the least advantaged for ensuring a just distribution of primary goods which include rights and liberties, powers and opportunities, income and wealth, means of self respect and so on¹⁵. According to Rawls, three principles of justice will be accepted by all under such conditions.

- (a) Principle of equal liberty – No body's liberty will be compromised for any other benefit.
- (b) Principle of fair equality of opportunity – There would be equality of opportunity for acquiring offers and positions.
- © Principle of Difference – Any departure from equal distribution of the primary goods can be justified only when it could be proved to bring greatest benefit to the least advantages.

In other words, the rule of allocation is such as 'to each according to his ability'. Rawls has followed the style of great contractualists like Hobbes and Locke in arriving at a conclusion on the basic of a hypothetical situation, what he calls 'original position'. Rawls theory is known as the contractarian theory of justice¹⁶. Rawls included in his later writings that the parties are placed behind a thick veil of ignorance, which he called original justice as fairness¹⁷. In other words, John Rawls regards what is not fair is injustice and what is fair is justice. His theory of justice is closer to liberty than equality.

Robert Nozick's Theory of justice

Robert Nozick's theory of justice is based on Libertarian prospective of justice. It is largely opposed to the idea of welfare state. Robert Nozick an American Philosopher in his 'Anarchy, State and Utopia' he advanced an alternative to Rawl's theory of justice. Robert Nozick tells that man's right to property i.e. entitlement is a natural right which cannot be taken away or curtailed by State. Nozick identified three principles of entitlement¹⁸ -

- (a) Initial acquisition – Those who come to settle in an uninhabited continent may legitimately acquire its land and natural resources on 'first come first served' basis. This is called initial acquisition.
- (b) Voluntary transfer – If someone uses others labour (by mixing one's labour with the natural world) and pays them as per market rates, he becomes owner of the product of their labour. This must be based on voluntary contract. In other words voluntary transfer of labour in terms of money makes some one owner of product of labour.
- (c) Rectification – In the case of involuntary transfer of labour and unjust acquisition of natural resources. Rectification is needed to be intervened. If some country has gained control over rare natural resources depriving others of their legitimate share or if there is a single source of water which is needed by all human beings,

rectification in the principle of entitlement- as earlier said in (b) & (c) is needed. This is called rectification principle.

If Rawls is known as left liberal or egalitarian liberal, advocating redistributive welfare state, Nozick may be described as a right liberal or a libertarian committed to a night-watchman state. (State responsible only for the maintenance of law and order within its territory and defence against the external attacks) State is maintained in the system of Rawls, but in the system of Nozick, State is reduced to the minimum possible extent and assumes the name of Dominate Protective Agency¹⁹.

In noted book of F-A-Hayek, 'Law Legislation and Liberty: The Mirage of Social Justice' he argued that idea of social justice is irrelevant²⁰. If freedom is curtailed to promote equality, the disputes of life's goods are bound to give rise to conflict and controversy. Justice requires that each individual should get maximum opportunity to serve his interest according to his own understanding.

Communitarian Perspective of justice- Will Kymlica in 'Contemporary Political Philosophy – An Introduction' (2002) has observed that In liberalism, an individual is left free to pursue his self-interest solely on the condition that his freedom does not come in the ways of similar freedom of others²¹. On the contrary in communitarianism, an individual finds self-fulfilment by accepting the prevalent social roles, practices and situations within the community and not in isolation from his fellow beings.

Liberals accord priority to 'right' over 'good', whereas for communitarians, the 'right' implies virtue and when the 'good' is accepted, the right has already been taken care of. Some other philosophers also supported communitarian perspective such as Alasdair Mac Intyre in his essay, 'After virtue(1981)', Michael Sandel in his book 'Liberalism and the Limits of Justice(1982)' and Charles Taylor in his book, 'Sources of the Self(1989)²².' Michael Walzer in this celebrated work, 'Spheres of Justice (1983)' has enunciated a communitarian theory of Justice²³.

According to Walzer our society requires us to apply the principle of 'Complex Equality'. It implies a system of distribution that does not try to equalize all social goods, but rather seeks to ensure that inequalities in one sphere (e.g. wealth) not permeate to other spheres (e.g. health care and political power). In fact Walzer gives precedence to ethical considerations over economic considerations. Walzer embodies a strong moral philosophy that distribution of social goods should be determined according to right reasons applicable in each sphere. In other words, the spheres of politics or health or education, should not be corrupted by the domination of money.

Theoretical Analysis of Fundamental Rights in the eye of Principle of Justice- Chapter of Fundamental Right in Indian Constitution is soul and heart of constitution. It is true manifestation of principle of justice with libertarian perspective and communitarian as well. Part-III of Indian Constitution having article 12 to 35 enshrines the Fundamental Rights. There are six Fundamental Rights with Article 14 to 35. Article

12 tells the definition of State, where Fundamental Rights are to be applied. Art 13 empowers supreme authority to Fundamental Rights, telling that Laws inconsistent with or in derogation of the Fundamental Rights would be null & void.

When Constitution of India was being formed, only libertarian view was considered and it was declared (in Article 13) in black and white that any law inconsistent with Fundamental Rights would be null and void, whether these laws are previously formed or currently in existence or will be formed in future, all types of law with such inconsistency will be null and void. This provision was thought and inserted in complete alienation from prevailing practices of society in which people had been living for centuries. On getting republic, certain difficulties had been brought to light by judicial decisions and pronouncement especially in regard to Fundamental Rights. Now communitarian perspective was the need of hour to be made consistent the provisions of Fundamental Rights with prevailing practice of centuries old society. 1st constitutional amendment was inserted in the constitution in 1951 as Article 31A was added. According to Art 31A, there would be five types of law that can't be challenged on the basis of inconsistency with Arts 14 & Art 19 (Both Articles are of Fundamental Rights – one is Right to Equality and another is Right to Freedom). And those five types of law would be about –

1. Acquisition of estates.
2. Taking over the management of property by State.
3. Amalgamation of corporations.
4. Extinguishment or modification of rights of directors or shareholders of corporations.
5. Extinguishments or modification of mining leases.

Communitarian perspective is to be applied one step further and it was seen in inserting Art 31B as another provision of the 1st constitutional amendment in 1951. The provision in Arts 31 B is in simple words is as “Laws and regulations included in 9th schedule are free from being challenged on the ground of violation of Fundamental Rights. It means that Laws and regulations under 9th schedule are free from purview of judicial review”.

Directive Principles of State Policy A Blend of Libertarian and Communitarian Perceptives- Directive Principles of State Policy (DPSP) are enshrined in Indian Constitution in part IV from Art 36 to Art 51. The pattern to have DPSP in the Constitution has been borrowed from Irish Constitution. Ireland has borrowed this pattern itself from Spanish Constitution. Granville Austin has described the DPSP as the Conscience of the Constitution²⁴. Supreme Court in *Minerva Mills* case (1980) has held that Indian Constitution is formed on the bedrock of balance between Fundamental Rights (FR) and DPSP²⁵. B. R. Ambedkar has said that DPSP is a novel feature of the Constitution. DPSP and FR contain the Philosophy of Constitution.

By following Libertarian perspective of principle of justice Art 31 was formed to categorise Right to Property in the Fundamental Rights. But these aroused several problems in front to Indian Government. Indian Government wanted to bring land reforms and encourage social justice by taking land from landowners who have surplus land and then distributing it to landless farmers. Right to property was needed to be abolished because it was important for the development of India. For example – if Indian government wanted to build a dam or construct a Road, it had to acquire the people's property and in return people used to revolt and approach judiciary. So by following communitarian perspective of principle of justice, Art 31 was abolished by inserting 44th Amendment Act in 1978.

Right to Property was rather weakened by inserting 25th Amendment Act 1971. Article 31 C was added and it entails that no law giving effect to comply with Art 39(b) and Art 39(c) shall be deemed to be void on the ground that it is consistent with Art 14 & Art 19. To understand it, Art 39(b) and Art 39(c), Art 14 & Art 19 are needed to be recalled.

Art 39(b) is –The State shall direct its policies toward securing the ownership and control of the material resources of the community are so distributed as best to subserve the common good.

Art 39© is - The State shall direct its policies toward securing the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment –

Art 14 is Right to Equality and Art 19 is Right to Freedom Here Libertarian perspective of Robert Nozick can be recalled. Robert Nozick an American Philosopher in his “Anarchy, State and Utopia” told that Principle of initial acquisition and principle of voluntary transfer of labour can be rectified under principle of rectification in order to restore the justice if there is involuntary transfer of labour or if there is flaw in initial acquisition of property. Here Art 14 and Art 19 were given to enjoy full stream of Fundamental Rights of equality & that of freedom but by inserting Art 31C these two rights were rectified in Robert Nozick style for safeguarding socialistic principles Art 39(b) and Art 39(c) of DPSP.

Analysis of Fundamental Rights in the eye of John Rawls's theory of Justice- John Rawls was an American Philosopher in his collaborated work 'A Theory of Justice'; John Rawls enunciated three principles of distribution. First one is Principle of Equality which postulates that no body's liberty will be compromised for any other benefit. It can be correlated with Art 14 – Right to equality – of Indian Constitution. Right to Equality – Art 14 - tells that the State shall not deny to any person equality before the law or the equal protection of the law within the territory of India. Second principle of distribution of John Rawls is principle of fair equality of opportunity which postulates that all people would be provided equality of opportunity in distribution of primary goods. It can be correlated with Art 16(1) of Indian Constitution. Art 16(1) describes that there shall be equality of opportunity for all citizens in matter of relating to employment or appointment to any office under the State.

Third principle of distribution of John Rawls is Difference principle

which implies that any departure from equal distribution of the primary goods can be justified only when it could be proved to bring greatest benefit to the least advantaged. It can be correlated with Art 16(4) of Indian Constitution which describes that State will not be prevented to make any provision for reservation of appointments or posts in favour of any backward class of citizens which in the opinion of the State is not adequately represented in the services under the State here for bringing greatest benefit to the least advantaged backward class. The Principle of difference was adopted to announce reservation in jobs for backward classes. For the same purpose, Art 16[14(A)] was also added by Seventy Seventh Amendment Act 1995 in which reservation in matters of promotion were allowed for Scheduled Casts and Scheduled Tribes. John Rawls Principle of Difference was followed by letter & spirit by our Constitution Framers. Although it is evident that John Rawls book, 'A Theory of Justice' came into publication in 1971, but it seems that Liberal perspectives of principle of justice were all known to our esteemed Constitutional Framers. It is also evident that nearly two decades before to John Rawls principle of justice our learned leaders had landed on the ground these principles of justice in our Constitution. It is nothing but a magic.

Conclusion - Principle of Justice is Omnipresent all time. It has traces in philosophical contribution of our Saints and it has evidence in our modern supreme book of law. i.e., Constitution. Whether it is traced in western political theories or it is tracked in eastern political luminaries' work; everywhere the principle of justice is present. In other words we can say that Fundamental Rights and Directive principles of State Policies are idols of Principle of Justice. Initially in our Constitution, Fundamental Right were framed with libertarian perceptive when it was felt that pre-existing social values and practices are to be blended with our Constitution, communitarian approach of principle of justice was applied and amendments were added to weaken some of Fundamental Rights. In doing so Fundamental Right like Right to Property was abolished also. To mingle with society and prevalence practices every system has to comply with communitarian perceptive of principle of Justice.

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**Socio– Economic Transformation of Mahadalit Caste in Bihar:
A Study with Special Reference to Musahar Caste**

● Preeti Dwivedi

Abstract- *Mushars also known as Vanvasi are the most downtrodden caste community of India. Still today they live in the margin of the society. Usually they are rat eaters and due to such practice avoidance and discrimination usually frequently experienced by this caste community in regular mode. Mushars are the third largest dense populated scheduled caste community in Bihar. Bihar government has laid Mahadalit commission who identify hardly beneficiary scheduled caste through different development programmes and reservation schemes. The study is conducted in Madhepura district, Belari village of Kumarkhand block and Budhana village of Kishanganj block purposively selected for the present study where Musahars are densely populated. Hundred households of Musahars' family purposively selected for collecting the information in – depth. Study shows that despite Mahadalit commission set up in 2007 government is unable to deliver the benefits of different socio economic upliftment schemes to the Musahars thus they are still in the margin of the society and who really needs to improve their socio economic conditions. For their betterment and socio economic upliftment, government should encourage the free and compulsory education for Musahar's children. Strict action must be undertaken by the government for violent atrocities performed by upper caste to prevent this caste community from exclusion and marginalization in socio economic life. In this respect role of vikash mitra play a vital role. If the caste of vikash mitra is same as deprived group then it enhances the possibility of easy access of different socio economic upliftment programs for Musahar caste.*

Key Words - Untouchables, Marginalization, Exclusion, Mahadalit

Introduction- *Dalits* who are emerged due to caste based social division of Indian social structure which is deep-rooted with the traditional religious norms of 'purity' and 'pollution'. The term *Dalit* earlier known as 'untouchables' and 'outcastes' was first coined by founder of '*Satya Shodhak Samaj*' Jyotirao Phule. Different polluting occupation are imposed for *Dalits* since years like disposing off dead bodies, working with leather of dead animals, cleaning toilets and sewage etc that also responsible for systematically neglect and ostracize these caste throughout. Due to labeling of polluted and untouchable castes, *Dalits* denied the basic rights of human beings and thus denied from dignified social status. Even today *Dalit* tend to face different forms of deprivation and vulnerabilities in terms of occupation in which they involved, in access public amenities and services such as public transport, school, health services etc (Satija, 2013). A renowned news

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paper 'Times of India (TOI) reported in 2016 that even today discrimination practices are experienced by *Dalit* children even in educational institutions (TOI, 2016). In some instances *Dalits* are denied to access the water sources in their village also (TOI, 2016). Even after the implementation of Untouchability Prevention Act in 1955, practice of violent atrocities are severely experienced by *Dalits* and they are prevented from entering police stations for seeking help against the violent atrocities against them (The Indian Express, 2016). The highest rates of crimes against *Dalits* (number of incidents per 1,00,000 population) were in Madhya Pradesh (52), Bihar (41), and Rajasthan (35) (The Indian Express, 2016). Here an important point to notice that these numbers of violent atrocities are only cases that reported in the police station. On the other hand many of the violent atrocities against *Dalits* are unreported due to their oppressed socio – economic status.

Dalits in Bihar- *Dalits* constitute 15% of the total population in Bihar and considered as one of the most crime committing state against *Dalits* accounts to 16-17% of all India crimes against scheduled caste (SC) (Pathak and Sampath, 2016). The socio – economic conditions of all scheduled castes in Bihar is not homogeneous. Different policies considering with the socio – economic upliftment of *Dalits* have been initiated by central and state government time to time. Despite all schemes of socio – economic upliftment of scheduled castes, crimes against *Mahadalit* are continuously increasing in Bihar. The socio – economic conditions of *Dalits* are still remains pathetic even after the many efforts undertaken by the Bihar government. A shameful incidence of caste based discrimination in Kaimur district of Bihar highlighted the attention of media persons where students of *Mahadalit* castes complained against caste based discrimination by their school teachers during serving of school day meal and in the classrooms of the school run by government bodies (TOI, 2010).

It is found that some of the scheduled caste such as *Dusadhs*, *Dhobis*, *Pasi* and *Chamar* in Bihar more benefitted from the policies and reservation system initiated by the central and state government (Sahay, 2019). Considering the same issue government of Bihar constituted the ***Mahadalit commission*** in 2007 that identify hardly beneficiary scheduled castes through different development programmes and reservation schemes (Sahay, 2019). The castes marked by the commission set up by the government of Bihar are called as *Mahadalits* (the most downtrodden backward scheduled castes) and recommending different policy measures for their development. The ***Mahadalit commission*** is not only identified a considerable section of SCs who lagged behind from socio – economic development but also study the status of this neglected sub – castes among *Dalits* and to suggest different ways for better socio- economic upliftment.

Mushar in Bihar- *Mushars* also known as *Vanvasi* (Hasan and Das, 1996) are the most downtrodden caste in caste hierarchy and listed in *Mahadalit* in Bihar state. The literal meaning of *Mushars* is rat eaters due to practice of hunting and eating of rats (Sahay, 2019). The fact is that even today *Mushars* are rat eaters as they have lack of money to purchase vegetarian and non-

vegetarian food stuffs (Sahay, 2019). Due to the practice of rat eating social stigma stuck with this caste community (Dwivedi, 2015) and thus avoidance and discrimination usually frequently experienced by these community in regular mode.

Mushars are originally a Dravidian tribe migrated from the Chota Nagpur hills (Roy, 1935). Generally *Mushars* are named by different other names such as *Bhuiya*, *Rajwar*, *Manjhi*, *Sada*, *Rishi* etc in different parts of Bihar (Sahay, 2019).

Despite different developmental schemes run by central and Bihar govt, *Mushars* remain as usual a marginalized group and deprived from socio – economic and political mainstream. Maximum population of *Mushars* resides in four states of India (88.6%) – Bihar, Jharkhand, U.P. and West Bengal. According to census 2011 most of the population of *Mushars* live in Bihar and its population is 2,725,114. Census 2011 also reported that *Mushars* the third largest dense population (2,725,114) of scheduled caste in the state of Bihar after *Dusadhs* (4,945,165) and *Chamar* (4,900,048). *Mushars* constitute around 1/6 of total SC population in Bihar which is 16,567,325 (census, 2011) and about 2.6% of the total population which is 103,804,637 in Bihar (Census, 2011). To bring the Scheduled Casts (SCs) and Scheduled Tribes (STs) communities in mainstream of the society Article 38 and Article 48 of Indian constitution has been laid. **Mahadalit commission** has been undertaken different schemes for socio-economic and political upliftment of these communities such as:

1. *Mahadalit* Awas yojna
2. *Mahadalit* water supply yojana
3. Land for housing schemes
4. *Mahadalit* Basti Link Road Scheme
5. *Mahadalit* Toilet Construction Scheme
6. *Mahadalit* Anganwadi
7. *Mahadalit* Creche
8. Mukhyamantri *Mahadalit* Poshak Yojna
9. Dashrath Manjhi Kaushal Vikas Yojana
10. Mukhyamantri Nari Jyoti Programme

For better access of government schemes to the marginalized sections government of Bihar has also appointed a '*Vikas Mitra*'. During appointment of '*Vikas Mitra*' attempt is made by government bodies to the same caste of '*Vikas Mitra*' and household so that easily access of beneficiary programmes/schemes for *Musahar* and *Mahadalit* caste (Kumar and Samanathan, 2015).

The field and field work- The study is an empirical effort. The study is conducted in Madhepura district which ranks third in Bihar in terms of *Mushar* population. According to census report (2011) population of *Mushars* castes in this district was 174,453. From Madhepura district, Belari village of Kumarkhand block and Budhana village of Kishanganj block purposively selected for the present study where *Mushars* are densely populated. These two villages consisting of a number of castes belonging to

all caste categories: - Scheduled Caste (SC), Other Backward Classes (OBC) and general castes. In – depth interview along with observation method used for collecting information from *Mushars*.

Hundred households of *Mushar* family purposively selected for collecting the information in depth. All the information concerning to their family, community, economy, political life were gathered from the respondents in in – depth.

Socio-economic conditions of the Mushars- The descriptive character of the study has been derived from the collected data from the respondents. *Mushars* in Madhepura district is the third most populous caste community in Bihar. Most of the *Mushers* family lives in rural areas. Houses of *Mushars* are found in the outskirts of village. Such settlement pattern has emerged due to discriminatory attitude and behaviour of dominant caste towards them shows the untouchability practices experienced by the same caste even today. Different derogatory words like '*badbudaar*' '*mahakate hai*' (Bad smell) etc usually are used for these caste by the dominant castes of their community. Usually in every *mushar's* household there are more than two children (80%). Children are considered as helping hands from the childhood. They work and add their family's income. Due to scarcity of money they have not any livestock in their home (98%) while some of the *Mushars'* family have goat as a livestock (2%).

Mahadalit Awas Bhoomi Yojana and *Mahadalit Awas Yojana* are two important schemes have been undertaken by **Mahadalit commission**. Distribution of land and house for landless and homeless *Mahadalits* in Bihar is assured by these two schemes. But real picture differs in case of *Mahadalits* due to corrupt beurocracy. Only 11% of the respondents are found as beneficiary of '*Mahadalit Awas Bhoomi Yojana*'. Less than half of the *Mushars'* family (28%) is only the beneficiary of '***Mahadalit Awas Yojana***'. Since many of the respondents have not land at all and thus they are not entitled to get the benefits of '*Indira Awas Scheme*'. Under '*Indira Awas yojana*' *musahars* got the *pucca* or *semi pucca* house with one room. It was also found that 36% of the *Mushars'* family were living in muddy house with thatched roof. 26% of the household were totally made up of thatch. It is also found during field work that *Mushars* have not their own land for making house or cultivation. Their muddy or thatched houses are made up in their landlord's land that belongs to upper caste where they work as agricultural labor for their livelihood. Mostly *Mushars* work as agricultural labor (86%) as a source of livelihood as they have not their own land for growing crops. Due to landlessness and poverty *Mushars* look over dominant caste during their hardship situation, rituals or ceremonial functions. For this indebtedness, their children work for their family as domestic worker to show their loyalty till death. During off season of farming *Mushars* work as laborers in different unorganized sector such as in brick kilns, building construction as meson etc. It is also found that different assets for comfort such as refrigerator, television, mixer grinder, transistor etc were missing in the *Mushars'* household. The respondents informed that they spent their all earnings in day-to-day necessities anyhow. They were

unable to spend their earnings in different assets required for comfortable life. When they were asked to inform about saving account and their saving then a shocking but heart breaking information was reported by the respondents. All the *mushars*' family informed that they have their saving account but there was no saving in their account at all. Thus analysis of data show that *Mushars* were living in lower socio economic status with no hope for present as well as future life. For better access of different schemes run by government to *Mahadalits*, government has appointed '*Vikas Mitra*' to connect the households to government officials. But it is found that whenever households that belonged to the same caste as the '*vikas mitra*' significantly had higher chance to get the benefits than *Mahadalit* households of other caste (Kumar and somanathan, 2015). It is found in the present study that all the respondents belonging to *mushar* caste were aware about the governments' schemes but their access for such beneficiary schemes were between 15 to 20% only. The difference between awareness and access of different beneficiary schemes were majorly due to caste based discrimination, and corrupt beurocracy.

Due to landlessness Musher's family depend upon markets for food grains. But poverty makes them helpless to purchase food grains to survive whole family. These *Mushars* family get food grains from the Public Distribution System (PDS) run by government bodies for Below Poverty Line (BPL) family but food grains or cereals provided by PDS totally insufficiently fulfill the appetite of whole of the family. It was also found that these *Mushars* family get cereals from PDS centers irregularly. Thus such type of corruption in PDS centers must be dissolved to secure the right of food supplement to each and every citizen of India.

Educational status- Educational status is an important factor and also responsible for upgraded or downgraded socio economic conditions. The analysis of data shows that 42% of the *Mushars* were illiterate. About 8% of the respondents were literate but they had completed their education below primary level. 26% of the respondents were primary educated. 11% of the respondents were middle passed. Only 3% of them were enrolled in secondary or higher secondary schools. This show high illiteracy found among *Mushars* or with low level of literacy. The lower level of literacy among Musahars is found as big hurdle for their socio economic upliftment. Their access to avail the profit of different socio economic upliftment programmes/schemes become minimize due to illiteracy or lower level of literacy. Though '*Mahadalit Commission*' have been implemented different schemes such as 'special school/ hostel' for *mahadalits* which seem to be feebly effective in enhancing the literacy among this caste community. Caste based discrimination experienced by *mushar* children from upper caste in the school premises is also found as a major factor of drop out of children. Usually *mushar* students sit separately in their class. Usually children of upper caste an even teacher used derogatory words for these children like *musahar asabhya hote hai* (*Mushers* have no moral sense), *musahar gunde mahakate hai* (*Mushers* smell dirty) etc.

Mushars considered their children as helping hand and from

childhood they work as domestic servants at the home of their landlords and work in the agricultural fields of their landlords, brick kilns etc to add some money in family's income. Their involvement as child labor due to poverty of family is also found as a hurdle to continue their studies beyond primary or secondary. It is also found that most of the *mushar* children attend to school due to greed of Mid Day Meal (MDM). Despite MDM, Bihar government also provides some other schemes such as distribution of free textbooks, scholarships for those children whose attendance more than 70% etc. But unfortunately it is complained by *Mushar* parents that due to caste dominance fake attendance was shown for upper caste children by the teachers for availing government schemes for these children. On the other hand attendance of *Mushar's* children is deducted by the teachers. Such unfortunate incidents in school premises are usually seen due to non *mushar* caste of teachers. Thus due to caste based discrimination *mushars'* children find themselves as a deprived group in the school premises. Thus caste based discrimination of *Mushar* children and unsupportive behavior of school teachers are also responsible for high illiteracy, nominal literacy or drop out from schools of *Mushar* children at all.

Health problems and health seeking practices of *Mushars*- In the field work most of the *Mushar's* family was found in unhealthy state. Due to improper sufficient diet and hunger, due to poverty and unhygienic surroundings of their houses make them susceptible for many contagious ailments such as TB, leprosy, jaundice, diarrhoea etc. In the present study families of 60% households were in unhealthy state. Both male as well as female respondents from different households reported about different diseases they had. Coughing, TB, diarrhoea, jaundice, malaria, dengue etc commonly reported health problems informed from most of the *Mushars'* households. On the other hand reproductive tract infection (RTI), joint pain, menstrual problems reported by most of the female members of *Mushars'* household. When respondents were asked to initiatives undertaken by them during illness then all of the respondents of sampled households informed that there are no any dispensaries in their hamlet. Primary Health centers (PHC) in their locality are found as under staffed and lack even the most basic medication. Forcedness their primarily dependence upon home remedies, or quacks as they do not afford expensive private healthcare unless and until their health condition becomes serious. During serious health conditions *Mushars* lend loans from their landlords on high interest rates. Seldom visit of auxiliary nurse midwives (ANM) and Accredited Social Health Activists (ASHA) in the area of *Mushars* were reported by most of the *Mushar's* household due to belong to the upper caste. Generally women in the *Mushar* tola were found as anemic. Folic acid and nutritious diet supplements were not supplied or its supply in irregular way was reported by pregnant women of *mushar* caste. Immunization of pregnant women was also not done by 'anganwadi workers' during pregnancy. This is a main reason of high 'Maternal Mortality Rate (MMR)' of *Mushars* found in *Mushar tola*.

Political participation- In the field work no political representation of

mushar was found. Analysis of data shows that, this cast is politically inactive in terms of political representation and participation in government policymaking bodies at the state as well as local level. If any one of the *mushar* castes shows their courage for political representation it was suppressed by dominant caste. We can see it with an example of Bihar also. Jitan Ram Manjhi belong to *musher* caste was politically active and contested election from 'Janta Dal United' (JDU) party. He was made chief minister of Bihar by JDU but in a few months he was removed from the post by JDU (Sahay, 2019). This shows that the *Mushars* who even today are downtrodden caste in Indian caste hierarchy who crushed by upper caste/dominant caste whenever they want to raise their head for their upliftment either due to education or political representation.

Conclusion- The present study has made an endeavor to access the socio economic changes occur in *musahar's* life after the implementation of different socio economic reformative movements. In this regard Bihar *Mahadalit Vikas Nigam* was established by Bihar government in 2007 for betterment and socio economic upliftment. For better access of different schemes *Vikas Mitra* were also appointed by the government. But in case of *mahadalit*, it is found that socio – economic changes are rarely seen and also these castes were least found as beneficiary caste community of different socio economic upliftment programs. Reservation policy of government for upliftment of downtrodden caste least benefited the *mushar* caste. *Mahadalit* commission constituted by Bihar government in 2007 aimed with socio economic reformation of most lagged caste community in Bihar. But the effort made by Bihar government in 2007 has not succeeded in bringing positive socio-economic, political reformation of the lives of most downtrodden caste '*mushar*'. In elections *Musahars* are used as pawn by different political parties for voting. *Mushars* do not cast their vote with self decision. Local or community leaders who are generally approved and bribed by political leaders convince *Mushars* to cast their vote for a particular political leader. Vines or cash are also offered by these local/community leaders for convincing the *mushars*.

Illiteracy among *musahars* is a key barrier of their socio economic upliftment. Most of the *Mushars* are either illiterate or discontinue their study after few years. Due to poverty stricken background they do not afford the high fees of private schools. In the government schools, *Mushars'* children are discriminated and angrily treated by upper caste students as well as teachers. Such circumstances discourage them to continue their school and also demoralize them. The high illiteracy rate among *Musahars* is closely linked to their downtrodden position among caste hierarchy (Sahay, 2019).

Diseases and death at early age are another misfortunate fact found among *Mushars*. Due to poverty most of the *mushars* are malnourished and live in unhygienic surroundings that make them susceptible for different communicable diseases. Their primarily dependence upon home remedies, witchcraft, magician due to poverty and inhuman treatment received by doctors and nurses of public hospital. Despite *janani evam bal suraksha*

yojana, most of the delivery of pregnant women of *mushar* community take place at home without the help of trained midwives. That is one of the most prime reasons of high rate of Maternal Mortality Rate (MMR) among *mushar's* women.

Mahadalit poshak yojana of Bihar government is incapable to satisfy the hunger twinge of all the *mushar* family. *Mushars* receive food grains irregularly from government sponsored PDS centers aiming with the distribution of the basic food and non food commodities to the needy sections of the society at very cheap rate. On the other hand even today these disadvantaged groups hardly meet the benefits of government schemes in the areas of education, health, nutrition. Thus this caste community is marginalized section of our society with least beneficiary group of different government schemes for social economic upliftment. Despite *Mahadalit* commission set up in 2007 government is unable to deliver the benefits of different socio economic upliftment programs to the *Mushars* who are still in margin of the society and who really need to improve their socio – economic conditions.

For their socio – economic upliftment government should encourage the free and compulsory education for *Mushar's* children as education is a prime factor for socio – economic and political empowerment. To minimize caste based discrimination strict action must be enabled to prevent this community from exclusion and marginalization in socio – economic life. Government should also train this caste community in different skill development programmes for making them empower economically. In this respect *Kaushal Vikas Yojana* has been started by the government but this scheme is still out of reach of this caste community like several others. Corrupt beurocracy is also a reason for outreach of *Mushars* to access different socio – economic upliftment programs. For better access of different socio economic schemes the role of *vikash mitra* play a vital role. If the caste of *vikash mitra* is same as deprived group then it enhances the possibility of easy access of different socio – economic schemes for *Mushar* caste.

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Sociological Impact of Pandemic on Tribal Society

● Shahank Shekhar Thakur

Abstract- After 100 years, world is again facing epidemic of health crisis due to COVID-19 virus. Unfortunately, human body is the carrier of virus and spread by physical contacting. As a result, within a month it has spread across the world. In lieu of appropriate medicine and vaccine to treat the patient, WHO has suggested to keep social distancing and maintain effective hygiene practices. As a result, first time in the history complete lockdown has been imposed – public transports, economical activities, education institutes, social and religious places, basic services and markets were completely shut down. For the survival of human, humans are kept in lock down at their places. In India, complete lockdown was imposed from 22nd March and continue till 31st May in 3 phases. During the course of lockdown of 71 days, restrictions were imposed under section 144 and except essential supplies of medicines, food items, vegetables and milk, other activities were kept shut-down. In fact, in due courses there has been larger impact on the society on economy as well as on social behaviour. The paper is an attempt to understand the sociological changes in the society due to an impact of pandemic.

Key Words- Pandemic, Tribal, Society

1. Introduction- After 100 years, world is again facing epidemic of health crisis due to COVID-19 virus. Unfortunately, human body is the carrier of virus and spread by physical contacting. As a result, within a month it has spread across the world. In lieu of appropriate medicine and vaccine to treat the patient, WHO has suggested to keep social distancing and maintain effective hygiene practices. As a result, first time in the history complete lockdown has been imposed – public transports, economical activities, education institutes, social and religious places, basic services and markets were completely shut down. For the survival of human, humans are kept in lock down at their places.

In India, complete lockdown was imposed from 22nd March and continue till 31st May in 3 phases. During the course of lockdown of 71 days, restrictions were imposed under section 144 and except essential supplies of medicines, food items, vegetables and milk, other activities were kept shut-down. In fact, in due courses there has been larger impact on the society on economy as well as on social behaviour. The paper is an attempt to understand the sociological changes in the society due to an impact of pandemic.

Financial impact of the crisis has been immediate, deep and long-time. The lockdown began in March and about 53% households had lost their pre-crisis income to manage the two square means and to keep

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themselves safe. studies indicate that about half of the families have fully exhausted their 3/4th saving in a span of one quarter. Moreover, in majority of cases primary earner of the family have lost their jobs. It is heartening in such a difficult situations government have announced food security benefits through public distribution system and provides social assistance to the daily earners. Civil society representative and volunteers has played significant role in coping up the situation by supporting food distributions and through promoting hand hygiene and awareness on the importance of social distancing.

Focus has mostly been on testing, treatment and prevention of COVID-19 but people and communities are going through various social problems as well in adjusting to the current lifestyles and fear of the disease across nations. Conditions have all the more affected the other half of the population globally and particularly in India where abrupt lockdown has brought millions below the poverty line struggling for basic needs like food and shelter which then leads to unequal share in domestic responsibilities, to violence against the vulnerable members of the household.

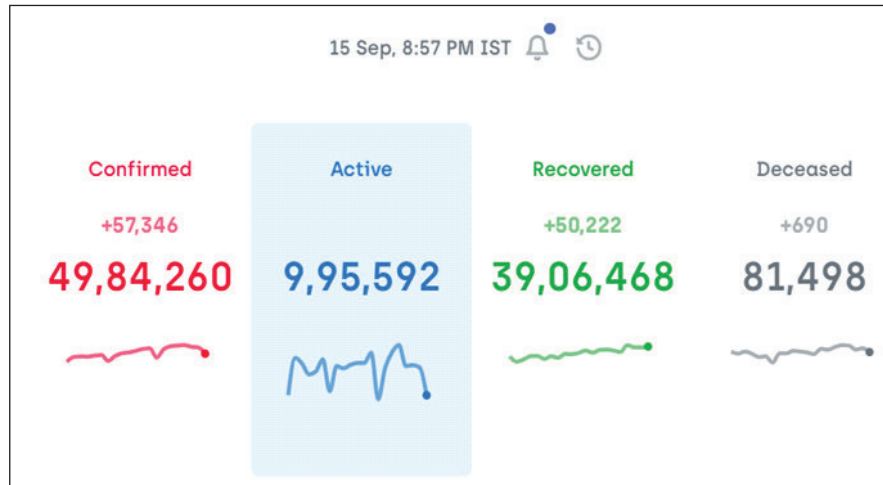
2. Methodology- COVID10 cases are increasing between 80 to 90 thousand per day in Madhya Pradesh. On 14th September, state has recorded 90730 cases across the state. The tribal-dominated districts Barwani, Chhindwara, Dindori, Balaghat, Jhabua, Tikarmgarh, Umaria, Alirajpur and others have also reported a sharp jump in pandemic cases.

Social stress caused by lockdown has many faces and reasons resulting from travelling restrictions and disruption of cultural celebrations, limited healthcare facilities and interruption in regular immunisations in hospitals leading to anxiety and fear among the population, social distancing with friends and family, closure of places of entertainment and leisure, unplanned closure of schools and colleges affecting both students and parents regarding the academic year and the loss of quality education. Inadequate infrastructure, leading to ill-equipped healthcare employees who are fighting endlessly to treat patients and protect themselves from infection at the same time are all quite visible. This major loss and unpreparedness is an aftermath of the negligence of healthcare sector since years. Incapacitated hospitals and distressed primary healthcare are significant reasons behind so much distress among the people for a disease which could be prevented with a little care and precaution.

The research paper is an attempt to understand the key challenges on the society as an impact of increasing cases in tribal area of Madhya Pradesh. The research is based on the secondary literature review available on internet.

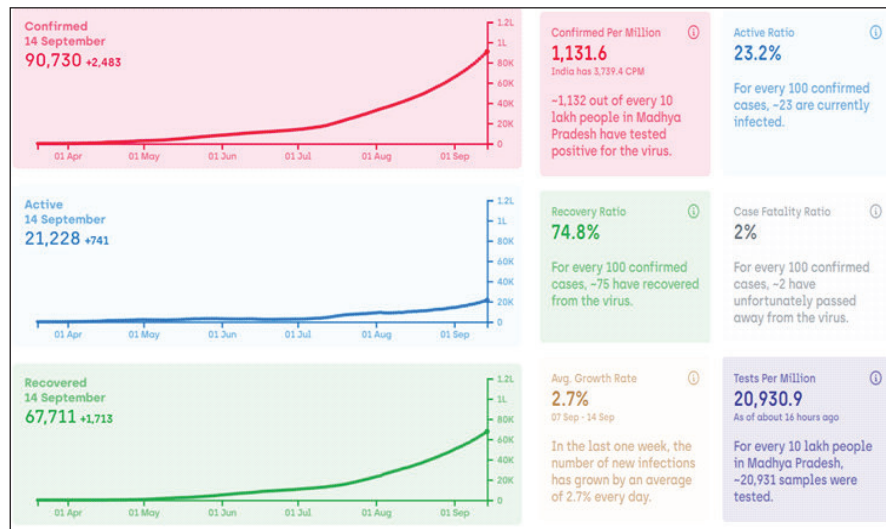
3. Data and Results- The COVID-19 pandemic has infected approximately 27.8M million people and the death toll has surpassed 902000 across the world as of 10th September. India is among high number of cases centuries. In first week of September, India has reported above 70000 cases every day. The first case of COVID-19 in India was reported on January 30, 2020 and as of September 10, 2020, confirmed cases stand at 44.7 lakhs with more than 75000 deaths in the country. The impact of the pandemic is visible across the

sectors globally, but its impact on marginalized sections, women and children as well as tribal, informal sector labour has been immense in India. This crisis has affected India economy and today the GDP of India is decreased subsequently in the world.



Source: <https://www.covid19india.org/>

Status of COVID cases in Madhya Pradesh



4. Discussions- In India society people have emotional bonding with their families, relatives and friends. Moreover, the nature of settlements clearly indicates that Indians are living in crowded housing and knocking doors of each other is more common in daily life. As a result, follow the concept of 'social distancing' during this pandemic is big challenge. Research indicates that the morbidity and mortality due to COVID19 in India is more saviour due to diabetes, hypertension or cardiovascular disease. These diseases are seen commonly in India and put even individuals at risk for COVID19.

The COVID-19 pandemic has changed the world in many ways. Of

the several implications on humanity, the issues of health, the rapid decline of economy, shortage of medicines, sanitizers, masks, and other essentials, poverty, unemployment has undoubtedly taken centre stage and each has left a mark on the lives of people.

4.1 Health hazards due to COVID19- The lockdown could also be a cause of weight gain during the COVID19 pandemic, because of poor physical activity, increased snacking and consumption of calorie-dense foods. Weight gain and obesity could increase the severity of COVID-19 and may increase the risk of development of diabetes and cardiovascular disease in the future. The research also indicates that due to interruption of antiretroviral therapy (ART), reductions in timely diagnosis and treatment of TB and reduced prevention activities including interruption of planned net campaigns for malaria, it will definitely increase the number of patients.

In tribal areas has been suffering from severe shortage of basic healthcare facilities, shortage of healthcare professionals, lack of information and awareness etc. leading to prevalence of diseases such as malnutrition, malaria, leprosy, tuberculosis (TB) and others. Absence of healthcare facilities can severely limit the capacities to deal with any major COVID 19 outbreak in tribal areas posing a serious threat to the tribal population. COVID 19 impacts people with compromised health conditions and low immunity. This increases risks of infection to the tribal and forest communities living in deprivation. Testing and monitoring of the disease is inadequate and is mostly limited to urban areas. Providing testing facilities in tribal areas is a major challenge.

As briefly discussed earlier, the economic slowdown could aggravate malnutrition. The loss of daily wage earnings or joblessness can make it difficult to buy even basic food items in people belonging to lower segments of the society. The inadvertent fallout of this would be the deleterious effect on the most vulnerable population namely the children and the pregnant women. Another important upcoming health issue is mental health. Increase in chronic stress, anxiety, depression, alcohol dependence, self-harm and heightened physical abuse (domestic violence) has been reported as a consequence of the lockdown.

4.2 Livelihood Challenge due to COVID19- Minor Forest Products have a major role in the economy of the tribal societies. Across the country, there are more than 200 recognised minor forest products including *tendu* leaf, bamboo, *mahuwa* (flower & seed), sal (leaf and seed), lac, *chironjee*, tamarind, gum and *karanj* seed. According to the government around 100 million forest dwellers depend on MFPs for food, shelter, medicines and cash income. Almost 60% of annual collection of minor forest produce (MFP) takes place during summer season (April to June). However, since the period has coincided with the lockdown it has affected the livelihoods of the communities. It is more challenging for nomadic and pastoral communities, those arising due to forest land diversions, restrictions on the movement of tribes and problems related to non-recognition of forest rights.

Though, lockdown relaxation is for the people living in these (tribal) areas, not for the traders and contractors. For the traders to come and operate

(collect and purchase the MFPs), they need to bring vehicles like trucks etc. with them to transport the (forest) produce. That is why there is a lot of confusion and it has hampered the season this year. **Overall**, trading and value chain of non-timber forest produce (NTFP) has been completely disrupted under the lockdown as traders are not willing to buy NTFPs in the current situation.

The migration and seasonal access of pastoralists have been restricted due to the lockdown. Many pastoral communities are reported to be stuck in other states/districts without access to rations and fodder for the livestock. Also pastoral communities have been affected as the milk economy faces severe crisis as procurement and sale has been disrupted during the lockdown.

4.3 Loss of jobs and reverse migration due to COVID19- Following the nationwide lockdown, all commercial establishments have been closed and this has resulted in joblessness and escaping from cities to their hometowns or villages by lakhs of migrant workers, including tribals.

The issue of migrant workers was one of the highlighted issue in this pandemic where millions were rendered unemployed and stranded without money, food and shelter, criss-crossing the country's highways to return to their villages and several meeting with accidents and deaths on their way. Unemployment has rendered a large section as directionless, leaving the social health as well as economy in shambles.

There have been loss of jobs and reverse migration of indigenous peoples to their native places. Thousands of indigenous migrant workers have been stranded without home and food in metropolis while there are reports of starvation among indigenous communities in the rural areas. As this is the harvest season, traditional livelihood too will be affected. Hunger looms large on indigenous communities.

At the same time, the rural area was also suffering. The four-month season of collected and purchased of MFPs got affected. Moreover, government failed to provide employment to labourers under the schemes like the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), At the same time, the issue of food security become a critical for the survival.

Over 30,000 tribal labourers from Jhabua district in Madhya Pradesh have returned from Gujarat, Rajasthan and Maharashtra. As a protocol all the migrant workers returning from other States must be screened and required to stay in self-isolation at their respective homes for at least 14 days. But in the absence of adequate space at home, many tribal migrants who returned to their homes had to spend the mandatory 14 days of self-isolation outside the village limits by sleeping on trees, inside trucks or buses and in make-shift shelters. Hundreds of tribals have been stranded without adequate food following the lockdown of India.

5 Conclusion

1. Lack of healthcare facilities, COVID-19 information and testing kits- Lack of information and awareness among the tribals about the pandemic and required protective measures is a major issue in tribal areas. Tribal

settlements are remotely located, making it particularly difficult for information to reach these areas. The absence of healthcare facilities can severely limit the capacity to deal with a major COVID-19 outbreak in tribal areas, posing a serious threat to the tribal population.

It is a well-known fact that COVID-19 impacts people with compromised health conditions and low immunity. This further increases the risk of widespread infection to tribal population, many of whom are living in deprivation. Allocation and monitoring of testing equipment in tribal areas is a major challenge, as testing is mostly limited in tribal areas.

2. Food Insecurity, Loss of livelihood and Unemployment- Food insecurity, accompanied by malnutrition and micronutrient deficiencies, is a major cause of concern. Access to Public Distribution System (PDS) is poor as the tribals and OTFD (Other Tribal Forest Dwellers) reside remotely. Even if they are able to reach their nearby PDS centers, they are denied their share of the food material as they are not registered under the PDS center, or don't have ration cards or Aadhaar cards.

However, the story doesn't end here. The much publicised 'Direct Benefit Transfer' scheme of the government doesn't cover this community. Most of the tribal people either don't have a bank account or, due to their remote location, their bank accounts are not accessible to them, making the situation all the more difficult for them.

3. Loss of livelihoods from Minor Forest Produce (MFP) and Non Timber Forest Produce (NTFP)- The MFP collection season begins from April and lasts upto June, accounting for 60% of the annual collection. Unfortunately, this time, it has coincided with the lockdown period, affecting collection and the sale of these products. Research suggests that approximately 100 million forest dwellers and tribals depend on MFP for food, shelter, medicines and sustainable income. Unfortunately, the lockdown will result in ripple effects on the general health of women forest dwellers and resilience of their family members who are actively involved in collection and sale of NTFP products including bamboo, cane, fodder, leaves, gums and waxes.

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The Quantitative Analysis of Algae Present in Wastewater

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A total of 29 algal species under 20 genera were reported from the wastewater. Their percentage occurrence and seasonal variation has been studied with respect to the possible input of nutrients and heavy metals. Application of using algal indicator species in pollution monitoring programmes has been emphasized.

Key Words- Quantitative Analysis, Wastewater

1. Introduction- The study on the floristic pattern, particularly algae, and ecology of wastewater is of prime concern to understand the impact of various pollution causing elements of which nitrogen, phosphorus and heavy metals are more important. In an earlier study Gupta (1990) has given a more realistic approach to assay the toxicity of natural water and its impact on productivity. Although, viruses of water and wastewater (Gupta and Nayar, 1988) have been reported, little attention has been given to study the algae in wastewater and role of various environmental stresses. Herein, an attempt has been made to enlist algae in wastewater belonging to three major physiological groups carried out under an approved BSI project Checklist of Algae".

Materials and Method- Wastewater samples along with algal populations were collected in different seasons and were analysed, identified and documented as per standard phycological methods (APHA, 1975). Seasonal variations in the algal flora were noted in 3 different seasons and an average range of percentage of individual species of algal flora have been computed

Result and Discussion- Table I shows seasonal variations and range of percentage occurrence in the individual algal species. A total of 29 sample species under 20 genera belonging to Cyanophyceae, Chlorophyceae and Bacillariophyceae have been reported. The study reveals the dominance of Cyanophycean members followed by Bacillariophyceae and Chlorophyceae members. The number of Cyanophycean species was maximum in summer due to input of nutrients. Nutrients like nitrogen and phosphorus plays an important role in luxuriant growth of many planktonic cyanophyceae like species from Microcystis, Phormidium and Oscillatoria. Similarly in an earlier study in the Hooghly estuary (Gupta 1996), number of different genera in a group follows the following trend:

Cyanophyceae < Bacillariophyceae < Chlorophyceae < Euglenophyceae

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Table 01
Percentage occurrence of algae and their seasonal variations

Group	Algal taxa	Percentage occurrence	Summer Season	Winter Season	Rainy Season
Cyanophyceae	Anabaena iyengarii	70-77	+	+	+
	Anabaena unispora	10-15	+	-	-
	Aphanothece microscopica	80-90	+	+	+
	Chrococuss turgidus	10-15	+	+	+
	Lyngbya aerugeneo-coerulea	14-18	+	+	+
	Lyngbya allorgei	15-16	+	-	-
	Merismopedia glauca	70-76	+	+	+
	Microcystis aeruginosa	90-95	+	+	+
	Phormidium muciola	85-90	+	+	+
	Oscillatoria sp.	40-47	+	+	+
	Oscillatoria curviceps	70-76	+	+	+
	Oscillatoria chalybea	85-90	+	-	-
	Oscillatoria obscura	30-51	+	+	+
	Oscillatoria subbrevis	80-85	+	-	-
	Spirulina major	27-29	+	+	+
Chlorophyceae	Closterium acerosum	19-25	+	-	-
	Euastrum bombayense	75-80	+	+	+
	Pediastrum simplex	16-19	-	+	+
	Pediastrum tetras	22-24	-	+	+
	Scendesmus acutiformis	32-35	-	-	+

Percentage value of algal ranges from 14 to 95%. Palmer 1969/1980

depicted the use of algae as reliable indicators of pollution whereas Whitton (1975) has emphasized algae and higher plants as indicators of river pollution. Herein, percentage value of which was above 75 should be considered as indicators of wastewater as they are able to grow profusely, most probably due to high nutrient concentrations. Gupta (1989) has already reported their impact on heavy metal toxicity. Heavy metal inputs to wastewater are mainly due to effluent discharge from industries, urban runoff. Their presence may cause shifts in phytoplankton composition, mainly algal species. More recently, use of indicator cyanobacterial species for removal of toxic heavy metals from the wastewater has also been reported (Gupta 2002), but limitations are there. In conclusion, algae in wastewaters may serve as an indicator species but both qualitative and quantitative biological data should also be analyzed.

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Genotoxic Effects of Synthetic Fertilizer Urea in *Channa punctatus*

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Abstract- Urea, a common fertilizer used to supplement soil with nitrogen, induced 1.33%, 1.60%, and 1.83% of micronuclei and 21.6%, 24.0% and 26.0% of chromosomal abnormalities upon three different doses. The frequency of abnormalities increased with increase of doses. Polyploidy and aneuploidy were common among gross, while acentric fragments, minute fragments, chromatid breaks were more common among individual type of abnormalities. The individual type of damages were more prominent than gross type. This might be due to the formation of electrophilic radicals / ions during the metabolization of mutagens that attack the nucleophilic site of DNA leading to structural changes in chromosomes.

Key Words - Urea, Genotoxicity, Micronuclei, Chromosomal abnormalities, *Channa punctatus*.

1. Introduction- The vast majority of teleost fishes are ammoniotelic excreting ammonia as the major nitrogenous end product in response to their aquatic habitat (Wood 1993; Saha and Ratha 1998). The ammonia stress on fishes includes accumulation of amino acid in different body tissues, (Levi et.al.1974; Das 1981; Dabrowska and Wlasow 1986 ;Iwata 1998;Saha 1992). Several organs such as gills, skin, liver, kidney, intestine, and gonads are extensively studied in fishes (Chatterjee and Bhattacharya 1983; Thurston et.al.1984; Ram and Sathyanesan 1986;1987a; Bhattacharya et.al 1989; Wright et.al. 1989; Banerjee and Paul 1993). Contamination of water bodies with ammonia takes place during application of the inorganic fertilizer, urea, ammonium sulphate (used for agriculture, aquaculture,) (Jhingran 1983; Ram and Sathyanesan 1987b; Sarkar 1991; Varadachari 1992) as well as ammoniotelic properties of fishes that aid also some amount of the nitrogen content in the aquatic medium.

Urea is a major nitrogen fertilizer to enrich the soil with nitrogen. Ammonia that emanates from the urea applied to agricultural fields, contribute to acid rain, while nitrates produced in soil contribute to contamination of ground water due to leaching of nitrates ([http:// htm 6/22/2005](http://htm6/22/2005)). This fertilizer has been found to be present either in residual or some metabolised /derived form among the plants grown over them, and thus get accessed to the body of the animal that feed upon these plants (Baker and Chesnin 1975; Chaurasia and Sinha 1989; Current Science, Nov 2000). As agricultural run-off they pose a serious effect that induce various

histopathological (Srivastava and Sravastava 1979; Nanda et.al, 2004; Ravindar kumar, 2000) and cytogenetical changes (Jha, 1998; Kohlpoth, 1999; Dashwood, 1998; Baksi, 1990) in the plants, aquatic animals, cattles and humans (Dravyam and Rajamanickam, 2003, Neff, 1985; Bhaskaran, 1988; Singh et.al, 1998; Gupta, 2000, <http://www3.interscience.wiley.com/cgi-bin/abstract/ABSTRACT?CRETRY=1&SRETRY=6/15/06>).

Paddy fields are inhabited by some of the air-breathing fishes where pesticides and fertilizers are used regularly in greater amount. 40-45mg N/l nitrate concentration has been reported in irrigated wells around the paddy fields. (<http://www.fao.org/docrep/W2598E/w2598e04.htm>, 6/22/2005). As nitrogen is a major component of chromosomes (in protein and DNA) it is quite possible that residues or metabolites of urea may cause some damages in fishes. The genotoxic effects of agrochemicals has been reported in various test system (Chaurasia and Sinha, 1987, 1990; Chaurasia 1991), but very few reports are available in the air-breathing fishes. So, the present investigation was therefore taken up to study the hitherto almost unknown genotoxic effect of urea on chromosomal abnormalities and incidence of micronuclei in *Channa punctatus*.

2. Materials and Method- Two test system viz; micronucleus test (from peripheral blood cells) and mitotic chromosomes from head kidney) were used. 10-15 days acclimatized fishes were treated with freshly prepared doses of urea with three different concentration i.e Sub-lethal (SL-2.0%), half of the sub-lethal (HSL-1.0%) and quarter of the Sub-lethal (QSL-0.5%) for 7 consecutive days. The animals were sacrificed after seven days of the termination of treatment.

The micronucleus test was conducted in peripheral blood cells. A film of blood smear was prepared after mixing with few drop of anticoagulant (0.1% trisodium citrate solution) on a grease free clean slide. Preserved in methanol for 10 minutes, stained with 0.15% Leishman's stain for 20-25 minutes and cleared in xylene for 5 minutes. 3000 RBC cells were screened. A concurrent control were carried out were animals were kept in fresh water.

For studying the chromosomal abnormalities, tissue from head kidney were taken and the slides were made by the conventional Colchicine-hypotonic-acetoalcohol-flame drying-giemsa staining technique. 300 well spread and randomly selected metaphase plates were screened and data were analyzed by statistical procedure. A separate common control was also carried out.

3. Results and discussion- Amidst 3000 RBCs, only 0.43% micronuclei were found in the control group while 1.33%, 1.60% and 1.83% micronuclei upon three doses of urea (SL, HSL & QSL) were observed (Table -1). A close observation of data revealed that the effect was dose-dependent (Graph -1). Most of the cells were found to have only one micronucleus of very small size (due to acentric fragment) or bigger size (due to lagging of whole chromosome) but very few cells were found to have more than one micronucleus.

Amidst 300 metaphase plates, 21.6%, 24.0% and 26.0% chromosomal abnormalities were found upon treatment with three doses of urea in contrast to 5.33% in the control (Table -2). The abnormalities that were found can be put in two categories –gross and individual ones. The insignificant gross changes were the stickiness, polyploidy, hypoploidy etc.. The significant individual changes were mostly breaks in the chromosomes (Chromatid break, chromatid gap). Acentric fragment and minute fragment were also observed that might be due to breaks and deletion of certain part of chromosomes (telomeric or interstitial part). A quantitative estimation revealed that the abnormalities increased with the increase of the doses. Thus the effect was dose dependent (Graph-1). The individual type of damages were more prominent than the gross type because urea is synthetic in nature. While Chaurasia and Sinha (1987, 1988, 1990), Chaurasia et.al. (2005) were studying on genotoxicity induced by fertilizer and silk dyeing wastes; Kumar and Sinha (1989) on doses –dependent genotoxic effects of synthetic pesticides, they observed that the individual type of damages were more frequent than the gross type. Bose and Sinha (1994), Dharmashila and Sinha (1994) and Awasthy et.al. (2000) could find that the biomutagens induced more gross type of abnormalities than individual types. This differential sensitivity might be occurred at two different levels. First, the damages at protein level either on spindle protein or on protein packing. Second, by the production of electrophilic ions and reactive radical during the metabolism of mutagens (Klopman et.al., 1985). Such electrophilic reactive radicals /ions might attack to nucleophilic site of DNA leading to structural changes in chromosomes (Awasthy et.al. 1999).

The result thus shows that the synthetic fertilizer urea was mutagenic and harmful to the fishes with a regular deterioration of their population and thus affecting the economy of our country.

Incidence of micronuclei (N=3000) after urea treatment in *channa punctatus*.

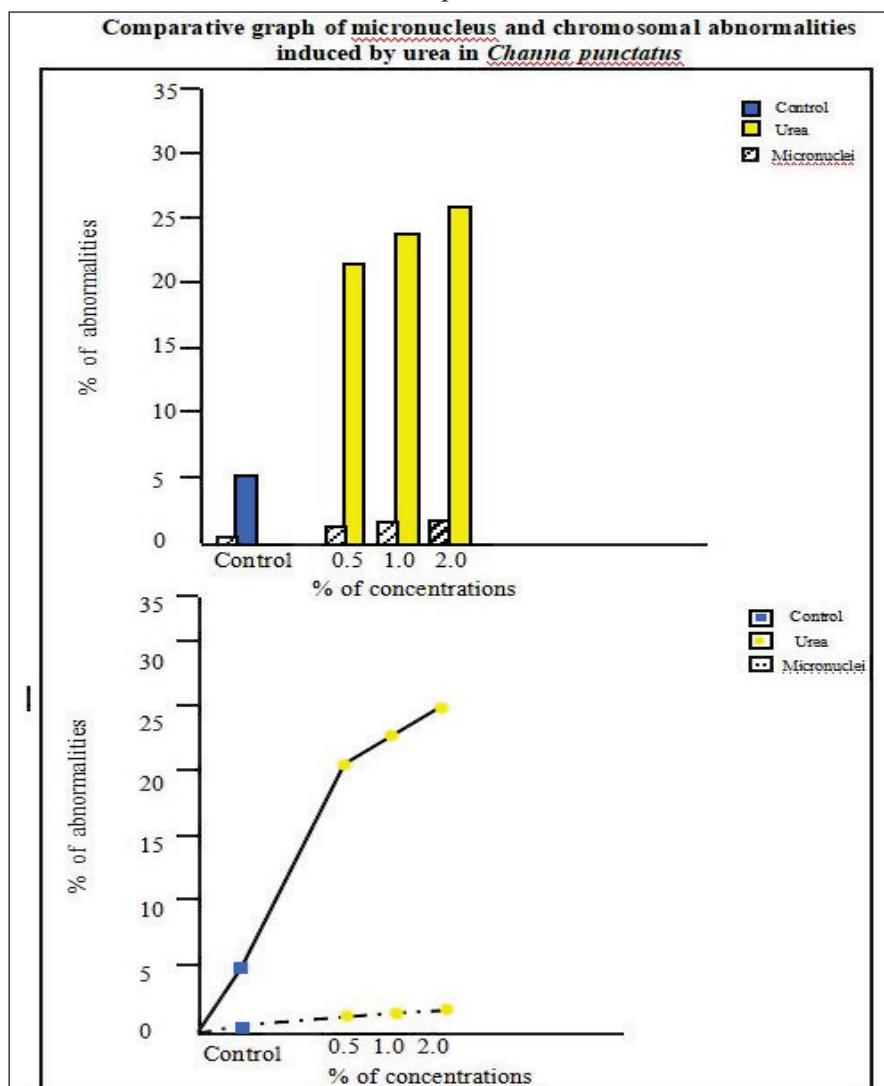
Table-01

EXPERIMENT	Abnormal cells			Micronuclei			
	NO.	%	± S.E	NO.	%	± S.E	
TREATMENT (in %)							
Control	13	0.43	± 0.11	13	0.43	± 0.11	
0.5	40	1.33	± 0.20*	40	1.33	± 0.20*	
1.0	48	1.60	± 0.22*	48	1.60	± 0.22*	
2.0	55	1.83	± 0.24*	55	1.83	± 0.24*	

Table-02
Chromosomal abnormalities(N=300) after urea treatment
in channa punctatus

Treatment	No. of metaphases analyzed	Abnormal metaphase				Gross Abnormality				Individual Abnormality				Total Abnormality			
		No.	%	±	S.E	No.	%	±	S.E	No.	%	±	S.E	No.	%	±	S.E
Control	300	15	5.00	±	1.25	1	0.33	±	0.33	15	5.00	±	1.25	16	5.33	±	1.29
0.5%	300	64	21.3	±	2.36*	7	2.33	±	0.87	58	19.3	±	2.27*	65	21.6	±	2.37*

Graph 01



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Educational Implications of study of frustration, Academic Alienation and Scholastic Achievement of undergraduate students of science, arts and Commerce Streams: Need of Education System of 21st century

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●● Urus Fatema

Abstract- Education is a significant tool for the expansion of the population of a country toward the goal of complete excellence and efficiency, as a tool to contribute to the creation of human resource for a country toward complete development in body, mind, and intellect. The creation of a standard of merit and ethics in the life of a learner and in education is a process for humans to develop their life quality so as to live in society peacefully and to be able to nurture appropriately the development of their country, in keeping with changes in all its areas ([Tapprasert, 1999](#), p. 12). College Life is an overall term to describe the day-to-day lifestyle of the years when a student attends an institution of higher learning. College life is of course associated with actually attending college. Additionally, College life is the time where students “grow up”, and learn how to be an independent person. But, in present education system students involve in rude behaviours because they have become disconnected from the class. This can change if they are bored, confused or frustrated and alienated from their academics. In this way, their scholastic achievement also gets affected. The present study was expected to find out the significance of study of frustration, academic alienation and scholastic achievement of undergraduate students of science, arts and Commerce Streams.

Key Words - Ethics, frustrated, alienated, academics, frustration, academic alienation scholastic Achievement undergraduate students.

Introduction- In psychology, frustration is a common emotional response to opposition, related to anger, annoyance and disappointment. External causes of frustration involve conditions outside an individual's control, such as a physical roadblock, a difficult task, or the perception of wasting time. Students of under graduation, these days, have to battle a lot of emotional stress, fast lifestyle, technology, modernization, and other socio-economic reasons. The Darwinian theory of 'Survival of the Fittest' still continues today. 'BE THE BEST'. Frustration occurs in undergraduate students due to the impression set by society, college, teachers, and peers, that if you're not the best or good enough, you will not be 'accepted'. Lack of a proper education system can be one of the reasons for anger among

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undergraduates. Other than that, an unfair examination system, favouritism by teachers, lack of facilities and resources for learning, etc., can multiply the frustration levels. Frustration, if converted into positive purpose, can serve to be the biggest catalyst for ambition. In extreme cases, it may lead to drug addiction, or even suicide. These are enough warnings to indicate that it is high time that we take corrective actions to improve mental health and lifestyle of undergraduate students. One of the keys to helping students succeed in a challenging academic environment is making sure that they are properly supported. It's one thing to just throw challenging tasks at students; it's quite another to help ensure their success.

Here are a few tips for helping ensure that despite your standards, students are assisted toward achieving them- Sometimes teachers have support systems built into their college - such as tutoring centres, peer mentors, or office hours - that could help provide more individualized attention to students. Get more students involved. Teachers are the first responders for student achievement, but they aren't the only ones with skin in the game. Recruit additional support from parents, counsellors, administrators, and fellow teachers who may also interact with your student. Teachers should believe in the students to get more positive responses and higher engagement from them. Teachers must provide personalized sticky notes make phone calls home, and pull students aside at the beginning or end of class to let them know that they are in their corner. Make adjustments for undergraduate students..Teachers can make adjustments with how they work with their students to ensure that their personalized level of learning is being targeted. That narrow line between boredom and frustration in their classroom really exists at an individual level. Teachers should guide the students learn by failing, learning from failure, and trying again.

This study will helpful in moulding the personality of the undergraduate students of various streams like science, arts and commerce by giving them positive direction, making them realize the importance of positive self-esteem and ill effect of aggressive behaviour at their age. Also this study will help the teachers, psychologists and educational planners in building and adopting special educational measures for rectification of unwanted behaviour in college students and motive them towards their goal in life.

Some preventive ways to control frustration of the undergraduate students- Students should not be compared unnecessarily by teachers in class with their peers. Rather, the teachers should compare student's marks in order to motivate them for further learning. Their mistakes should be deal properly and remedies should be given at appropriate time. Undergraduate Students of science, arts and commerce should not be made to engage themselves in the blind race of excelling others. Science educators should provide more time and efforts for developing not just cognitive skills but also affective and psychomotor skills for the development of balanced personality for B.Sc. students. There should be provision of co-curricular and extra-curricular activities such as games, discussions, debates, scouting, dramas, educational exhibition etc. for proper development of students. Too

high goals may lead to frustration and academic alienation while expecting achievement level from the students their aptitudes and interests along with their limitations and strengths should be taken into consideration. So, it is essential that efforts in right direction should be made to enhance the emotional competence of the pupils. It can be enhanced by developing self-analysis mechanism in individuals, by identifying the causes for different responses like anger and fear and by increasing optimism factor in them. A healthy brain will be a valuable all in the inner attention work involved in emotional competence.

Academic alienation– Alienation is a term used to describe student estrangement in the learning process (Brown, Higgins, & Paulsen, 2003) Newmann (1981) identified four fundamental aspects of student alienation; powerlessness, normlessness, meaninglessness, and social isolation. A student's behaviour can affect her ability to learn as well as other students' learning environment. A 2010 study published in "American Economic Journal: Applied Economics" found that disruptive students can lower the test scores and academic achievement of an entire classroom.

However, over the college years, undergraduate students develop negative attitudes towards college life, which peaks during their under graduation According to the literature, we conceptualise this process as academic alienation: a decreasing sense of belonging in terms of learning, teachers and classmates at college level.

It can also happen if the material is sufficiently controversial or sensitive that students become anxious, uncomfortable, or angry. Sometimes students act rudely as a way of registering their disapproval with the course as a whole. This may be particularly true in required courses, but may also occur if students view the class as unfair, irrelevant, or disorganized.

Need to increase scholastic achievement of undergraduate students by many ways- When students feel safe, engaged, and respected, they can focus on their academic goals. Effective character educators ensure that these needs are met. Character education is the foundation upon which students can reach academic achievement. It's not just about teaching kids to be good. It's teaching them to be their best. The positive behavioural Interventions and Support program, a teaching and training organization for professional educators, cites numerous studies on its website that suggest students with poor classroom behaviour often struggle with academic skills behaviour academic outcomes refer to the changes that student actions can have on the ability to maintain good performance in the classroom.

As behaviour academic outcomes relate to negative situations and poor actions by students, the classroom environment becomes less positive and professors can struggle to provide the best education to the entire under graduation. Positive changes to the behaviour of students can improve the academic outcomes at any grade level. When it comes to motivational strategies that can help students maintain better behaviour, offering rewards is a useful tool. By implementing a classroom management rewards system, educators better control problem student behaviour. Although a classroom

management rewards system might not work for every situation, it is an effective tool to help motivate students to work on achievement and better actions during class. Focusing on the achievement of students in the classroom will require a comprehensive strategy of setting high educational standards, challenging students to meet the requirements, encouraging students to ask questions, and making adjustments to meet the needs of every pupil to improve student achievement.

To make college campus environments more inviting to undergraduate students- In the 21st century, every undergraduate student has the right to an inspiring physical learning environment. More importantly, every student has the right to contribute to making their university a stimulating, innovative and energizing place to be. Be warm, kind, and friendly-but never familiar. Do not tell students your troubles or too much about your family life. Have rules that are fair and cover all types of subjects. Be sure that any set of rules includes. Use a checklist like the one found in this booklet or a system of merits and demerits. Keep students busy and involved. Students get bored when they have to do the same thing for too long or if they are required to do the same things over and over. The greater the variety of activities, the better. Make learning fun. Involve students with hands-on activities or short group work sessions. Teaching good discipline is just as important as teaching the subject matter. In addition, poor discipline in your classroom can ruin your day, your job, and even your care. Have the attitude that violations of your rules will not be tolerated. No student should be allowed to continually disrupt the education of others.

Students counselling is the way of increase scholastic achievement- Education has a vital role in the development and abilities of students. With education expected of students can develop to their full potential-potential qualified personal. Indicators of college success in carrying out his task can be seen from the achievement of high academic achievement and a variety of specialized skills possessed by learners and not the least of which involves issues related to academics. With such conditions it is necessary to investigate in depth whether the guidance and counselling itself may play a role in improving the academic achievement of undergraduate students in college. College counsellors address the academic and developmental needs of all students, not just those in need, by collaborating with students, parents, college staff and the community.

There are some ways to increase scholastic achievement – Establish a climate of mutual respect. Set high and clear expectations for quality work. Insist on high quality by having students polish their work. Get students to read twice as much every day. Establish a culture of evidence and justification in your classroom. · Maximize the percentage of time that all students are engaged in the content. When introducing an important new concept or skill, make sure everyone understands before moving on.

The Need for a New Education in 21st century- Demand of high scholastic achievement- In the beginning, education and the ideals it embodied aspired to create a “perfect” citizenry. Later, the objective shifted to ensuring that citizens were well-trained, and more recently it shifted once again to the

awakening of the critical spirit. Today, the ideal is creativity: the capacity to learn and a lifelong willingness to face new things and modify learned expectations accordingly; there can be no learning without re-learning, without the revision that must be undertaken when we realize the weakness of what we thought we knew. In a knowledge society, education is the capacity to be creative in an environment of particular uncertainty, the capacity to properly manage the cognitive dissonance that gives rise to our failure to comprehend reality (Innerarity, 2010). He describes education of the sort we have seen thus far as a possible problem, and argues for a new type of education: "Education, in other words, can be a dangerous thing. It is time, I believe, for an educational 'perestroika', by which I mean a general rethinking of the process and substance of education at all levels, beginning with the admission that much of what has gone wrong with the world is the result of education that alienates us from life in the name of human domination, fragments instead of unifies, overemphasizes success and careers, separates feeling from intellect and the practical from the theoretical, and unleashes on the world minds ignorant of their own ignorance."

Global Need of Frustration free education for arts, science and commerce stream at under graduation level for enrichment of scholastic achievement for 21st century- According to ManavSingla CEO of a group of colleges, specialization in a subject gives an edge to the student over other students pursuing a regular degree. "Good job prospects and high salary packages together make professional courses a better option," says Singla. The commerce stream after completion of Class 10 is quite a popular choice in India, as most students feel that the stream offers them a wide arena of career options to pursue after class 12, that would bring them both success as well as financial security easily. However, what most students do not realize is that just as is the case with the science stream, a student also needs to have a certain aptitude for commerce to be completely successful in it. Some students may choose the Commerce stream for this reason.

Importance of commerce for the Society- However, it is a fact that if they have a mind that is more suited to a career in the Humanities stream, or even the Science stream, they would find it hard to survive and perform well in Commerce. Commerce includes trade and aid to trade. Commerce is a wider term. Commerce activities are very important for economy. That's why the knowledge of commerce and studying commerce subjects are very important. Students of commerce learn different subject in commerce. Commerce subjects include many topics. Like trade include export and import. It can be manufactured items or semi manufacture items. Economics is also a subject of commerce. By studying economics it is come to know that how demand and supply can be finding.

Importance of science for the Society- Science has led us to finding out things that give us what we have today. In fact without science we would not have electricity which would mean no mobiles, internet, Facebook we would not have fridges to keep food fresh, television to entertain or even cars to travel in. A world without science would mean that we would still be living in a very different way to that of what we live today.

Importance of Arts for the Society- "Arts educators must build justifications on the relevance and significance of these subjects based on what is inherently valuable about the arts, even when they contribute secondary benefits other than purposeful orientation. Just as we do not (and cannot) downgrade history and overrate mathematics, we must not allow policy-makers to justify the isolation or inclusion of the arts for the sake of other academic subject matters," Winner says.

According to Winner, the arts are the only school subjects that have been challenged to demonstrate their usefulness. If we reprioritize physical education and give more attention to science, the results will only prove to be detrimental. Perhaps, with more attention to the potential of the arts to foster transfer (of knowledge applicability in other spheres), we can begin to understand their importance better. But even when the relationships are understood, the justification for arts programmes must be based on their inherent merit.

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***To Make The Common Man Aware of The Exact Information
and Usefulness of The Earth's Filed Position Time By
Imaginary Latitude, Longitude Points***

● Mohammed Imran Khan

Abstract- *On the earth maps are made for the information of site shapes like continents, ocean, plateau, plain, river, country, state, cities, town, village and areas etc. At the same time maps are also made for information on climate, weather changing, rainfall, cyclone etc. That is for the creation of value images imaginary lines are represented on the globe i.e. latitude and longitude on the Globe. Hence the summary of my research study of latitude and longitude lines their relevance and their use by ordinary man presenting how it can be done in practical life.*

Key Words - Earth, Map, Latitude, Longitude, Globe, Climate.

Introduction our planet earth on which live .if has about 195 countries .But only with a mp hanging on a wall or globe. Placed on a table we can easily see the location and extent of those countries. In the same way we are able to study the second condition of each country across the moment through the weather map. But as a researcher it has become absolutely necessary for us to convey the meaning and importance of latitude longitude lines which play a fundamental role in the creation of admin image .therefore we must latitude s are imaginary lines .drawn on the globe from west to east .it is seen as a northern and southern latitude circle in both hemisphere .it exhibits a angular distance from the equator .their total number is 181.their main use is to state the exact position of any country or region on earth. Similarly longitude are imaginary lines drawn a north to south direction on a globe .their total number is 360.the main reason for this is the circumferences of the earth .earth complete rotation on its axis in approximately 24 hours. Because 1 degree =4 minutes so 360 degree will have 24 hours .that is why longitude lines are used to indicate maximum time .therefore the principal standard time line of the world is 0 degree longitude line. Which is determined by the international convention in 1884.the line passes through the 0 degree Greenwich observatory London. The whole world is determined by this line.

Earlier Works-The subject related to the above research paper commendable and unforgettable works have been done from time to time by prominent former scholars. Which spills more credibility into the authenticity of my research paper? Because these scholars have also my inspiration .the works of three prominent scholars are as follows. The first

was told by the great Mathematician, Geographers Astronomers and astrologer scholar Aryabhatta of country that the earth rotates on its axis Because of which the days or nights. At the time Aryabhatta had said that the circumferences 4967 (1 yojan= 5 mile) yojan. Which according to today scientists are very close to estimating the circumferences of the earth?

Bhaskaracharya and other Indian astronomer divided the into 360 degree. they counted each degree as having 60 kala and 60 vikala. varahmihra treatise panch siddhantika described the diameter 1018.6 yojan of the earth. Brahmagupta described the diameter 1581 yojan of the earth. Ptolemy who were famous scholar his famous book Geographia there were 8 sections. The first section details mainly the theoretical rules and technology of the creation of the globe. The names of about 8000 places and their latitude longitude are written in the second to seventh section. By the time of Ptolemy the latitudinal expansion of the known part of the world was between 15 degree south to 62 degree north latitude .Longitudinal extension was between o(canary island) degree to 180(china)degree east . In the above map the southern peninsula of India was very small.

Method adopted:-The use of latitude and longitude lines to represent the shape and area of the earth in a precise way i.e. the total area of the earth is determined by the following formulas:-

Area of the earth $= 4\pi r^2$ $\pi = 22/7$ $r =$ radius

Area of the earth $= 4 * 22/7 * 6378 * 6378$

Area of the earth $= 4 * 3.142 * 6378 * 6378$

Area of the earth $= 510926783.04 \text{ Sq km. approximately}$

The main point of the formula is that the radius of the earth which is determined by longitude line .it is clear that only by these lines can the radius diameter and area of the earth be determined .the line dividing the earth into two equal part in horizontal shape is called equator or 0 degree latitude line.

This line indicates the length of the circumference of the earth,

Earth's circumference $= 2\pi R$

Earth's circumference $= 2 * 3.142 * 6378$

Earth's circumference $= 40080 \text{ km approximately}$

Earth's diameter $= \text{earth circumference} / \pi$

Earth's diameter $= 40080 / 3.142 = 12756 \text{ KM}$

Therefore the area above 0 degree latitude is called northern hemisphere and the area is below is called southern hemisphere. Therefore in the description of latitude northern latitude and southern latitude are added because India is located in the north eastern hemisphere northern latitude is added along with its expansion. Similarly the vertical line drawn in the center of earth is called central meridian line and 0 degree longitude line. Which indicate the expansion of east and west direction .because India is located in the east direction east longitude is added along with its expansion?

Degree, minute, second The primary unit in which longitude and latitude are given is degree ($^{\circ}$) there are 360° of longitude (180°E - 180°W) and 180° of latitude (90°N - 90°S) each degree can be broken into 60 minute ($'$) Each minute can be divided into 60 second($''$)for finer accuracy, fraction of second given by a decimal point are used .A base sixty notation is called

sexagesimal notation.

$$1^{\circ}=60'=3600''$$

For example - a spot of ground in upstate new York can be designated by $43^{\circ}2'27''N77^{\circ}14'30.60''W$. some times instead of using minute and second to measure the fraction of a degree, a decimal value is used. with such a convection the coordinates above are $43.040833^{\circ}W$. the first number was converted by taking the minute divided by 60 and the seconds divided by 3600 and adding them together. That is

$$:-43.040833^{\circ}=43^{\circ}+2'*(1^{\circ}/60')+27''*(1^{\circ}/3600'')$$

Therefore the same rules and formulas are described further to know this status and time of any country.

The first circumferences of earth divided by total longitude
 $=40080/360=111.33 \text{ km}$

Distance on equator line (between 1 degree) $=111.32 \text{ km}$ approximately

So India main land extension start from $8^{\circ}4'=8^{\circ}4'*111.33 \text{ km}=935.172 \text{ km}$ approximately

Similarly the western longitude line of India (Gujarat kachh ka run) is 5 hours ahead of the central meridian line. And the IST (Indian standard time) line is a longitudinal of $82^{\circ}30'$ east.

So India (western) time from central meridian line $=68^{\circ}7'*4'=5 \text{ Hours}$ approximately

Note (it is absolute necessary to study the appropriate table for all events).

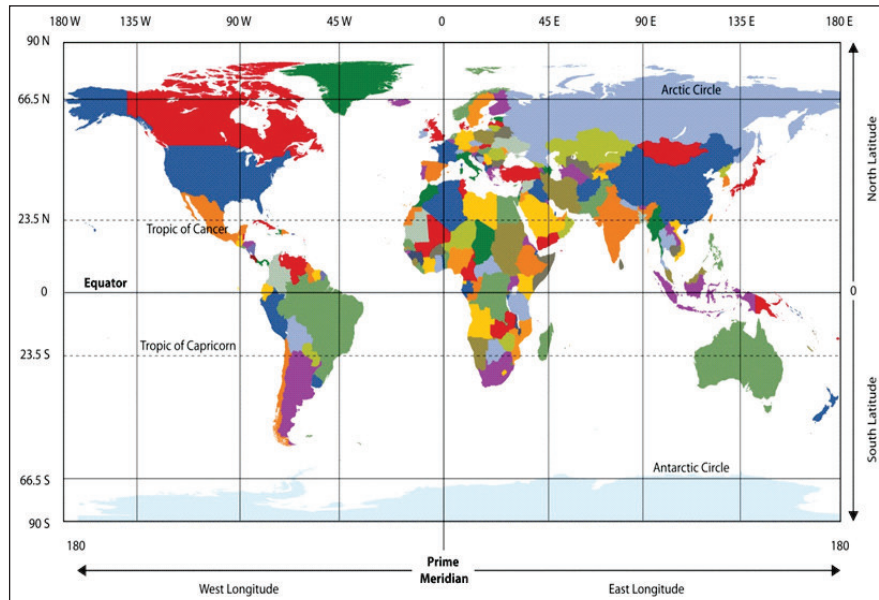
Actual distance of earth at one degree longitude

Latitude circle	Distance (km)	Latitude circle	Distance (km)	Latitude circle	Distance (km)
.	111.32	35°	91.29	70°	38.19
5°	110.90	40°	85.40	75°	28.90
10°	109.64	45°	78.85	80°	19.39
15°	107.55	50°	71.70	85°	9.73
20°	104.65	55°	64.00	90°	0.00
25°	100.95	60°	55.80		
30°	96.49	65°	47.18		

Sources- Dr Shivanand Gautam ramprasad and sons environmental studies, management & practical geography

Observation- After the origin of planet earth, every area of earth has been searched by mankind since time immemorial. that is why Vedic period or modern period, the calculation of the area of the earth has been checked in different conventions. this has been described in the above interpretation. Therefore the purpose of measurement and size of the earth has been unsolved riddle since ancient time. Many scholars have emerged with the origin of the earth. but the words latitude and longitude have been used by every scholar on the basis of measuring instrument. In my observation there is fictitious point with no latitude and longitude line so every value meaning a point instead of a degree and these points were folded into a line. 5 point primarily faced first. They include the middle point equator the west east and point of both hemisphere meanings. there it is clear that the locations fixed in latitude circle indicate the exact position of the earth. At the same in a total 181 latitude they will portray the concept of day and

night .because the equator is the tropic of cancer, tropic of Capricorn, arctic, Antarctic the correct interpretation of the angle of the sunlight can only be possible by the latitude circle. Similarly longitude 360 degree means the create 24 hours on its axis



Source- <http://en.m.wikipedia.org> World coordinate maps.

Therefore being 360 degree is not an exaggeration but it is a 24 hours declaration. Because in no case can it be longer than 24 hours .that is why 360 degree have been fixed .that is why 360 degree divided by the circumference by the earth . Then the 111.32 km is 1 degree latitude from 0 at the equator. But this distance decrease on other degree due to the change in the length of the circumferences of the earth. And this distance become 0 degree km on polar .and based on these lines the exact time of the world and our country is determined .Because earth rotates west to east .the time of the countries located east of 0 degree longitude line in the earth increase at an interval 30, 30 minutes. So if it is 12.30 am in India (excluding Nepal) then it will be 1 am in Bangladesh and 12.00 am in Pakistan at the time. You can do this experiment whenever you want .one thing to make it is clear to here that degree means unit of measurement of angles.

Conclusion-There is a difference between the rotation of the earth and revolution speed of the earth, the rotation of the earth 69.58 in minute per km rotation occur day and night. Ensure revolution in season. In this whole study if we study on the line drawn on the earth that hardly we can know the exact and time of the country. We can easily understand the amount of sunlight on the earth. Using all these facts we can make more observations about the of our planet.

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Effects of Synthetic Fertilizer (Muriate of Potash) in Channa punctatus

● Chanda Kumari

Abstract- *Potassium is an essential ingredient for the growth of plants. Lack of potassium salts render the different parts of the plants unhealthy in appearance. This fertilizer has been found to be present either in residual or some metabolized/derived form among the plants grown over them, and thus gets assessed to the body of the animals that feed upon these plants. As agricultural run-off, it also pollutes the water bodies and produces various histopathological and cytogenetical changes in fishes that live therein. Present investigation was therefore taken up to study the cytogenetical and genotoxicological effects of potash in Channa punctatus.*

Key Words - Muriate of Potash, Genotoxicity, Micronuclei, Chromosomal abnormalities, Channa punctatus.

1. Introduction- The aquatic environment plays vital roles for ecosystem functioning, human health and civilization. They are subjected to low-level and long term exposure of increasing number of new chemicals released continuously (Maccubbin & Earsing, 1990; Folmer *et al.*, 1993). As a consequences of human population growth and industrial development, the production, consumption and disposal of anthropogenic chemicals (Chanda Kumari, 2008; Chanda Kumari 2019; Chanda Kumari 2019; Chanda Kumari 2020; Chanda Kumari 2020; Bruna *et al.*, 2008; Bushra *et al.*, 2002; M. Abul Farah, 2003; Bushra Ateeq, 2005; Sanjay *et al.*, 2006; Sanjay *et al.*, 2005; Daoud Ali *et al.*, 2008; Daniela *et al.*, 2008; Chaurasia *et al.*, 2005) continue to increase. The aquatic environment remains the ultimate recipient of increasing number of the anthropogenic chemicals, the large proportion of which are potentially genotoxic and carcinogenic substances, where the aquatic organisms are the ultimate sufferers (Lakra, 2009). 28,000 of fish species inhabit these aquatic bodies (Nelson, 2006). Among them, there are varieties of fish species that are both marine and fresh water, and are being faced by the regular increase in the level of such pollutants. (Jha A.N., 2004; Wirgin and Waldman, 2004; Chanda Kumari, 2008; Bruna *et al.*, 2008; Bushra *et al.*, 2002; M. Abul Farah, 2003; Bushra Ateeq, 2005; Sanjay *et al.*, 2006; Sanjay *et al.*, 2005; Daoud Ali *et al.*, 2008; Daniela *et al.*, 2008).

Fishes as an important aquatic fauna, serves as an important source of food item. On, the other hand feeding a large number of increasing population, man depends largely on the agricultural system. To increase the yield of the crop, large number of agrochemicals (pesticides as well as

fertilizers) are being used. Paddy-cum-fish culture is in great practice in some parts of India as well as Far-East Asia. These paddy-fields are inhabited by many of the air-breathing fish species such as *Anabas* sp., *Channa* sp., *Clarias* sp., *Heteropneustes*, *Trichogaster* sp. and shrimps. These fishes can live in the shallow water and since they have well developed breathing capabilities, can survive the conditions of the paddy fields. Hence, the spread of such agrochemicals in these paddy fields expose these fishes directly/indirectly to the high concentrations of these agrochemicals. These synthetic fertilizers has led to the large scale contamination of our living environment(<http://www.fao.org/docrep/W2598E/w2598e0.4htm>, 6.22.2005) As agricultural run-off they pose a serious effect that induce various histopathological (Srivastava and Sravastava 1979; Nanda et.al, 2004; Ravindar, 2000) and cytogenetical changes (Jha, 1998; Kohlpoth, 1999; Dashwood, 1998; Baski, 1990) in the plants, aquatic animals, cattles and humans (Dravyam and Rajamanickam, 2003; Neff, 1985; Bhaskaran, 1988; Singh et.al, 1998; Gupta, 2000. <http://www3.intersciencewiley.com/cgi-bin/abstract/ABSTRACT?CRETRY=1&SRETRY=6/15/06>).

Thus, by and large such contaminants impacts not only our economy by increase in mortality rate of the fishes but also our health by producing different types of anatomical, physiological, reproductive and cytogenetical changes (Chanda Kumaria, 2008; Sah *et al.*, 2006; Thakur & Sah 1989a,b, Ram & Sathyanesan, 1987b, Sarkar, 1991; Varadachari, 1992; Wood C.M., 1993; Sah & Ratha, 1998; Srivastava & Srivastava, 1979; Gupta V.K., 2000; Sah *et al.*, 1995).

This fertilizer has been found to be present either in residual or some metabolized / derived form among the plants grown over them, and thus get accessed to the body of the animal that feed upon these plants (Baker and Chesnin 1975; Chaurasia and Sinha 1989;). The genotoxic effects of agrochemicals has been reported in various test system (Chaurasia and Sinha, 1987, 1988, 1990; Chaurasia 1991), but the genotoxicity of this relevant fertilizer is poorly known and limited to plant system only (Chaurasia and Rathore 1980, Chaurasia and Sinha 1986), mice (Chaurasia and Sinha 1988, Chaurasia 1991, Chanda kumari & Chaurasia O.P 2008) but very few reports are available in the air-breathing fishes (Chanda Kumari 2019; Chanda Kumari 2019; Chanda Kumari 2020; Chanda Kumari 2020). So, the present investigation was therefore taken up to study the hitherto almost unknown genotoxic effect of potash on chromosomal abnormalities and incidence of micronuclei in *Channa punctatus*. Some substances, when present in low concentration may not cause acute detectable effects in organisms, but may in the long turn, reduce their life span (Nehl S, 2001).

2. Materials and Method Specimen- Fresh water fish *Channa punctatus* was procured from local market. This air-breathing fish is available round the year in pools and water logged marshy areas. The specimen was kept in the aquarium for 10-15 days for acclimatization and fed on minced liver. Healthy individuals having body weight of 25 ± 5 gm

were randomly allocated to various treatment groups.

Chemicals- Potassium is an essential ingredient for the growth of plants. Among the forms of potassic fertilizer, potassium chloride or muriate of potash is extensively used. It is a coarse or fine salts resembling ordinary salts and having a bitter taste. It contains 80-96% of potassium chloride, and is guarantee to contain 60% potash. Lack of potassium salts render the different parts of the plant unhealthy in appearance.

Doses and Treatment- Acclimatized fishes were treated with freshly prepared doses of Potash with three different concentration i.e Sub-lethal (SL-0.5%), half of the sub-lethal (HSL-0.25%) and quarter of the Sub-lethal (QSL-0.125%) for 7 consecutive days. The animals were sacrificed after seven days of the termination of treatment.

Micronuclei- The micronucleus test was conducted in peripheral blood cells. A film of blood smear was prepared after mixing with few drop of anticoagulant (0.1% trisodium citrate solution) on a grease free clean slide. Preserved in methanol for 10 minutes, stained with 0.15% Leishman's stain for 20-25 minutes and cleared in xylene for 5 minutes. 3000 RBC cells were screened. A concurrent control were carried out where animals were kept in fresh water.

Chromosomal abnormalities- For studying the chromosomal abnormalities, tissue from head kidney were taken and the slides were made by the conventional Colchicine-hypotonic-acetoalcohol-flame drying-giemsa staining technique. 300 well spread and randomly selected metaphase plates were screened and data were analyzed by statistical procedure. A separate common control was also carried out.

3. Results and discussion- Amidst 3000 RBCs, only 0.43% micronuclei were found in the control group while 1.40%, 1.70% and 2.10% micronuclei upon three doses of Potash were observed (Table -1). A close observation of data revealed that the effect was dose-dependent (Graph -1). Most of the cells were found to have only one micronucleus of very small size (due to acentric fragment) or bigger size (due to lagging of whole chromosome) but very few cells were found to have more than one micronucleus.

Amidst 300 metaphase plates, 22.6%, 25.0% and 31.0% chromosomal abnormalities were found upon treatment with three doses of Potash in contrast to 5.33% in the control (Table -1). The abnormalities that were found can be put in two categories—gross and individual ones. The insignificant gross changes were the stickiness, polyploidy, hypoploidy etc.. The significant individual changes were mostly breaks in the chromosomes (Chromatid break, chromatid gap). Acentric fragment and minute fragment were also observed that might be due to breaks and deletion of certain part of chromosomes (telomeric or interstitial part). A quantitative estimation revealed that the abnormalities increased with the increase of the doses. Thus the effect was dose dependent (Graph-1). The individual type of damages were more prominent than the gross type because Potash is synthetic in nature. While Chaurasia and Sinha 1987, 1988, 1990, Chaurasia et.al. (2005) were studying on genotoxicity induced by fertilizer and silk dyeing wastes; Kumar and Sinha (1989) on doses-dependent genotoxic

effects of synthetic pesticides, they observed that the individual type of damages were more frequent than the gross type. Bose and Sinha (1994), Dharmashila and Sinha (1994) and Awasthy et al. (2000) could find that the biomutagens induced more gross type of abnormalities than individual types. This differential sensitivity might be occurred at two different levels. First, the damages at protein level either on spindle protein or on protein packing. Second, by the production of electrophilic ions and reactive radical during the metabolism of mutagens (Klopman et al., 1985). Such electrophilic reactive radicals /ions might attack to nucleophilic site of DNA leading to structural changes in chromosomes (Awasthy et al., 1999).

The result thus shows that the synthetic fertilizer Potash was mutagenic and harmful to the fishes with a regular deterioration of their population and thus affecting the economy of our country.

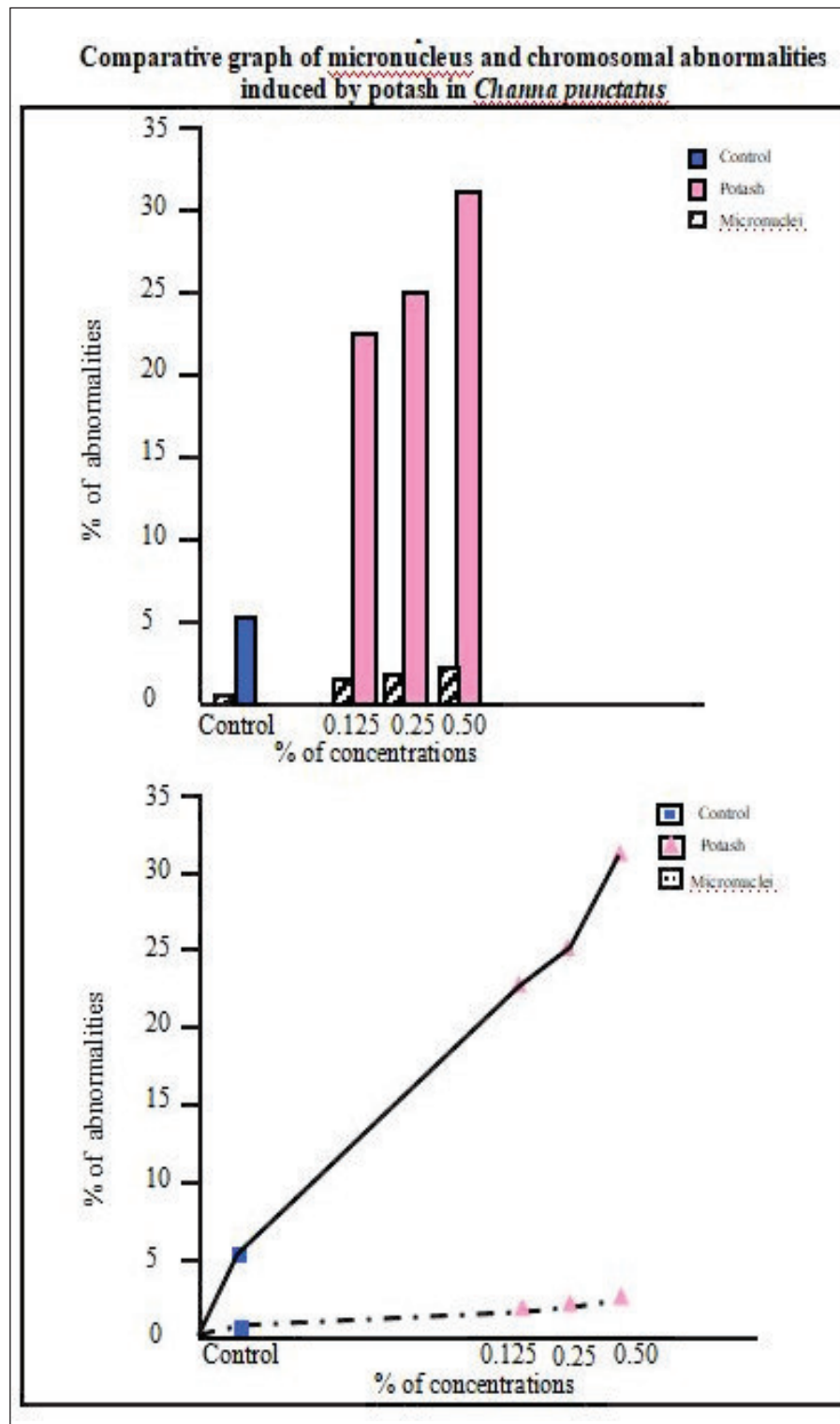
Incidence of micronuclei (N=3000) after Potash treatment in *channa punctatus*.

EXPERIMENT TREATMENT (in %)	Abnormal cells				Micronuclei			
	NO.	%	±	S.E	NO.	%	±	S.E
Control	13	0.43	±	0.11	13	0.43	±	0.11
0.125	42	1.40	±	0.21*	42	1.40	±	0.21*
0.25	51	1.70	±	0.23*	51	1.70	±	0.23*
0.5	63	2.10	±	0.26*	63	2.10	±	0.26*

Chromosomal abnormalities (N=300) after Potash treatment in *channa punctatus*

Treatment Individual Abnormality S.E	No. of metaphases analyzed No. % ±	Abnormal Total metaphase Abnormality No. % ± S.E				Gross Abnormality No. % ± S.E			
		No.	%	±	S.E	No.	%	±	S.E
Control ± 1.25	300 16 5.33 ± 1.29	15	5.00	±	1.25	1	0.33	±	0.33*
0.125% ± 2.19*	300 68 22.6 ± 2.41*	66	22.0	±	2.39*	15	5.00	±	1.25*
0.25% ± 2.37*	300 75 25.0 ± 2.50*	74	24.6	±	2.48*	10	3.33	±	1.03
0.50% ± 2.62*	300 93 31.0 ± 2.67*	85	28.3	±	2.60*	5	1.66	±	0.73

Graph 01



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Changing pattern of land use and its impact on agriculture in Pauri Garhwal Uttarakhand

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Abstract- *Due to alterations in physiographic and socio-economic conditions, climatic changes, adaptation, and declining growth of population, the land-use pattern of Pauri Garhwal is changing very rapidly. Hence, an attempt has been made in this paper; a study has been taken up for Pauri Garhwal District of Uttarakhand. This is to understand the change in the Land use pattern of the study area. The time-series data i.e. 2009-10 and 2015-16 has been acquired from secondary sources. Pauri Garhwal district spread over an area of 5,230 sq. km and ranks 5th in terms of population in Uttarakhand. After the completion of this study, we found that there was a change in every single category of land use except forest cover in the study area. It was also observed that the agricultural land of the study area is losing rapidly and the area of barren land is increasing year by year. If this rate continues, the agricultural land will be totally eliminated within the next years. In this paper, the change in agricultural land use has been shown on the block level while the trend of land use has been shown on the district level.*

Key Words- Land Use Change, Forest, Agricultural Land, Barren Land, Trends.

Introduction- “The study of general land-use pattern and its analysis is important to understand the uses of land in any region. The use of land is influenced by physical and socio-economic factors. When we talk of the land, we include the climate, soil, topography, water supply, vegetation, people and their practices and the history of the place. Thus, land-use constitutes an essential element in the planning and management of land resources. Land use is also related to the conversion of land from one major use to another general use. The land-use changes according to the changing needs of man. Stamp has classified the needs of man into six, namely, need of work, home, food, transportation, communication, defence, and recreation. To meet the needs, a man looks towards land and therefore proper study generates land use that has been attempted here. The study of land use can present a clear picture of the potentialities of land use and provide a fruitful massive agricultural turnover¹”. The data regarding general land use for Pauri Garhwal were gathered from Garhwal District Handbook for the years 2007-08 to 2015-16. The objective of this study is to analyse the changing patterns and trends of land use under respective categories and also to suggest possible ways and means to improve existing land use in the study

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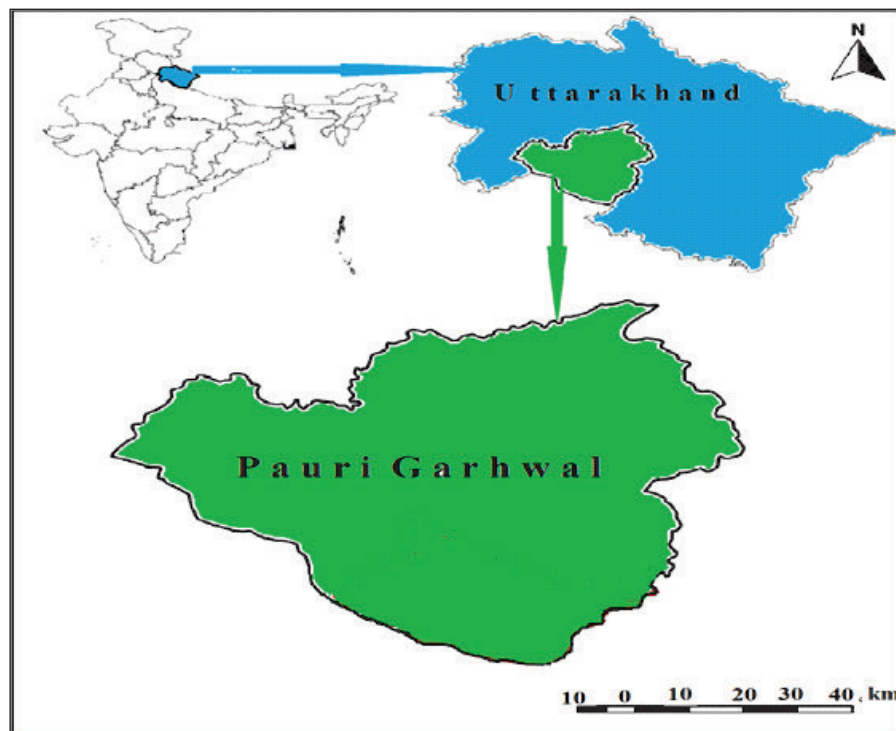
region. This study enables to identify the temporal changes in the significance of various uses of land. An attempt has been made to study temporal variations in land-use patterns in the study area for a period of nine years (2007-08 to 2015-16) and probable causes of changing land-use are interpreted.

Objectives

1. To analyse the changing patterns and trends of land use under respective categories.
2. To evaluate the changes in area under different crops.

Study Area- “Pauri Garhwal is a district of Uttarakhand, extending between latitudes $29^{\circ} 45' N$ and $30^{\circ} 15' N$ and longitudes $78^{\circ} 24' E$ and $79^{\circ} 23' E$. The study area is spread over an area of 5230 sq. km with a total population of 687871 persons (Census 2011). It is bounded by the districts of Chamoli, Rudraprayag & Tehri Garhwal in North, Bijnor & Udham Singh Nagar in South, Almora & Nainital in East, and Dehradun & Haridwar in West. The District is administratively divided into nine tehsils and fifteen developmental blocks²”. The main occupation of the population is agriculture. Agriculture has never been a profitable means of employment in this hilly district due to its uneven geographical conditions, tiny terraced fields, and lack of irrigation facilities. However, the crops grown by the farmer of Pauri Garhwal are rice, wheat, barley, maize, mandua, and pulses such as urad, moong, masoor, gram, peas, arhar, etc. Oil containing seeds like mustard, alsi, til, sunflower, soyabean etc³.

Fig. 01
Location Map of Study Area



Research Methodology- The present study is primarily based on secondary data covering the period of 2007 - 08 to 2015-16. Secondary data have been collected from government and quasi-government agencies and official website of the district in whatever form-published or unpublished, it was available. The obtained land-use data were converted into a percentage to the total reported area while data obtained for cropping patterns were converted into a percentage to total cropped area and then are grouped into nine and four categories respectively. Nine continuous years have been taken for analysing the land-use trends and trend lines have also been plotted in the diagram. While two time periods 2009-10 and 2015-16 have been taken for analysing block-wise changes in cropping patterns. Ten major crops were considered and grouped into four categories : (i) cereal crops to include rice, wheat, barley, maize, ragi, and small millets (sava), (ii) pulse crops to include urad (black gram), moong, arhar, gram, pea and masoor (lentil); (iii) oilseed crops to include groundnut, soybean, til (sesame), mustard and (iv) other crops to include sugarcane and potatoes, turmeric, etc. The diagrams have been prepared for visual interpretation.

Temporal Variation in Land Use in Pauri Garhwal- “Landuse and land-cover change have large impacts on natural environment. Changes in natural environment directly influence our living conditions through the possibilities that we have to obtain safe food in a healthy environment. To avoid unfavourable consequences of land-use changes, systematic approaches for land-use intervention has developed by policymakers. Systematic intervention in the dynamics of land use system is impossible without a proper understanding of the driving factors in this system and their behaviour¹”. The land utilization in Pauri Garhwal district is determined by the nature of land having marked local variations in physiography, slope, fertility of soil, lack of security of crops, precipitation and lack of irrigation and unavailability of water which had made a great difference in the intensity of cropping in the district contain lower agricultural land. Most of the land of the district is infertile. There are significant variations from place to place and from time to time. An attempt has been made to study temporal variations in land-use patterns in the study region for a period of nine years (2007-08 to 2015-16) and probable causes of changing land-use are interpreted. The temporal variations in land use for the study area are studied in nine categories.

Table no. 1 shows the area under different categories of land use as a percentage to total reported area for nine periods of time and the year-wise trends of area under different categories are shown in Fig. 2. An attempt has also been made to explain the changes in the trend of growth rate in the area. The percentage of area under forest is very high, which means a small percentage of land available for cultivation. The area covered by forest is 57.55 percent, remain constant form 2007-08 to 2015-16. While the percentage share of cultivable wasteland slightly increased from 4.77 percent in 2007-08 to 6.35 percent in 2015-16.

Table 01
Land Use Pattern in Pauri Garhwal 2007-08 to 2015-16
(Percentage to Reported Area)

Categories	2007-08 (In %)	2008-09 (In %)	2009-10 (In %)	2010-11 (In %)	2011-12 (In %)	2012-13 (In %)	2013-14 (In %)	2014-15 (In %)	2015-16 (In %)
Reported Area	100	100	100	100	100	100	100	100	100
Forest	57.56	57.56	57.56	57.56	57.71	57.56	57.56	57.56	57.56
Cultivable Waste Land	4.78	4.79	5.37	5.38	5.01	6.35	6.35	6.35	6.36
Current Fallow	0.92	1.30	0.30	1.58	2.00	1.80	1.88	2.18	2.24
Other Fallow	3.28	3.28	4.05	3.54	3.46	3.78	3.78	3.80	3.81
Waste & Uncultivable Land	5.13	5.13	4.99	5.00	5.14	5.10	5.10	5.10	5.10
O. Than Agricultural Land	2.38	2.38	2.39	2.40	2.41	2.54	2.54	2.54	2.55
Permanent Pasture	4.98	4.98	5.13	5.13	5.14	5.08	5.08	5.07	5.07
Tree, Bushes Etc. Land	8.87	8.89	8.82	8.96	8.99	8.03	8.03	8.03	8.03
Net Sown Area	12.10	11.69	11.40	10.45	10.13	9.76	9.69	9.36	9.28
Area sown more than once	5.29	4.87	4.38	5.01	4.58	4.54	3.96	4.58	3.33
Gross cropped area	17.39	16.56	15.78	15.46	14.70	14.31	13.65	13.94	12.31

Source: statistical report 2011 to 2017

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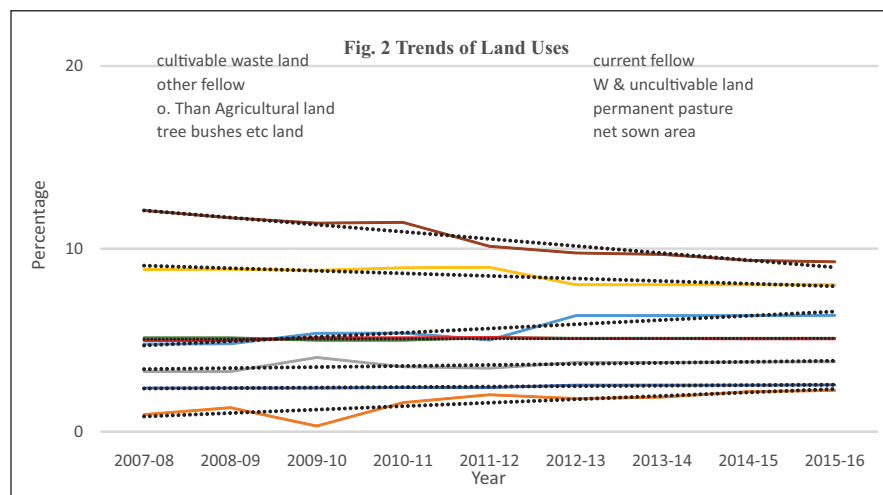
Fallow land refers to that part of the cultivated area which is kept idle for a season or for a period extending up to four years. The current fallow is that part of the cropped land which is kept unplugged for a season during the current year mainly for soil fertility¹. The current fallow is increased from 0.92 percent in 2007-08 to 2.24 percent in 2015-16, and other fallow lands merely increased from 3.28 percent in 2007-08 to 3.81 percent in 2015-16. The area under permanent pastures and other grazing land, minor increased from 4.97 percent in 2007-08 to 5.07 percent in 2015-16, while the percentage share of area under tree, bushes etc. slightly increased from 8.87 percent in 2007-08 to 8.99 percent in 2011-12, and then decreased from 8.99 percent to 8.03 percent in 2012-13. From 2012-13 to 2015-16 the percentage share of area under tree bushes etc. remain constant.

Barren and Land not available for cultivation as its name implies, the land which is not available for cultivation. It is of two types: (i) land put to other non-agricultural uses such as for constructing settlements, roads, railways, canals, wells, industrial establishments etc.(ii) waste & uncultivable land which is barren and cannot be cultivated due to some natural problems¹. The waste and uncultivable land slightly decreased from 5.12 percent in 2007-08 to 4.99 percent in 2010-11 and then increased from 4.99 percent to 5.09 percent in 2015-16, while area under other than agricultural uses is merely increased from 2.37 percent in 2007-08 to 2.54 percent 2015-16.

The net sown area refers to that part of the cultivated land on which sowing is actually done at least once during a year. It does not include the

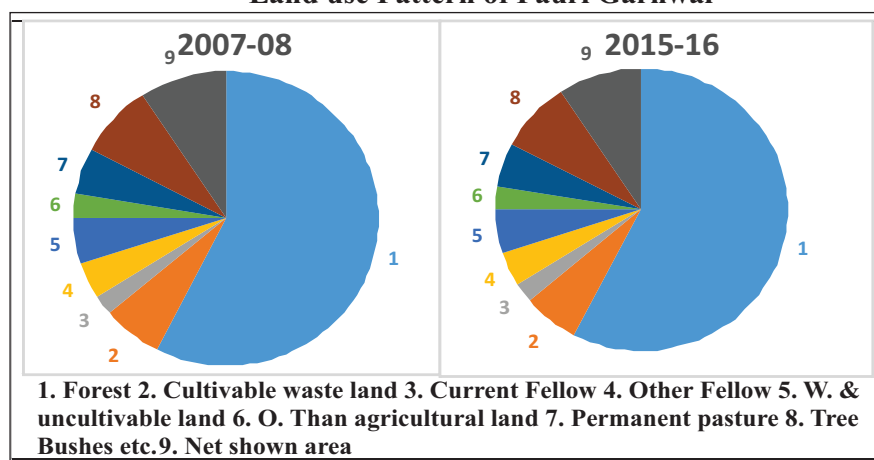
double-cropped area and in itself constitutes the basic category of agricultural land use. The area under this category includes all agricultural land¹. Table 1 reveals that net sown area slightly decreased from 12.10 percent in 2007-08 to 9.28 percent in 2015-16. Fig.1 displays the temporal variation in land use in study region. It is noticed that the net sown area in Pauri Garhwal is continuously decreasing from 2007-08 to 2015-16. It was 12.10 percent in 2007-08 and it has been decreased to 9.28 percent of the area under cultivation in 2015-2016 registering an increase of 2.82 percent within nine years during the study period. The decrease was attributed to the traditional method of agriculture, low productivity, and insufficiency of water availability, construction of new settlements, roads, and migration. The multiple cropping area or area sown more than once has also been decreased from 5.29 percent in 2007-08 to 3.33 percent 2015-16. Consequently, the total gross cropped area has also been declined from 17.39 percent in 2007-08 to 12.31 percent 2015-16.

Some categories of the land use are unstable and some are stable. Except net sown area, all the categories of land use do not show any definite trend of increase or decrease over time series. Sometimes area under different categories may fall at other it may increase and again it might decrease.



From previous field knowledge, the study area was classified into nine land-use types. Comparative analysis of the land use pattern of Pauri Garhwal during the period from 2007-08 to 2015-16 clearly shows changes. Pauri Garhwal has observed both negative and positive growth in all land use categories. Cultivable wasteland, both other fallow and other than agricultural land have shown an increasing trend in all the years except 2010-11, current fallow land has also shown an increasing trend in all the years except 2009-10 and 2010-11. While waste and uncultivable land, permanent pasture, and tree bushes etc. show a mixed trend. The net sown area has shown a decreasing trend in all the years. (Fig. 2) forest cover was the only one category among all the land use categories which remains the same throughout all the years.

Fig. 03
Land use Pattern of Pauri Garhwal



The nine categories of land use have been studied. Their certain trends are noticed in the 9 years' time span. Forest land remains the major land use while net sown area remains the second major land use from 2007-08 to 2015-16. This is followed by tree bushes etc. land; which remains the third major land use throughout the period under review. The other categories (Cultivable Waste Land and Waste & Uncultivable Land) have interchanged their position while Cultivable Waste Land occupies fourth place in 2015-16.

Gross Cropped Area of District Pauri Garhwal 2007-08 to 2015-16

Table 2 reveals that in 2007-08 the total cropped area of the district stands at 116310 hectares. The net sown area was 80958 hectares (69.57%), while 35414 hectares (30.43%) area was sown more than once.

Table02

Net Sown Area and Gross Cropped Area of District Pauri Garhwal 2007-08 to 2015-16

Sr. No.	Categories	Year				
		2007-08	2009-10	2011-12	2013-14	2015-16
1	Net sown area (In hac)	80958 (69.57%)	76280 (72.25%)	67573 (68.88%)	64829 (70.98%)	62087 (75.38%)
2	Area sown more than once (In hac)	35414 (30.43%)	29296 (27.75%)	30532 (31.12%)	26502 (29.02%)	20277 (24.62%)
3	Gross cropped area(In hac)	116310	105576	98105	91331	82364

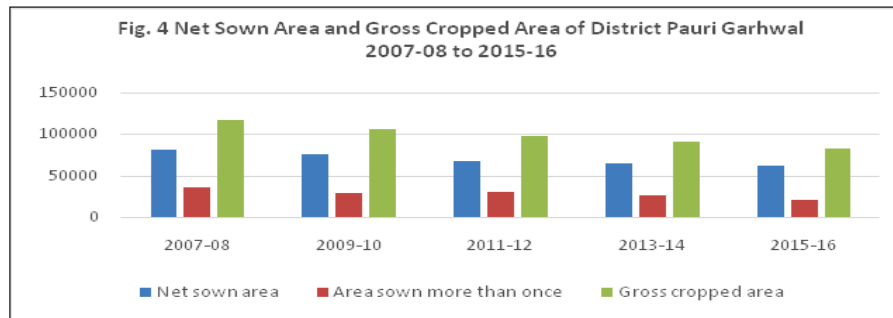
Source: statistical report 2011 to 2017

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(Figures in brackets show the percentage of gross cropped area)

The above table shows that the total cropped area decreased to 105576

hectares in 2009-10. The gross cropped area, as well as net area sown, has sharply declined during 2007-08 to 2009-10. In 2011-12 the net area sown has decreased, while area sown more than once has increased during this period. The declining trend in net area sown, area sown more than once and gross cropped area continue in 2015-16. This has also been shown through a diagram (Fig. 4.7)



Cropping Pattern- “Cropping pattern denotes the proportion of agricultural land use under different crops at a point of time (Tripathi, R.S., 1988). A change in cropping pattern means changes in the proportion under different crops in different periods. It has always been a dynamic concept because it is a reflection of the interplay of the complex physical, social, economic and technological factors that change the cropping pattern over space and time. The shift in cropping pattern is very irregular due to the interaction of the physical environment on the one hand and the responsible socio-economic factors on the other (Singh and Singh, 1970)⁴”.

Percentage Change in Area under Different Crops in District Pauri Garhwal 2007-08 to 2015-16

An attempt has been made to study temporal variations in land-use patterns in the study area for a period of nine years (2007-08 to 2015-16) and probable causes of changing land-use are interpreted. Because of the deficiency of successive data for chosen year's temporal variations of land use for each year has

Table 03

Percentage Change under Different Crops Area: 2007-08 to 2015-16

Crops	2007-08		2015-16		Changes From 2007-08 To 2015-16	
	Hectare	Percent	Hectare	Percent	Hectare	Percent
Wheat	31069	27.05	16779	21.97	-14290	-5.08
Rice	21179	18.44	12517	16.39	-8662	-2.05
Barley	6558	5.71	4946	6.48	-1612	0.77
Maize	2065	1.80	2324	3.04	259	1.25
Ragi	26134	22.75	19421	25.43	-6713	2.68
Small Millets (Sawa)	18852	16.41	12205	15.98	-6647	-0.43
Pulses	7090	6.17	5510	7.21	-1580	1.04
Oilseed	1240	1.08	1691	2.21	451	1.13
Potato	643	0.56	799	1.05	156	0.49
Others	47	0.04	179	0.23	132	0.19
Total	114877	100	76371	100.00	-38,506.00	0.00

not studied. Thus four alternative years have been taken into consideration for showing temporal variations in the agricultural land-use pattern in the area under study (Table 3). In this forthcoming discussion, the pattern of crops during the period of 2007-08 and 2015-16 has been tried to discuss. The details of crops and their changes during 2007-08 to 2015-16 of the whole district are shown in table 3.

Source: statistical report 2011 to 2017

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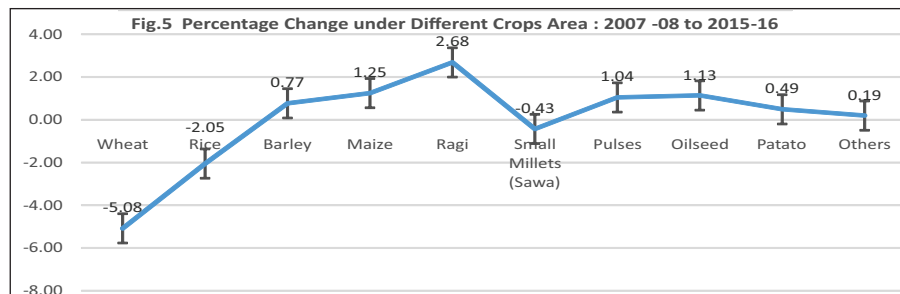
Wheat- Wheat is the main dietary food of the people of the study region. It decreased from 31069 hectares (27.05 percent) in 2007-08 to 16779 hectares (21.97 percent) in 2015-16 in Pauri Garhwal district. This table indicates that land area under wheat has been recorded tremendous decrease out of all crops by -5.08 percent during this study period.

Rice- Table 3 shows that the total area under rice was 21179 hectares (18.44 percent to the total gross cropped area) in the year 2007-08 whereas it decreased to 12517 hectares (16.39 percent) in 2015-16. This table indicates that the land area under rice has decreased by -2.05 percent during this period.

Barley- It is a coarse cereal crop. Table 3 shows that the area under barley is 2065 hectares (5.71 percent) in 2007-08 and 4946 hectares (6.48 percent) in 2011-12 at a decreasing rate of about 0.77 percent during nine years. The yield of barley is low as compared to wheat so the farmers are not interested in growing this crop.

Maize- Maize is known as corn in India and it is also one of the staple foods of the people of the study region. It is also used as food for livestock like millet. It is important cereal crops because the ripening time of maize is short⁴. The area under this category was 2065 hectares (1.80 percent) in 2007-08 which increased to 2324 hectares (3.04 percent) in 2007-08, thus a net increase of 259 hectares (1.25 percent).

Ragi – Ragi stands second leading crop, is important cereal which is commonly grown in the study region. The area under ragi has decreased from 26134 hectares (22.75 percent) in 2007-08 to 19421 hectares (25.43 percent) in 2011-12. The decrease in area under ragi has been measured as 6713 hectares or 1.36 percent during the period of 1996-97 to 2011-12. Table 4.2 shows that during 1996-97 to 2011-12 there is no much more changes under the millet area.



Small Millet (Sawa) - Millet is a coarse cereal crop and stands fourth

leading crop in the study region. India ranks first in the production of millet. It is used for food, brewing in millet beer, used as bird and animal food and its straw is also used as valuable food for the milk animals. Sawa is an important variety of millet which is commonly grown in the study area. It is short time period crop and requires little irrigation. It can be grown as dry crops. The area under millet has been marginally decreased from 18852 hectares (16.41 percent) in 2007-08 to 12205 hectares (15.98 percent) in 2015-16. The decrease in area under millet has been measured as 6647 hectares or -0.43 percent during the period of 2007-08 to 2015-16.

Pulses - The total area under pulses was 7090 hectares (6.17 percent) in 2007-08 which came down as 5510 hectares in 2015-16 by marking a decrease of 1.04 percent during 2007-2016. The main cause behind it is low yield, susceptible to diseases, lack of High Yielding Varieties of seeds and damage by wild animals. It is also highly sensitive to crops from frost, fog, and rainfall. At the time of the flowering of pulses, if heavy rainfall occurs, it damages the flowers of the crops.

Oilseed - Mustard is a dominant crop of oilseeds. Out of total oilseeds, mustard occupies about 99 percent area. It was 7090 hectares area constituting 8.12 percent to the total gross cropped area in 2007-08 while it was 1691 hectares pertaining 2.21 percent to the total gross cropped area in 2015-16. Therefore, it was increased by 1.13 percent during nine years.

Potato- The potato produced in the study area has much demand in the plain areas because of its unique taste and nutrition value, that's why the production of potato is increasing. This can help farmers to earn more income which is also necessary for the development of the District. Possibilities of potato cultivation in the district are restricted because of wild animal's disturbance in crop areas that is the main problem for farmers. Nevertheless, the area under potato is showing an increasing trend. It is clearly seen from table 3 that the area under potato increased from 643 hectares (0.56 percent) in 2007-08 to 799 hectares (1.05 percent) in 2015-16.

Others- Others include rest of the crops in study area. Table 3 shows that the area under this category increased from 47 hectare (0.04 percent) in 2007-08 to 179 hectare (0.23 percent) in 2015-16.

The spatial distribution of cereal and pulses are shown in table 4 for the year 2009-10 to 2015-16.

Table 04
Block Wise Percentage of Area under Different Crops in Pauri Garhwal District

Block	Reported Area		Cereal		Pulses	
	2009-10	2015-16	2009-10	2015-16	2009-10	2015-16
Kot	41734	41890	5396	3738	130	201
%	6.24	6.26	5.7	5.48	3.03	3.65
Kaljikhali	38344	38154	6201	4465	381	411
%	5.73	5.7	6.55	6.55	8.87	7.46
Pauri	41757	41569	4782	3212	262	315
%	6.24	6.21	5.05	4.71	6.1	5.72
Pabau	35420	35274	5395	3777	253	308
	5.29	5.27	5.7	5.54	5.89	5.59
Thalisain	51033	50868	6620	4804	77	162
	7.63	7.6	7	7.04	1.79	2.94
Bironkhal	44406	44292	6062	4283	129	206
%	6.64	6.62	6.41	6.28	3	3.74
Dwarikhali	44444	44322	7778	5913	467	483
%	6.64	6.62	8.22	8.67	10.88	8.77
Duggada	75293	76016	10453	8020	615	1115
%	11.25	11.36	11.05	11.76	14.32	20.24
Jahrikhal	42807	42875	5801	4020	458	477
%	6.40	6.41	6.13	5.90	10.67	8.66
Akeshwar	38083	38125	5887	4131	224	282
%	5.69	5.70	6.22	6.06	5.22	5.12
Rikhnikhali	47689	47420	8086	6221	165	233
%	7.13	7.09	8.55	9.12	3.84	4.23
Yemkeshwar	41788	42053	6981	5217	323	355
%	6.25	6.29	7.38	7.65	7.52	6.44
Nainidanda	50760	50481	5848	4162	440	459
%	7.59	7.55	6.18	6.10	10.25	8.33
Pokhara	35485	35383	4929	3389	275	326
%	5.30	5.29	5.21	4.97	6.40	5.92
Khirsu	40012	40333	4401	2840	95	177
%	5.98	6.03	4.65	4.16	2.21	3.21
Total	669055	669055	94620	68192	4294	5510
%			*94.00	*89.29	*4.27	*7.21

Source: statistical report 2011 to 2017(<https://cdn.s3waas.gov.in/s32f55707d4193dc27118a0f19a1985716/uploads/2018/03/2018030744.pdf>)

*percent of total cropped area **percent of total reported area

The above table shows that the total area under cereal in the district was 94620 hectares (94.00 percent of the total cropped area) in 2009-10, but in 2015-16 it decreased to 68192 hectares (89.29 percent) of total cropped area of the district. Cereal decreased by -27.93 percent during the period of 2009-10 to 2015-16. The highest area under cereal was in Duggada whereas the lowest area under cereal was in Khirsu. As far as the area under cereal in different blocks is concerned, it is found that most of the blocks covered less than 6 percent area of the total area under cereal in the district in 2009-10, except in Thalishain (7 percent), Dwarikhal (8.22 percent) Duggada (11.05 percent), Rikhnikhil (8.55 percent) and Yamkeshwar (7.38 percent). But in 2015-16, conditions have reversed and except Thalishain (7.04 percent), Dwarikhal (8.67 percent) Duggada (11.76 percent), Rikhnikhil (9.12 percent) and Yamkeshwar (7.65 percent) all the block recorded decrease in area under cereal cultivation and it was less than 6 percent of the total area of the cereal in 2015-16. This decrease in area under cereal related to the increase in area under barren land during the period of 2015-16.

In district Pauri Garhwal, pulses covered around 4294 hectares area (4.27 percent of the total cropped area) in 2009-10, but in 2015-16 it increased to 5510 hectares (7.21 percent of the total cropped area) of the district. Pulses increased by 28.32 percent. It is found that area under pulses cultivation in 2009-10 varied from 2 to 14 in different blocks. The high percentage of area under pulses was found in Duggada (14.32 percent) and the lowest area was found in Khirsu (2.21 percent) of the total pulses area of the district. In 2015-16, Duggada was the only block, had recorded a remarkable growth in the area under pulses cultivation. Table indicates that except Kaljikhil (7.44 percent), Jahrikhal (8.66 percent), Yamkeshwar (6.44 percent) and Nanidanda (8.33 percent). The rest of the blocks had less than 5 percent area under pulses cultivation.

Table 05
Block Wise Percentage of Area under Different Crops in Pauri Garhwal District

Block	Oilseed		Other Crops		Total Cropped Area	
	2009-10	2015-16	2009-10	2015-16	2009-10	2015-16
Kot	96	151	17	40	5639	4281
	8.81	8.93	2.60	4.09	5.60	5.61
Kaljikhil	45	71	19	40	6646	5058
	4.13	4.20	2.91	4.09	6.60	6.62
Pauri	43	68	22	45	5109	3708
	3.94	4.02	3.37	4.60	5.08	4.86

Pabau	37	61	14	40	5699	4247
	3.39	3.61	2.14	4.09	5.66	5.56
Thalisain	34	52	70	83	6801	5153
	3.12	3.08	10.72	8.49	6.76	6.75
Bironkhal	29	44	17	40	6237	4617
	2.66	2.60	2.60	4.09	6.20	6.05
Dwarikhal	109	137	24	46	8378	6716
	10.00	8.10	3.68	4.70	8.32	8.79
Duggada	295	463	174	342	11537	10403
	27.06	27.38	26.65	34.97	11.46	13.62
Jahrikhal	85	135	36	58	6380	4825
	7.80	7.98	5.51	5.93	6.34	6.32
Akeswar	82	131	39	55	6232	4730
	7.52	7.75	5.97	5.62	6.19	6.19
Rikhnikhal	66	109	117	0	8434	6672
	6.06	6.45	17.92	0.00	8.38	8.74
Yemkeshwar	40	65	31	50	7375	5752
	3.67	3.84	4.75	5.11	7.33	7.53
Nainidanda	49	74	35	52	6372	4821
	4.50	4.38	5.36	5.32	6.33	6.31
Pokhara	30	49	17	42	5251	3855
	2.75	2.90	2.60	4.29	5.22	5.05
Khirsu	50	81	21	45	4567	3224
	4.59	4.79	3.22	4.60	4.54	4.22
Total	1090	1691	653	978	100657	76371
	*1.08	*2.21	*0.65	*1.28	**15.04	**11.41

Source: statistical report 2011 to 2017

(<https://cdn.s3waas.gov.in/s32f55707d4193dc27118a0f19a1985716/uploads/2018/03/2018030744.pdf>)

Mustered occupies the largest area among oilseeds. The above table 5 shows that in 2009-10, the area under oilseed in the district was 1090 hectares (1.08 percent of the total cropped area), and it increased in 2015-16 and became 1691 hectares (2.21 percent of the total cropped area). Oilseed increased by 55.14 percent. The area shared by oilseed is very little in the district in comparison to the other crops. As far as the area under oilseed in different blocks is concerned, it is found that except Kot (8.81 percent), Dwarikhal (10 percent) and Duggada (27.06 percent), all the blocks showed less than 7 percent area under oilseed cultivation in 2009-10. In 2015-16 the area under oilseed in different blocks increased and most of the block has less than 6 percent area under oilseed cultivation during this period except Kot (8.93 percent), Dwarikhal (8.10 percent), Duggada (27.38 percent), Jahrikhal (7.98 percent) and Ekeshwar (7.75 percent).

Potato, sugarcane, cotton, turmeric, etc. are other crops. The area shared by other crops is very little in the district in comparison to the other crops.

Table 4 & 5 are showing a block-wise change in area under different crops in Pauri Garhwal district from 2009-10 to 2015-16. It is found in those tables that area under cereal recorded negative growth than any other crop in most of the blocks of the district.

Size of Land Holdings- The agricultural statistics department has recognised six main classed of land holdings as given in table 6. For this purpose, we have taken two periods viz. 2000-01 and 2010-11 for the study. The size of landholding and area of landholding are given in table 6. The table shows that in 2001 more than 28.20 percent of the number of landholdings fall under the category of 1 to 2 hectare of land, covering an area of 30.23 percent, while in 2010-11, number of holding decreased to 25.76 percent and covered an area of 35.78 percent of the district. The percentage of the area increased under the number of small farmers.

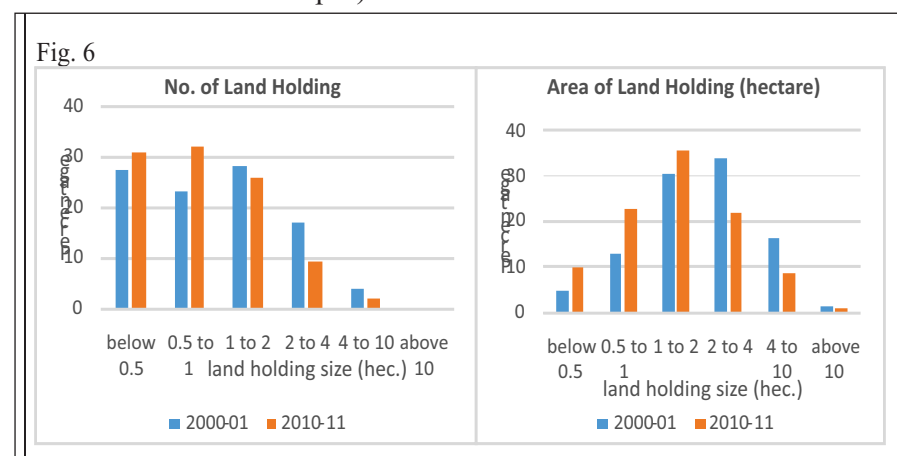
Table 06
Distribution of Holdings in Pauri Garhwal District

Land Holding Size (Hectare)	No of Land Holding				Area of Land Holding (Hectare)			
	2000-01	Percent of Total	2010-11	Percent of Total	2000-01	Percent of Total	2010-11	Percent of Total
Below 0.5	23673	27.35	26168	30.99	5469	4.73	10153	10.01
0.5 To 1	20166	23.30	26831	31.78	14971	12.95	22992	22.68
1 To 2	24412	28.20	21746	25.76	34965	30.23	36284	35.78
2 To 4	14627	16.90	8022	9.50	39358	34.03	22265	21.96
4 To 10	3552	4.10	1600	1.90	19111	16.53	8710	8.59
Above 10	129	0.15	62	0.07	1773	1.53	991	0.98
Total Holdings	86559	100.00	84429	100	115647	100	101395	100

Source	2007-08		2016-16	
	Area	Percentage	Area	Percentage
Canal	2199	27.26	3972	39.47
Tube Wells	776	9.62	1548	15.38
Others	5093	63.13	4544	45.15
Total	8068	100	10064	100

Source: statistical report 2011 to 2017

(<https://cdn.s3waas.gov.in/s32f55707d4193dc27118a0f19a1985716/uploads/2018/03/2018030744.pdf>)



In the case of landholding below 0.5 hectares, the number of holding was 27.35 percent, covering an area of 4.73 percent in 2001, while in 2011, number of holding increased to 30.99 percent and covered an area of 10.01 percent of the district. Hence, the numbers of marginal farmers are increasing day by day. In 2001, 23.30 percent of the number of holding falls under the category of 0.5 to 1 hectare of land, covered an area of 12.95 percent, while in 2011, the number of holding increased to 31.78, covering an area of 22.66 percent of the district. If we sum up the percentage of marginal farmers in the Pauri Garhwal district (2011), we can see that 62.77 percent of farmers come under the category of the marginal farmers.

In the case of landholding 2 to 4, 4 to 10 and above 10 hectares both the number of landholding and area of landholding decreased. So in 2011, the total percentage of the number of small and marginal farmers in the Pauri Garhwal district was 88.53 percent, which is almost equal to the state's average. The rest of the 11.47 percent of the holding belongs to cover medium and large farmers in the district.

If we compare the data of the year 2001 and 2011, we found the major changes in the last decade in the category of marginal farmers, as their numbers and area both registered substantial increase during this period. As per the 2011 census, there are as many as 84,429 landholdings in the district, covering an area of 101395 hectares.

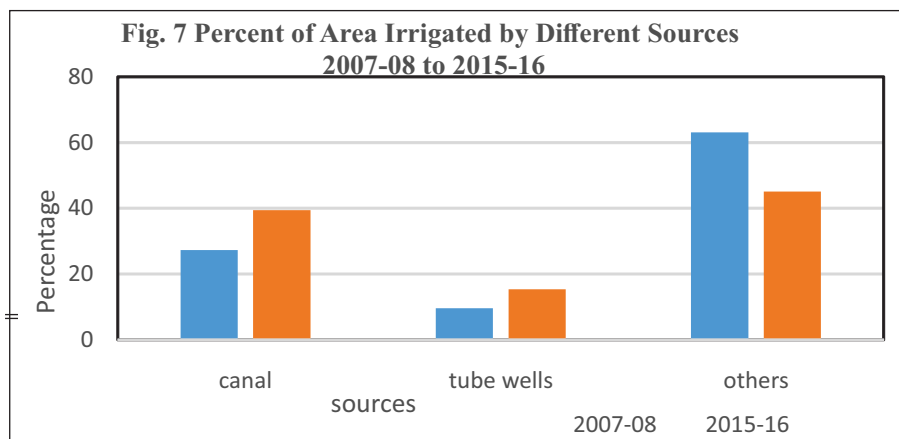
Sources of Irrigation- The major sources of irrigation, in the district, are canals and tube wells. The district has less developed irrigation facilities as its small percent area is under irrigation. In 2007-08, 27.26 percent of the district is irrigated by canals. The areas which are not covered by canals are irrigated with the help of tube wells. The rest of the area is irrigated by the other sources i.e., rainfall, gul, and local drains, etc. (Table 7 & Fig.7)

Table 07
Percent of Area Irrigated By Different Sources
2007-08 to 2015-16

Source	2007-08		2016-16	
	Area	Percentage	Area	Percentage
Canal	2199	27.26	3972	39.47
Tube Wells	776	9.62	1548	15.38
Others	5093	63.13	4544	45.15
Total	8068	100	10064	100

Source: statistical report 2011 to 2017

(<https://cdn.s3waas.gov.in/s32f55707d4193dc27118a0f19a1985716/uploads/2018/03/2018030744.pdf>)



Conclusion- It can be observed from the above study that area under different land-use categories is kept on changing. This has a direct bearing on agriculture. The locational changes that take place in their categories also have bearing on agriculture. These changes, therefore, have been investigated in the District at a period of time. Change has also taken place in the cropping pattern in the District. The variety of crops that are cultivated keep on losing or gaining area under them. The trend is that changes in the area under different categories have taken place from 2007-08 to 2015-16. It is noticeable that forest land is very stable where change does not take place and land under the forest remains the same throughout 9 years. In category cultivable wasteland; the area has fluctuated between 4.78 percent and 6.36 percent. The range of fluctuation is great and there is a constant trend of change. There had been an increase till 2010-11 and then decrease for one year and again an increase in 2015-16. Both the fallow lands show a considerable range of fluctuation in area, which fluctuated between 5.7 percent and 6.05 percent. Waste & uncultivable land shows a great range of fluctuation in its area it has fluctuated between 5.13 to .10 percent. Another thing noticeable is that from 2007-08 to 2008-09 area under waste & uncultivable land remained the same. Then decreased in 2009-10, after which there was a slight increase till 2011-12, and then remained the same until 2015-16. The net sown area shows a very great range of fluctuation. It fluctuated between 12.10 to 9.28 percent. More significant is the fact that from 2007-08 net sown area has been consistently decreasing. The change in area under the net sown area shows a definite trend of decrease over time series. Change is also taking place in the acreage of crops. The area under these crops has been changing from time to time. This has resulted in changes in the percentage of land under each crop to the cropped area.

Problems

- Unplanned construction, hydropower projects
- Human-animal conflicts
- Shortage of water for irrigation
- Lack of new technologies
- Migration
- Natural calamities
- Lack of awareness
- Degradation of land quality

Suggestions

- The land must be used according to its capability and the land use
1. plans should be generated based upon soil capability and water resource profile.
We should try to improve access to land and other natural resources.
 2. We should accelerate growth in the food and agricultural sectors and
 3. promote rural development.

- Inputs to applied in agriculture should be provided to farmers at reasonable prices.
4. Crop improvement methods should be adopted for higher production.
 5. Those lands which are unfit for cultivation as also for growing grass need to be put under forests
 6. It is noted that commercial crops are insignificant in the regions.
 7. Commercial crops should be promoted

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Definition, Nature and Scope of Poetry

● Ram Binod Singh

Abstract - Poetry is a creativity of art which depends on the nature of a person. It is a matter of mood and inspiration. Its source is the feelings in the heart, not the idea of the intellect. Its definitions vary, because each and every poet defines it on his own way. The nature of poetry depends on its truth, originality, human nature, imagination, and use of highly picturesque words. The scope of poetry is problematic, but its future is bright, because poetry flourishes the real picture of the world. In words of Arnold, poetry shows a mirror of life which interprets life for us, consoles us and sustains us.

Key Words- Creativity, Nature, Inspiration, feelings, Intellect, Imagination, Originality, Life, etc

Introduction: - Poetry is a mystery. Its charm depends upon the qualities which can neither be defined accurately nor reduced to rules. This is why all all critics and poets, in all ages and countries, have tried to explain their own theory and practice of poetry. Dr. Johnson, the great scholar and literary critic of the 18th century, defines poetry as, “metrical composition”, and further says that it is “the art of uniting pleasure with truth by calling imagination to the help of reason.” In Mulgrave's Essay Upon Poetry we find that 'the great general rules of poetry are: to think justly...to imagine beautifully; and to distinguish well what sort of writing suits one's genius.' It shows that poetry is equal to the other branches of learning in its usefulness: it instructs while it pleases. Poetry, in words of Macaulay is, “the art of doing by means of words what the painter does by means of colours.” According to Carlyle, "Poetry is Musical Thought". Shelley defines Poetry as the expression of the imagination; it is, says Hazlitt, the language of the imagination and the passions. In Coleridge's view poetry is the antithesis of science, having for its immediate object pleasure, not truth. According to Matthew Arnold, it is “simply the most delightful and perfect form of utterance that human words can reach”; it is, “a criticism of life under the conditions fixed for such a criticism by the laws of poetic truth and poetic beauty.” According to Keble it is “a vent for overcharged feeling or a full imagination.” Ruskin defines it as “the suggestion, by the imagination, of noble grounds for the noble emotions”. Prof. Courthope explains it as “the art of producing pleasure by the just expression of imaginative thought and feeling in metrical language.” Mr. Watts-Dunton, declares it as “the concrete and artistic expression of the human mind in emotional and rhythmical language.” Wordsworth says that "Poetry is spontaneous overflow of

powerful feelings recollected in tranquility." John Keats tells us about poetry: "No man was ever yet a great poet, without being at the same time a profound philosopher. For poetry is the blossom and the fragrant of all human knowledge, human thoughts, human passions, emotions, language."

T.S. Eliot declares that "Poetry is the organized form of intellectual activity." It declares that the definition of poetry varies from person to person. It also varies from era to era. Hence, we observe that nature and scope of poetry is different from age to age and from person to person.

Duiscussion: - Geoffrey Chaucer is known as the 'father of English Poetry.' He not only gave English Poetry a new dress, but also a new body and a new soul. His contribution towards the content of poetry is in his advocacy of and strict adherence to realism. His Canterbury Tales embodies a new effort in the history of literature, as it strictly deals with real men, manners, and life. In words of Aristotle, the whole construction of poetry is informed by the rules of necessity and probability. Things move in a certain logical or at least probable direction, and the creative art of the poet imposes a pattern of universality on the events which in history, as in life, remain disjointed. He further says that poetry arouses the feelings of pity and fear not merely for the purpose of exciting them, but to lead them to a point where the emotional equilibrium can be restored.

Plato, in his view, says that poetry feeds and waters the passions which ought to be starved and left dry. It means poets create anarchy in the soul which, in turn, might lead to chaos in society, if men are guided by their emotions and passions. In spite of giving many thoughts by critics, Sydney writes that poetry is essentially an art of imitation, because poetic imitation is an exercise of creativity faculty. Poets have created a world which is better and more beautiful than this world of Nature. He considers what intellectual pursuits can challenge poetry in serving this end. Actual he says that poetry deals with the imagery treatment of human life. In accordance with the thought of T.S. Eliot we observe that the poem and the poet are two separate things. The feeling and emotion are embodied in a poem. The past lives in the present. If we approach a poet with an open mind, we shall find that not only the best but the most individual parts of his work may be in the tradition of the dead poets. His ancestors may assert their immortality most vigorously. At the same time it is also true that if he is a great poet, his work will alter theirs. So, Eliot writes, "The past should be altered by the present as much as the present is directed by the past." In Lyrical Ballads, William Wordsworth, lover of Nature, defines poetry in his natural way. He says that poetry is spontaneous overflow of powerful feelings recollected in tranquility. According to him, poetry proceeds from the internal feelings of the poet. It is a matter of feeling, mood, and temperament. When the mood is on him, it flows naturally, and without labour. Poetry, true poetry, cannot be written without this proper mood and temperament. We cannot ask a poet to write at our sweet will; poetry cannot be produced to order; it must flow out voluntarily and willingly from the soul of the poet. The poet must make an attempt to reveal truth through an imaginative awareness of persons and things. He must convey his ideas emotions through a powerful recreation of

the original experience. To achieve this, we must remove the dead expressions of the order poetic vocabulary and substituted the language of the common men and women.

This language is simple and straightforward, and comes directly from the heart, because language is the medium for expressing thoughts and feelings. There should be no distinction between the language used by the poet and the ordinary human beings, except that in expressing the special nature of his feelings. The poet should make use of an emotional and truthful language. Poetry, for Coleridge, is an activity of the imagination. He declares that imagination creates new shape and forms of beauty by fusing and unifying the different impressions which receives from the external world. Without it there can be no essential poetry: 'The continuous undercurrent of feeling' is the main element in poetry. Arnold is particularly emphatic in this point that poetry must be in the order of thought, in art, in the eternal honor and un the high glory, because it interprets life for us, consoles us and sustains us. Without poetry our science will appear incomplete; and most of what now passes with us for religion and philosophy will be replaced by poetry. Hence, we observe that that the definition of poetry varies from age to age and from person to person. Now we discuss about the nature and scope of poetry:

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Digital Violence against Women's: a Sociological Analysis

●Neeraj Kumar Rai

Abstract- Information and communications technologies (ICTs) have presented new opportunities and enabled various efforts to address VAW. However, they are also being used as tools to inflict harm on women and girls. ICT related VAW includes hate speech, hacking, identity theft, online stalking and uttering threats. It can entail convincing a target to end their lives. The Internet also facilitates other forms of violence against girls and women including trafficking and sex trade. Not only does commercialized sex on the Internet drive the demand for the sex industry overall, it also allows traffickers to use the legal aspects of commercial sex on the Internet as a cover for illegal activities.. The growing ubiquity of mobile devices means those targeted or indirectly implicated are getting younger and younger — with children as young as 5 or 6 years of age now exposed to cyber bullying and online pornography — sometimes of the most extreme kind. In some contexts online culture represents the worst form of gang violence. “Violence against women that is mediated by technology is increasingly becoming part of women's experience of violence and their online interactions. In the same way we face risks offline, in the streets and in our homes, women and girls can face specific dangers and risks on the internet such as online harassment, cyber stalking, privacy invasions with the threat of blackmail, viral 'rape videos' and for young women in particular, the distribution of 'sex videos' that force survivors to relive the trauma of sexual assault every time it is reposted online, via mobilephone or distributed in other ways.”

Key Words- Digital Violence, Women, Sexual Assault

Introduction - Digital Violence against Women- Technology related violence can escalate into physical violence, but more commonly victims/survivors experience sexual, psychological, or economic abuse. Within the category of technology related VAW, there are differences in the prevalence of violence and how it manifests due to a combination of factors. This includes but is not limited to:

- Who the perpetrators are
- The technology platform used by perpetrators
- The nature of the violence
- The type of violent act
- The harm faced by the victim/survivor
- The social and bodily characteristics of the victim/survivor

Digital categories of violence against women

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Online harassment and cyber stalking, which constitutes one of the most visible forms of technology related VAW. This ranges from harassing SMS messages and online comments to tracking women's networks, friends, movements and activities through mobile phones, social networking spaces.

Intimate partner violence, where technology is used in acts of violence and abuse in intimate or spousal relationships. For example women are afraid to leave abusive relationships due to threats of disclosure of private and intimate communications by their partners.

Culturally justified violence against women, where culture or religion is used as a reason to justify, ignore or accept acts of VAW, or when technology plays a role in creating a culture of VAW. It can be something as thoughtless as forwarding a sexist joke that supports the idea that women are less valuable than men, to starting a Facebook group that promotes different ways to rape girlfriends.

Rape and sexual assault, where technology is used to track the movement and activities of a victim/survivor, to provide location information or when an act of violence is digitally recorded and distributed. In other cases the internet is used to lure women into situations of sexual assault.

Violence targeting communities, where communities face targeted online attacks and harassment because of their gender, sexual identity or political views. For example, the websites of many women's rights organisations have been hacked because of their stance on gender equality and feminism. Women bloggers who are outspoken about discrimination have also faced overwhelming attacks and messages that aim to disrupt their ability to express themselves online.

Digital efforts in combating violence- The Fourth World Conference on Women, held in Beijing in 1995 has been considered as a key forum in the area of the beginning of global women's movement with respect to communication and networking. Association for Progressive Communication –Women Networking Support Programme (APCWNSP) in Asia Pacific, FEMNET in Africa, the Network of East-West Women for Eastern and Central Europe, and the Asian Women's Resource Exchange (AWORC) mobilised around the conference have been the key players for promoting women's rights through strategic use of ICTs at regional levels. There are several country specific measures to combat VAW in ICT sphere viz. Femmigration runs a web based information, support and complaints service to help women migrants to the EU who may be tricked into prostitution and other sexual abuse. The White Ribbon Campaign in Canada was initiated by a group of men among other strategies uses the Internet, CD ROM and printed materials to mobilize men to condemn violence against women. Women's Net was launched in March 1998, in Johannesburg, Cape Town and Durban. In 2009, UNIFEM employed an innovative combination of social interactive media with a “boots on the ground” approach to engage more than five million people worldwide to add their names to a signature campaign directed at the United Nations Secretary General demanding that violence against women be a top priority for governments everywhere. The legislations of New Zealand, South Africa, Nova Scotia clearly shows the

increasing need and role of the Internet and communication technologies and the associated intermediary players to be actively engaged in the tackling and preventing violence related to ICT.VAW in cyber space since challenges justice delivery system, these countries have legislative provision which requires the electronics service providers (in Nova Scotia and South Africa) to respond to request for information about the identity of the perpetrator .Thus by putting a cap on intermediaries the anonymity in ICT related VAW can be handled effectively. In India,Pakistan,Nepal and Sri Lanka Let's Talk Men 2.0 is a film series accompanied with discussion and facilitation .The motive of these film series are designed to serve and explore in finding out gender norms and men's violence. In Indian context ,particularly, the Centre for Cyber Victim Counselling develops educational cyber awareness programmes for schools, for parents and the community members etc.In the UK ,Women's Aid has created a practical guide for victims of online abuse titled as 'Digital Stalking : A Guide to Technology Risks for Victims'.In Bangladesh Cyber Nirapotta Programme has been able to aerate awareness about cyber security among the female college students by arranging seminars. The Bangladesh Telecommunication Regulatory Commission (BTRC) formed a committee with 11 members to prevent the cyber crime. In Bangladesh, UNDP helped develop the first ever *comprehensive knowledge space* on the government's information portal dedicated to VAW, as well as youth, police and parliamentary engagement in VAW.The *National Human Trafficking Resource Centre*(Polaris Project) helped to launch BEFREE textshort code, an SMS-based hotline integrated into the National Human Trafficking Resource Centre.Available 24 hours a day, seven days a week, the text allows victims to anonymously and discretelyreach out for help. Call blocking apps are also growing in use. GSMA notes “one of the biggest trends in emerging market app stores – the explosion in popularity of call blocking apps. These apps allow mobile users to identify and block harassing mobile numbers and often include features that can reveal the name or location of the caller. One of the most popular call blocking apps is True caller, an app which saw 500% growth among sub-Saharan African users.UN Women and Microsoft under the UN Women Safe Cities programme developed a methodology to fill a knowledge gap around access to and use of mobile phones to address violence against women and girls, particularly in public spaces in disadvantaged areas in the city. The findings from Delhi, Marrakesh and Rio studies provide nuance and insights around these issues, as well into the challenges with online violence against women and the potential and barriers to the use of mobile technology to combat violence against women and girls in cross-regional perspective. A campaign poster from Canada's London Abused Women's Centre for its “Shine the Light on Woman Abuse” campaign urges people to “Turn London purple during the month of November.”In Vietnam, the Centre for Studies and Applied Sciences in Gender - Family - Women and Adolescents (CSAGA) held a one-week exhibition called “Hands in Hands For a World without Violence”¹⁸ with the aim of raising awareness among organizations and the community about preventing violence against

women. At the exhibit, visitors heard first-hand accounts from survivors, attended seminars to learn about domestic abuse, and observed art work that survivors created. As another example, the 16 Days of Activism Against Gender Violence Campaign, which originated in the U.S., provides participants and activists with a Take Action Kit that guides them on how to start their own campaign to fight violence against women. UN Women and the World Association of Girl Guides and Scouts program: Voices against Violence provides girls, boys, young women, and young men with tools and expertise to understand the root causes of violence in their communities, to educate and involve their peers and communities to prevent such violence, and to learn about where to access support if they experience violence. He for She Campaign is a UN Women-initiated solidarity movement that seeks the engagement of men to work with women in achieving gender equality and to challenge traditional notions of both femininity and masculinity. Online safety apps like be safe and guardly are also worth mentioning here. HARASS map is a mobile online technology that uses interactive mapping to try to reduce the social acceptability of sexual harassment throughout Egypt by monitoring harassment.

The use of ICTs to enhance interventions by women's rights organisations to address different forms of violence against women and girls. The application of ICTs for work focused on the healing of women victims/survivors of violence. The provision of small grants for women victims/survivors of violence to increase visibility of their issues and enable them to participate in combating VAW.

Efforts to address new forms of violence against women and girls facilitated through the internet, mobile phones and other emerging technologies.

Advocacy towards better formulation and implementation of rights based ICT policies that impact on violence against women and girls.

Solidarity formation- Use of ICTs in School and college campuses can be initiated to make the girls and women aware of their rights which could act as the precursor to eliminate violence of basic human rights of girls and women. Thematic campaign to stop child prostitution and child pornography will help in the long run to combat VAW.

Campaigning- Gender sensitive ICT policy with the active involvement of civil society, gender rights advocacy groups, mass media, social scientists, policy makers etc. is an ideal platform to accommodate best of the practices and policies to address the need of ICT and gender empowerment. For those women who are digitally excluded must be brought to the fore front of digital inclusion.

Technology Sector- Lack of due representation of women in the technology sector – including in private and public sector - may also have an impact on priorities, culture, technologies developed and corporate policies, regulations and infrastructures that can promote or reduce cyber VAW.

Training- Police forces should be trained, properly resourced and given the necessary powers to reach out to victims to ensure all forms of VAW in varied settings are recognised, recorded and acted on expeditiously.

Community mobilization- Strategies, laws and policies must demand a

concerted effort that includes education, awareness raising, and sensitization and community mobilization. They must also contribute to tackling discriminatory stereotypes and attitudes, and they must mandate the research and knowledge-building necessary to support policy development. Campaigns that address social and cultural norms around violence against women are more prevalent today than twenty years ago. Earlier campaigns sought to raise awareness of the problem. More recent campaigns seek to engage the community – neighbours, family members and bystanders – to take an active role in preventing and stopping violence. These messages encourage community members to “break the silence” and show their support for preventing violence against women. There is also a role that the individual must play in self-regulating, not perpetuating negative gender norms and practices by sharing, watching and listening and by holding media and content providers to account.

Accessibility and affordability- In terms of accessibility and affordability the technology has to be gender- friendly. If more and more women could access and afford technology then the digital age will experience paradigm shift. Subsidising the products and gadgets are not the solution but maintenance and improvement related incentivization in the long term will be able to help. The Alliance for the Affordable Internet has been active in ensuring that women's organizations and gender advocates are active participants in the development of national Broadband Strategies.

Effective Use- The knowledge and resources to translate access into effective use is equally important. ICT initiatives will not be appropriated unless they also deliver information that is useful and relevant to the end users and where the end-users have the capacity to act on it. While ICTs can deliver potentially useful information, such as market prices for women in small and micro-enterprises, it is only one aspect of a longer chain of resources necessary to effect sustainable development.

Accountability- Although it is possible to hold intermediaries legally responsible for such violations, the threat of liability for intermediaries can be counterproductive in preventing tech-related VAW because it effectively leads to over-regulation of content by companies and platforms, resulting in adverse effects on freedom of expression and association. Rather intermediaries should exercise the responsibility to create conditions under which women can fully enjoy their human rights and fundamental freedoms. The Internet and social media have revolutionized communications about violence against women. Technology has increased access to information, which has both positive and negative effects. Messaging has moved from creating awareness of violence against women to promoting actions and services. Changing social norms, community involvement, “breaking the silence,” and depicting men as allies are more common messages today than two decades ago.

Future and rights- The convergence of technology with culture, institutions of family and marriage, sexuality, body, privacy and freedom of expression is the need of the hour. If society is like a base structure then technology can be the superstructure which is influenced by and

simultaneously influences social structure. There is a constant dialogue between the two realm of social structures. In the digital age the dominance of the men as decision makers, users, designers and content producers for the internet is itself an indicator of the digital divide and digital inequality. This inequality can not take effective policy decision regarding the VAW in digital space. Collaboration and representation of women in each stage starting from policy formulation to content design to surveillance and broadly at every step of censorship and combating VAW in cyber space presence of female expert groups and the active involvement and deliberations and suggestions must be ensured

Internet governance can play an active role in redressing VAW in digital sphere. Multiple stake holders like women's right organizations, state, ICT users and intermediaries engagement through continuous debate and dialogue can help in evolving of best practices. Transparency and effective organizational principles must be the foundation of internet governance. It is vital that civil society hold policy-makers to account for the impact of their decisions on the lives of the marginalised, particularly women, and to ensure that the best possible outcomes are measured by the impact on people's lives, rather than on the profit margins of ICT companies – which is the way that policy in countries such as Malaysia appears to have been dictated: even when there have been positive outcomes for human rights and VAW, such as the guarantee of freedom of expression online, this has been at the request of potential investors.

Lastly in lieu of conclusion we can say women's organisations across the region are already taking advantage of new technologies to improve networking, access to information and to provide new services. The role of civil society organisations in the struggle digital violence against women and the use of all possible means to raise awareness of women's rights, including the gradual incorporation of ICTs, is well known and widely recognised. Nevertheless, it is important to understand that violence against women is a public issue, not a private one, which is why the public authorities in the countries of the region must intervene, by adopting the necessary measures and legislation to stop the suffering and death of thousands of women. This is demand of society and culture to solve the problem of digital violence against women.

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Induction of Mitotic- Chromosome Anomalies and Micronucleus test in Anabas Testudineus by Muriate of Potash

• Chanda Kumari

Abstract - Potassium is an essential ingredient for the growth of plants. Lack of potassium salts render the different parts of the plants unhealthy in appearance. This fertilizer has been found to be present either in residual or some metabolized/derived form among the plants grown over them, and thus gets assessed to the body of the animals that feed upon these plants. As agricultural run-off, it also pollutes the water bodies and produces various histopathological and cytogenetical changes in fishes that live therein. Present investigation was therefore taken up to study the cytogenetical and genotoxicological effects of potash in *Anabas testudineus*.

Key Words- Muriate of Potash, Genotoxicity, Micronuclei, Chromosomal abnormalities, *Anabas testudineus*.

Introduction- The aquatic environment plays vital roles for ecosystem functioning, human health and civilization. They are subjected to low-level and long term exposure of increasing number of new chemicals released continuously (Maccubbin & Earsing, 1990; Folmer *et al.*, 1993). As a consequences of human population growth and industrial development, the production, consumption and disposal of anthropogenic chemicals (Chanda Kumari, 2008; Chanda Kumari 2019; Chanda Kumari 2019; Chanda Kumari 2020; Chanda Kumari 2020; Bruna *et al.*, 2008; Bushra *et al.*, 2002; M. Abul Farah, 2003; Bushra Ateeq, 2005; Sanjay *et al.*, 2006; Sanjay *et al.*, 2005; Daoud Ali *et al.*, 2008; Daniela *et al.*, 2008; Chaurasia *et al.*, 2005) continue to increase. The aquatic environment remains the ultimate recipient of increasing number of the anthropogenic chemicals, the large proportion of which are potentially genotoxic and carcinogenic substances, where the aquatic organisms are the ultimate sufferers (Lakra, 2009). 28,000 of fish species inhabit these aquatic bodies (Nelson, 2006). Among them, there are varieties of fish species that are both marine and fresh water, and are being faced by the regular increase in the level of such pollutants. (Jha A.N., 2004; Wirgin and Waldman, 2004; Chanda Kumari, 2008; Bruna *et al.*, 2008; Bushra *et al.*, 2002; M. Abul Farah, 2003; Bushra Ateeq, 2005; Sanjay *et al.*, 2006; Sanjay *et al.*, 2005; Daoud Ali *et al.*, 2008; Daniela *et al.*, 2008).

Fishes as an important aquatic fauna, serves as an important source of food item. On, the other hand feeding a large number of increasing population, man depends largely on the agricultural system. To increase the yield of the crop, large number of agrochemicals (pesticides as well as

fertilizers) are being used. Paddy-cum-fish culture is in great practice in some parts of India as well as Far-East Asia. These paddy-fields are inhabited by many of the air-breathing fish species such as *Anabas* sp., *Channa* sp., *Clarias* sp., *Heteropneustes*, *Trichogaster* sp. and shrimps. These fishes can live in the shallow water and since they have well developed breathing capabilities, can survive the conditions of the paddy fields. Hence, the spread of such agrochemicals in these paddy fields expose these fishes directly/indirectly to the high concentrations of these agrochemicals. These synthetic fertilizers has led to the large scale contamination of our living environment (<http://www.fao.org/docrep/W2598E/w2598e0.4htm>, 6.22.2005) As agricultural run-off they pose a serious effect that induce various histopathological (Srivastava and Sravastava 1979; Nanda et.al, 2004; Ravindar, 2000) and cytogenetical changes (Jha, 1998; Kohlpoth, 1999; Dashwood, 1998; Baski, 1990) in the plants, aquatic animals, cattles and humans (Dravyam and Rajamanickam, 2003, Neff, 1985; Bhaskaran, 1988; Singh et.al, 1998; Gupta, 2000. <http://www3.intersciencewiley.com/cgi-bin/abstract/ABSTRACT?CRETRY=1&SRETRY=6/15/06>).

Thus, by and large such contaminants impacts not only our economy by increase in mortality rate of the fishes but also our health by producing different types of anatomical, physiological, reproductive and cytogenetical changes (Chanda Kumaria, 2008; Sah *et al.*, 2006; Thakur & Sah 1989a,b, Ram & Sathyanesan, 1987b, Sarkar, 1991; Varadachari, 1992; Wood C.M., 1993; Sah & Ratha, 1998; Srivastava & Srivastava, 1979; Gupta V.K., 2000; Sah *et al.*, 1995).

This fertilizer has been found to be present either in residual or some metabolized / derived form among the plants grown over them, and thus get accessed to the body of the animal that feed upon these plants (Baker and Chesnin 1975; Chaurasia and Sinha 1989;). The genotoxic effects of agrochemicals has been reported in various test system (Chaurasia and Sinha, 1987, 1988, 1990; Chaurasia 1991), but the genotoxicity of this relevant fertilizer is poorly known and limited to plant system only (Chaurasia and Rathore 1980, Chaurasia and Sinha 1986), mice (Chaurasia and Sinha 1988, Chaurasia 1991, Chanda kumari & Chaurasia O.P 2008) but very few reports are available in the air-breathing fishes (Chanda Kumari 2019; Chanda Kumari 2019; Chanda Kumari 2020; Chanda Kumari 2020). So, the present investigation was therefore taken up to study the hitherto almost unknown genotoxic effect of potash on chromosomal abnormalities and incidence of micronuclei in *Anabas testudineus*. Some substances, when present in low concentration may not cause acute detectable effects in organisms, but may in the long turn, reduce their life span (Nehl S, 2001).

1. Materials and Method

Specimen- Fresh water fish *Anabas testudineus* was procured from local market. This air-breathing fish is available round the year in pools and water logged marshy areas. The specimen was kept in the aquarium for 10-15 days for acclimatization and fed on minced liver. Healthy

individuals having body weight of 25 ± 5 gm were randomly allocated to various treatment groups.

Chemicals -Potassium is an essential ingredient for the growth of plants. Among the forms of potassic fertilizer, potassium chloride or muriate of potash is extensively used. It is a coarse or fine salts resembling ordinary salts and having a bitter taste. It contains 80-96% of potassium chloride, and is guarantee to contain 60% potash. Lack of potassium salts render the different parts of the plant unhealthy in appearance.

Doses and Treatment- Acclimatized fishes were treated with freshly prepared doses of Potash with three different concentration i.e Sub-lethal (SL-0.5%), half of the sub-lethal (HSL-0.25%) and quarter of the Sub-lethal (QSL-0.125%) for 7 consecutive days. The animals were sacrificed after seven days of the termination of treatment.

Micronuclei- The micronucleus test was conducted in peripheral blood cells. A film of blood smear was prepared after mixing with few drop of anticoagulant (0.1% trisodium citrate solution) on a grease free clean slide. Preserved in methanol for 10 minutes, stained with 0.15% Leishman's stain for 20-25 minutes and cleared in xylene for 5 minutes. 3000 RBC cells were screened. A concurrent control were carried out where animals were kept in fresh water.

Chromosomal abnormalities -For studying the chromosomal abnormalities, tissue from head kidney were taken and the slides were made by the conventional Colchicine-hypotonic-acetoalcohol-flame drying-giemsa staining technique. 300 well spread and randomly selected metaphase plates were screened and data were analyzed by statistical procedure. A separate common control was also carried out.

3.Results and discussion- Amidst 3000 RBCs, only 0.5% micronuclei were found in the control group while 1.66%, 1.90% and 2.36% micronuclei upon three doses of Potash were observed (Table -1). A close observation of data revealed that the effect was dose-dependent (Graph -1). Most of the cells were found to have only one micronucleus of very small size (due to acentric fragment) or bigger size (due to lagging of whole chromosome) but very few cells were found to have more than one micronucleus.

Amidst 300 metaphase plates, 24.0%, 27.0% and 33.6% chromosomal abnormalities were found upon treatment with three doses of Potash in contrast to 6.6% in the control (Table -1). The abnormalities that were found can be put in two categories—gross and individual ones. The insignificant gross changes were the stickiness, polyploidy, hypoploidy etc.. The significant individual changes were mostly breaks in the chromosomes (Chromatid break, chromatid gap). Acentric fragment and minute fragment were also observed that might be due to breaks and deletion of certain part of chromosomes (telomeric or interstitial part). A quantitative estimation revealed that the abnormalities increased with the increase of the doses. Thus the effect was dose dependent (Graph-1). The individual type of damages were more prominent than the gross type because Potash is synthetic in nature. While Chaurasia and Sinha 1987, 1988, 1990, Chaurasia et.al. (2005) were studying on genotoxicity induced by fertilizer and silk

dyeing wastes; Kumar and Sinha(1989)on doses –dependent genotoxic effects of synthetic pesticides,they observed that the individual type of damages were more frequent than the gross type.Bose and Sinha(1994),Dharmashila and Sinha (1994) and Awasthy et.al.(2000)could find that the biomutagens induced more gross type of abnormalities than individual types.This differential sensitivity might be occurred at two different levels. First ,the damages at protein level either on spindle protein or on protein packing. Second , by the production of electrophilic ions and reactive radical during the metabolization of mutagens (Klopman et.al..1985).Such electrophilic reactive radicals /ions might attack to nucleophilic site of DNA leading to structural changes in chromosomes(Awasthy et.al.1999).

The result thus shows that the synthetic fertilizer Potash was mutagenic and harmful to the fishes with a regular deterioration of their population and thus affecting the economy of our country.

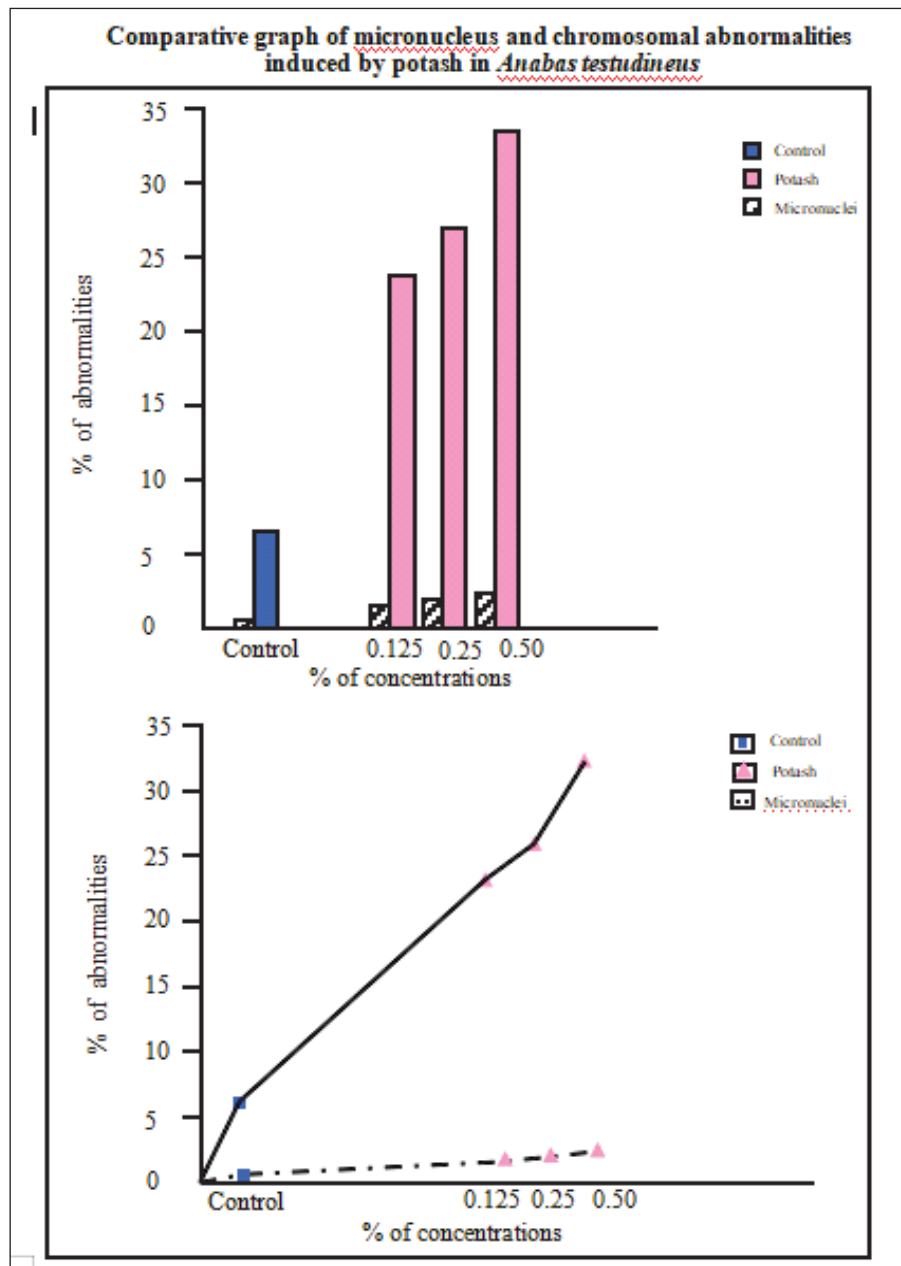
Incidence of micronuclei (N=3000) after Potash treatment in *Anabas testudineus*.

Table-01

EXPERIMENT	Abnormal cells				Micronuclei			
TREATMENT (in %)	NO.	%	±	S.E	NO.	%	±	S.E
Control	15	0.50	±	0.12	15	0.50	±	0.12
0.125	50	1.66	±	0.23*	50	1.66	±	0.23*
0.25	57	1.90	±	0.25*	57	1.90	±	0.25*
0.5	71	2.36	±	0.27*	71	2.36	±	0.27*

Table-02
Chromosomal abnormalities (N=300) after Potash treatment in *Anabas testudineus*

Treatment	No. of metaphases analyzed	Abnormal metaphase			Gross Abnormality			Individual Abnormality			Total Abnormality		
		No.	%	± S.E.	No.	%	± S.E.	No.	%	± S.E.	No.	%	± S.E.
Control	300	20	6.60	± 1.43	3	1.00	± 0.57	17	5.60	± 1.32	20	6.6	± 1.43
0.125%	300	72	24.0	± 2.46*	12	4.00	± 1.13	60	20.0	± 2.30*	72	24.0	± 2.46*
0.25%	300	81	27.0	± 2.56*	8	2.66	± 0.92	73	24.3	± 2.47*	81	27.0	± 2.56*
0.50%	300	101	33.6	± 2.72*	9	3.00	± 0.98	92	30.6	± 2.66*	101	33.6	± 2.72*



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Rise of glamour and fiction in crime reporting in the contemporary society: A case study of gangster **Vikas Dubey**

● Sanjay Verma

Abstract- *Society is moving with a fast pace and commercialization has entered all aspects of life. It is difficult for the common man to cope up with this fascinating, fast paced society. Thus the common man is under tremendous pressure and suffers from melancholy and maladjustment, emotional and psychological instability and socio-economic pressures. Now-a-days newspapers, radio, television broadcasts and web-sites are filled with reports on violence that range from sensational to the routine, as well as stories on crime trends and the administration of criminal justice in the country. An analysis of news reports present a contrasting scene stating that crimes of violence are disproportionately featured when compared to the incidence in the official crime data. This paper presents a gloomy picture of crime reporting through a case study of gangster Vikas Dubey and accentuates the sanguine side of mass media that can consequentially act as a catalyst out of its strength and has the intrinsic power to influence in creating mass awareness.*

Key Words- Mass-Media, Journalist, Globalization, Crime, Reporting, Ethics

Introduction- It is true that crime has become the integral part of society, everyone is concerned about the fact that the mass media has given ample space and time in portraying the crime incidents but it is also true that media has exaggerated the portrayal of crime incidents and it is choosy in covering certain incidents. The effect of the depiction of crime by print and broadcast media has a far-reaching and deep effect on the society, especially on teen-aged children. Besides this, it appears that the journalists are reporting crime without any emotions and sentiments. The commercialization of media has compelled both the journalists and the media houses to sensationalize the story so that it can be sold. Thus commercialization has made news a product that needs all kinds of glamour, charm or "masala" to sell. This portrayal of crime in mass media has raised questions in my mind and I decided to explore some of the facts.

Journalists need to introspect and choose how they want to contribute to national and human development. It is true that with technological advance and breakneck competition among newspapers, the operation of a modern newspaper with different functions each one requiring skillful planning and execution by knowledgeable and experienced people, is not an easy job. The importance of their contribution for the success of the

paper must be duly recognized. Care has also to be taken to see that the proprietor's interest in the economic success of his venture does not unduly restrict proper functioning of newspaper. Commercial interests cannot be allowed to override the editorial considerations.

The editorial freedom must come first. As the Second Press Commission has observed, the journalistic freedom is the heart of the freedom of the press and the exercise of this freedom depends largely on the editor. "The freedom and independence of the editor is the crux of the matter" said the Commission. It is, however a pity that the high office of an editor in the newspaper has either been demolished or considerably marginalized. More power and authority lie with the in-charge dealing with advertising and corporate communication. The Print Media will do well by keeping in mind that if it wants bright future, it will have to sow the healthy seeds today. Future is not something that awaits. It is something for which foundation is to be laid today. The potentiality of the Print Media has no limit but it is to be harnessed carefully. The need is to balance technological revolution with the value based ethics in journalism.

Crime and Crime Theories- It is difficult if not impossible to define as to what can be construed as crime which has no universal definition. The definition and meaning of crime differs from person to person, communities to communities and societies to societies. In modern times, crime is a concept that is being used to refer to a wide array of social misdemeanors in many societies but activities such as theft, murder, assault, rape, arson, etc. often come under the definition of crime in some societies. Indeed, in some societies crime consists of any conduct which causes a disruption of public order and a decline of public security and even in other societies, crime simply connotes a steady descent into social chaos. Crime is relative and can mean different, even opposed, things according to one's point of view. Therefore, it should be the contention that this problem arriving at a single, universal definition of crime poses a serious threat to finding realistic measures or strategies for prevention of crime and control of the same anywhere in the world. Giddens., Duneier & Appelbaum rightly observe:

Any important aspect of sociological thinking about crime should place an emphasis on the interconnections between conformity and deviance in different social contexts. This view represents the thinking of most criminologists to the effect that there are no clear standards to guide behaviour in a given area of social life (Giddens., Duneier & Appelbaum, 2005).

"According to the social interactionists, therefore, the deviant's experience of being labelled a deviant is germane to understanding his subsequent behaviours". This perspective is a clear pointer to the fact that stereotyping and stigmatization can be a crucial cause of deviance or crime. In short, sociological social interactionist theorists are of the view that deviance generally cannot be understood without reference to the societal reaction it evokes. Vikas Dubey's behavior and stereotyping as Arjun Pandit is the best example of this theory.

On the other hand, the Marxist's explanation to crime and deviance generally is based on the structural and class differences that exist in any capitalist society. The thrust of this perspective is that criminal laws can be seen as a product of specific forms of interaction (struggle) among certain historical forces and relations of production. This marxist notion is also supported by Italian revolutionary Gramsci who was put to death in solitary confinement by Mussolini's Fascist regime. An important postulation of the Marxist thesis on law presupposes that most acts often considered and regarded as criminal are proscribed because they are measured by those in power to be damaging to the vested interest of the ruling class. In an interview, Vikas Dubey claimed that he was destined to be a politician as he was born in a political family. So this explain's his power struggle in his social arena.

In all the theoretical perspectives on causal explanation concerning crime highlighted above, it is difficult, if not impossible, for one to establish any one-to-one direct relationship between family and crime except by the introduction of a third variable (mediating factor) under the structural functionalist paradigm which maintains that society causes deviance behaviour and that society produces Durkheimian "anomic" strains in individuals by socializing its members to want success and at the same time limiting the institutionalized means to achieve these goals. Vikas Dubey used all the institutional means whether police, politics and gangsters to achieve his goals.

The Culture of Control by David Garland, one of the most respected writers in criminology and the sociology of punishment. Garland explained the ongoing dilemma over the question of 'what is crime?' by pointing out the practical ways in which crime is approached and perceived in the present society. Garland did not refer to crime merely as an increasing factual reality, nor indeed did he refer to the more complex category of the social fear of crime and ask how we can distinguish the reality of crime from the public and media image of crime. The theme of Garland about the crime was that crime was now a core category of governing. His perception about crime was that increased crime has given rise to a new culture particularly in the US and UK, which he termed as the 'culture of control'.

The major psychological theories of crime can be categorized as; psychoanalytic theory, learning theory, and control theory. According to Sigmund Freud, father of modern psychology, the psychoanalytic theory has taken a somewhat indirect approach in explaining criminal behaviour. It relies on the pathological process by which criminal acts. Freud believed that there was an inner moral agency (superego) governing conduct, whose development depends primarily on satisfying parent-child relationships. Freud further explained that insufficient superego formation and its function accounts for criminal behavior. Therefore behavior depends on the balance of the psychic energy system of an individual. Any disturbance in the psychic energy system or any structural component can produce maladaptive development.

The work of August Aichhorn is one of the first formal psychoanalytic attempts at understanding criminal behaviour. Aichhorn stated that "there was some underlying predisposition termed "latent delinquency" that resulted in a child becoming a criminal later in life". He believed that each child was typically asocial in its first dealings with the world, and due to a failure in psychological development this asocial tendency (or latent delinquency) persisted and governed behaviour resulting in the criminal behaviour. This tendency was evident in Vikas Dubey when he committed his first crime at adolescence by killing Headmaster of the school and later became dreaded gangster.

Establishing Vikas Dubey as a Criminal: Criminal Psychology- In an interview gangster Vikas Dubey, has been recorded citing that he grew up among people with strong political background and connection, which could be the reason for him to be fearless. This can be well explained in the light of observational learning theory in Psychology wherein the individual learns through observing others and their social environment. Observational learning plays an important role in constructing attitude, behavior and actions (Bandura, 1977).

Secondly, if we closely observe his act of murdering a politician, way back in 90's and easily getting away due to lack of evidences against him, also strengthen the fact that he not only escaped legal punishment but was rewarded by his political Nexus group as he was elected as the office bearer (Gram Pradhan) of his native village. This closely hints at operant conditioning phenomena, in psychology, wherein repeated rewards strengthens the conditioning for working in a certain way or demonstrating a particular behavior (Skinner, 1938).

Third, through various media reports, it has surfaced that gangster Vikas Dubey, has the tendency of being extremely aggressive, violent and frequently indulging into violation of societal rules and regulations, these lead towards an understanding that he might be having traits of anti social personality disorder such as lack of empathy, exhibiting no remorse or guilt at wrong doings, lie frequently etc. (DSM-5, APA, 2013); For example, he used to say to unknown persons or to the reporters that he is a social worker (lying easily) at a time when had close to 60 FIR filed against him, and killing of 8 police personnel (July, 2020) where rather showing any guilt for his heinous crime, he stated that to have said, that he made the police officers learnt their lesson. So we can conclude that he showed symptoms of anti social personality.

Vision of Broadcast And Print Media- Even before the rise of the modern mass media, crime and criminal justice have long been the sources of popular films, drama, and other forms of representation. Such representation has been demonstrated by the genre of criminal biography and pre-execution confessions and apologies which flourished in the seventeenth and eighteenth centuries. Similar accounts of fictional stories have been continued to till day, occupying the true crime shelves of every nook and corner of bookshops and joined by many volumes retelling the adventures of legendary police personnel as if they were fictional sleuths

like Sherlock Holmes. In overtly fictional crime narratives, ultra-realism (often presented in a quasi-documentary style) has been the predominant genre in retelling the 'acts of crime'. Another problem occurs in the narrative framework of the news story owing to the overlapping of the media and criminal justice systems through sensationalization and dramatic representation which cumulatively makes the distinction between 'fictional' and 'factual' programming ever more complex. Crime news has shown similar patterns in studies conducted at many times and places. The analysis of news reports, from earlier studies to till day, have found that crimes of violence are disproportionately featured compared to their incidence in official crime statistics. In fact, the pressure of generating more and more TRP and in turn getting more revenue from advertisement has compelled media persons to glamorize and sensationalize crime news which actually shows no relationship between patterns and trends in crime news and crime statistics.

TRP (Television Rating Point) Driven Media Space- Studies assessing the profile of victims in news stories are fewer in number than the analysis of the representation of offenders. There is a clear trend for victims to become the pivotal focus of news stories in the last three decades, paralleling the increasing centrality of victims in criminal justice and criminology and crime fiction (Reiner et al 2000, 2001 & 2003). News stories, especially crime news, overemphasize and colour the crime risks faced by people, while disproportionately representing women, children, or older people as victims. The consistent study of crime news stories showed the predominance of dramatic stories about criminal incidents, rather than analysis of crime patterns or the feasible causes of crime. There are examples of crime, where issues of power and gender disappear in the fascination with the demonization of individual offenders or victims. Stories with child homicide victims and perpetrators are particularly likely to be featured so prominently that they become long-running stories with a familiar cast of characters, regularly invoked as symbols of wider issues or the state of the nation.

In the case of Vikas Dubey, all the main streamline media reported day and night the incident of ambush whether it was print or broadcast media. Since the news came on July 3, 2020 about the killing of police personnel by gangster Vikas Dubey and his henchmen, all news channels focused on Vikas Dubey's life story describing who's who. His life was portrayed as a hero comparing with Bollywood heroes, political leader and as an international don. All the media repeatedly focused on the same visuals running number of time and glorifying the life of a criminal. There was no space for other news stories. The fight among media houses, to generate more and more TRP, has belittled the basic principle of the profession. TRP is the basis of getting advertisement, so media houses have waged a war among themselves. Common man is unaware of this game of manipulating of news or fictional representation of news. He believes in what has been presented to him especially in prime time show.

Interviews of Vikas Dubey were shown repeatedly as if he has

achieved some glory. When Dubey was caught at Ujjain, Madhya Pradesh, he informed the police with pomp and show that, “*Mai Vikas Dubey Kanpur wala*”. This statement of Dubey was repeatedly shown and thus glorified by all news channel and print media at regular interval with each prime time show. There was no democratic use of media space for other news items even for news associated with Chinese aggression which has a long lasting impact on national security and bilateral relations with our neighbours.

Impact of Visuals- The reporting of 'white-collar crime' tends to be concentrated in 'quality' newspapers and is often restricted to specialized financial pages, sections, or newspapers framed in ways that mark it off from 'real' crime unless they are sensational celebrity-style stories that are treated as a form of 'infotainment'(Stephenson-Burton 1995, 137-44). The pattern of crime reporting in print and electronic media differs in intricate ways; news items about deviance and control largely were the essential feature of 'newsworthiness' in a typical fashion. Now, the minute to minute coverage by news websites and YouTube channels has given new dimension to reporting and presentation of stories.

However, the growing phenomenon of media representations of crime in a highly sensationalized and titillating manner, especially while reporting heinous crimes like murder, rape, sexual harassment or physical assault; have made both liberals and radicals worried about media's 'perverted' portrayal of crime. They believe that the media are the cause not only of crime itself but also of reporting their 'newsy' exaggerated version of crime that aims at pushing both their circulations and revenues that goes against even the most rudimentary basic lessons they are taught while reporting crime as journalists in mushrooming public and private media institutes. It causes unnecessary public alarm about law and order, generating 'mob' support for repressive solutions where police killing of any person will befit the usual excuse of “collateral damage” or *samuhiknishadh*. Their reports of crime don't draw support from intelligentsia or civil society but that of from a 'misinformed' and gullible mob. This leads to the demonization of the media itself which does not augur well for the overall public trust on media reportage of crime which only and only reflect the Truth and not some self-serving 'fabricated truth' because media must practice what it preaches others ---- '*khabar wohi jo sachdikhaye*'

There is saying, a picture is worth of thousands words. In the case of gangster Vikas Dubey, all the mass-media whether electronic, print or web portals picked similar pictures and visuals which glorified the life of Vikas Dubey. He was compared with Bollywood heroes, International gangster Dawood Ibrahim and Shahabuddin. Pictures with media celebrities, politicians, bureaucrats not just glorified his life and deeds but their repeated telecasts can impact long lasting influence on the minds of youth.





The above three collage speaks volumes on the media reporting in India in the contemporary society and role of mass-media in recent times. The first collage shows the social status and acceptance of a hardcore dreaded criminal as presented by the media. The second collage presents Vikas Dubey as an icon as compared by the media with bollywood celebrities and real-time international don. Thus glorifying the crime and criminal act of the gangster. Third collage shows the political and police connections. The above pictures, visuals and the interviews of Vikas Dubey were published/telecasted now and then by all mass-media ignoring the impact on common man and youth. This glorification and fictional presentation especially by twenty-four hour news channels have made crime news as an integral part of our life. The impacts of globalization, pressure of TRP and owners of media houses have compelled journalists to compromise from media ethics.

Due to the prejudiced and faulty reporting of crime by media, a huge research industry has been generated conducting empirical studies of media content, production, and effects of their portrayal of crimes. A more sophisticated criticism of the research conducted on media reportage of crime is that 'repeated failures to find anything much out would suggest that the wrong question was being asked'. Most analysis of the content of media representations of crime have focused more narrowly on the legally defined category, not the broad sociological concept of deviance as opposed to 'social control'. Some studies take into account only specific criminal feuds, issues of criminal justice and of criminal law violations, and issues of socio-political conflict and terrorism. Such studies chose not to focus on reports and articles about the actual sociological causes of the growing rate of crimes. Given that different studies work with different concepts of crime, and have ranged over many different newspapers and places, it is not possible to conclude just from a literature review whether there has been a trend for an increasing proportion of news reporting about crime looking at the disproportionate growth in number of 'crime reporters' in the media world. Although later studies conducted predominantly find higher proportions of crime stories than earlier ones, they have also adopted broader concepts of crime, so the increase may well be a result of the measurement procedures used rather than a reflection of change in the media itself.

There are also variations between different media and markets. Print journalism, especially quality newspapers and editorial pages, will often have more analysis than broadcast news obsessed with "breaking news". There is a tendency in recent years for critical and campaigning groups to have more access to the media, partly because of the increasing politicization of law and order and creating controversy by news anchors to sensationalize the stories. Similar reportage can be seen in Vikas Dubey case also where media, political groups and his caste men were divided into the acts of Vikas Dubey and his killing. These groups were given prominence from every section of media. The ultimate sufferer, in this divided media or campaigning group, is the common man who believed in true spirit of news reporting and presentation.

Conclusion- There must be some guidelines or code of conduct in reporting crimes. Seeing the prevailing sorry state of affairs of media reportage of crimes, this might be the only practical and actionable way to stop media from 'misreporting' crimes or exaggerating the crime incidence, highlighting the life story of criminal and explaining who's who. There is a need of democratization of media space. Media should not act as a judge but should confine its role as informer. Media is admirably suited and best fitted to perform that role.

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Economic Status of Bihar

● Smrita Kumari

Abstract- Gross state domestic product of Bihar for the yr of 2016-14 has been around 3683.37 billion INR By Sector its composition in Agriculture is 22 percent, Industry is 5 percent and services is 73 percent. The state's debt was estimated at 77 percent of GDP by 2007. In terms of income, the district of Patna, Munger and Begusarai were the three best off out of total district in the state recording the highest per capital gross district domestic product of Rs. 31,441, Rs. 10,087 and Rs. 9312 respectively in 2004-05. In 2009-10 the Total GSDP at 2004-05 prices is Rs. 1,35,900.23 crore yielding a per capita Income of Rs. 13,983.

Key Words- Labour intensive technology, GSDP, Per capita Income, Trickle down effect.

Preamble- Poverty scenario, rapid economic growth, unemployment, Industrial backwardness, lack of infrastructure.

Introduction - Bihar is one of the backward and poor state of India. The fruit of economic growth have not benefited everyone uniformly in the state. Some are left behind and some others are not touched by the benefits of economic growth. It is proved globally that the So-called trickle down effect not work in all societies and India is no exception to this. There are various reason for this uneven development in the society. Modern economy is technology driven and not labour intensive high Volume of high qualify goods and services are produced with lower labour hands, in short, the modern economy is not generating much employment and some times it replaces labour with machines and tools.

Poverty is defined in terms of income, expenditure and calorie intake, social dimension of poverty is a neglected area of study. The goal of poverty alleviation programme should aim merely increasing the income level of individual, household or group but mainstreaming marginalized in development process of the country. The country cannot claim economic growth, when a section of the people is marginalized to the periphery of the society. The rapid economic growth should accelerate the access to service like education and health services for all especially for poor person of the society.

Poverty Scenario of Bihar- Bihar is second largest poorest state after Odisha in India. The overall incidence of poverty in Bihar as per 61st NSS report 2004-05 is 41-40% much above the all India level of 27.50%.

Table No.1
represent rural poverty gap between Bihar and India
has increased from 18.8% in 1985 to 19.3% in 1993-94
but declined to 13.8% in 2004-05

Period	Bihar		India	
	Rural	Urban	Rural	Urban
1983-84	64.4	47.3	45.6	40.8
1993-94	56.6	40.8	37.3	32.4
2004-05	42.1	34.6	28.3	25.7
Change in Rural Poverty (%)	-7.8	-6.6	-8.3	-8.4
1993-05	-14.5	-06.2	-9.0	-6.7

Per capita land and tenural Status of BPL Household

Particulars	BPL Households	
	Patna	Darbhangha
Average Size of land holding	0.28	0.24
Per capita land	0.052	0.036
% operational holding	9.7	0
% Own land	21.7	1.3

Statistics of Economy of Bihar

GDP Rank	-	13 th (2017-18)
GDP Growth	-	Rs. 43.822 (2017-18)
GDP per capita rank	-	33 rd
GDP by Sector	-	Agriculture 20%
		Industry 19%
		Service 61%
Inflation CPI	-	2.2% (2016-17)
Population below poverty line -		33.74% (2013)
HDI	-	0.566 (2018)
Unemployment	-	7.2 (2017-18)

Above statistics can defined the economic images of Bihar and also clarify that poverty and unemployment is main causes of economic backwardness of Bihar as we know there are many factor behind the economic decline of Bihar but some area.

- 1. Low Human capital-** Human capital is measured by investments in health and education and India is ranked 158th among 198 countries.
- 2. Weak institutions -** The poor state of education in Bihar is not hidden from anyone, every year lakhs of students are forced to leave Bihar only because the education infrastructure there is bad shape. According to the date for 2017-18 there are 40-652 primary schools in Bihar. but as soon as you go higher, the education system in Bihar starts to collapse. In terms of secondary schools Bihar ranks at 10th spot :
- 3. Heavy dependence on Agriculture-** Agriculture and allied sector contributes 18.9 percent of GSDP. The rate of growth of agriculture and allied sector has been 5-4% during 2005-10 and 3.7% during 2010-14. Farm holding are small and scattered there are about 1.61 cr. From holding of which 91 percent is marginal.

4. Industrial Backwardness- The main reason of economic backwardness, poverty and unemployment in Bihar is lack of industries in Bihar after bifurcation in 2000, the level of industrialization in Bihar has further slipped. Bifurcation led to not only a decline of industry in Bihar, it also drastically altered the regional representation of different industries, currently food, tobacco, leather and non metallic minerals products make up the base of present industry in Bihar. During the tenth plan period, the industry sector in Bihar recorded a growth rate of 9.80 percent. What this apparently healthy growth rates hides however, are a range of structural weakness. For a start, the industrial sector in the state is over whelming by dominated by unregistered unit which account for more than half of total income, further as revealed by the Annual survey of industries data for 2002-03, more than 857 percent of the net value added is accounted for by food and beverages, tobacco and petroleum product, clearly demonstrating the narrow base of industry. Even more disturbing is the fact that as against Rs. 3032 crores as total fixed capital, Rs. 1378 crores as total working capital and Rs. 5172 crores as total invested capital as much as Rs. 3875 crores is outstanding loan against there factories, little surprise that despite Rs. 8872 crore as aggregate value of output the net value added was only Rs. 614 crore and net income even lower at Rs. 512 crore.

5. Lack of Infrastructure- Lack of infrastructure means lack of basis roads, highways and energy required for development of economic growth.

Economy of Patna - During the 17th century Patna was the centre of international trade. The British opened a factory in Patna in 1620 for sale and purchase and storage of silk various European factories and godown started much rooming in Patna.

Per capita income of Patna :- Even though Bihar has the lowest per capita income in country at Rs. 5,772, Patna recorded a per capita of Rs. 30,441 it was highest than Bangalore or Hyderabad in 2007.

World Bank Report about Patna- In June 2009 the the world Bank ranked Patna as the best city of India out of 17, to start a business. The world banks also ranked Patna 2nd for the enforcement of contracts, 9th in dealing with construction permits, 15th for paying taxes and registering property.

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Personality characteristics, mental health and academic performance among tribal students

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● Chandra Shekhar Prasad

ABSTRACT- *Mental health reflects the true profile of the real person in an individual. A consistent style of life, a persistent mode of behavior emerging from his attitudes, abilities, habits and value all in one goes to manifest one's mental health. Mental health is an aspect of total personality. The objective of the present study is to examine the relationship between mental health, academic performance and personality characteristics among Tribal students. A total 300 participants were randomly selected from Jharkhand. Mental Health is a normal state of well being, a positive but quality of life. Mental health was measured by mental health inventory and personality characteristics were measured by neo-five factor inventory. Correlation, regression and t-test were used for analyzing the data. The result shows that there is significant correlation between mental health and personality characteristics. The multiple regression analysis using the stepwise method found agreeableness, neuroticism and openness as significant predictors of mental health. Finally t-test found no significant difference at the mean scores of professional and non-professional Tribal student's mental health and personality characteristics in terms of gender. Early detection for indications of mental health problems and factors contributing to stress among Tribal students would promote better understanding of mental health.*

Key Words- Personality, Characteristics, Mental Health

Individuals are born with various urges, needs, emotions, motives, drives, attitudes and interests. Some of them are inborn and some of them are acquired. Psychology has a long past but a short history. The focus in psychology was on so-called negative psychology, such as anxiety, depression, maladjustment, deviation, aberration and psychopathology. In the past two decades, positive psychology has burgeoned. The effects of positive thinking have received growing attention by psychologists and health professionals.

The most important topic of positive psychology is mental health. Mental health may include an individual's ability to enjoy life and cure a balance between life activities and procure efforts to achieve psychological resilience. Wilkinson and O'Connor (1982) defined mental health as a congruent relationship between a person and surrounding environments.

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The World Health Organization (2003), 12% of global diseases (121 million people suffer from depression, 70 million from alcoholism, 24 million from schizophrenia and 37 experiences dementia) were a result of mental health Problems. By 2020 as indicated by the WHO (2003) the burden will be increased by nearly 15%. Telatar and Tezcan (2008) revealed that 56.8% of students were found to be at risk for mental health problems.

According to Yen and Cheng (2006) poor mental health was influenced by demographic characteristics, a high level of family conflict and a low level of family support. Furham and Cheng (1999) stated that personality traits were associated with mental health. Personality is defined as the totality of character attributes and behavioral traits of a person. Personality analysis is a methodology for categorizing the character and behavior of a person. It is an interaction product, the resultant of heredity and environment. The study of personality is thus a constant intervening of organismic and environmental factors. A personality trait is a consistent and long-lasting tendency in behaviour There are different personality traits that people normally exhibit. Personality characteristics only come in focus as reflecting innate productive characteristics, but do not have a role in predictive models.

The personality characteristics are mainly defined in terms of the Big Five personality constructs. The five factor model (FFM) provides a comprehensive framework for describing personality and organizing individual differences. The five factor model is not based on one theory of personality but rather combines a variety of theoretical perspectives. The model includes affective, experiential, and motivational traits using the five dimensions of Agreeableness, Conscientiousness, Openness, Neuroticism, and Extraversion.

Whelan and Bastian (2009) found that personality traits (neuroticism, extraversion, agreeableness, conscientiousness and openness) were significantly associated with subjective well-being. All the traits were positively correlated with subjective well-being except neuroticism. Goodwin and Friedman (2006) found that personality traits were associated with mental health. The higher level in conscientiousness would significantly decrease the probability of mental disorders as well as extraversion and agreeableness. A higher level in neuroticism was found to significantly contribute to mental disorders.

Mental health reveals that it has various effects on Personality. The present study aims to compare personality and mental health of professional and non-professional Tribal students of S.K.M. University, Dumka.

Hypothesis-

1. There is no significant correlation between mental health and personality characteristics.
2. Extraversion, agreeableness, conscientiousness, neuroticism, and openness are not significant contributors to mental health among Tribal students.
3. There is no significant difference between the mean scores of professional Tribal students' mental health and personality

- characteristics with consideration of gender
4. There is no significant difference between the mean scores of non-professional Tribal student's mental health and personality characteristics with consideration of gender.

Method:

Sample- A sample of 300 individuals by random sampling were selected, 150 professional and 150 non-professional Tribal students from different faculties of Jharkhand Universities.

Tools-

Mental Health inventory (MHI) : This scale was developed by Srivastava and Jagdish (1983) consist of 56 items based on 6 dimension- (1) positive self-evaluation, (2) realistic perception, (3) intergration of personality, (4) Autonomy, (5) group-oreinted attitude, (6) environmental mastery. The scale has four response categories viz. always often, rarely and never. The reliability and validity coefficients were found significant as the value of split-half reliability coefficient.

NEO-Five Factor Inventory (Neo-FFI) : The Neo-FFI (Costa and McCare, 1992) is a self report measure of personality features that make up an influential model of personality known as Five Factor Model (FFM), The Neo-FFI is a 60 items version of the forms-S with 5-point ratings (1 = strongly disagree to 5 = strongly agree).

Results- The main purpose of this investigation was to study mental health in relation to Personality characteristics among professional and non-profesional Tribal students. Correlation and independent samples t-test were used. All the anaysis has been done by SPSS. In this study the percentage of males-females and professional-nonprofessionals Tribal students was equal.

Table 01
Relationship between Personality characteristics and Mental Health

Variables	Mental Health	
	Correlation (r)	Sig. (2-tailed)
Personality Characteristics	.224**	.000
Neuroticism	.130*	.024
Extroversion	.072	.213
Agreeableness	.253**	.000
Openness	.193**	.001
Conscientiousness	.031	.590

The Pearson correlation applied. The amount of cofficient between mental health as a dependent variable and personality characteristics and its sub scales that is neuroticism, agreeableness and openness respectively as an independent variable was significant with 99% confidence except neuroticism which was significant at 95% confidence whereas extroversion and conscientiousness respectively was not significant.

Table 02
Mental Health among Tribal students

Variables	Std Beta	R	R ²	F
Agreeableness	0.253	0.253	.064	20.421**
Neuroticism	0.190	0.314	.099	16.293**
Openness	0.130	0.339	.115	12.802*

The multiple regression analysis using the stepwise method was used in order to test the H_0^2 . Based on Table 2, the regression analysis yielded a multiple correlation coefficient of 0.0339. It was found that the three independent variables i.e. agreeableness, neuroticism and openness were able to explain 11.5% of the variance in levels of mental health among Tribal students.

H_0^3 : There is no significant difference between the mean scores of professional Tribal students' mental health and personality characteristics with consideration of gender. The result is as follow :

Table 03
Mental health and personality characteristics
with consideration of gender

	Gender	N	Mean	SD	SEM
Mental health	Male	75	141.29	14.667	1.694
	Female	75	145.89	14.597	1.686
Personality Characteristics	Male	75	129.20	12.243	1.414
	Female	75	128.57	9.937	1.147

The results from above table show the number of professional Tribal students, mean, SD and standard error with consideration of gender.

Table 04
Mental health, with consideration of gender

	Groups	N	Mean	SD	Df	t
Mental Health	Male	75	137.52	12.325	148	.292
	Female	75	138.00	7.132		

There was no significant difference in mental health between male and female professional Tribal students'. Female students' had higher mean scores than their male counterparts.

Table 05
Personality characteristics with consideration of gender

	Groups	N	Mean	SD	Df	t
Personality Characteristics	Male	75	128.29	10.397	148	1.313
	Female	75	130.48	10.002		

As shows in above table there was no significant difference in personality characteristics between male and female professional students'. Female students' had higher mean scores than male students mean scores.

H_0^4 : There is no significant difference between the mean scores of non-professional Tribal student's mental health and personality characteristics with consideration of gender. The result is as follow :

Table. 06
Mental health and personality characteristics with
consideration of gender

	Groups	N	Mean	SD	SEM
Mental Health	Male	75	137.52	12.325	1.423
	Female	75	138.00	7.132	.824
Personality Characteristics	Male	75	128.29	10.397	1.201
	Female	75	130.48	10.002	1.155

The results from above table show the number of non-professional students, mean, standard deviation and standard error with consideration of gender.

Table 07
Mental health and Personality characteristics with
consideration of gender

	Groups	N	Mean	SD	df	t
Mental Health	Male	75	141.29	14.667	148	1.925
	Female	75	145.89	14.597		
Personality Characteristics	Male	75	129.20	12.243		.344
	Female	75	128.57	9.937		

As shown in above table. There was no significant difference in mental health and personality characteristics between male and female professional students'. Female students had higher mean score than their male counterparts.

Discussion- This study has limitations to consider. The population from which the sample was drawn consisted of Tribal students from only one university. The results from this study provide only a template on which to base further research and cannot be applied to the general populations of students. The population of university Tribal students changes every year due to graduation, attrition and admission. In order for the recommendations based on the study to remain valid, the perceptions of this population must be re-evaluated after every few years to ensure that any changes within the population are reflected in appropriate changes in the interventions that are offered. If patterns within certain populations can be discovered through this continued evaluation, then it may be appropriate to establish general perceptions to provide a preliminary structure on which to frame future interventions.

Based on the H_0^1 that there is no significant correlation between mental health and personality characteristics and its sub scales result shows that the amount of coefficient between mental health as a dependent variable and personality characteristics and its sub scales that is neuroticism, agreeableness and openness respectively as an independent variable is significant with 99% confidence except neuroticism which is significant at 95% confidence whereas extroversion and conscientiousness respectively is not significant. Hence the null hypothesis (H_0^1) is rejected except on extroversion and conscientiousness. Haslam et al., (2009) found an association between personality traits. The positive relationship indicated that an increase in neuroticism could lead to unhealthy mental health. Soong

and Chen(2008) which revealed that neuroticism can be associated with a single episode or a depressive symptom and on extroversion and conscientiousness finding contradicts with that indicated that extraversion conscientiousness was associated with subjective well-being among Tribal students. Based on H_0^2 that extraversion, agreeableness, conscientiousness, neuroticism, and openness are not significant contributors to mental health among Tribal students. The results found that three independent variables (agreeableness, neuroticism and openness) were able to explain 11.50% of the variance in levels of mental health among Tribal students.

As shown in Table2, the variables of agreeableness were able to contribute to 6.4% of the variance in explaining mental health. Thus, the variable of agreeableness is the most significant contributor on mental health for students'. Moreover, the variable of openness in this study is also found to be contributive to mental health status. Nevertheless the percentage of contribution is small and the combination for openness with the two variables is able to increase the contribution toward mental health status among Tribal students. This study indicates that 88.5% of variance is not able to be explained by the variable of mental health among Tribal students. This is due to the fact that there were other factors that might contribute to mental health status among Tribal students'.

In conclusion, the multiple regression analysis revealed that there were three predictors that are able to contribute to knowledge on mental health status among Tribal students, The most significant contributor in this study is agreeableness, followed by neuroticism and lastly openness, Hence the full hypothesis (H_0^2) is partially rejected.

Based on H_0^3 that there is no significant difference between the mean scores of professional students' mental health with consideration of gender, result shows no significant difference between two groups that female students have higher mean scores of mental health in comparison to male students' mean scores. Their study revealed no difference between urban and rural students', with regard to their mental health status: Females and boys in the sample slightly differed from each other with regard to their mental health status. Thus the null hypothesis (H_0^3) is accepted. This study says that Female if students have high scores of personality characteristics compared to their male counterparts. Some of the female students mature earlier than friends of their own age. In process of reaching puberty, they will experience a visible change in self-image, action towards others and have better perception. They also need to adjust themselves accordingly to the changes that they are experiencing such as body shape, sexual maturity and their social status.

Based on H_0^4 that there is no significant difference between the mean scores of non-professional students' mental health with consideration of gender, result-shows no significant difference between two groups, that female students have higher mean scores of mental health in comparison to male students' mean scores, Their study indicated that there was a significant difference in stress scores in terms of gender. Gender is one of the most important determinants of mental health. Thus the null hypothesis (H_0^4) is

failed to reject. Male students' had higher mean scores than female students mean scores. In their study they found significant difference between two groups on personality characteristics. Thus, the null hypothesis (H_0) is accepted.

Conclusion - These studies found that majority of students are mentally healthy. The main objective in this study was to look at the association between mental health and personality characteristics. The analysis found that personality was significantly correlated with mental health among professional-nonprofessional students. This study does conclusively indicate and point to several factors that could influence mental health status among Tribal students.

As a consequence, to prevent further problems that could result from poor mental health, various efforts should be taken. This is important because past research found that poor mental health status could result in negative effects such as feeling hopeless, suicidal behaviour and lower. Finally, it is suggested that future researchers broaden the scope of this study by examining other factors that could influence the mental health status among students'. This would result a better understanding of mental health among professional-nonprofessional students' in the future.

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Regional Elements in the Novel "So Many Hungers" of Bhabani Bhattacharya

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Abstract-Socio-Political and Cultural aspects of the fiction of Bhabani Bhattacharya are based on Regional Elements of Quit India Movement of 1942 and Bengal famine of 1943. He observes such prevailing conditions under colonial rule like Raja Rao, R.K. Narayan and Mulk Raj Anand. He has presented the clear picture of cruel oppression, exploitation and suppression of freedom movement based on the prevailing contemporary situation of Bengal.

Key Words- Cultural aspects, Regional Elements, Freedom movement

So Many Hungers ! is the first novel of Bhabani Bhattacharya published in October 1947. It deals with the people's hunger for food and freedom of India with special reference to Bengal. Two aspects of Bengal Famine and Quit India Movement have been intertwined in this novel. The stories of the Samarendra Basu's family with young Rahoul representing the peasant family and Kajoli, a poor girl and her family representing the poor and downtrodden class of people are woven together to present the pathetic prevailing situation of Bengal. Rahoul and Kajoli are central characters of the novel. K.R. Chandrashekharan remarks :

“Rahoul's story is representation in miniature of struggle of freedom. The sad tale of Kajoli is likewise a pathetic record of what happened to more than two million men and women who became victims of famine, which was not an act of God, but which was brought about by the rapacity and selfishness of profiteers and the indifference of an alien government.”¹

The novel opens with the story of Rahoul, the eldest son of Samarendra Basu and grandson of a great Gandhian leader Devesh Basu, who contemplates joining the Independence movement and courting arrest under the influence of his grandfather. He is very upset to see the terror of famine already gripped Bengal. His father is a profiteer but he is different. He offers free help to the needy, poor and the famished people. His brother Kunal embodies noble ideas but he is not benevolent like Rahoul. Samarendra Basu is quite opposite in nature and action to his patriotic father Devesh Basu the proto-type of Gandhi. Samarendra always aims at accumulating huge wealth and pleasing the British rulers to earn titles. He hoards rice and sells it at higher price having formed a trading concern with “Cheap Rice Limited”. But his father Devesh Basu is called Devata. He advises people not to sell rice to government agents. He tries to resist the exploitation of the people. He joins the Gandhian political agitation. The story of Kajoli, the female protagonist of the novel, is the saga of the poor and the destitute who suffered most in the famine of Bengal and Indian freedom movement. Kajoli's father and elder brother Kanu have been arrested for joining Civil Disobedience Movement. Devesh Basu considers

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Kajoli as his granddaughter and her mother as his daughter. He encourages villagers for freedom struggle and inspires them to be strong, true and deathless. He is arrested and sent to Dehradun Jail where he undertakes the fast unto death.

The tragedy of Kajoli and her family is the example of devastation rocking the whole of Bengal. Boats are destroyed by the Government. Peasants are forced to sell their grain to the Government agents and greedy hoarders. They are reduced to paupers. They pour into the city in thousands and thousands. They die of hunger but fight for moral issues. Kajoli is suffering a lot but she says, "Be strong, be true, be deathless."²

Kajoli is married to Kishore and she is very happy but her happiness is short lived because her husband is killed on his way to Calcutta on the railway embankment.

The tragedy of Kajoli and her family is immeasurable. She is five month's pregnant and lives on roots, figs and whatever she gets for food. Kajoli and her family are suffering but their suffering does not affect their nobility and purity. Kajoli and her mother spurn the offer of the agents recruiting girls for brothels in Calcutta who try to tempt Kajoli. Her mother shows the climax of generosity when she presents her the only cow she had to a fisher-woman who tries to bury her starving child alive to make him sleep in peace. When Kajoli moves to Calcutta along with her mother in search of food, she has very tragic experience which gives us the idea of plight of the people of Bengal. She is very much starved and begs a soldier for food whom she meets. He gives her some bread which she devours instantly. And he offers some more bread. He looks her in tattered clothes and feels pity but he is sexually starved being separated from his wife. He grabs Kajoli and leads her to a meadow. He mutters words of endearment and makes love to her. But her piercing shriek brings him to sense and he finds that she is bleeding and unconscious. Being stung by remorse, he takes out his money and ties it to the corner of her sari and leaves the place hurriedly. But she had abortion. She is lying helpless and bleeding. A jackal comes near by at the prospect of eating the moribund body. One who has been directed to the spot by the soldier, manages to drive away the jackal and brings her mother to the scene. This is the culmination of the worst situation of Bengal. The soldier persuades the army doctor to give Kajoli a professional aid. After examining and giving her first aid he suggests that she should be hospitalized. She is taken to a hospital in Calcutta and becomes a patient. Her mother feels relieved that her daughter is at least safe as patient in the hospital although she is suffering like so many destitute on the streets of the city.

"Streams of desperate many ventured out of their ancestral homes in search of food, hanging on to the foot, board of railway trains, riding on the sun-baked roofs. But the police threw up barriers. Then the men trekked the meadows and roads, ten thousand village streams flowing citywards."³

The people are in search of food. They are moving here and there to quench their hunger. But there is no food for their empty stomach. Consequently people are dying in a large number for want of food and lying by the road.

"Myriad vultures gazed down upon the countryside. Corpses lay by the road, huddling together. Picked to the bone; only the hair uneaten-fluffy baby's hair, man's hair, the waist-long hair of woman. A family group had sunk into sleep : and beyond the sleep were vultures."⁴

Vulture-eaten corpses are keeping the company of famished people. They see that jackals are eating the people who are lying unconscious due to starvation. Bengal has nothing to fulfil their people's empty stomach. All the roots of Bengal have been plucked, boiled and eaten away. There is an extremely pathetic scene

when we see the fight between man and animal to get hold of peels and rotten vegetables in rubbish.

“Destitutes and dogs in those days often fought for possession of the rich city's ten-thousand rubbish-heaps, in which scraps of rotting food lay buried. It was not every time that the destitutes won, routing the dogs on the streets and the dog within themselves.”⁵

Starving men are quarrelling fiercely for a little bit of food. The ravages of hunger have made them inhuman. People know no other word except food. The scene is very fearful because only jackals, corpses and vultures are seen.

There are three important factors which are responsible for the famine of Bengal region. The first is the nefarious design of profiteers and black marketers, like Samarendra Basu and others who hoard food grains for making money and create artificial scarcity. The second is World War II which ravaged the people and destructed their crops. The third is, the atrocities of British government because of national freedom movement:

“The famine, this brutal doom, was the fulfillment of alien rule. The final commentary. Imagine two million English-men dying of hunger that was preventable, and the government unaffected, uncensored, unrepentant, smug as ever! “Quit India!” cried the two million dead of Bengal. The anger was warm in his voice, and he had paused till his speech was cool again. ‘Quit’ cried all Indians”.⁶

In *So many Hungers* ! three types of hungers have been brought out in detail : the hunger for food, the hunger for money and the hunger for freedom. The malady of hunger has debased the people of Bengal. There are many examples of it. When a destitute woman, gets some rice after strenuous efforts for the whole day, she lights the fire and starts to eat the rice alongwith the three children, a hungry man pounces on her and runs away with the food grain. Another example of it is that of the brother of Kajoli who has grown under the ideal philosophy of Devata has always been in the habit of sharing his best possessions with others but hunger has debased him –

“But hunger had debased his warm, innocent spirit. He had become a hoarder. He hoarded for himself and his sister and mother the wild green fig on tree tops which are rare but he could reach.”⁷

It was the hunger of food which allured Kajoli and the soldier succeeded in raping the famished pregnant girl with the offer of bread. The novelist has raised the question on the social-political structure which has created such a famine in Bengal.

“Why were these innocent people doomed to hunger and death, while the army had rice and wheat to squander ? Who but the peasants had created the foodgrains-not the colonel, not the brigadier, not the Janji lat, the C-in-C.”⁸

The hunger for money has also debased the people of Bengal. Samarendra Basu is the embodiment of hunger for money. He is vulture feeding on the suffering of human beings. His hunger for money does not weaken even with the advent of old age. He does not hesitate to amass wealth by hoarding foodgrains and creating artificial famine. He has rendered millions of men homeless and thrown them to the jaws of death. The people of Bengal are suffering from acute starvation caused by profiteers like him but he is absorbed in the hope of bright future of his granddaughter who has born recently.

“And the little are in the house. She now in her eight month, she would be reared in luxury; bejeweled like a princess, she would move proudly in society, and when of age, have a big dowry and wed an officer high up in the Imperial Service.”⁹

Hungers of men are being discussed even by the small protagonists of the novel. Kajoli and Kishore who are wife and husband after their marriage, talk to

each other in this regard. Lovingly Kishore expresses his views of hungers of men and women which can't be satiated. He says –

“I know, I know, beloved not in this life will hungers be sated I know, I know, beloved.”¹⁰ Kishore points out that man is always possessed with so many Hungers which govern his life. There upon Kajoli expresses her views on the hunger of women after marriage. She says –

“Woman, wed, has no hungers left to be filled. It is not so with man.”

“Woman, wed has one big hunger for home – no other..

Little hungers make part of the big home hunger : they belong to it as the spokes belong to the cart-wheel. Woman, she has one big wheel of hunger. Man is a single spoke in the cart-wheel-nah may be he is the axle.”¹¹

Another hunger of the people is the hunger of political freedom. The Indian National Movement for political freedom has become the integral part of this novel. *So many Hungers* ! discusses in detail the Quit India Movement of 1942 specially in nature and scope of Bengal. The people express their anger in voice. They demand time and again “Quit, Quit India” Nehru's statement during his trial in Gorakhpur jail is cyclostyled and distributed. It concludes with the remark of country's hunger for political freedom. “There are more powerful forces at work today than courts of law; there are elemental anger of freedom and food and security which are moving vast masses of people.”¹²

The novel ends with the remark about Indian freedom and its dawn in near future. The people of Bengal have to suffer a lot but they never agree to compromise with political freedom, only one voice is heard all around – “Quit India !”

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The Relevance of Moksh in the Present Time

● Shraddha Raghuvanshi

●● Aarti P.Dave

Abstract- *We live in the turbulent world of Covid-19, wherein the human existence is at stake. Insecurity is a word of much used and abused at present. Death and diseases has become a paramount theme of human kind to contemplate. Anxiety for living has become the vogue of human being. The entire paradigm of human living needs to be rethought. Human living is not only poor but perishing. We live in a world which can be classed as an “Impossible World”. We survive in “Alien” World having no future. Hence, it is an imageless world. No ideology of existence can survive us under its surveillance. The curse of fear dictates and determines human living.*

Key Words- Insecurity, paramount

Introduction- “The basic trouble with the modern world”, said Ellsworth Toohey, “is the intellectual fallacy that freedom and compulsion are opposites. To solve the gigantic problems crushing the world today, we must clarify our mental confusion. We must acquire a philosophical perspective. In essence, freedom and compulsion are one. Whenever a new compulsion is imposed upon us, we automatically gain a new freedom. The two are inseparable. Only by accepting the total compulsion can we achieve total freedom”. (Aryn Rand, 2017). This is the hope that we cherish in the era of Corona and post Corona.

The Relevance of Moksh in the Present Time- What we need is concerned and caring for humanity. We need not need a diction of disaster but a diction of hope which would strengthen the strength of human living. The hope lies in great ideas that transcends the mundane sorrow giving and sorrow begetting life. It must ensure the meaningfulness and worth of life. It must be a poetry of 'Liberation'. We have to change and transcend our virtuality. It ought to be as Shri Aurobindo says, “God, freedom, light and immortality”. Shri Aurobindo in his LIFE DIVINE rightly said “The earliest preoccupation of men in his awakened thoughts and as it seems his inevitable and ultimate preoccupation for it survives the longest period of skepticism and returns after every banishment is also the highest which his thought can envisage. It manifests itself in the divination of Godhead, the impulse towards perfection, the search after pure truth and unmixed bliss, the sense of a secret immortality.” (Sri Aurobindo, 1965)

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These human aspirations has been symbolized in the image of 'Usha' in Kusluta, Angirasa, Rigveda (113.8.10). She has been treated as an image or symbol of transcendence. She widens that which is living, awakening which is dormant. She is the path finder of those who are aspirant for future hope. She illuminates the future and is a predecessor of all new upcoming. What we need today is the strength and perseverance for hope for which Usha has been symbolized. It is the ardent quest for hope which is inner and outer both. In Indian discourse, the hope has been expressed as the pursuit of Moksh to earn real inner and outer freedom. This achievement of Moksh is the hardcore of Indian culture and philosophy. We can say that Indian culture and philosophy is a pursuit to ensure inner and outer freedom. It can be treated as a methodology to attend freedom. Room to freedom has become a perennial search of Indian culture and philosophical discourse. All cultural expressions and its motifs are for inner and outer freedom. Similarly all the Darshanas are the pathway to humanity's ultimate freedom. Adi Shankaracharya in his 'Vivekachudamani' has given the concept of 'Jeevanmukt'. To him Jeevanmukta is though active outwardly yet he is untouched by the externalities. His being is equally founded in pleasure and pain, good and evil as he is devoid of a body idea. K.C. Bhattacharya has expressed Jeevanmukt, "As the beacon lights of the universe, the realized hopes of the army of the good...fighting out the great battle with the army of evil." (K.C. Bhattacharya).

In the present day crisis this ideal of Moksh or emancipation which is internal as well as external, needs inward and outward equanimity. Harmony is the code and core of emancipation or Moksh. It is not exclusively an inward voyage but it is an outer voyage which demands equanimity not only as ideals but it has an external performative need or value. To understand the present day crisis we have to understand modernity. Modernity in the west is an emancipation of society from the clutches of religion which demands secularism. Secularism needs a secular mind which is a pursuit to connect with the living world. For modernity its prime concern is for the betterment of life on the earth. Under the colonial rule, Indian minds were engrossed in mirroring the Western Civilization, but the Indian minds were also insulated with their own culture. Indian mind was critical about their own tradition and also critical about the western ethos. Persons like Ram Mohan Roy and Dayanand Saraswati were critical about the corrupt practices of Hinduism. They were of the opinion that these corrupt practices are alienation from Vedic roots. What the tradition demands is improvisation of social and material conditions of the people.

Similarly, Bal Gangadhar Tilak in his Gita Rahasya interpreted Gita as the "Gospel of Action". He has rejected asceticism and gave a way to social and political liberation. Gopal Krishna Gokhale interpreted Sadhana as a service to the nation. Sadhana was for national and social well-being. All these thinkers have not rejected their own tradition and ideals but has redefined them. Their pursuit was to integrate Indian spiritual tradition with the demand of modernity. Rabindranath Tagore has viewed that realization of truth as identical with harmony and beauty. In his book he has stated that,

“The true striving in the quest of truth of Dharma, consist not in the neglects of action but in the effort to attune it closer and closer to the external harmony. The text of this striving should be: Whatever works thou doest consecrate them to Brahma.” (Macmillan, 1913)

That is to say the soul is to dedicate itself to Brahma through all its activities. This dedication is the song of the soul, in this lies its freedom. Joy reigns when all work becomes the path to the union with Brahma. When the soul seizes to return constantly to its own desire and when in it our self offering grows more and more intense, then there is completion, there is freedom and in this world comes the kingdom of God.

Shri Aurobindo combines the positive element of East and West. To him progress and spiritualization can bring liberation from inertia. Liberation to him is not only individual but also of human kind and the entire cosmos. Shri Aurobindo has addressed for the transformation of micro cosma to macro cosma. Progressive revelation is in one's own nature which is freedom, power, love, bliss and immortality. To him “Humanity as a whole, is the supreme manifestation of the universal cell. Therefore, the sadhana, the means of spiritual end would not be a purely personal, Vairagya and Sanyasa but it would encompass the totality of life both individual and social.” (Sushil Mittal And Gene Thursby, 2004) Mahatma Gandhi, a karmayogi, asserted to purify the self by humanizing individual and society. To him this was a secured path of self realization. Gandhi says, “What I want to achieve-what I have been striving and pinning to achieve...is self realization to see God face to face to attend Moksh. I live and move and have my being in pursuit of this goal. All that I do by way of speaking and writing and all my ventures in the political field are directed to this same end.” (Gandhi M.K., 1993) T.R.V. Murti asserts that, “Attainment of freedom is basic to Indian philosophy and I subscribe to it without reservation.” (Murti &etc.) According to Murti, AdhyatmaVidhya is, “Realization of spirit (and) is the realization of all values, as it is truth, freedom and bliss. It is not only a vision of reality but a consummation of life as well.” (Murti &etc.) Sarvapalli Radhakrishnan considers that the great challenge of our time is the fact that he does possess unlimited energies derived from nature by science, but our moral stretches has not grown proportionately. To Radhakrishnan we have become strange to our own self, our self is a split self. To him in the last analysis our crisis is a crisis of the spirit-spirituality.

Conclusion- We have been cut-off from our spiritual sources. Dictatorship, mechanization of life, ruthlessness, shadowiness and lack of inner orientation are all based on our deep seated egoism and turns into gross misunderstanding of true self. The spiritualization to him is not only individual but also social and human kind as a whole. Voicing the wisdom of the Vedas he says, we are all fragments of the divine, sons of immortality. His pursuit is to integrate spiritualization of individual and society. To him salvation need not mean to be away from the world but to be in the world with transformed spirit. Like Buddha, he asserts that nobody is fully liberated unless all injustice and all evil in the world have been overcome.

Freedom-perfect freedom for all individual means the rise of perfect society. The entire panorama of the modern Indian thinkers do acknowledge personal emancipation but without being selfish. The liberated one must work for the betterment of the society. The entire discourse of modern Indian thinkers is based on the demand to integrate individual and society. Though they are rooted in tradition they do assert the demand for caring the society. If this can be achieved, we can have faith in man and his magnanimity. This is the demand of the day in the age of Corona and post Corona scenario. India can throw a better light in this age of crisis.

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Human Resource Recruitment and Retention Policies on Organizational Effectiveness in Indian Small-Scale Sector

● Anmol Amer Baba

●● Chandra Shekhar Prasad

Abstract- *The paper addresses to the relationship between Human Resource Management (HRM) and organisational Effectiveness (OE) with reference to both primary and Secondary data. Relevant finding in respect of ability to attract (ABAT) and ability to retain talent (ABRT) and an over all score of entrepreneurial performance (OSEP) have been called from face author's survey with a view to discussing HRM-OE relationship in the specific context of small scale sector.*

Key Words- HRM, OE, ABAT, ABRT, OSEP.

The paradox is that it is this very human resource base of India that is being described as the most potent drive of India's quest of harnessing and harvesting the opportunities made available by globalization.

It is in this context that an attempt is being made in this paper to examine HRM-OE relationship on the basis of two independent surveys conducted by business world and Business Today, collectively referred to as secondary survey as well as our primary survey of entrepreneurs in the small-scale sector.

The paper has been divided into Five sections. In section I the concepts and concerns of human resource management and organizational effectiveness are described briefly and the operational definitions are spelled out. In Section II the contours of the methodology used are outlined. In Section III we present and discuss the Findings of the secondary survey. In Section IV we discuss the findings of the primary survey Finally, in Section V we make policy recommendations.

Section - I

HRM : Human Resource Management includes all activities used to attract and retain employee and to ensure they perform at a high level in meeting organization goals. These activities are made up of recruitment and selection, training and development, performance and potential appraisal and feedback, pay and benefits, quality of life and satisfaction, and industrial relations.

OE : Organizational effectiveness can be defined as the degree to

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which organization realizes its goals. Organization Theory literature is replete with numerous measures of and perspectives on OE, but for the sake of this paper we refer to measures of overall organization performance such as economic value added by a firm per unit of capital employed (EVACE) and overall score of entrepreneurial performance (OSEP).

HRM - OE interrelationship : It is said that management is development of people, not the direction of things all management is human resource management (HRM). Underlying belief is that human resource management can be (even though not by themselves alone) critically crucial to an organization's effectiveness (OE). In organization theory, development of people and their job satisfaction become a measure of OE as well. Thus there is a mutually reinforcing circular cause - effect- cause relationship between the two concepts. However, for the purpose of this paper, we take firm's HRM policies as independent and OE as dependent variables.

Section - II

Variable Specification : In this paper, a composite index of HRM practices (CIHRMP) calculated from the indices of organization ability to attract talent (ABAT) and ability to retain talent (ABRT) has been taken as the independent variable for interpreting both secondary as well as primary data pertaining to sample firm's HRM statistics, As for OE, we have taken recourse to economic value added per unit of capital employed (EVACE) for secondary data and overall score of entrepreneurial performance (OSEP) for the primary survey.

Methodology : As for the secondary data, the study draws on two sources. The first set of data pertains to the operationalisation of the concept of HRM for this we have culled the scores of 63 companies from diverse industries on indices of ability to attract (ABAT) and ability to retain talent (ABRT) from the second Business World (BW). Indian Market Resource Bureau (IMRB) survey of India's most respected companies published in March 2003. It is pertinent to mention here that the BW-IMRB survey team interviewed 584 professionals (general manager and above) in Delhi, Mumbai, Chennai, Kolkata, Bangalore, Hyderabad and Pune between July and November, 2002. The respondents were shown a pre-drawn list of 15-20 firms in the sector they belonged to and asked to rate them on ABAT and ABRT on a 10- point scale of 1 (very poor) to 10 (very good). The resultant data rightly represent 'peer perception' on the chosen parameters. We have also calculated a composite index of HRM practices (CIHRMP) by horizontal summation of the TPCR and ECB scores in respect of each of the companies.

As for primary data, we have taken recourse to alternative behavioural orientations of 299 entrepreneurs, drawn from seven major cities of the country coming from diverse backgrounds and representing diverse sectors towards recruitment and retention as the surrogates for ABAT and ABRT respectively. Our discussion in this paper focuses on the relationship between the composite index of HRM practices and organizational effectiveness for the secondary survey and the relative efficacy of alternative HRM practices in the small scale sector.

Measure of Organizational Effectiveness : The second set of secondary data pertains to the fourth Business Today (BT)-Stern Stewart (SS) exercise to identify India's biggest wealth creators published in April 2003. The survey resulted in the ranking of India's biggest 500 companies on the basis of Market Value Added (MVA) and Economic Value Added (EVA)- "those karmic twins of the financial metrics pantheon". However, our sample restricts to the 63 companies in respect of which data on HRM practices was available.

Market Value Added is a measure of the value added by the company's board of directors over and above the capital invested in the company by the investors. While one can calculate the 'book value' of the capital invested in the company by referring to the sum of debt and equity from the company balance sheet, market value therefore can be calculated by multiplying the prevailing share price with the number of outstanding shares. As the market value of invested capital is subject to the vagaries of stock market, we chose to focus on EVA for the year 2002 instead.

Economic Value Added is the difference between a company's operating after tax profits (NOPAT) and the cost (K₀) of capital employed (CE) in generating those profits in one financial year. Symbolically, $EVA = NOPAT - K_0 \cdot (CE)$

The profits referred to are cash profits and hence the concept of EVA integrates accounting concept of Return on Capital Employed (ROCE) and financial management concept of cash flows discounted @ overall cost of capital (K₀). It may be seen that reliance on the absolute value of EVA is fraught with the possibility of creeping in of the 'size-effect'. Therefore, we have taken EVA as a percentage of average capital employed as the measure of corporate performance. For short, we call it EVACE ratio.

As for the measurement of organizational effectiveness in the small-scale sector, we rely on entrepreneurial success in terms of overall of the entrepreneurs on the criteria of their investment, turnover and profit at the time of interviewing them as well as growth in these factors since start - all couched in the term OSEP.

Hypotheses : For the secondary survey, we have taken EVACE as the measure of organizational effectiveness, which is the dependent variable in our formulation. Scores on the composite index of HRM practices (CIHRMP) represent the independent variable. The underlying causality is as follows 1 a firm's ability to attract and retain talent enhances its capability to capitalize on environment opportunities and withstand environmental threats. Thus,

H₀ : EVACE ratio is positively associated with CIHRMP

H₁ : EVACE ratio is negatively associated with CIHRMP

For the primary survey, we have taken OSEP as the measure of organizational effectiveness whereas the alternative HRM policies or behavioural orientations - one articulating the forward looking and the other expressing a conservative orientation - are taken as independent variable. We hypothesize as under :

H₀ : OSEP is positively associated with forward - looking HRM

orientation

H_1 : EVACE ratio is negatively associated with conservative HRM orientation

Section - III

Correlation Analysis : For the secondary survey, the overall correlation between CIHRMP and EVACE turned out to be positive, however, it was not observed to be statistically significant (Table 1). It is interesting to note that when decomposed for AbRT correlation remained insignificant for firm's ability to retain talent and turned out to be significant for firm's ability to retain talent.

Table 01
HRM-OE Correlations in Respect of Sixtythree Companies
Covered in Secondary Survey

Indices of HRM Practices		EVACE
ABAT		.24
ABRT		-.26
CIHRMP		.25

S.No.	CIHRMP Scores	EVACE Ratio (Percentage)
1.	Below Average	-8.10
2.	Above Average	1.41
	Overall Average	-3.72

$P < .05$

It is understandable that as the firm invests in human capital by way of its compensation and training and development policies over a period of time, its (human capital's) impact on organizational effectiveness becomes increasingly significant. Absence of significance of overall correlation between CIHRMP and EVACE ratio notwithstanding, it is clear that the firms with above average CIHRMP scores returned far superior scores on organizational effectiveness as measured by EVACE ratio. It seems reasonable to expect that the criticality of human resources in attaining higher organizational effectiveness would vary across the nature of a firm's business. In knowledge intensive businesses human resources play a critical role in organizational effectiveness whereas in labour-intensive and resource-intensive businesses other factors may assume equal if not more criticality. Thus given the overall CIHRM-EVACE relationship, we thought that it would be interesting to study the pattern of CIHRM-EVACE relationship across sectors. For this purpose we classified the sample companies as belonging either to 'Brick & Mortar' or 'New Economy' sectors. We present our findings in Table 02.

Table 02
CIHRMP-EVACE Ratio Across Different Sectors

CIHRPMS Scores Across Sectors	Evace Ratio (Percentage)
Brick & Mortar (63 percent of the sample) :	
Below Average	-2.42
Above Average	0.20
Sector Average	-1.11
New Economy (37 percent of the sample) :	
Below Average	-16.20
Above Average	4.12
Sector Average	-8.25

As may be seen from tables 1 and 2 the overall relationship between CIHRM - EVACE reverberates across the sectoral classification as well, however, the figures seem to be conveying a lot more. In contrast to the 'Brick and Mortar' sector of the economy, the 'New Economy' sector shows a greater susceptibility to the influence of human resource management practices on either side. That is in this sector a below average score on CIHRMP leads to drastically bad corporate performance and an above average corporate governance leads to far more superior a performance vis-a-vis the brick and mortar sector.

In view of the foregoing evidence that generally a higher score on CIHRMP is positively associated with higher EVACE and that such a relationship particularly holds good for the firms in knowledge intensive 'New Economy' sectors, we accept the null hypothesis that EVACE ratio is positively associated with CIHRMP.

Section - IV

Situation in the the Small-Scale Sector (SSS) : In the small-scale sector, entrepreneur himself is the primary source of human capital in the firm. For this reason and for cost effectiveness, there is a tendency to recruit the cheapest, personally train and develop the manpower to acceptable level of performance and follow a conservative compensation policy. There would, however, always be some entrepreneurs with forward looking HRM policies. Especially those in knowledge - intensive industries, who would show distinct preference for hiring professionals and motivating compensation policies. In any case, as the business grows in size and complexity over a period of time, there would be a need even for those following conservative HRM policies earlier to realign the same for effective entrepreneurial performance, In fact, in SSS policy discourse at the government level there is already a lot of emphasis on development human resources both in terms of entrepreneurial re-education as well as employee training and development. Thus the small-scale sector becomes a special case for examining the efficacy of alternative HRM practices in organizational effectiveness In the following paragraphs we discuss ABAT and ABRT in the specific context of SSS and evaluate the relative efficacy of the alternative policies.

Recruitment Policy : There is a tendency among the small-scale entrepreneurs to hire unskilled, semi-skilled manpower at the cheapest

possible cost. In fact, cost may not be the sole reason for such a tendency. The entrepreneur may like to hire dependent subordinates to ensure that his position as the hub of enterprise remains undisputed. The entrepreneur himself imparts the necessary skills that are particular to his industry. Given the scarcity of employment opportunities and also because of particularization of skills, lack of formal qualifications and partly also due to paternalistic style of management, people turnover is low, tenure is longer (This may also be due to the desire for accumulating severance money) and personal loyalties are cultivated. But professionalism- the necessary armour for sustainable competitiveness- becomes a casualty. On the contrary, hiring of professionals may impart the enterprise the cutting edge. (cf. Table 03)

Table 03
Approach Towards Hiring People

Behavioural Orientation	Mean Score in Yester Years*	Mean Scores Presently*
Recruit trustworthy, dependable and obedient employees	4.35	4.37
Recruit qualified and trained professionals	3.59	3.89

*Out of maximum score of 5. Higher the score, greater is the intensity of the corresponding behavioural orientation.

Dependable and loyal employees the entrepreneurs generally seek at the expense of professionalism. However, as compared with yester years, the tendency for hiring professionals returns a 0.30- point increase vis-a-vis 0.02- point increase in the Mean score for the search for "Mr. Dependable". In fact, with time, the very concept of loyalty seems to have undergone a sea change, as evident from the remarks of a Mumbai based entrepreneur:

"Entrepreneurial values must change with respect to loyalty expectations from their employees» discouraging sycophancy and encouraging loyalty to the organization. For this even the entrepreneurs have to change their attitude from behaving like a 'boss' to becoming a professional colleague. In any case, an entrepreneur would elicit greater acceptance if rather than projecting himself as the 'owner proprietor'. He projects himself as an embodiment of diverse but often indivisible services."

The views of a Delhi- based entrepreneur were more forthright when he said, "As for the work force, father sought loyalty. I seek competence." Not only are they, now, placing greater importance on merit over loyalty, the entrepreneurial expectations of people's skill base are also undergoing a change :

"there has been a change in our recruitment preference because of the business restructuring we are looking for multi-faceted and versatile work force-that is, fewer but better equipped and better paid people,"

Thus the objective of 'employment generation' has been fast losing its consideration in the recruitment preferences of the entrepreneurs, who of late, have started laying greater emphasis on qualified, trained, efficient, versatile, smaller and better paid workforce.

Retention Policies : Most entrepreneurs of our study viewed their workforce as comprising their extended families. They were at first names

with not only the workers but also their family members. They would reach out to their workers and their families in times of distress. And in exchange they earned lifetime loyalty not just from workers but even their next generation. This has been the ethics of people management for small-scale entrepreneurs in India whereby despite low financial compensation they could retain their manpower. Not only did ex gratis payment suit well their paternalistic style of management, but also it saves them of the burden of any contractual obligations subsequently. Obviously, incentives and rewards for good performance would be at the subjective discretion of the employer rather than reflecting employee's own assessment of his contribution. Not for long are they going to put up with this kind of paternalistic compensation especially in the wake of innovative designs of pay-packages which the forward looking India corporates and multinationals are resorting to. Moreover, a humane and warm interpersonal Industrial relations cannot be for long a substitute for giving the workers their due. As a Mumbai based entrepreneur said; "In the name of cost cutting and "they do not deserve it," we, the Indian businessmen, have often denied the workers their due. In fact the so called "dual" set of financial statements are maintained not so much for tax evasion as for the evasion of business responsibility of sharing prosperity with the workers. I have promised the workers openness and transparency in business, we will survive and prosper together." Thus entrepreneurs' attitude towards employee compensation needs to change for the good.

Table 04

**Summarizes entrepreneurial orientation towards
alternative retention policies**

Behavioural Orientation	Mean Score in Yester Years*	Mean Scores Presently*
Reward good performance by out -of-turn promotions / pay hike	3.77	3.90
Avoid hike in contractual payment; reward ext ra contractually / ex gratis	4.04	4.04

*Out of maximum score of 5. Higher the score, greater is the intensity of the corresponding behavioural orientation.

What is noticeable is that there actually has been a greater readiness, of late, among the entrepreneurs to be more positive in encouraging good performance. We came across instances where the entrepreneurs had offered stock-options to their key employees much before the concept gained popularity due to the happenings in the IT industry.

Relative Efficacy of Alternative HRM Orientations : As noted in methodology, we have taken OSLP as a measure of organization effectiveness in case of small-scale sector. To overcome the problem of strengthening or weakening of particular orientations over time, we have taken the average score for the each orientation in yester as well as recent years. We calculated the alternative behavioural orientations with a view to obtaining entrepreneurs' categorical position thereon and the corresponding Mean scores of entrepreneurial success. It may be seen from Table 5 that the forward looking recruitment policy whereby the entrepreneurs demonstrate

willingness to recruit qualified and skilled professionals returns a superior score on OSEP in comparison with the conservative attitude of recruiting dependent, obedient and trustworthy even though qualified and competent employees.

Table 05
Relative Efficacy of Alternative HRM Orientations

S.No.	Dimensions	Behavioural Orientation	Overall Score Entrepreneurial Performance (OSEP)*
1.	Recruitment Policy	Dependent subordinates	19.21
		Independent Professionals	20.33
2.	Retention Policy	Liberal	20.64
		Conservative	19.51

Out of a maximum score of 30 (overall average score: 20). The scale of entrepreneurial success is based on the summation of the levels of the present investment, turnover and profit as well as growth in these factors (6 factors in total) since start-up.

A policy of liberal rewards for good performance too stands out as consistent with better OSEP score. In general, therefore, Table 5 amply makes it clear that organizational effectiveness as measured by OSEP, beyond the limit where it may solely be attributable to the caliber, craftsmanship and capabilities of the entrepreneur, depends on the quality of its people. Thus even in terms of our primary survey we are convinced of accepting the null hypothesis that forward looking HRM practices are consistent with higher OSEP and, hence, greater organization effectiveness.

Section - V

Whether in the corporate sector that was the subject of our secondary survey or in the small-scale that was the concern of our primary survey, a case for sound HRM policies and practices is fairly established. While the corporate sector is better equipped to address to the HRM issues on its own, there is a strong need for strengthening the human capital base of the small-scale sector in ensuring its performance on a sustainable basis. A sound human capital base would help the firm not only to capitalize on any opportunities that may come in its way, but also it may help it to stay strong even in adverse circumstances.

In the small-scale sector there is a need to design and continually upgrade training and development programmes for entrepreneurs' reorientation as well as development of their employees. The Small Industries Services Institutes (SISIs) and the Small Industries Extension Training Institutes (SIETs) need to be revamped and their course - content needs to be upgraded for capacity building in the small-scale sector. The entrepreneurs frequently lamented the lack of updatedness of the training staff at the SISIs and SIET institutes. A scheme of networking of these organization with IITs, IIMs and other centres of research and education may indeed go a long way in enhancing their knowledge and expanding their vision.

An important area where the small-scale sector is seeking solace is outsourcing of the manufacture of goods by the Multinational Corporations

(MNCS) to low-wage countries referred to as 'sweat shop') Increasingly the multinationals are requiring their outsourcing partners to observe transparency regarding use of child labour, payment of wages, conditions of work etc. In general too 'social clauses' are being increasingly invoked as non-tariff barriers (NTBS) to international trade in the post-WTO regime. Thus sound HRM practices in the small-scale sector need be put in place straight away. Another area where HRM would be increasingly pressed into service is the management of productivity. 'Cheap labour' in India is proving to be a myth as labour productivity leaves much to be desired. The small-scale sector here may benefit from manpower training by their outsourcing principals. Besides 'cost', 'technology' leadership is often cited as the driver of current and future competitiveness of business. The capacity to absorb ever-changing technology would, to a large extent, depend upon the competence of an organization's manpower. The small-scale sector can remain oblivious to these trends only at its own peril. In the learning organization perspective and in general too, literacy is being redefined as an organization's and its people and learn ability, to learn, unlearn and relearn at a fast pace.

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Need to Extend the Scope of Article 12

• Vivek Sharma

Abstract- From Independence India as a state has covered a long distance from policing state to welfare state. With this development, significance of the definition under Article 12 has increased many folds. Vignette of State under Article 12 has been deciphered differently by courts as per the requirement of time, especially the last line 'Authority within the territory of India or under the control of the Government of India'. Judiciary Interpreted, that it covers not only the department of state also various agencies, Instrumentality of the state through which the state is performing welfare activities for its citizens. An opinion of extending further the scope of this article has increased in recent times. Few questions are to be answered before extending the ambit of State. Doubt prevails, whether Judiciary falls within the scope of words of Art. 12? Sentiments are raising that, various sports governing bodies that perform almost similar functions which are expected from state must be brought within the purview of the state. With the opening up of higher education for the private sector, private Universities have been created under statutes, should we extend the meaning of state to cover these universities. This paper is an endeavor to answer these questions comprehensively.

Key Words- Definition of State, Agency & Instrumentality of state, Judiciary as State, Private Bodies as a state, University as a state.

Introduction- Dr. Bhim Rao Ambedkar declared Art. 32 as heart & soul of the Indian Constitution but we can't ignore the significance of Art. 12. If Art. 32 enlighten us, about a forum where Fundamental Rights can be claimed than Art.12 throws light on the question, against whom fundamental rights can be claimed. Without reference to Article 12, Articles .32, 226 will become insignificant to give remedy for the breach of the fundamental right. Definition of state is tied up with writ jurisdiction of Supreme court and High court with a golden thread which strengthens, empowers individuals to stand in front of court against violation of their rights.

Definition of State as given under Article 12, envelope Union Parliament, State Legislature, Union and State Executives, local authorities, Other Authorities within the territory of India, and working under the control of the government of India. This definition open with the phrase 'state shall Include' which means the definition is an inclusive one. The Principle of interpretation says inclusive definitions are not exhaustive, but merely illustrative one, many other things may fall in the definition. So without taking the help of Article 368 there is scope to extend the meaning of state by the judiciary.

We know after World War II world wide the concept of State has

changed from a policing state to a welfare state. India also experienced similar conversion. Indian Judiciary has interpreted Article 12 with changing demands. When India got freedom various statutory authorities were created to perform welfare activities. Such statutory authorities were declared a state by Supreme Court for reason firstly there was a likelihood of breach of fundamental rights of the Individuals in their functioning. Secondly, its state was functioning, in the disguise of these statutory authorities. Further, when State being welfare state started performing commercial activities by the creation of the instrumentality of state other than the statutory authority, Supreme Court developed a formula to hold such authority to be agency, Instrumentality of State hence falls within the purview of Article 12. While extending the scope of state definition to such authority Supreme court emphasizes two aspects, one these Instrumentalities are merely sham, in reality, its state only who is working in disguise. Two the natures of functions performed by these instrumentalities are similar to those of the welfare state. By applying these principles Supreme Court has held even a society registered under The Registration Act can be regarded as state. Still, doubts prevail on whether Judiciary, Private Bodies can be regarded as state or not.

Judiciary as State- According to the worldwide accepted definition in political science, the state has three essential organs Legislature, Executive, and Judiciary, this view is also widely endorsed by Jurist. From the ancient to the modern era, the existence of the state cannot be presumed without a Justice delivery system. Judiciary and States are inseparable today. Providing justice to its subject is considered to be an important function of the state. The existence of the Justice delivery system makes the difference between state and group of dacoits.

Art. 12 of the Indian Constitution define State in clear terms, the definition includes both legislature and executive, and surprisingly the word 'Judiciary' is not given any place in this Article. Were framers of the constitution ignorant to the position prevailing in the world or they deliberately omitted the word judiciary from the definition of the state. On this question, Constitutional Assembly Debates does not throw any light. We can only surmise, perhaps framers of the constitution never thought that the Judiciary bestowed with the responsibility of protector of fundamental right will ever start breaching people's fundamental rights through its judgments. Even during the British period when courts were having British judges judgments of higher courts never been doubted, hence framers of the constitution didn't felt the need to tame the judiciary for breach of Fundamental Rights. Another reason may be the authority which has been entrusted with work can't be doubted for the same.

Various parts of the Indian Constitution, tell us about various organs of the Indian state, their functions, powers, and duties, also consist of provisions related to Judiciary. This eludes that the framers of the constitution were having no reason for suspecting the judiciary as an organ of the state.

There is no doubt the judiciary performs executive functions and legislative function, to that extent it can be regarded as a state. The real

controversy is when Judiciary performing the judicial function it can be regarded as a state. Under Article 32 writs of Certiorari and Prohibition can be issued against the court also. This leaves the impression that in the definition of the state Judiciary must be included. In the United States, it is well established that the state Includes Judiciary. In the UK where sovereignty lies in parliament until 2009 the judiciary was part of the House of Lords, hence leave no doubt that the Judiciary is part of the state.

It's tough to digest that legislature being state cannot violate Fundamental Right and Judiciary being the custodian of an individual's rights is not state hence can breach Fundamental right. It's also tough to believe that Judiciary can't violate part III while functioning under Articles 145, 146 but cannot do so while performing the Judicial Function. Let's consider few questions a court which refuses a person being untouchable entry to his court or a Court which compel an accused to answer incriminating questions, should not be answerable, for breach of Fundamental Rights Articles 17 and Art. 20 (3) respectively. Supreme Court in various Judgments has shown its reluctance to directly bring courts under the definition of the state. An Interesting trend has been seen Supreme Court has no hesitation to accept the writ of certiorari and prohibition against subordinate courts but when the question is of accountability of Higher Judiciary it has the different view. Higher Judiciary cannot be considered to be infallible. Though Supreme Court reviews its judgment but in practice very few judgments are reversed are very few. There are two reasons for that first review petition lies to the same judge/bench, who are reluctant to accept anything against their intellect reflected in Judgment. Supreme Court while recognizing curative petition has accepted that even the apex court is not infallible but so far the fate of such petition is the same as of review petitions. All most in Similar fashion High court has entertained writ of Certiorari, Prohibition against subordinate courts but reluctant to respond against themselves. SC and HC are tactfully giving remedies to petitioners without answering the question, Judiciary is state or not.

Fear of Including the Judiciary as a state is, even the Judgment of the apex court can be challenged, and there will be no ending of litigation. Can we in the name of the Principle of finality allow higher Judiciary to continue to cross the Constitutional limit which has been defined in a plethora of judgment by the judiciary itself for other organs of the state? This fear seems to be without support as it can be mitigated by importing the rule of res-judicata in cases decided by the Supreme Court with exception of review and curative petition.

An institution that is bestowed with the responsibility to prevent other organs of the state from violation of fundamental rights cannot be given free hand to do the same. Apex court cannot be made so feeble that it cannot rectify its error. An effective review of the judgments will be available if the judiciary is held to be a state. For obvious reasons so far judiciary is reluctant to declare themselves as a state under Art. 12. What is opaque must become crystal clear, a constitutional amendment inserting 'Union and State Judiciary' in Article 12 has become imperative.

Need to Include Private Bodies under Art. 12- Independent India in the first phase of economic development experienced, the transformation of a policing state into a welfare state and also formation of instrumentality, agency for delivering welfare objectives, almost all of them were declared state by Judiciary, whenever they were in the position to breach citizens Fundamental rights. In the second phase of economic development (started from 1991) many private bodies erupted, which are performing the same function as of being performed by instrumentality, an agency created through statute or otherwise were executing in the first phase of economic development. Just like statutory corporations, instrumentality these private bodies are also in the position to play with citizen's fundamental rights. This led to the emergence of thought if instrumentality or agency created in the first phase was state, functioning in the same field, with almost similar power to private bodies in the second phase than why not the definition of Art. 12 should extend to cover private bodies. Why the burden of complying with part III of the Indian constitution be only on the shoulder of the state and its Instrumentality, why the private individuals should be put in an advantageous position. When State and its instrumentality is in commercial rivalry why state and its instrumentality function with downsize, which are not available to private bodies. Initially, Supreme Court expressed its concern to bring private bodies under the purview of Art. 12, but so far not much has changed. Bringing private bodies under Article 12 will certainly mitigate cleavage between state and private organizations, this may have wide repercussions. A private Individual doesn't owe constitutional duty towards other individuals but certainly under statutory obligations. Similarly private organizations cannot be bound by similar obligations as of state.

Private University- Very first time question of a university as the state emerged before the court in *University of Madras v Shanta Bai* where Madras High court after applying the rule of "edjusdem generis" held other authority means the authority which have sovereign function and University of Madras is not having sovereign power hence university is not state.. It was held that the university is not covered in expression other authority. Subsequently, Supreme Court held in Art 12 no Separate genus or class being formed hence no question of applying the rule of edjusdem generis finally, Patna High court held that university is state. If we go with the reason all instrumentalities or agency of the state are also state and extend it to private bodies performing the same functions which till yesterday suppose to be a function of the state, then it will be against the well-established principle of English law, where the writ of mandamus is confined only to public authorities to compel for public duty which is created by the statute or their powers and duties are defined by the statute. But it is interesting to note that writ jurisdiction under Art.226 does not create any bar for issuing writ against private bodies performing public duty. Supreme Court recently accepted age old principle of English law that to be amenable to writ jurisdiction, authority duties and powers must be fix by statute. It held deemed University is state on the reason that once a educational institute is declared 'Deemed University' its function is to impart higher education (a

function till yesterday was supposed to be function of the state) a public function. Once an educational institute is declared deemed university necessary consequences will be its power and function will be governed by the **UGC Act**- It is submitted not only a state but every person should respect others fundamental rights, but legal position before Janet Jeypaul case cannot be amended on this premise. An abrupt vicissitude in law is very rare and Supreme Court while declaring Deemed University state has ignored the difference between Art. 32, 226. The Power of the high court under 226 is to issue writ not only against authority but also against a person. An accepted view for Art.226 cannot be applied for Art.32. Moreover, reason is given that once an institute is declared deemed university is being governed by the statute hence the state is completely wrong, because a company registered under the Company Act, cannot be regarded a state merely its power, the function is being regulated by an Act. Almost all private bodies are being regulated by some statute or by authority created under any statute.

Sports regulating bodies- In India, most of the regulating bodies of sports are non-government bodies. Their functions are the same as of state, public nature they control, regulate sports, sports events in India, represent India at the international level and send their selected team in international sports events. Can we extend the concept of agency, the instrumentality of state to them? Delhi High Court in case has held that the nature of duty performed by BCCI(Board Of Cricket Control of India) certainly a public duty which is of widest general public interest, modern education policy regard sports as essential for good education and held writ jurisdiction is maintainable against authority which is neither state instrumentality nor agency. Though in another case the same court without answering the question of BCCI as an instrumentality, the agency declared writ against BCCI is maintainable.

Supreme court held that BCCI is fulfilling the aspirations of millions of people, hence duty- bound to practice fairness in all its activities. In the case of sports bodies Supreme Court's approach is different from accepting deemed university as a state it rejected the plea of holding BCCI as a state. Supreme Court In the matter of BCCI taking the help of reasoning of another case held mere regulatory control under the statute would not serve to make a body state. The Difference here with Deemed University is imparting higher education was always suppose to function of the state but controlling sports, organizing sports events was never suppose to function of state. As there is a difference between the function of the state and sovereign function, Sovereign Function is supposed to be limited but the function of the state is not limited to policing function but to welfare activities.

Supreme court in another case has now settled controversy that High Court under Art. 226 has writ jurisdiction against national sports federations but the doubts related to Art. 32 still prevail.

Conclusion- In law nothing is perennial, the mutation is inevitable, disparaging the old legal thinking and ushering new one may seem to be clumsy at a particular time. It's too early to bring Private bodies under the purview of Art. 12, but accepting high court jurisdiction under Art, 226 against private bodies is embarking of long toil. When authorities which

govern Private bodies are subjected to part III of the constitution than why not private bodies be subjected to the same on this reasoning Deemed university has been held state but to cover sports bodies thought has to develop that sport is equally important as of education. Currently not a myriad of people approve this view, seasoned Judges meticulously; deliberately may bring change at the right time.

On the question of including the judiciary within Art 12, it seems time has ripened if the judiciary is reluctant to cover itself under state definition than legislature must act by constitutional amendment. When neither judiciary nor legislature is showing interest in bringing change it means changes are either not accepted or they are against the set position of law, this supposition is away from the truth. Judiciary very cleverly without going into the question of inclusion into the definition of the state is accepting cases against judiciary for violating Fundamental Rights. The Inclusion of the Judiciary in the definition of state will mean giving effect to prevailing practices this will lead to transparency in the judiciary, higher court in particular.

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Bio energy: Sources

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Abstract- *Now a days biomass has been considered as a versatile renewable energy source. It can be converted into different forms of energy, one of them is liquid transportation fuels which are equivalent to fossil based fuels, such as gasoline, jet, and diesel. By using different technologies and processes the biomass energy can be converted into accessible forms of energies. There are many sources from where we can get bio energy, they can be divided into three categories e.g terrestrial, municipal waste and marine. Each source has its processing method, advantage and disadvantage. Present chapter deals with all these sources of bio energy and their processing. In recent global energy scenario bio fuels are considered as most promising alternative to conventional petroleum derived fuels for transportation, in the form of clean energy with low emission of toxic and hazardous gases. Currently world is seeking for such sustainable and renewable sources of energy.*

Key Words- Bio energy, biomass, fuel, sources

Introduction- As we look around, each and every function requires energy. Right from rotating fan on ceiling to the honking car outdoor needs energy in direct or indirect form. Along with the improvement of human life, energy requirements also increased. Currently each human per unit energy consumption is considered as an indicator of the progress of a country.

Some estimate shows that, only 18% total energy consumption in the industrial processes comes from renewable source of energy and the rest of 82% comes from non renewable energy sources. Out of 82% of non renewable energy resources only 6% of energy is obtained from nuclear power source and the rest of 76% of energy is derived from fossil fuels. Out of 18% of renewable resources 11 % of energy is derived from biomass and the remaining 7% is obtained from solar power, wind power, hydro power and geothermal heat.

Quantity of non renewable sources of energy is fixed and this quantity decreases as consumed regularly. Thus, it is certain that one day these sources will come to an end and renewal of all these sources is not possible. So, we need to find out some renewable source of energy as an alternate. Bio energy, being a good renewable source of energy, is a great alternate. Also in the mythological era, energy was obtained by burning woods and cow dung cakes which is now considered as bio energy. Bio

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energy has been considered as a promising alternative solution for the exhausting fossil fuel that is not only clean & environmentally safe but also produces negligible levels of green house gases and other pollutants. Bio energy can be utilized for the production of heat, electricity, fuels for transportation and various industrial products now a day's biomass has been considered as a versatile renewable energy source. It can be converted into different forms of energy, one of them is liquid transportation fuels which are equivalent to fossil based fuels, such as gasoline, jet, and diesel. By using different technologies and processes the biomass energy can be converted into accessible forms of energies viz., heat, electricity, liquid fuels (e.g. biodiesel, biobutanol or bioethanol & biogas methane) etc.

Bio energy can be generated by various sources all these can be differentiate in three group e.g is terrestrial, municipal and marine and some of its major sources are –

A. Terrestrial

B. Municipal Solid Waste

C. Marine

Sources of Bioenergy

A. Terrestrial

1. Biomass- Energy produced from biological sources or biomass is known as bio energy. The word Biomass means weight or mass of matter that is produced directly or indirectly by photosynthesis. In other words dry mass of plants is considered as Biomass. Therefore, organic matter produced by living world is known as biomass.

Biomass feedstock can be obtained from numerous sources like agriculture or farming of biomass rich crops so as to derive organic matter from it (Yuan *et al.*, 2011)

In order to produce Bio energy from Biomass, it is required to collect biomass on higher scale. Biomass can be obtained easily from Municipal wastes and other municipal sources. The composition of such matter changes from place to place along with time (Balasankari *et al.*, 2009). Solid waste of developed countries is completely different than that in undeveloped countries. A large portion of energy is present in every waste material which varies significantly. Domestic wastes are preferred over industrial wastes as they have more potential energy to get converted into Bioenergy (Ling *et al.* 1991).

Main sources of biomass are -

1 Plants containing lignocellulose such as eucalyptus, chir, lucina (subbool), maize, sugarcane, sugar, beet, etc.

2 Aquatic plants like Ecchornia (water hyacinth)

2. Fire Wood- Wood is the most common type of fuel source. It is readily available and did not require any technical knowledge to collect or obtain. 99% of the pure wood is burnable. Many plant species are used as wood fuels such as -

Babool desi (*Acacia nilotica*)

Kumta (*Acacia senegal*)

English Babool (*Prosopis juliflora*)

Khair (*Acacia catechu*)

Siris (*Albizia lebbbeck*)

Jamun (*Syzygium cumini*)

Aam (*Mangifera indica*)

Khejdi (*Prosopis cineraria*)

Ardu or Mahaneem (*Ailanthus excels*)

Roj (*Acacia leucoploea*)

3. Bio Gas- Fermentation of organic substances by bacteria results in the formation of biogas. In early years of Bioenergy production, organic wastes were dumped in open fields but later with enhancement of technologies landfill techniques were developed to obtain biogas. Gobar gas plant is a good example of such technique (Gupta et al., 1998)

In gobar gas plant the anaerobic fermentation is completed in three steps-

- In the first stage, complex organic substances get converted into simple cellulose and hemicellulose by anaerobic facultative bacteria.
- In the second stage, simple substances get converted into organic acids and further into acetic acid by partial aerobic and partial anaerobic fermentation.
- Methano bacteria oxidises acetic acid into methane (biogas)
- Singapore, Bangkok and Chennai have highly advance methods to extract biogas from municipal wastes (Bhat et al., 2013)

4. Biodiesel- It is a liquid like substance derived from biological substances. It is made from vegetable oils, fats and latex. Biodiesel is a pollutant reprocessing fuel. Chemical name of biodiesel is fatty acid methyl ester (FAME). Rudolf Diesel, the Explorer of biodiesel, built the engine in 1895 using these oils.

In order to increase knowledge among citizens, governments of many countries like Brazil have made some laws to use renewable fuels and resources instead of non-renewables (Korbitz et al., 2003)

Biodiesel can be prepared using-

Vegetable fatty oils

- *Jatropha curcas*
- *Pongamia pinnata*
- *Madhuca indica*
- *Ricinus communis*

Petro Plants (family)

- Apocynaceae
- Esclepediaceae
- Euphorbiaceae
- Cepotaceae
- Artiaceae

5. Algal Hydrogen Factory- Various aquatic autotrophs like algae can be used to produce hydrogen and hence energy. O₂ is produced as a result of photosynthesis performed by algae but Anastasios Melis stated through his experiment that if the supply of sulphur and oxygen is blocked during day time then it starts producing H₂ in place of O₂ (Melis et al., 2000). This hydrogen can be used to produce energy.

6. Ethanol from Starch and lignocelluloses- Ethanol can easily be derived from starch and sugar present in crops. Crops like sugarcane, beet, millets, grains and tubers are important for gross production of ethanol. Cellulose, one of the main components of plant, gets decomposed in glucose by cellulase enzyme and then ethanol is obtained by glucose easily.

Invention of new methods and techniques will lead to various new scopes in the field of Bioenergy production like infrastructure development using bio products or even electricity generation. This would be a strong step towards adopting renewable resources (Cushion *et al.*, 2009)

The farming of bio ethanol producing plants is named as energy farming and such plants are termed as energy plants.

B. Municipal Solid Waste- Municipal solid waste (MSW) is one of the greatest sources of Bioenergy. Before treating MSW for extracting energy, it is categorised into recyclable or non-recyclable and also in biodegradable or non-biodegradable waste. Such categorisation is done to ensure a better treatment of MSW to extract Bio energy.

The composition of such matter changes from place to place along with time (Balasankari *et al.*, 2009). Municipal solid waste consist of plastic wastes, mechanical wastes, electrical wastes, kitchen waste, garden wastes, waste from stationary products like papers, etc. Domestic waste is much more useful as compared to other wastes as it comprises of wood, cloth and food wastes.

Municipal solid waste (MSW) comprises of both inorganic and organic compounds. The energy present in such waste can be obtained but only from its organic portion and not from its inorganic portion (Nandani *et al.*, 2008)

Municipal solid waste (MSW) can be converted into Bioenergy using any of the following techniques (Mehmood *et al.*, 2018)

A Thermo-chemical Conversion- This method of Thermo-chemical Conversion is used for dehydrated non-biodegradable solid wastes composed of organic compounds. (Gupta *et al.*, 1998). This conversion method includes processes like Incineration and Pyrolysis. Thermo-chemical Conversion is different from bio-chemical Conversion in many terms.

B. Landfilling and Landfill gas recovery- This method is one of the earliest method of biogas production which includes dehydration and decomposition of solid municipal wastes.

C. MSW to biogas- Fermentation of organic substances by bacteria results in the formation of biogas. In early years of Bio energy production, municipal wastes were dumped in open fields but later with enhancement of technologies landfill techniques were developed to obtain biogas. Gobar gas plant is a good example of such technique (Gupta *et al.*, 1998)

D. Anaerobic Digestion- Many a times, solid municipal wastes do not get properly decomposed in gas plants, such solid wastes are decomposed using anaerobic method. Biogas produced in this decomposition contains methane gas in large amount. Slurry produced can be used as good quality manure and this process also helps in electricity generation. (Gupta *et al.*, 1998).

E. Incineration- After so many methods of decomposition here comes

a method which includes combustion of solid waste directly. In this method, only those plants are used for mass combustion which have a higher tendency to produce heat and further thermal energy is converted into required form of energy.

F. Refused Derived Fuel (RDF) Combustion- For mass combustion processes like incineration, large amount fuel is required in boilers. Such fuels are derived from pre-treatment of biomass, these fuels are referred as Refused Derived Fuel (RDF).

G. Gasification- This method of gasification is now used widely and preferred in place of combustion.

C Marine Biomass- As far as Marine bio energy is concerned, it is a new sector of bio energy industry, which refers to the energy derived from all types of biomass produced or extracted from ocean sources. According to the Marine life/ Ocean facts bulletin (March, 2020), altogether the Ocean covers 71% (and rising) of the world surface of our planet earth and contains 97.5% of the Earth's water (saline). Remaining 2.5% is fresh water. Most fresh water-about 69%- is present as ice in glaciers and ice caps (and is decreasing). Out of the total global biomass estimated, i.e. 550 billion tonnes C, only 5-10 billion tonnes C is found in the oceans (Bar-on YM et al, 2018). In oceans a huge amount of biomass is suspended in the photic zone. Biomass is an organic material which has stored radiant energy in the form of chemical energy. It is the total of organisms including plants, animals, and microbes within a given space as converted into a numerical quantity. It is referred to as “existing organism quantity”.

Marine Biomass Sources- Marine biomass is contributed by different life forms which are found in marine habitats including a large proportion of particulate organic matter.

Different plant forms such as phytoplanktons (Cynobacteria & microalgae) and macroalgae including higher flowering plants (as primary producers) are the main aquatic sources of biomass per hectare.

Phytoplanktons:- are single celled, floating protists. They can be divided into two groups, (i) Cyanobacteria and (ii) Microalgae.

Cyanobacteria - are the autotrophic prokaryotic organisms. Besides being an essential source of atmospheric Oxygen, they are important source of nutrients and biofuels and form an integral part of novel innovative energy - efficient designs (Mazard et al, 2016). The Marine Cyanobacteria mainly include the species of *Spirulina*, *Synechocystis*, *Oscillatoria*, *Lyngbya*, *Nodularia*, *Nostoc*, *Trichodesmium*, *Petrosia*, *Petella* etc.

Microalgae - are species of planktonic algae floating in water. Green algae, Yellow green algae, Golden algae, Diatoms and Dinoflagellates are the most common microalgal species. Green, Yellow green and Golden algae are the members of the class Chlorophyceae, Xanthophyceae and Chrysophyceae respectively, e.g., species such as *Zoochlorellae*, *Zooxanthellae*, *Chrysomonads* etc. The other aquatic forms like *Coccolithophores*, *Cryptomonads* & *Euglenoids* are also included in microalgae. Microalgae may be unicellular or multicellular, microscopic which may exist individually, or in chains or groups. These are the essential

photosynthesizing organisms of aquatic ecosystems, which are responsible for as much as 85% of oxygen in the atmosphere. They comprise a substantial portion of the organic matter found in water sediments (Biology Dictionary, 2018).

Macroalgae- is commonly known as sea weeds. They can thrive both in Salt and fresh water. They are multicellular, giant algae upto 60m in length. Sea weeds are protists divided into three groups: (I) Brown algae, (ii) Red algae, (iii) Green algae (Kennedy, 2020).

Brown algae - are the members of the phylum Pheophyta, commonly called dusky plants. They are large sized, rooted by "hold fast". They are commonly known as Kelp. The main examples of brown algae include species of *Ascophyllum*, *Durvillaea*, *Dictyota*, *Hormosira*, *Phyllospora*, *Macrocystis*, *Sargassum* etc.

Red algae – are the members of Rhodophyta. They contain phycobilin pigments, phycoerythrin can absorb blue light, so they are found at the depths (40-250m) in seas. Main examples - include coralline algae (e.g. *Corallina officinalis*) which form coral reefs. Other examples of Red algae are species of *Delesseria*, *Chondrus*, *Mastocarpus*, *Stellatus*, *Gracilaria*, *Gelidium*, *Pterocladia*, *Palmaris*, *Porphyra*, *Kappaphycus*, *Betaphycus* etc. The main biomass of red algae is provided by the members of Corallinaceae and Gigartinaceae.

Green algae – can be found in marine or fresh habitats. They may be unicellular or multicellular or colonial forms. The main examples of green seaweeds are species of *Ulva*, *Codium*, *Chaetomorpha*, *Caulerpa* etc.

Thus, above mentioned marine plant life contribute a large percentage of ocean biomass.

In addition to plant life forms, marine animal forms such as Fishes, Amphibians, Seals, Dolphins, Whales, Porpoises etc., including small animals and microbes like Protists, Molluscs, Siphons, Bacteria and Viruses also contribute a considerable amount of marine feedstock. Besides life forms, a large proportion of ocean biomass is also contributed in the form of particulate matter composed by the remains of dead animals and their feces.

Amongst the above mentioned sources of marine biomass, "Algae" which refers to a great diverse forms microscopic cyanobacteria to giant kelp have been considered most promising as the source of biomass for producing bioenergy, especially the biofuels. As far as **microalgal** biomass is concerned, it can be obtained by inshore cultivation established in natural water areas of low tidal activity with natural sunlight, heat and nutrients (Bezerra & Marinho, 2010). Their offshore cultivation is also possible with minimum requirements. The major advantage in the cultivation are that, the cultivation is cost effective, eco-friendly and algae have shorter life cycles. There is no requirement of fresh water for their cultivation and they do not cause any change in the land where they are growing. They produce higher biomass densities (Basker et al, 2018). But there are also certain disadvantages of using them, as they do not produce significant amount of lipids and require low temperature, less acidic condition and shorter

reaction time (Van Hal Jaap et al, 2014). The chief advantage of using microalgae is, their dual role in production of biomass which is suitable for biofuel production and phytoremediation of industrial waste water (Basker et al, 2018). **Macroalgae** on the other hand are proved to be very efficient in converting solar energy into biomass. They are capable of growing in wide range of salinity and chemical composition. Their utility as a source of biofuels is due to that, though they do not contain significant amount of lipid but lipid concentration can be increased by optimizing growth determining factors. They can be cultivated by using different technologies such as Open-pond cultivation system or highly efficient and ecofriendly Closed cultivation systems like photoreactors. In the closed systems environmental conditions can be controlled strictly to improve more production (Lundquist et al, 2010). By using different technologies and processes marine biomass can be converted into following energy carriers: (i) Electrical / Heat energy, (ii) Transportation fuels for examples- Biodiesel, Bioethanol, Biobutanol, Algal oil as fuel, Biogas (Methane) and Other hydrocarbon fuel variants such as gasoline.

Marine Biomass Conversion : Technologies & Processes- Presently there are four types technologies which are used for biomass conversion are available -

1 Thermal conversion- This technology involves use of heat in the presence of oxygen or without oxygen to convert biomass into other forms of energy and products.

Thermal conversion include – (i) Direct combustion, (iii) Pyrolysis, and (iii) Torrefaction.

(a) Direct combustion - is the most common technique for deriving energy from biomass in the form of heat and electricity. Combustion is the burning of biomass in the presence of oxygen. The heat evolved can be used for heating houses and district in cold countries like Austria, Germany, Scandinavian countries etc., and to heat steam boilers to activate turbines to produce electricity. Biomass can also be co-fired with existing fossil fuel at power stations.

(b) Pyrolysis – is the process in which under controlled temperatures and in the absence of oxygen, biomass is burnt into gas, oil and biochar. Biochar can be used for soil conditioning to improve the carbon content in the soil for agricultural purpose and also to make graphene. The gases and oil can be used to power a generator and some technologies can also make diesel and chemical from the gases.

© **Torrefaction** – like pyrolysis is also a thermal process in which biomass is heated at the temperatures of 200-400°C in absence of oxygen to convert biomass into a solid coal-like material called 'biocoal' which has better fuel characteristics than the original biomass.

2 Thermochemical conversion : This is commonly known as 'gasification'. This technology uses high temperatures in a controlled partial combustion of biomass not in full air but in enough air to form a producer gas and charcoal followed by chemical reduction. Advanced uses include production of diesel, jet fuel and chemicals.

3 Biochemical conversion: It involves the use of enzymes, bacteria or other microbes to break down biomass into liquids and gaseous feed stocks. The biological process involved is called as anaerobic (without air) digestion and fermentation. Anaerobic digestion of biomass results in the production of gas known as 'biogas'. For the production of gas biomass is digested in specifically designed anaerobic digesters or in landfills by capturing the naturally produced methane gas. Biogas is a mixture of methane (60%) and Carbondioxide (40%) with a heating value of 55% that of natural gas. Though digestion process is less efficient for power generation but non-energy benefits are especially significant in this process. The effluent sludge from the digester is a concentrated nitrogen fertilizer which becomes pathogen free due to warm temperature in the digester tank (Algburi, 2015).

4 Chemical conversion- In this method biomass are converted in to liquid fuels by use of different chemical agents. By using above mentioned technologies and processes, & the best promising non food marine algal biomass can be converted into following biofuels-

(a) Algal oil extraction- Algal oil can be extracted by employing mechanical or chemical methods. Mechanical method includes-(i) Expeller pressing & (ii) Ultrasonic assisted extraction method. In these methods dry algae can be used. Chemical extraction includes following methods - (i) Hexane solvent method, (ii) Soxhlet method, (iii) Supercritical fluid extraction. In chemical methods use of solvent has health issues and it is not eco-friendly. Similarly, Supercritical fluid extraction is both expensive and energy intensive as it requires high pressure equipment. So, both the methods (mechanical pressing and use of chemical solvents) are combined for the extraction of oil at commercial level. Another method which can be employed for oil extraction is Enzymatic extraction method. In this method enzymes are used for cell wall degradation to release cell components and oils. Cells can also be ruptured by osmotic shock treatment. Oil extracted from algae can be processed to produce biofuels in refineries.

The extracted lipid content of the algal biomass can be converted into biodiesel and the carbohydrates can be converted into ethanol and butanol fuel by the process of fermentation. Both the macro and microalgal genera have been considered as efficient feedstocks for this purpose.

(b) Biodiesel– For biodiesel production lipids/fatty acids are separated from algal biomass but, as the macroalgae are devoid of triglycerides so they are not considered as efficient source of biomass for bio diesel production. From macroalgal biomass biodiesel yield is very low as compared to microalgae (Mata et al, 2010). Therefore, microalgae with high lipid content, e.g. *Botryococcus braunii* (25-75%w/w), *Chaetoceros mwelleri* (33.6%w/w), *Chlorella emersonii* (25-63%w/w), *Nannochloopsis* sp.(31-68%w/w) etc. are generally used for biodiesel production (Basker et al, 2018). Presently to increase biodiesel yield from microalgal biomass new techniques like ultrasound irradiation assisted transesterification has been used to form emulsion of oil and alcohol and the cavitation formed during this process accelerates the rate of reaction (Mata et al, 2010). It has been observed that for biodiesel production dry biomass is used because water in

wet biomass shows negative effects on transesterification. So, dehydration of biomass is very essential for getting high yield. The conventional biodiesel production includes following processes – (i) Extraction of oil, (ii) Purification (degumming, deacidification, dehydration) and (iii) Transesterification.- Production of biodiesel by using all these steps increases cost of production. So first two steps can be eliminated by following direct transesterification or carrying out *in situ* extraction in which oil containing material remains in direct contact with alcohol.

In microalgae lipid content vary with the type of species. It was reported that the lipid content ranged at 20-50% of dry biomass including microalgae *Chlorella*, *Cryptocodinium*, *Cylindrotheca*, *Nanochloris*, *Nannochloropsis*, *Nitzschia*, *Schizochytrium*, *Phaeodactylum*, *Tetraselmis*, *Dunaliella*, *Isochrysis*, *Neochloris*, *Porphyridium* (Mata et al 2010). In microalgae triglyceride content can be increased, first by growing algae at optimal growth conditions then they are put on starvation resulting in increased oil production. Triglycerides content can also be increased under stress conditions of the temperature, PH, salinity and nutrients like N, S, P, Zn, Fe etc., and age of the culture used. The increased triacylglycerol (TAG) content enhances the yield and efficiency of biodiesel. In TAG the presence of saturated and unsaturated fatty acids determine the quality of biodiesel. Biodiesel production at commercial level can be increased by improving the photosynthetic efficiency of microalgae, biomass growth rate, oil content and by reducing photoinhibition. Use of photobioreactors for the culture of algae is the best solution for improving biomass yield for biodiesel production. To achieve this genetic modifications in microalgae and molecular level engineering receives more attention (Chen et al, 2015).

(c) Bioethanol - As macroalgae are rich source of carbohydrates, poor in lignin content and contain significant amount of sugars (at least 50%), so they are suitable feedstocks for bioethanol production by utilizing the saccharification and fermentation processes (Hamelinck et al, 2005). As in these algae carbohydrates are not freely available and so mechanical or acid pretreatment is required to increase the reaction area and make locked sugars in polysaccharides more accessible to hydrolytic enzymes. But hydrolytic treatment process has been reported to be expensive and causes decomposition of glucose (Horn et al, 2000). So saccharification is enhanced by combining acid and enzymatic pretreatment and the use of an efficient fermentation process are the main issues for bioethanol production. Amongst macroalgae *Gelidium amansii* composed of cellulose, glucan, galactan can serve as efficient feedstocks for bioethanol production (Horn et al 2000). Other species viz. *Saccorhiza*, *Alarie* and *Laminaria* are widely used for ethanol production.

Similarly microalgae such as species of *Spirogyra* and *Chlorococcum* have high levels of polysaccharides in their cell walls and starch as reserve food material can be utilized for bioethanol production (Harun & Danquah, 2011). As microalgae are good producers of Hydrogen, therefore bihydrogen can be produced as pollution free renewable green fuel.

(d) Biogas - Macroalgae such as *Ulva lactuca*, *Gracilaria vermiculophylla*,

Macrocystis pyrifera, *Sargassum latissima*, *Durvillia antarctica* have been used for the production of biogas. The organic contents (with less lignocellulose) of macroalgae can be converted into biogas by anaerobic digestion. But during processing inappropriate C:N ratio and high levels of Ammonia become limiting factors for methane production. In addition to this significant amount of saline, sulphur and halogen, which inhibit the growth and productivity of anaerobes, therefore to get increased yield of biogas these factors should be ruled out (Yen & Brune, 2007). The processes like milling, maceration, thermal pretreatment are required for efficient breakdown of cell walls before anaerobic digestion for biogas production. In the same manner microalgal biomass with carbonaceous feedstocks can be used for biogas production directly without drying in anaerobic digester. Microalgae due to their low nitrogen and sulphur content are more suitable for biogas production.

Advantages- Advantages of Bio energy are as follows –

- It is one of the best renewable sources of energy and thus they much better fuel as compared to those which are derived from fossils and are non-renewable.
- It can be obtained affordably at local levels.
- Biofuels have great reactivity and decrease hazardous emission (Abbasi & Abbasi, 2010). Since, burning of biofuels generates lesser amount of carbon dioxide (CO₂) and sulphur dioxide (SO₂), these are more environmental friendly as compared to petroleum.
- Use of biofuels helps to reduce acid rain as it do not generate Sulphur.
- It is less expensive than any other fuel.
- Algae grow fast, have high energy conversion efficiency by photosynthesis and produce huge and superior biomass.
- Contribute high yield of biofuels.
- Algae consume more Carbon-dioxide and other green house gases and release extra oxygen.
- Algae do not compete with agriculture crops as they are non edible source.
- Microalgal biomass can be used for fuel, feed and food for animals.
- Highly biodegradable resource with rapid bioremediation and are non toxic (Chen et al, 2015).
- They can grow in seawater, waste water even in polluted non arable land (Ross et al, 2010).
- More power of adaptation to wide range of climatic conditions.
- Produce sustainable and ecofriendly clean renewable biofuel which is highly effective to meet high energy demand.
- Conservation of fossil fuels.
- Diversification of fuel supply.

Disadvantages-

- Burning biofuels releases a large amount of carbon.

- Energy released from biofuels is much lesser than that of petroleum. Therefore, a large amount of biofuels need to be carried.
- Maintenance of energy crops and energy plants requires large amount of water.
- Large area of fertile land has to be left for energy crops which might lead to shortage of fertile land for food crops.
- Biofuels, being bulky, are not easily transported from one place to another.
- Increased initial production cost for growing, harvesting, collection, transportation, storage and pretreatment.
- Lack of monitoring and algal growth control for fuel production (Sharma et al, 2013).
- Use of extra water for algae processing.
- Limited practical experience in biofuel production (Ziolkowska & Simon, 2014).

Conclusion- Terrestrial and Municipal sources are the most important and diverse source for production of bioenergy. Being a renewable source of energy, its demand in future decades will increase exponentially. But instead of working in same manner we should find out new ways to produce bioenergy from Municipal waste so as to increase its efficiency and to decrease its disadvantages. In recent global energy scenario biofuels are considered as most promising alternative to conventional petroleum derived fuels for transportation, in the form of clean energy with low emission of toxic and hazardous gases. Currently world is seeking for such sustainable and renewable sources of energy. Studies on biomass as renewable source of energy revealed that, the marine biomass (sea weeds), especially sugar kelp are the most promising source for the production of third generation biofuels. As seaweeds including macro and micro algae are fast growing, space-efficient, can be cultured without requirement of freshwater and fertilizers. Additionally their plentiful availability, suitability, efficiency and productivity make them useful source of biofuels.

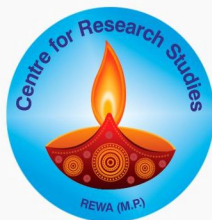
For making, biofuel production cost effective and cascading use of marine biomass resources, improvement in the seaweeds cultivation, harvesting and extraction techniques is needed. Besides this development of more efficient technologies including genetic engineering for gene modification at molecular level to make the biological resources most favourable for the production of bio fuel are required. Moreover, a globally widespread acceptance of use of biofuels for transportation is most important.

In this way the uncharted world of solid waste and marine bioenergy and its prospective in the environmental and global economic sectors can be actualized by optimum improvement and progression in technology and bioenergy production. This could proved to be the next sustainable breakthrough the world is seeking for these sources of bioenergy

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