THEORY PERSPECTIVES AND PRACTICES ACROSS DISCIPLINES

E-Book

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PREFACE

This book is wholly a collective venture. The aims to publish this book are bringing Scientists, Engineers, Academicians, Researchers and Professionals to exchange and share most recent Theory, Perspectives and Practices across Disciplines. Book is to allow share the ideas and promote the Theory, Perspectives and Practices in Science, Technology, Humanities, and Commerce & Management. To provide a premier interdisciplinary forum for Scientists, Engineers, Academicians, Researchers and Professionals to navigate the future research for better mankind. The book aims to provide a forum for the exchange of ideas on the Global Issues in Multidisciplinary Academic Research during recent times. The book aims to provide a common platform for researchers from the Academia as well as the Industry to publish their research work.

Dr. Eknath Mundhe

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ACKNOWLEDGEMENT

The world is a better place where we live and lead the development around us. From time to time the professionals and academics play a more important role in enhancing the skills of the students. Intellectual role as a mentor is important in developing the talent of the student at various levels. Being professional educationists, we are happy to express our gratitude to our experience and to the authors who supported us morally in bringing out this book, which focuses on Theory, Perspectives and Practices in Science, Technology, Humanities, and Commerce & Management.

I would like to express my sincere gratitude to all the authors, researchers and reviewers, who provided their detail research and views for "Theory, Perspectives and Practices across Disciplines". I would like to thank my Teacher family. This volume is wholly a collective venture. This cause would not have been possible without the great efforts paid by all the authors and we are sure their valuable contributions increased the significance of the book. All the authors played an equal role in bringing out this book.

Dr. Eknath Mundhe

CHAPTERS

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CHAPTER-1

HISTORY OF MODERN EDUCATION WITH REFERENCE TO INDIA

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Abstract

Education in the modern period is identified by many developments. With the advent of British rule, there were many developments took place in the system of education. Though the system of education was more developed in urban areas as compared to rural areas. During this period, there were an introduction of subjects like arts, sciences, philosophy and literature. The education policy of British Government laid much emphasis on higher education. During the modern Period, primary education was not much progressed. Mainly the system of education took into consideration the needs and requirements of the individuals. The individuals, who took this education were able to sustain their living in an appropriate manner. Author in this chapter wants to bring readers notice three phases of history of modern education and Mahatma Gandhi’s Wardha Scheme of Education

Keywords: *Modern Education, modern Period, Higher Education Developments and Basic Education.*

1.1 Introduction

In the modern period, there are many characteristics of the preceding centuries that have continued in the field of education. The unique centers of higher learning situated at Taxila, Vikramshila, Nalanda in North Bengal, vallabhi in Kathiwar and Kanchi in the south had disappeared long ago with the passage of time. Further under the patronage of the rulers and nobles, there was prevalence of Islamic education. The majority of the Hindu population continued to receive education and created awareness in terms of subjects like science and literature. The commencement of the oriental workshop made by Warren Hastings in 1781, when he established The Madrasa in Calcutta (Now Kolkata). In 1792, Jonathan Duncan, a resident of Varanasi started a Sanskrit college in order to make provision of education to the native Hindus. To assist the Europeans, the Christian missionaries were making their efforts to introduce western education by opening elementary schools and providing education to the marginalized, deprived and economically weaker sections of the Indian society.

The first half of the century can be called the educational experiment. The east India Company Charter Act of 1813 enabled the company to set one Lakh rupees for bringing about improvement in literature, the increase in the number of educated people in India and promotion of science among the inhabitants of the British territories in India. Under the British rule regime, mass education was not taken into consideration. Major attempt was made to create the urban educated elite class that would perform the role of the interpreter between the ruler and being ruled. The system of examination was considered important in both schools and Universities. The impact of education was more wide spread in urban area in comparison with rural area. Finally, there was positive impact of political leaders and social reformers who made significant contribution in imparting education to the Indians and making independent India.

1.2 Education History of Modern India

The educational history of modern India can be divided into mainly three phases which have been dealt with as follows:

1.2.1 First Phase: A period of Neglect (1813-1902) The Charter Act of 1813

The charter act of 1813 is a point in the history of Indian education. this act may be regarded as the triumph of the missionary Effort which had become intensified since 1793 to force the east India Company to undertake the education and moral uplift of the Indian people. Let us see how the historian of missionary activities in India views the whole matter:

"The 13th Resolution, the one in which the whole missionary question was really involved, run as follows: 'Resolved, that it is the opinion of this committee that it is the duty of this country to promote the interests and happiness of the native inhabitants of the British dominions in India, and that measures ought to be adopted as many tend to the introduction among them of the useful knowledge and moral improvement. That in furtherance of the above objects sufficient facilities shall be afforded by law to persons desirous of going to, or remaining in India for the purpose of accomplishing those benevolent designs! That meant that the missionaries were to be allowed to enter India and reside there, they might preach, found churches, and discharge all spiritual duties, in a word, they might fulfill their missionary calling in its completest and widest sense."

While this part of the act is importance because it led to the intensification and extension of missionary effort in India, section 43 of the Act was still more important because it provided money for Indian education and defined the objects of the Company's educational policy in India. It ran as follows:

"It shall be Lawful for the Governor-General-in-Council to direct that … a sum not less than one lakh of rupees in each year shall be set apart and applied to the revival and improvement and promotion of knowledge of the sciences among the inhabitants of the British territories in India."

The words at the beginning should be noted very carefully – "It shall be Lawful." The appropriation of the sum of one lakh of rupees for education was not obligatory but was left to the discretion of the Governor-General-in-Council. Again, although the objects of the educational policy are mentioned, they are vague and admit of several interpretations. Moreover, the section gives no directions whatsoever about the methods in which the three educational objects mentioned above were to be achieved. As a result of these shortcomings little or nothing was done for a decade after the passing of the said Act, and another decade was consumed more in fruitless controversies than in adopting measures for the real educational advancement of the country. Another reason for the absence of Government educational activity during the first decade was the preoccupation with the wars with Nepal (1814-16) and with the Marathas (1817-19) which were a great strain on the finances of the government.

As discussed earlier, the British parliament directed the East India Company to accepted the responsibility to educate the people of India. The Company, which ignored the education of India for more than two long centuries accepted this assignment being compelled by the British parliament. It was only in 1813, that for a vast country like India a meagre sum of ne lakh of rupees a year was provided for the spread of education. had the British Government taken proper steps, universalization of primary education would have been possible by the close of the nineteenth century. But in practice this new provision became worse than our indigenous education.

- **Downward Filtration Theory**

The East India Company adopted a mistaken policy, for which mass education was obstructed. This policy is popularly known as the 'downward filtration theory' which evolved between 1780 and 1833. According to this policy an attempt was made to educate only the higher classes, so that education filters down from the classes to the masses.

When the modern education system began a question arose. The question was: should the Government educate a class or should it educate the masses as a whole. Small amount sanctioned for education made the adoption of the former policy inevitable. Apart from the problem of the paucity of funds, there were other formidable difficulties in imparting education to millions of individuals. So, with their limited resources the Government decided to educate a particular class in English with the fond hope that this class would spread education among the mass through the Indian language. This was the famous Downward Filtration theory which Lord Auckland openly supported in his minute in 1839.

But in the beginning this theory did not produce the desired results, and that mainly for two reasons. First, every person who received education in English schools got employment under Government, and therefore, he had hardly any opportunity to go and tach the common men. Secondly, persons who were taught in English schools, in most cases, developed a superiority complex, and they formed a class by themselves. These English-knowing persons did not feel any sympathy for the masses who did not know English.

Ultimately, however, the theory did work in the desired way. A stage was soon reached when all the English-knowing young men could not be absorbed in Government Services. Consequently, several educated men took up the work of spreading education among the people as ameans of their livelihood. It was the beginning of modern education among the masses through modern – languages by the enterprise, not of the Government but of the few English-educated Indians. We will do injustice to some, if we make the sweeping statement, that disappointment in securing Government jobs forced all the English knowing people to take up teaching as a means of livelihoods. There were at least a few noble souls who turned the development of education from patriotic spirit.

Private Indian enterprise in the field of education, however, was very meagre. This field was largely occupied mainly by the missionaries, who after the passing of the Charter Act 1813 came to India in large numbers. In fact, during the period 1833-1853 total mission activities exceeded the official enterprise.

1.2.2 Second Phase – A Period of Intensive Agitation (1902-1918):

Movement of Compulsory Education

In spite of the failure in the past, the movement for universal education was not neglected. With the beginning of the twentieth century, the movement was considerably strengthened. Attempts were made to induce the government to enact a law for compulsory education in India. Thus, the way of success became brighter.

The progressive ruler, Maharaja Sayajirao Gaikward of Baroda state contributed a lot to this movement. Being a firm believer in universal education, he worked out his ideas in his own state. First, he experimented with compulsory education in the Amroali division of his state in 1893. When he got promising results, he introduced the same in the whole state in the year 1906. Thus, credit goes to him for introducing compulsory education for the first time in the history of India.

After this experiment the introduction of universal, free and compulsory primary education began in British India.

- **Positive Measures Adopted by Curzon for the Improvement of Primary and Secondary Education**

In Pursuance of the Government Resolution Lord Curzon adopted measures for improvement of every branch of Education. so far as primary education was concerned, he sanctioned large, both recurring and non-recurring grants. This liberal policy at once led to a large increase in number of primary schools and pupils.

So far as secondary education was concerned Lord Curzon sanctioned large grants in order to improve the efficiency of governments schools, so that these could serve as models to private enterprise. Large funds were also sanctioned for increasing grants-in-aid to private schools so as to enable them to come up to the standard of government institutions. The inspectorate was strengthened so that it could exercise a rigorous control over secondary schools.

In order to check the growth of efficient secondary schools, as desired by the Government Resolution, the education department in 1904 tightened the conditions of recognition and grants. The new conditions were:

(a) In addition to the to the recognition granted by the department, a secondary school should obtain recognition from a university if it desired to present pupils at the matriculation examination conducted by that university. In the same year the universities framed regulations for the recognition of schools.
(b) Government would give grant-in-aid only to the recognized schools.
(c) There should be no transfer of pupils from unrecognized to recognized schools.

- **The University Act of 1904**

As for universities, Curzon in 1902 set up a commission which in the same year made certain recommendations suggesting reforms. One member of the commission, Sir Goorudas Banerjee, submitted a separate note as he could agree with all the recommendations. On the basis of the recommendations the Government of India passed the Indian Universities Act in 1904. The provision of the Act was:

1. The universities would make provision for the instruction of students, appoint professors and lectures, hold and manage educational endowments, maintain libraries, laboratories and museums, make regulations relating to the residence and conduct of students, and provide facilities for the promotion of study and research.
2. The number of fellows of a university was not less fifty not more then a hundred and that a fellow would hold office for five years only instead of for life.
3. Twenty fellows would be elected at the three older universities and fifteen at the other two.

4. Statutory recognition was given to the syndicates and teachers were given adequate representation in the syndicates.
5. Stricter conditions were provided for the affiliation of a college to a university.
6. The government was vested with powers regarding the regulations to be framed by the senate. The government was to approve the regulations framed by the senate. The government could make additions to and alterations of the regulations. The government could even frame regulations itself if situation so demanded.
7. The Governor-General-in-Council was given the power to define the territorial limits of the universities.

- **Other Educational Reforms of Lord Curzon**

Apart from reforms in the fields of primary, secondary, and university education, Lord Curzon carried out many other educational reforms.

1. Schools of Arts

On coming to India Lord Curzon found the schools of arts in a moribund condition. Their performances were so poor that a section of opinion demanded the closure of these schools. Lord Curzon, however, turned down the proposal and directed that these schools should continue with certain modifications in their objects, methods, and organization.

2. Agricultural Education

Lord Curzon did a lot for improving agricultural education in India. First he founded the Imperial agricultural Department. Secondly, he created a Central Research Institute at Pusa with the object of giving the highest training in agriculture in India. Thirdly, he laid down the principle that every important province must have its own well-staffed and well-equipped Agricultural college. Fourthly he directed that agriculture should be introduced as subject at the middle and high school stage.

3. Foreign Scholarships

Lord Curzon instituted scholarships to be given to selected students to enable them to pursue technological studies abroad. He did this with the intention of developing Indian Industries.

4. Creation of the Department of Archaeology

A really great contribution of Curzon to India was the creation of the Department of Archaeology. This department, since its creation, has been rendering valuable service to Indian culture by its archaeological studies and by the efficient preservation of all important ancient monuments.

5. Appointment of a Director-General of Education

Curzon created the post of a Director-General of Education in India. The Dispatch of 1854 created education department in the provinces. Curzon created the nucleus of an education department in the central Government. It is definitely a proof of Curzon’s interest in the course of education in India.

1.2.3 Third Phase: A Period of Experiment (1918-1950)

Thus, the programme of universal education was actualized. By the year 1950, almost all the states of India placed a compulsory education law on their “statute book”. Thus, the first stage in the enactment of law in respect of universal primary education was over by 1930. It was closed altogether when the new constitution of India, adopted in 1950, declared that, “The state shall endeavour to provide within the period of ten years from the commencement of this constitution for free and compulsory education for all children until they complete the age of fourteen years."

- **Establishment of Central Advisory Board of Education- 1921**

The central Advisory Board of education which had been established in 1921 to abhor Advice on educational matters to the provinces and to conduct educational surveys was abolished in 1923 as a measure of economy. It was, however, again revived in 1935. At the inaugural meeting in Decemeber,1935, of the new board, proposals for a radicle reconstruction of school education were made.

The Board was of opinion that a radical readjustment of the present system of education in schools should be made in such a way as not only to prepare pupil for professional and university courses but also to enable them at the completion of appropriate stages, to be diverted to occupations or to separate vocational institutions. These stages were to be as follows:

(a) The primary stage, which should aim at providing at least a minimum of general education and training and still ensure permanent literacy.
(b) The lower secondary stage, which will provide a self-contained course of general education either for higher education or for specialized practice courses (in rural areas, the courses at this stage should be attuned to rural requirements. Some form of manual training at this stage should be provided which would aim at the development of practical aptitudes and be made compulsory).
(c) The higher education stage, in which would be included institutions with varying length of courses for:

1. Preparing students for admission to universities in arts and science.
2. Training of teachers in rural areas.
3. Agricultural training.
4. Clerical training
5. Training in selected technical subjects which were separate institutions were not possible for the diversified courses. Some of them might be incorporated in a higher secondary course of enlarged scope which would permit a choice of alternative groups of subjects and would end in leaving certificates.

1.3 The Sargent Scheme

The main conclusions of the central Advisory Board of Education about high school education were as follows:

a) The high school course (including one year of the present intermediate stage) should cover six years from the age of 11 plus to the age of 17 plus.
b) Entry to high schools should be on a selective basis after the completion of the Junior Basic Course. Only twenty percent of the pupils leaving Junior Basic Schools were expected to be found fit for high school education, the rest were to proceed to Senior Basic Schools. Additional palaces in the high schools were, however, to be provided for those not selected, provided that no cost falls on public funds.
c) In order to secure the right children, the methods of selection to be employed will require the most careful considerations. Special arrangements have to be made for transfer from senior Basic (middle) schools of suitable children and particularly of those who show signs of development.

d) High schools be of two main types (a) Academic (b) technical. The objective of both should to provide a good round education combined with some preparation in the later stages for the careers which pupils will enter on leaving school.
e) The curriculum in all cases should be as varied as circumstances permit and should not be unduly restricted by the requirements of universities or examining bodies.
f) In order that no poor child of ability may be excluded, liberal assistance in the form of free places, scholarships and stipends should be available throughout the course.
g) In order to secure teachers of the right type, the salaries paid in all recognized schools, whether maintained by the state or by private bodies, should not be less than those prescribed by the central Advisory Board of Education.
h) The estimated minimum net annual cost of the high school system outlined above, when in full operation will be Rs. 50 crores.

1.4 A Decade of Provincial Autonomy 1937- 1947

The Government of India Act, 1935, introduced some constitutional reforms and Congress minister were formed in 7 out of 11 provinces. In 1837 Mahatma Gandhi gave expression to his ideas about the problem of education India and wanted that education should be given through “a profit-yielding vocation” so that it could become self -supporting. The All-India Educational Conference held at Wardha in October, 1837 discussed the ideas of Gandhiji and passed the following resolutions.

1. Free and compulsory education be provided for 7 years on a nationwide scale.
2. The process of education throughout this period should center round some form of manual and productive work and all other training to be given to the child should be integrally related to the central handicrafts.
3. The medium of instruction should be the mother tongue.

1.5 Movement of Basic Education

So far, we have discussed the development of education in India which were initiated by the alien ruling power. Now we will deal with a system which is national in origin. It is the basic or Wardha system. It is a revolt against the sterile, book-centered, examination-oriented system of education that had developed along traditional lines during several decades of British rule.

The originator of this system was Mahatma Gandhi. When in 1937 congress came to power in many of the provinces, necessity was felt of evolving a national system of education. In October, 1937, in the first conference of National Education held at Wardha, Gandhiji announced his scheme of mass education.

1.5.1 Fundamentals of Basic Education (Wardha Scheme)

In the year 1937 Gandhiji finalized a scheme of education out of his experiments and tried for its adaptation throughout the country. He initiated discussions in the columns of “Harijan” on a scheme of national education. he also placed the salient feature of his scheme of education in the All-India National Education Conference convened at Wardha on the 22nd, and 23rd on October, 1937. He was the President of the Conference. It was attended by Education Ministers of seven Provinces. A scheme popularly known as the “Basic Education Scheme was drawn up according to the ideals of Gandhi. To prepare a detailed syllabus a committee was appointed under the Chairmanship of Dr. Zakir Hussain which submitted its report on 2nd of December, 1937. This report contained detailed syllabus and made suggestions about several aspects like training of teachers, supervision, examination, administration etc. this report is known as 'Wardha scheme' or "Basic National Education."

1.5.2 What urged Gandhiji to Place his Theory of Education

Gandhiji once said "I have given many things to India, but this system of education together with its technique is I feel the best of them. I do not think I will have anything better to offer the country. "These words of Gandhiji prove that he devoted his time, energy and resources to develop his new scheme of education for the reasons stated below:

1. Gandhiji considered the British system of education as an imposition upon the people of India.
2. The British system of education was impractical and destructive of the Indian imagination.
3. The British Education ignored everything India had discovered in its educational experience. These experiences included strong student-teacher relationships, appreciation of Indian culture, integration of children with environment etc.
4. The British Education created a new caste known as the English-speaking caste. The people who learnt English felt themselves superior to others.
5. British Education gave undue emphasis on literary education. Gandhiji opposed this idea and said "Literacy in itself is no education."

1.5.3 Features of Basic Education

According to a pamphlet published by the Ministry of Education, Government of India. "This basic education, is not only a valuable and integral part of the priceless legacy that Mahatma Gandhi left to the nation, but embodies certain educational ideas and principles of great significance that have been welcomed and endorsed by distinguished and discerning educationists in India and abroad." The Zakir Hussain Committee stated that, "economically considered, carried out intelligently and efficiently, the scheme will increase the productive capacity of our workers, and will enable them to utilize leisure advantageously." The basic scheme of education has the following important features.

1.5.4 Free and Compulsory Education

Gandhi advocated that within the age group 7 to 14, there should be free, compulsory and universal education. He wanted to combine the primary education with secondary education and called it. "English-less-Matriculation. "Thus, Matriculation minus English was his aim of education.

1.5.5 The Curriculum

The Gandhian curriculum consisted of "the craft, the mother tongue of the students, mathematics, social studies, natural science, and music. English as medium of instruction according to him was the greatest handicap in the prevailing system of education. it hindered understanding, obstructed clarity of thought and put a check on self-expression. He considered Hindustani to be the common language which can be used both by the Hindus and Muslims. Gandhi introduced the following subjects in the curriculum.

1.5.6 The Craft

The Basic National Education aimed at providing education through the medium of craft or productive work. The basic craft which may be agriculture or spinning and weaving or cardboard, wood and metal work, gardening, leather work etc. is suitable to local conditions. His curriculum was activity centred which should transform the schools into "places of work, experimentation and discovery."

1.5.7 Mother Tongue

Gandhi emphasized mother tongue to be the medium of instruction and the subject of study. If learning be imparted through the medium of English, it will hinder the development of understanding and precision of thought or clarity of ideas. Mother tongue would enable the children to express themselves effectively, clearly and lucidly. It can acquaint the child with his heritage, ethical and moral values.

1.5.8 Mathematics

Mathematics was introduced in the basic system with a view to enable the students to solve numerical and geometrical problems connected with craft and community life. In teaching of mathematics emphasis was laid on practical measuring and field work. Experience of business practice and book-keeping was also provided to the students. Teaching of mathematics helped the students to develop their reasoning capacities.

1.5.9 Social Studies

Social studies were a combination of some subjects like History, Geography, Civics and Economics. It was introduced to enable the students to understand and appreciate their own culture and also to understand nature and function of family state and the, nation and their interrelationship.

1.5.10 General Science

Subjects: Nature study, Botany, Zoology, Chemistry, Astronomy, Hygiene, Physical Culture and Knowledge of Stars were included in General Science. The objectives of the teaching of General Science have been given by the Zakir Hussain Committee in the following way:

1) To give students an intelligent and appreciative outlook on nature.
2) To form in the students, the habit of accurate observation and of testing experience by experiment.
3) To enable them to understand the important scientific principles exemplified.
    a) In the natural phenomena around, and
    b) In the application of science to the service of man.
4) To introduce them to the more important incidents in the lives of great scientists whose sacrifices in the cause of truth make a powerful appeal to the growing minds.

1.5.11 Drawing and Music

Drawing and music were included in the curriculum to develop creativity in boys and girls. The Zakir Hussain Committee opines that the aim of teaching drawing is to train the eyes to distinguish various kinds of forms and colours, to develop the faculty of appreciating the beautiful and to create an ability in the students to make drawing of objects and pictorial graphs.

1.6 Criticism against the Wardha Scheme

The Wardha Scheme has been criticized from different angles by the critics. Some criticize it as a utopian idea, while others remark it to be educationally unsound, so far as self-supporting aspects are concerned. If the child remains engaged in productive work, the cultural aspect will be totally neglected and he will become a materialist. There would be an enormous waste of materials at the hands of small children. The quality of the products will be rough and crude. It cannot compete in the market. The all-round development of the child would be affected. Moreover, the schools would become trade centres which will produce only craftsmen. This will become a short of legalized child labour. Let us now discuss the criticisms made against the Basic scheme of education in detail under the following heads.

1.7 Criticism is Unsound

The criticism against the Basic system is unsound. It is a sort of misunderstanding of the system. Gandhiji believed that without the use of hands, and feet, brain would be the home of satan. “Papa pays and baby plays,” should be changed to “Earn while you learn.” Imparting education through activity is a sound and universally accepted principle. By self-sufficiency Gandhi does not mean that children should be able to meet all expenses of the school. Nor does he mean sale of the school’s finished articles in the market. Self-sufficiency aspect of education is much more important from psychological and educational point of view. Therefore, Zakir Hussain Committee has warned us against such an attitude and says “we wish to make it quite clear that we consider the scheme of Basic Education as outlined by the Wardha Conference to sound in itself. Even if it is not self-supporting in any sense it should be accepted as a matter of sound educational policy and as an urgent measure of national reconstruction.”

1.8 Conclusion

The system of education in Modern India gained prominence with the emergence of the British rule. The middle of 1700 and the beginning of 1800 is termed as the period, when there was prevalence of indigenous education within the country. The main purpose of education during this period was to ensure that Indians are able to gain familiarity with the western modes of living, cultures, Values, principles and standards. The educational history of modern India was considered in three phases. These were first phase A Period of Neglect (1813-1902), second Phase: A Period of Intensive Agitation (1902-19180 and third phase: A period of experiment (1918-1950)

Basic education is absolutely a new philosophy of education which rejected bookish education and verbalism and gave priority to practical manual work. Basic education aimed to bring a remedy to the educational and social ills and integrate the three agencies of Education: Home, School and Society.

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CHAPTER-2

DIGITALIZATION AND ICT IN RURAL INDIA

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Abstract

India is a country with majority of its population residing in rural areas. Rural India contributes as much as 46% to our national income. The development of the rural economy, therefore, has a crucial role in the overall growth of our nation. In these times, when the entire world is moving towards digitalization, it is imperative for the rural areas of our country to adopt this change for sustainable development. This research paper aims to study the various government and private initiatives to promote ICT and digitalization in rural India. The researchers also attempt to identify the problems and challenges in penetrating ICT into rural India. The researchers found that several IT based projects like e-Choupals, Bhoomi, Tarahaat etc., have paved way for the adoption of digitalization in rural India and agricultural marketing. Yet, there are several challenges like infrastructure inadequacies and low literacy that these projects face. The research is based on secondary data collected from various websites, newspapers, magazines, books and journals.

***Keywords**: Digitalization, ICT, Rural India, e-Choupal*

INTRODUCTION:

The rural areas of India consist of around 70% of the country's population. A McKinsey report states that rural population would account for about 63% of the total Indian market by 2025. Agriculture, the main occupation of rural India, contributes about 25% of the country's Gross Domestic Product.

Despite constituting such a large share of the population, these areas fall behind drastically in terms of growth and development. But over time, the Indian government has begun to design and implement several initiatives for rural development. Many corporate businesses also undertake various initiatives to educate and develop rural population as a part of their corporate social responsibility. Further, several non-profit organizations also work in this area. The advent of technology and internet has further made this easier and more convenient. But the inadequate IT infrastructure of the country, combined with the low literacy and lack of technological know-how in rural India, has made digitalization of rural India a challenging task.

Objectives of the study

1. To study the current scenario of digitalisation in rural India.
2. To analyse various initiatives of digitalisation in rural India and their impact.
3. To study problems and challenges of implementing ICT in rural India.

Research Methodology

The research study is based on the collection of secondary data. The sources of secondary data include publications, magazines, books, journals, research articles, the internet and published records of Government of India.

Review of literature

According to M.S. Jairath and Hema Yadav (2012), selling agricultural produce in digitally regulated markets can be beneficial for the farmers but it is dependent on the infrastructure and the facilities available to the buyers and sellers in the market. Their study highlights training the farmers in the use of technology and developing an information sharing network would optimize the use of ICT tools in agricultural marketing.

According to Bibhu Santosh Behera et al. (2015), Indian agricultural sector is plagued by inadequacy and inefficiency in dissemination of relevant information regarding agricultural inputs, agro-processing, agri-marketing, agri-finance, agri-business, etc. and ICT can be a driving force in overcoming this drawback by simplifying marketing mechanisms.

As per a study conducted by N. Saini and P. Singh (2021), digitalization of rural India can act as a driver of immense growth by unlocking opportunities for both small and large businesses and also by providing a means to access information and education for the population in rural areas.

Current Scenario of Rural India

India is primarily a rural economy. The progress of the rural population is, hence, the key to boost demand and promote sustainable economic growth in the country. A majority of this population is involved in agriculture and allied sectors. In recent times, though, there has been a steady increase in non-agriculture income also in the rural households. This is because the absence of market intelligence system and unregulated markets means the farmers are unaware of the market information and settle for whatever the brokers offer. As a result, agriculture is no longer lucrative for the rural population. However, due to the IT revolution, agricultural marketing is transforming. Access to information has increased thereby enabling agriculture to be a more sustainable occupation.

Rural India is predicted to encompass nearly a 50% share of all Indian internet users by 2025. During the process of economic development, information technology is one of the basic infrastructures in the case of rural India. There are many other areas in which digitalization can support rural development for example governance, banking, education, medical, mobile recharge, marketing, transport etc. This can further strengthen the agricultural sector by extending the size of market.

Provision of technological support is associated with empowerment of rural population. The first initiative was the implementation of e-governance by empowering rural citizens with the help of service centres run small-scale entrepreneurs at the village level.

There is a visible change in rural India with technological development facilitating the growth of rural market. Financial inclusion has become crucial for the government. But still there are only 38% total scheduled commercial banks operating in rural areas and only 40% rural households are actively practicing in banking activities. As a result, India has 19% of the world's population that is yet unbanked. To change this, the rural facility centres have gone a step beyond providing only government services and begun to include banking and financial services also.

Initiatives for Digitalization in Rural India

Several initiatives of digitalisation started in India during the past few decades. The government introduced the Digital India initiative comprehensively in the year 2015 and a considerable amount of success has been achieved due to digital literacy campaign and making the internet available to many rural places. Some of the initiatives include: Accessible India Campaign and Mobile App, Agrimarket App, Beti Bachao Beti Padhao, BHIM (Bharat Interface for Money), Crime and Criminal Tracking Network & Systems (CCTNS), Crop Insurance Mobile App, Digital AIIMS, E-Granthalaya, E-Panchayat, E-Hospital, E-Pathshala, E- prison etc.

The following are some major IT-based initiatives introduced by various state governments to attain integrated rural development.

Warana Project

The Prime Minister’s Office Information Technology (IT) Task Force introduced Warana “Wired Village” project in the year 1998. The main aim was to improve the efficiency and productivity of the sugar cane co-operative. To achieve this aim by providing a wide range of information and services to beneficiaries from 70 villages around Warana, this project utilised 150 state-of-the-art computer networking nodes and internet facilities.

This project provided the villagers with access to information about crops, market prices, government employment schemes, revenue records, health schemes, credit schemes and educational opportunities in their local language. The implementation is done through the facility centres established in the villages. It also links the villages to the Warana cooperative complex. As a result, the villagers gained easy access to knowledge and information from across the world through the National Informatics Centre Network.

Gyandoot

Introduced in Madhya Pradesh’s Dhar district on 1st January, 2000, Gyanoot is a unique e-governance project that was economical as well as self-sustainable. The project was introduced with 21 telecentres in the village councils of 5 blocks of the district. Over a period of time, 600 villages in Madhya Pradesh introduced this project to establish easy communication with rural people through information kiosks. Many people are depending on the kiosks to get information about a verity of government services. The farmers can easily access to the variation in prices of agricultural produce in different markets. The project was found successful in the initial years post implementation, and was awarded the Stockholm challenge information technology (IT) award in 2000 for public service and democracy. But the subsequent evaluations of the project revealed lack of enthusiasm and poor delivery. So, sustainability of the project needs more comprehensive efforts.

E-Seva

The government of the state of Andhra Pradesh launched E-Seva services in 1999 with the objective of being able to provide "one-stop non-stop service" to its citizens. The intension was to provide easy service based on Government to citizen (G2C). The utility areas include permits/ licences, transport related services, application of passport, paying bills etc smoothened the life of rural people. It also allows citizens to apply online for subsidized agricultural inputs. It is a step by the Andhra Pradesh government to aid the penetration of IT in the rural areas of the state. The initiative was so successful that it was further adopted by other states like Maharashtra and Tamil Nadu.

Bhoomi

Bhoomi is a self-sustainable e-governance project launched by the Karnataka government in 2000 in order to create a computerised land record. It intends to equip 67 lakh state farmers with about 2 crore rural land records through 177 different kiosks set up across the state. This enabled the smooth land record maintenance and eliminated corruption and manipulations in the issuance of land title records. Rural land records contain different data elements of the land: nature of title, crop grown, irrigation details, ownership, loan details, tenancy etc. This also reduced the manpower requirement for maintaining land records. In digital format it is very easy to maintain more than 2 crore land records digitally and the land transaction also becomes very smooth. Thus, Bhoomi captivated the power of information technology to remove the challenges of the farmers of Karnataka. The corrupt practices followed by the land lords and money lenders can be controlled. Now the process of digitalisation of land record has been completed by all the states of India.

Information Village Project

The Information village project initiated by MS Swaminathan Research Foundation in Pondicherry. The concept was to integrate the villages by using advanced technology. This is rooted in the holistic concept of integrating pro-nature, pro-poor and pro-women orientation towards development. The community style of ownership of the technological tools promotes the spread of knowledge and collective action to complete the task. The use of local language ensures the participation of poor uneducated farmers is the special feature of this project. Most valuable information is provided to the farmers in their local language includes prices of agricultural produce and agricultural inputs, fertility of soil, schemes provided by different banks as well as the central and state governments, health care related facilities, animal care facilities, transport facilities, weather forecast details, minimum support price etc.

TARAhaat

Development Alternatives launched TARAhaat.com in 1983 for rural areas in the Third World to connect the rural India to the Global village. The vision of TARAhaat Information and Marketing Services was to open up village markets called haats, through internet, for the 5.7 lakh Indian villages.

TARAhaat provided villagers the access to different information resources and to a range of market opportunities including business opportunities, jobs, local development programmes, health facilities and information on commodity prices, land records, etc. The consumers of this service could purchase farm inputs such as seeds, agricultural machinery and their spare parts as well as household items.

E-Choupals by ITC

India’s ‘kissan’ company, ITC, launched an internet-based initiative in rural India in June 2000, 'e-Choupal', which is one of the largest initiatives of its kind. As per the statistics, e-Choupal services are used by more than 40 lakh Indian farmers cultivating different types of crops including shrimp, coffee, rice, wheat, pulses, soyabean etc. As on today, more than 35000 villages across 10 states including Kerala, Karnataka, Andhra Pradesh, Uttar Pradesh, Uttarakhand, Rajasthan and Maharashtra initiated this project through 6100 kiosks.

ITC encountered several challenges in setting up and running the e-Choupals. The infrastructural deficiencies like lack of continuous power supply, poor telecom connectivity and bandwidth, the challenge of imparting skills to the remote population who were first-time internet users in the inaccessible areas of rural India were the major problems. To overcome these, ITC employed several innovative solutions like setting up solar panels, Mobile Choupals, helpdesk, installation of VSAT equipment, local caching of static content on website to stream in the dynamic content more efficiently, upgrading BSNL exchanges with RNS kits etc.

ITC followed a user-centric approach by involving farmers in the design and running of e-Choupals thereby gaining the advantages of participative management. This enthusiastic response from farmers has resulted in a plan to extend the 'e-Choupal' project to 15 more states across the country over the next few years. Further, e-Choupals plan to channelise other services related to micro-credit, health and education through its existing infrastructure. They also plan to integrate bulk storage, handling & transportation facilities to improve logistics efficiencies.

'Choupal Pradarshan Khet' is an innovative initiative by the e-Choupals that helps educate small and marginal farmers about agricultural best practices. This initiative is backed by research, experience and knowledge educates the people and making them to handle all agri-extension services proactively. The farmers find it comfortable because it ensures timely availability of all farm inputs. Around 1 lakh farmers are beneficiaries of this project.

N-Logue Centres

N-Logue Communications initiated a project that gives rural people access to information and communication by installing Kiosks, called the n-Logue centres, with wireless Internet connectivity. Each location has its own site with localized information in local languages. The provision of video and mail applications of low bandwidth enables them to access marketing, medical and academic facilities at an affordable price. The popularity of these centres also depends on the participation of local population and door-to door publicity.

Digital India

Smartphones and internet have now penetrated into rural India thereby enabling digitalization. Yet there is a significant gap in the level of digitalization between urban and rural India. As per a 2019 TRAI report, in rural India, the internet penetration was only about 33% compared to a 99% penetration in the Urban parts of India. This gap is mainly due to the lack of awareness and inadequate infrastructure. To bridge the gap, the Indian government launched “Digital India” programme whose objective is to develop the digital infrastructure of the country, particularly in the rural regions.

To improve the awareness regarding digitalization, the government further introduced ‘Pradhan Mantri Gramin Digital Saksharta Abhiyan’ initiative to achieve digital literacy in rural India. In the agricultural sector, the ‘Kisan Suvidha’ app was launched to equip agriculturists with relevant information about the weather conditions of their region, plant protection, market prices of commodities, dealer information and agro-advisories.

Rural financial sector is another area of focus where the government aims to setup digital infrastructure through payment methods like BHIM. Payment companies like Google Pay, PhonePe, Paytm have begun penetration into the rural markets but 80% of the rural population is yet to switch to digital payments. These companies still face challenges in terms of internet connectivity issues and gaining the trust of rural consumer who are more comfortable and feel secure with traditional cash transactions.

Aadhar as a biometric identifier and bank accounts linked to it helps the government to implement relevant schemes for a targeted growth and development of rural population by avoiding any middlemen or corruption.

Problems and Challenges in Implementation of digitalisation in rural India

Illiteracy, lack of awareness, financial problems, lack of skill development, inadequate infrastructure like frequent power cuts, poor internet connectivity, etc., digital poverty and language dominance are the major problems in the implementation of digitalization in rural India. Beyond these, it is also challenging because of the basic human nature of resisting change and hesitation to revolutionise.

Findings

1. Digitalization has helped agriculturists and farmers gain access to modern agricultural trends, market information and best practices. This has helped the farmers improve their craft as well as earnings.
2. Use of IT has helped the government in the development of rural areas.
3. Lack of infrastructural development to support the penetration of ICT tools forms a hindrance to digitalisation.
4. No proper training or awareness is given to rural population regarding the use and applications of the digital services available to them resulting in less utilisation of these services.
5. Rural people are not used to digital platform on a regular basis. They find the traditional methods more comfortable.
6. Only 20% of the rural population are still using digital mode of payments. This reflects their hesitation in adopting to the digital payment system.

Suggestions

1. Digital skill development program should be strengthened to get adequate results.
2. Internet connectivity should be improved in remote locations.
3. The central government should not transfer the responsibility of implementing its initiatives to the state governments. It should be focussed in implementing digitalisation initiatives and continuously monitor the progress and penetration of such initiatives.
4. Micro finance to initiate start-up ventures rural community should be backed by practical training on Internet and ICT.
5. Government of India successfully completed rural electrification process. The next task is ensuring uninterrupted electricity supply to implement digitalisation.

Conclusion

Rural development is the main focus of government of India to attain the proposed growth rate of recent budget. Rural India can be reconstructed with a comprehensive step to implement digitalisation. With this realisation, Government initiates various projects along with the private participants and NGOs. But the overall infrastructural development like water supply, electricity, transportation facilities also play a vital role in achieving the expected result. Awareness campaign, practical exposure and continuous monitoring is necessary. Drastic steps to be adopted to inject fund through rural local bodies and ensuring the participation of private sector can be helpful to overcome the initial difficulties like shortage of project leaders and coordinators. Unfortunately, rural to urban migration is common in India due to enough work opportunities are available in urban areas, leadiing to a setback to digitalisation process. In spite of all these issues the government of India has decided to go ahead with the digitalisation process in rural India.

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CHAPTER-3

AN EFFECTS OF MIGRATION ON INFRASTRUCTURE WITH SPECIAL REFERENCE TO NAVI MUMBAI AREA

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Abstract

The history of humanity and development of human society is underpinned by migration. This article is analyzing the effects Migration on Infrastructure with the special reference to the Navi Mumbai area. Humans as a species have constantly moved, constantly migrated from place to place whenever they required. The main question is that why do they do it and what does it involve? Is it for work, for leisure or for some other reason? Are their journey is longer or shorter? Do they migrate voluntarily or are they forced to move by circumstances beyond their control? What happens to them when they arrive at their new destinations and how are they received by those already living there? These are just some of the questions that we need to ask ourselves when we deal with the issue of migration. Such questions are important as they can inform us about the many types of migrant experience that people can have. Examining examples from the past can also help us understand events taking place today. We can compare and contrast and assess whether there are continuing links between historical events and what we see happening around us in our contemporary world. Migration is an ancient process and we can find many echoes with today. Migration is the reason for integration of various customs followed by different religions and casts in country like India where multiple languages, food, cloth, etc. cultures are existing. We are going to elaborate the effects of migration on especially Infrastructure.

Keywords: *Migration, Housing, Education, Transportation, Sanitation etc.*

INTRODUCTION: -

Migration is a feature of social and economic life across many countries, but the profile of migrant populations varies considerably. As we all know Migration of people across countries, has been a crucial factor in changes in societies. There are two major types of migration: a) internal migration, which takes place within a country; and b) international migration that takes place across international boundaries. The former is a response to the socioeconomic spatial situations within a country. In this article we are focus Internal Migration and its effects on Infrastructure. Internal migration is the migration of people within the country. The characteristics and patterns of a country's internal migration are vital indicators of the pace and process of its development. The mobility of people within national boundaries is very difficult to measure. For this reason, it is necessary to have a clear understanding of the definition of internal migration. People constantly move from one place to another; and these movements are diverse in nature. The distances covered vary from a few kilometers to several kilometers. Moreover, the duration of stay involved in the new location may vary from a few hours to several years. Many movements are casual, such as commuting to and from the place of work, shopping, visiting, and travelling for business or for pleasure etc. Such movements do not involve a sustained or a permanent change of residence and must, therefore, be distinguished from migration, which involves a change of place of usual residence-a taking up of life in a new or different place.

Navi Mumbai has basic infrastructure worth ₹40 billion (US$530 million) is already in place. The city boasts a reliable supply of electricity from various sources, and excellent motoring conditions, with numerous flyovers, broad roads, and parking lots. Navi Mumbai is one of the planned city in India and a counter magnet for Mumbai. It has been developed as an independent, fully self-contained metro city. It's the world's largest, planned, well balanced, modern city. Navi Mumbai has been planned and developed by CIDCO to meet the Infrastructural needs of modern metropolis. Navi Mumbai has been developed as an environment friendly, beautiful landscaped area with parks, gardens and promenades along with waterfronts. In recent years Migration in Navi Mumbai area has increased and it is the reason why the more burden on infrastructure is experienced and still it is continued. We will analyze the actual scenario through this article.

Objective of the study: -

1. To highlight the effects of migration on Infrastructure
2. To define solution for infrastructural problems due to excess migration

Research Methodology: -

The Research approach used in this project is a 'Secondary Data Analysis'. The information existing in the following analysis is based on Government Surveys, Internet, Newspapers, Magazines and Books etc.

I) Housing

Accounting for more than 70% of land use in most cities, housing determines urban form and densities, provides employment and contributes to growth. Initially CIDCO built ninety percent of the housing stock. CIDCO began all construction in Navi Mumbai. Due to migration to the Navi Mumbai area demand for residence has increased drastically hence, Later, private builders and cooperative housing began developing residential sectors. Since Vashi is the oldest node, the data shows more diversification of the housing stock. A lack of affordable housing has led to people living in slums or squatting. Typically, housing policy failures result in residents fending for themselves for their housing needs rather than meeting them through planned and regulated housing projects. This challenge, however, also demonstrates migrants' resilience.

As growth of migrated population is increasing there is huge pressure on housing facilities and it leads to urbanisation and creation of slum areas. Navi Mumbai has different types houses since its establishment.

	CIDCO	Pvt. House	Pvt. Co-op	Commercial	Other
Vashi	64	02	29	02	01
Nerul	95	00	05	00	00
Belapur	91	00	09	00	00
Kalamboli	99	00	00	01	00
Panvel	80	05	15	00	00
Kopar-khairane	98	00	02	00	00
Airoli	100	00	00	00	00
Sanpada	88	01	11	00	00
Mean	89.38	1.00	8.88	0.38	0.13
Standard Deviation	12.24	1.77	9.76	0.74	0.35

Reference- The Urban Social Pattern of Navi Mumbai, India, Malathi Ananthakrishnan

As per data complied, It shows that overall dominance of CIDCO in all major areas of navi Mumbai such as Airlo, Kalamboli, Kopar-khairane, Nerul, Vashi etc. At the same time private houses, Private co-operative, commercial as well as other category houses are introduced in Navi Mumbai area.

II) Education and Employment

In case of Navi Mumbai Provision of schools and colleges was priority in the planning. The townships were designed to provide one primary school per 5,000 populations, one high school for 12,500 populations and one college for 50,000 populations. Soaring immigration directly affects the availability of places in Primary schools, Colleges and inevitably pushes schools towards increasing class sizes and adding classrooms. A number of premier schools and colleges have been set up in Navi Mumbai. And not just local students, but students from Mumbai and even outside come to Navi Mumbai in their quest for quality education. As such, Navi Mumbai is quickly acquiring the title of educational hub. When an influx of children from migration occurs, cities need to ramp up resources and capacity to deal with it. Lack of such resources poses big issues for their governments, undermining efforts to keep class sizes down and to provide school places for all children. Some cities have specific plans that focus on education to integrate migrants. Other affected cities have adapted or are adapting their strategies to respond to migrants' educational needs. Cities usually have to coordinate between different stakeholders (e.g. independent training institutions, government agencies, private schools, universities), which interact at the local level but often do not cooperate sufficiently if city administrations are not involved

Cities often introduce new courses, including languages, to cater to migrant needs, working with non-governmental organizations and volunteers involved in integrating and educating migrants. These efforts complement the work of city administrations and address gaps in funding or staff. Language skills typically become an obstacle to entering vocational training.

Number of Schools by Node/Taluka and School Management

Node/Taluka	NMMC Schools	Private Schools	Zilha Parishad* Schools	Total
Airoli	09	22	-	31
Ghansoli	05	19	-	24
Koparkhairane	08	19	-	27
Vashi	09	33	-	42
Sanpada	01	07	-	08
Nerul	11	43	-	54
CBD Belapur	04	10	-	14
Kharghar	-	15	-	15
Jui-Kamothe	-	10	-	10
Kalamboli	-	13	-	13
New Panvel	-	16	-	16
Panvel Taluka	-	33	67	100
Uran Taluka	-	21	29	50
MIDC	15	12	-	27
Total	62 (14.4)	273 (63.3)	96 (22.3)	431

Reference- https://cidco.maharashtra.gov.in/

In the table given above the number of schools by node/area and by school management. Out of 431 schools, 62 (14.4%) and 96 (22.3%) schools were NMMC schools and Zilha Parishad schools, respectively. The rest of the 273 (63.3%) schools were Private Schools. The table shows that among the planned nodes, Nerul had the largest number (54) of schools followed by Vashi (42) and Airoli (31). NMMC schools were located in first seven nodes and in MIDC area; whereas, Zilha Parishad schools were found only in Panvel and Uran Talukas. Among the Private Schools, again the largest number (43) of schools was in Nerul followed by Vashi (33) and Panvel Taluka (33).

When jobs are scarce, being employed is a blessing. But how much population is employed in Navi Mumbai? A job that the International Labor Organization (ILO) defines as 'decent'. In a national comparison of such jobs, Navi Mumbai shows up very poorly. One of the constituents of decent employment is percentage ofwage and salaried workers in the total workforce. Navi Mumbai'spercentage is lower than its expectations as it is one of the planned city in India.This is the fallout of having a large informal sector and still very-rigid labor laws in our rule diaries. The reason behind this poor performance may be more inflow (Migration) of human population. There are certain limitations of availability of job opportunities. Majority of population around whole country and world is looking at Navi Mumbai as opportunity for careers, but unfortunately now it is difficult for employers to give adequate jobs to employees and hence it leads to problem of underemployment. In 2001, the total population was 703, 947 out of which the main worker population was 238, 259, at the same time number of marginal workers were 17,196, therefore total workers were 255, 455 in Navi Mumbai.

III) Utilities

The demand for utilities, such as water, energy and telecommunications, can be put under severe pressure, with those at the lowest income levels suffering disproportionately from a lack of access. The situation gets worse when migrants reside in the same neighbourhood as low-income residents already accessing the scarce resources.

Water: - One of the most severe challenges, especially in recently populated cities, is the availability of clean water. The Sustainable Development Goals intend to achieve universal and equitable access to safe and affordable drinking water for all people by 2030. The influx of migrants places an increasing demand on water resources, followed by an associated increase in sewage generation which, in turn, creates demand for waste water treatment facilities. A lack of such facilities results in an increased risk of untreated waste contaminating water, rendering more sources of water unusable and depriving more people of an increasingly scarce resource. Government of Maharashtra started the construction of Morbe dam in 1999. So, that water can be supplied to Nahva-Sheva region and NMMC area.

Total area wise demand for Recycled water for NMMC

Sr. No.	Zone	Total 2019 Average Demand	Total 2033 Average Demand	Total 2048 Average Demand
Phase- I				
1	Airoli	8.26	11.18	13.83
2	Airoli MIDC	7.95	7.95	7.95
3	Ghansoli	2.39	5.08	8.49
4	Koparkhairane	7.73	11.35	14.11
5	Koparkhairane MIDC	15.02	15.02	15.02
6	Vashi, TTC and Turbhe	30.24	36.22	45.79
7	Vashi MIDC	25.48	25.48	25.48
Phase- II				
8	Sanpada	7.05	8.44	10.02
9	Nerul	23.24	30.07	33.75
10	CBD- Belapur	6.98	8.99	9.95
	Total Demand	134.33	159.78	184.39

Reference- NMMC, Reuse of Recycled Water in NMMC area

As above table is stating that average total demand for recycled water is continuously increasing. The flow of human population from various countries and states of county is somewhere responsible for this scenario.

Energy: - Migration also affects energy consumption and CO2 emissions quantitatively. Rural to urban migration is shown to have a significant and negative influence on residential energy consumption and CO2 emissions. Population growth driven by rural to urban migration produces lower estimates of energy consumption than natural population growth." Cities are underestimating the impact of rural-to-urban migration such that energy consumption estimates are lower when the population has increased due to this migration than through urban-to-urban migration and natural population growth. These outcomes have imperative implications for the energy policy of developing-country cities in the context of population growth and energy utilization.

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With its world class infrastructure, Navi Mumbai is one of the largest planed cities in the world which has been specially developed to cater to the growing demand for urbanization within the Mumbai Metropolitan Region. The total GHG emissions from Navi Mumbai city were estimated to be around 2.8 MMTCDE (Million Metric Tons CO2 equivalent) and per capita emissions were around 2.51 tCO2e (Tons CO2 equivalent), as against the national average of 1.50 tCO2e.

Result and Discussion: -

Overcrowding of people due to rural to urban migration has put pressure on the existing social and physical infrastructure in the urban areas like Navi Mumbai. This ultimately leads to unplanned growth of urban settlement and formation of slums shanty colonies. As Navi Mumbai becomes one of the crowded city in Maharashtra next to Mumbai there is more burden on available infrastructure and somewhere it is felt that there is inadequacy of utilities. Government needed to analyze the existing population and accordingly make the provision of required infrastructure.

Conclusion: -

Any local government plan for development of infrastructure according to estimated population and further proceed. Unfortunately, people around the local city migrate without limit and it is difficult for government to maintain statistics. Hence, by keeping availability of infrastructure constant, population (Migrated) increases and it becomes inefficient. Now it is required to elaborate that why peoples from other areas are moving? We need to find solution for the same.

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CHAPTER-4

THE CHANGING ROLE AND PRODUCTIVITY OF AGRICULTURE IN INDIA

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Abstract

The role of agriculture in the Indian economy today is constantly changing. While the share of industry and services sector is increasing in the country while the economic development is taking place in the country, it is seen that the share of agriculture is decreasing. But agriculture is very important in the Indian economy in terms of population adaptation and upbringing. India has adopted various agricultural policies over the last seventy years through its Five Year Plan and Planning. For this, Agriculture Commission, study group has been appointed. Through this, efforts and measures have been taken to improve the performance of the agricultural sector. As a part of this, India is now self-sufficient in food grains. In terms of agricultural production, even today India has less agricultural production than other countries. It is responsible for various reasons. Although India's agricultural output is increasing, it appears to be low. In this regard, an attempt has been made to study these factors. Attempts have been made in this regard to study how to change the cost and income in order to increase the productivity of agriculture, increase the income and benefit the farmers.

Keywords*: agriculture, agriculture production, policies, changing, agricultural output.*

Introduction:

India is still known as an agricultural country. In India, a large number of people are engaged in agriculture. Although the share of agriculture sector in the economic development of the country is declining, today the share of agriculture in the overall employment is the highest. In terms of population, most of the population today works in agriculture. In the pre-independence period, agriculture accounted for more than 51 per cent of the country's gross domestic product, but today, in 2015-16, the share of agriculture in the country's gross domestic product has declined by 15.4 per cent. In the early years after India's independence, there was food scarcity, but after the Green Revolution, in 1967-68, there was a huge increase in agricultural production and India became self-sufficient in food. The government has enacted various laws to increase agricultural productivity and promote agriculture through institutions, thus increasing agricultural productivity. Although the government has taken various measures for this purpose, the productivity of agriculture in India is still low compared to other countries. There are various working groups to increase the productivity of agriculture. India's economic growth is still dependent on agriculture as the raw material required for India's industrial sector is derived from agriculture. Despite the efforts made to strengthen the agricultural sector through various five year plans, the productivity of agriculture in India is low. By comparison, the role of agriculture in the Indian economy today is changing, so it is affecting production as well.

THE CHANGING ROLE OF AGRICULTURE IN THE INDIAN ECONOMY:

Indian agriculture ranks second in the world in terms of agricultural production. In 2016-17, food production from Indian agriculture reached 275.68 million tonnes, with India leading the world in fruit production and dairy production. Nevertheless, the contribution of the agricultural sector to the Indian economy appears to be changing.

1. **The share of agriculture in GDP:**

After India's independence, agriculture accounted for 51.50 per cent of India's GDP in 1950-51. It has declined to 13.69 per cent in 2012-13.

Year	Share Of Net Agricultural Production	Agriculture And Agricultural Production Share
1950-51	41.83	51.09
1960-61	39.41	47.65
1970-71	34.16	41.66
1990-91	24.94	29.53
2000-01	18.71	22.26
2010-11	12.29	14.45
2012-13	11.65	13.69

(Source: CSO Databook for DCH, 10 March, 2014)

The table above shows that the share of agriculture in the Indian economy in 1950-51 was 51%. While it was 09 per cent, it has been steadily declining since 1950. In 2012-13, it was 13.69 per cent. The share of the sector in the GDP of developed countries as a whole is less than that of India. In England and the United States, the proportion is only two to three per cent, and the proportion of agriculture in the total employment in these countries is negligible. India, however, has the highest rate.

2. Declining importance of agriculture in economic development:

The importance of agriculture in India's economic and industrial development seems to have diminished. Initially a large supply of raw materials from the region was important for industrial development. Because it was important for cotton industry, sugar industry, agro-processing industry, etc. Also small and cottage industries depend on agricultural products. But in recent times, the development of non-traditional industries has been seen in the industrial sector as well as the traditional industries. The industry, machinery industry, engineering, chemical industry, which produces a large number of capital instruments with a long tradition of implementing many new schemes through various five year plans of India. As the share of automobiles, electronics and information technology in industrial products began to be felt, the dependence of this industry on agriculture has decreased. But in recent times the importance of food processing industry has been increasing.

3**. Reduction in government spending:**

Decrease in Government Expenditure During the financial planning period, huge investments were made in India for increasing agriculture and agro-based production through irrigation, soil conservation, dry land farming and cultivation of other land areas, improved fertilizer supply, improved cultivation and so on. For this, a large amount of money was spent by the government for various schemes and institutional components such as research and extension services with agriculture. This expenditure has been incurred on land improvement, roads in rural areas, markets, co-operative credit etc.

4**. Crop structure changes:**

Crop composition is the proportion of area under different crops in a single farming season. A change in crop composition is a change in the area under different crops. In the post-independence period 1950-51, the area under food crops was 74% and the area under non-food crops was 26%. This can be seen from the following table.

Crops	1950-51	1970-71	2006-07	2010-11
food grains	75 (%)	74 (%)	64 (%)	66 (%)
Non-food grains	25 (%)	26 (%)	36 (%)	33 (%)

5. **Self-sufficiency in foodgrains:**

The production of food grains has an important place in agricultural production. India was once dependent on food imports, but in 1976, India became self-sufficient in food. Adequate foodgrains are being made available to the growing population of India through agribusiness. At the same time, the production of orchards in India today has increased significantly. This is clear from the table below.

India's cereal and horticulture production (metric tons)

Year	food grains production	horticulture production
2004-05	198.38	166.94
2012-13	253.13	268.85
2016-17	275.68	299.85

(Base: Department of Agriculture, Co-operation and Farmers Welfare, Government of India.)

The table above shows that India is increasing its foodgrain production and fruit production.

6. **Variable ratio of farmers and farm labour:**

Out of the total population of India, the proportion of people engaged in agriculture today is higher than other sectors but it is declining. Appears to be.

Year	Farmers(%)	Labour (%)	Total (%)
1951	71.9	28.1	69.7
1961	76.0	24.0	69.5
1991	59.7	40.3	59.0
2001	54.4	45.6	58.2
2011	45.1	54.9	54.6

(Base: Register General, Government of India)

The table above shows that in India in 1951 a total of 69.7 points seven per cent people were engaged in agriculture as compared to 54 in 2011. It turns out to be 6 percent.

7. **Changes in land distribution ratio:**

The order of Indian agriculture is generally divided into five parts, in which the proportion of land holdings is divided into smallholder, medium and large. This can be seen from the table below.

Classification Of Holding Area	**2000-01**	**2005-06**	**2010-11**
Marginal landholder (Less than 1 hectare)	62.9 (18.7)	64.8 (20.2)	67.1 (22.5)
Less landholder (1 to 2 ha)	18.9 (20.2)	18.5 (20.9)	17.9 (22.1)
Low to medium land holder (2 to 4 ha)	11.7 (24.0)	10.9 (23.9)	10.0 (23.6)
Medium land holder 4 to 10 hectares	5.5 (24.0)	4.9 (23.1)	4.2 (21.2)
Large land holder (10 hectares and above)	1.0 (13.2)	0.8 (11.8)	0.7 (10.6)

(Base: Department of Agriculture, Co-operation and Farmers Welfare, Government of India.)

8**. Changes in import-export structure**:

In the post-independence period 1950-51, exports of agricultural commodities like tea, coffee, oilseeds, tobacco, spices were fifty per cent. Exports of linen, cotton and agro-based commodities accounted for 20 per cent or 70 per cent of the total exports, but due to diversification of exports, imports and exports in the agricultural sector changed during the period of economic recovery in 1990-91. This is clear from the table below.

India's agricultural imports and exports (percent)

Year	Total imported agricultural imports	Agricultural exports in total exports
1990-91	2.69	18.49
2000-01	5.29	14.23
2010-11	3.03	9.94
2015-2016	5.63	12.55

(Reference: World Trade Organization 2017)

The table above shows that agricultural imports are increasing and agricultural exports are increasing. Agricultural exports were 18.49 per cent in 1990 and 12.5 per cent in 2015-16. Imports were 2.69 per cent. Increased to 63%. India's share of global agricultural exports has increased from 1.1 per cent in 2000 to 2.1 per cent in 2016. So in the same import period 0. It has increased from 7 per cent to 1.8 per cent.

9. Government sources of income:

The state government gets its income from taxes levied on agriculture. Land revenue and sale of farm land, stamp duty, registration fee, etc., generate huge revenue for the government. The government also gets revenue from agriculture and other taxes, but it also gets good revenue from taxes on processing industries. Also Agricultural Produce Market Committee Marketing Department Irrigation Department Water issue also gets income in the form of tax. As a result, revenue generation and revenue expenditure flows through rural areas. Money stays, it drives economic growth.

10. Availability of foreign currency:

The government receives a large amount of foreign exchange from agricultural exports. The current foreign currency is needed. The fulfillment of this need is seen through the agricultural business. So we see an increase in foreign exchange from exports of agricultural commodities.

CONCEPT OF AGRICULTURAL PRODUCTIVITY:

The ratio of agricultural inputs to farm produce is called agricultural productivity. Mainly agricultural land for agricultural production. Agricultural labor capital and crop planning and operations of farmers are used. These are called agricultural inputs. That is to say, the following formula is used to measure the productivity of agriculture from agricultural exchange relations.

$$\text{Agricultural productivity} = \frac{\text{production of agricultural commodities}}{\text{Ingredients used for agricultural production}}$$

TYPES OF AGRICULTURAL PRODUCTIVITY:

1. **Agricultural productivity or land productivity:**

2. Labour productivity:

1. **Land Productivity:**

This means that the product obtained from a specific area of farm land is called the productivity of that farm land.

Land productivity can be measured by the following formula:

$$\textbf{Land productivity} = \frac{\text{agricultural production}}{\text{The area of farm land is acre or hectare}}$$

2. **Labour Productivity:**

The productivity of agriculture is measured by the productivity of the land as well as the productivity of labor. The following formula is used for this.

$$\textbf{Labour productivity} = \frac{\text{Total agricultural production}}{\text{Total labor engaged in agriculture}}$$

The following table shows that the productivity of Indian agriculture is low compared to international comparisons.

Global comparison of world crops (qunt. /hect.)

Crops	Productivity in India	The highest productivity in the world	Country
Rice	36.08	68.91	China
Wheat	27.50	80.80	Germany
Maize/ sweet corn	25.97	105.60	America
Cane	71.40	89.72	Columbia
Groundnut	14.85	44.42	America

(References: Director, Ministry of Finance and Statistics, Government of India.)

From the above table it is clear that agricultural productivity in India is very low. In short, the productivity of Indian agriculture is low in terms of both land productivity and productivity.

REASONS FOR LOW PRODUCTION OF INDIAN AGRICULTURE:

1. **Growing population burden on agriculture**:

The majority of people in India are still dependent on agriculture. In the post-independence period, the dependence on agriculture was 70 per cent in 1950-51, 60 per cent in 1991, 58.2 per cent in 2001 and 54 per cent in 2011. 6% of people depend on agriculture. Although agriculture is declining, the actual share is increasing. We have not had enough success to accommodate this growing population in the industrial sector. As a result, the number of people dependent on agriculture has been steadily increasing. Unseen unemployment in agriculture has been on the rise. As a result, agricultural productivity remained low or low.

2**. Land tenure system:**

Agricultural productivity in India has been low due to the zamindari system that has been in place since British times. The zamindari system was introduced by the British to collect land revenue. In this zamindari system the zamindars used to cultivate the land and exploit the farmers financially. The landlords had the right to evict them at any time. Is left. In the post-independence period, many laws were enacted to abolish the zamindari system, but they were not successful. Despite the increase in agricultural production, the families are being paid less and no attention has been paid to new methods of water supply cultivation. Therefore, the productivity of Indian agriculture is or is low

3. **Division of Agriculture in India:**

Due to the fragmentation of agriculture in India and the growing population and the additional burden created by inheritance laws, etc., the number of agricultural lands has been greatly reduced and fragmented. This puts limits on farming and limits on the use of improved technology. Due to the small area, it is not possible to provide permanent water supply. Dams cannot be built There are disputes over farm dams, disputes, and these disputes go to court, so the cost increases, farmers lose their labor, time, money, etc. It results in reduced productivity.

4**. Traditional Methods of Production:**

Even today majority of the farmers are engaged in traditional methods of farming, so outdated and old methods are used for agricultural production. Farmers in developed countries use modern tools but Even today the majority of farmers adopt the traditional method of production. Due to the turban of tradition, farmers adopt it in an outdated manner. Farmers in the developed region use modern tools but the proportion is very low. In order to increase the productivity of the soil, it is necessary to apply chemical fertilizers according to the soil test. The traditional method of roasting the forest destroys the essential elements and causes loss. Due to the small size of the farm, farmers are not able to use the modern method. Due to farmers' obedience, lack of information, inflation, etc., old and canal techniques have to be used, which reduces productivity and does not increase it.

5. Lack of water supply:

Irrigation is an important factor in increasing agricultural productivity and the main reason for Indian agricultural production is its dependence on agricultural nature. However, due to environmental damage, rains do not fall on time. Due to erratic rainfall, agriculture has been reduced. As the cost increases, so does the productivity of agriculture.

6. Farmer's Poverty:

Due to low income of farmers and high cost of farming, they do not have access to capital for agriculture. They are not able to carry out farming work on time. As a result, weeds grow in agriculture, agricultural implements cannot be repaired and maintained, so productivity of agriculture is reduced. Similarly, poor farmers have to cultivate hybrid seeds, chemical fertilizers, pesticides, tractors, etc.

7. Debt bondage of farmers:

As the Indian farmer is financially weak, he has to take loans continuously. It is said that farmers do not get adequate benefits due to non-availability of fair prices of agricultural commodities. They are unable to repay every loan on time so their indebtedness is increasing. It does not allow farmers to live contentedly.

8. **Illiteracy and ignorance of farmers:**

In India, the proportion is 35 per cent as per the 2019 census, compared to 25.6 per cent in 2011, with rural areas having the highest proportion. Due to narrow mindedness towards education, illiteracy rate is high among farmers. Not only does being literate change the attitude, it requires minimum education but due to lack of education, farmers are clinging to theistic superstitious traditions The large number of people who produce them results in misconceptions among farmers about modern methods. No one gives them proper advice so farmers lack scientific approach. And new changes are not easily accepted.

9. **Faults in the sales system:**

There are a number of flaws in the sales system in India that prevent farmers from getting a fair price. The Merchant Class is organized in the Agricultural Produce Market Committee and has complete control over the market. There is a consensus between wholesalers and retailers, so in determining the prices of agricultural commodities, the lower agricultural commodities are given first rank and the higher commodities are given lower status.

Farmers bring their produce to the market immediately without taking into account the fluctuations in the prices of agricultural commodities in the market. As they cannot afford to take the goods back, they sell the goods at the price that comes in. Brokers, intermediaries interfere, rob the farmers in various ways and also reduce the weight and measure, so the farmers lose their motivation to produce because they do not get the right price. Does not strive for productivity growth.

10**. Lack of professional approach**:

India still lacks business acumen among farmers. Just as agriculture is considered to be a means of subsistence, so too is agriculture profitable. Farmers are not aware of this. Therefore, farmers should compare the cost of production of agricultural produce and the income earned from it. In order to reduce the cost of production of agriculture, modern cropping system should be adopted. A thorough study of the market should be done. Farm produce should be stored in a proper manner at a reasonable price. But the Indian farmer never thinks of this business, he often takes the produce in a good way but he does not get the right price, so the farmers need to adopt a business approach which can increase their production and income.

11. Natural disasters:

Indian agriculture is dependent on the vagaries of nature. Sometimes storms hit, sometimes climate change destroys crops. Due to environmental imbalances, there are now a lot of fluctuations in the climate. Increased temperatures, which are sometimes extremely cold, have increased the risk to agriculture. Lack of suitable climate shows low productivity of Indian agriculture.

12. Soil erosion and stomach upset:

Excessive use of land reduces productivity due to agriculture in horticulture. Due to repeated cropping, soil texture deteriorates due to recurrence of single crop. Excessive use of chemical fertilizers damages soil components and reduces productivity due to weed spraying. Due to lack of proper training from the government, farmers are facing problems of production.

13.**Neglect of Agricultural Research:**

In the post-independence period, agricultural research and development has not received adequate attention. Despite the need to produce high yielding hybrids in Indian climate, the lack of research has reduced the productivity of Indian agriculture.

MEASURES TO INCREASE AGRICULTURAL PRODUCTIVITY. :

1. **Adopting modern techniques:**

Production Techniques Adoption of new and modern farming techniques can increase the productivity of Indian agriculture. Experience of developed countries has shown that modern farming techniques increase agricultural productivity. The use of modern multi-purpose threshing machines, tractors, etc., has led to an increase in agricultural production. In India, the government has introduced a number of subsidy schemes for the use of new machinery in the field of agriculture, but due to the economical size of agriculture, mechanization is limited.

2. **Use of chemical fertilizers as per soil test:**

Proper use of chemical fertilizers is essential to maintain soil fertility. The government supplied chemical fertilizers to the farmers at subsidized rates, but in the use of chemical fertilizers, the quantity was in nature in the soil; Crops need to be quantified depending on the ingredients. Depending on the type of soil, chemical fertilizers have to be applied. But since farmers do not attach importance to soil testing, it is necessary to provide soil testing services to the farmers free of cost.

3. **Using hybrid seeds:**

The use of improved varieties of seeds instead of conventional seeds increases the capacity faster and reduces the maturation period of the crop. Three to four crops can be grown throughout the year. For this, the government has given impetus to the use of improved and quality seeds. The government has implemented a high yielding seed program in this regard. In this context, the work of Indian Agricultural Research Board, National Seed Corporation, etc. has become important. Due to the increasing use of quality seeds, the productivity of agriculture is increasing.

4. **Crop protection:**

Avoiding crop damage due to various reasons can increase agricultural production. Outbreaks of various diseases, pests, animals, insects, trees, etc. can cause damage to crops. This causes an average of five percent crop loss each year. Ignorance, poverty and indebtedness may not be the right measures for crop protection of farmers. For this, chemicals and medicines are made available by the government at a discounted rate. Farmers are informed about the spraying of medicines.

5. **Water supply facilities:**

Indian Agriculture is still dependent on nature. Expansion of Water Supply Services Increases Agricultural Productivity. If water supply from wells, lakes, canals, dams, etc. is implemented effectively, it will supply water to agriculture for twelve months. The government has also made special provisions for increasing the area under irrigation during the plan period. There is still a long way to go. Adequate water supply to agriculture can increase agricultural production.

6. Need for financing:

Agriculture needs short, medium and long term capital supply. Providing capital at concessional interest rates and easily helps in increasing agricultural production. Most of the farmers are at a loss as they are taking loans from moneylenders. Because interest rates on such loans are high, farmers are being exploited by moneylenders. Debt-ridden farmers cannot improve agriculture. Therefore, the government is trying to provide credit to agriculture through various banks and financial institutions. Banks like State Bank, Bank Divisional Rural Cooperatives, Credit Institutions, Land Development Bank etc. provide credit to agriculture. This makes agriculture a big job and helps farmers to do big work.

7**. Changes in business attitudes:**

Most of the farmers look at agriculture as a means of subsistence. They lack professional approach. As a result, not enough attention is being paid to increase productivity by improving agriculture. Farmers should be made aware of the fact that agriculture is a system or a trade so that the production will increase if the traditional attitude of the farmers is changed. Farmers' Meetings, Meetings, Farms, Useful Guidance Exhibitions, various camps are raising awareness among the farmers and a positive attitude towards agriculture is being formed in their minds. So the commercial vision is emerging among the farmers.

Thus the role of agriculture in the Indian economy is constantly changing. Based on the above information, it is clear how it affects various factors. Also the productivity of Indian agriculture is increasing tremendously nowadays. Due to the increase in agricultural production, this production of farmers is increasing. Today, the attitude of farmers in India towards agriculture seems to have changed. Farmers today look at agriculture as a business. For this, the amount of cash crops seems to have increased. The role of agriculture in the Indian system as a whole is changing.

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CHAPTER-5

SATISFACTION OF CONSUMERS REGARDING USE OF TELECOMMUNICATIONSERVICES OF BHARTI AIRTEL

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Abstract

Consumer satisfaction is a crucial element for the success of all businesses. One of the biggest challengesfor a market is how to satisfy and retain the consumers. The purpose of this study is to find the level ofsatisfaction and loyalty among the users of cellular phones. This study is based on Bharti Airtel's prepaidconsumers. The findings suggest that overall Consumer satisfaction and consumer loyalty iscomparatively low among the consumers of Bharti Airtel. The consumer loyalty in India's mobile sector isrelatively low because it is an emerging industry, new players are entering in this market and consumersare more fascinated to try the new service providers. However, it is expected that when the industry willbe well established, the results will be more comparable to other studies.

Keywords: *Consumer satisfaction, Consumer loyalty, Mobile telecommunication, Regression model,Drivers of Consumer satisfaction.*

❖ INTRODUCTION:

The Consumers are the most important element in each company. They are required to be handled and managed properly. The Consumers are satisfied when their expectations are fulfilled and delighted when their expectations are exceeded. Contented Consumers remain loyal buy more are less sensitive and speak positively about the company (Brown et al., 1992). Kotler (1997) defines Consumer satisfaction as: Satisfaction is a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his or her expectations.

Recently the concept of Consumer satisfaction has received much attention. Satisfaction may be defined as a consumer's post-purchase evaluation of a product or service (Zeithaml & Bitner, 2003). In the past, many businesses took their Consumers for granted. The Consumers often have no other choice, or the market is growing so fast that the company could drop 100 Consumers per week but acquires another 1000 Consumers and believes its sales to be satisfactory. Such a company, working on a `leaky bucket' theory of business, considers that there will continuously be adequate Consumers to take the place of the defecting ones. One of the main reasons for the mounting importance on Consumer satisfaction is that higher Consumer satisfaction can direct to a stronger competitive place consequential in amplified market segment and earnings resulting in decrease price elasticity, drop business cost, reduce failure cost, and cut down the cost of attracting new Consumers (Fornell, 1992). Satisfied Consumers purchase more and inform other people regarding their experiences (Fornell et al., 1996). The long-term success of a company is closely linked with their ability to adapt to the needs of Consumers and varying preferences.

Now days, Consumers bring higher expectations for communication from its service providers and if companies are not able to meet these expectations, the Consumers will take their business elsewhere, leading to a disaster for the company. The consumers wants and expectations are altering all the time, this direct to a condition where Consumers creating ever higher benchmarks, and therefore to attain excellence is impossible (Wellington, 1995). Applying Consumer satisfaction approach means recognizing Consumers, and then finding their wants and expectations, and to end with their perceptions (Stenberg, 1997). Knowing the Consumer's needs makes it easier to anticipate the ideal set of products and services to help them satisfy more. A company’s most important success factor is the ability to deliver better Consumer value than competitors do, and the objective of a strategy is to deliver value to the Consumers to provide required returns to the shareholders and employees. The clear importance of Consumer satisfaction compels various companies to conduct surveys of consumer satisfaction and report the level to which their Consumers are satisfied, from time to time, with or without the help of marketing agencies.

❖ MOBILE TELECOMMUNICATION IN INDIA:

In India, currently there are 4 cellular operators in the market. There has been a remarkable growth in cellular market. The steady growth saw the addition of more than 2 million mobile phone subscribers every month throughout the last year. Network coverage of almost 90% of the total population of India has made mobile industry even more appealing for foreign investment. India comes forward as one of the fastest mounting mobile markets among the developing countries. This year the telecom sector grows by 80%.

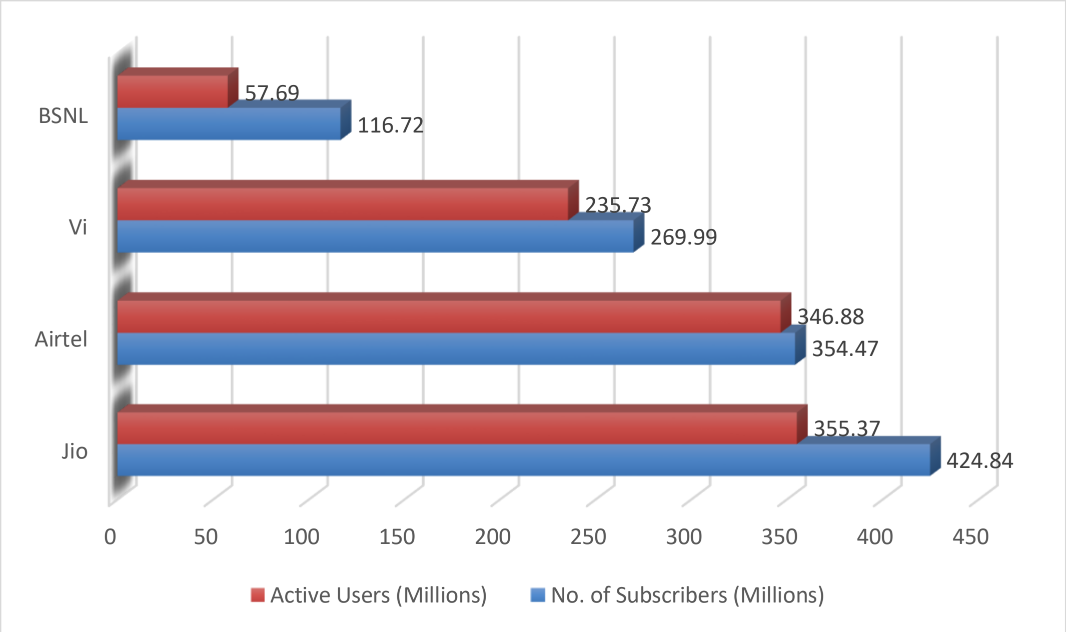
India is the world’s second-largest telecommunications market. The total subscriber base stood at 1,209.58 million in August 2021. Tele-density of rural subscribers reached 60.27% in August 2021, from 59.06% in August 2020, indicating potential demand growth from the rural sector.

The total wireless or mobile telephone subscriber base increased to 1,186.72 million in August 2021, from 1,147.92 million in August 2020. The total number of internet subscribers stood at 813.5 million in August 2021. Of this subscriber base, the number of wired internet subscribers was 24.29 million and wireless internet subscribers was 787.94 million.

Gross revenue of the telecom sector stood at Rs. 64,801 crores (US$ 8.74 billion) in the first quarter of Financial Year 2022.

The total wireless data usage in India grew 16.54% quarterly to reach 32,397 PB in the first quarter of Financial Year 2022. The contribution of 3G and 4G data usage to the total volume of wireless data usage was 1.78% and 97.74%, respectively, in the third quarter of Financial Year 2021. Share of 2G data usage stood at 0.48% in the same quarter. Over the next five years, rise in mobile-phone penetration and decline in data costs will add 500 million new internet users in India, creating opportunities for new businesses. As of September 2021, there are 1166.02 million wireless subscribers including inactive users in India according to TRIA.

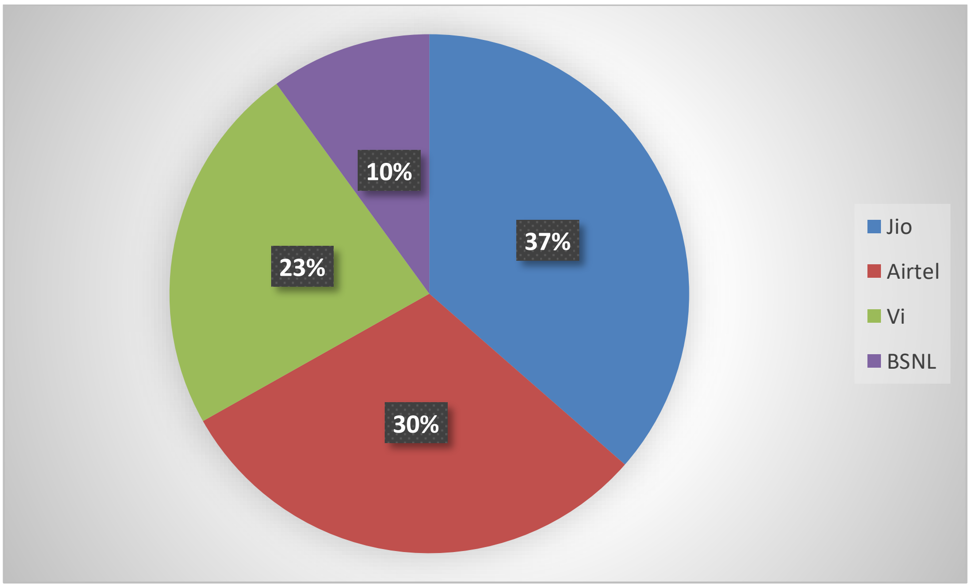
Figure-1 shows Active Users and No. of Subscribers of different Mobile Operators.



(https://en.wikipedia.org/wiki/List_of_telecom_companies_in_India)

In India's the most competitive and heated mobile market operator's survival lies in entering new areas to explore new value-added services and products and providing better quality of services. Recently, the industrial structure in the mobile telecommunications has changed dramatically by liberalization. All forecast in conjunction with technology, market, economic or social aspects, pointing towards continued growth in communications. Ever since deregulation in the mobile telecommunications industry, competition has been gaining pace, it is growing even faster than cable television businesses bundle in phone services and cellular phones put back the fixed telephones of many Consumers. As a result, many companies renovate their organizations to meet up the demands of this new competitive environment.

Figure-2: Share in Mobile Market by Operators in India



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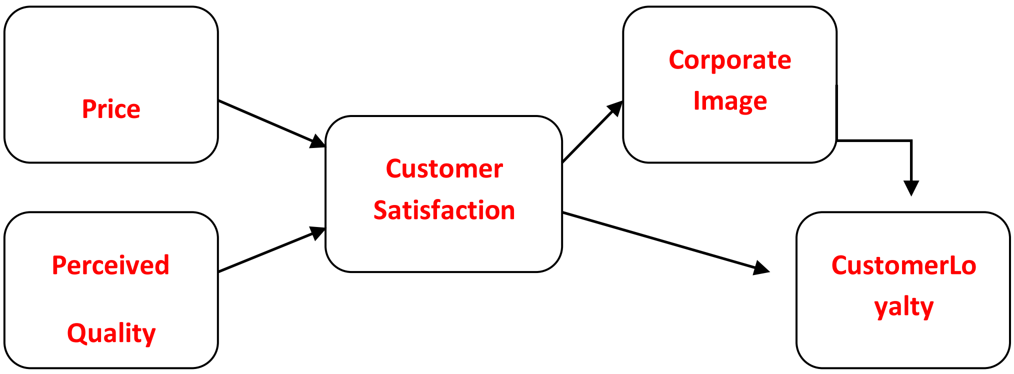
These changes symbolize major challenges, the acclimatization of the system and structures with corporate strategy; core capabilities; and work procedure. Since the consumer is a valuable resource for the benefit and incremental development, the important factor for alteration is the organization becomes more Consumers oriented. Management and staff are supposed to learn more about their Consumers, their principles, wants, expectations & preferences.

❖ THEORETICAL FRAMEWORK:

Based on literature review a theoretical framework shown in Figure 3 has been developed. In this theoretical framework the relationship between Consumer satisfaction and its drivers i.e. perceived quality, price and the relationship between Consumer satisfaction and its outcomes i.e. corporate image and Consumer loyalty in Indian environment are elaborated. The variables for the research were selected from the findings and suggestions of previous studies on Consumer satisfaction.

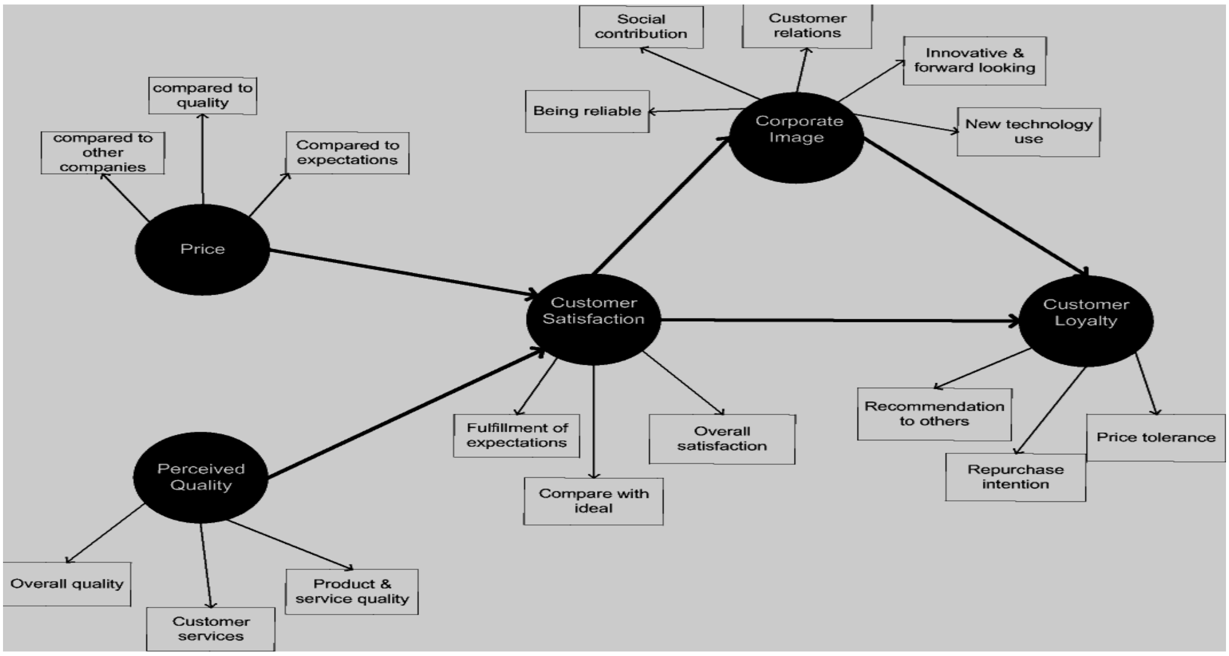
Figure-3: Theoretical Frame-work



❖ RESEARCH METHODOLOGY:

The populations from which the samples of this research are drawn are the Consumers of Bharti Airtel mobile services. A questionnaire was prepared to be distributed into the selected sample, and no specific characteristics were defined for the respondents except being a Bharti Airtel's prepaid Consumer.

Figure 4: Model Construct and their Measurement Variables



Questionnaire was prepared in English language, and the first draft was issued to 20 individuals to ensure that the wording, format, and sequencing of questions are appropriate. A total of 375 questionnaires were distributed and 360 out of them have been completed, implying a response rate of 96%. Questionnaire includes 5 main constructs i.e. Image, Price, Quality, Consumer Satisfaction and Loyalty. Each construct had three to five questions with an itemized/licker ranking scale of 1-5 (1=Very Poor, 2=Poor, 3=Average, 4=Good, 5=Excellent). All constructs are measured using multiple indicators. Consumer loyalty was assessed on three items developed by Narayandas (1996), Consumer satisfaction by three items adapted from the American Consumer satisfaction index study (NRQC, 1995) and Feick et al. (2001). Corporate image was assessed by five items, perceived quality by three items adapted from (NRQC, 1995) and Bayol et al. (2001). Price was measured by three items adapted from Johnson et al., (2001). All these measurement variables are shown in the Figure 4. The data collected from questionnaires were analyzed by using simple / multiple regressions.

❖ DATA ANALYSIS & RESULTS:

An internal consistency analysis was performed for each construct. The results in Table-1 show that the values of Cronbach's alpha for all constructs are above 0.6 which implies a high reliability of the measures. Some descriptive statistics about the personal information of the respondents were also prepared. Total 360 respondents filled questionnaires, out of which 197 were males and 163 were females.

Table-1: Reliability Statistics

Construct	No. of Items	Cronbach's Alpha
Corporate Image	5	0.79
Perceived quality	3	0.73
Price	3	0.72
Consumer Satisfaction	3	0.72
Consumer Loyalty	3	0.79

Table-2 describes the age of the respondents and more than 58% of the respondents belong to 20-30 age groups, which show that this group is the main user of mobile phone. All the respondents' education was above 12th std.

Table-2: Respondents Age

Age (years)	Frequency	%
Below 20	32	8.89
20-40	209	58.06
40-60	98	27.22
Above 60	21	5.83
Total	**360**	**100**

The analysis has been divided into two parts, first the drivers of Consumer satisfaction and second the consequences of Consumer satisfaction. In purposed model there are two drivers of Consumer satisfaction, price, and perceived quality as shown in Figure-4. To check the effect of price and quality on Consumer satisfaction multiple regression models is used. In Table-3 the results show that the effect of price and quality on Consumer satisfaction is positive and significant. The value of these paths in other studies varies between 0.2 to 0.4 for quality and 0.12 to 0.3 for price (Turkyilmaz, A. & Ozkan, C. 2007) whereas in this study these values a 0.392021 for Price and 0.403000 for quality, showing a significant result. However, the value of R^2 for Consumer satisfaction is relatively low, as compared to other studies.

Table-3: Coefficients for Drivers of Consumer Satisfaction

	Standardized Coefficients (Beta)
Price	0.392021
Perceived Quality	0.403000
R^2	0.421001
Adjusted R^2	0.420001

In terms of consequences of Consumer satisfaction, the path from Consumer satisfaction to corporate image is analyzed. The effect of Consumer satisfaction on corporate image is positive and significant, as shown in Table-4 the value of path coefficient is 0.60 which is supported by the literature, showing that Consumer satisfaction has a large effect on corporate image.

Table-4: Coefficients for Consequences of Consumer Satisfaction

	Standardized Coefficients (Beta)
Consumer Satisfaction	0.603020
R^2	0.360021
Adjusted R^2	0.360021

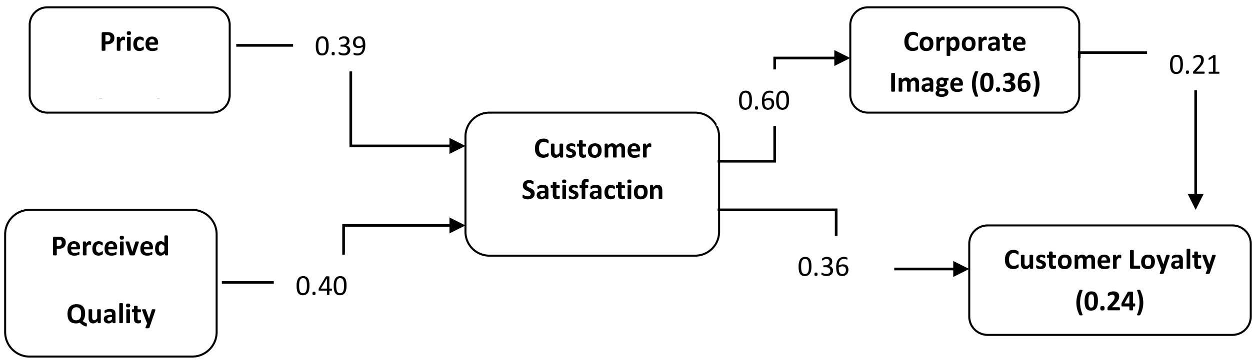
Table-5 shows the effect of satisfaction and image on Consumer loyalty. The path coefficient for image is 0.21 and for Consumer satisfaction is 0.360021. The effect is positive and significant but low when compared with other studies. However, the effect of corporate image on Consumer satisfaction is smaller but significant, which was also smaller in other studies. The direct effect of Consumer satisfaction on Consumer loyalty is also positive and significant but the path coefficient shows that in this study the result is comparatively low as compared to other studies conducted in this sector. This direct effect captures the effects of satisfaction on loyalty that are not mediated by the corporate image. It is useful to examine the total effect that satisfaction has on loyalty (Johnson et al., 2001). The total effect is the sum of all direct and indirect effects linking satisfaction and loyalty given as the value of R^2 for Consumer loyalty that is 0.24 which is very low as compare to other studies.

Table 5: Coefficients for Consumer Loyalty

	Standardized Coefficients (Beta)
Consumer Satisfaction	0.3601
Corporate Image	0.2131
R^2	0.2411
Adjusted R^2	0.2341

Figure-5 indicates the path coefficients that are the standardized regression coefficients. The R^2 values, given in the circles, are the fraction of the total variance of the dependent variable that is explained by its respective regression model. It is important to notice that all the relationships between the variables in the model are positive. Therefore, for each regression model, an increase in the value of an independent variable will also increase the value of related dependent variables.

Figure-5 Results of Proposed Model



Consumer satisfaction and Consumer loyalty is comparatively low in this research as compared to other studies conducted in different countries. The Consumer loyalty in Pakistani mobile sector is relatively low because it's an emerging industry, new players are entering in this market and Consumers are more fascinated to try the new service provider. When this industry will be well established, at that time the results may be more enhanced. The Consumer Satisfaction has a considerable positive impact on corporate image. This is in accordance with the literature results depicted in the studies earlier. However, the effect of corporate image is smaller but considerable on Consumer loyalty, as proved by other recent studies about mobile communication sector.

❖ CONCLUSION:

Although there are few players in India's mobile telecom market, the competition between them is more intense than ever. They compete not only in network quality by a large amount of investment in network extension and upgrading, but also in Consumer acquisition and satisfaction by direct and indirect strategies. Hence Consumer satisfaction and service quality would be critical factors for surviving in this emerging market.

The result of the research shows a positive relation between all the constructs. The effect of perceived quality and price on Consumer satisfaction is positive and significant. But the indicators show that overall Consumer satisfaction is comparatively low in mobile industry. In global comparison of mobile-communication industry, the Consumersatisfaction value lies between 0.5 and 0.65; therefore, the said value is relatively low in India. The Consumer Satisfaction has a considerable positive impact on corporate image. This is in accordance with the literature results depicted in the study earlier. However, the effect of corporate image is not contributing towards the Consumer loyalty in a worthy manner, as proved by other recent studies about mobile communication sector. The Consumer loyalty result in our study, in comparison to the global scenario is relatively low.

The above stated facts are specific to the research sample selected, the Bharti Airtel service provider. The general trend is a higher satisfaction regarding quality of service but lower when we analyze the price in relation to Consumer satisfaction. One possible explanation is the relative higher service rates of Bharti Airtel in comparison to its competitors. Owing to evolving competition with lower rates and matching service quality, the percentage of Consumers switching to other service providers, is higher than vice versa. Despite these factors, Bharti Airtel is still regarded as the market leader in quality provision.

In this research, only two drivers are considered, i.e., price and quality. Furthermore, additional research is needed to find out whether other factors more that we studied can be added to the model in mobile telecom of India or even other industries or not. The research sample was restricted to Satara district. The patterns can alter with Consumers from metropolitan and Federal administrated cities. Future research should test the model in other contexts to verify the generality of the results.

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CHAPTER-6

DEFINITION, CONCEPT AND NATURE OF INTELLECTUAL PROPERTY

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Introduction

At every walk of life, we encountered with intellectual property. From the design on the bed sheet to the titles, paints, books, films, music CDs, in fact each and everything by which we are surrounded falls under some kind of intellectual property. Therefore, the concept of intellectual Property (IP) will be understood better if we understand what is meant by the term of Property. It means some physical thing belonging to any individual. Speaking legally property refers to the bundle of rights that the law confers on a person by virtue of the ownership and possession of such objects. Property as we understand consists of two fundamental attributes, one is possession and the other is the title.

One who possesses a property has the better title to it against the whole world, but the owner. It is also known as possession is nine points of law. An owner of the property holds the best title. Intellectual property on the other hand is a property which a person possesses through his intellect.

The commonly recognized types of property are:

1) **'Real property'** in common law means the combination of land and any improvements to or on the land made by human effort. e.g. Building, machinery, wells, dams, ponds, mines, canals, roads etc. This is also known as immoveable property, real estate or reality.

2) **'Personal property** refers to physical possessions belonging to a person. In common law it is also called as chattels. It is commonly known as 'moveable property'. Example car, jewelry, watch, horse, dog, cattle etc.

3) **'Private property'** refers to property owned by legal persons or business entities.

4) **'Public property'or 'collective property'** refers to property owned by state or community or government. This property is dedicated to the use of the public. Example public parks, roads, public transport buses, trains etc.

5) **'Intellectual property'** it consists of monopoly rights upon inventions, artistic or other kind of output developed by human mind. This is also known as intangible property Example Patents, designs, trademarks, copyrights etc.

Ownerless Things

Ideas - normally ideas cannot be the property of anyone person, as two people can have the same idea.

Sea water. - sea water cannot be the property of anyone. However, on the basis of 'territorial jurisdiction, anyone nation can claim that the sea water in its territory belongs to that nation.

Celestial bodies - Similarly, Celestial bodies in the space are owner less things and thus not the property of anyone.

What can be Property?

Effort with an object

According to John Locke effort are necessary to create a property, example mixing your labor with an object, or clearing and cultivating virgin land, Intellectual property.

Possession and ownership

It was a notion earlier that any person who owned anything first became the owner of that thing. This applied mainly on chattels as well as land. So, one can say that the idea of possession came prior to ownership.

Scarcity of objects

According to Benjamin Tucker the purpose of property is to solve the scarcity problem. He suggested that only when things are relatively scarce with respect to people's desires do they become property. E.g. Agriculture land and houses build on land

Property rights can be exercised on the basis of following elements

- Control over use of Property
- The right to take any beneficial interest out of property
- The right to alienate such property
- The right to restrain others from the use of property

Definition

Intellectual property implies to any property created by the application of human mind. It is non-physical (intangible) and it derives its values from ideas(s). There is no uniform definition of intellectual Property.

Intellectual property is defined in an all pervasive sense in **Article 2(viii)** of the Convention establishing the **World Intellectual Property Organization (WIPO)** signed at **Stockholm on July 14, 1967**, to include the rights relating to literary, artistic and scientific works; performances of performing artists, phonograms, and broadcasts; inventions in all fields of human endeavor; scientific discoveries; industrial designs: trademarks service marks and commercial names and designations; protection against Unfair competition. It specifies," Intellectual Property shall include all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields."

Concept and Nature

The Concept of Intellectual Property

Intellectual property, very broadly, means the legal property which results from intellectual activity in the industrial, scientific and artistic fields. Countries have laws to protect intellectual property for two main reasons. One is to give statutory expression to the moral and economic rights of creators in their creations and such rights of the public in access to those creations. The second is to promote, as a deliberate act of government policy, creativity and the dissemination and application of its results and to encourage fair trading which would contribute to economic and social development.

Generally speaking, IP law aims at safeguarding creators and other producers of intellectual goods and services by granting them certain time- limited rights to control the use made of those productions. These rights do not apply to the physical object in which the creation may be embodied but instead to the intellectual creation as such. IP is traditionally divided into two branches: “industrial property and copyright”. The convention establishing the World Intellectual Property Organization (WIPO), concluded in Stockholm on July 14, 1967 (Art. 2(viii) provides that

Intellectual property shall include rights relating to:

1) Literary, artistic and scientific works:

2) Performances of performing artists, phonograms and broadcasts;

3) Inventions in all fields of human behaviour;

4) Scientific discoveries;

5) Industrial designs;

6) Trademarks, service marks, and commercial names and designations;

7) Protection against unfair competition and all other rights resulting from intellectual activity in industrial scientific, literary or artistic fields.

The areas mentioned under (1) belong to the copyright branch of intellectual property. The areas mentioned in (2) are usually called “neighboring rights”, that is, rights neighboring on copyright. The areas mentioned under 3, 5 and 6 constitute the industrial property branch of IP. The areas mentioned may also be considered as belonging to that branch.

The expression industrial property covers inventions and industrial designs. Simply stated, inventions are new solutions to technical problems, and industrial designs are aesthetic creations determining the appearance of industrial products. In addition, industrial property includes trademarks, service marks, commercial names and designations, including indications of source and appellations of origin, and protection against unfair competition. Hence the aspect of intellectual creations -although existent -is less prominent, but what counts here is that the object of industrial property typically consists of signs transmitting information to consumers, in particular, as regards products and services offered on the market, and that the protection is directed against unauthorized use of such signs which is likely to mislead consumers and misleading practices in general.

Scientific discoveries are not the same as inventions. The general treaty on the international recording of scientific discoveries /1978/ defines a scientific discovery as ‘the recognition of phenomena, properties or laws of the material universe not hitherto recognized and capable of verification. “(Art. 1(1)(i)). Inventions are new solutions to specific technical problems. Such solutions must, naturally rely on the properties or laws of the materials universe /otherwise they could not be materially or ‘technically’ applied/, but those properties or laws need not be properties or laws’ not hitherto recognized’. An invention puts to new use, to new technical use, the said properties or laws, whether they are recognized (“discovered”) simultaneously with making the invention or whether they were already recognized (“discovered”) before and independently from the invention.

Industrial and cultural development may be favored by stimulating creative activity and facilitating the transfer of technology and the dissemination of literary and artistic works. In the Ethiopian legal system also the protection of intellectual property rights is afforded at constitutional level. The FDRE Constitution recognizes that every Ethiopian citizen has the right to ownership of private property with certain restrictions. Article 40(2) defines private property as any tangible or intangible product which has value and is produced by the labor, creativity, enterprise or capital of an individual citizen, associations which enjoy juridical personality under the law. Thus, the constitution declares protection for every property whether it is tangible or intangible. That means protection is afforded equally for intellectual property rights as any other property since they are intangible products.

It is difficult to determine what types of ownership we should allow for non-corporeal, intellectual objects, such as writings, inventions and secret business information. There are intellectual properties which are not products of the mind. For instance, all trademarks are not products of the mind. Trademarks creation does not necessarily require intellectual activity. The same holds true for geographic indication. They don't require the work of the mind like patent and copyright.

Historical

The convention establishing the WIPO was signed in Stockholm in 1967 and entered into force in 1970. However, the origin of WIPO goes back to 1883- the Paris Convention on industrial property and 1886- the Berne Convention on copyright. Both were placed under the supervision of the Swiss Federal Government. Initially there were two secretaries (one for industrial property, and other for copyright). However, in 1893 the two secretaries united. United International Bureaux for the Protection of IP (BIRPI) became WIPO.

Conceptual

IP rights objects (enterprises) are inherently in appropriable. They are intangible by nature. Use by others cannot be denied by using the possession of a property first created. Once you have written a book and published it then the public may make use of that property.

Nature of Intellectual Property

Intellectual properties have their own peculiar features. These features of intellectual properties may serve to identify intellectual properties from other types of properties. Thus, we will discuss them in brief.

1. Territorial

Any intellectual property issued should be resolved by national laws. Why is it an issue? Because intellectual property rights have one characteristic which other national rights do not have. In ownership of intellectual property of immovable properties, issues of cross borders are not probable. But in intellectual properties, it is common. A film made in Hollywood can be seen in other countries. The market is not only the local one but also international. If a design in China is imitated by another person in France which law would be applicable?

2. Giving an exclusive right to the owner

It means others, who are not owners, are prohibited from using the right. Most intellectual property rights cannot be implemented in practice as soon as the owner got exclusive rights. Most of them need to be tested by some public laws. The creator or author of an intellectual property enjoys rights inherent in his work to the exclusion of anybody else.

3. Assignable

Since they are rights, they can obviously be assigned (licensed). It is possible to put a dichotomy between intellectual property rights and the material object in which the work is embodied. Intellectual property can be bought, sold, or licensed or hired or attached.

4. Independence

Different intellectual property rights subsist in the same kind of object. Most intellectual property rights are likely to be embodied in objects.

5. Subject to Public Policy

They are vulnerable to the deep embodiment of public policy. Intellectual property attempts to preserve and find adequate reconciliation between two competing interests. On the one hand, the intellectual property rights holders require adequate remuneration and on the other hand, consumers try to consume works without much inconvenience. Is limitation unique for intellectual property?

6. Divisible (Fragmentation)

Several persons may have legally protected interests evolved from a single original work without affecting the interest of other right holders on that same item. Because of the nature of indivisibility, intellectual property is an inexhaustible resource. This nature of intellectual property derives from intellectual property's territorial nature. For example, an inventor who registered his invention in Ethiopia can use the patent himself in Ethiopia and License it in Germany and assign it in France. Also, copyright is made up of different rights. Those rights may be divided into different persons: publishers, adaptors, translators, etc.

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CHAPTER-7

A STUDY ON IMPACT OF HUMAN DEVELOPMENT INDEX (HDI) IN INDIA

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Abstract:

The Human Development Index (HDI) was created in 1990 by Pakistani economist Mehboob Ul Haq. This is being used by the United Nations Development Program (UNDP) to measure the country's development. India's Human Development Index (HDI) value for 2019 is 0.645 and is in the medium human development range. According to the 2020 Human Development Index, India ranks 131st out of 189 countries and territories. In 2018, India was ranked 130th in the index. Determining the value of the Human Development Index can predict the social, economic, educational and health development of a country. If the human development index value of the country is low, it is possible to improve it. In the present study, based on the secondary data and the results have been analyzed by studying the human development index value in India from 1990 to 2019.

Keywords: *HDI, Economic, Social, Education, world, Economy, GDP*

Introduction:

A study of the world economy reveals that the world is classified as a developed and developing economy. Economic growth, development and progress are important for the development of every country. You can see the expansion of the concept of economic growth, development and economic progress in the world economy since the 1960s with liberalization. The term economic progress has always been used to denote positive changes in the economy. The term economic growth is used to describe the comparative relationship of several components of the economy. Also, the development of the economy is expressed in both quantitative and qualitative aspects. When a country's economy is developed, income is the criterion for measuring development. The economic growth of a nation is the increase in national income. The measure of economic growth measures the growth of the country's national income, while the measure of economic growth measures the changes in the economic and social structure along with the growth. The World Bank has classified the world's economies into three categories based on GDP and per capita income in the World Development Report 2009.

1. Countries with a per capita income of less than 936 US Dollar
2. Countries with a per capita income of less than 936 to 11,455 US Dollars

I. Countries with the lowest per capita income (US Dollars 936 to 3705)

II. Countries with the highest per capita income (US Dollars 3706 to 11455)

3. Countries with a per capita income of more than 11,456 US Dollar

According to 2014 figures, low-income countries are populations to 8.6 percent of the world's population and earn only 0.5 percent of the world's income. The middle-income country is home to 72.2 percent of the world's population and accounts for 31.2 percent of the world's income. Of course, the group of low-income and middle-income countries is known as the developing economy in the global economy. However, the change in the value of the Maw Development Index could be made keeping in view the social, economic, health and educational development of the country.

Objectives of Study:

1. To analyze the value of human development index in India.
2. To study the value of Human Development Index by state wise in India.
3. Studies on changes in human development index values and impact on social, economic, educational and health in economy

Limitations of Study:

1. The present study is based entirely on the value of the Human Development Index (HDI) in the Indian economy.
2. In the present study, changes in the value of human development index (HDI) during 1990-2019 and its effect have been considered.
3. The findings of the present study reflect only this period (1990-2019).

The developing countries of 81.6 percent of the world's population and account for 32.2 percent of the world's income. A group of countries with high per capita income is known as a developed country. Developed countries make up only 19.3 percent of the world's population and account for 68.5 percent of the world's income. . The table below shows the distribution of global population and gross national product.

Global Population Distribution and Gross National Income (2020)

Sr. No.	Group / Nation	Population in ratio to the world's population (%)	Gross world income (%)
1.	Low-income countries	8.6	0.5
2.	Middle-income countries	72.1	31.2
□.	High-income countries	19.3	68.3
Total		**100**	**100**

Sources: Gross National Income - Based on Exchange Rates

The Indian economy is in the group of developing economies and 17.8 per cent of the world's population live in India. India accounts for only 2.6 per cent of the world's gross domestic product. Most of the world's population (80.7 per cent) is concentrated in low- and middle-income nations, accounting for only 31.7 per cent of the world's income. In contrast, the world's smallest population (19.3 per cent) of the world's population lives in high-income countries, accounting for 65.8 per cent of the world's gross domestic product.

Human Development:

Human development is a broad concept that implies perfect development. So the concept of human development is limitless. But by accepting the central concept of development, one has three options.

1. Longevity and healthy life
2. Education

3. Easy availability of essentials for a proper and healthy life

The above three factors are most important for human development. As an extension of the alternative, human development is expected to take advantage of other factors, including political, economic, social freedom and the opportunity to be productive, to take advantage of self-respect and guaranteed human rights. The first human development report was released by the UNDP in 1990 under the guidance of Mehboob ul Haq. According to this report, three dimensions were developed for human development.

1. Human Development Index (HDI)
2. Gender based development index (GDI)
3. Human Poverty Index (HPI)

Human Development Index (HDI):

The Human Development Index Value (HDI) is a comprehensive development measurement system used by the United Nations to assess the level of individual human development in each country. Human Development Index (HDI) values use factors such as average annual income and educational expectations to rank and compare countries. According to the 2020 Human Development Index, Norway is followed by Ireland, Switzerland, Hong Kong and Iceland. India's Human Development Index (HDI) value in 2019 is 0.645. Which has put the country in the middle human development category? India ranks 131st out of a total of 189 countries and territories. Between 1990 and 2019, India's HDI value increased from 0.429 to 0.645. The country's HDI or Human Development Index is important because it provides more information about the country's economic, social, health, wealth, life expectancy and education status than the world's per capita income pattern. Human development refers to the process of providing people with more opportunities for education, healthcare, empowerment and providing them with more options, covering all choices, from the physical environment to economic, social and political empowerment in economy.

Human development index by state in the country:

In 2008, India's national average HDI was 0.467. By 2010, its average HDI had risen to 0.519. UNDP, a sponsor of the Human Development Index since 1990, reported India's HDI to be 0.554 for 2012, an increase of 18% over the 008 HDI. The United Nations declared India's HDI to be 0.586 in 2014, an increase of 5.77% over 2012. Compared to 2018, HDI for India is 0.647. As drawn by the Human Development Index of different countries. Similarly, the states of the countries are also drawn as independent. The independent human development index of a state in a country reflects the development of that state.

The following table shows the state's human index of the country since 1990.

State-wise of India Human Development Index-HDI (1990-2019)

State	HDI 1990	HDI 1995	HDI 2000	HDI 2005	HDI 2010	HDI 2015	HDI 2018	HDI 2019
Northern India								
Chandigarh	0.633	0.641	0.638	0.663	0.648	0.734	0.775	0.776
New Delhi	0.577	0.620	0.664	0.690	0.709	0.730	0.746	0.746
Haryana	0.467	0.506	0.549	0.591	0.634	0.686	0.708	0.708
Himachal Pradesh	0.479	0.530	0.589	0.644	0.667	0.704	0.725	0.725

Jammu Kashmir	0.493	0.511	0.528	0.587	0.640	0.674	0.688	0.688
Madhya Pradesh	0.406	0.433	0.460	0.501	0.538	0.585	0.606	0.603
Punjab	0.496	0.536	0.578	0.615	0.657	0.703	0.723	0.724
Uttar Pradesh	0.397	0.429	0.463	0.504	0.535	0.577	0.596	0.596
Uttarakhand	0.629	0.635	0.630	0.656	0.641	0.664	0.684	0.683
Western India								
Dadra and Nagar Haveli	0.672	0.683	0.684	0.709	0.696	0.663	0.663	0.663
Daman and Div	0.651	0.662	0.664	0.688	0.677	0.690	0.708	0.708
Goa	0.552	0.581	0.614	0.671	0.737	0.754	0.761	0.763
Gujarat	0.470	0.498	0.527	0.573	0.606	0.651	0.672	0.672
Maharashtra	0.493	0.525	0.558	0.602	0.644	0.680	0.696	0.697
Rajasthan	0.403	0.436	0.469	0.510	0.548	0.605	0.629	0.628
Eastern India								
Andaman and Nicobar Island	0.683	0.693	0.694	0.720	0.707	0.721	0.739	0.741
West Bengal	0.440	0.473	0.505	0.539	0.572	0.619	0.641	0.641
Bihar	0.378	0.407	0.436	0.470	0.514	0.557	0.576	0.574
Chhattisgarh	0.562	0.569	0.564	0.588	0.574	0.594	0.613	0.611
Jharkhand	0.562	0.568	0.564	0.588	0.574	0.584	0.599	0.599
Odisha	0.400	0.429	0.458	0.494	0.535	0.585	0.606	0.606
North-eastern India								
Assam	0.411	0.447	0.488	0.531	0.567	0.598	0.614	0.613
Arunachal Pradesh	0.437	0.471	0.502	0.535	0.641	0.661	0.660	0.661
Manipur	0.495	0.526	0.559	0.598	0.681	0.694	0.696	0.697
Meghalaya	0.456	0.469	0.477	0.533	0.620	0.648	0.656	0.656
Mizoram	0.525	0.547	0.569	0.630	0.686	0.698	0.705	0.704
Nagaland	0.531	0.533	0.522	0.557	0.661	0.679	0.679	0.679
Sikkim	0.541	0.548	0.548	0.590	0.633	0.691	0.716	0.717
Tripura	0.447	0.488	0.531	0.561	0.608	0.643	0.658	0.658
Southern India								
Andhra Pradesh	0.424	0.450	0.478	0.530	0.580	0.629	0.650	0.649
Karnataka	0.444	0.479	0.518	0.565	0.605	0.659	0.682	0.683
Kerala	0.544	0.568	0.598	0.678	0.714	0.757	0.790	0.782
Lakshadweep	0.693	0.704	0.705	0.731	0.717	0.732	0.750	0.751
Paducherry	0.717	0.730	0.730	0.757	0.743	0.730	0.738	0.740
Tamil Nadu	0.471	0.504	0.542	0.599	0.646	0.689	0.708	0.709
Telangana	0.622	0.630	0.627	0.652	0.638	0.651	0.669	0.669
India	0.431	0.463	0.498	0.539	0.582	0.627	0.647	0.645

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The above table analyzes the Human Development Index (HDI) by state in the country from 1990 to 2019. The states of India are classified into five regions according to the region and the Human Development Index of that state is given. The Human Development Index of the Union Territory and the State gives an idea of the extent of education, health, life expectancy and living standards in that region. Based on the above information, some of the states in the country have high income and their Human Development Index is at a high level. Considering the total number of states in the country, Kerala has the highest human development index in 2019 respectively. So you can see that the lowest is from Bihar. The following table analyzes the states of India and the Union Territories with high, medium and low or low human development values.

State, Union Territories in India and Human Development Index (HDI-2019)

High HDI State		Middle HDI State		Low HDI State	
State	HDI	State	HDI	State	HDI
Kerala	0.782	Maharashtra	0.697	West Bengal	0.641
Chandigarh	0.776	Manipur	0.697	Rajasthan	0.628
Goa	0.763	Jammu – Kashmir	0.688	Assam	0.613
Lakshadweep	0.751	Uttrakhand	0.683	Chhattisgarh	0.611
Delhi	0.746	Karnataka	0.683	Odessa	0.606
Adman and Nicobar	0.741	Nagaland	0.679	Madhya Pradesh	0.603
Pondicherry	0.740	Gujarat	0.672	Jharkhand	0.599
Himachal Pradesh	0.725	Telangana	0.669	Uttar Pradesh	0.596
Punjab	0.724	Dadra and Nagar Haveli	0.663	Bihar	0.574
Sikkim	0.717	Arunachal Pradesh	0.661	-	-
Tamil Nadu	0.709	Tripura	0.658	-	-
Daman and Diu	0.708	Meghalaya	0.656	-	-
Haryana	0.708	Andhra Pradesh	0.649	-	-
Mizoram	0.704	-	-	-	-

sourcess: National Human Development Report 2020

There are 14 states and union territories in India with high human development index value. There are 13 states with moderate human development index value and 9 states with low or low human development index value. Considering the total state and union territories of India, Kerala has the highest Human Development Index value of 0.782, which means that Kerala has better socio-economic, educational and health status than other states and Bihar has the lowest Human Development Index value of 0.574, you see health, educational, social and economic problems in this state.

Human Development Index Value and Consequences in Economy:

The higher the life expectancy of a country, the higher the level of education and the higher the GNI per capita, the higher the Human Development Index of that country. Citizens of the country need good diet, shelter, healthy living, employment, education, voting, and participation in community life. Based on the information received, the following are the results of the change in the value of the Human Development Index (HDI) from state to state in India.

Extremely high / high Human Development Index (HDI) in Indian State:

When a country has a high human development index value, it means that the country has a high standard of living, including social, health, life expectancy, educational level and high per capita income. As a result, the country becomes developed. Countries like USA, France, and Japan are relatively developed countries of India as they have high Human Development Index.

From 1990 to 2019, all the states in India with a Human Development Index value of 0.850–0.899, 0.800–0.849, 0.750–0.799, and 0.700–0.749 are recognized as developed states in the country. The state also has a high standard of living for its citizens with high HDI values as the state has higher health, social, economic, educational and per capita income levels than other states.

Middle Human Development Index (HDI) in Indian State:

Medium HDI values in some states including Maharashtra in India are 0.650-0.699 0.600-0649, 0.550-0.599, 0.500-0.549. That state is known as the developing state. Also the health, social, economic, educational and per capita income levels of this state are lower than those of the states with high HDI values and the standard of living of the citizens of this state is also moderate.

Low Human Development Index (HDI) in Indian State:

States with HDI values of 650-0.699, 0.600-0649, 0.550-0.599, 0.500-0.549 are known as underdeveloped states. Bihar state has the lowest HDI value in India and has a very low level of social, economic, educational and health factors. As a result, the standard of living of the citizens of this group of states is inferior.

Findings:

1. Developing nations account for 81.6 percent of the world's population and account for 32.2 percent of the world's income.
2. Only 19.3 per cent of the world's population lives in developed nations and their share of world income is 68.5 per cent.
3. The Indian economy is in the group of developing economies, with 17.8 per cent of the world's population living in India, accounting for only 2.6 per cent of the world's gross domestic product.
4. India's Human Development Index (HDI) value in 2019 is 0.645 and India is in the medium human development category.
5. India ranks 131st out of 189 countries in the world and between 1990 and 2019, India's HDI value increased from 0.429 to 0.645.
5. Out of the total states in India, Kerala has the highest human development index value of 0.782.
6. Out of the total states in India, Bihar has the lowest human development index value of 0.549.
7. In India, Kerala, Chandigarh, Goa, Lakshadweep, Delhi, Andaman and Nicobar, Pondicherry, Himachal Pradesh, Punjab, Sikkim, Tamil Nadu, Daman and Diu and Haryana are the states with very high HDI value range and are recognized as developed states.
8. Maharashtra, Manipur, Jammu and Kashmir, Uttarakhand, Karnataka, Nagaland, Gujarat, Talengana, Dadra-Nagar and Haveli, Arunachal Pradesh, Tripura, Meghalaya and Andhra Pradesh are the states in the country with moderate HDI values.
9. The states in India with very low or low HDI value are West Bengal, Rajasthan, Assam, Chhattisgarh, Odessa, Madhya Pradesh, Jharkhand, Uttar Pradesh and Bihar.

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CHAPTER-8

STUDY OF THE ENTREPRENEURIAL QUALITIES OF A SUCCESSFUL SOCIAL MEDIA BUSINESSMAN- CASE STUDY OF FOUNDER- AMAZON.COM, JEFFERY PRESTON BEZOS

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The Internet as a medium has successfully managed to leverage the power of content, social media marketing has helped elevate audience and customer base for businesses in a dramatic way giving birth to a new wave of techno entrepreneurs.

However, Entrepreneurs by essence are dreamers who do get started, but without any previous experience or insight, making success an overwhelming challenge. It's vital that Entrepreneurs understand fundamentals of the social media universe from maximizing quality to increasing online entry points.

We all would love to learn by example and who better to offer a glimpse into the journey of a Digital entrepreneur than Jeffery Preston Bezos, better known as Jeff Bezos himself! An investment banker who foresaw the implications of the internet on the way the world will do business, and wrote the story of his success on the back of his vision.

In a remote mountain cave in Texas, a giant clock is being made, capable of telling the time for the next 10,000 years. Once the clock is finished, people curious enough to visit the vast chamber in which it sits, will be able to see it along with displays marking various anniversaries of its operation. On a website set up to track the progress of this "10,000-year clock", Jeff Bezos, who has invested $42m of his own money in the project, describes this impressive feat of engineering as "an icon for long-term thinking".

That description applies just as much to Bezos himself. The founder and chief executive of Amazon has often ruffled investors' feathers by sacrificing short-term profits to make big bets on new technologies that, he insists, will produce richer returns for the company's shareholders in future. He laid out this philosophy in his first letter to shareholders, penned in 1997, which was entitled "It's all about the long term".

Some of these gambles have paid off handsomely, transforming Amazon from an online retailer of books and other physical products into a technology behemoth with $48 billion of revenues in 2011 and strong positions in fields from cloud computing to tablet devices. They have also enhanced Mr Bezos's reputation as a technological seer. "In the last few years there has been a re-acceleration of the rate of change in technology," he says. His impressive ability to identify and profit from the resulting disruptions means he is widely seen as the person best placed to fill the shoes of the late Steve Jobs as the industry's leading visionary.

Mr Bezos's willingness to take a long-term view also explains his fascination with space travel, and his decision to found a secretive company called Blue Origin, one of several start-ups now building spacecraft with private funding. It might seem like a risky bet, but the same was said of many of Amazon's unusual moves in the past. Successful firms, he says, tend to be the ones that are willing to explore uncharted territories. “Me-too companies have not done that well over time,” he observes.

Skeptics abounded, for example, when Amazon moved into the business of providing cloud-computing services to technology firms—which seemed an odd choice for an online retailer. But the company has since established itself as a leader in the field. “A big piece of the story we tell ourselves about who we are is that we are willing to invent,” Mr Bezos told shareholders at Amazon's annual meeting last year. “And very importantly, we are willing to be misunderstood for long periods of time.”

More recently, financial analysts have grumbled about the company's wafer-thin margins and the hefty investment it is making in its Kindle range of e-readers, the most advanced of which, the Kindle Fire, is a fully fledged tablet computer. Amazon's move into hardware with the original Kindle, launched in 2007, was another unexpected move. The devices have proved wildly popular, but Bezos has kept details of sales figures and profitability secret. The assumption is that Amazon is trading short-term profits in order to establish its dominance in the booming e-book market. But nobody really knowsSuch sentiments do nothing to sway Bezos, who is convinced that rapid technological change creates huge opportunities for companies bold enough to seize them. “There is room for many winners here,” he says. But he believes Amazon can be one of the biggest thanks to its unique culture and capacity for reinventing itself. Even in its original incarnation as an internet retailer, it pioneered features that have since become commonplace, such as allowing customers to leave reviews of books and other products (a move that shocked literary critics at the time), or using a customer's past purchasing history to recommend other products, often with astonishing accuracy.

Amazon's culture has been deeply influenced by Bezos's own experiences. A computer-science graduate from Princeton, he returned to his alma mater a few years back to give a speech to students that provided some fascinating insights into his psychology as an entrepreneur. He explained that he had been a “garage inventor” from a young age. His creations included a solar cooker made out of an umbrella and tin foil, which did not work very well, and an automatic gate-closer made out of cement-filled tyres.

That passion for invention has not deserted Bezos, who last year filed a patent for a system of tiny airbags that can be incorporated into smartphones, to prevent them from being damaged if dropped. Even so, in the 1990s he hesitated to leave a good job in the world of finance to set up Amazon after a colleague he respected advised him against it. But Mr Bezos applied what he calls a “regret minimization framework”, imagining whether, as an 80-year-old looking back, he would regret the decision not to strike out on his own. He concluded that he would, and with encouragement from his wife he took the plunge as an entrepreneur. They moved from New York to Seattle and he founded the company, in time-honored fashion for American technology start-ups, in his garage

Perhaps his most outlandish bet is that on Blue Origin, one of several spaceflight start-ups.This may explain why Bezos is so keen to ensure that Amazon preserves its own appetite for risk-taking. As companies grow, there is a danger that novel ideas get snuffed out by managers' desire to conform and play it safe. “You get social cohesion at the expense of truth," he says. He believes that the best way to guard against this is for leaders to encourage their staff to work on big new ideas. "It's like exercising muscles," he adds. "Either you use them or you lose them."

Amazon's unexpected move into cloud computing is a good example. The company had developed ways to allocate computing capacity flexibly in order to deal with the mountains of data being generated by its retail operations. This led to the idea that the same know-how could be used to solve similar problems at other companies, too, and Amazon Web Services (AWS) was born. It is now used by hundreds of thousands of firms, ranging from start-ups such as Spotify, a music-streaming service, to established companies like Ericsson, a Swedish telecoms giant. The firm does not break out AWS's revenues, but Gartner, a consulting and research outfit, has estimated that they exceeded $1 billion in 2011.

Mr Bezos is coy about where he might place more big bets in future, but there have been persistent rumours that Amazon might launch a smartphone, possibly as soon as this year. With Amazon's video-streaming and music services, Mr Bezos clearly has Netflix and Apple in his sights. And in recent weeks there has been speculation that Amazon is toying with the idea of opening a bricks-and-mortar shop to promote sales of the Kindle, by letting customers try it in person. The success of Apple's hugely profitable chain of retail stores shows that even in the era of e-commerce, there are some things people prefer to buy the old-fashioned way.

If Amazon does one-day move into bricks-and-mortar retail, it would not be the first time that Mr Bezos had taken a leaf from the book of Jobs. Like Apple's visionary leader, he has a strong sense of showmanship, which was on display at the carefully choreographed launch of the Kindle Fire last year. Mr Bezos can also be an intense and demanding manager. But most importantly, he shares with Mr Jobs an innate understanding of the importance of thinking about high-tech products from the customer's point of view.

During the design of the original Kindle, for example, Mr Bezos insisted that the e-reader had to work without needing to be plugged into a PC. That meant giving it wireless connectivity. But he also wanted it to work everywhere, not just in Wi-Fi hotspots, and without the need for a monthly contract. This prompted the Kindle team to devise a new business model, striking deals with mobile-phone operators to allow Kindle users to download e-books without having to pay network fees. The ability to download books anywhere does not simply make life easier for users; it also encourages them to buy more books. The Kindle is an e-reader, but it is also a portable bookshop.

Similarly, with the Kindle Fire, Mr Bezos recognised that a tablet computer designed chiefly for consuming entertainment content is no use unless there is plenty of such content available. For many other tablet manufacturers, the question of getting content onto their devices seems to be an afterthought; but Amazon, like Apple, has assembled an ecosystem of books, apps, video and music to accompany its device. Moreover, Amazon can use cross-subsidies from the sale of digital content to keep the price of the Fire down, something that rival tablet-makers who do not sell content cannot do. Once again, Mr Bezos is playing a long-term game in the hope of establishing the Fire as the main rival to the iPad.

Not all of his bets succeed. Who remembers Amazon Auctions, for example, or Amapedia, Amazon's attempt to build a Wikipedia-like user-generated product directory? Even more numerous are the bets that Mr Bezos has placed on new initiatives that have yet to prove their worth. Amazon has branched out into own-brand products, has set up specialist e-commerce sites in several premium markets and is dabbling in moviemaking and television production. Perhaps his most outlandish bet is that on spaceflight. Blue Origin is one of several start-ups aiming to open up space travel to paying customers. Like Amazon, the company is secretive, but last September it revealed that it had lost an unmanned prototype vehicle during a short-hop test flight. Although this was a setback, the announcement of the loss revealed for the first time just how far Blue Origin's team had advanced. “So little was known about Blue's status that the amount of progress it had evidently made further enhanced its reputation,” says Mike Gold, an executive at Bigelow Aerospace, another space start-up. In a post on Blue Origin's website, Mr Bezos said the crash was “not the outcome that any of us wanted, but we're signed up for this to be hard.”

Staying on top in the fast-changing world of technology is hard, too. Mr Bezos is bound to be the target of more criticism as his company's hefty investments in new areas continue to put a dent in its bottom line. His next move could be into smartphones or a video-streaming service that competes with Netflix, but it is just as likely to be something entirely unexpected. By being unusually patient, he hopes to create businesses that rivals will find harder to assail. As the investments in both Blue Origin and the 10,000-year clock show, it is the challenge of reaching for distant horizons that really makes Amazon's boss tick.

On the morning of Thursday, March 6, 2003, Jeff Bezos chartered an Aerospatiale Gazelle helicopter in the remote reaches of southwest Texas. He knew the mountainous area from his teenage years, when he spent summers at his grandfather's ranch: At the Lazy G, he castrated and branded cattle, worked on a Caterpillar tractor, and laid pipes. Now he was interested in buying his own ranch. The chopper flew near Cathedral Mountain, a monumental pile of eroded rock rising sharply from the high plains to a peak of 6,860 feet. The stony soil below was covered by dense forests of live oak, Douglas fir, aspen, maple, ponderosa pine, madrone, Arizona cypress, and juniper. Bezos rode with his executive assistant, Elizabeth Korrell, as the chopper was piloted by a local legend

That morning in March 2003, while carrying the richest and arguably most renowned passenger of his long career, the pilot nearly lost control of the copter in the powerful winds. He brought it to a quick landing, but the main rotor sliced into a cedar tree. The airframe split, and the helicopter rolled over and finally settled in the shallow waters of Calamity Creek. The copter was destroyed, but its passengers used their cell phones to call for help, and the U.S. Border Patrol sent a rescue party.

It's tempting but too facile to dismiss Bezos as a guy enjoying a charmed life. His boundless optimism is matched only by his outrageous good luck. The chopper accident was just the latest hairy episode he has survived in nine years as founder and chief executive officer of Amazon. Back in 1997, when the book barons at Barnes & Noble launched their rival Web site, Forrester Research chief George Colony famously predicted that Bezos's little venture was "Amazon.toast." A lot of people in the press and on Wall Street -- and inside the company as well -- thought the critic was correct. But Bezos flourished. Later, when the collective delusion of the 1990s finally ended, Amazon's shares fell from $100 to $6. Bezos remained sanguine. "Jeff irrepressibly casts every challenge as an opportunity," says his longtime friend Linda Stone, a former executive at Apple and Microsoft.

Now Bezos has been vindicated once more. The company posted its first full-year profit in 2003. It's on track for nearly $7 billion in sales and $400 million in earnings. The stock has revived to $50 a share, giving the company a market value of $21 billion. Amazon is one of the handful of Web pioneers -- along with eBay, Yahoo, and Google -- that have endured as pillars of the Internet. And Bezos is the only founder in that bunch who's still running his company as the CEO. He's the only one to make the notoriously hard transition from the visionary of a small startup to the boss of thousands of employees.

Has he been lucky? "Extraordinarily," he says. It couldn't have happened without "planetary alignment," he explains. But luck isn't all. Bezos's success also springs from his ideas about running companies and creating innovation. His thinking is farsighted and intuitive. But it's all too easy to be distracted by his quirky, hyperbolic personality and not see what he's really up to. You have to look beyond the popular image of Bezos the goofy geek, the wacky PR stuntman who recently played tennis with Anna Kournikova on a makeshift court at Grand Central Terminal for charity -- and to publicize the debut of Kournikova's new sports bra on Amazon. And you have to get past his reputation within the industry as the ultimate quant jock, the by-the-numbers boss who supposedly wants to measure everything with spreadsheets, and base all decisions on data, not judgment or instinct.

Conclusion: Dear Billionaires of tomorrow, follow the above, get inspired and become the Jeff Bezos, Mark Zuckerbergs & Sabeer Bhatias of your times, else ignore the obvious and suffer at your own peril!!

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CHAPTER-9

ROLE OF LIFE SKILL EDUCATION IN NATIONAL SERVICE SCHEME IN HIGHER EDUCATION

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Abstract

To provide Life Skills Education to NSS Volunteers through its various regular activities and special camping programme is one of the objectives of National Service Scheme. Life Skill Education plays an important role in in helping young people, manage their emotions, make appropriate decisions and deal with others effectively in today's real world.

Life Skills are the foundation of NSS Volunteers or any individual's universal well-being. These include developing an individual's creative thinking, problems solving skills, decision making skills, critical thinking, effective communication, self-awareness, coping with stress and helping them to live a healthy and productive life. Author in this chapter wants to bring readers notice that how role of Life Skill Education is important to NSS Volunteers to discharge their duties as a NSS Volunteer in College and responsible citizen in future.

Keywords: *Life SkillEducation, National Service Scheme*

1.3 Introduction

It has well defined by UNICEF that Life -Skills education refers to a behaviour change or behaviour development approach designed to address balance of three areas: knowledge, attitude and skills.

A skill is a learned ability or capacity which helps us to do a task in an effective manner. It is an ability which needs regular practice and more often usage. They need to be acquired with a lot of patience and positive attitude. A skilled person uses less time, energy and resources to do a job and produces quality results. There are different kinds of skills like literary, language, functional, vocational, sports, cultural, recreation and life skills.

- Literary Skills- Reading and writing creatively
- Language Skills – Communicating with others through speech and writing
- Functional Skills – Filling up different forms, skill to read the maps, booking railway tickets etc.
- Vocational Skills – Enhancing livelihood opportunities like pottering, carpentry, tailoring
- Sports Skills – Capable of playing different games and sports
- Cultural skills – Capacity to participate in cultural activities like singing and dancing
- Recreation Skills – Capacity to lighten the spirits of the group as a member as the ice-breaking activity like cracking a joke, singing a song etc.

- Life Skills – Capacity to translate knowledge, attitude and values into actual abilities by helping the individual to decide what to do, when to do and how to do them.

1.4 Need of Life Skills for NSS Volunteers

Life skills are needed to every human being to realize their full potential, and to handle problems and questions commonly encountered in day life. They help the individuals

- To become a well – adjusted and well-developed individual
- To improve the relationships better and handling interpersonal problems
- To improve communication skills
- To develop a dynamic self-image and great self-esteem
- To boost the decision-making skills
- To help to deal with problems in day-to-day life
- Prevent high risk behaviours
- To reduce vulnerability and improve utilization of protective factors
- Life skills are those competencies that assist people in functioning well in the environments in which they live. Life skills have been defined by the World Health Organization as “the abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life.” Life skills include psychosocial abilities and interpersonal skills that help people take decisions, solve problems, think critically, communicate effectively, build healthy relationships, empathize with others, and cope with the stress and strain of life in a healthy and productive manner.
- Essentially, there are two kinds of skills-those related to thinking called “thinking skills” and skills related to dealing to dealing with others called “social skills.” While thinking skills relate to the personal level, social skills include interpersonal skills. It is the combination of these two types of skills that are needed for achieving assertive behaviour and negating effectively.

1.5 Life Skills for a Well-Balanced Life

Awell-balanced life is essential for personal effectiveness, peace of mind and living well. It is very important for every human being. The challenges are to be well managed in order to maintain equilibrium between personal and professional life for employees and personal and pedagogical life for students. This is not always easy. If, however, we are unable to reduce stress and mange a well-balanced life there can be physical or emotional health consequences. Life Skills can be helpful on the following lines:

1. Take care of and nurture yourself

- You cannot accomplish anything if you’re unhealthy. Get plenty of rest, exercise and eat properly. Many of us think we can burn the candle at both ends, eat junk food, get very little exercise, and still function adequately.
- You may be able to get away with this for a while when you’re young, however, at some point, this life style catches up with best of us.
- Burnout is a real possibility. Ideally, set aside time each day for an activity that you enjoy, such as walking, working out or listening to music. Or, allow yourself to unwind after a hectic day by reading, meditating or taking a nice hot bath.

2. **Know what your priorities are**
    - Balance does not entail cramming in every activity possible. Examine your values and decide what's important to you; then set your boundaries. You may be in the process of building a career, starting a family or going to school.
    - Depending on what stage you're in life, your focus and energies will be different. Avoid becoming overwhelmed by juggling too many big projects in your life at once. Maybe planning a wedding is not a good idea when you're studying for the bar exam. Nor, is starting a family when you are unsure about your career direction, or relationship status.
    - Not knowing what you want and trying to do everything at once can be a recipe for disaster instead of the road to leading a well-balanced life. As the saying goes, "do not bite off more than you can chew."
3. **Create an efficient mindset**
    - Be organized and plan ahead. Take time at the beginning of each week to assess what needs to be done. Make a to-do list in a planner or calendar for upcoming appointments, impending exams. Or meetings to attend.
    - Be sure also to allow for recreation and quality time for yourself and your family. Taking the time to connect with family and friends will recharge your batteries and make you more efficient in the long run.
4. **Expect the unexpected**
    - Rather than get stressed and upset, learn to roll with the punches when something over which you have no control happens. You could get stuck in traffic, your computer could crash, or your child could get sick with the chickenpox. Stuff happens.
    - We've all experienced the unexpected. If you accept that anything can happen at any time, it's less likely it throws you off your stride when it does. Be able to adjust your game plan.
    - Note also, that there are times when achieving balance may not be possible, for instance, you may have a family or career crisis that needs your immediate and undivided attention. It may require an exceptional amount of your time and resources.
    - When that happens, do whatever it takes and when things go back to normal take time to refresh and rejuvenate yourself.
5. **Maintain a positive mental attitude**
    - Begin each day with the intention of making the best and most of it. It may not always go as planned, but it can go more smoothly if you put it in perspective.
    - Part of living a well-balance life is learning how to deal with adversity, unforeseen events and uncertainty. It you practice not letting things get to you, you will not learn to live a well-balanced and less stressful life, you will learn to live in and savor the moment.
    - Once you've done everything you can within your control, let your life unfold. Be prepared for the future, but don't worry about it. While we can't anticipate and plan for everything in our lives, we can decide how, where and when to concentrate our

energies. This may require some critical and problem solving, but in the end, it will lead to much less stress and a well-balanced life.

1.6 The Importance of Life Skill for NSS Volunteers

The life of people is becoming miserable due to many reasons including inappropriate environment and lack of life skills. They are less motivated, less confident and spoiling the valuable life. Imparting life skill will help them to overcome the difficulties in life. In 1996 the World Health Organization declares, "Life skills are abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life. Life helps the individuals to provide with strategies to make healthy choices which contribute to a meaningful life.

In a constantly changing environment, having life skill is an essential part of being able to meet the challenges of everyday life. The dramatic changes in global economies over the past five years have been matched with the transformation in technology and these are all impacting on education, the workplace and our home life. To cope with the increasing pace and change of modern life, students need new life skills such as the ability to deal with stress and frustration. Today's students will have many new jobs over the course of their lives, with associate's pressuresand theneed for flexibility.

1.5 Life Skills – Kinds

Life Skills are group of psycho-social competencies and interpersonal skills that help people make informed decisions, communicate effectively, and develop coping and self-management skills to lead a healthy and productive life. They are essentially those abilities that help to promote physical, mental and emotional wellbeing and competence in young people as they face the realities of life. Life-Skills are divided into three core groups namely:

- Social skills
- Thinking skills
- Coping skills.

1.5.1 Social Skills

Social skills include Self-awareness and empathy, effective communication and interpersonal relationship. Self-awareness is a probe into one's own self, in relation to the surrounding in which they live. It is an unbiased assessment about one's character, capacity, capability, competency, desire and dislikes. Empathy is our mental capacity to accept without emotional disturbances. It is basically seeing the problem of a person by stepping in his shoes. Effective communication is a dynamic and ongoing process, which interacts and leads to changes in behavior and attitudes of individuals. Interpersonal relationships initiate and maintains positive relationships and de-link unconstructive relationships.

1.5.2 Thinking Skills

Thinking skills include critical and creative thinking, problems solving and decision-making critical thinking makes objective judgments about choices and risks. Creative thinking helps to have unique way of thinking which is based on depth or knowledge and insight. Problem solving is the best possible way to get one's needs accomplished decision making provides favorable alternative considering consequences.

1.5.3 Coping Skills

Coping skills include the skill to cope with stress and emotions. Coping with stress means to recognize the source of stress and find the way to control it for effective transactions in the society. Coping with emotions is a life skill which is normal. But one has to know when and how to express these emotions, and how to cope with them.

1.6 Core Life Skills

- Self-Awareness includes our recognition of 'self,' of our character, of our strengths and weaknesses, desires and dislikes. Developing self-awareness can help us to recognize when we are stressed or feel under pressure. It is also often a pre-requisite to effective communication and interpersonal-relations, as well as developing empathy for others. We all have different attributes/qualities.
- Critical Thinking is an ability to analyze information and experiences in an objective manner. Critical -thinking can contribute by helping us to recognize and assess the factors that influence attitudes and behaviour, such as values, peer-pressure and the media.
- Problem – Solving enables us to deal constructively with problems in our lives. Significant problems that are left unresolved can cause mental-stress and give rise to accompanying physical strain.
- Creative-Thinking contributes to both decision-making and problem-solving by enabling us to explore the available alternatives and various consequences of our actions or non-action. It helps us to look beyond our direct experience and even if no problem is identified, or no decision, or no decision is to be made, creative-thinking can help us to respond adaptively and with flexibility to the situations of or daily lives.
- Decision-Making helps us to deal constructively with decisions about our lives. This can have positive consequences for the health of young people when they actively make decisions about their own health practices by assessing different options and the effects of different decisions.
- Interpersonal – Relationship Skills help us to relate in positive ways with the people we interact with. This may mean being able to make and keep friendly relationships, which can be of great importance to our mental and social wellbeing. It may mean keeping good relations with family members, which are an important source of social support. It may also mean being able to end relationships constructively.
- Effective- Communication means that we are able to express ourselves, both verbally and non-verbally, in ways that are appropriate to our cultures and situations. This means being able to express opinions and desires, but also needs and fears. And it may mean being able to ask for advice and help in a time of need.
- Empathy is the ability to imagine what life is like for another person, even in a situation that we may not be familiar with. Empathy can help us to understand and accept others, who may be very different from ourselves. So this skill can improve social interactions, for example, in situations of ethnic or cultural diversity.
- Managing-Feelings and Emotions includes skills for increasing internal locus of control for managing emotions, anger and stress.
- Coping with Stress means that we take action to reduce the sources of stress, for example by making changes to our physical environment or lifestyle. It also means

learning how to relax, so that tensions created by unavoidable stress do not give rise to health problems.

1.7 Inculcating Life Skills among the NSS Volunteers

The NSS students need life skills in order to be successful in their career as well as in life. There are many life skills which are very much essential for them. But here are some valuable life lessons every student has to learn either at school or college. They are a large group of psycho-social and interpersonal skills, which can help the students to make informed decisions, communicate effectively and develop coping and self-management skills that may help in their future life.

- **Independence**
  If you don't worry about yourself in college, nobody else is going to do it for you. Sure, your family and friends check in on you, but you're the sole person responsible for you- 24 hours a day, 7 days per week. If that doesn't teach you to be independent, nothing will.
- **Multi- tasking**
  Similar to prioritizing your tasks, you've learned to switch gears at the drop of a hat. You need to- with so much to do; you don't really have a choice. Often times you have to do more than one thing at time. But that's OK, you've got this down pact to an art form. Welcome to the work- life balance, where you'll be "business you" one minute and "social you" the next. Not to mention, perhaps one day, becoming someone's "mom" or "dad."
- **Motivation**
  Sure, you don't want to write that paper. But you know you have to and you have to and you muster up the motivation to because you know Your GPA depends on the grade you receive. Don't want to go to class? Fine, but you won't learn what's on the exam. So, you go- reluctantly. But the point is, you go. Through such experiences, you've learned that life, unfortunately, consists of a lot of things you're going to have to do, even though you don't want to. Boring meetings, paying bills, going to work-these are all tasks in life that nobody wants to do but, as functioning members of society, must do. It's a bummer-get used to it.
- **Note-Taking**
  You may think note- taking ends once you've graduated. It doesn't. There are meetings, conferences and seminars all waiting for you to attend and take notes on. Your job will often depend on the accuracy of these notes, so it's good thing you'll master the art.
- **Prioritizing**
  Even though you have an estimated million (give or take a few) things to do; you know what needs to be done when. You have to learn to schedule your time based on the task at hand and get things done based on their level of importance. Assuming this applies to you: congratulations, you know how to prioritize. If it doesn't, you'll learn soon enough in life, because when things don't get done, negative repercussions tend to happen.
- **Working with Peers**
  You know that group project you had with the terrible group member that did nothing? Yeah, the same thing happens in the "real" world-lazy people are everywhere. But you got through it with your other group members. The good news? You Know how to deal with others and have adapted to skill sets required in every workplace. Maybe you can't report

a lazy person to your boss like you can to your professor, but at least you'll know how to do your part and work around them.

- **Resourcefulness**

  If or when you're in college, you're likely a broke student with limited resources. As result, you have to learn to utilize things like student discounts, freebies and ways to "make things work."

  These challenges help you become more resourceful -looking for the possibilities rather than settling on what's in front of you. It's great way to be in life, too, because you'll be ahead in finding the best options for your budget and lifestyle. The term Life Skill Education, is being widely used nowadays but it is often used interchangeably with livelihood skills. But the two are different. Livelihoods skills as the name suggests, are skills, related t generate income to fulfill one's household/ individual economic goals.

1.8 Importance of Life Skill Education for NSS Volunteers

- Life skills are very essential for everyone in the modern say society. Various skills like leadership, responsibility, communication, intellectual capacity, self -esteem, Interpersonal skill etc. extends its maximum level, if it is practicing effectively.
- We need to create life skill education as the cornerstone of various youth programmers and an integral part of our formal education process.
- In life skills education, students are actively involved in a dynamic teaching and learning process. The methods used to facilitate this active involvement include working in small groups and pairs, brainstorming, role play, games and debates.
- A life skills lesson may start with a teacher exploring with the students what their ideas or knowledge is about a particular situation in which a life skill can be used.
- The children may be asked to discuss the issues raised in more detail in small groups or with a partner. They may then engage in in short role play scenarios, or take part in activities that allow them to practice the skills in different situations as actual practice of skills is a vital component of life skills education.
- Skill based approach in life skill education follows well established mentoring techniques to develop students' innate quality and also motivating them to adopt socially acceptable pattern of life style's particularly, strategy consisting of a group of people combined together to help themselves by identifying their talents and directing them to choose an appropriate step to enhance their skill and abilities as a part of development. In order to have an effective implementation of life skill education there is a need of professionally trained and skilled personal from within the country.
- Professional training requires a purposely planned programmed of study prepared by experts which has the approval of a competent authority and a group of experts to train the trainers of life skill education.
- Life skills makes healthy development of social and emotional skills.
- They help in the development of social competence and problem-solving skills, which form the identity of the individuals.
- They help to weigh pros and cons of the situation, hence, act as a mediator to problem behaviour.

- They promote positive social, norms that in turn show an impact on individual and family health.
- They help to differentiate between hearing and listening and thus, ensuring less development misconceptions or miscommunications regarding issues such as drugs, alcoholism and other bad habits.
- They promote the development of positive self-esteem and teaches anger control.
- They help to promote mental wellbeing and competence in young people as they face the realities of life.
- They help the young people to take positive actions to protect themselves and to promote health and meaningful social relationship.
- They facilitate a complete and integrated development of individuals to function effectively as social beings.
- They help the individuals to explore alternatives, weigh pros and cons and make rational decisions in solving each problem or issue as it arises.
- They establish productive interpersonal relationships with others.
- They help the adolescents in translating knowledge, attitude and values into healthy behaviour that makes their life fruitful.
- They help in empowering girls by imparting healthy behaviour and helping them to avoid risks and to make appropriate decisions at the right time.
- They provide students with strategies to make healthy choices that contribute to a meaningful life.
- They help adolescents to understand their self and to assess their skills, abilities and areas of development
- They help adolescents to get along with other people and adjust with their environment and making responsible decision.
- They enable the learner to develop a concept of oneself as a person of worth and dignity.

1.9 Conclusion

In short, we understand that Life Skills are group of psycho-social competencies and interpersonal skills that help NSS volunteers as well as people make informed decisions, communicate effectively, and develop coping and self-management skills to lead a healthy and productive life. They are essentially those abilities that help to promote physical, mental and emotional wellbeing and competence among NSS Volunteers as well as in young people as they face the realities of life.

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CHAPTER-10

ISSUES AND RISKS OF CRYPTOCURRENCIES

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Abstract:

Bitcoin is an electronic currency that eliminates the need to be managed by a central issuing body to implement it in a completely decentralized manner using public protocols. It has been shown to be a modern payment system, used in some processes involving money laundering or smuggling of various illicit substances, although it is still evolving. Consequently, in this essay, we examine the features that make cryptocurrency a valuable tool for conducting any type of transaction outside the control of any regulatory agency, as well as some of the domains in which it is used may contain new illegal activity.

Keywords: *Bitcoin, Cryptocurrency, Virtual Money, Blockchain*

Introduction

The basic structure of digital currencies suggests a shift from traditional economic system architecture. Information systems and technology solutions such as peer-to-peer connections and cryptographic algorithms provide decentralized organization, operational security and transparency against centrally controlled and less visible structures of traditional currency systems. Against the backdrop of the current economic crisis, this new breed of currency is gaining momentum. As public confidence in the current economic system declines, alternative concepts for future currency systems become more important, providing innovative ideas for future currency systems. (Glaser et al., 2014).

In 2008, Satoshi Nakamoto, the creator of the first blockchain database and Bitcoin, wrote a white paper on cryptocurrency. He also continued to develop Bitcoin until 2010. After writing the first bitcoin code in 2007, Nakamoto gained notoriety through a white paper explaining the bitcoin protocol. Bitcoin is already known and used as a currency, but it is more than that (Www, 2020). Since Bitcoin is a technology, it can also be used as a distributed consent mechanism for things like notarization, fair voting, stock ownership and registration of assets. Due to the evolving technology, most people use the internet and e-commerce to meet their demands. Because of all these changes in their lives, people no longer want to carry cash or credit cards. As a result, Bitcoin allows anyone to buy or pay for anything at any time and from anywhere. Paying with Bitcoin also ensures secure transactions. Bitcoin is neutral in the sense that it does not vary by country, sender, or recipient, thus eliminating all foreign exchange rate complications and costs. (Avula, 2021).

Bitcoins are created as a result of transaction processing efforts. Users contribute their processing resources to enter transactions and payments into the public ledger. Mining is the process by which users who process power receive a fraction of the amount of Bitcoins, which is charged to the payment initiator as a transaction fee, as well as some fresh Bitcoins.

The transaction is transmitted over the network, but it is not stored in the shared ledger until it is confirmed and logged in. Every ten minutes, transactions are grouped into blocks. It takes a lot of computer power to show the authenticity of transactions in a block, but it takes a little bit of computer power to verify them. Mining on the network is done competitively, and builds trust by guaranteeing that transactions will be visually confirmed. For each block, the mining process generates new Bitcoins. The number of Bitcoins in each block is fixed and decreases over time. (Fahmy, 2018; Liew et al., 2019; Naware, 2016; Phillip et al., 2018; Tasatanattakool & Techapanupreeda, 2018).

Problems of Cryptocurrency:

1. **High Speculation-** Bitcoins, like most financial aspects, are sensitive to speculative price changes. Trading Bitcoins for euros, dollars, pounds or any other cryptocurrency is particularly vulnerable to speculative fluctuations and subjective valuations. Bitcoin will make progress towards becoming an economy, eventually becoming an inflation system. Bitcoin has already solved major operational problems related to money segregation.
2. **Illegal trafficking and money laundering-**Money laundering is at the heart of every cryptocurrency crime, as it allows criminals to divert money obtained through other means to blockchain. Cryptocurrency profits cannot be withheld or converted into fiat cash without being detected by law enforcement because they cannot be laundered. To combat criminals and terrorists who launder money and prevent crypto crime, law enforcement and security agencies need advanced blockchain analysis measures. Money laundering is a recurring pattern in many crypto crimes. Criminals take advantage of blockchain anonymity to extract money from both off-chain and on-chain offenses, conceal the origins of illegal payments and convert cash into bank deposits.
3. **Absence of Central Authority-** One of the major problems with cryptocurrency is that it is not owned by the government. It does not belong to any government. Because it is a cloud-based business, it makes no sense for them to take a stand on whether it is legal or illegal. It's completely free. It's like the government is coming and telling you that you can't or won't use air. Because it's a completely free environment, it's unimaginable. When we look at technologies like the internet and email, we can see that they are completely unregulated because they cannot be controlled by central authorities and Bitcoin and cryptocurrency are no different.
4. **Theft or Loss of Bitcoin-** There have been many reports of bitcoin theft. As of December 2017, approximately 980,000 bitcoins were lost on the cryptocurrency exchange, accounting for more than 5% of all bitcoins in circulation. One type of theft is when a third party gains access to the victim's Bitcoin address or the private key of an online wallet. By taking a private key, all bitcoins at the compromised address can be replaced. The network has no way of identifying the culprit, blocking future transactions with stolen bitcoins, or restoring them to their rightful owners in such cases. Websites that use Bitcoins to buy illegal goods are plagiarized.
5. **Malware Attacks-** Ransomware is one of the most popular and dangerous cyber attacks, in which the threatening actor encrypts the organization's data until a ransom is demanded. Not only is the number of attacks increasing, but the severity of the attacks is also increasing. Average ransomware payments grew by 60% in the first half of 2020,

with Bitcoin accounting for most payments. Approximately 98 percent of ransomware payments are made through Bitcoin.

6. **Scalability-** The ability of a cryptocurrency to conduct multiple transactions at the same time is called scalability. Bitcoin, for example, has a seven-transaction-per-second transaction speed. If there are more than seven transfers per second, all transactions are queued for refilling. As a result of Bitcoin's zero-commission strategy, this line has been created. In other words, the person who paid the highest commission gets a better position in the queue. Due to blockchain limitations, such an adverse situation arises.

The way Ahead

Electronic payment systems are becoming more popular. The rise of online payments and the simplicity with which Bitcoin can be used for payments, especially for domestic transactions, may attract the general public to use Bitcoin. The increasing use of smartphones, as well as the public knowledge and widespread acceptance of virtual currency payments, could help it gain popularity and vice versa. The power of blockchain technology was demonstrated by Bitcoin. As a result of the power of blockchain technology, governments want to implement it in economic systems as a low-cost alternative from many nations.

1. **Economic Growth-** Current economic prosperity is a key factor in the growth of the cryptocurrency market. If we look at the history of cryptocurrency, it is clear that investors' risk-taking appetite returned to pre-recession levels when the market collapsed during the 2008 crisis. Blockchain and Bitcoin were created in 2009, and in 2013, Bitcoin began to grow exponentially.
2. **Blockchain Technology-** Blockchain is a distributed accounting technology. With the rise of Bitcoin, blockchain has taken the IT world by storm. Bitcoin and the rest of the cryptocurrency industry were almost useless before the introduction of blockchain technology. Blockchain technology is an account book that consists of a series of transactions in the form of blocks that are automatically updated on a network of independent databases located in many geographical locations and which serve as the foundation of a decentralized system.
3. **Investor Needs-** One of the main reasons for the growth of the crypto market is the huge increase in the will of capitalism. Throughout 2017, cryptocurrencies received a lot of attention from financial and government institutions, which validated them as investment assets. Investors believe that this is just the beginning of the rise of cryptocurrency. There are still many apps that need to be started or checked.

Conclusion

With a large number of existing markets and the possibility of easily exchanging Bitcoins in Euros, Pounds or Dollars, this new method is the perfect vehicle for any type of transaction, with all the legal consequences related to money laundering or illicit trafficking of goods. , Jurisdiction Restrictions on Criminal Acts in Cyberspace. With the inclusion of blockchain technology in business and international trade, the acceptance of cryptocurrency is increasing, as businesses will be able to use cryptocurrency more efficiently, eliminating the need for intermediaries. Previously, the ultimate goal of cryptocurrency was to emulate contemporary electronic clearing in a globally connected society. As a result, they only serve as decentralized databases and pools for the widespread adoption of private money.

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CHAPTER-11

BIODIVERSITY AND ITS CONSERVATION

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WHAT IS BIODIVERSITY?

Biodiversity is the diversity of life on earth. Biodiversity is thus nothing but variety of plants, animals and microbes present at global level. Biodiversity is the sum totals of species richness i.e. the number of plants, animals and microbes occurring in a given habitat. Biodiversity refers to the variety and variability among living organisms and the ecosystem complexes in which they occur.

DEFINITION

The term "biodiversity" may be defined as-"Biodiversity is the variability among living organisms and the ecological complexes of which they are part, including diversity within and between species and ecosystems." Biodiversity includes three different but closely related aspects as below

Genetic diversity: It is the diversity within species. It refers to the variation of genes within species.

Species diversity: between species. It is full range of species of microbes like it is most basic level of biodiversity pattern. It is diversity bacteria, viruses, plants, animals and fungi at global level.

Ecosystem diversity: Ecosystem diversity is the number of species (Microbes, plants, animals) in different environment. A community of organisms found in it is the diversity of organisms exists in different land forms, each of which supports different and specific vegetation. As compared with genetic and species diversity ecosystem diversity is difficult to measure, but it can be best understood if one studies the communities in various ecological niches, within a given ecosystem. Each community is associated with definite species complexes. Ecosystem biodiversity is thus distinctive assemblage of species that live together in the same area and interact with the physical environment in unique ways.

BIODIVERITY AT GLOBAL, NATIONAL AND STATE LEVEL:

The concept of biodiversity is concerned with natural communities. It actually refers to total variability within all the living organisms and ecological complexes with which it exists. Diversity of organisms is highly variable from pond to hill tops and plains. It is essential for proper functioning of food chain and survival of human kind.

The greatest enemy of biodiversity is man. There is rise in human population but fall of biodiversity at global level.

A. Biodiversity at global level:

About 5 to 30 million forms of living organisms may be present on our earth. Only 1.5 million have been identified. However, some of the rough break up at global level is below.

Green plants	3, 00, 000
Insects	8, 00, 000
Fishes	23, 000
Birds	9, 000
Reptiles	6, 500
Mammals	4, 100
Microbes	3, 60,000

Some recent estimates indicate that the number of insects may be around 10 million. On the global level there are about 18 hot spots where greatest biodiversity is noticed. Species richness increases from the poles to the equator e.g. fresh water insects are three to six times more abundant in tropical areas than in temperate zones. It is also seen that tropics have highest mammals per unit area. Vascular plants species diversity is much richer at lower altitudes.

Tropical forests are richest in biodiversity more than half the species on the earth live in moist tropical forests. This tropical area is only 7% of the total land surface e.g. from a single tropical legume tree 43 ant-species belonging to 26 genera have been identified. It is said that these number of ant species is equal to total ant species in entire U.K. Tropical areas have high species diversity due to following reasons.

i) Tropics have more stable climate than the temperate zone
ii) Warm temperature and high humidity
iii) Tropics have different pressure of pests, diseases. This causes balance of population of single species. In other way there is opportunity for many species to co-exist.
iv) Tropics have enormous sunlight throughout year. Because of this tropic have more heterogenous vegetation and more productive nature.

Recent studies on global biological diversity indicate that, there may be 1413000 identified species.

e. g.

Insects	7,51,000
Plants	2,48,000
Other animals	2,81,000
Fungi	69,000
Protists	30,000
Algae	26,000
Bacteria	04,800
Viruses	01,000

B. Biodiversity at national level:

India (8^0-3° N and 60-97.5° and 3.29 million hectares) is quite rich in biodiversity with high percentage of endemic flora and fauna. This may be due to variety of climate and altitudinal conditions with varied ecological habitats. Thus Western Ghats have tropical climate, the hot desert of Rajasthan, the cold deserts of Ladakh and beautiful high icy mountain peaks of Himalayas to the warmer coastal sites of peninsular India.

India has over 1,15,000 species of plants and animals. Our country is original home of about 167 important cultivated plant species, and some domesticated animals e.g. rice, sugarcane, jute, mangoes, citrus, banana, millets (bajara, jowar), cucurbit, orchids, and several medicinal and aromatic plants. India is one of topmost megadiversity nation of 12 countries having two hot spots of extreme diversity (Western Ghats and Eastern Himalayas). About 35% following plants of India are Endemic. North eastern region is treasure of orchid flora nowhere in the world.

India is very rich in faunal wealth also with about 75.000 animal species, about 80 percent of which are insects. Most of the reptiles are endemic to India (33% endemic reptiles) while 62% amphibians are endemic. Original home of many domesticated animals like buffaloes, goats, sheep, pigs. poultry, horses, camels and yalks is in India. Western Ghats of Kerala has extreme diversity. Out of described 15,000 species of flowering plants in India about 5,000 species are on the Western Ghats of Kerala.

Organisms	Total Known (Global)	Found in India (Global) (Indian)
Viruses	5000	-
Bacteria	4000	850
Fungi	70000	23000
Protozoans	40000	-
Algae	40000	2500
Mammals	250000	18650
Roundworms	4231	372
Molluscs	15000	5050
Crustaceans	70000	-
Spider, mites	40000	-
Insects	75000	53430 to 60000
Reptiles	950000	435
Fishes	63000	2000
Amphibians	23000	181
Birds	12450	1200

Indian region is one of the twelve megadiversity centre in global level with selected biological resources.

e. g.

Mammals	390
Birds	1230
Reptiles	456
Angiosperms	14500
Swallowtail Butterflies	77

India is famous for two Hot Spots

Plants /Animals (Endemic)	Western Ghats	Eastern Himalayas
Plant	1600	3500
Mammals	07	-
Reptiles	91	20
Swallowtail Butterflies	05	-

Environmental awareness should be created in Indians so that all possible protection and care will be taken to preserve Indian biological wealth.

C. Biodiversity at state level –

The land mass of Maharashtra is about 3,07,690 sq. km. Wildlife Institute of India had given biogeographic classification of India and divided country into 10 large zones. It is further sub-divided into 25 biotic provinces. Most of the Indian states have one, two or three major zones. On the other hand our state, Maharashtra has three distinctive zones

i. The Coastal Maharashtra
ii. The Western Ghats
iii. The Deccan Plateau

Out of 25 biotic provinces in India (Biotic provinces are smaller special habitats) Maharashtra is having seven biotic (Most other states of India have three to four provinces only)

i.e.-

i. The Western Coastal Plains /Malabar plain (7.5%)
ii. The Central Highland Forests (9.7%)
iii. Thè Large Central Plateau of the Deccan Mostly of semiarid grasslands. (68.2%)
iv. A small Eastern Plateau in the North East (3.2%)
v. A small representative Deccan Plateau (1.0%) vi) The Western Ghats (Sahyadri) 10.0%)
vi. Southern biotic province in the extreme south (1.0%)

Maharashtra has extreme heterogenous biogeography, biodiversity, landscape profiles. Biotic provinces have extreme faunal and floral diversity, ecosystem diversity, species richness. They are typical ecosystems of our state having high biological potential. Many species of plants and animals endemic to the state.

The biodiversity of Western Ghats is extremely variable. It is ecologically richest region of India, next only to the Himalayas in the diversity of biological species. About 4000 species of plants out of which 1500 species are endemic. In Western Ghats 48 genera of mammals, 275 genera of birde genera of reptiles are present. The Western Ghat is 09 centre of origin of various cultivated plants (e.g. Pepper. Cardamon, turmeric, ginger, mango, jack fruit, ragi etc.)

Following is plant and animal diversity of Western Ghats: -

Algae	347 Species
Fungi	6600 Species
Bryophytes	55 Species
Pteridophytes	73 Species
Angiosperms	1593 Species
Reptiles	82 Species
Birds	433 Species
Fishes	167 Species
Insects	19 Species
Butter flies	78 Species
Amphibians	30 Species
Lizards	51 Species
Mammals	70 Species
Zooplanktons	59 Species
Scorpions	33 Species

The state of Maharashtra has extreme diversity ecosystems, landscapes, floral and faunal wealth.

BIOGEOGRAPHY OF INDIA

A) What is biogeography?

Biogeography is the geography of organic life. It is the study of spatial distribution of living world. It includes of plants, animals and the processes that distribution produce variations in the patterns of distribution.

Geography is the study of areal distributions, spatial patterns, locational analysis, man-earth relationships and the environmental relationships of man. Biogeography on the other side encompasses all geographical aspects of study in relation to the living beings with an emphasis on man's relations. Biogeography is concerned with all biotic things consisting of the earth's environment in respect to man.

Biogeography is this study of biosphere that that envelopes the surface of earth.

It consists of-

i. Study of all living organisms on land, water and areal areas
ii. The environmental factors and the human activities which affect the distribution of living beings.

Both these aspects form the main substratum of Biogeography.

B. Factors affecting bio geographical patterns.

i. Physiographic factors: - They include factors like altitude, slope of the land, structure of the ground.
ii. Climatic factors - They are most influencing factors for biota distribution which include temperature, light, precipitation and wind.
iii. Edaphic factors with conditions of soil and properties of soil which are most vital factors of biogeography.

iv. Biotic factors - They include the effects of one plant species on the other e.g. Parasitism, mutualism, competition.

v. Anthropogenic factors - The factors influence the distribution of biota by means of human activities. e.g. Destructive activities of man like clearing of forest lands for settlements, agricultural purposes.

CONSERVATION OF BIODIVERSITY:

A. India is Mega DiversityNation: -

Variation is the law of nature. It occurs everywhere and every moment. The variety and variability of organisms is known as biological diversity or biodiversity. Biodiversity is the degree of variety in nature. India is one of the 12 megadiversity countries of world and ranks sixth among megadiversity nations. The total number of plants species is about 45000 which comprises of –

Flowering Plants	15000
Gymnosperms	64
Bryophytes	2843
Pteridophytes	1012
Lichens	1940
Fungi	23000

Out of these 4900 are endemic to India and 1500 of these are highly threatened. (MOEF, 1994). The faunal wealth of India comprises of 81000 species as below-

Molluscs	5000
Arthropods	57000
Fishes	2546
Amphibians	204
Reptiles	428
Birds	1228
Mammals	372

Out of these 62% species are endemic to India e.g. 38 species of mammals, 69 species of birds, 156 species of reptiles, 110 species of frogs and relatives are endemic to India. (MOEF-1994). Biodiversity of India is enormous having two important location bio-diversity "Hot Spots" as they have number of endemic species which is previously mentioned. Andaman site of India is having 144 species of flowering plants and 75 species of land snails that are endemic to Andaman only.

B. Importance of biodiversity: -

Biodiversity has great importance for variety of reasons as -

i. Biodiversity provides us valuable natural resources to satisfy the needs of mankind. eg. food, clothing, shelter

ii. Biodiversity provides variety of ecological services eg. Recycling of wastes maintaining the chemical composition of the atomosphere climate conditions of different parts of the world supply of plant pollinators etc.

iii. Biodiversity provides valuable genetic resources for the mankind. Most of the imporved varieties developed by incorporating useful genes from their wild relatives. eg. Wild grass *Sacccharum spontaneum* provided genes for resistance to red rot disease of sugarcane.

iv. Biodiversity provides useful gene pool diversity that has enormous value in industry, agriculture and medicine eg. Leukaemia, blood cancer can be managed from alkaloids of *Catharanthus roseus*.

v. Biodiversity has recreational importance eg. Parks, gardens natural plants habitats of forest, seashores.

vi. Biodiversity maintains ecosystem balance. Thus loss of any one species disturbs ecosystem food chains, food webs.

vii. Biodiversity of plants causes rapid flow of water, binds soil particles, prevents soil erosion etc.

viii. Biodiversity helps in maintaining Socio-economic, cultural, aesthetic and religious values of ecosystems.

C. Loss of Biodiversity and needs of Conservation: -

Biodiversity loss is due to variety of factors e. g.

i. There is destruction of natural ecosystems to meet even increasing needs of increased population.

ii. Natural calamities such as earth quake, floods, forest fires, droughts, epidemics etc. cause extensive damage of plant and animal wealth.

iii. Environmental pollution of land, water, air etc. causing loss of valuable biodiversity.

iv. Accidental or deliberate introduction of exotic species causing various changes in biotic and abiotic factors. eg. Contamination of wheat seeds with congress grass.

v. Overexploitation of traditional wild varieties disturbing ecological balance.

vi. Green house gases at increased level giving warnings about fast changes in environmental conditions due to loss of biodiversity. This needs immediate conservation strategies to preserve diversity.

D. Methods of conservation of biodiversity:

Biodiversity is the natural biological capital of the earth. Native biodiversities are source of pride for each country as it does a shining part of the national heritage. Nature conservation is age old tradition in our country. There are innumerable examples of conservation of plants and animals in urban, rural and tribal communities eg.

i. Tulsi or Sacred basil is cultivated in almost every home.

ii. The common practice of exchanging farm-conserved seeds by rural women at important rituals in South India, seasonal dietary practices and taboo on hunting pregnant animals are some examples by which bio wealth is conserved from olden days.

iii. The case of Bishnoi's sacrificing their lives mostly women and children to save their trees as far back as 1730 A.D. The Chipko Movement in Garwal Himalayas (1973) and the "Appiko Karnataka (1983). They prevented felling of trees by simply clinging to the trees, forcing the government to change the age-old forest policies.

iv. Sacred groves is unique tradition to preserve our rich heritage whereby various ecosystems considered sacred e.g. The Bamboo groves of Rajbanshi Community of

North Bengal, Devrai of Maharashta, Kovil Kuda of Tamilnadu and Kurus of Kerala are some important examples of Sacred groves. More than 2000, sacred groves in Kerala, 400 Devrais in Maharashtra (In Pune district about 109, Ahmednagar 5, Nasik 5, etc. They represent community organised system of ecological conservation practiced for centuries). These practices indicate that biodiversity conservation and management is absolutely essential for our survival. This will help in healthy coexistence of plants, animals and peoples in a sustainable manner from time immemorial. Many of the plants, animals become extinct day by day and hence for conservation of biodiversity following methods suggested.

i. In Situ conservation
ii. Ex Situ conservation

In Situ Conservation: - It is the conservation for plants and animals through their maintenance within their natural or manmade ecological conditions (ecosystems). This approach of conservation of biodiversity includes establishment of protected areas of varied categories such as national parks, sanctuaries, natural reserve monuments, Cultural landscapes, biosphere reserves, virgin forest. This method is excellent for wild animals and plant conservation.

In India about 421 sanctuaries, 45 national parks, 21 Tiger projects, up to 1993 covering an area of more than 1,41,298 sq. km. Wild Life Board, Government of India suggested to establish 81 new national parks, 212 new sanctuaries in order to increase protected areas of the country. Now there are 86 national parks and 461 sanctuaries in the country occupying 1,50,000 sq. km. area.

In Maharashtra there are about 16 national parks and sanctuaries e.g. Tadoba (Chandrapur), Pench (Nagpur), Radhanagari- Dajipur (Kolhapur), Karnala (Raigarh), Nagzira (Bhandara), Rehekuri (Ahmednagar), Melghat EAL Tiger Project (Amravati) etc.

UNESCO declared Biosphere Reserve Programme (BRP) in 1971 for conservation of valuable habitats from India. They are 13 BRP e.g. Gulf of Manar (Tamilnadu), Sunderbans (West Bengal), Kaziranga (Assam), Nilgiris (Karnataka, Kerala, Tamilnadu), Nanda Devi (Uttar Pradesh), Uttarakhand Valley of flowers (Uttara Khand) etc. Special projects were started for conservation of some endangered animals e.g.

i. Project Tiger - 18 Tiger Reserves in India. e. g. Melghat (Maharashtra), Kanhha (M.P.), Rantambore (Rajasthan), Corbett (U.P.), Bandipur 9 Karnataka), Periyar 9 Kerala) etc.
ii. Gir Lion Project (Gujrat)
iii. Crocodile Breeding Project (1975) 16 in number and largest is Krishna Sanctuary in A.P.
iv. Rhino Conservation Project (1983) in Assam.
v. Project elephant (1992)

EX-Situ Conservations:

It is a process of conservation of highly endangered species outside the habitat by perpetuating sample population in genetic resource centres Botanical garden, Zoo Parks, Culture Collections or in the form of gene pools. In plant species seeds, pollen grains, vegetative propagative parts (Corn, bulb, Tuber etc), tissues etc. are collected and stored in such banks.

1. Conservation of endangered species of plants and animals in botanical gardens and zooparks is effective method, e. g. rare endemic and endangered species of plants are protected and flourished in Sibpur Botanical Garden and botanical gardens are active centres of research where experts take general survey and future plants to be implemented.
2. Biodiversity conservation by seed banks is novel ex situ method. The seeds are stored through cold storage (-20°C). The seed bank at IBPGR (International Bureau of Plant Genetic Resources, New Delhi) holds about 1,57,000 materials and it ranks third in the world. IBPGR, New Delhi is linked with IBPGR of FAO.
3. Conservation of endangered species of animals, third of its kind in world is now established in Hyderabad near Nehru Zoological Park by the Centre for Cellular and Molecular Biology in Collaboration with Central Zoo Authority of India. The main objective of this centre is improved reproductive capacity of endangered animals.
4. Tissue culture method is another ex-situ conservation method by which in sterile conditions on synthetic media plant fragments like meristems, buds, tissue or cells are cultured and maintained for long time. Such cultural plant materials may used for fast multiplication of plants.
5. Central Government and State Governments together run about 33 Botanical Gardens, Universities have their own Botanical Gardens. There are about 275 zoo-parks, deer pario, Satari parks and Aquaria Where threatened and endangered species of plants and animals are protected.

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CHAPTER-12

OTT USER STUDY CONSIDERING CORONA PANDEMIC TIME

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Abstract

The researcher studies the use of OTT medium by OTT users during the Corona pandemic time in Ahmednagar City. Due to the free time, easy and abundant internet data available to the people during the Corona lockdown so many people are using the OTT medium for entertainment. Currently, OTT is replacing traditional media like cinema and television. The number of OTT users is increasing because different content from around the world becomes available to viewers across the globe on the OTT medium, so similar references have been made by the researcher.

The outbreak of the corona virus which started in China reached the rest of the world by the end of February. Many countries opted for the lockdown to prevent its infection. Public places, schools, colleges, cinema halls, theaters are closed. Filming of several series and films was stopped. As a result, there was a dearth of new content for television programs. Old programs began to be rebroadcast in many places, so the OTT Platforms became the focal point of attraction for the audience. To get maximum information related to the subject the researcher has selected the questions accordingly while preparing questioner for research.16 questions were taken in this questionnaire. Also, for this research, a questioner was filled from 100 OTT users in the Ahmednagar City.

Keywords: *Corona pandemic, OTT Platforms, Viewership, Genre, Cinema, Web series, Binge Watching.*

Introduction:

Nowadays, we are in the world of new media. Network media and OTT video platforms are becoming the part of viewers and these new platforms are giving competition to the traditional mediums like television, cinema houses, etc. because of the digital revolution network media and OTT platforms done radical changes in the field of information transmission and entertainment. With the availability of abundant internet data, the number of OTT users increased tremendously. During the pandemic time, the number of OTT users suddenly increased and the availability of a huge amount of time also changes in their using habits. The availability of internet data, availability of new content makes it easy for the audience to be more attracted to the online media, and OTT.

An **over-the-top (OTT)** media service is streaming offered directly to viewers via the Internet. This is a new delivery method of film and TV content over the internet without the need for cable and satellite. In India, there are 40 service providers of OTT media over the internet. OTT content can be accessed directly on the computer, mobile web-enabled Television through on the internet. Between 2007- 2008 streaming media was introduced on a large scale. An app like YouTube was launched in 2007. Netflix has launched in 2007 also

Ollu and Roku app launched in 2008. After 2009 streaming apps are available for mobile that first introduced my iPhone. From 2012-2014 OTT platforms more developed as the availability of the internet was increasing during this period.

The number of video viewers on OTT is increasing day by day due to the availability of unlimited internet data plans, and it affects users and other traditional media.With each passing day, the screen for watching videos got smaller and smaller, and as the media become more individualized. The media was freed from the constraints of space and time. The outbreak of the corona virus which started in China reached the rest of the world by the end of February. Many countries opted for the lockdown to prevent its infection. Public places, schools, colleges, cinema halls, theaters are closed. Filming of several series and films was stopped. As a result, there was a dearth of new content for television programs. Old programs began to be rebroadcast in many places, so the OTT Platforms became the focal point of attraction for the audience.

Amazon Prime Video, Netflix, Disnay+Hotstar, Voot, Zee5, Sony Liv, Mx Player, ALT Balaji, Eros Now, Arre these are top 10 OTT platforms in India. (Article- The Mobile Indian Network).

Aims and Objective:

Aim: To Study the OTT Viewership Habits During Corona Pandemic Time.

Objectives:

• To Study the Time and Frequency of Viewership.

• To Study the Viewership Choices.

• To Study the Reasons for using OTT.

Research Methodology:

Primary data collection method has been used for this research and purposive sampling has been done through questionnaire. A quantitative research approach was taken for the research.

Scope and Limitations:

For this research, the researcher has studied **100 OTT users** from Ahmednagar city from **1st September 2020 to 31st October 2020**.The researcher is selecting the **top ten OTT** platforms in India for this research.

1. **Data Analysis:**

OTT users from the Ahmednagar city are how much time is spending on OTT platform? Also what kind of videos do they prefer to watch? And the reasons for their OTT use have been studied.

The classification made accordingly is as follows.

1. OTT using time:

Sr. No	OTT using time	Percentage %
1	Morning	13 %
2	Afternoon	44%
3	Evening	51%
4	Late Night	57%

During the Corona pandemic period, Ahmednagar city have the highest rate of **late night video watching** on OTT medium. After that rate of evening video viewing is 51%. The number of video viewers in the morning is very small.

2. Time given by OTT users for using OTT medium:

Sr. No	Time given by OTT users for using OTT medium	Percentage %
1	Less than 1 hours	17%
2	1 to 2 hours	29%
3	2 to 3 hours	31%
4	3 to 4 hours	25%
5	4 to 5 hours	3%
6	More than 5 hours	4%

The OTT user from Ahmednagar city uses OTT during the corona pandemic period, spending **2 to 3 hours** a day on OTT media, while the proportion of users who spend 4 to 5 hours is the lowest. There is also 17% user who spends less than one hour, 29% who spend 1 to 2 hours and 25% user spend 3 to 4 hours.

The OTT user from Ahmednagar city During Corona pandemic period has the highest rate of **1 to 2** hours of **continuous** video viewing on OTT media. And the number of people watching videos for more than five hours of continuous is the lowest. Also 25% user watch videos less than one hour continue, 19% for 2 to 3 hours continue and 15% of user watch videos 3 to 4 hours continuously.

3. Video genre watching on the OTT medium:

Sr. No	Video genre watching on the OTT medium	Percentage %
1	Comedy	67%
2	Action	66%
3	Horror	54%
4	Adult/Romantic	49%
5	Thriller	50%
6	Drama	52%
7	Other	10%

Videos of different content and genre are available on OTT medium. The researcher studied the preferences of user.

The OTT user in Ahmednagar city during the Corona pandemic period prefers to watch **Comedy** genre videos. After that they prefer to watch **Action** genre videos. Also 54% user watches Horror genre videos, 52% watch Drama genre videos, 50% watch Thriller genre videos and 49% user watches Adult/Romantic videos on OTT medium.

4. Different kind of videos watching by OTT users:

Sr. No	Different kind of videos watching by OTT users	Percentage %
1	Cinema	76%
2	Serial	32%
3	Songs	35%
4	Sport	35%
5	Web series	75%
6	Other	12%

During the Corona pandemic period, OTT users of Ahmednagar city are giving priority to watching **movies** on OTT platform. After that they prefer to watch **web series** on OTT platform. Also the proportion of viewers of song and sport videos is 35% and the proportion of serial viewers is 32%.

On the OTT platforms videos are available in different languages. Therefore, Marathi, Hindi, English and other options have been given as the language for watching videos, as per pre-research in the city of Ahmednagar has shown that some audiences are watching movies in foreign languages, so other options were given.

OTT users in Ahmednagar city prefers to watch **Hindi** language videos. The rate of watching videos in other languages is the lowest. Also, 80% users watch videos in Marathi and 66% of user watch videos in English language.

5. Reasons for choosing OTT medium:

Sr. No	Reasons for choosing OTT medium	Percentage%
1	Newness of subject	52%
2	New option for entertainment	66%
3	As there is free time	38%
4	Can be viewed individually	41%
5	Other	6%

OTT users in Ahmednagar city choosing OTT medium during the Corona pandemic period because, the videos with different content are available on OTT platform so users were choosing OTT medium also that user can be viewed videos anytime and anywhere. From the above information, it can be seen that the number of people who choose this medium is higher as there are different content videos available on the same medium like OTT.

OTT users in Ahmednagar city have a higher number of video viewers who selecting video for watching **on the bases of subject** and **content**. And also 53% users are **watching the trailer** and choose the video. Also 37% of user chooses videos as suggested by friends and 35% of users choose videos after watching artist.

This shows that, the videos available on OTT through various topics around the world. So the number of video viewers on OTT medium is high

2. **Observations and Conclusion:**

1. Ahmednagar City has the highest number of OTT users between the ages of 21 and 25. The number of OTT user's decreasing with age.
2. OTT users in Ahmednagar city seem to be using mobile as a medium for entertainment
3. OTT users in Ahmednagar prefer **Hotstar** and **Amazon Prime**.
4. OTT users in Ahmednagar city prefer to watch national subject’s videos on OTT medium.
5. Ahmednagar city has the highest number of viewers of movies and web series on OTT medium.
6. OTT users in Ahmednagar city watch Hindi language videos on OTT medium.
7. OTT users in Ahmednagar said that they have chosen OTT medium as they can watch videos of different content anywhere and anytime.

8. The use of OTT during the Corona pandemic period provided new information and helped to clear the mind from the frightening atmosphere, said an OTT user from Ahmednagar.
9. When the researcher asked OTT users about the benefits of using OTT in the Corona pandemic period, the users said that, they got new information, helped to distract from the scary environment and was entertained with it.

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CHAPTER-13

ROLE OF TOURISM INDUSTRY IN INDIAN ECONOMY: AN OVERVIEW

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Abstract

The role of tourism and travel industry is the biggest and most diverse industry in the universe. The impact of tourism on increasing employment and foreign exchange earnings, the boom in domestic industries, the expansion of international cooperation has changed the attitudes of countries around the world and played an important role in the policymaking of Governments. So the purpose of this research paper is to investigate the Impact of Foreign Tourism Receipts growth on the growth rate economic in Indian economy during the period of 2000-2019. In this study we are using the Ordinary Least Squares method. The results show that there is a positive relationship between economic growth rate and growth of foreign tourism revenue growth but this relationship is very weak its mean that the impact of the growth of foreign tourism receipt on economic growth is less; We can also say that there is no strong relationship between these two variables. It outpaced all over economic growth for the 8th sequential year also tourism and travel industry was the second-speediest growing industry in 2018, only marginally after Manufacturing, that grew by 4.0%. Development of sector of tourism can be of great importance for less developed countries facing with problems like high unemployment rates, foreign exchange resource constraints, and a single product economy.

Keywords: *Economic Growth, Foreign Tourism Receipts growth, Tourism Industry, OLS Method, Indian Economy.*

INTRODUCTION:

The role of the industry of tourism economically is a relatively new terminology in international trade. At the present time, tourism in every country is considered one of the most important sources of outside currency earnings. This industry as an economic, social and cultural activity has become very important for the development of countries. Tourism is a phenomenon that, if properly planned, can lead to improved production, improvement in living standards, and welfare of public and employment of many factors such as labor, capital, and land. At present, tourism sector is the world's largest service sector in terms of revenue-making, so that its growth will bring about great social and also economic changes.

Attention to tourism in many countries has grown with the drive to achieve its economic interests. According to data released from the UNWTO (United Nations World Tourism Organization), total international tourism received (the world generated) in 1950 was $ 2.1 billion while in 2018 the world generated 1,643.2 billion dollars in visitor exports . In 2019, this is envisaged to attract 1,485 bn ITA (international tourist arrivals), an increase of 4.0%. By 2029, global tourist arrivals are predicted to total 2.196 billion producing expenditure of 2,483.9 billion dollars, an increase of 3.8% (World Travel & Tourism Council report, 2019). Travel & Tourism industry contributed 8.8 trillion dollars in global economy at 2018. This equivalent to 10.4% of universal GDP, and this segment rises up by 3.9% in 2018; quicker than the universal economy's growth rate of 3.2 percent.

It outpaced all over economic growth for the 8th sequential year also tourism and travel industry was the second-speediest growing industry in 2018, only marginally after Manufacturing, that grew by 4.0%. Development of sector of tourism can be of great importance for less developed countries facing with problems like high unemployment rates, foreign exchange resource constraints, and a single product economy .In terms of the job creation power of this industry, it can be pointed that out of every 6 tourists entering the country creates a job opportunity for one person, so that both the unskilled workers and the skilled workers can they are working in this industry, so that the tourism industry generated 122.891 million jobs directly in 2018 it means that 3.8% of overall employment and this is predicted to increase by 2.2% in 2019 to 125.595 million means that 3.9% of total employment .

This comprises employment through travel agents, hotels also airlines other passenger transport services excepting commuter services. It as well as includes, i.e., the restaurant activities as well as industries of leisure directly supported by tourists. It is worth mentioning that around the world, around 319 million people's jobs are supported by travel and tourism. Its shows that 10.0% of all employees or in every 10 jobs one job are belong to this industry worldwide. In the last 5 years, one out of every 5 new jobs created in the world has been by the tourism industry. World Travel & Tourism Council (WTTC) According to forecasts over the next decade, another 100 million new jobs will be created by the tourism industry. That is, in the next ten years, one out of every four new jobs has been created by the industry.

India has many historical and natural tourist attractions and is one of the tourist hubs of the world. This country is fascinating to many tourists with its rich history and its special culture. On the other hand, historical attractions such as multi-thousand-year-old buildings, museums, and old-fashioned villages have made India one of the most popular places in the world. Currently, India ranks eighth out of 184 countries in terms of tourism share in GDP with 247bn.

There are 20 countries in the world whose GDP growth in tourism has exceeded the global growth rate of 3.9, and India ranks fifth among these twenty countries. These five countries are at the top of the table are: Turkey, the Philippines, Hong Kong, China, and India and the growth of their tourism sector is as follows: 15, 8.9, 7.5, 7.3 and 6.7. This high growth in the tourism industry will continue for the next ten years, especially in Asia where India's Tourism & Travel share to GDP will greater than double, that is enabling India to rise up from the 8th position of 2018 to 3rd place in 2029. According to forecast of World Travel & Tourism Council (WTTC) India will have the 3rd fastest growing from 2019-2029 in the field of the contribution of Travel & Tourism to GDP (6.8 %), also India will be the 3rd greatest country in the field of total share (absolutely) of this sector to GDP in 2029 with 511.9bn dollars.

According to the share of countries in global tourism growth last year, the three countries had the highest share, these three countries are; China with 25%, USA provided around 12% and India with 6% in the 3rd rank contributed to the sector's growth in 2018.The tourism industry in India accounted for 8% of the whole employment opportunities made in 2017, created job opportunities for about 41.6 million populations in the same year. The number is envisaged to ascent by 2% annum to 53.3 million jobs by 2030.

SCOPE AND METHODOLOGY

This study used to analyze the association between the tourism and travel industry and GDP in India from Fiscal Year 2000-2001 to Fiscal Year 2019-20. All data are secondary data gathered from the Ministry of Tourism official website. We used figures and tables to explain the trends between variables. Besides, we used the Least Square Method (OLS) to see the impact of the autonomous variable "tourism receipt" on the subordinate variable "GDP growth"

LITERATURE REVIEW

The researcher used correlation and regression to constitute the relevance also the impression of the tourism sector towards gross domestic product and has set up a positive effect. As a result of this study, researchers have found that tourism's share of employment in India has increased over the years, from 10.17% in 2009-2010 to 36.12% in 2012-13 and its share in GDP the country has grown, it also increased from 6.77% in 2009-2010 to 6.88% in 2012-2013. After analyzing data collected from various sources, the tourism industry is expected to show healthy growth in the coming years. As a labor-intensive industry, it also provides job opportunities for skilled and unskilled workers. This infrastructure development boosts the economy that generates foreign exchange earnings, boosts revenue and encourages pay scales. In this study, the author concludes by using the Visitor Spending Method that the Indian government is also interested in tourism development and links almost all well-known tourism spots by road, rail, and national airline, which contributes to the country's foreign exchange earnings. Through tourism from 2000 to 2014 more than seven times increase. It proves that economic, political and social impacts on the arrival and revenues of the tourism industry in countries have a positive impact.

DATA ANALYZE AND FINDINGS

Stationarity test:

Based on the econometric literature to estimate the model, the stationary test of the variables must first be performed. If non-stationary variables are used in the model estimation, despite the absence of any relationship between the variables, the obtained coefficient of determination is high. As a result, misconceptions can be made (facing spurious regressions. For stationary tests such as Dickey-Fuller tests are used. In the case of non-Stationary variables with the difference method, most variables can be converted to Stationary.

Analysis of the OLS model results:

The results of the OLS (ordinary least square method) model estimation presenting that the relationship among GDP growth and tourism is positive. In other words, with the growth rate of foreign tourism revenue growth, the country's economic growth will increase. Conversely, economic growth slows as foreign tourism revenue growth declines. The regression equation of GDP and foreign tourism revenue growth is (GDP = 0.06144 + 0.19316*FTRS). This indicates a positive relationship between GDP and foreign tourism revenue growth. The foreign tourism revenue (FTR) growth coefficient is 0.19316, which indicates that when you change one percent FTRs growth it causes a 0.19316 percent change in GDP, in other words whenever the 100 percent change in foreign tourism revenue growth causes a 19 percent change in GDP in a positive direction. The R-squared is 0.127113, which represents the total impact of the tourism growth variable on the GDP growth variable. That's mean12.7 Changes in GDP growth are due to tourism growth. The intercept is 0.061441 which represents our GDP growth without foreign tourism revenue (FTR) which means if we exclude our independent (FTR) variable our GDP growth will be 6.14.

BASE OF THEORETICAL FOUNDATIONS OF RESEARCH

❖ Based on the Export-Led Growth Hypothesis (ELGH**),** the industry of tourism and travel can also be considered as a kind of export whose only difference with the export of goods and services is that the consumer consumes it in the hostess country. Next hypothesis, known in the economics literature as the Tourism-Led Growth Hypothesis (TLGH), and a particular case of export-led growth, has been the basis of many economic studies worldwide and has been proven in most cases. This theory argues that a country's economic growth is not only a function of labor, capital, exports, and another factors contributing to its economy but may also be affected by the number of tourists which entering in the country. In reality, tourism impacts the economics' growth of countries in several ways. Accordingly, United Nations World Tourism Organization (UNWTO) proposes five major axes for measuring the economic impact of the tourism:

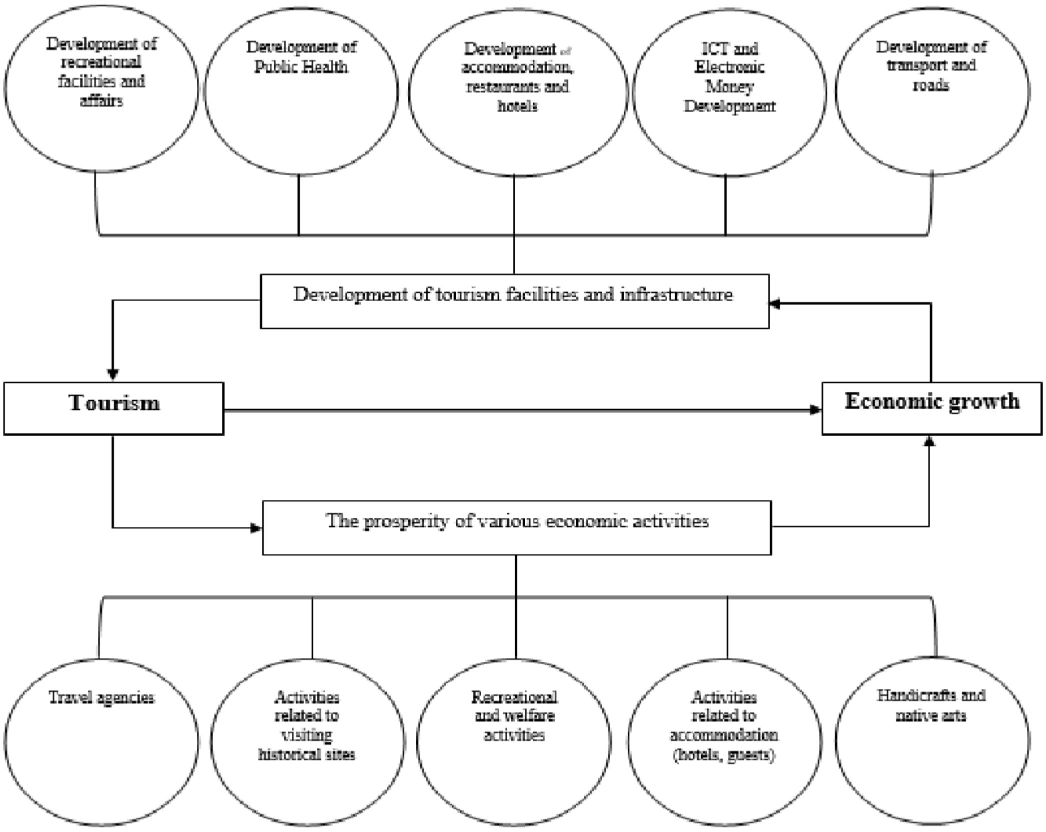
- **Increment in GDP:** The revenue of tourism helps to boost Gross domestic product.
- **Currency inflow:** This involves calculating gross foreign exchange earnings. The total foreign currency spent by tourists is calculated after deducting the coefficient of exit from the country that spent on imports of goods & services used in tourism.
- **Employment:** Local employment generated by tourism calculated by its type and there are four forms:
- ***Direct employment:*** people working in tourism which relatedto institutions i.e. hotels, restaurants, tourist shops and travel agencies.
- ***Implicit employment:*** jobs generated in the supply sector, for example fisheries and related industries.
- ***Induction Employment:*** These jobs are obtained by spending income that the employees have earned directly or indirectly.
- ***Construction and building employment:*** jobs created in the construction of conveniences, and tourist infrastructure. This employment is usually temporary but may be very prolonged in places where there is continued tourist development.

Multiplier: This point to the impact that an external source of income has on the domestic economy. This measures the effect of the amount of tourist revenue penetration into the economy and the creation of other economic activities.

- **Helping to increase government revenues:** This includes hotel's taxes and other taxes on tourism, airport exit duties, customs duties related to tourism industry imports, corporate income tax on businesses and employees, and property tax. Therefore, tourism has both direct and indirect effects on economic growth, which will be briefly discussed below.

A. **Direct effect Because** tourism is a type of service industry, And the income from this sector is part of the host country's GDP and directly influences its economic growth .Tourism industry can be a viable solution for countries with high foreign exchange earnings and thus higher economic growth. For example, in 1998 international tourism accounted for about 8% of total world revenues and 37% of services sector exports. Also, according to official forecasts of the UNWTO, global tourism revenue will reach approximately $ 2 trillion per year by 2020 (UNWTO report).

Figure 1: Relationship between tourism and economic growth

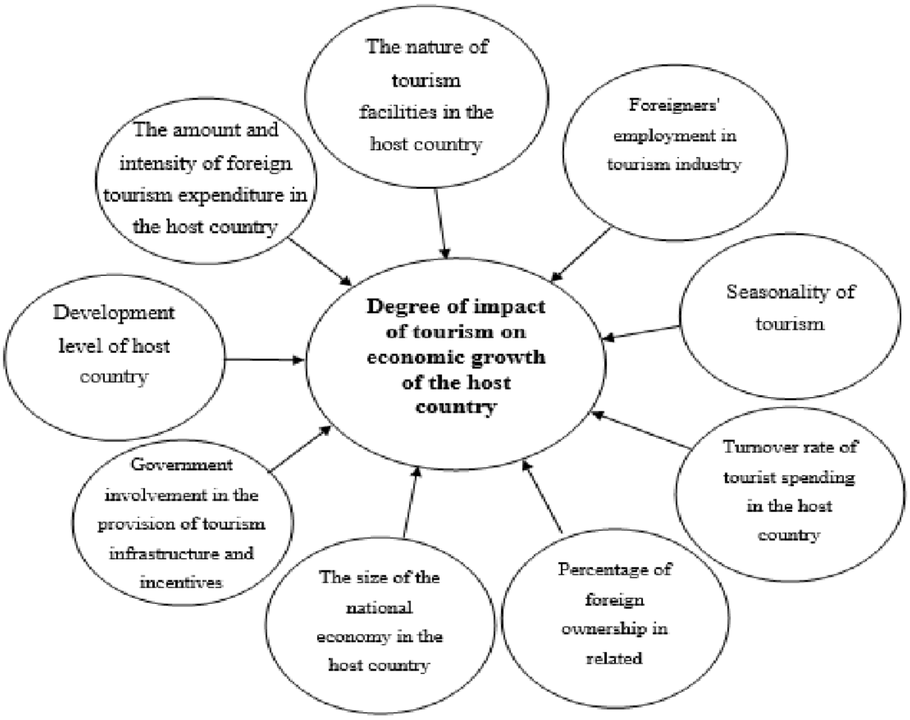


Indirect effect:

Tourism also has an indirect effect on growth because it reveals the complex effect on the economy as a whole, in the form of spillovers or other impacts on externalities (Marin 1992). It means that if, due to its high contact with other economic activities, tourism thrives, other economic activities that provide that business, commodity or service or consume the product and travel with it.

That is, tourism can be a driving force for economic growth and drive other activities as well. On the other hand, economic growth affects the production of tourism, too. Economic growth, with the expansion of tourism facilities and substructures, including the improvement of transport and highways, the betterment of information and communication technology (ICT), the advancement of electronic money, housing development, restaurants and hotels, the increasing of public health and recreational conveniences, develops the tourism industry (chart 1 & 2) .

Figure 2: Factors affecting the degree of impact of tourism on economic growth of the host country



The results of this study demonstrated that tourism is the greatest service industry in India, by $ 34.008 bn in GDP and 7.4% of total employment. India annually has seen rather than 5 million foreign tourist arrivals and some more 740 million domestic tourist visits in 2011. After analyzing all the facts, the researchers have found that the tourism industry is expanding day by day, providing great job opportunities and a huge increase in foreign exchange earnings that will greatly advance the economic development of society. Although it has its disadvantages, it can be eliminated by the joint efforts of the government, tourism agencies and of course local communities.

Effects of the tourism on India's GDP and the balance of payments

A study of the effect of the tourism on India's GDP and the balance of payments account in country concluded that increased tourist have led to the rapid growth of the tourism sector in this country. Growth in the tourism sector has led to job creation, foreign exchange earnings, infrastructure development, investment, economic and economic growth, an increase in GDP. This study emphasizes on an ongoing investigation of the economic effects of tourism, which is an importance factor in strengthening the national economy in the 1997-1997 period, and has become even more important as the results will provide valuable insights for all key tourism players responsible for Macedonia's economic development strategies, this research emphasizes the necessity for continuous analysis of tourism and its positive effects on high economic growth and GDP. Growth in the tourism sector has led to job creation, foreign exchange earnings, infrastructure expansion, investment, economic and economic growth, an increase in GDP, and so on. India has witnessed sustained and inclusive economic growth due to the widespread extension of the tourism sector in India.

The study finds that the India’s tourism industry is remarkable and energetic and that it is rapidly converting an important global goal. Also besides, the tourism industry is remarkably supported for the growth of horticulture, handicrafts, agriculture, construction and poultry. The researcher has collected secondary data and the variables are examined by correlation and regression analysis to examine the impact of tourism on GDP in the country.

Findings of the Study:

The findings of this article show that domestic tourism has only significant importance in GDP. In this study, the researchers found that the Indian government decided to increase its revenue from tourism by designing India as the "ultimate tourist spot". So the progressment of the tourism in India is there and will become very powerful in the next ten years.

This study peruses the connection between tourism and economic growth in India, keeping in mind the relative significance of financial development in the 2014–2014 periods. The outcomes of the new Bayer & Hanck hybrid test show that tourism, the growth rate of economic, and also economic expansion are intertwined. Incoming tourism has been shown to contribute to India's long-term and short-term economic growth. As well as, the analysis represents the long-term unilateral presence of Granger causation from tourism to economic growth.

In this study, they found that, apart from agriculture, tourism sector is the most popular origination of income and employment for the J&K government economy. In addition, data analysis shows that there is a positive effect of tourist entry on employment. With the increase in tourist arrivals, overall employment also increases. This research is an effort to explore the role and contribution of tourism-related agencies in the state of J&K. In this study, different models/techniques have been used to achieve the desired result, which is the conclusion from the evidence of one-way causality of tourism operations to the economic growth of the India.

This study’s focal point is the economic growth of tourism and its developmental effects on the microstate and explains the indications of tourism analysis and planning. Results also indicate that the export growth strategy led by the entire economy has a positive impact. The main consequence is that institutional interposition can only become an affirmative force in the context of a quick coalition with the world market. From a trade perspective, this paper argues from the literature reviewed that tourism in many developing countries generates more revenue than many other economic sectors considered to be export-oriented, without coming to the same trade constraints External leads. This paper concludes that the tourism sector must be sustainable to sustain its role in agent development.

The results of this study show that most developed economies consider tourism to be an essential industry for their growth, as it pertains on other sectors of production in the region and it’s cycling economic cycle. Eliminating the complexity of jobs at the macro and micro levels can help developing developers achieve a superior level of efficiency and ultimately quality. Tourism sector is often the main source of job creation and foreign exchange earnings for island countries and the dominant economic sector.

According to the ADF test outcomes show that all variables are Stationary at 99%, 90%, and 95% confidence level. It means that our null hypothesis is rejected and our H1 hypothesis is confirmed, its mean that Foreign Tourism Receipts (FTRs) is a Stationary variable.

CONCLUSION:

The tourism industry with its unique characteristics is considered a dynamic industry with a bright future. Investment in the tourism industry is on the rise in all countries of the world. Today, attracting foreign tourists has become increasingly competitive among the entities involved in the tourism industry, because the industry not only plays a role in advancing the national economy and foreign exchange revenue; it is also an industry clean and pollution-free while creating new jobs. Today, it is seen that industrialized nations are using all their energy to attract tourists, reflecting the industry's position in the economy, the income from tourism is sustainable and at the same time it can be exploited in the short term, and the job creation opportunity is also high in this industry and its human resources do not need long-term training.

In this study, the relationship between economic growth and tourism industry was investigated using the OLS (ordinary least square method) approach and using time series data over the period 2000–2018. In this regard, after examining the variables and determining the existence of a positive relationship between the variables, the OLS model and its regression equation are estimated. The results represent a positive relation between economic growth and tourism but this relationship is very weak it is mean that the effects of the growth of foreign tourism receipts on growth rate are less; we can also say there is no strong relationship among these two variables.

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CHAPTER-14

PERSPECTIVES OF CONSTRUCTIVISM IN EDUCATION

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Abstract

At present our educational system is going through a very great crisis. Students are only after marks; this is a new 'Marxism' in the field of education. Parents also want marks only. Our present educational system is only focusing on the receiving of information but we don't give very much importance on information processing and its application. Dear students here I would like to tell you one very important sentence of George Bernard Shaw which he had said about his school, "I wanted to learn something but they went on teaching". Every teacher must ponder over this sentence before feeding their students with a bulk of information. We have to educate our students in this way so that our instructional strategies should be able to create 'wisdom' among them.

Constructivism is an approach in which students get more freedom of learning. Learning is a joyful journey for the students in the constructivism; nothing is imposed on the students. Choice of learning is for students. Constructivism is a best example in which the capabilities of the students are given justices. Learning cannot be restricted by rigid patterns; rather it is a natural way of learning.

Keywords: *Constructivism, Facilitator, Mentor*

Introduction-

Learning is a natural phenomenon as the growth of a plant, plants also take the required nutrients from nature, and change the direction in a natural way if there are any obstacles in the way of sunlight. Gardner only takes care of the plant, he protects it from the animals, rain, etc., and the same is the role of a teacher in the education of children. We should always remember the first rule of education is 'nothing can be taught. ' At last, we can say that learning should be free from all the bondages. Opportunities of learning through activities, self-discovery, and projects should be provided to the student. Here the role of a teacher will change i.e., will be mentor, facilitator, guide & counsellor.

When the candle is burning a kid is fascinated toward the flame of a candle, the child wants to touch it but parents restrict it by saying that it is ha.. ha.. (hot). Curiosity of children is high, slowly & secretly he touches the flame at last. Then automatically by experience the child understands it is ha.. ha.. . Next time when the candle burns the child sees the flame and himself says ha.. ha.. now it is not necessary for the parents to say ha.. ha...! This is a general experience in our life, how children construct knowledge.

Sometimes parents also create wrong conceptions in the minds of children e.g., don't go in darkness, ghost is there, or sleep quickly otherwise *BAGULBUA /RAKSHAS* will come, such things create misconception in the minds of children. Then it takes a long time to construct true knowledge.

Theory of Constructivism -

The term constructivism most probably is derived from Piaget's reference to his views as "constructivist" (Gruber & Voneche, 1977), as well as from Bruner's description of discovery learning as "constructivist" (1966). Other terms are also used to refer to constructivist views of learning, including: generative learning (Wittrock, 1985; situated learning and authentic instruction (Brown, Collins, & Duguid, 1989), postmodern curricula (Hlynka, 1991); and educational semiotic (Cunningham, 1992). Even though constructivists cannot be adequately represented by a single voice or an entirely universal point of view, there is a conception of learner and learning that is unmistakable in its central tenets and in its divergence from an objectivist tradition of learning theory based on either behaviourism (associationistic models of learning) or cognitivism (the cognitive science of information processing representations of learning).

Definition of Constructivism-

Constructivism is based on observation and scientific study about how people learn. People construct their own understanding and knowledge through experiencing and reflecting on those experiences. When we encounter something new, we have to reconcile it with previous knowledge and ideas.

"Constructivism is both a philosophy and a theory of learning. The key concept of constructivism is that learning is an active process of creating, rather than acquiring, knowledge."

Constructivism believes that knowledge is truly personalized. Teachers should give ample opportunities to the students to learn in their own way. According to constructivism learners construct relevant knowledge themselves. Clarity of the concepts, previous experiences plays a vital role in the development of knowledge.

In constructivism students are actively engaged in constructing knowledge. There should be good interaction between the earlier (previous) knowledge and the new knowledge. Innovative, constructivist instructional strategies are a must in the process. Students should be given freedom of learning.

In the process of developing knowledge wrong knowledge also can be developed, e.g. a teacher was teaching the causes of growing population in the class. Advancements in the field of medicine are also one of the important factors which has increased the life span of human beings, so one student has wrongly created a negative attitude about the medical advancements. Teachers should check if any wrong conceptions are developed in the minds of children.

Throughout life we take various experiences and according to that our response to stimuli also changes. Teachers must clarify and bring into the notice of children about various dimensions of the knowledge. Here is one example that how a teacher used constructivist approach for teaching a lesson to his students.

Nothing is Useless in the World

This is an ancient story. Hundreds of students were acquiring knowledge in an ashram of a sage. When their education was completed, they had to give something to the guru to show respect to him during the convocation ceremony. So, the students asked their master. "Master, you have given us so much knowledge. We want to give you something as a token but you are self-denying. Please tell us what to give you"

"Pupil, please bring me such a thing which is not useful to anybody at all in this world" said by sage.

The pupil set out to find such a thing. Money…. Clothes…. Pot…. grains… nothing out of this was useless to others. As, all these things were very useful for every individual. One student saw some dry leaves under a tree. He said "these leaves are of no use. Let's give them to the master."

Just then, a farmer came there. He said "why are you taking these leaves? .I use them as compost. They are useful for my farm".

So, the students went on. They saw some dried sticks. They tied them all together. Just when they were about to take it, some women came there. They said," why are you taking these woods? They are useful as fuel. We cook on it".

They again went ahead. One of them said "Let's carry some soil." "Friend soil is the most important thing. Plant comes out of the soil," said one of the students. So, they cancelled this idea and went ahead with their search. They came to a small brook. They saw a large feather of bird drifting. One of them says "Let's give this feather. It is useless.' When they came near the feather, they saw that some ants were sitting on it. They said, "Our ant-hill was broken. We have to go across. So, we sat on this feather. This is useful for us."

Thus, students came to know that nothing in this world is useless. They came back disappointed.

The Master said "You have got the knowledge that nothing is useless in this world and thereby I have received my Gurudakshina!" Be useful to the world!"

History of ´Constructivism' -

Constructivism has a very great history. In India also many great philosophers have developed a foundation for Constructivism. Mahatma Gandhi in his educational philosophy said that education should be action oriented. He has given the great mantra of Basic Education' in which education was linked with one or the other handicraft. Students learn through various activities and education should be self-supporting, it was the view of Gandhi.

Rabindranath Tagore also gave importance to self- discipline. According to Tagore students learn effectively in the company of nature.

'Learning by Doing' is a very great slogan given by John Dewey. The knowledge that we construct/develop by our own efforts is more worthy than the spoon feeding of the teacher.

Confucius has introduced the 'question answer 'method in learning the roots of constructivism also lies in it.

The real contribution in constructivism is by the following philosophers.

Plato also said in his philosophy that education should reveal the hidden potentials in the individual. Teacher is an organizer of various activities for that.

Jean Piaget (1896-1980) –Piaget through his study concluded that when we come across new information/ knowledge at that time a type of conflict or interaction between earlier knowledge and new knowledge takes place. It creates an imbalance, e.g., earlier mother introduces dog to her kid later on when he sees cow mother said this is a cow then the construction of knowledge begins. A kid tries to find out within a group and among group similarities and differences.

Adaptation of new situations is a focal point in the philosophy of Jean Piaget. The roots of constructivism we can find in the philosophy of Piaget.

Piaget has put forward for stages of human development

- The sensorimotor stage
- The preoperational stage
- The concrete operational stage
- The formal operational stage

According to Piaget adaptation and organization are very important aspects in the development of intellect. Adaptation is a process of assimilation and accommodation, in which events are assimilated into existing knowledge, but unwanted facts & events, which don't fit in present knowledge, are accommodated into the brain.

Lev Vygotsky (1896–1934) – The Russian psychologist Lev Vygotsky has established a theory in which he says that social interactions, communication with elders, and peer group helps the learner to internalize. At the initial stages this process begins with mere imitation but later on in adulthood thinking takes the place of imitation.

By experiments Vygotsky proved that a child learns or acquires knowledge quickly when he is placed in a group of competent persons. When a learner learns individually some low progress has been observed by him. Moreover, he adds that teachers should create a good learning atmosphere in the classroom. Reflective thinking (Thinking about the thinking process when a certain activity has been completed by a learner) should be promoted. According to Vygotsky, guided instructions are helpful for learning.

John Dewey (1859–1952) **- "**Education is not preparation for life; education is life itself". He is also the exponent of the philosophy 'Learning by doing'.

Active involvement in constructing knowledge and ideas is very important according to Dewey. Learners should draw out experiences that have meaning and importance to them. Dewey was of the view that human learning is a practical problem solving. Many opportunities are there for constructing knowledge e.g., in social interactions, classroom interactions.

Nature of Constructivism -

The word constructivism originated from the Latin word CON STRUERE meaning of this word is (to arrange) or (to give structure).

- Constructivism strongly reveals that learning is a lifelong process.
- According to our enriched experiences our brain interacts with new experiences, events, problems and these interactions create new knowledge.
- Constructivism is not only restricted with the school education but out of the four walls of schooling there is great scope of learning and applying the constructed knowledge.
- Every individual learner is considered a separate unit of learning.
- In the school teachers can form a group of learners having the same learning styles.
- Activity based teaching, projects, brainstorming, field visits, case studies, experiments, group work; cooperative learning is the strategies with which constructivism can be implemented in the classroom.
- Learning speed of every child is different so the Constructivist approach gives justice to all types of learners.

Construction of knowledge is a continuous process, because human beings are constantly learning some or the other things. He is in search of true knowledge; so he has to evaluate the difference between fake knowledge, wrong perceptions and modify it according to worldly accepted facts. In the process of constructivism, although 'children construct their knowledge' the teacher plays a very important role.

There are two important worlds in the construction of knowledge.

↑↓

There is constant interaction between these worlds. On the basis of these interactions' students

1) Invent
2) Discover
3) Research
4) Evaluate

e.g., In the story of Blind men and Elephant. Elephant is perceived by all the four men in different ways. For every person his knowledge is true but not absolutely true; it can be called individual perception.

Galileo & Copernicus have examined the real facts and established a new principle that the sun is static and the Earth revolves around it.

Constructivism does not agree that knowledge is objective and the ultimate truth, so teachers should be very careful while transmitting the knowledge because constructivism believes that knowledge is truly personalized.

Constructivism is a theory about learning rather than a description of teaching, some important strides toward defining the relationship between theory and practice have been made. The following pedagogical recommendations, while general in nature, have been derived from fundamental constructivist principles of learning (Confrey, 1990; Brooks & Brooks, 1993; Fosnot, 1996).

1) Learners should be encouraged to raise questions, generate hypotheses and test their validity.
2) Learners should be challenged by ideas and experiences that generate inner cognitive conflict or disequilibrium. Students' errors should be viewed positively as opportunities for learners and teachers to explore conceptual understanding.
3) Students should be given time to engage in reflection through journal writing, drawing, modelling and discussion. Learning occurs through reflective abstraction.
4) The learning environment should provide ample opportunities for dialogue and the classroom should be seen as a "community of discourse engaged in activity, reflection, and conversation" (Fosnot, 1989).
5) In a community of learners, it is the students themselves who must communicate their ideas to others, defend and justify them.
6) Students should work with big ideas, central organizing principles that have the power to generalize across experiences and disciplines.

In the constructivism

1) learners construct their own learning.
2) the dependence of new learning on students' existing understanding.
3) the critical role of social interaction

4) the necessity of authentic learning tasks for meaningful learning (Bruning, Royce, & Dennison, 1995; Pressley, Harris, & Marks, 1992).

For the learner to construct meaning, he must actively strive to make sense of new experiences and in so doing must relate it to what is already known or believed about a topic. Students develop knowledge through an active construction process, not through the passive reception of information (Brophy, 1992). In other words, learners must build their own understanding. How information is presented and how learners are supported in the process of constructing knowledge is of major significance. The pre-existing knowledge that learners bring to each learning task is emphasized too. Students' current understandings provide the immediate context for interpreting any new learning. Regardless of the nature or sophistication of a learner's existing schema, each person's existing knowledge structure will have a powerful influence on what is learned and whether and how conceptual change occurs.

Criticism -

Following criticism must understand which shows some limits of constructivism.

1) Teachers are not fully aware and expert in the use of constructivist instructional strategies.
2) Constructivist thinkers and educationalists have not clearly defined that use of various activities means constructivist approach.
3) Every individual is unique; his learning styles are different so it will take more time to select suitable instructional strategies for every learner in the school.
4) Training of how to use different constructivist strategies in the crowded classes; such training is not given to the teachers.
5) For all types of content, constructivist instructional strategies are not useful.
6) It takes too much time to implement constructivist strategies in the classroom.

Summary:

Students construct their knowledge is the core of constructivism. This learning theory in which the learner is actively engaged in the learning and constructing new knowledge. There is constant interaction between previous knowledge, experiences and new information. Constructed knowledge is purely personalized and teachers should clarify the misconceptions developed as expected in this process. Teacher, elder person, mentor, facilitator makes the constructivist process very easy. In the constructivism teacher has to change himself and use various instructional strategies with which students will get opportunity to develop knowledge. It is purely a student –centred process. Roles of the teacher have been greatly changed because of constructivism.

Many thinkers have contributed to the development of constructivism. Group work, cooperative learning, projects, case studies, individualized learning such strategies can be used for constructivist teaching-learning process. Teachers must be flexible, student-friendly and a facilitator cum motivator for the students.

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CHAPTER-15

ROLE OF SOFT SKILLS IN NATIONAL SERVICE SCHEME IN HIGHER EDUCATION

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Abstract

The overall aim of National Service Scheme (NSS) is to give an extensional dimension to the higher education system and orient the student youth to community services while they are studying in educational institutions. The reason for the formulation of this objective is the general realization that the college level students have a tendency to get alienated from the village and masses which constitute the majority of the population of the country. The educated youth who are expected to take the reins of administration in future are found to be unaware of the problems of the village community and in certain cases are different towards their needs and problems. Therefore, it is necessary to arouse the social conscience of the students and to provide them an opportunity to work with the people in the villages and slums. It is felt that their interaction with the common villagers and slum dwellers will expose them to the realities of life and bring about a change in their social perception. To perform these social services among the people for social upliftment, NSS volunteers needs effective communication Skills and soft skills for establishing good rapport with the community. Author in this chapter wants to bring readers notice how does soft skills play a vital role in interacting and conversing with the various stakeholders and villagers at the various levels of community?

Keywords: *National Service Scheme (NSS), Soft Skills.*

1. Introduction

In order to deal with the demands and demands and challenges of everyday life and to handle problems and questions that are faced in day-to-day life one needs to possess certain skills which can be termed as life skills. It is a term often associated with a person’s emotional intelligence quotient (EQ), which is the cluster of personality traits that characterize one’s relationships with other people. These skills can include social graces, communication abilities, language skills, personal habits, cognitive or emotional empathy, and leadership traits. In a broader sense any skill that is useful in life and the skill one needs to make the most out of life are the life skill these skills are not always taught directly but often learned indirectly through experience and practice. From the simple act like tying the shoe laces to swimming and driving a car are some of the examples of life skills. Life skills are usually associated with managing and living a better quality of life. They help to accomplish the ambitions and live to the full potential.

Other type is the skills that are gained through certification, the door through which one enters into profession, are hard skills.

1.2 The Concept of Hard Skills and Soft Skills

Hard skills are technical abilities which are essential to perform a particular job and are vital to get employment. Technical skills mean possessing technical knowledge in the subject (s) in which degree is awarded to the requisite level, it can be termed as **Core Knowledge** for employability. These are the technical competencies that can be gauzed by systematic analysis and assessment and are to be toned up periodically.

Hard skills are tangible skills that are easy to teach, identify, and measure, some examples of hard skills are occupational skills such as technical and administrative; these skills include degrees, certifications and job titles.

Soft skills are intangible interpersonal skills that are associated with an individual's ability to effectively interact with others. These skills are not easy to measure but they can be observed in individuals who possess the ability to interact with people well. What is essential is blend of both soft and hard skills for professional survival and success.

While hard skills are the abilities required to do the job with specific knowledge gained by formal education, soft skills are the qualities required executing these hard skills in a smoother manner. Along with intelligence quotient emotional quotient-an-indicator of one's value systems, inter personal skills and sensitivity -is also equally important.

Deference between Hard Skills and Soft Skills

Hard Skills	Soft Skills
• Hard skills are those learnt in school or with help of books to gain knowledge.	• Soft skills are those that are practiced to avoid friction with others in the society. These are imbibed as you grow and start working.
• Hard skills help to get a job.	• Soft skills are not job-specific and help almost everywhere.
• These help employers to evaluate the eligibility for the job, the position being offered.	• These help to adjust to the working environment and to survive in the job.

1.3 Hard Skills -Soft skills: Which is More Important?

It depends highly on the career one chooses.

Careers can be put into 3 categories.

It is upto anyone to figure out in which category their career is.

1. **Careers that Need Hard Skills and Little Soft Skills**
   Those working as researchers and scientists need not interact with others to a great extent. They mostly spend their time in research labs and they need to analyze the results and be competent in writing reports on the obtained results. They work in teams and need to co-operate with others, lead teams and plan their schedule of work over a period of time.
2. **Careers that Need both Hard and Soft Skills**
   Many careers are in this category (example: Corporate employees). Teachers need good listening, communicative and presentation skills; bank employees need good drafting and writing skills. They have to be persuasive when trying to persuade a local

company to bank with them with their negotiating skills and be able to analyze information to make decisions.

3. **Careers that Need Mostly Soft Skills and Little Hard Skills**
   Marketing personal like a car salesman doesn't really need to know that much about cars, just a little more than the consumer. His job is more dependent on his ability to read his customers, communicate his sales pitch, persuasion skills, and skills to close to deal. Here soft skills play a major role.

1.4 Uniqueness of Soft Skills

Although soft skills receive greater focus at the workplace, they are equally important for healthy relationships with family and friends. Daily life involves interaction with other people and the nature of these interactions is an important factor that determines a person's success and happiness at home as well as in the workplace. To get along with others, one needs the ability to recognize them as individuals and value their perspectives. Strong interpersonal skills imply the ability to interact with confidence, work as a team, assert without violating others' rights and manage conflicts effectively.

Soft skills allow using technical skills and knowledge effectively and efficiently, they improve the way of interacting with bosses, co-workers and customers in order to get the work done on time. Every occupation demands specific characteristic traits like a doctor needs to be an excellent communicator in order to convey information to the patients, a janitor needs to have good interpersonal skills to get along with the co-workers or an actor must be persistent in spite of facing rejection over and over.

1.5 Need for Teaching Soft Skills

Previously there did not arise the need of teaching soft skills, these were acquired by observing following the elders at home, at school and in the society.

- **Home:** Joint family system or mother staying at home provided ample opportunities for kids to develop life skills. If a child yells or behaves in an undesirable manner, there would be someone to correct him and let him or her to realize their mistake. The body language of the kids is well checked and monitored by elders. If a girl sits (with her legs up of apart) the elders immediately used to correct her. Today as the joint families got disintegrated into nuclear families and with both the parents working no one to look after the kids, they are left unattended.
- **School:** School is another place to instill soft skill. Teachers monitor the behaviour and do have the right to correct the students by imposing some punishments. Students used to learn from teachers and peers and improve their interpersonal skills. Presently schools are accounting for the academic achievement and not bothered about the other aspects of the all-round development. Even parents object their interference and ask them not to impose any rules and regulations on their kids as they love and care the kids to a very great extent.
- **Society:** Every elderly person in the society is used to correct children and there would not be any objection from the family members when their kids are corrected. But today nobody is bothered about others and everyone is in their own shell. If any elderly person tries to correct, he / she will be ridiculed rather than respected.
- Under these conditions it has become a necessity to include soft skills as a part of the curriculum and skill development needs to be taught rather than acquired. So, the natural

acquisition of the skills has attained the status of a subject that has to be taught in the schools.

Our education system must focus equally on knowledge and skills. This will induce a shift from ‘telling what I know’ to ‘showing what in can do.’ The idea is to ‘demonstrate learning’ rather than ‘vocalize knowledge.’

1.6 Types of Soft Skills

Soft skills can be broadly categorized as intrapersonal (self-management skills) and interpersonal skills.

1.6.1 Self-Management Skills

Self – Management Skills are those that are related to manage one’s personal habits and emotions and react to adverse situations. It needs a strong mental and emotional foundation to build an inner excellence. Attitude, decision making, goal setting, time management are the self-managed skills. You need strong will power to practice these skills. Other soft skills like team management, negotiation skill, conflict management are inter personal skills that need to be executed in the company of others.

- ***Strong Mindset:*** one needs to have a strong mental and emotional foundation to build an inner excellence. It can be cultivated by focusing attention to improve one rather than trying to change or blame others. I ‘m Ok, you are not
  You are Ok, I’m not
  I’m Ok, you are OK
  The first one is fault finding and egoist nature, second one is inferiority complex and under estimating attitude and the third one adjusting nature and equating oneself with others.
- ***Self -awareness:*** Self-awareness helps to identify the reasons that trigger the emotional feelings like anger, frustration, irritation etc; and observe objectively in difficult situations so as to drive oneself out of that situation in a smoother way.
- ***Emotion Regulation:*** It is the ability to manage especially negative emotions, so as to think clearly and objectively and act accordingly.
- ***Self-confidence:*** It is the belief on oneself and the ability to accomplish. “Those who believe in themselves have access to unlimited power” is the motto of self-confidence.
- ***Stress Management:*** It is the ability to reduce the stress level which in turn helps to face the challenges and increase the productivity. Stress management supports the physical and emotional health.
- ***Resilience:*** It is the ability to bounce back after a disappointment or set back, big or small, and continue to go ahead.
- ***Forgiveness:*** It is the ability to forgive and forget others wrong doing and move on without mental or emotional burden.
- ***Persistence and Perseverance:*** It is the ability to maintain the same energy and dedication to learn, to do, and to achieve in any career despite difficulties, failures, and oppositions.
- ***Patience:*** It is the ability to slow down or step back to think clearly to fulfill the goals in a seemingly rushed or crisis situation.

- ***Perceptiveness:*** It is the ability to perceive the unspoken cues and developing cognitive or emotional empathy of other people's situation and perspective. Often times, one will be too busy thinking about oneself and leave little room to watch others feelings.

1.6.2 Interpersonal Skills

Inter personal skills like team management, negotiation skill and conflict management skill help to build meaningful work relationships to influence others and motivate the course of actions.

- ***Communication Skills:*** It is the ability to listen to others and express one's ideas in spoken or written form. The information that has to be communicated need to be organized either in a logical or chronological way. Organizing skill is the ability to organize thoughts or things in a systematic way, so as to avoid confusion. It thoughts are organized properly, communication is clear and concrete and it saves time and helps in a quick processing.
- ***Teamwork Skills:*** It is the ability to work effectively with anyone with different skill sets, personalities, work styles, or motivation level to achieve a better team result. Adaptability and flexibility are the key factors for the best team work. Facilitating skills is the ability to coordinate and solicit well represented opinions and feedback from a team with diverse perspectives to reach a common, best solution. Team members need counseling at times. Mentoring/counseling is the ability to analyze any given situation by critical thinking and providing constructive wisdom, guidance, and feedback that can help others in their personal and career development. Team efficiency also depends on Management skills. This is the ability of managing any task or leading a meeting efficiently and effectively to reach productive results. The leadership ability of creating and motivating a high performing team with people of different skills is the key for successful team. Presentation skills is the ability of presenting any work, personal or team, to an audience to captivate their attention, engage their input, and motivate them to act in accordance to the desired outcome. All these are the integrated skills of team work.
- ***Interpersonal Relationship Skills:*** It is the ability of building trust, finding common ground, having emotional empathy, and ultimately building good relationships with people at work and in society.

  Maya Angelou said "I have learned people will forget what you said. People will forget what you did, but people will never forget how you make them feel."

  Soft skills are about how you make others feel. It is the inner strength and interpersonal effectiveness, as long as it is concern to working with people. These skills are valuable to the career and its growth. So, it's the soft skills, or the lack thereof, that cause most of the issues. They directly impact worker performance, product quality, customer care, finding talent, retaining talent, and sales growth in business.

  Everyone has their own role to play and the effectiveness depends on the execution of these soft skills. Acknowledge each and every one and do whatever that could be done. Make an effort to make others feel comfortable whatever may be their place and position

  Never ignore a person who loves and cares for you, because one day you may realize that you've lost the moon while counting the stars. _J. Johnson

7. Role of Soft Skills in Personality Development of NSS Volunteers

The NSS volunteer, who is a college student is the main beneficiary of the programme by way of development of his/her perception about the community, his/her skill to perform certain jobs, and develop quality of a leader organizer and an administrator and development of his/her personality as a whole. If he/she possesses soft skills he/she gets opportunities to see the community closely and thus gets an experience of human nature in relation to his/her environment. This is how the soft skills aims to make NSS volunteer youth better citizens through **"Development of their Personality through Community service"**

Soft skills Provides NSS volunteers the first-hand knowledge of living conditions of masses and thus, the process of mutual learning starts. Soft skills enable NSS volunteers to interact with community and its ground level problems. On the basis of Communication skills and soft skills NSS volunteers remain successful in solving these problems and they improve their living condition. On the other hand, NSS Volunteers also enrich their personality more and more to be helpful for the community and days to come in future.

1.8 Importance of Soft Skill Education in NSS

a) By healthy grooming of social and emotional skills, soft skills help the smooth transit among the NSS volunteers.
b) By developing social competence and problem-solving skills NSS Volunteers weigh pros and cons of any situation.
c) By differentiating between hearing and listening they ensure less misconceptions or miscommunications regarding certain issues at colleges and family
d) By introspection, soft skills promote the development of positive self-esteem and enhance intrapersonal skills like anger control, emotional balance among NSS Volunteers.
e) Soft skills provide the rationality and control over the unethical behavior among NSS Volunteers.

1.8 Conclusion

Generally, NSS Activities are divided in two major Groups. These are Regular NSS Activities and Special Camping Programmes. Under NSS Activities, various activities are conducted such as Swachha Bharat, Cleanliness, education, Health Environment, disaster management, rural development, water management, food safety awareness campaign and Majhi Vasundhara Abhiyan etc. if we take a review of all these above stated activities, we come to know that to involve with the villagers and stakeholders we have to establish good rapport with them. We have to take them into confidence and start social awareness programme with them. For establishing good rapport with the stakeholders of Community only thing is very important and that is the soft skills. Those NSS Volunteers remain successful who possess effective communication and soft skills with its smooth practice in community.

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CHAPTER-16

MEDICAL WRITING: AN EMERGING CAREER OPPORTUNITIES

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1. INTRODUCTION

The healthcare and medical field are upgrading with innovations day by day. There is an increasing number of clinical trials on the newly formulated drugs and new advanced proposals on the research of medical science. This new advancement in research developed more drugs and upgraded medical devices and instruments. So there is a need to convey this new knowledge to the audiences in a proper, lucid, and meticulous way. Recently, there is a huge demand for qualified medical writers for pharmaceutical companies, business process outsourcing companies (BPOs), consulting firms, healthcare industries, and publishing companies. The other areas like academic medical institutions, contract research organizations (CROs), scientific content and healthcare communication companies, and non-profit organizations also need professionals with expertise in writing scientific documents. Medical writing is a field of science that deals with the presentation of scientific documents in a well–structured and lucid manner to the target audiences. Medical writers may not be original scientists but they work with physicians and scientists at the time of data generation and help to present it in a well-structured manner. The demand for medical writers has raised in past few years because of more research studies and new findings in biomedical fields and the development of more advanced drugs and medical devices by the pharmaceutical companies. Many scientific documents need to be generated for submission to regulatory authorities for approval, with the addition of powerful platforms like the internet a lot of medical information is generated as web content for medical professionals and the general public. Medical professionals are intense to read the evidence available on the web data. The pharmaceutical industries have also standard medical writing as a distinct function, imperative in the drug discovery progression. The field of medical writing is a preferred global career opportunity for many life science and pharmaceutical graduates and postgraduates.

2. CATEGORIES OF MEDICAL WRITING

Following are the categories of medical writing

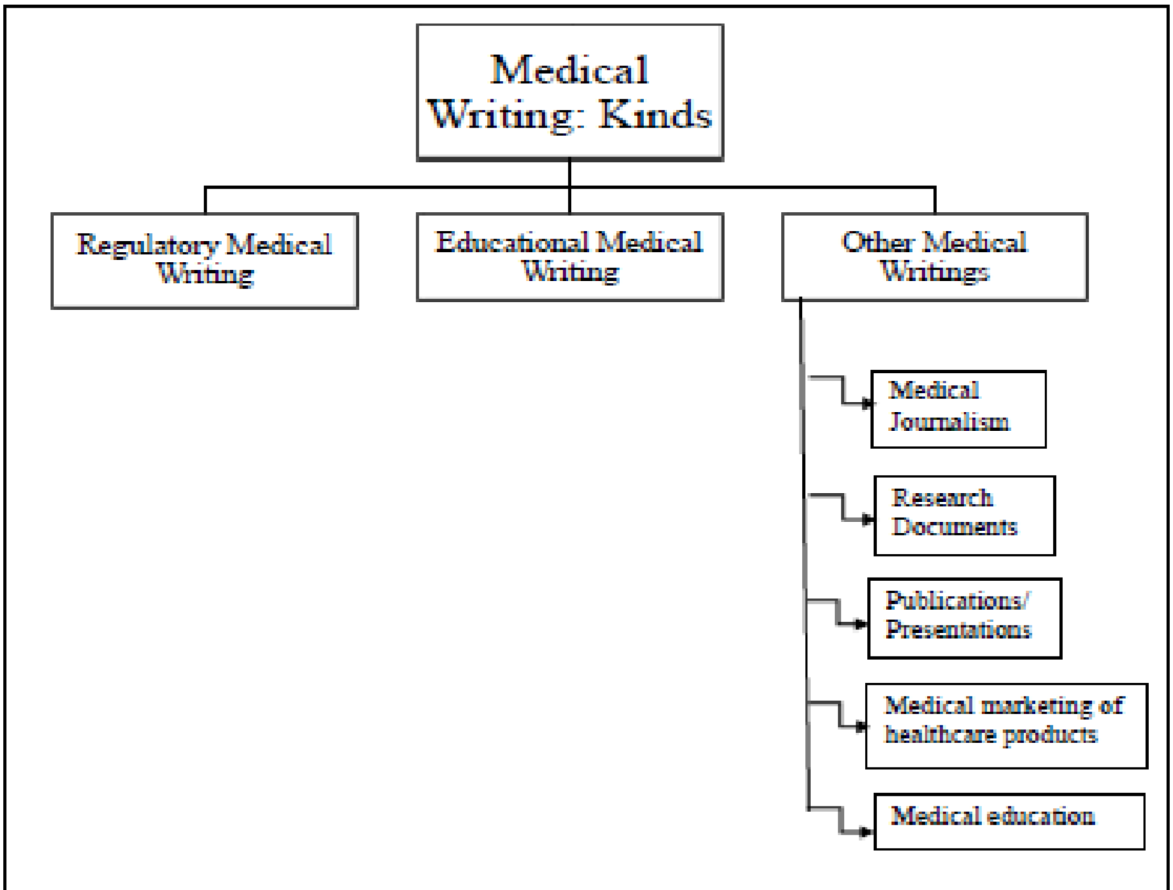

Figure 1. Basic Categories of Medical Writing.

2.1. Regulatory Medical Writing

This involves the creation of documents for the regulatory agencies which need approvals for new drugs and devices. There is strict formatting to be followed for the writing of documents. This type of writing includes guidelines, protocols, and clinical trial studies.

2.2. Educational Medical Writing

Educational medical writing consists of the writing of scientific documents that educate about drugs and devices for healthcare staff or laymen. This could include medical articles for scientific journals, write-ups for continuing medical education, and even sales literature.

2.3. Other types of Medical writings

a. **Medical Journalism**- Writing of articles in the newspapers and magazines mostly for the general public and laypeople. It needs to be written in simple and non-technical language.
b. **Research Documents-** It includes Clinical trial protocols, investigator's brochures, informed consent documents, research proposals, and study reports.
c. **Publication and Presentation-** It includes journal articles, manuscripts of case reports, review articles, abstracts, posters, presentations for scientific meetings and conferences.

d. **Medical marketing of healthcare products-** In this type of writing consists of internet content for medical practitioners and patients, promotional literature targeted at healthcare professionals, product monographs, brochures, hand-outs, Salesforce training manuals, e-learning modules, etc.
e. **Medical Education-** It involves textbooks, continued medical education (CME) program, slide decks for the physicians, and patient education materials for the patients.

3. BEGINNING AND PRESENT STATUS OF MEDICAL WRITING IN INDIA

When selecting medical writing as a full-time profession it is important to study the background and present status and progression of the field. In India, Medical writing was commenced in the early 1960s but on a smaller scale. The main purpose was to promote pharmaceutical products to general medical practitioners and doctors. In 1994 India signed the TRIPS (Trade-Related Aspects of Intellectual Property Rights) agreement and new patent law adopted in 2005 such a way medical writing began on a large scale after this. The great development and improvement in the medical writing field was reported since 2008. Till that time the clinical trial industries have been established in India. The other industries such as Clinical Research Organizations (CRO), Information Technology (IT), and Business Process Outsourcing (BPO) started looking at medical writing as an extension to their work. A natural extension of safety services is preparing aggregate safety reports known as periodic safety update reports (PSURs). Some of the knowledge processing organizations (KPOs) and BPOs started offering safety writing services like Periodic adverse drug experience reports, Canadian annual reports, IND reports, and annual safety reports for submission in various areas. This was followed by manufacturing, control reports, stability, and quality documents for approval and license of different products worldwide. Those companies were specialized in medical communication began offering documents of greater complexity by hiring Ph. Ds and medical professionals in greater numbers.

Medical writing has expanded significantly in India since it began as a commercial activity around 15 years ago. The number of medical writers engaged in different types of medical writing and employed across various types of organizations (IT/BPOs, KPOs, CROs, and communication companies) could be in the range of 1000–1500. As of July 2016, the Indian Medical Writers Association (IMWA), which is an academy of medical writers in India, mentions membership of over 1500 on its LinkedIn page (IMWA LinkedIn page, 2016). There are other similar, though smaller, professional bodies with listed members such as the All India Medical Writers Association. Many of these writers are pharmacy or life sciences graduates or postgraduates—some of them even with PhDs. A sizable number of graduates of alternative systems of medicine (homeopathy and Ayurveda) have taken up medical writing as a career and are doing well in the profession. Allopathic medicine graduates and postgraduates (MBBS or MDs) have entered the field mainly as medical reviewers or subject matter experts. Their role is primarily to review the documents prepared by the writing teams and provide clinical inputs and medical interpretation of data or prepare specific sections of documents that require greater medical insight, such as the benefit-risk analysis of a product. With the slowdown in the clinical trial industry in India in recent years, medical writing as a profession seems to have come into its own, and many life sciences graduates have taken up careers in medical writing. (Suhasini Sharma, 2017). It has been estimated that India handles 5–7% more regulatory writing than the USA in volume.

However, in terms of revenue, the figure is much smaller, and globally, a significant part of writing is still done from high-cost destinations such as the USA and Europe, with most being done in-house. In the field of promotional medical writing, only a small volume of work is done in low-cost regions such as India. The global market for medical writing was estimated to be around $1.3 billion in 2013 ((Beroe Inc, 2016). No hard data exist on the annual volume of the medical writing business delivered from India. However, compared to the global medical writing business, this figure could be small ($50 to $70 million), and there is tremendous scope for the growth of this business in India, provided we overcome the challenges we currently face (Suhasini Sharma, 2017).

4. NEED OF QUALIFICATIONS AND SKILLS FOR MEDICAL WRITTING

4.1.Academic qualification: A first degree in a life science with good command on English communication. Sometime may require advanced post graduate and Ph.D. degrees in the specific science subjects such as microbiology, physiology, anatomy, biochemistry, biotechnology and pharmacy. If the candidates having a basic knowledge and understanding about related fields human anatomy, physiology, diseases and their treatment they do not need the medical and science qualification.

4.2. Skills and Abilities: With the basic need of academic qualification the candidate should be retain following skills and abilities.

a. **Domain Knowledge:** Medical writer must have a knowledge about medical terminologies and writing the technical documents related to therapeutic area e.g. cardiology or neurology. Medical writer also involved in the preparation of clinical research and regulatory documentation like trial protocols, investigators brochures, and clinical study reports of different phases and guidelines about clinical research. Similarly, medical writers writing safety reports need to understand the drug's safety process and reporting prescribed by the various regulatory agencies.
b. **Statistical Knowledge:** Every medical writer should know the various statistical tools and techniques like intervals, regression analyses, randomization schemes, P values and t-tests for the presentation of clinical research in the form of statistical format. The results of clinical research must be communicated in a statistical manner that allows clinicians to assess it critically the quality and reliability that might improve the clinical practices.
c. **Knowledge of Technical guidelines:** The medical writer should know and be updated about the guidelines released time to time by the different regulatory authorities. USA, EU and Japan have evolved a set of common guidelines International Conference on harmonisation guidelines (ICH) regarding the drug development and registration. In addition, with this national regulatory authorities having their own specified requirements. Various guidelines are available related writing of clinical study reports (ICH E3), patient's information leaflets, clinical overviews, periodic safety reports (ICH E2C) and other documents required for submission before the regulatory authorities. The instructions, new guidelines emerge, old ones are revised, publication practices, guidelines for reporting clinical trials, the International Committee of Medical Journal Editors (ICMJE) guidelines for manuscripts are available on the websites. This knowledge must be with the medical writer.
d. **Language fluency:** The main job profile of a medical writer is to communicate scientific information. Along with the knowledge and understanding of the scientific aspects, the

writer needs to present the data in a clear and lucid manner at a level understanding to the target audience. The use of grammatically correct language, simple and short sentences, active voice, appropriate punctuation marks, and a logical flow of ideas can be making the information understandable to the readers.

e. **Reference searching skill:** In the public domain huge data of scientific information is available. In addition to this the reference books, medical journals and databases like Medline, PubMed, EMBASE and Micromedex are commonly used as the sources of medical information. The medical writer should have the skills to search the specific and desirable references from the huge source of data. Writer can do this with the correct search and select only the authentic sources, planning search strategy and use of correct keywords.

f. **Interpretation and presentation skill:** Medical writers must have enough knowledge of interpretation of research data and presentation of data in various forms like text, table graphs etc. Writer know the research topic and able to understand the research design and data so as to interpret and present it to the readers. If the data is presented in tables and graphic form it can be understand easily.

g. **Ethical and legal concerns:** The issues of concern to medical writers are giving honest and complete information including negative outcomes, following copyright laws, not indulging in plagiarism, following authorship criteria for research manuscripts and respecting journal assessment process.

5. GUIDING SOURCES FOR THE MEDICAL WRITER

Some major guiding sources for the medical writers are many local and national medical writer associations such as American Medical Writers Association (AMWA). It is an organisation for writers, editors and other communicators of medical information was founded more than70 years ago. AMWA has grown since 1940 and had more than 5000 members in the US, Canada, and 30 other countries. The European Medical Writers Association (EMWA) founded in 1989 has over 1000 members from different 39 countries including 12 countries outside Europe. The All India Medical Writer’s Association (AIMWA) is recently came in existence in 2007. It works toward supporting the medical writing service in India to meet international standard, providing a platform of acknowledgement for professionals in medical writing (Aishwarya Das,2019). Apart from this some other sources like LinkedIn groups, writing courses, short courses, workshops by professionals, In - housing training, Online networking groups, Blogs and advice etc. also useful to the medical writer for updating knowledge in the related field and trained well in the said field and work efficiently as a good medical writer.

6. PLACES FOR RECRUITMENT AS A MEDICAL WRITER

Medical writers work in the different work-place environments ranging from office-based to home-based positions, from being employed to working as an independent freelancer. Recently, with the availability of reliable internet access, some companies have adopted the strategy of allowing employees to work from home partially or permanently and the medical writing profession is in the forefront of this telecommuting trend. Medical writers can be recruited in following various suitable places as an employee.

1. Pharmaceutical companies, contract research organisations (CROs), and communications agencies, as well as in regulatory agencies and non-profit organisations recruit the

medical writers. If someone prefer to work for a CRO where you are likely to get to work on projects that cover a wider range of diseases and treatments. CROs provide services to pharmaceutical companies, ranging from conducting clinical trials to getting products registered with regulatory authorities. In general, medical writers in pharmacy companies and CROs are involved with preparing a range of documents for these regulatory submissions, including protocols and final reports for clinical trials, annual safety updates, and marketing authorisation application records.

2. Scientific content and healthcare communication companies.
3. Media, publishing companies and Medical journals, Academic medical institutions.
4. Medical and scientific societies.
5. Healthcare websites.
6. Self-employment- Many writers also work on a self-employed basis, which is an attractive option for some people. This will allow to develop the skills that need, and gain the necessary contacts and experience.

7. CHALLENGES AND SOLUTIONS OF MEDICAL WRITING IN INDIA

1. **Lack of technical writing skill:**

   In India most of the medium of science education is in English but still the writing skill is not efficient. We use long sentences without considering the grammar, sentence formation and punctuation. This make the sentence with ambiguous meaning and also the article becomes lengthy. We need to be conscious about two things mainly what we are writing and what manner we can present it. It is essential to emphasize on technical writing rather than the use of articulated English and adopt to write short sentences rather than amplifying it needlessly.

2. **Inadequate domain expertise:**

   Our writers are still new to the field of global medical writing and relatively inexperienced. The experience will, of course, come with more years of writing documents of increasing complexity across different domains. The nurture period for becoming an expert medical writer in any domain is long and requires conscious self-learning. This has to be accompanied at the organizational level by way of encouraging writers to attend internal and external training programs in specific domains.

3. **High attrition rate:**

   Medical writing is a growing discipline, and like many young industries, it is anxious with a high attrition rate of over 15%. The lure of a better job with a higher salary. The designation is very tempting, and a little hindrance with the current work setup or a feeling of stagnation can prompt youngsters to switch jobs. At an individual level, this may result in the loss of continuity in the development of functional expertise in the domain. At an organizational level, this results in the loss of trained resources which can have an impact on the quality of deliverables. Organizations must keep their attrition levels in check by creating an enabling workplace and a work culture that appreciates and rewards employees for their achievements, gives them opportunities to learn and grow in their field of interest, and by having compensation policies appropriate with industry norms.

4. **Quality issues:**
   There has been a consistent observation with global clients that although we may be good at assembly of documents, there are many "quality" issues when documents are authored in India.
   This is also one of the main obstacles in not getting more complex writing work done from India. Hence, in addition to improving our writing skills, we need better tools to monitor and improve the quality of our writing.
5. **The lack of standardized training programs:**
   Medical writing is a skill that can be developed if one has the basic qualifications and qualities to become a good technical writer. Unfortunately, there are no standardized training programmes in medical writing and institutes steadily delivering such programs in India. We can do a lot here by setting up certified, industry-led training programs with controlled curriculum, providing internship to potential writing aspirants in reputed companies; and actively collaborating with global organizations such as the EMWA or AMWA for regular skill enhancement and certification of our writers (Suhasini Sharma, 2017).

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CHAPTER-17

GLOBAL WARMING AND CLIMATE CHANGE

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What Is Climate Change?

Climatic change has happened constantly over the history of Earth, including the ice ages. Hotter temperatures over time are changing weather pattern and disrupting the usual balance of nature. This poses many risks to animal and all other forms of life on Earth.

Climate change is generally defined as a significant variation of average weather conditions—say, conditions becoming warmer, wetter, or drier—over several decades or more. It’s the longer-term trend that differentiates climate change from natural weather variability.

Climate change manifests itself in limitless ways and is experienced by every living being, although not equally. Throughout the world, the economically disadvantaged and people of colour—those who have contributed the very least to the root causes of climate change—are the most likely to suffer from its worst and bad impacts. Here are the basics on what causes climate change, how it’s affecting the planet and its people, and what we can do about it.

How Is Climate Change Measured Over Time?

Climate refers to the general weather conditions of a place as measured over many yearsEarth-orbiting satellites, remote meteorological stations, and ocean buoys are used to monitor present-day weather and climate, but its paleoclimatology data from natural sources like iceCores, tree rings, corals, and ocean and lake sediments that have enabled scientists to extend the earth’s climatic records back millions of years. These records provide a comprehensive look at the long-term changes in the earth’s atmosphere, oceans, land surfaces, and cryosphere (frozen water systems). Scientists then feed this data into sophisticated climate models that are able to predict future climate trends with impressive accuracy.

It’s worth noting that while climatechange and global warming are often used interchangeably, global warming—the recent rise in the global average temperature near the earth’s surface—is just one aspect of climate change.

What Causes Climate Change?

The mechanics of the earth’s climate system are simple. When energy from Sun is reflected off the earth planet and back into space (mostly by clouds and ice), or when the earth’s atmosphere releases energy, the earth cools. When the earth absorbs the sun’s energy, or when atmospheric gases prevent heat released by the earth from radiating into space is called the greenhouse effect, the planet warms. A variety of factors, both natural and human, can influence and increase the earth’s climate system.

Natural causes of climate change

The earth has gone through warming and cooling phases in the past, long before humans were around. Forces that can contribute to climate change include the sun's intensity, volcanic eruptions, fires and changes in naturally occurring greenhouse gas concentrations. But records indicate that today's climatic warming—particularly that which has occurred since the mid-20th century—is happening at a much faster rate than ever before, and it can't be explained by natural causes alone.

Anthropogenic causes of climate change

Humans—more specifically, the greenhouse gas (GHG) emissions that human activity generates—are the leading cause of the earth's rapidly changing climate today. Greenhouse gases play an important role in increase the planet warm enough to inhabit. But the amount of these gases in our atmosphere has skyrocketed in recent decades. According to the U.S. Environmental Protection Agency, our current concentrations of carbon dioxide, methane, and nitrous oxide "are unprecedented compared with the past 800,000 years." Indeed, the atmosphere's share of carbon dioxide—the planet's chief climate change contributor—has risen by 46% since preindustrial times.

A waterfront factory pumping out clouds of smoke

The burning of fossil fuels like coal, oil, and gas for electricity, heat, and transportation is the primary source of human-generated emissions. A second major source is deforestation, human civilization which releases sequestered (or stored) carbon into the air. It's estimated that logging, clear cutting, fires, and other forms of forest degradation release an average of 8.1 billion metric tons of carbon dioxide per year, accounting for more than 20% of all global CO_2 emissions. Other human activities that generate air pollution include fertilizer use (a primary source of nitrous oxide emissions), livestock production (cattle, buffalo, sheep, and goats are major methane emitters), and certain industrial processes that release fluorinated gases. Activities like agriculture and road construction can also change the reflectivity of the earth's surface, leading to local warming or cooling.

Though our planet's forests and oceans absorb greenhouse gases from the atmosphere through photosynthesis and other processes, these natural carbon sinks can't keep up with our rising emissions. The resulting buildup of greenhouse gases is causing alarmingly fast warming worldwide. It's estimated that the earth's average temperature rose by about 1 degree Fahrenheit during the 20th century. If that doesn't sound like much, consider this: When the last ice age ended and the northeastern United States was covered by more than 3,000 feet of ice, average temperatures were just 5 to 9 degrees cooler than they are now.

What's Happening?

High temperatures means that waves are likely to happen more often and last longer, too heat wave can be dangerous, causing diseases , illness such as heat cramps and heat stroke, or even death.

Temperatures are increasing: The most striking evidence of a climate change trend is closely scrutinized data that show a relatively rapid and widespread increase in temperature during the past few century. Average temperatures in the United States over the last century have increased by more than one degree Fahrenheit, and the Earth's atmosphere has warmed by 1.5 degrees Fahrenheit since 1900. The 10 warmest years on record have all occurred since 1998, with 2016 being the warmest year on record. The rising temperatures observed since 1978 are particularly noteworthy because the rate of increase is so high and because, during the same period, the energy reaching the Earth from the Sun had been measured precisely enough to conclude that Earth's warming was not due to changes in the Sun.

Sea levels are rising: Global sea level has raised by roughly eight inches over the past century, and the rate of increase is accelerating. Global warming change causes sea level rise in two ways: ocean water is expanding as it warms, and land-based ice in glaciers and ice sheets is melting. Sea level rise has been happening even faster than scientists anticipated a few years ago. If recent projections are accurate, 2 to 3 degrees Fahrenheit warming could bring about three feet of global sea level rise by 2100, displacing approximately 56 million people in 84 developing countries around the world. Coastal habitats also face major changes as low-lying areas are inundated with saltwater.

Sea ice is melting: Declining sea ice is one of the most visible example of climate change on our planet. Since 1979, Arctic sea ice extent in September (when the annual minimum is reached) has declined by more than 30 percent, according to the National Snow and Ice Data Center. The ice extent has been declining in other seasons too. Despite slightly larger ice extents in 2009, recent observations indicated the ice is thinner and much younger (less multi-year ice) than it used to be. Covering an average of 9.6 million square miles, these areas of ice floating on ocean waters play an important role in regulating our climate, by reflecting some sunlight back to space, and in the life cycles of many polar species, such as polar bears, seals, and walruses.

Precipitation patterns are changing: Some places are getting more rainfall and others are getting less. Nearly everywhere is experiencing more heavy rainfall events, as warmer air is able to hold more water vapour. Right here in the United States, we are already seeing some important trends in precipitation. The Southwest appears to be shifting to a more arid climate, in which Dust Bowl conditions will become the new norm. Annual precipitation totals in the Northeast, Midwest, and Plains have raised by 5 to 20% during the last 50 years. The south-eastern United States is having both more drought and more floods. Read more about how climate change is causing extreme weather.

Oceans are acidifying: The Ocean or sea water has absorbed a large fraction of the carbon dioxide that fossil fuel burning has pumped into the atmosphere, slowing the rate of climate change. But all this extra carbon dioxide is impacting the ocean, too. The pH of surface seawater has decline by 0.1 units since 1750 and is projected to drop another 0.5 units by 2100 if no action is taken to curb fossil fuel emissions. These changes would take tens of thousands of years to reverse.

Human Impact

Climate change is caused by humans. Scientists have concluded that most of the observed warming is very likely due to the burning of coal, oil, and gas. This conclusion is based on a detailed understanding of the atmospheric greenhouse effect and how human activities have been changing it. At the same time, other reasonable explanations, most notably changes in the sun, have been ruled out.

The atmospheric greenhouse effect naturally keeps our planet warm enough to be liveable. Sunlight passes through the atmosphere. Light-coloured surfaces, such as clouds or ice caps, radiate some heat back into space. But most of the incoming heat warms the planet's surface.

The earth then radiates some heat back into the atmosphere. Some of that heat is trapped by greenhouse gases in the atmosphere, including carbon dioxide.

Human activity—such as burning fossil fuels—causes more greenhouse gases to build up in the atmosphere. As the atmosphere "thickens" with more greenhouse gases, more heat is held in. Fossil fuels such as oil, coal and natural gas are high in carbon and, when burned, produce major amounts of carbon dioxide. A single gallon of gasoline, when burned, puts 19 pounds of carbon dioxide into the atmosphere.

The role of atmospheric carbon dioxide is increase in or warming the Earth's surface was first demonstrated by Swedish scientist Svante Arrhenius more than 100 years ago. Scientific data have since established that, for hundreds of thousands of years, changes in temperature have closely tracked with atmospheric carbon dioxide concentrations. Since the Industrial Revolution, the burning of coal, oil and natural gas has emitted roughly 500 billion tons of carbon dioxide, about half of which remains in the atmosphere. This carbon dioxide is the biggest factor responsible for recent warming trends.

Additional Threats to Wildlife

Loss of wetlands: high temperatures will lead to drier conditions in the Midwest’s Prairie Pothole region, one of the most important breeding areas for North American waterfowl.

Sea level rise: Sea-level rise will inundate beaches and marshes and cause soil erosion on both coasts, diminishing habitat for birds, invertebrates, fish, and other coastal wildlife.

Invasive species and disease: Higher average temperatures and changes in rain and snow patterns will enable some invasive plant species to tranform into new areas. Insect pest infestations will be increase severe as pests such as mountain pine beetle are able to take advantage of drought-weakened plants. Pathogens and their hosts that thrive in high temperatures will spread to new areas.

9 animals that are feeling the impacts of climate change

Climate change is one of the greatest challenges of our time. We are already seeing its effects with rising seas, catastrophic wildfires and water shortages. These changes are not only having a dramatic impact on diverse ecosystems but also on the wildlife that call these places home. Here are 9 species that are already being affected by climate change.

If we don’t act on climate now, this list is just the tip of the iceberg of what we can expect in years to come. Future generations shouldn’t just see these animals in history books -- we owe it to them to protect these creatures and their habitats.

1. Moose

increasing temperatures and booming parasite populations are expected to cause this cold-weather species that calls the northern United States and Canada home to move farther north. That’s because milder winters and less snow can lead to higher numbers of winter ticks. Tens of thousands of these parasites can gather on a single moose to feed on its blood -- weakening the animal’s immune system and often ending in death, especially the calves.

2. Salmon

Salmon require cold, fast-flowing streams and rivers to spawn. Changing stream flows but climatic changes increase warming waters in the Pacific Northwest are already impacting some salmon species and populations. Higher temperatures have also led a harmful salmon parasite to invade Alaska’s Yukon River. So while salmon might currently be on the menu, climate change is expected to impact major commercial and recreational fishing industries in the coming years.

3. Snowshoe Hares

To help hide from predators, this North American rabbit has evolved to turn white in winter to blend in with the snow. With climate change, ice in some areas is melting earlier than the hares have grown accustomed to, leaving stark white hares exposed in snow-less landscapes. This increased difficulty might cause declines in hare populations that could lead to implications for other species. Snowshoe hares are critical players in forest ecosystems.

4. American Pikas

About the size and shape of a hamster, the American pika typically lives at high elevations where cool, moist conditions prevail. Research by U.S. Geological Survey has discribe that pika populations are now disappearing from numerous areas that span from the Sierra Nevadas to the Rocky Mountains. Populations within some areas are migrating to higher elevations likely to avoid reduced snowpack and warmer summer temperatures. Unfortunately, pikas are strongly tied to rocky-talus habitat that is limited and patchily distributed. This gives them few options as temperatures continue to rise.

5. Sea Turtles

Various populations of sea turtle species and their nesting sites are vulnerable to sea-level rise, increased storminess and changing environmental temperatures -- all impacts of climate change. These factors may result in current nesting and search for food and sites becoming unsuitable for federally threatened and endangered turtle species -- especially loggerhead sea turtles.

6. Puffins

These colourful-billed birds that look like miniature penguins are experiencing population decrease in the United States and elsewhere. In the Gulf of Maine, puffins are having hard finding their major food sources of white hake and herring. As the sea warms, the fish are moving into deeper waters , making it harder for puffins to catch a meal and feed their young. Adult puffins are compensating by feeding their young butterfish, but young puffins are unable to swallow these large fish and many are dying of starvation. Delayed breeding seasons, low birth rates and chick survival are all affecting the reproductive ability of these birds. And population of birds also decline.

7. Alaskan Caribou

Caribou are always on the travel -- it's not uncommon for them to travel long distances in search of sufficent food. But as temperatures increase and wildfires burn hotter and longer in Alaska, it could considerably change the caribou's habitat and winter food sources. Ultimately, this will affect subsistence hunters who rely on caribou for nutritional, cultural and economic reasons.

8. Piping Plovers

The piping plover is an iconic shorebird that breeds or reproduction and nests along the Atlantic Coast, the Great Lakes and the Great Plains. Increased human population use of their beach habitats, including intense coastal development, as well as rising sea levels and storm surges associated with climate change threaten the species.

9. Polar Bears

Polar bears in many ways have become the symbol of climate change. In 2008, they were listed as a threatened species under the Endangered Species Act -- the first species to be listed because of forecasted population decreases from the effects of climate change. The primary cause of their decline: loss of sea ice habitat attributed to Arctic warming. In Arctic region have very low biodiversity .Polar bears need sea ice to hunt seals -- a main source of food -- as well as to move across the large home ranges they need for foraging habitat. Polar bears aren't alone in feeling the effects of shrinking sea ice. Walruses and other Arctic species are facing similar challenges as summer sea ice continues to retreat.

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CHAPTER-18

CURRENT SCENARIO OF INDIA IN RENEWABLE ENERGY AND SUSTAINABLE DEVELOPMENT

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Abstract

In recent years the increasing prices of fissile fuels and increase of greenhouse gas emission scientist have increase their interest in development of alternative renewable energy sources. The main objective of installing renewable energy in India is to improve energy security, improve access to energy, improve economical development and minimize climate change. Sustainable development is possible only with the use of renewable and sustainable energy sources they are affordable to use. In these days we are facing many environmental changes and that requires long term potential actions and sustainable development. For that renewable energy is the most effective and efficient solutions. Therefore there is big linkage between sustainable development and renewable energy. In this paper scenario of renewable energy use and environmental impacts is discussed.

1. Introduction

Without electricity or energy the whole system of world will collapse. 24 Hr cutoff of electricity will show us how we are dependent on particular form of energy i.e. electricity. Computers lifts will stop their working, Operation theaters, Industries will stop. As population grows the need of energy more and more will increase. Better lifestyle and energy demand increases simultaneously wealthy industrialized economies contains worlds 25% population and consumes worlds 75% of energy.[1] Coal, oil, natural gas are the sources of electricity production and they have contributed one third of world green house gas emission. Any country has increasing demand to their economical and industrial growth. The National Electricity Plan NEP[2] developed by Ministry of Power. This is 10 year action plan to provide electricity across the country efficiently and in reasonable cost. According to Worlds institute report india is at 4th rank of total global carbon emission next to china.[3] India is one of the largest coal consumer country in the world and imports fissile fuel.[4] Near to 74% of energy demand is of country is fulfilled by coal and oil. According to Centre for monitoring Indian economy the country imported 213 million ton coal in 2017-2018.[5] therefore there is huge and urgent need to search alternative sources for electricity generation. The country will have rapid transitions to renewable energy technologies for achieving sustainable growth and avoiding environmental changes. It is accepted that renewable energy will efficiently cover energy demand sand reduce carbon emission significantly. India has developed new paths and policies for its energy supply and awareness for saving of energy. They have started promotion of renewable energies among Indian citizens to use solar energy, wind energy, biomass energy. This renewable energys are clean and less harm full to society. The estimation of consumption of global energy demonstrate that energy consumption of India is continuously increasing and it will retain its position even in

2040.[6] The increased energy consumption of India will push the share of global energy demand to 11% in 2040 from 5% in 2016.[7]

2. Environment related problems

Since last two decades risk of degradation of environment is increased rapidly. The major areas of environmental issues may be classified as:

- Acid rain
- Green house effect (global warming)
- Water pollution
- Air Pollution
- Depletion of Ozone layer

3. Solutions to Environmental Problems

- Use of Renewable energy
- Energy conservation
- Energy storage technology
- Switching of energy sources from fossil fuels to environment friendly alternative energy sources.
- Use of Public transport
- Making Policies to use of fossil fuels
- Public awareness

We will discuss the most important solution, Renewable Energy Sources, Types and current scenario.

4. Renewable Energy Resources

Since early 1970 oil crises, from then there is active and continuous research and development in renewable energy resources and technologies. In recent times peoples has been realized that renewable energy resources have most positive impact on environmental, political, economical issues of the world. During the past two decades research and development on renewable energy resources is significantly expanded because:

- Maintenance cost is lowered
- Reliability and applicability is increased
- Public awareness

5. Scenario of Renewable Energy in India

By report of Ministry of New and Renewable energy of India, India achieves target of 40% installed electricity capacity from non-fossil fuel energy sources. Total installed non-fossil fuel based capacity stands at 156.83GW. India rank in fourth position on overall renewable energy production.

Solar Energy: Among the various renewable energy resources, solar energy is the highest in the country. In India clear sunny weather is experienced 250 to 300 days a year. The total solar energy potential is about 6000Million GWh of energy per year. The National Action Plan on Climate change points out that "India is a tropical country, where sunshine is available for longer hours per day in great intensity. Therefore solar energy has great potential as future energy source. It also has the advantage of permitting the decentralized distribution of energy at the grassroots level". With the objective to establish India as global leader in solar energy, by creating the policy conditions for its diffusion across the country as quickly as possible Government of India launched National Solar Mission. In 2021 the installed solar energy capacity is 47.7GW. The Government had an initial target of 20GW capacity for year 2022. Only 4% of countries power consumption filled by solar energy. Rajasthan is at top in installed capacity of solar energy by MNRE. India rank in fifth solar power generation, China is leader in solar power.

Wind Energy: India is blessed with a coastline of about 7600Km surrounded by water on their sides and has good prospects of harnessing offshore wind energy. Considering this Government of India notified the "National offshore wind energy policy" . MNRE will act as the nodal ministry for development of offshore wind energy in India. Ministry sets the target of 5.0 GW of offshore installations by 2022 and 30 GW by 2030. In recent years wind power generation in India is significantly increased. as of 2021 the total installed wind power capacity was 38.789 GW, the fourth largest installed wind power capacity in the world. Wind power capacity is mainly spread across the southern, Western, and Northern regions of India. Tamilnadu is the largest wind energy producer in India.

Biomass: In India plants like Jatropa, Mahua and neem and some wild plants are identified as the sources of biodiesel. Chattisgarh, Madhy Pradesh, Gujrat, Rajsthan, TamilNadu are the leading states for the biomass power projects. In India total installed capacity of Biomass gasifiers is about 0.17 GW.

Tidal Energy: In India tidal energy is in still R&D phase, commercial scale implementation has not been done. The Gujarat government is set to develop first tidal plant in India.

6. Sustainable Development

Sustainable development means the sustainable supply of energy resources , at long term in low cost and can be used for any application without any hazardous impact on society. Fossil fuels, coal, oil, natural gas they are finite in nature one day the will vanish. Other resources such as solar power means sunlight it is abundant in nature and that will never vanish, wind power, hydro power they are considered renewable energy resources and sustainable resources. Environmental issues are the important while using these sustainabkle energy resources. There are some activities that degrade environment that are no longer sustainable sources.

Importance of renewable energy for sustainable development:

There are different significant reasons to prove renewable for sustainable development

1. This sources have no impact on environment. They are freely available in nature only cost is required to harness them.

2. This renewable energy resources will not vanish unlike fossil fuels. Fossil fuels and natural gas will vanish after consumption of finite reserves.

Important Factors for Sustainable development

There are various factors described as follows:

1. Information: government should provide necessary information of impacts of fossil fuels, renewable energy
2. Awareness in Public: This is first step to make sustainable program successful.
3. Training: Training facilities to be made available for public.
4. Promotions: Renewable energy sources must be promoted by government .
5. Finance: This is the main and important factor to achieve the goal of implementation of renewable energy. India gives subsidy to every rooftop solar systems for domestic and commercial applications.

6. Conclusion:

There are many environmental problems we face today this all problems will be overcome by the use of renewable energy resources.

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CHAPTER-19

IMPLICATIONS OF RELIGIOUS-EDUCATION AMONG ADOLESCENTS STUDYING IN SCHOOLS

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Abstract

Religious topics and prayer are considered effective means of the school curriculum. However, as of now, religion has always been viewed from a secular perspective. Regarding this, the question which arises is whether religious education should be given priority in schools or whether it is giving rise to a state of confusion?

As per an argument, it has been found that religion is a positive subject. It is mainly because religion helps the student to learn and imbibe ethical ideas. Relating this idea to the development of a child, religious education aids in building character. However, contrary to this many such religions often emphasize people to become violent. As per many people, the religious book named 'Old Testament' entails a series of horrific stories. But, certainly, the messages of love and peace are continuously serving to confuse the students. Henceforth, it has been becoming a difficult topic for the school authorities in the coming years. In concern to this matter, other people often wonder whether the stories on religious books are appropriate for certain ages at schools. Considering the matter, the school authorities are giving a thought on whether religious education should be given preference in schools?

Keywords: *Religious Education, Adolescents, Schools, Religious Discrimination.*

Introduction

Religious topics and prayers are considered effective means of the school curriculum. To date, religion has been viewed from a secular perspective. Religious Education has never been more relevant, engaging, or challenging ever before. It is the reason for which the topic of religion and religious issues has been coming up in the news every day. To a great extent, religious education helps in understanding the dangers of religious extremism. It plays an essential role in addressing these matters. Hence, to understand our constantly changing world religious education has been quite effective at interpreting religious issues and evaluating their significance. Along with this, it helps with the personal development of the students studying in schools. It supports an understanding of the spiritual, moral, social, and cultural questions that surface again and again in their lives.

Generally, religion has been considered as one positive subject. Certainly, in recent times it has been leading to circumstances like religious extremism, religious discrimination, and religious intolerance. However, such kind of negative sentiments and emotions has been giving rise to aggressive and violent behavior among adolescents studying in schools. Additionally, the religious book named 'Old Testament' has been becoming a point of concern among school authorities. As because, the religious book entails the concept of both positive and negative aspects of religion. It has left adolescents to be in a state of confusion. However, with changing times adolescents have developed varying opinions in the pattern of religious participation. It is for which the adolescents in recent years have led to a growth of mental disorder.

Education has been one of the crucial pillars and an integral aspect of society. It essentially provides training on how to compete, live and survive in the world. Receiving education in the existence of guns and security eventually demolishes the morale of students. With the rise of ***religious intolerance*** in the country, the availability of fighters and armed forces in schools has been a major source of concern. It is due to this a sense of fear and insecurity has been getting instilled in the minds of students studying in schools. It is the reason for which the students have no interest in their studies. Moreover, the school authorities are failing to retain teachers degrading the quality of education. In this current scenario, the learning environment for students is getting disturbed. It is for this reason, they have been facing mental trauma daily. Such a continuous sense of tension and anxiety is making it extremely difficult for the students to concentrate in classes affecting their abilities to learn.

Research aims and objectives

This proposed research work aims to study the conception and perception of adolescents on different kinds of religions. It is through which the adolescents might attain an idea over the efficacy of religious education in schools.

- To study both positive and negative aspects of religion on students.
- To evaluate the importance of religious education.
- To examine the real facets of religious discrimination and its effect.
- To study the growth of religious intolerance in India

Research Questions

- Whether changes in the pattern of religious participation lead to a growth of mental disorders among students?
- Are schools the only source to provide religious education to students?
- Are marginalized students are discriminated against on religious grounds in schools? How the behavior does affect them mentally and socially?

Literature Review

Introduction

In this section, the essence of religious education among adolescents would be discussed in a detailed manner. Religious education aims to provide students with knowledge and understanding. Moreover, it helps develops sensitivity to different kinds of religions. In recent times, issues like religious extremism, religious discrimination have been becoming a burning issue for the last few years. In link to this, the adolescents get to develop negative health outcomes like discrimination and social isolation in their own lives. However, at the same time, religious education has been quite effective at improving the mental health of adolescents as well. In this context, imbibing religious education helps in developing religious coping mechanisms in minimizing its impact of stresses. It thereby enables the adolescents to become aware of religious beliefs and practices effectively.

Religious Discrimination

In recent times, it has been found that marginalized students including Dalits and Muslims are being denied the right to education by school authorities. A Hindu-dominated school, which comprised the majority of a class often expressed harsher and negative words towards the Muslim girls. Dropping out, early from schools makes them vulnerable to child labor and early marriages. As per the government data, more than 42% of students drop out before completing their eighth grade and more than 49% have dropped out before the tenth grade. On interviewing students, it has been found that the minority section of people has often faced discrimination like corporal punishment, food deprivation, cleaning toilets, and many others.

While there have been a small number of studies exploring the health impacts of religious discrimination. Therefore, as a result of which it has been clear that religious discrimination is responsible for developing an increased risk of anxiety and depression. Findings from certain studies, it has been found that religious discrimination increases the risk of psychiatric disorder, distress, sub-clinical paranoia (Kapur, 2018). The negative effect of religious discrimination produces negative emotions like stress and fear, giving rise to certain negative physiological effects upon health like immune, endocrine, and cardiovascular systems. It also causes the affected individuals to engage in delinquent behaviors like drug use, manifesting oneself upon violent activities with producing negative outcomes respectively.

State of Confusion

Though religion is considered a positive subject, it often emphasizes people to become violent. The religious book named '***Old Testament'*** entails both positive and negative aspects of religious teachings. Out of many, one of the good aspects is that it has helped the students to believe that ***God is faithful and he always keeps his promises.*** However, the bad part of it includes various forms of violence against infants. Like, when all food ran out, two women made a bargain of killing and seating their infant children. It is in this way, they boiled their son and ate them (Niculescu, 2013). Such an incidence often instills a sense of fear and anxiety among adolescents.

Effect of religious studies on adolescents

Adolescence is a crucial period that defines both cognitive and behavioral development. As per Erik Erikson's, Social-Emotional Development Theory, it has been conveyed that during this period an individual urgently needs to search for a proper role model for answering who he/she is and their moral and spiritual aspects. This formation of identity is one of the major events in the development of personality (Liagkis, 2018). They are very much associated with positive life outcomes. Moreover, it is during this period that an individual develops the ability and capacity to understand and internalize their beliefs, values, and practices of religion. Hence, a change in the pattern of religious participation often leads to a growth of mental disorders among adolescents in society. As a result of which the students are adversely affected in terms of health and social outcomes like substance abuse, school dropout, and delinquent behavior respectively.

Research Methodology

The methodology is based upon secondary data collection. The study has majorly focussed upon a descriptive type of research. Herein, the secondary data has been gathered from different kinds of sources like research papers, government websites, journals, and articles respectively.

Discussion

Religious education is an integral aspect of our society. Every religion is equal in the eyes of God. The people, irrespective of their religion should be treated equally and should not be subject to discrimination based on color, caste, creed, and many others. Everyone living in society should be respectful towards each other and must try to help others who are in need.

The educational institutes conduct prayers in the morning, before starting the day. It is usually termed as assembly, wherein the students gather together and offer their prayers to Heavenly Father. It is thereby believed that in doing so, they might get blessings from the almighty God and can successfully attain their desired aims and objectives.

Conclusion

The overall methodologies that have been chosen are mentioned over here along with the reason of choice. The research design and strategy are a kind of tool which helps in charting a plan of a defined research project. Reliability and Validity play an important role in maintaining the accuracy level. Failing to implement it, would not bring a positive result to the research process. If the accuracy is not maintained properly, the research work would not be carried out smoothly.

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CHAPTER-20

CHEMISTRY OF ALKALI METALS

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Group 1 Elements (Alkali metals):

Lithium (Li, Z=3), sodium (Na, Z=11), potassium (K, Z=19), rubidium (Rb, Z=37), caesium (Cs, Z=55) and francium (Fr, Z=87) are the IA (group-1) elements of the periodic table. The general electronic configuration is ns^1. The general valency (oxidation state) of alkali metals is +1. They are known as alkali metal, because their water soluble hydroxides are highly alkaline.

Occurrence:

Due to their high reactivity of alkali metals, they are always found in combined state. Among the alkali metals, Sodium and Potassium are abundant. Lithium which is less electropositive found in the form of silicate while other more electropositive elements are found in their chlorides forms. Compounds of sodium and potassium are the abundant among the alkali metals. Thoseof remaining alkali metals rarely occur in nature. Francium is radioactive and short lived (Half life period- 21 Minutes).

Electronic Configuration: Within a group all elements in their valence shells possess same member of electrons and showing similar chemical properties. Elements of alkali metals have single electron in their valence shell. ns^1 is the general electronic configuration of alkali metals.

Element	Atomic number	Electronic configuration	Condensed electronic Configuration
H	1	$1s^1$	$1s^1$
Li	3	$1s^2 2s^1$	[He] $2s^1$
Na	11	$1s^2\ 2s^2 2p^6\ 3s$	[Ne] $3s^1$
K	19	$1s^2\ 2s^2 2p^6\ 3s^2 3p^6\ 4s$	[Ar] $4s^1$
Rb	37	$1s^2\ 2s^2 2p^6\ 3s^2 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^1$	[Kr] $5s^1$
Cs	55	$1s^2\ 2s^2 2p^6\ 3s^2 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2\ 4d^{10}\ 5p^6\ 6s^1$	[Xe] $6s^1$
Fr	87	$1s^2\ 2s^2 2p^6\ 3s^2 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2\ 4d^{10}\ 5p^6\ 6s^2\ 4f^{14}\ 5d^{10}\ 6p^6\ 7s$	[Rn] $7s^1$

Physical properties of alkali metals:

1. **Physical appearance:**All alkali metals are silvery white. Due to soft nature, they can be easily cut with a knife. Softness increases down the group.
2. **Atomic and ionic radii:** Their atomic and ionic radii are largest in corresponding periods and increase on moving down the group i.e. From Li to Cs. Size of monovalent ions (M^+) are smaller than M.

3. **Ionisation enthalpy (energy):** It is observed that, the first ionization enthalpies of alkali metals are lowest as compared with the same period. However their second ionisation enthalpy is very high as compared to the first. First ionization enthalpy decreases from Li to Cs on moving down the group. On account of low ionization enthalpy, alkalı metals have strong tendency to lose valence electron. The elements K, Rb and Cs shows photoelectric effect due to low ionisation energy. That means electrons are emitted as light fall on them.
4. **Electronegativity:**Alkali metals are less electronegative and their electronegativity decreases down the group. Cs is the least electronegative elements of the periodic table.
5. **Density:** Alkali metals densities increases on moving down the group. Lithium, sodium and potassium are less dense than water. Among all known metals, Lithium is the lightest.
6. **Hydration enthalpy:**The amount of energy released when one mole of gaseous ion react with water to create hydrated ion is called hydration energy. Degree of hydration and size of metal ions are inversely related. Due to smaller size of alkali metal ions, they are hydrated extensively in aqueous solutions.

Ionic radii(Free metal ions)	**$Li^+ < Na^+ < K^+ < Rb^+ < Cs^+$**
ionic radii (Hydrated ions)	$Li^+ > Na^+ > K^+ > Rb^+ > Cs^+$
Conducting power (hydrated ions)	$Cs^+ > Rb^+ > K^+ > Na^+ > Li^+$
Mobility (hydrated ions)	$Cs^+ > Rb^+ > K^+ > Na^+ > Li^+$

Metal	Colour of the flame
Li^+	Caraminered
Na^+	Yellow
K^+	Violet
Rb^+	Violet rose
Cs^+	Blue

7. **Flame colouration**:

Chloride form of alkali metals imparts characteristic colours to the Bunsen flame. The colour arises because electrons are first get excited and then return to their ground state, in this process energy is emitted in visible region and gives characteristic colour.

8. **Metallic character:**All alkali metals are most metallic in their respective period and metallic property increases on moving down the group.All these are good conductor of heat and electricity. They also exhibit metallic lustre due to availability of free electrons.

9. **Melting and boiling points:** Due to weak intermetallic bond, alkali metals have low melting and boiling points.Melting and boiling points decrease down the group with increase in atomic number.

10. **Reducing Properties:** Alkali metals are powerful reducing agents, because they having more tendency to lose the s-electrons. Lithium is strongest reducing agent in aqueous solution among all alkali metals, due to small size of Li^+ ion and very high value of hydration energy.Increasing order of reducing power of all alkali metals in aqueous solution as follows.
$Li^+ < Na^+ < K^+ < Rb^+ < Cs^+$

Chemical Properties:

Alkali metals are highly active on account of

i. Only one electron in outermost shell
ii. Low ionisation enthalpy
iii. Large atomic size in respective period

Reactivity of alkali metals towards all reagents increases down the group from lithium to caesium as increasing atomic radius.

Reactivity of alkali metals towards oxygen/air:

Alkali metals lose their lustre when get exposed to air. They react readily with atmospheric O_2, CO_2 and H_2O and get tarnished. Therefore these metals are stored in kerosene.On reaction with oxygen alkali metals give following oxides. All superoxides are coloured and paramagnetic and they are stronger oxidising agents than peroxides.

Elements	Oxide	Molecular Formula
Li	Monoxide	LiO
Na	peroxides	Na_2O_2
K	superoxides	KO_2
Rb	superoxides	RbO_2
Cs	superoxides	CsO_2

Reactivity towards water: Alkali metals are oxidised by water. Lithium react slowly but Na and K reacts so vigorously and exothermically that generated heat ignite H_2 (g) produced in the reaction. Reactivity increases from Li to Cs. Formed hydroxides are strongly alkaline.

$$2M_{(s)}+2H_2O_{(l)} \longrightarrow 2MOH + H_{2(g)}$$

Metal hydroxides (basic strength): LiOH<NaOH<KOH<RbOH<CsOH

Alkali metal hydride: At 673 K temperature hydrogen and alkali metals react to form corresponding hydrides (MH) having following characteristics.

i. These hydrides are crystalline, colourless and ionic present in solid state.
ii. These hydrides having NaCl type crystal structure.
iii. Ionic character of hydrides increases down the group.
iv. Stability of these hydrides decreases down the group (LiH to CsH).
i.e. .LiH>NaH> KH >RbH>CsH
v. These hydrides are strong reducing agents and reducing property of these hydrides increases down the group as stability decreases.
vi. Hydrides of Lithium are good reducing agents. E.g. $LiAlH_4$ and $LiBH_4$.

Reactivity with halogens:

i. Alkali metals vigorously react with halogens to form ionic halides (MX).
$2M + X_2 \longrightarrow 2\ MX$
ii. Towards particular halogen the reactivity order of alkali metal is Li < Na < K <Rb< Cs
iii. Stability of metal halide decrease in the order:Fluoride> chloride> bromide>Iodide.
iv. Thus, most stable metal halide arefluorides and least stable areiodides.
v. Lithium halides are generally observed in its trihydrate form, but other alkali metal halides are anhydrous.

All these alkali metal halides are soluble in water.

Alkali metals solubility of in liquid ammonia:

Heating of alkali metals with NH_3 in presence of Fe, forms amides MNH_2 giving highly conducting deep blue solutions:

$$M + (a+b)\ NH_3 \rightarrow \underset{\text{Ammoniated metal ion}}{M^+ (NH_3)_a} + \underset{\text{Ammoniated electron}}{e^- (NH_3)_b}$$

Properties of alkali metal solutions in liquid ammonia:

i. The formed solution is highly conducting. Conductance of solution is mainly due to the availability of free electrons.
ii. Due to the availability of unpaired electrons, diluted solutions become paramagnetic, but in concentrated solution paramagnetic character decreases because, in concentrated solutions electrons get associated and form electron pairs.
iii. Solution having blue colour and are diamagnetic.
iv. These solutions act as strong reducing agents.
v. All these properties of ammoniated solution indicate that alkali metal atoms are present in ionic forms.

Anomalous behaviour of Li metal:

Amongst 1st group elements Li shows anomalous property due to its

1. Smallest size
2. Highest polarizing power
3. Highest ionization enthalpy
4. Unavailability of d-orbitals.

Anomalous properties of Li:

i. Amongst alkali metals Li is the hardest metal and having highest M.P. and B.P
ii. Li is the only alkali metal which combines with N_2 to form nitrides (Li_3N)
iii. Li with air gives only monoxide (Li_2O), but other alkali metals give peroxides (M_2O_2 and superoxides (MO_2).
iv. Lithium hydroxide is a weak base while the hydroxides of othersare strong bases.
v. Li_2CO_3 least stable while other carbonates of the alkali metals are thermally stable.
vi. LiH which is much more stable than the other alkali metals hydrides.

Diagonal relationship between Li and Mg:

Due to similar atomic size (r_{Li+} =76 pm, r_{Mg2+}= 72 pm) and electronegativities (Li=1.00 and Mg=1.20), Lishows diagonal relationship with Mg

Group	I	II
Period 2	Li	Be
Period 3	Na	Mg

Similarities between Li and Mg:

i. Both Li and Mg are harder and having higher M.P. than other elements of the respective groups.
ii. Both LiCl and $MgCl_2$ are soluble in ethanol.
iii. Both these metal slowly combine with water and produce H_2 gas.

iv. Both Li and Mg form monoxides when treated with the oxygen, but all other metals of respective group's forms peroxide and superoxide.
v. Both Li and Mg when treated with N_2 give respective Nitrides.
vi. Chlorides of both the metals are deliquescent solids e.g. LiCl and $MgCl_2$
vii. Hydroxides of both the metals i.e. LiOH and $Mg(OH)_2$ are weak basic in nature.
viii. Li and Mg do not form hydrogen carbonates in solid state.

Compounds of alkali metals: We will discuss some industrially important compounds**.**

1. Sodium Chloride (NaCl):

Commonly called as table salt. It is isolated by the evaporation of sea water. This isolated Crude NaCl contains $CaCl_2$, $CaSO_4$ and $MgCl_2$ as major impurities. Pure sodium chloride is gained by passing hydrochloric acid gas through saturated solution of crude NaCl. Pure NaC1 gets precipitated, because of common ion effect.

Properties:

i. Melting point of sodium chloride is 1081 K.
ii. Solubility of NaCl in 100g of water at 273 K is 36.09 g.
iii. When NaCl treated with conc. H_2SO_4 and MnO_2 liberates Cl_2 gas.

$$2NaCl+MnO_2+2H_2SO_4 \rightarrow MnSO4+Na_2SO4+2H_2O+CI_2(g)$$

Uses:

i. It is used as table salt for domestic purpose.
ii. It is used as a preservative for meat, fish, etc.
iii. It is used for the production of compounds such as NaOH, Na_2O_2, Bleaching powder, Na_2CO_3 etc.
iv. It is used for the production of soap and detergents.
v. To decrease temperature of ice NaCl is used as a freezing mixtures.

2. Sodium carbonate (washing soda): Na_2CO_3 is prepared by Solvay ammonia process.

Step-I: In this process NaCl, ammonia and limestone are used as a raw materials. In such process CO_2 is passed through the brine (NaCl) solution saturated with NH_3. Then $NH_4HCO_3$is obtained.

$$NH_3+ CO_2 + H_2O \rightarrow NH_4HCO_3$$

(Ammonium hydrogen carbonate)

Step-II: NH_4HCO_3 then treated with NaCl to obtain $NaHCO_3$ and NH_4Cl

$$NH_4HCO_3 + NaCl \rightarrow NaHCO_3 + NH_4Cl$$

Step-III: Bicarbonate on ignition gives sodium carbonate (Na_2CO_3)

$$NaHCO_3 \rightarrow Na_2CO_3+ H_2O + CO_{2(g)}$$

NH_3 is recovered in this process by treating it with milk of lime

$$2NH_4CI + Ca(OH)_2 \rightarrow CaCl_2 + 2H_2O + 2NH_3$$

Properties:

i. Sodium carbonate crystallizes as a deca hydrate ($Na_2CO_3.10\ H_2O$) in water called as washing soda.

ii. It is readily soluble in water, on heating the decahydrate losses water of crystallization to form monohydrate. Above 373 K, the monohydrate becomes completely anhydrous and changes to a white powder called soda ash.

$$Na_2CO_3.10\ H_2O \xrightarrow{\triangle} Na_2CO_{3(s)} + 10\ H_2O_{\ (g)}$$

Uses:

1. It is used as cleaning agent in laundries for grease and dirt due to the emulsifying effect of sodium carbonate.
2. It is used in the production of caustic soda and soap.
3. It is used as a water softener.
4. It is also used in the petroleum refining.

3. Sodium Bicarbonate:

$NaHCO_3$ is prepared by saturating a solution of Na_2CO_3 with CO_2. Due to less solubility $NaHCO_3$ gets separated easily. This compound is also called as baking soda.

$$Na_2CO_3 + H_2O + CO_2 \longrightarrow 2NaHCO_3$$

Properties:

1. Heating sodium bicarbonate up to 373 K gives Na_2CO_3, CO_2 and water.

$$2NaHCO_3 \xrightarrow{373\ K} Na_2CO_3 + H_2O + CO_{2\ (g)}$$

2. $NaHCO_3$ is alkaline in nature because in water it undergoes hydrolysis and gives NaOH and H_2CO_3.
3. It is white crystalline solid sparingly soluble in water and solution becomes weakly basic.

Uses:

1. It used in the production of CO_2.
2. It used in the manufacture of fire extinguisher.
3. It is one of the main ingredients of antacids.
4. $NaHCO_3$ is used in making bakery products.

4. Sodium Hydroxide (NaOH):

It is commonly called as caustic soda. Commercially prepared by the electrolysis of NaCl (Brine solution). In electrolysis Hg is used as cathode and graphite rod (Carbon) is used as anode. Chlorine gas is evolved during electrolysis.

At Cathode:

$$Na^+ + e^- \xrightarrow{Hg} Na\text{-}Hg$$

At Anode:

$$Cl^- \longrightarrow 1/2\ Cl_2 + e^-$$

The formed amalgam is then treated with water to give NaOH.

$$2\ Na\text{-}Hg + 2H2O \longrightarrow 2NaOH + 2Hg + H_2(g)$$

Uses:

1. In laboratory it is commonly used as basic reagent.
2. It is used in the purification of bauxite.
3. It is also used in the petroleum refining and textile industries.
4. It used in the production of pure fats and oil.

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CHAPTER-21

CHILD ABUSE AND NEGLECT- INDIAN PERSPECTIVE

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Abstract

India is home to a huge kid populace on the planet, with right around 41% of the aggregate populace under 18 years old. The wellbeing and security of the country's kids is essential to any vision for its encouragement and improvement. Specialists and health care experts are frequently the primary resource for mishandled and disregarded kids. They assume a critical part in recognizing youngster abuse and disregard, give prompt and longer term care and backing to kids. Regardless of being significant partners, regularly health care experts have a restricted agreement on the best way to safeguard these weak gatherings. There is a pressing requirement for orderly preparation for health care experts to forestall, identify and answer instances of kid abuse and disregard in the clinical setting. The motivation behind the current article is to give an outline of youngster abuse and disregard from a clinical evaluation to a socio-lawful point of view in India, to guarantee a brief and complete multidisciplinary reaction to casualties of kid's ill treatment and disregard. During their occupied clinical practice, clinical experts can likewise utilize the phone help line (CHILDLINE phone 1098) to allude instances of kid abuse, subsequently interfacing them to socio-legitimate administrations. The health care experts ought to know about the new regulation, Protection of Children from Sexual Offenses (POCSO) Act, 2012, which requires obligatory announcing of instances of youngster sexual maltreatment, falling flat which they can be punished. In addition, specialists and partnered clinical experts can help forestall kid sexual maltreatment by conveying the message of individual space and protection to their youthful patients and guardians.

Keywords- *Child abuse, Child neglect, POCSO*

Introduction to child abuse and neglect

The World Health Organization (WHO, 1999) has characterized 'Child Abuse' as an infringement of the fundamental common liberties of a youngster. It incorporates all types of physical, enthusiastic sick therapy, sexual mischief, disregard or careless treatment, business or other exploitation -dealing, bringing about genuine damage or on the other hand expected mischief to the youngster's wellbeing, endurance, advancement or nobility with regards to a relationship of obligation, trust or power.

'Child Neglect' is characterized as (a) absentmindedness or exclusion by the parental figure to accommodate the youngster: wellbeing, instruction, enthusiastic turn of events, nourishment, safe house and safe day to day environments; (b) with regards to assets in all actuality accessible to the family or overseers; (c) and makes hurt the youngster's wellbeing or physical, mental, otherworldly, moral or social turn of events. 'Youngster Maltreatment'' some of the time alluded to as kid ill treatment and disregard, incorporates all types of physical and enthusiastic sick therapy, sexual maltreatment, disregard, and exploitation -

dealing that outcomes in genuine or expected mischief to the youngster's wellbeing, improvement or nobility. [1]

Inside the above expansive meaning of Child Abuse and Neglect, five subtypes can be recognized - actual maltreatment; sexual maltreatment; disregard and careless treatment; psychological mistreatment; what's more, exploitation -dealing. (a) Physical maltreatment - of a youngster is what brings about genuine or potential actual mischief from a collaboration, which is sensibly inside the control of a parent or individual in a place of liability, power, or trust. There might be single or rehashed occurrences. (b) Child Sexual maltreatment is the contribution of a youngster in sexual movement that the individual in question doesn't completely understand, incapable to give informed agree to, or for which the youngster isn't formatively ready, or that disregards the laws of the general public. Youngster sexual maltreatment is confirmed by a movement between a youngster and a grown-up or one more kid who by age or advancement is seeing someone obligation, trust or power; the movement being expected to delight or fulfil the requirements of other individual. This might incorporate however isn't restricted to: the affectation or intimidation of a youngster to participate in any unlawful sexual movement; the manipulative utilization of a kid in prostitution or other unlawful sexual practices; and, the manipulative utilization of youngsters in explicit exhibitions and materials. (c) Emotional maltreatment the disappointment of a parental figure to give a suitable and steady climate, and incorporates acts that antagonistically affect the enthusiastic wellbeing furthermore, advancement. (d) Neglect is the absentmindedness or oversight with respect to the parental figure to accommodate the improvement of the youngster in all circles: wellbeing, instruction, enthusiastic improvement, nourishment, safe house and safe day to day environments, with regards to assets sensibly accessible to the family or overseers and causes, or has a high likelihood of actually hurting the youngster's wellbeing or physical, mental, otherworldly, moral or social turn of events. This incorporates the inability to appropriately administer and safeguard youngsters from hurt as much as is attainable. (e) Exploitation -dealing alludes to business or other exploitation - dealing of youngster in work (kid work), or other exercises to support others, for example, youngster dealing. [2]

Account of the issue

Among every single announced case, the US National Child Abuse and Neglect framework information (2009) uncovered a pervasiveness of actual maltreatment 18%, sexual maltreatment 10%, enthusiastic 8% and rest as cases of youngster disregard [3-4]. Government of India, Ministry of Women and Child Development (2007) overview uncovered that the pervasiveness of all types of youngster abuse is incredibly high (physical abuse (66%), sexual maltreatment (50%) and psychological mistreatment (50%). [5]. A later report by the Public Commission for Protection of Child Rights (NCPCR), directed among 6,632 youngsters respondents, in 7 states; uncovered close to 100% kids deal with corporal repercussion in schools [6]. In non-industrial nations like India, with antagonistic financial circumstance and enormous populace base, youngster disregard is a not kidding, generally predominant general medical condition. Destitution, lack of education and unfortunate admittance to wellbeing and family arranging administrations, bring about arrangement of very little care to the youngster during the early stages. Indeed, even administrations that are uninhibitedly accessible are ineffectively used. The metropolitan oppressed, relocating populace (an entirely sizable number) and provincial networks are especially impacted. In enormous urban communities, there are not kidding issues of road youngsters (deserted and frequently destitute) and kid workers, utilized in humble work. Youngsters in troublesome conditions, for example, kids impacted by catastrophes, those in struggle zones, displaced people, HIV/AIDS, youngsters with incapacities are a specific reason for concern. The circumstance of the infant and the times of earliest stages and youth are especially basic what's more, the horribleness and death rates keep on leftover exceptionally high. Maternal under-nourishment, hazardous conveyances, disregard of early turn of events and instruction are significant issues that should be fittingly tended to. Youngster raising practices reflect accepted practices and all the time antagonistic customs might be passed starting with one age then onto the next, particularly in uneducated and ineffectively informed networks. As gatekeepers of wellbeing, the clinical area needs to plan and show its endeavours, to address youngster abuse and disregard in this situation and tackle the many settled in issues.[7]

Outcomes of Child Abuse and Neglect

Child Abuse and Neglect (CAN) applies a large number of short and long haul consequences for kids. Transient impacts of sexual maltreatment might incorporate backward ways of behaving, (for example, a re-visitation of thumb-sucking or bed-wetting), rest unsettling influences, eating issues, execution issues at school, sexualized conduct, externalizing side effects like animosity or tormenting and incorporating like social withdrawal or grumblings of intermittent summed up a throbbing painfulness [2]. Actual wellbeing may likewise be impacted with objections of intermittent genital release, dysuria, stomach torment and urinary parcel contaminations. The short and long haul outcome of youngsters' openness to kid abuse incorporates raised degrees of post-horrendous pressure problem, animosity, enthusiastic furthermore, psychological well-being concerns, like nervousness and discouragement. As indicated by the Adverse Childhood Experiences (ACE) study [8)], a significant American exploration project looking at the impacts of antagonistic youth encounters on grown-up wellbeing and prosperity, a strong relationship has been laid out between enthusiastic encounters during adolescence and physical and mental wellbeing during adulthood. The UN Convention on the Rights of the Child (UN CRC) (1989) is the most generally supported youngster privileges instrument around the world, which was sanctioned by India (1992) and characterizes kids as all people up to the age of 18 years (9). Characterizing viciousness and youngsters insurance privileges, the Article 19 of UNCRC pronounces, "States Parties will take all suitable administrative, authoritative, social and instructive measures to safeguard the youngster from all types of physical or mental viciousness, injury or abuse, disregard or careless treatment, abuse or exploitation -dealing, counting sexual maltreatment, while under the watchful eye of parent(s), legitimate guardian(s) or whatever other individual who has the consideration of the youngster." [9,10].

A few developed nations of the world have all around created youngster assurance frameworks, fundamentally centred around compulsory announcing, distinguishing proof and examinations of impacted youngsters, what's more, frequently making a coercive move. The weight of elevated degree of warnings and examinations is on the families, yet additionally on the framework, which needs to expand it's assets [11]. In these specific circumstances, the issues of youngster abuse and disregard in India need genuine and more extensive thought, especially among the oppressed provincial and metropolitan networks, where youngster assurance frameworks are not created, or don't reach. The expression "assurance" connects with insurance from all types of viciousness, abuse, and exploitation -dealing. In light of our arrangement, the Indian Child Abuse, Neglect and Child Labor (ICANCL) bunch, Indian Academy of Paediatrics (IAP) has unequivocally proliferated the view that in Indian viewpoint the expression "child protection" should likewise incorporate counteraction from infection, unfortunate nourishment and lack of education notwithstanding activity against abuse and exploitation -dealing [12]. This underlines the significance of expecting and turning away what could end up harming and disparage a youngster - - not simply reaction to hurt incurred. The ninth ISPCAN Asia Pacific Conference of Child Abuse and Neglect (APCCAN 2011) gathering result archive "Delhi Declaration" re-certified and promised to remain against the disregard and maltreatment of youngsters and to make progress toward accomplishment of kid privileges and the structure of a really focusing local area on each youngster, liberated from viciousness and segregation. It encouraged and attested the critical need to incorporate standards, guidelines and measures in public arranging processes, to forestall and answer viciousness against youngsters [12-13].The monetary expenses for casualties and society are significant. A new CDC concentrate on viewed as the aggregate lifetime assessed monetary expenses related with only one year of affirmed instances of youngster abuse (actual maltreatment, sexual maltreatment, mental maltreatment and disregard) is roughly $124 billion in the United States of America. In India, the focal financial plan distribution for child protection has never at any point arrived at 50 paisa (a large portion of a rupee) of each 100 rupees promised for social improvement. This grave asset challenge calls for reconsideration. [14].

Clinical Manifestations of Child Abuse and Neglect

Wounds incurred by a parental figure on a youngster can take many structures. Passing in manhandled youngsters is most frequently the outcome of a head injury or injury to the interior organs. Examples of injury to the skin and skeletal indications of abuse might incorporate numerous breaks at various phases of recuperating. There is proof that around 33% of seriously shaken new born children kick the bucket and that the greater part of the survivors endure long haul side-effects like mental impediment, cerebral paralysis or visual deficiency. Youngsters who have been physically manhandled display side effects of contamination, genital injury, stomach torment, obstruction, persistent or intermittent urinary parcel contaminations or conduct issues. To have the option to distinguish youngster sexual maltreatment requires a high record of doubt furthermore, experience with the verbal, conduct and actual signs of abuse. Numerous youngsters will uncover maltreatment to parental figures or others precipitously, however there may likewise be backhanded physical or on the other hand conduct signs. Enthusiastic and mental maltreatment has gotten less consideration all around the world due to social varieties in various nations. Additionally, flogging of youngsters for example in the type of slapping, punching, kicking or beating, is a critical peculiarity in schools and other establishments. Youngster disregard can appear as inability to flourish, inability to look for fundamental medical services, vaccinations, hardship of instruction and fundamental nourishment needs. A disregarded youngster could be presented to ecological dangers, substance abuse, insufficient management, unfortunate cleanliness and relinquishment [15]

Explicit sub-bunches in danger of youngster abuse and disregard

a. The girl child

The Indian registered information has uncovered a few stunning measurements: a high pervasiveness of female feticide (a demonstration of cutting short a hatchling since it is female). The sex proportion of young boys to young girls in the 0-6 age bunch in India has ascended from the ordinary 102.4 boys per 100 females in 1961, to 104.1 in 1981, to 107.8 in 2001, to 108.8 in 2011 [16-17]. Additionally, the youngster sex proportion is fundamentally higher in north-western states like Punjab (118) and Haryana (120). In these districts, female feticide should be visible through a social foundation, where male children are favoured in light of the fact that they give financial benefits and progress in the family genealogy [18]
The ascent in female feticide has been connected to the appearance of reasonable ultrasound sex identification advancements, at first presented in India's metropolitan districts in 1980s, and later generally embraced in provincial town regions by 2000s [19-20]. This has lead to a flourishing business of "voyaging ultrasonologists" in the towns of northern India. A review assessed that 100,000 early terminations are played out consistently in India exclusively in light of the fact that the hatchling is female [21]. The Government of India had sent off multi-pronged methodologies to control female feticide, which incorporate administrative measures for example, Pre-Conception and Pre-natal Diagnostic Techniques (PCPNDT) Act in 2004, promotion, mindfulness, age, and projects for financial strengthening of women. There is proof that 'Girl Child' is foundationally disregarded from before birth and directly through their life cycle [22]. A concentrate on exhibited tremendous contrasts in orientation viciousness and access to food, medical services, inoculations among male and female youngsters. This prompts high new born child what's more, youth mortality among young girls, which causes changes in sex proportion (21). Young girls might need formal acknowledgment (for example birth enlistment), legitimate assurance, and interpersonal organizations; wedded early (child marriage), they are excessively troubled both at home with family errands and at outside home doing home grown work, and are less inclined to be in auxiliary instruction or in the formal paid labor force (23).

b. Disabled kids

A few global examinations have laid out that kids with handicaps are at more serious gamble of kid abuse [24-2]. Kids with handicaps might contain about up to 10% of school going kids and as such their necessities are much bound to overlooked in create
nations. Deficiencies in the educational system neglect to meet kids' unique instructive necessities; prompts disregard, past parental control.

c. "Child labor"

It is an infringement of key freedoms of kids. It denies kids of their youth potential and their pride, and that is unsafe to their physical and mental improvement. It is basically a financial issue, inseparably connected to neediness and ignorance. There is an agreement arising that when a kid isn't in school, the kid would perforce be essential for the work pool. In connecting kid work to training, the errands of killing. Child labor and of universalizing training have become equivalent. There is a fundamental need in emerging nations to foster a thorough arrangement to pull out kids from work and standard them into schools, to give them essential right to training. The Government ought to see this is as a functioning test in attempting to get to kids out of luck - - in foundations, in road gatherings, in work-places, moving, or even in jails. Linkage with NGOs associated with such sorts of settings might be considered as an effort choice. [28-30]

Foundation Measurers and National Legislations

The Government of India has allocated central obligation regarding youngster privileges and insurance to the Ministry of Women and Child Development (MWCD) [31]. The National Commission for Protection of Child Rights, set up in 2007, enquires, researches, and suggests activity once more against culprits of child abuse and disregard. Government sent off an Integrated Child Protection Scheme (ICPS) (2009), as most would consider to be normal to fundamentally add to the making of a framework that will proficiently and successfully safeguard youngsters. The core values perceive that youngster assurance is an essential obligation of the family, upheld by local area, government and common society [32]. A new 'National Policy for Children (2013)' has quite recently supplanted the 1974 arrangements [33]. It lays out 18 years as the roof period of adolescence, and adds an certification of India's acknowledgment of the UN CRC. The administrative structure for youngsters' privileges is being reinforced with the definitions of new regulations and alterations to existing regulations [28]

The clinical experts should have fundamental comprehension of the accompanying two regulations implied to safeguard youngsters: (a) the Juvenile Justice (Care and Protection) Act 2000 (amended in 2006) is the essential legitimate structure for adolescent equity in India [34]. It lays out a structure for the both, Children Needing Care and Protection (CNCP) and Children in Conflict of Law (CCL). Children in Need of Care and Protection (CNCP) and reports of youngster abuse are heard by Child Welfare Committee (CWC), which has an administrator and four different individuals from whom somewhere around one is a lady and somewhere around one master in youngsters' issues. CCL are taken care of by Juvenile Justice Board (JJBs), which have a Metropolitan or Judicial officer and two social specialists, where one of the specialists should be a lady. (b) the Protection of Children from Sexual Offenses (POCSO) Act, 2012, explicitly address the issue of sexual offenses submitted against youngsters, which as of not long ago had been attempted under regulations that didn't separate among grown-up and youngster victims. The POCSO Act requires compulsory announcing of instances of kid sexual maltreatment by specialists and multidisciplinary experts. When a grievance is made to the Special Juvenile Police Unit (SJPU) or to the neighbourhood police, the law accommodates alleviation and restoration of the youngster. [35]. Additionally, the new Criminal Law Amendment Act (CLA) 2013 has extended the meaning of assault to incorporate all types of sexual viciousness. CLA, 2013 and POCSCO Act, 2012 both perceive that any enrolled clinical professional can complete a medico legitimate assessment and give treatment and records of that wellbeing supplier will remain in the court of law(164A CRPC)[36].

CHILDLINE 1098: This is a crisis telephonic assistance line, which helps interface youngsters in circumstances of abuse/disregard with restoration administrations. CHILDLINE 1098 has turned into an extraordinary model of public private organization, functional in excess of 200 urban communities/regions the nation over. During their bustling clinical practice, clinical experts ought to utilize this phone assist line with alluding instances of youngster maltreatment to CHILDLINE, along these lines associating them to socio-legitimate administrations. [37]

Clinical Assessment and Response

Health care professionals are frequently the primary resource of a youngster, at whatever point abuse is thought; the concerned specialist should attempt to accumulate a point by point clinical history from the youngster, if conceivable, and the overseers. Most instances of youngster abuse are submitted by individuals known to the kid, in mystery and in homes. Along these lines, the health care professionals should be delicate to the youngster's potential misgivings and home circumstances. The set of experiences taking ought to be suitable to the youngster's formative level and stay away from any further injury. The questioner ought to keep an expert, non critical approach and comply with the wellbeing of the youngster, as per the tradition that must be adhered to. Evaluation is a proceeding with process. Intercessions and administrations ought to be given close by the evaluation. The wellbeing evaluations ought to be far reaching, multi-disciplinary, answer formative and psychosocial concerns. The IAP Child Rights and Protection Program suggests suitable and convenient references, as represented in the stream diagram [38]. The Ministry of Health and Family Welfare, Government of India has as of late outlined rules for specialists who could one day be called upon to deal with female casualties of sexual maltreatment, attack/assault throughout their obligation whether in an administration emergency clinic or even a private one. Rape casualties can't be denied treatment in both of these emergency clinics, when they approach them, as forswearing has recently been made a cognizable criminal offense culpable with suitable prison terms or fines or both. All medico-legitimate assessments and methodology must regard the protection and informed agree must be taken. Each emergency clinic should have a Standard Operating Procedure (SOP) for the executives of instances of sexual viciousness. The diagnostic room ought to have satisfactory room, an assessment table and hardware expected for an exhaustive assessment, and the Sexual Assault Forensic Evidence (SAFE) unit containing for gathering and safeguarding actual proof following a sexual viciousness.[39]

Prevention and Protection

Counteraction, given the enormous youngster populace, especially among the oppressed provincial and metropolitan networks in India, financial requirements and absence of all around created youngster insurance frameworks, it is of most extreme significance to go to all potential lengths towards essential counteraction of youngster abuse. The act of paediatrics needs to move from an essential spotlight on the conveyance of intense care to one which centers progressively around the arrangement of expectant direction and preventive care to guarantee ideal development and advancement. While we can't "inoculate" each youngster against conceivable youngster abuse, we can assist with keeping kids from abuse. Paediatricians can forestall youngster sexual maltreatment by conveying messages on private space/body wellbeing at each yearly wellbeing support evaluation, in a formatively suitable way, from as soon as 3 years onwards. There isn't a parent who would have zero desire to safeguard their youngster against a physically oppressive experience. It would be ideal for guardians to make sense of (to youngsters) that assuming anybody at any point contacts them in a way that is awkward, or makes them contact another person's reproductive organs, they need to tell two grown-ups immediately. It is a common obligation to safeguard all youngsters. Youngsters furnished with data about private wellbeing are 6-7 times bound to foster defensive ways of behaving, improve potential for revelation and experience less self fault (40- 41).

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2. The content is written by me and I have duly acknowledged all the resources from which I have references and idea for this work. The work has not been submitted elsewhere for publication considerations.
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CHAPTER-22

FEMINIST PERSPECTIVES ON ECONOMIC GLOBALIZATION: AN OVERVIEW

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Introduction

In its broadest sense, globalization refers to the economic, social, cultural, and political processes of integration that result from the expansion of transnational economic production, migration, communications, and technologies. Although both Western and non-Western feminists working in various areas of philosophy, including ethics, metaphysics, political philosophy, epistemology, and aesthetics, have made important contributions to debates about globalization, this entry focuses on one subset of these critiques. Below, we outline the ways in which predominantly Western feminist political philosophers who explicitly discuss globalization have articulated and addressed the challenges associated with its economic and political dimensions.

What is Globalization?

1. Economic Globalization

Economic globalization refers to the processes of global economic integration that emerged in the late 20th century, fuelled by neoliberal ideals. Rooted in classical liberal economic thought, neoliberalism claims that a largely unregulated capitalist economy embodies the ideal of free individual choice and maximizes economic efficiency and growth, technological progress, and distributive justice. Economic globalization is associated with particular global political and economic institutions, such as the World Trade Organization, the International Monetary Fund, and the World Bank, and specific neoliberal economic policies, such as the following:

Trade liberalization: Free trade policies, such as the United States-Mexico-Canada Agreement (also known as the New NAFTA), seek to integrate regional or global markets by reducing trade barriers among nations. Signatory countries typically agree to eliminate tariffs, such as duties and surcharges, as well as nontariff obstacles to trade, such as licensing regulations, quotas on imports, and subsidies to domestic producers.

Deregulation: Trade liberalization is associated with the easing of restrictions on capital flow and investment, along with the elimination of government regulations that can be seen as unfair barriers to trade, including legal protections for workers, consumers, and the environment.

Privatization of Public Assets: Economic globalization is marked by the sale of state-owned enterprises, goods, and services to private investors in the name of expanding markets and increasing efficiency. Such assets include banks, key industries, highways and railroads, power and electricity, education, and healthcare. Privatization often also involves the sale of publicly owned, economically exploitable natural resources, such as water, minerals, forests, and land, to private investors.

Elimination of Social Welfare Programs: Neoliberalism favours sharp reductions in public expenditures for social services, such as housing, health care, education, and disability and unemployment insurance, as a crucial means of reducing the role of government and making private businesses more efficient. Structural Adjustment Policies (SAPs) have been instrumental in requiring countries in the global South to eliminate social welfare spending. Since the early 1980s, the World Bank and International Monetary Fund have required debtor nations to adopt SAPs as a condition of borrowing money or improving conditions of existing loans. SAPs require debtor nations to restructure their economies along neoliberal lines, by, for example, removing government regulation, eliminating social welfare programs, and promoting market competition.

Restrictions on Immigration: While many countries have liberalized capital markets and eased barriers to transnational trade in goods and services under globalization, most have not eliminated barriers to the flow of labour. Indeed, some affluent countries, such as the United States, have implemented more restrictive immigration policies, leading to the detention and deportation of thousands of undocumented immigrants and the militarization of national borders. Despite these restrictions, however, migration has increased along with other processes of globalization.

2. Political Globalization

Although political and economic globalization are interconnected and mutually reinforcing, they differ in significant ways. Political globalization refers to changes in the exercise of political power that have resulted from increased transnational engagement. Prior to World War II, the international political system was understood in terms of the so-called Westphalian model. According to this model, political power is exercised primarily through governance at the level of the territorial state. The international political system is comprised of sovereign states, which enjoy a monopoly on political power within their own territories. International treaties govern relations among states; however, states generally cannot legitimately intervene in the domestic affairs of other nations. Thus, when problems, such as famines, genocides, and civil wars arise, they are seen primarily as security issues for individual states, not matters of justice affecting the global community.

Feminist Theoretical Approaches to Economic Globalization

‘Feminist theoretical approaches to globalization’ is an umbrella term that refers to a number of specific theoretical approaches that feminists have used to articulate the challenges that globalization poses for women, people of colour, and the global poor. These various approaches include those developed by postcolonial feminists, transnational feminists, and feminists who endorse an ethics of care. In this section, we identify four key features shared by these various feminist approaches to globalization and outline some of the distinctive characteristics of each theoretical orientation.

1. Key Common Features

First, feminist approaches to globalization seek to provide frameworks for understanding the gender injustices associated with globalization. Rather than developing all-encompassing ideal theories of global justice, however, feminist philosophers tend to adopt the non-ideal theoretical perspectives, which focus on specific, concrete issues. Early feminist analyses focused on issues that were widely believed to be of particular importance to women around the world, such as domestic violence, workplace discrimination, and human rights violations against women. While gendered analyses of these issues have provided valuable insights into the distinctive nature of the harms involved, many feminist philosophers view this approach as too narrow, both in terms of the specific issues it addresses and its methodological approach to these issues. They contend that even apparently gender-neutral global issues often have a gendered dimension, including war, global governance, migration, southern debt, the "resource curse," and climate change. Moreover, by addressing specific global "women's issues" as independent phenomena, early feminist analyses failed to take into account the systematic and structural gendered injustices associated with neoliberalism. Although gender oppression takes different forms in different social, cultural, and geographical locations, women in every society face systematic disadvantages, such as those resulting from their socially assigned responsibility for domestic work. Because of these structural injustices, women of all nationalities tend to suffer more from the poverty, overwork, deprivation, and political marginalization associated with neoliberal policies. Thus, more recent feminist analyses of globalization tend to understand the outcomes of globalization not as disparate or contingent phenomena, but rather as a result of systematic, structural injustices on a global scale. Indeed, some contend that the global basic structure itself is implicitly biased against women.

The second key feature of feminist approaches to globalization is a shared commitment to core feminist values, including an opposition to the subordination of women. Some theorists also draw upon feminist interpretations of mainstream moral and political ideals, such as equality, democracy, and human rights, to develop critiques of neoliberal policies. For instance, Jaggar appeals to liberal democratic norms to argue that many southern debt obligations are not morally binding because their citizenries were "largely uninformed and/or their options were virtually non-existent" when they undertook these supposed debts. Many feminists also use the language of human rights to address the challenges of globalization. While they acknowledge that traditional understandings of human rights are implicitly male-biased, they contend that feminist rearticulations of these norms can help to identify the gendered harms involved in sexual slavery, forced domestic labour, and the systematic withholding of education, food, and healthcare from women and girls that follow from severe economic deprivation.

The third key feature of feminist approaches to globalization is an emphasis on feminist methodologies. In particular, these approaches tend to embody three key methodological commitments. The first is intersectionality, which maintains that systems of oppression interact to produce injustices, and thus, that gender injustices cannot be understood solely in terms of sex or gender. Feminists who theorize about justice on the domestic level argue that women's experiences of gender oppression are shaped by other forms of oppression, such as those based on race, class, disability, and sexual orientation. Feminist theorists of globalization contend that gender oppression interacts with these systems of oppression, along with other forms of systematic disadvantage that arise within the global context. Salient categories include nationality, geographical location, citizenship status, and socioeconomic position within the global economy (for instance, as a Southern elite, a Western labourer, or a worker on the global assembly line). Given this broad conception of intersectionality, feminist theorists of globalization insist that gender injustices arise within specific transnational contexts, such as historical relationships among nations and current global economic policies.

2. Distinctive Feminist Approaches

Despite these common aims and methodological commitments, feminists have analysed globalization from a number of different theoretical perspectives. Below, we examine three prominent approaches to globalization, developed by postcolonial and decolonial, transnational, and ethics of care feminists. Although it is not possible to draw sharp boundaries around these theoretical perspectives, we identify some distinctive features of each.

3. Postcolonial and Decolonial Feminisms

Postcolonial and decolonial feminisms offer primarily critical theoretical frameworks, which analyse globalization within the context of the history of Western colonialism and imperialism. They begin with the claim that Western colonialism and imperialism have played important roles in shaping the contemporary world, and highlight their enduring effects on global relations and local cultural practices. Although postcolonial and decolonial feminists write from all over the world, they foreground non-Eurocentric epistemic standpoints and criticize North-South power asymmetries from the diverse perspectives of members of Indigenous communities and people in the global South.

Highlighting the role that colonialism has played in shaping local practices enables feminists to avoid adopting a Eurocentric perspective. Likewise, postcolonial and decolonial feminists insist that any feminist analysis of the harms of globalization must take seriously the history and ongoing cultural, economic, and political effects of colonialism and imperialism.

4. Ethics of Care

Another prominent school of feminist theoretical responses to globalization puts care, both caring labour-the work of caring for the young, old, sick, and disabled, and the everyday maintenance of households-and the moral ideal of care, at the centre of its analyses. Proponents of this approach begin by observing that most mainstream analyses of globalization either ignore or devalue care. This is problematic, they argue, for at least three reasons: (1) care work, which is done almost exclusively by women, has been profoundly influenced by globalization; (2) the values and work associated with care are both undervalued and insufficiently supported, and this contributes to gender, racial, and economic inequality, both within countries and between the global North and the global South; and (3) any viable alternative to neoliberal globalization must prioritize the moral ideal of care. Thus, ethics of care approaches to globalization have both theoretical and practical dimensions.

Theoretically, ethics of care feminists aim to provide a systematic critique of neoliberal assumptions and develop moral ideals capable of guiding more just forms of globalization. In their view, neoliberalism presupposes a problematic notion of the self, which posits individuals as atomistic, independent, and self-interested, and an inaccurate social ontology, which suggests that human relationships are formed by choice rather than necessity or dependency. These assumptions lead neoliberalism to prioritize economic growth, efficiency, and profit making over other values, such as equality, human rights, and care. Ethics of care feminists reject these assumptions.

5. Transnational Feminism

In its broadest sense, transnational feminism maintains that globalization has created the conditions for feminist solidarity across national borders. On the one hand, globalization has enabled transnational processes that generate injustices for women in multiple geographical locations, such the global assembly line (discussed below). Yet on the other, the technologies associated with globalization have created new political spaces that enable feminist political resistance. Thus, transnational feminists incorporate the critical insights of postcolonial, Third World and ethics of care feminists into a positive vision of transnational feminist solidarity. Transnational feminism is sometimes contrasted with global or international feminism, a second-wave theory that emphasizes solidarity among women across national boundaries based on their common experience of patriarchal oppression. However, transnational feminism differs from global feminism in at least three significant respects.

First, transnational feminism is sensitive to differences among women. Global feminists argue that patriarchy is universal; women across the globe have a common experience of gender oppression. They promote the recognition of a “global sisterhood” based on these shared experiences, which transcends differences in race, class, sexuality, and national boundaries.

Second, transnational feminist solidarity is political in nature. Whereas global feminists advocate a form of social solidarity defined on the basis of characteristics shared by all women, such as a common gender identity or experience of patriarchal oppression, transnational feminist solidarity is grounded in the political commitments of individuals, such as the commitment to challenge injustice or oppression.

Third, transnational feminists focus on specific globalizing processes, such as the growth of offshore manufacturing, rather than a theorized global patriarchy, and often take existing transnational feminist collectives as a model for their theoretical accounts of solidarity.

Some Feminist Issues on Economic Globalization

In addition to analysing the gendered dimensions of globalization, feminist political philosophers discuss specific issues that have been shaped by it. Below, we discuss four representative examples. First, we discuss two issues associated with economic globalization-economic justice and migration and then we turn to two issues connected to political globalization-human rights and global governance.

1. Economic Justice

It is widely argued that neoliberal policies have created dramatic economic inequalities, both between the global North and global South and within countries in both hemispheres. One task for feminist political philosophers has been to identify the ways in which these policies reinforce specific inequalities based on gender, class, race, and nationality. In particular, feminists shed light on the disparate and often disproportionately burdensome consequences of neoliberal policies for specific groups of women. An additional, related task has been to identify the ways in which gendered practices and ideologies shape the processes of globalization.

Although the claim that international taxation is a requirement of global gender justice might initially seem odd, Brock argues that a fair international tax regime is necessary to prevent the harms that women in the global South suffer when public services are underfunded. In her view, all corporations should pay their fair share of taxes so countries can fund education, infrastructure development, and programs that promote gender equity. Tax havens which allow corporations to evade paying their taxes-so much so that for every dollar of aid that flows into a country, six to seven dollars of corporate taxes are evaded-must be eliminated. Without such reforms, we must conclude that the basic institutional structure of the global economy remains unjust and detrimental to women.

2. Migration

Migration has accelerated along with the globalization of the economy and women comprise a higher proportion of migrants, especially labour migrants, and refugees than ever before. Feminist philosophical responses to the feminization of migration fall into three general lines of argument. Early work in this area highlights the ways in which gender, race, class, culture, and immigration status intersect to produce disproportionate burdens for immigrant women. Subsequent work discusses the feminization of labour migration, with a focus on domestic workers. Finally, more recent contributions explore the relationship between transnational migration and various forms of structural oppression.

Global care chains raise difficult issues for feminists, over and above those raised by the background injustices that help to generate them. In particular, some northern women are able to take advantage of increased opportunities in the paid workforce only because southern women take up their socially-assigned domestic work, leaving their own families in the care of others. Global care chains also contribute to a larger, neo-colonial process-a “global care drain,” in which care is systematically extracted from people in poor countries and transferred to individuals in affluent nations.

Finally, many recent feminist philosophical analyses of migration explore the relationship between transnational migration and various forms of structural injustice, including gender oppression, racism and white supremacy, global economic inequality, militarization, and legacies of colonialism. For instance, Wilcox argues that transnational injustices generate strong moral claims to admission for certain groups of prospective migrants. She advances two arguments for this claim. The first contends that the principle of collective political responsibility obligates states to grant admission priority to prospective migrants who have been seriously harmed by their policies, including economic policies that disproportionately harm women and marginalized workers in less affluent countries. Her second argument maintains that a commitment to relational egalitarianism entails rejecting immigration restrictions that contribute to oppressive transnational structural relations. In the context of gendered and racialized global supply chains, this includes those restrictions on labour migration that increase workers’ vulnerability to exploitation, domination, violence, and marginalization.

3. Human Rights

The term ‘human rights’ refers simultaneously to several things: a moral language; a set of norms and laws, both national and international; and a framework for analysing and responding to the various serious harms experienced by men and women around the world. Feminist political philosophers argue that globalization has had contradictory effects on the extent to which women experience human rights violations.

Many feminists' political philosophers have argued that globalization has contributed to human rights violations against women. Most obviously, neoliberal policies have led to infringements of specific social and economic rights, such as the right "to a standard of living adequate for the health and well-being" and the right "to security in the event of unemployment, sickness, disability, widowhood, and old age" (Universal Declaration of Human Rights, article 25). Moreover, by diminishing women's economic security, neoliberal policies have exacerbated existing forms of gender discrimination and violence and made women and girls more vulnerable to a wide variety of additional human rights violations. Three examples are prominent in the literature. First, the economic insecurity and concomitant increase in poverty associated with globalization have made girls more vulnerable to sexual exploitation. In particular, girls are more likely to be sold as child brides or pushed into prostitution or sexual slavery in order to support their families. Second, when resources are scarce, women and girls are less likely to receive food than boys and men and are less likely to attend school. Finally, Shiva argues that neoliberal globalization has made women more vulnerable to sexual violence. She notes the extraordinary increase in rape in India: 800 percent since the 1970s and an additional 250 percent since the economy was liberalized. Although the reasons for this rise are complex, Shiva believes they are connected to several aspects of globalization: structural adjustment policies, which eliminated major sectors of women's economic activity; the destruction of the natural environment, which displaced many women; and the exclusion of women from economic and political decision-making.

4. Democracy and Global Governance

As with human rights, feminist philosophers have argued that globalization has contradictory implications for democratic governance. On the one hand, neoliberalism has diminished national sovereignty, further excluding women and the poor from democratic processes. Yet globalization also connects people across national borders, creating transnational communities that offer new avenues for democratic participation.

Globalization has been accompanied by the establishment of formal democracy in some countries and the number of women serving in national legislatures has increased in some nations. However, some feminist philosophers are quick to argue that neoliberalism has not resulted in increased political influence for women on the whole, especially at the level of global politics. One important reason is that global economic institutions are neither adequately representative nor fully democratic. Women are virtually absent from the formal decision-making bodies of institutions such as the WTO and the World Bank, and these institutions tend to be unofficially dominated by the interests of wealthy nations and multinational corporations.

Feminists argue that women's lack of political influence at the global level has not been compensated for by their increased influence in national politics because globalization has undermined national sovereignty, especially in poor nations. Structural adjustment policies require debtor nations to implement specific domestic policies that disproportionately harm women, such as austerity measures, despite strong local opposition. Trade rules issued by the World Trade Organization also supersede the national laws of signatory nations, including those pertaining to matters of ethics and public policy, such as environmental protections and health and safety standards for imported goods, as well as trade tariffs.

Conclusion

On the whole, globalization presents a number of challenges to feminist political philosophers who seek to develop conceptions of justice and responsibility capable of responding to the lived realities of both men and women. As globalization will most certainly continue, these challenges are likely to increase in the coming decades. As we have outlined above, feminist political philosophers have already made great strides towards understanding this complex phenomenon. Yet the challenge of how to make globalization fairer remains for feminist philosophers, as well as all others who strive for equality and justice.

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CHAPTER-23

WRITING SKILLS MATTER TO STUDENT'S FUTURE: A WAY OF SUCCESS IN THE MODERN ERA

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Abstract:

In the Modern era, there is a lot of social media platform where we put out views in front of society. If you ever think your writing skills turn into your profession, it would be a great ahead. A big question you need to ask yourself before digging the lines on the paper that are "Why do we write? And What do we write?". If you find the answer to these questions, then you would be much closer to your passion. Writing skills are one of the important skills in the language.

If you truly love your passion and convert it into your profession that would be a great milestone in your path to success. In the IT field, there is a bundle of courses related to writing skills. Even there are thousands of jobs you will get if you have remarkable writing skills. Content writer, Content Manager, Content Strategist, Technical writer, Content Specialist, Instructional Designer, and many more. Most people or students are not aware of jobs like these, especially from Arts, Commerce, and Science faculties among graduate students. Here researcher tries to highlight some important jobs opportunities, various courses, how to become a content writer, etc. that are related to writing skills.

Keywords*: Writing skills, Content Manager, Content Strategist, Technical writer, Content Specialist, Instructional designer, Research skills, Creative thinking*.

INTRODUCTION:

If you want to build your career in the writing field, you must do practice, learn key concepts of all writing tips as well. Writer Bernard Marr stated, "There are key skills that robots simply cannot master." It includes creative thinking, the power of the imagination, structural strategic pathways. Writing skill is productive skills. If you earn money with this capability, you will never die. In the twenty-first century, there are many possibilities for writers. The researcher will talk here about how the future can secure itself by using writing skills, after all, your ability and passion will work.

DISCUSSIONS:

In the modern era, there are a lot of social media platforms where we put our views in front of society. In this digital era, content writing is a highly recommendable job in the market. If you have a great passion for writing you must choose it as a profession. Meanwhile, your passion will become your profession, and what else do you want in your life?? Effective content helps to grow business, especially in the digital platform and marketing world. Therefore, the vast scope of content writing is growing day by day.

Would like to become a content writer too?

Have you done any courses regarding content writing?

Would you like to join an internship program for content writing?

There are lots of questions in front of beginners as content writers. Trust men, this information will help you a lot to choose content writer as a profession.

If we focus on what is container writing, then let me tell you that content writing includes planning publishing creating the content and it is a combination of all those things so this process is called content writing. For digital marketing purposes, it is being used. Just take an example to describe the product and its characteristics and features which portray the products or services. Content writer is closed related to the term search engine optimization. Here target customers place a vital role because they attract effective content. There is various kind of content as follow:

- Script copywriting
- Web-related content
- Creative writing
- Ghostwriting
- Scriptwriting
- Blog writing

Scope of Content Writing:

A good content writer manages the deadline efficiently. He or she is responsible for the content. Content writers should know the basic knowledge of search engine optimization. If we focus on salary, then a good content writer gets a good package yearly. Even part-time, freelancing, and contract basis jobs are also available for content writers. The average salary of the content writer is 10 to 15000 or more in the month for a fresher and if you have experience then you can earn more than that.

Not only in India but also at a global level content writing gain massive popularity. Experienced and skilled writers are getting more jobs from the top organization with them as a business writers or to help them to develop their firms or a business. There are several social media platforms where content writer jobs are posted every day like LinkedIn.

What you Need to Do:

So if you want to become a content writer you need to understand the steps as a beginner.

Firstly, **to know your skill.**

Secondly, **acquire knowledge and shape your skills**

Thirdly **start writing on a different platform**

Fourthly, **to make a strong portfolio**

And lastly, **search for a job, apply for it, and get paid for writing**

Essential skills to become a Content Writer:

Strong Research skill

if you want to write clear and precise content you must have research skills that you can research collect the information and dig into your thought with a palpable spark after the research.

Basic knowledge of digital marketing

Without marketing, there is a waste of quality content. Meanwhile, you must know what is digital marketing. If you do an internship for one month you will get the knowledge of the digital marketing basics too.

Strong knowledge of language and grammar

A good content writer must know a strong knowledge of the language in which he or she going to create content in a particular language. Grammar skill is also essential too. A Good content writer creates error-free content without any mistakes.

Other Skills:

- Communication skill
- Soft skill
- Think about more than imagination
- Time management
- Hands-on experience in technology
- Creative mind and thinking
- Good tone and voice in writing

How to become a content writer?

If you have good writing skills in other required skills related to writing and knowledge about how to create content, trust me that is fair enough. Here are some steps to follow if you want to become a content writer.

Step 1

To know your skills

First, you have to trust yourself if you know your skill then choose a specific topic right it f your thoughts and check it. Now the question is "Do you have a passion for writing?" ask to yourself if the answer is yes then go for it. Polish your writing by doing some courses and get paid for writing. But first, know your skill. If you have an interest in writing, then you must go ahead. There are different areas (educational, healthcare, marketing, IT professional, etc.) that you can write so identify them and ask yourself which areas are fitted you.

Step 2

Acquire knowledge and shape your skills

If you choose content writer as a profession, then you must acquire some basic knowledge about content writing like how to create content how to publish content, etc.

If you know your skill, then you must polish it to become a good content writer. You have to gain knowledge about search engine optimization, meta tags, keywords, eye-catchy lines, bullet points, steps of writing, and So on. Creativity is one of the important factors in the content writer process.

There are various certified courses to help beginners to learn what is content writing. Here go the best one and you can join it. UDemy, Skillshare, ECT, Henry Harvin Education, etc.

Step 3

Start writing on a different platform

After the completion of the courses related to content writing, you must start writing for practice by using different platforms like LinkedIn, Instagram, WordPress, YouTube, etc.

It helps you to create and portray your content free of cost. People will read your content and suggest or comment on your content that you can understand what you have to improve in your writing skills. Even on recent trends, you can write content by using social media platforms that flourish your writing day by day.

Step 4

To make a strong portfolio

After practicing writing on various topics you should create a strong portfolio that people will connect to you for recruitment purposes and you might be easily hired by the company. This process is quite smooth and helpful to provide your writing samples.

For example, On LinkedIn, you can upload your CV and your writing samples as a portfolio to showcase your skills and ability for the post of content writer.

Step 5

Search for a job, apply for it, and get paid for writing

After completing the practice and portfolio, you must go ahead to search for a job for the post of content writer. You will get various posts like Copywriter, junior writer, senior writer, content leader, etc. In the beginning, you must do a content writer internship program available in form of paid/unpaid or you can do freelancing too. Gain some experience and then apply full-time to earn more money depending on your skills. Finally, you are nearer to your destination as a content writer by profession.

I hope this readable data to those who want to become content writers. You understood what kind of skills are required for content writing and how to get the job after completing the course and practices. I am sure that your skills will give a palpable spark to your career if you have an interest in writing skills and be a successful one in the market.

Stay tune!!!!!!!!! Happy Learning!!!!!!!!

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CHAPTER-24

THE CHALLENGES OF GOOD GOVERNANCE AND WAY FORWARD

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Abstract:

Off late "governance" and "good governance" are being increasingly used in the context of development. Good governance is being increasingly regarded as one of the essentials for attaining public good. It has gained relevance in the context of democracy that believes in the welfare of all people. It can be understood as a system of governance which is characterized by commitment and responsiveness from the government by ensuring inclusion in all that they do.

A good government serves masses and not classes. A number of relevant concerns must be understood for a holistic view on this. It is very obvious that the chosen government is supposed to serve interests of the majority. It is imperative for the government to accommodate the disadvantaged in the mainstream so that they are ensured their share in the nation's progress. Though it is challenging, good governance can be measured by the degree of success achieved in this area.

The said chapter intends to summarize challenges faced in achieving good governance and viable recommendations towards achieving it in the Indian context. Lessons drawn can be useful in the design and implementation of governance projects in the future.

Keywords: *Inclusion, Good Governance, Responsiveness, Transparency, Democracy.*

1. Good Governance: Background and Context

Good Governance implies maximising welfare in governance and improving the quality of governance. It further implies that the government must work towards the welfare of the disadvantaged so that parity is achieved. There must be equal access to all goods and services by the people. Good governance can also be understood in a way in which there is proper utilization of resources of the country which ensures equitable development.

According to UNDP, "*Good Governance is, among other things, participatory, transparent and accountable. It is also effective and equitable. And it promotes the rule of law. Good governance ensures that political, social, and economic priorities are based on broad consensus in society and that the voices of the poorest and the most vulnerable are heard in decision making over the allocation of development resources*".

The concept of "governance" is not new but today 'good governance has gained relevance in the context of maximizing the public good. Since the Tenth Five Year Plan (2002-2006) good governance has been given a lot of importance. Accessibility and affordability to goods and services can be a positive outcome of good governance and hence is imperative. All the citizens of the country must have access to various facilities for their wellbeing. Grass root development is what we need.A good government will look after the interests of the majority and not just the interest of the classes. Democracy is a practice wherein the chosen government is expected to serve interests of the masses. Only good governance can make democracy succeed.

2. Obstacles and Challenges for Good Governance

Without good governance in a country, no development can be sustainable. Be it production or consumption, nothing can be sustaining. Good governance can ensure fair distribution of national wealth. Social development which implies that there is fairness and impartiality in the society will come only with good governance. Strong and effective political leadership can ensure political development in the country. To move closer to good governance it is important to understand hindrances in achieving it.

1. Electoral promises made at the time of elections are not kept by the politicians. It is important to make the political parties accountable for unfulfilled promises which can make the citizens of the country believe that the government works for the common good. Unfulfilled commitments have hindered a consensus on good governance.
2. There must be efficiency in operations of governance. Providers of public services are expected to be efficient. They are expected to carry out operations in a way that positive outcomes are maximized. Efficiency means best utilization of resources to maximize public good. Inefficiencies can lead to wastage of precious resources and deepen inequalities which goes against the very principles of good governance.
3. Clear cut directions and a proactive plan is needed to achieve good governance. A long-term plan of action needs to be chalked out.
4. Absence of accountability can hamper the goals of governance. Government must be accountable to its stake holders. In the absence of objective parameters of measuring the performance of the government institutions, it may be difficult to assess outcomes of governance.
5. Participation by masses is imperative for good governance. Both men and women, vulnerable and empowered must participate for democracy to be successful. Citizens need to be aware of their political rights and duties. Only when all the citizens participate in the public affairs, good governance can be achieved.
6. Good Governance requires transparency so that people believe in the system and there is fairness in treatment meted out to them. Masses must have access to correct information regarding the government policies and programmes. Media should aid this understanding.
7. In the absence of an independent and impartial judiciary, goal of good governance may be compromised. Free judiciary is an effective instrument of upholding social justice. It is imperative that there is a credible judicial machinery.
8. Citizens need to be educated about their rights and obligations, so that they can be viable partners in all development activities. Absence of education and information can slacken the move to good governance.
9. Corruption flourishes in any country where governance is not effective and efficient. Corruption and bureaucracy threaten the existence of good governance. This explains why controlling corruption is high on priority in the government's agenda.

10. A good government must be responsive so that there is a healthy relationship between the government and its citizens. It requires timely provision of the needed services to the people at affordable rates.
11. Good governance implies that every citizen should feel valued and must have opportunities for a good life. Pursuing only sectoral interests does not go with good governance; it needs parity amongst all groups.

3. Addressing Concerns

Addressing Accessibility Concerns

The key objective of good governance is to empower the disadvantaged and help them to join the mainstream population which will lead to inclusive growth. Compliance to the below may get us closer to good governance.

1. Participation by all, irrespective of economic status, sex, caste, religion etc., is a key cornerstone of good governance. Youth participation canimprove governance. Youth are influential in communities and are innovative, creative which may give a new insight into the pressing problems of the society.
2. One important step towards good governance can be developing objective quality parameters for political parties to achieve. This would be a reliable guide to performance measurement and ensure that the lofty commitments given during elections are fulfilled. This will ensure participation of the people in the real sense.
3. Good governance requires a comprehensive and sound legal framework which is free and impartial. Once justice is assured and speedily given, masses will believe in the system of good governance. A fair legal system that gives full protection of human rights to its citizens is most likely to succeed for which an independent judiciary is needed.
4. When governance is strong, honest, impartial and based on equity and justice with an urge to pursue the well-being of the masses, credibility follows. Citizens believe in such governance and is most likely to support it.
5. Transparency is essential for good governance. Itimplies that secrecy in public affairs must be avoided and the citizens must be aware of the work of government bodies. Information should be freely available and directly accessible to those who will be affected by such decisions and their enforcement.
6. Understanding the needs of the citizens and working towards addressing the needs can go a long way in promoting good governance. An effort must be made to understand the unmet demands of the public that needs to be met by giving immediate attention.
7. The society is better off when the disadvantaged vulnerable groups have a stake in the government’s policies and programmes. It is relevant that the government prioritizes the marginalized in its plans, policies and programmes.
8. Good governance means that government institutions must produce best outcomes whilst making use of resources at their disposal. Prudent resource utilization can avoid wastes and misuse of resources
9. Accountability to the public is a key requirement of good governance. The government officials should be accountable and committed to the general public. Good governance understands accountability in terms of bringing about inclusiveness, making services affordable and accessible and aspiring for grading of performance.

Conclusion

A number of initiatives have been taken to promote good governance. We need to acknowledge that the Government alone cannot address this challenge and legislation in isolation is not enough. Stakeholders across the spectrum have an important role to play in ensuring that the benefits of better governance reach all citizens. The full potential of these and other measures of the Government can be realized only with the active engagement of all stakeholders. Good governance is therefore much needed to make the government efficient, credible and transparent in its operations which can win the confidence of the citizens of the country.

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CHAPTER-25

CUSTOMER SERVICE MANAGEMENT OF LIFE INSURANCE COMPANIES IN INDIA: A COMPARATIVE ANALYSIS

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Introduction

The life insurance industry has travelled a full circle. Started with a private ownership activity in 1818; it got nationalized in 1956. With a view to promote socio economic development and with liberalization of Indian economy, life insurance sector allowed the private and foreign insurance companies to increase their operation with international standards. India's premium share in global life insurance was at 2.73% during 2019.The total insurance penetration in India was at 2.86% in 2019 and the total insurance density in India was at $58 in 2019-20[1.] Traditional life insurance products were sold through the individual agents and they accounted for the major chunk of the business. Gradually the industry moved from the traditional individual agents to new distribution channels with paradigm shift in creating awareness and not just selling life insurance products. With the entry of private players, the market is flooded with new products and new means of marketing. Presently life insurance products are highlighted as an attractive investment avenue and not just a security or a tax saving instrument. Private players have strengthened their competitive position at par with public life insurance company. The total number of life insurance companies registered with IRDA has increased to 24. With 23 private players and 1 public sector giant LIC the face of insurance industry is changing very rapidly. The life insurance industry is expected to increase at a CAGR of 5.3% between 2019 and 2023[2.]The customers are able to enjoy several innovations in the products and service standards as the companies are becoming more customer centric. In line with the emerging needs, companies are offering products targeted at diverse customer segment (women, youth, etc.). Every stakeholder in the industry need to interact with customers, educate them on benefits of insurance products, focus on need based selling and draw in more customers into this industry.

Review of literature

Peter Drucker (1973) contended that the whole business is the final result of understanding the customers point of view. Company cannot stay in business if it does not attract and hold enough customers, no matter how efficiently it operates (Levitt, 1974). The rising customer awareness and aspiration of quality services and availability of alternative service providers in Indian market has made the customers more demanding (Jha, 2002). The service in insurance industry is different from that offered in other functional areas. While the interaction between financial companies is more or less continuous but it is not so with life insurance companies. They hear from their customers only when the event occurs. So building a good relationship with the customers, efficient and excellent services leading to customer satisfaction and increased profit are the major challenge life insurance industry face today (Jawaharlal and Rath, 2005). Customers are the real pillar of the success of life insurance business and thus its important for insurers to keep their policyholders satisfied and retained as long as possible and also get new business out of it by offering need based innovative products. There are many factors which affect customers investment decision in life insurance and from the study it has been concluded that demographic factors of the people play a major and pivotal role in deciding the purchase of life insurance policies. (Ms. Babita Yadav & Dr. Anshuja Tiwari, 2012).

Satisfaction is a most important considered factor among the customers and company to add value towards their product and service which leads to customer satisfaction. This study results that every insurer should understand the consumer requirement about the policies offered by them. Some of the suggestions, for LIC in India can succeed by covering more clients through advisers and advertisement. They should create awareness among the illiterate and rural groups for the growth of business by concentrating on more promotional activities. They should create economic value for the customers. So, that lack of trust and privacy among the customer can be avoided, quick repayment and security measure should be taken for attracting more policyholders (Maya Kannan, 2018)

Relevance and significance of the study

For economic development, investments are necessary. Investments are made out of savings. A life insurance company is a major instrument of mobilization of savings of people particularly lower and middle-income groups. These savings are channelized into investments for economic growth. Since privatization, the life insurance industry has made rapid strides as a key contributor for economic development of the nation.The insurance industry in India has witnessed an impressive growth rate over the last two decades driven by the greater private sector participation and an improvement in distribution capabilities, along with substantial improvements in operational efficiencies. India is the 10th largest Life Insurance market globally.[1]

Table 1: Growth trend in Life Insurance Companies in India

Year	Name of company
2000	Life Insurance Corporation of India
2000-2001	HDFC Standard Life Insurance Corporation Limited Max Life Insurance Company Limited ICICI Prudential Life Insurance Company Limited Kotak Life Insurance Company Limited Aditya Birla Life Insurance Company Limited Tata AIA Life Insurance Company Limited SBI Life Insurance Company Limited Exide Life Insurance Company Limited Bajaj Allianz Life Insurance Company Limited PNB MetLife Insurance company limited
2001-2002	Reliance Nippon Life Insurance company
2003-2004	Sahara India Life Insurance Company Limited
2004-2005	Shriram Life Insurance Company Limited
2005-2006	Aviva Life Insurance Company Limited

2006-2007	Bharti AXA Life Insurance Company Limited
2007-2008	Future Generali Life Insurance Company Limited Ageas Federal Life Insurance Company Limited
2008-2009	Canara HSBC Oriental Bank of Commerce Life Insurance Company Limited Aegon Life Insurance Company Limited Pramerica Life Insurance Company Limited Star Union Dai-ichi Life Insurance Co. Limited
2009-2010	India First Life Insurance Company Limited
2010-2011	Edelweiss Tokio Life Insurance Company Limited

(Source: http://www.irdaindia.org/hist.htm)

The trend shows that life insurance industry is one of the shinning stars of Indian economic engine. However, it has been observed that the customer awareness about the life insurance products are still low among the average countrymen. Inspite of the fact that consumers are considering life insurance as an investment option but most of the customers do not read the annual reports of the life companies to analyse their performance.

Objectives of the study

1. To study the consumer awareness and perception about the service quality of the selected life insurance companies.
2. To make a comparative analysis between service quality of public and private life insurance companies.

Limitations of the study

1. Area covered under the study is Navi Mumbai and hence other major cities in India which are also progressive will not be considered for geographical constraints.
2. The study is limited to the life insurance companies selected by the respondents.

Research methodology

Classes of respondent for the study

Researcher had used Exploratory Research method based on empirical study which includes the following classes of respondents under the study

1. Investors of public life insurance company
2. Investors of private life insurance company

Methods of data collection

Primary data**:** Data pertaining to customer service, qualitative in nature was collected through self-structured questionnaire. The questionnaire was tailor made to meet the objectives of the study since no standard questionnaire was available. Likert five-point scales was used to obtain the degree of agreement or disagreement with regards to the services of the insurance companies. respondents. The respondents were selected on random basis.

Secondary Data:The secondary data will be collected from annual reports of the life insurance companies, annual reports of Insurance Development Regulatory Authority (IRDA), journals, periodicals, insurance chronicles and newspapers. E-resources were also used.

Techniques of analysis of data

The statistical tools used for analysis are

1. Comparative analysis
2. Table, graphs, charts, diagrams.

Findings based on the study

Table 2: Investor of Public and Private Life Insurance Company

	No. of respondents	%
Public Life Insurance Company	12	31.57%
Private Life Insurance Company	06	15.79%
Both	20	52.63%
Total	38	100.00

(Source: Compiled from primary data)

Out of 40 respondents, 38 had life insurance coverage. Even after opening of the insurance sector the trend is being noticed that people prefer to invest in both public and private life insurance companies.

Table 3: Nature of respondents

Profession	No. of respondents
Academicians	19
Business person	04
Service	12
Housewife	03
Total	38

(Source: Compiled from primary data)

For the present pilot study, 50% of the respondents are from teaching profession and followed by service holders.

Table 4: Relationship between number of family members and number of life policies

No. of family members	No. of life policies
87	85

(Source: Compiled from primary data)

It is evident from the table mostly all respondents have life policies for all family members and in some cases for an individual there is more than one policy.

Table 5: Reasons for purchasing Life Insurance policies

Reasons	Responses	%
Security	38	100%
Tax planning	15	53.58%
Investment	17	60.71%
All of the above	12	71.40%

(Source: Compiled from primary data)

From the table we find that 100% of the investor purchase life insurance policies for security purpose and so the life insurers should serve the customers keeping in mind that any wrong move on their part will result in loss of faith of investors. A trend can be noticed that life insurance is now increasingly viewed as an investment avenue for bringing safe and secured return.

Table 6: Relationship between Income Level and Premium paid

Yearly income (Rs)	Average yearly income (Rs)	Average premium paid (Rs)	% of premium to income (Rs)
Less than 1,20,000	1,20,000	2,500	2.08%
1,20,000-3,00,000	2,10,000	6,846	3.26%
3,00,000-6,00,000	4,50,000	35,571	7.90%
6,00,000-12,00,000	9,00,000	41,000	4.55%
Above 12,00,000	12,00,000	97,780	8.14%

(Source: Compiled from primary data)

It is observed from the table that those who are earning above Rs 1,00,000 per month spends the maximum on life insurance policies followed by those who are in monthly income range of Rs 25,000 -50,000.

Table 7: Sources of awareness about Life Insurance Companies

Source	No. of respondents	%
Financial Journals/Business magazines	06	10.71%
Friends/Relatives/Colleagues	13	23.21%
Television	14	25.00%
General /Business newspaper	07	12.50%
Broker/Agent/Professional Consultants	16	28.57%

(Source: Compiled from primary data)

From the table it is evident that maximum awareness about the life insurance is obtained from the brokers, agents and professional consultants followed by television media. Reference from the friends, relatives and colleagues also form an important source in creating awareness. It is evident that serving the existing customers in a better way will act as an important publicity tool for the life insurers.

Table 8: Preference for Life Insurance Companies

Name of Life Company	No. of respondents
Life Insurance Corporation of India	20
ICICI Prudential Life Insurance Company Limited	09
Reliance Life Insurance Company limited	03
Birla Sun Life Insurance Company Limited	01
HDFC Standard Life Insurance Corporation Limited	01
SBI Life Insurance Company Limited	01
Max New York Life Insurance Company Limited	01
Kotak Mahindra Old Mutual Life Insurance Company Lim	01
Tata AIG Life Insurance Company limited	01

(Source: Compiled from primary data)

From this table, we find the maximum number of respondents prefers public life insurance company LIC and in private ICICI Prudential Life Insurance Company tops the list.

Table 9: Rating of the life insurance companies

Parameters	Public Life Insurance Company	Private Life Insurance Companies
Reputation	1	4
Customer relationship management	7	1
Range of products	3	2
Flexibility in the modes of payment of premium	4	3
Advertisement & promotion technique	6	3
Relationship with agents	2	4
Settlement of claims	4	5
Grievance handling mechanism	5	5
Returns	5	6
Communication	8	7

(Source: Compiled from primary data)

From the table we find that reputation, relationship with agents and range of products are the main reasons for choosing public life policies. At the same time the communication about the various new products and schemes should be properly communicated by the public life company to maintain the brand image in the minds of the customers. For private life companies, customer relationship management, range of products, flexibility in the modes of payment, advertisement and promotion techniques are the main tools for improved customer satisfaction. It has been observed that for both public and private life insurance companies communication should be placed more emphasis for improving the customer service management.

Table 10: Brand Loyalty among customers

Opinion about changing the brand	No. of respondents	%
Yes	08	21.05%
No	30	78.95%

(Source: Compiled from primary data)

83.37% of the investors are satisfied with present life insurance company and they do not want to change. One investor suggested that there should be portability of life insurance policies also.

Conclusion

The life insurance industry is dominated by public life insurance company LIC because of the brand image the investors have in mind about LIC. When it comes to life insurance people prefer to invest in companies which give security for the future and not just returns. Brokers, agents and professional consultant play a major role in creating customer awareness about insurance policies. At present it has been observed from the study that customer service management of private life companies is better than public company. The customers are more satisfied with the range of products, flexibility in the modes of payment of premium and advertisement and promotion techniques of private life insurance companies. The customer awareness programme of private life company is better than public company. The customer service management of public life companies should be made stronger to maintain their market share in future.

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CHAPTER-26

UNLEASHING FOOD SECURITY MYTHS DURING COVID TIMES IN INDIA

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Introduction

India is the second most populous country in the world and has enjoyed steady economic growth and has achieved self-sufficiency in grain production in recent years. Despite this, high levels of poverty, food insecurity and malnutrition persist. Around 21.25 percent of the population lives on less than US$1.90 a day, and levels of inequality and social exclusion are very high.

India is home to a quarter of all undernourished people worldwide around 195 million, making the country a key focus for tackling hunger on a global scale. In the last two decades, per capita income more than tripled, yet the minimum dietary intake fell. The gap between rich and poor increased during this period of high economic growth.[1]

India has made rapid strides in improving rates of under- and malnutrition. Between 2006 and 2016, stunting in children below five years declined from 48% to 38%. India continues to have one of the world’s highest child under nutrition rates. It adversely has impacted the child’s health and development, performance in school and productivity in adult life.

Review of literature

There has been various studies in India related to food security. Purnima (2008) reported hunger index score of India. Lathi and Parag (2010) studied the concepts, realities and innovation of food security of India. Srivastava and Ramesh (2017) reviewed the calorie intake transitions in households of India. Catherine and Jose (2018) reported area under cultivation, production and yield of foodgrains production. Maheshwar and Biswajit (2018) studied food security programme of India. There is a research gap in the studies related to food insecurity increased during Covid times. This paper makes an attempt to examine food insecurity during Covid times in India.

Objectives of the Study

1. To study the pattern of food security in India.
2. To examine the state of food insecurity during Covid pandemic.
3. To suggest a way forward to achieve food security.

Research Methodology

The study uses secondary data available in books, journals, research reports and websites.

The Challenge

With nearly undernourished people, India shares a quarter of the global hunger burden. Nearly 47 million or 4 out of 10 children in India are not meeting their full human potential because of chronic under nutrition or stunting. The government has large food security and anti-poverty programmes but there are critical gaps in terms of inclusion and exclusion errors. Women and girls are particularly disadvantaged. Despite the achievement of national food self-sufficiency, new challenges have emerged: Slowing agriculture growth, climate change, land degradation and shrinking bio-diversity. Large tracts of farmlands in India have become barren due to excessive use of a single fertilizer, urea.

Government of India Programmes and Initiatives

To increase agriculture output

There is five-fold increase in food grain production from 50 million tonnes in 1950-51 to about 316.06 million tonnes in 2021-22[2]. India has moved away from dependence on food aid to become a net food exporter.

In 2016, the government launched a number of programmes to double farmers' incomes by 2022. These seek to remove bottlenecks for greater agricultural productivity. These are:

- The National Food Security Mission
- Rashtriya Krishi Vikas Yojana (RKVY)
- The Integrated Schemes on Oilseeds, Pulses, Palm oil and Maize (ISOPOM)
- Pradhan Mantri Fasal Bima Yojana
- The e-marketplace
- Massive irrigation and soil and water harvesting programme to increase the country's gross irrigated area from 90 million hectares to 103 million hectares by 2017.

To reduce malnutrition and hunger

The government has also taken significant steps to combat under- and malnutrition over the past two decades, such as

- The introduction of mid-day meals at schools
- Anganwadi systems to provide rations to pregnant and lactating mothers
- Subsidised grain for those living below the poverty line through a public distribution system
- The National Food Security Act (NFSA), 2013, aims to ensure food and nutrition security for the most vulnerable through its associated schemes and programmes, making access to food a legal right.

UN Support

- To address the linked nutrition and livelihood challenges in India the UN priority group partners with the government to scale-up nutrition services and improve feeding and caring practices in the home.
- It assists government efforts to increase the efficiency and effectiveness of the safety nets under the NFSA, and work towards increasing farm incomes for small and marginal farming households.
- It provides support to anti-poverty programmes, particularly the Mahatma Gandhi National Rural Employment Guarantee Act and the National Rural Livelihoods Mission.
- The group has also collaborated with the Ministry of Health and Family Welfare
- The benefits through these international organizations are also extended like United Nations Children's Fund (UNICEF), Food and Agriculture Organization (FAO), International Fund for Agricultural Development (IFAD), International Labour Organization (ILO), International Organization for Migration (IOM), United Nations Entity for Gender Equality and the Empowerment of Women (UN Women), United

Nations Development Programme (UNDP), United Nations Educational, Scientific and Cultural Organization (UNESCO) and World Food Programme (WFP).[3]

Covid-19 Challenges

- India was home to the largest number of undernourished people in the world even before the Covid-19 pandemic. However, the government had 120 million tonnes as on July 1, 2021of food grains in its godowns which is larger than the food stocks of any country.
- The latest edition of the State of Food Security and Nutrition in the World (SOFI) report (2021), released jointly by five UN organizations, reveals that the pandemic and failure on the part of the state to combat its effects, has led to a significant increase in the prevalence of hunger and food insecurity in the country.

India's food insecurity as per SOF

According to SOFI Report 2021, the prevalence of moderate to severe food insecurity in India rose by about 6.8 percentage points in 2018-20.[4] In absolute terms, the number of persons facing moderate to severe food insecurity has increased by about 9.7 crore since the outbreak of Covid. There is a Prevalence of Undernourishment (PoU) and Prevalence of Moderate and Severe Food Insecurity (PMSFI).

Associated issues to food security

- **Prevalence of Undernourishment (PoU):** The Prevalence of Undernourishment (PoU) estimates are based on national consumption surveys of the countries showing per-capita supply of food. The increase in prevalence of hunger captured by PoU from 14% in 2019 to 15.3% in 2020 for India. However, these consumption surveys are updated only once in a few years. Hence, PoU is not sensitive enough to adequately capture recent disruptions such as those caused by the pandemic.
- **No recent consumption surveys by India:** Since the outbreak of the pandemic, the Indian government has not undertaken any official assessment of food insecurity in the country. In this situation, the PMFSI estimates are the only national-level valid and reliable estimates available on the impact of the pandemic on food insecurity in India.
- **Denial of situation by the Government:** The Government of India avoided its own assessment of consumption and food security surveys.
- **Socio-economic distress:** Despite being self-sufficient in the production of major food commodities, problems of hunger and food insecurity are severe in India because of widespread economic distress, high unemployment and high levels of inequality.
- **Informal sector:** A large proportion of the poor is dependent on the informal economy in which incomes are very low and uncertain. The families depend on the informal economy do not have assured access to adequate and nutritious food.
- **High unemployment rates:** Unemployment rates have also risen sharply over the last few years.
- **High and fluctuating food prices,shrinking public investment and the economic slowdown:** It has compounded the distress among working classes and the poor.
- **Impact of pandemic:** PMSFI estimates show that there were about 43 crore of moderate to severe food-insecure people in India in 2019 which increase to 52 crore

by 2020 as a result of the pandemic-related disruptions. In terms of prevalence rates, this food insecurity increased from about 31.6% in 2019 to 38.4% in 2021. The long standing problems of unemployment, inflation, informal sector employment and economic slowdown were aggravated in 2020 due to lack of preparation to deal with the pandemic.

- **Inadequate distribution of food through PDS:** Deserving beneficiaries of the subsidy are excluded on the basis of non-ownership of below poverty line (BPL) status, as the criterion for identifying a household as BPL is arbitrary and varies from state to state.

Recommendations

- The sharp increase in food insecurity directs towards an urgent need for the government to establish systems for regular monitoring of the food security situation in the country.
- Universalizing the access to the Public Distribution System and One Nation One Ration Card Scheme (ONORC), at least during the pandemic. This will enlarge the scope of food security schemes.
- The PDS should be strengthened and the food basket can be enlarged to include millets, pulses and oil. This will help in addressing the issue of hunger and malnutrition.
- Poor people, irrespective of whether they have a ration card or not, should be allowed to take subsidized grain from ration shops.
- With the current procurements of grain with the government only better implementation of schemes is required.
- Integrating humanitarian, development and peace building policies is required to prevent families from selling meagre assets in exchange for food.
- Intervening along supply chains to lower the cost of nutritious foods such as by encouraging the production fruits and vegetables and farmers to have market access.
- Incorporating self-help groups for better outreach.

Conclusion

Right to food is not only a statutory right but also a human right. As a state party to the Universal Declaration of Human Rights, India has the obligation to ensure the right to be free from hunger and the right to adequate food for all of its citizens. Due to the disruption caused by Covid-19, there is an urgent need to incorporate better distribution systems to ensure food security. There are sufficient resources to minimise food insecurity. What is needed is to utilize these resources to their maximum advantage.

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CHAPTER-27

INDIAN ORATURE: FROM EMERGENCE TO GLOBALIZATION

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Introduction:

The present paper is entitled "***Indian Orature: From Emergence To Globalization***" puts a strong highlighting on the Indian Orature, which has huge importance in the recent developments in Indian English Literature. Indian Oral Literature communicates in the area of the spoken (oral) expression to literature as literature functions in the field of the written word. Therefore, it forms in general extra primary element of traditions and culture, but it functions in various ways as one might expect literature to do. The term, *Orature,* is introduced by Pio Zirimu. It means to avoid an oxymoron, but oral literature remains more general both in educational and accepted writing.

The spirit of all beliefs and religious pathway has approached to us chiefly through oral traditions. It was approved on from generation to generation by speaking or singing them to one another, to their children and to their children's children. The traditions were protected, reserved living and invigorated by the trainer or the narrator or the singing minstrel.

Besides moving, the hub of the principle, the oral tradition was delicious with song, poetry, myth, parable and wonder. These emerged to have had an additional durable and a stronger impact than did the systems, beliefs and the proper books. Therefore, the huge stories have turned into a part our communal- consciousness.

Indian Oral Tradition:

Before we approach to the classical oral tradition of India, let us briefly talk about that fabulous folk tradition of India. The Indian Oral Tradition goes back into enduring ancient times. The heroes and heroines of the olden ages are reserved living during songs and dances of easy rural community. The nomadic tribes that rambled far into outlying valleys in investigate of meadow and waterholes to be inclined their groups burst out into poignant soulful songs pining for their beloveds and yearning for the smells, sounds and experience of their homeland.

The two most important epics that fashioned the Indian receptivity, the '*Ramayana*' and '*Mahabharata*', were conserved and increased as oral epics. The '*Suthas*' recounted and sang the magnificence of its heroes and heroines in celestial enthusiasm. Yet to this day, the tradition of dedicate groups of listeners meeting approximately a 'sutha' to snoop to the ancient stories, rather than understand the epic poems themselves, is still living.

While, fine arts or poetry is easier to consider than text, the oral tradition in Indian literature is not restricted to poetic literature. Indian story telling has been shaped to outfit oral figure right from the very opening of story or fiction in India. The stories in the '*Kathasaritasagara*' and the '*Jataka*' are prearranged for oral depiction by wandering minstrels.

India has a plenty of its wealthy tradition of story- telling to its ancestral community. The tradition of story- telling suggests films of drained travelers, at the ending of a long day's solid voyage, meeting approximately a fire lit on the sands of a river bank in the shining night, pay attention with gripped concentration and enjoyment to the stories of speculate and terror of remote lands occupied by foreign people, narrated by an senior, in supernatural calming accent with dramatic and poetic pauses. Through every re-telling, the stories get together other narrative, attractive further indirect to improve the drama of the surviving reading.

The influence of the oral language to light the listener's thoughts and convey him to the globe of thoughts, dreams, mythology and fables, is really remarkable.

Folk Art and Drama:

Folk art and drama are also one of the notable forms of oral tradition. In familiar, they bring on prosperous in generally Indian languages. Yet, throughout the antique times, the '*Sanskrit Drama*' finished an open-minded use of folk basics and folk languages. At the present day, the Kannada and Tulu languages have the '*Yakshagana*' theatre, the Gujarati language has the '*Bhavai*' theatre, the Marathi has the '*Tamasha*' and in English has '*Opera*' performances. These regional forms do not have an eternal and written text to preserve the act. They are natural and depend on running by the performers. In addition, for that clarification, when assessed to plays with printed scripts, they are closer to the audiences. That does not mean they are antique forms of play; on the other hand, they are difficult in technique, manifestation as well as performance.

The modern Indian playwrights likes Girish Karnad, Habib Tanvir and others are well-established in the oral traditions of literature. They are fewer perceptible by the power of the west and are closer to Indian civilization and belief.

Yet, traditional information of subjects like art, music, grammar or thinking is usually in custody to require a straight oral message from '*guru to his pupil*'. In India, it is this oral tradition that is held to represent the clean communication of music; its teachers and students, like, are silent not satisfied in plunging musical sounds in to printed notations.

Trickster Tales:

Trickster Tales was one of the significant types of narrative which was frequently told at night by grandparents to entertain and educate the children. They were similar to Western fairy legends but were habitually periodic, recurring, and revolved about the adventures of a conservative quality. The most popular quality was the 'trickster' quality. It is called trickster, because of his naughty and misleading tricks. Frequently emerging like raven, rabbit, fox, or most usually a coyote. The trickster was an entertaining form which sometimes outwitted others and sometimes outwitted him. He characteristically personified traits similar to lust, greed, and avarice. His tales amused but also skilled spectators the penalty of such faults.

Vedas:

The common surprising of all the oral traditions conserved in India, Vedas is also significant oral traditions. Rishi Veda Vyasa classified and accumulated four Vedas by tearing the primeval solitary Veda and made the Vedas extra agreeable to study and to memorize. The mission of protecting and perpetuating each branch of the Veda, in its total and purity was allocated to a particular '*Shakha*'. It is amazing that huge bodies of Vedic texts could be conserved in oral traditions for more than thousand years.

Next to this, several patterns of '*Vedic mantras*' were devised to make sure whole and ideal memorization of the text and its articulation counting the Vedic field pronunciation. These prototypes called '*Pathaas*' make sure accurate recital of the '*Veda mantra*' by intertwining the mantras into diverse patterns and multifaceted combination of such patterns. There are eleven recognized prototypes or Patahaas Viz. Samhitha or vakhyaa, padaa, krama, jataa, maala, Sikhaa, rekhaa, dhvajaa, dandaa, rathaa and Ghana.

Salient Features of Ancient Indian Culture:

Age old Indian culture deals with the following features:

1. It's anxieties for the conservation of holy texts and the cleanliness of the language in which they were calm. This apprehension occurs out of the enthusiasm of the society not only to give the capital for this communication, but also to the expansion of a method that would assure the cleanliness, total and faithfulness of the texts.
2. The choice or plan developed was to give the holy texts to recollection and to convey the holy texts orally.
3. Anybody has observed an expression of this method can attest, the result seems to be quite infallible, better anyway than using literacy and handwritten communication, where scribal fault and entity additions and emendations can frequently be commenced.

Themes of Oral Traditions:

Fundamentally, the diversity of forms and language in the oral tradition were a number of general themes:

1. The wisdom of the holy.
2. The intelligence of the attractive.
3. The sense of position and the sense of society.

The prototypes inside songs and narratives, such as recurrence and regularity, reproduced that balance. Intended for every tribe, however, the holy was frequently situated in a precise position, occasionally explained as a legendary house place or the site of beginning. As the tradition celebrated sacred places, it also repeated the entity that he or she was element of a better whole, an entire that incorporated not only the society but also all of formation. Courage and agreement is knowledgeable for all living.

Conclusion:

Therefore, the oral tradition of India has its immense value not only in India but also across the Asian continent. It is an outcome of the oral transmissions of the folk and it should not be misunderstood as a substitute for the literacy of the people. It has its own dignity and value in a cultural setup.

It can be said that most of the literatures in India sprang from the orally rendered songs and stories of various emotions. The roots of these literatures can be also traced back to the religious rituals and songs of Gods. The art of story-telling helped to enrich the oral cultures and literatures. The native folk had an inevitable part of oral celebrations on several occasions during the year. These folk art forms formed his cultural world, which was then enriched by generation after generation. Thus, Oratures are an important means of expression of the native man. The today's refined literary forms are the product of these Oratures.

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CHAPTER-28

WORK FROM HOME: A DILEMMA

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Abstract:

The Covid19 pandemic has impacted the lives of people around the world including corporates. To survive the pandemic situation many corporates had to change their working. Many companies made arrangement for their staff to work from home. Now things are coming back to normal and the government has also started to curb the restrictions slowly. Many companies are making arrangements for shifting back to normal office working. Some companies have given option to employees whether to continue to work from home or they would like to work from office as earlier. However, this has created a dilemma among the employees (especially IT sector) i.e. whether to work from home or should they go to office for work. This article studies the reasons why some people want to continue to work from home and why some people want to join office for work as pre-pandemic. The article concludes that with the change in technology has helped companies to supervise employees remotely. This has benefitted the companies to get work done efficiently as well as it has benefitted workers as they can work from home and maintain work-life balance leading to higher productivity. Hence a Hybrid work model i.e. working for some days at home and some days at office is gaining more acceptance both among corporates as well as employees.

Keywords: *Work from Home, Hybrid Model, work-life balance*

Introduction:

The Covid19 pandemic has impacted the lives of people around the world including corporates. To survive the pandemic situation many corporates had to change their working system. Many companies made arrangement for their staff to work from home. Now things are coming back to normal and the government has also started to curb the restrictions slowly. The government has announced 50 % attendance to all their staff. Some companies are calling 50 % staff to come for office on alternate days. Some companies have given the option to employees to decide either to work from home or to come to office for the work. Many companies are making arrangements for shifting back to normal office working. However, this has created a dilemma among the employees (especially IT) i.e. whether to work from home or should they go to office for work like pre-pandemic. The reason being, some people find advantages in working from home, while some find disadvantages to Work from Home.

The people who prefer to continue to work from home provide the following reasons :

1. Saving travel time:

   Many employees spend around one to one and half hours travelling back and forth from work daily. Work from home has removed the need for travelling to the companies thereby leading employees to save time and energy.

2. Saves money:

Many employees are saving money on fuel which normally would have cost them a lot due to travelling to work daily.

3. Can customize work environment at home:
   Many employees create the home-work atmosphere as per their personal taste or need and can work in a relaxed manner.
4. Away from work pressure:
   Since there is no formal continues supervision from seniors/managers, people can work freely without experiencing any work pressure. No formal dress code or protocol has to be followed.
5. Can do household chores:
   Employees, especially women can do their household work as well as answer calls at the same time. They can plan their house hold work according to their office work thereby completing both.
6. Comfort zone:
   Since people are working from home they feel relaxed in their own comfort zone at home.
7. Close to family and loved ones increasing their productivity:
   As employees are working from home close with their family members it results in better productivity. They can spend time with their loved ones as well as complete work happily.
8. Work flexibility:
   Working from home has given the employees the option of flexibility of timing as well as they can plan and perform their office work as well as personal work.
9. Independence:
   Since there is no direct supervision, employees get the feeling of freedom and independence resulting in better performance as they work without pressure.
10. Time for self:
    As work from home has reduced the travelling time, people get more time for themselves.
11. No strict supervision:
    As the work is supervised from a distance, there’s no minute or continuous supervision as in office where all the actions performed by the employees are supervised.
12. Reduced migration:
    Many workers from small cities go back to their home town for staying with their loved ones in home comfort. They also spend less as their expenses are reduced as compared to staying in the city.
13. Can even work from vacations:
    Since personal presence at office is not required, employees can work from any place if they have a good laptop and good Wi-Fi connection which is now available almost everywhere in India.

However, some people are not in favour in working from home due to the following reasons:

1. Work overload:

   The workload has increased, especially for women as they have to do household work as well as take care of family. The work increases as all the family members including children are home due to lockdown. Even men feel that work has increased as compared to working from office which has limited working time.

2. More work as 24/7 available

   Since employees are available for 24/7 due to lockdown they feel that their workload has increased as compared to working from office where they worked only during office hours.

3. No face to face communication:

   Man is a social animal. Many people miss the face to face physical contact with their colleagues which helps them to express their feelings with each other.

4. Everything by self:

   Another drawback of work from home that employees feel, is that there is no direct or physical help from help from colleagues when required. Normally they can talk with their colleagues if they face any difficulty at work in office, which is not possible with Work from Home

Conclusion:

Although the lockdown is slowly removed, the new work from home model will continue in the near future as in many western countries. The suggestion for solution for this dilemma in India can be of Hybrid Work model

Hybrid Work models can be adapted i.e a mix of both …. traditional working in the office as well as work from home. Flexibility and work life balance is going to be need of future employees. With the advancement in technology, companies can also supervise employees from distance. Several surveys have shown employees are happy for hybrid models. Women prefer more as they can do household work and also take care of family while working. Women also prefer to Work from Home if they are fully supported by family members.

Studies show improved productivity at Work from Home, as less time is wasted on unproductive work. Employees are seeking more work-life balance.

Employers too are trying to give employees a scheduled work time and also freedom to work from home for proper work-life balance of employees. In the end a happy satisfied employee is an asset for the company thereby leading to its success.

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CHAPTER-29

CURRICULUM ADAPTATION -ESTABLISHING EQUITY IN INDIAN EDUCATION

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1. INTRODUCTION:

According to UNESCO (2003), "Inclusive education means that schools should accommodate all students regardless of their physical, intellectual, social, emotional, linguistic or other conditions."

Inclusion as a terminology has gained access in the school scenario. A number of programs have been undertaken to promote inclusive education in the schools of India.; Acts like RTE (2009) and Right To Disabilities Act(2016) have been passed so that children with Disabilities gain entry in to the classroom.

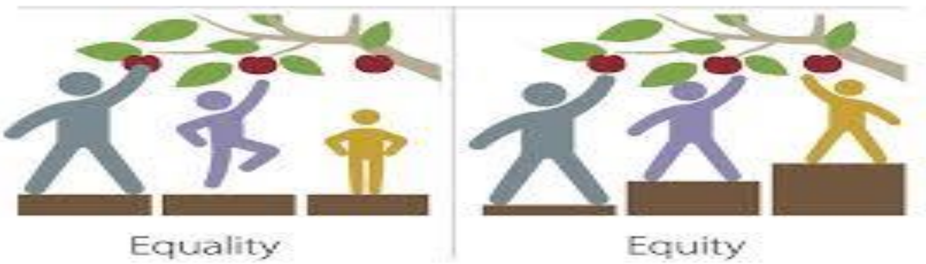
The Equity & Inclusion:Guiding Principles (NEP 20)- envisages recognizing, identifying, and fostering the unique capabilities of each student, and developing an equitable and just society.NEP visualizes full equity and inclusion as the cornerstone of all educational decisions to ensure that all students are able to thrive in the education system.

What does Equity actually mean? Is it a synonym of Equality?

Equality can be defined as treating every individual in the same manner irrespective of needs and requirements (Nedha, 2011). That means in a classroom based on equality every learner receives the same material irrespective of caste, creed, religion, socioeconomic status, prior exposure, interst, abilities or learning style.

Equity can be defined as the quality of treating individuals fairly based on their needs and requirements (Nedha, 2011).This emphasises that every child's support need will be identified , learning style will be catered to, interests will be looked into and the teaching learning environment shall be created to cater to the additional support.

The following image created by Kuttner (2015) would make it clear:



The image has four important components: the trees, the fruits, the persons, and the supportive materials. This illustrates the classrooms where the tree can stand for textbooks and other reading materials, the fruits can stand for the content and the objectives of the lessons. The supportive materials with different heights can indicate various supports to students with different heights.(Paul,2019)

Both the equality and equity image has supportive materials in the form of platforms to reach out the fruits that is the learning outcome but in the equity image the supports vary, the tallest signifying the learner with the maximum potential is given the minimum support and the shortest is given the maximum support so that unlike the image of Equality all learners have been able to reach the fruit of leraning outcome in Equity.

So, what would Equality in inclusive education entail in a school? Equality is the broader perspective, which means entry of all children irrespective of disabilities, irrespective of socio-economic status in the school availing of all opportunities offered in the school environment. Equity would be more specific and definitely based on the identification of the support needs post exposure to equal opportunities. So, Equity would be preceded by equality.

Equity would mean all these learners whose support needs have been identified now need to gain access to the educational curriculum offered by school. It also emphasizes learner involvement in all the spheres of school activities and most importantly developing skill and gaining knowledge within the school environment to flower the learner capabilities.
It must be remembered that the fruit of learning outcome for each learner also will change through equity. Educators would be required to set goals in the same classroom at varying levels to ensure that all students can benefit from learning. The educators could identify the capabilities and design a program for the learner on a capacity building perspective rather than deficit finding perspective.

Thus "equity is an intrinsic part of quality in education and a key factor in achieving it. Equal opportunities and access for all children to quality teachers, schools, and teaching materials and facilities enhances the overall learning outcomes for children, and their well-being, social development, and reinforces the quality of the education experience" Wood, et. al (2011)

The Indian Scenario:

Who are the people as per the Indian Education scenario who can impart education to these children by understanding the barriers and establishing a tailormade education system?As of 2018, in India, the number of enrolled students in government schools in India was 131 million while the privately managed schools had 119 million enrolled students. The Indian schooling system is one of the largest in the world and caters to over 250 million students.(Statista Research Department, Nov 24, 2021),Recent data shows that 61% of children with disabilities aged between 5–19 years are attending an educational institution (UNESCO, 2019), compared to the dismal figure of less than 2% in 2001–2002 (Mukhopadhyay & Mani, 2002).

As per NEP 20 the role expectations of principals and teachers will explicitly include developing a **caring and inclusive culture** at their schools, for effective learning and the benefit of all stakeholders.Establishing equity in Indian classrooms would definitely require a collaborative pattern of working between the general and special educators
The *Samagra Shiksha Abhiyan* states that, 'general schoolteachers will be sensitised and trained to teach and involve children with special needs in the general classroom' (p.61). This is not a new idea, as teacher training has been mentioned as a facilitative measure for

inclusive education since the 1995 Persons with Disabilities Act (MLJ, 1995). Another strategy adopted across policies has been the provision of 'resource teachers' to support mainstream teachers in educating children with disabilities. Under the *Sarva Shikshya Abhiyan* these were referred to as Inclusive Education Resource Teachers, while under the *Samagra Shiksha Abhiyan*, they are termed as Special Educators (Ministry of Human Resource Development [MHRD], 2011).

It is important that a synergy be established between the special education teachers and the general education teachers in inclusive Education Classroom. The necessity of close coordination exists right from the stage of assessment of the child's capacities and difficulties to planning the content, implementing the curriculum and monitoring the progress. .

RATIONALE FOR USING CURRICULAR ADAPTATION:

Every child is unique with uniqueness in learning styles and learning needs. So, there are huge differences in the way each one takes in information, processes it and gives meaning to that information received. A child with special needs is an umbrella term covering a wide variety of learning needs, styles, demands that he or she makes from the environment and the kind of environmental modifications that are required to be made in the environment to make learning happen.

It becomes imperative for children with Disabilities whose difficulties may arise due to an innate condition as well as children belonging to SEDg whose difficulties are a by-product of the environmental deprivation, studying in inclusive schools to conform to certain structure existing in the schools. Each typical school in India has certain curriculum prescribed by a Board-ICSE, CBSE, State Boards etc. which in turn lends the conformity in conducting lectures to promote in academic subjects and co-curricular areas.This conformity often results in creating learning barriers for these children and gradually their leraning curve goes on a downslide.

The special educators may also adapt another pattern of learning support where irrespective of the support requirements the learners are taken out of their classrooms and are given specific tailormade interventions of the deficit skill areas.

While the above measures may definitely lead to skill development but it hinders learner progress in the following key areas:

1.learner misses out the incidental learning opportunities created within a regular class environment.

2.Learner is often ostracised and branded by his own peers due to this special treatment that he or she receives and a social ostracization takes place.This results in the seclusion of learners , poor development of social skills and a general apathy of learners towards the special education services that were actually meant to enhance his or her capacities.

3.Since it is important to determine the extent of support required by the learner to establish that equity only an IEP that reflects the educational support s and services required by the learner would definitely not reflect the learner needs in perspective of the school curriculum and its implementation.

4.The learner also becomes the sole responsibility of the special educator and the general educator is often seen to pass on the responsibility to the special educator .The concept of "your children" and "My children" permeates within the same class when a special educator works on an individualised educational plan .Researches have shown that often Mainstream teacher attitudes may be a contributory barrier to successful inclusive practices (Avramidis, Bayliss & Burden, 2000; Bender, Vail, & Scott, 1995; de Boer, Pijl, & Minnaert, 2010). Teachers tend to be broadly positive about the principle of inclusion while at the same time viewing its practical implementation as problematic (Avramadis & Norwich, 2002).

Thus, it becomes imperative to create a model plan which would overcome the above barriers. One can start breaking barriers and introducing inclusive practices understanding that recent brain research and theories of learning clearly indicate that each learner is special (i.e., unique), with varied abilities and qualities, and that the typical classroom represents a vast range of learner differences (Meyer & Rose, 2000; Rose & Meyer, 2002).

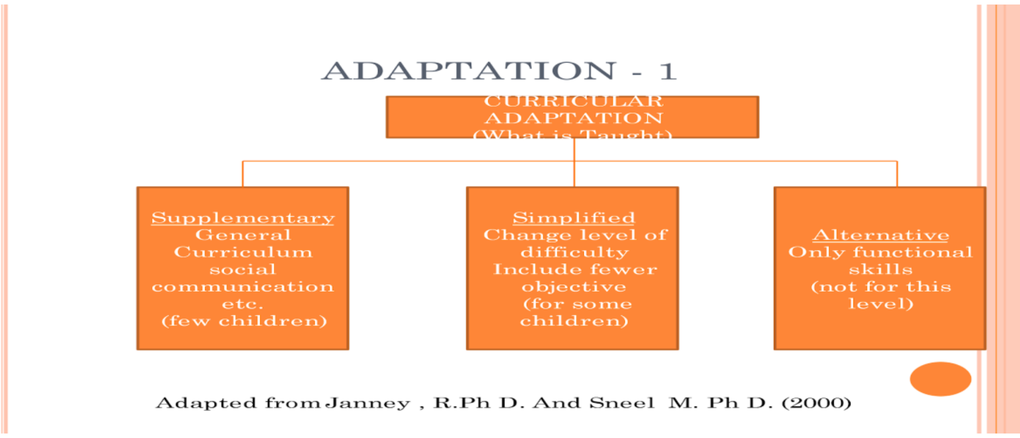
There is a greater need on the part of the special educator to minutely study the school curriculum and use curricular Adaptations Therefore it becomes imperative to have a comprehensive plan collaboratively developed by the special educator and general educator for children requiring support which creates a balance between the school program and the additional support program .

WHAT IS CURRICULUM ADAPTATION-

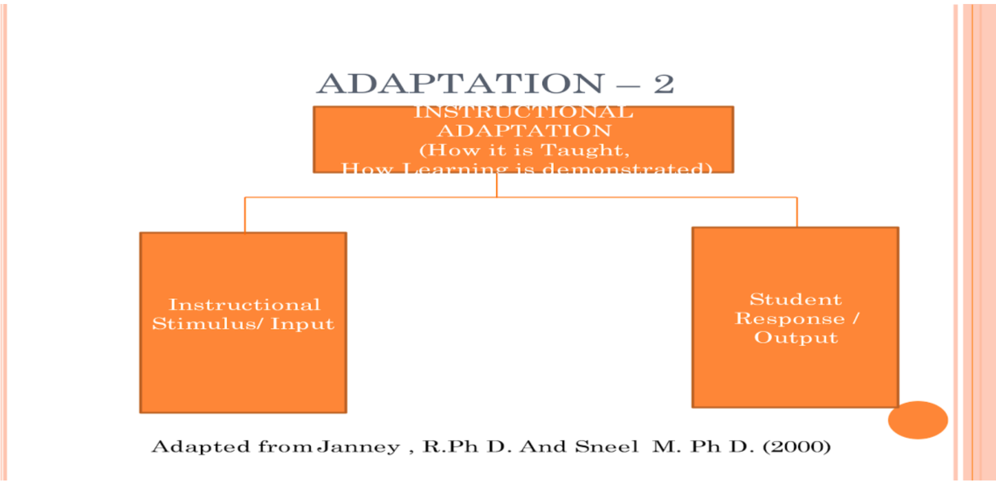
According to (NCERT 2015) Adaptation refers to adjusting assessments, material, curriculum, or classroom environment to accommodate a student's needs so he/she can participate in, and achieve the teaching-learning goals.

The above definition encompasses the three main areas of Adaptation-

1)Curricular Adaptation that is what is taught which can be supplementary that is additional to the existing or it can be simplified where the difficulty level have been reduced or it could be alternate where the main goal is not curricular but social and communication skill development. ,

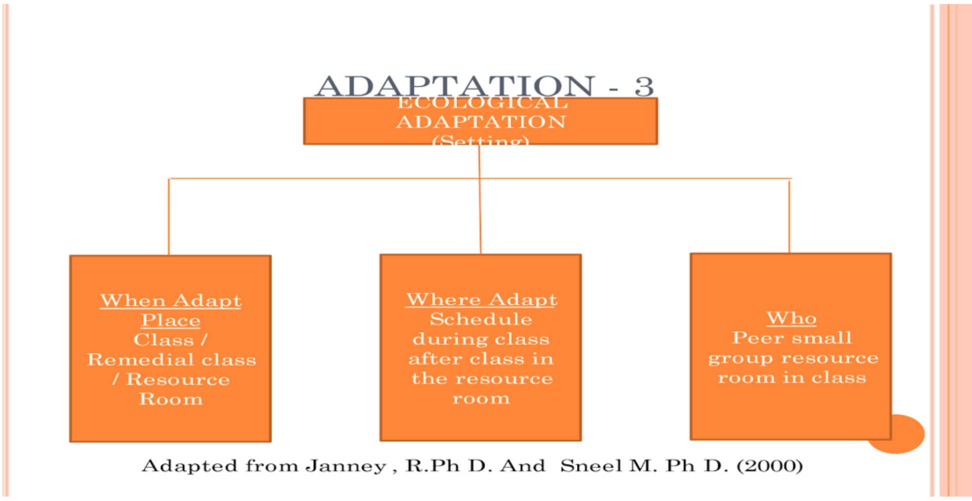


2)instructional adaptation that is how it is taught and how learning is demonstrated



and

c)Ecological adaptation that is when and where to be taught and by whom



STEPS TOWARDS DEVELOPING CURRICULAR ADAPTATION:

Step 1:

Assess the learner performance in the grade level performing areas/skills.

Step 2:

Determine the gaps present in the performance as per the learning outcomes set by the educator. Identify the key skill areas to be developed upon. Determine the extent of special education services that will be required.

Step 3:

Accordingly Select the kind of curricular modification that is required. Modification involves making changes to learning goals, teaching processes, assignments and/or assessments to accommodate a student's learning needs(.NCERT(2015)

The selection of curricular modification is based upon the categorization of curriculum modification suggested by King-Sears (2001). King-Sears identified four types of curriculum modification: (a) accommodation, (b) adaptation, (c) parallel curriculum outcomes, and (d) overlapping curricula on a continuum. This categorization represents the relation between modified curriculum and general curriculum in terms of differences and similarities in educational input including content knowledge and conceptual difficulty, educational output including educational goals, and methods of instruction.(Hall,2014)

Accommodation Type: Curricular modification is to be made by simply highlighting the instructional materials, giving graphic organisers, providing in Braille or Audio books, or study guides in the form of modified texts with visual representation of concepts. But the conceptual difficulty remains the same and no alteration is made as per the content. In this type the learner's curriculum matches exactly with the grade level. Special Educator principally works with the General Educator in developing specialised instructional materials suited to the learning style and need of the learner. Learner may also avail of concessions like additional time, reader and writer or adult prompt.This is similar to supplementary curricular adaptation discussed earlier.

Adaptation Type: Curricular Modification covers all the above mentioned in Accommodation but the conceptual difficulty of the content is slightly lowered. The learners using Adaptation Curriculum have difficulty in grasping all abstract concepts. In this type the learner's curriculum matches with the grade level with lowered expectation and few abstract concepts are truncated. Here Shortening reading or math assignments may take place along with adjusting the pacing of assignments to allow for re-readings. Simplification of materials, using questions as formative assessments after each concept along with providing hands on experience are the major tasks involved by the special educators for learners following this type of curriculum. Under this type, learners may be required to be given additional sessions of remediation for mastering the same content using modified texts. This is similar to simplified curricular adaptation discussed earlier.

Parallel Type**:** Curricular Adaptation may not cover all the above mentioned in Accommodation as the conceptual difficulty of the content is significantly lowered. Here the learner may be two level lower as per the grade level assessment findings. Therefore, only the key concepts are identified and till the primary level the learner is present in the class most of the time to hone the foundational skills. The mode of assessment is based on the principle of partial participation and learner is given alternative form of assessments. During the concept-based subjects from 6 th standard the learner is put through the vocational curriculum that would not lead to the same board exams as the other learners of his or her class. This is similar to supplementary curricular adaptation discussed earlier only difference is the extent of simplification is much greater.

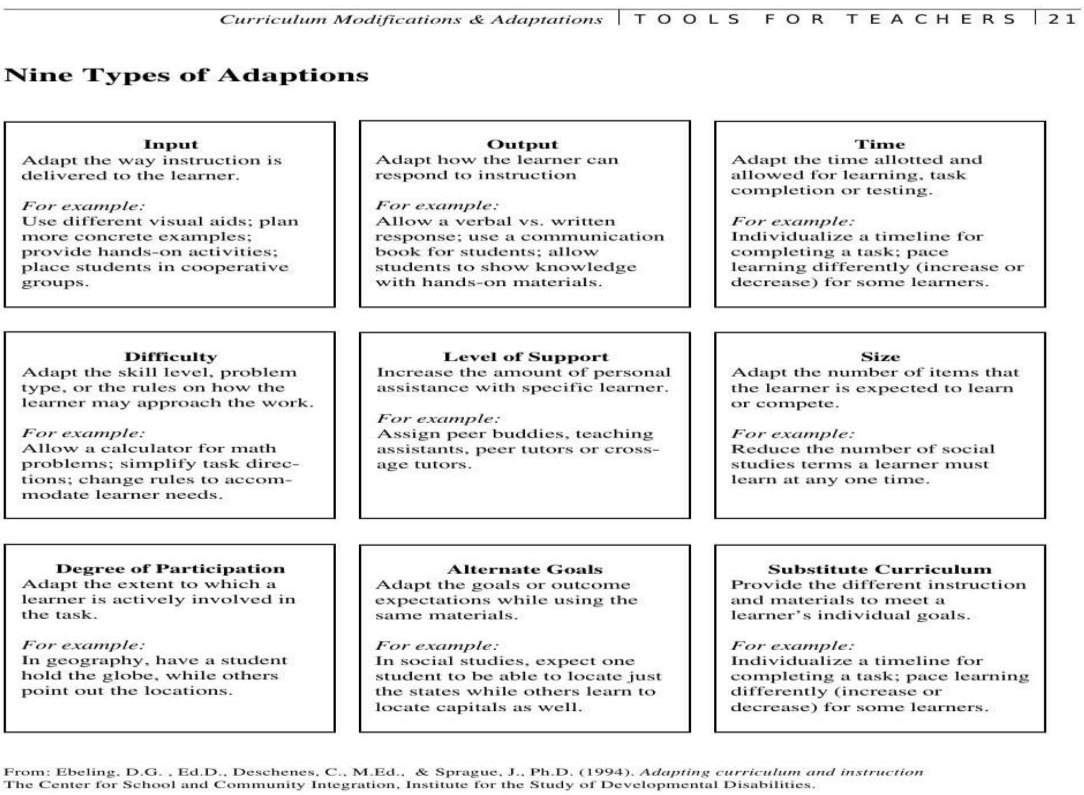
Overlapping Curriculum: Curricular Adaptation does not cover all the above mentioned in Accommodation as the conceptual difficulty of the content is not taken into account here at all. The goal of the learner in this case is not academic. The learner is under the special educator's guidance to develop his functional academic skills and personal. His /her sole purpose in the class is to develop social and communication skills. For this purpose, the learner is present in the class to meet the goal of appropriate social behaviour or communicate appropriately or perhaps during activity-based learning develop fine motor skills.This is similar to alternative mode of curricular adaptation discussed earlier.

Step 4:

Plan 9 point curricular adaptation:

The 9 Point curriculum Adaptation used in the practical context is an adaptation of 9 point curricular Adaptation by Ebeling et al(1994).According to Ebeling , there are 9 areas in which modification can be done in the general curriculum. **First** is **input** which means adapting the way instruction is delivered to the learner. The **second** is **output** which means the ways and means to adapt learner response to the curriculum. The **third** is the **time** allotted for completing the learning tasks planned for teaching and evaluation. **Fourth** is the **Difficulty** which means adapting the skill level **or** problem or rules as per the level of the learner. **Fifth** is the **level of support** which entails increasing the personal assistance given to the learner. **Sixth** is the **size** which is the number of items the learner is to compute. **Seventh** is the **Degree of participation** which is the adaption of the ways the learner is going to participate in the task. **Eighth** is the **Alternate Goal** which is to adapt the goal keeping the same content for the learner. **Ninth** is the **substitute curriculum** that entails providing different instructions and materials to meet learners goals.

Following is the schematic diagram of the 9 point currular Adaptation as envisaged by Ebeling etal



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Nine Types of Adaptions

Input
Adapt the way instruction is delivered to the learner.
For example:
Use different visual aids; plan more concrete examples; provide hands-on activities; place students in cooperative groups.

Output
Adapt how the learner can respond to instruction
For example:
Allow a verbal vs. written response; use a communication book for students; allow students to show knowledge with hands-on materials.

Time
Adapt the time allotted and allowed for learning, task completion or testing.
For example:
Individualize a timeline for completing a task; pace learning differently (increase or decrease) for some learners.

Difficulty
Adapt the skill level, problem type, or the rules on how the learner may approach the work.
For example:
Allow a calculator for math problems; simplify task directions; change rules to accommodate learner needs.

Level of Support
Increase the amount of personal assistance with specific learner.
For example:
Assign peer buddies, teaching assistants, peer tutors or cross-age tutors.

Size
Adapt the number of items that the learner is expected to learn or compete.
For example:
Reduce the number of social studies terms a learner must learn at any one time.

Degree of Participation
Adapt the extent to which a learner is actively involved in the task.
For example:
In geography, have a student hold the globe, while others point out the locations.

Alternate Goals
Adapt the goals or outcome expectations while using the same materials.
For example:
In social studies, expect one student to be able to locate just the states while others learn to locate capitals as well.

Substitute Curriculum
Provide the different instruction and materials to meet a learner's individual goals.
For example:
Individualize a timeline for completing a task; pace learning differently (increase or decrease) for some learners.

From: Ebeling, D.G. , Ed.D., Deschenes, C., M.Ed., & Sprague, J., Ph.D. (1994). *Adapting curriculum and instruction*
The Center for School and Community Integration, Institute for the Study of Developmental Disabilities.

Planning of 9 point curricular adaptation has been modified in the following way keeping the NEP 20s vision of full equity and inclusion as the cornerstone of all educational decisions to ensure that all students are able to thrive in the education system" [NEP 2020, Principles of this Policy, p.5] in the Indian scenario of inclusive schools keeping in mind the general education teacher .The modification of 9 point curricular adaptation is also geared towards making this single document a witness to the inclusive programme planned for the learner and to measure the effectiveness on a regular basis and put in the required modifications for the continued functioning.

A. Before starting on the 9-point curricular adaptation curriculum for the learner goal component is included. The goal is shown in two phases-the goal set by the class teacher

/Home Room Educator for the whole class. This goal can be differentiated as well if the inclusive culture is steeped in to school climate where the class teacher envisages the classroom as three types of learners -learner type a: who will achieve the goal fast and will require more challenges, learner type b who will grasp and achieve goal at the expected level and learner type c:who will achieve the goal at a slower pace , maybe not ,and require a lot of support towards it.

B. **First** is **difficulty** which means the difficulties faced by the learner when instruction is delivered to the learner in the general education mode. Thus, the assessment component of the learner in the skill areas is incorporated here. At the same time in order to develop a capacity building perspective, the strengths of the learner are also incorporated.

C. The second is **input** which means adapting the way instruction is delivered to the learner. It involves systematically elaborating the method as well as materials along with activities planned for the learner in the teaching learning process.Since the inclusive climate is reflected, the special educator creates a second row here titled as teacher's input to show the plans done by the general education teacher for those content and how some activities can be overlapped and thus pull out model need not be followed for the learner.The special educator can be in the class offering coteaching .

D. The **third** is **output** which means the ways and means to adapt learner response to the curriculum. In an inclusive class practicing differentiated assessments it is important and thus a second row is created here as well titled as teacher's output where all the differentiated assessments planned byu the teacher is put in.The output filled in here by the special educator is a reflection of the curriculum planned for the learner that is whether it is supplementary(accommodation),simplified(adaptation ore parallel)or alternative(overlapping). Curriculum

E. The **fourth** is the **time** allotted for completing the learning tasks planned for teaching and evaluation. Here the special educator plans the additional time slots. The additional time slots can be shown as co teaching where the special educator is supporting the learner within class by giving supplementary materials or differentiated learning corner slots where simplified content using specialised material is done within the same class or enrichment program slots where other skills are developed.

F. **Fifth** is the **level of support** which entails increasing the personal assistance given to the learner. Here the special educator describes the role played by the class teacher, peer/buddy/volunteer, ancilliary staff or shadow teacher or even the parent

G. **Sixth** is the **size** which is the number of items the learner is to compute. Here again if it is accommodation(supplementary type of curricular adaptation the size remains the same, for adaptation ,the content is simplified, for parallel the content is simplified further and for alternative or overlapping the content is changed altogether.Here also an additional row is created to show the class content that is being covered in the general education classroom.

H. **Seventh** is the **Degree of participation** which is the adaption of the ways the learner is going to participate in the task Since it is very important to monitor progress of the learner this is the area which is divided into three rows , where bottommost row is the reflection of the specialised teaching learning resources (if any) prepared by the special educator , the middle row is the reflection of how learner responds to the specialised teaching and the final row shows the evaluation response . Subsequent study of this degree of participation shows the effectiveness of the program.

I. **Eighth** component that is the **Alternate Goal actually documents the effectiveness of the program** which can also be the self evaluation of the special educator.Thus incase the programme is effective there is no requirement of alternative goal.

J. **Ninth** is the **substitute curriculum** that entails providing different instructions and materials to meet learners goals which had to be altered.This column incase no alternate goal is formed also speaks about the effectiveness of the curriculum and includes the feedback of the class teacher as well.

Thus first to sixth is the plan, seventh is the actual implementation and eighth and ninth is the measure of the effectiveness..

Sunshine Model of 9 point curricular Adaptation-Towards Equity and Inclusion		
GOAL Goal by Class teacher/HRE Goal by Special Educator		
1.Difficulty of the learner	2.Input by Teacher/HRE	3.Output by Teacher/HRE
Strengthof the learner	Input by Special Educator	Output by Special Educator
4.Time planned by educator	5.Level of support-special educator,educator,buddy, parent, ancilliary staff+self management checklist	6.Size of the content as planned by teacher/HRE
Sessionwise breakupof time to accommodate adaptation		Size of the content as planned by special educator
7.Degree of Participation=planning & preparation of learning environment	**8.Alternate Goal =the effectiveness of the program**	9. **substitute curriculum**
Degree of Participation=implementation of the program-learner response to input	If Effective as evident through self evaluation of special educator=no alternate goal	
Degree of participation=Monitoring progress learner response to output	If not Effective as evident through self evaluation of special educator= alternate goal	
gargi.P.SinhaPhD,2022		

Conclusion:

The time has arrived to shift from a disability intervention approach to a support based intervention based approach. Curriculum adaptation as explained through Sunshine Model of 9 point curricular Adaptation-Towards Equity and Inclusion will form a bridge between General and Special Education leading to “recognizing, identifying, and fostering the unique capabilities of each student, by sensitizing teachers as well as parents to promote each student’s holistic development in both academic and non-academic spheres” [NEP 2020, Principles of this Policy, p.5]

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CHAPTER-30

SOLUBILITY STUDY BY UV ANALYSIS OF CARBOPOL 940 GEL BASE

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Abstract:

Here solubility study was done for carbopol 940 polymer blank gel base to detect and confirm polymer structure, polymer content in 1% gel solution in water using predetermined standardized reference data of carbopol 940 polymer for total twelve batches of carbopol 940 blank gel base by performing wavelength scan from 200nm to 900nm by UV absorbance method in Microprocessor UV-VISIBLE Double Beam Spectrophotometer LI-2700.

Physical observation was taken for carbopol 940 gel base in three solvent namely water, methanol and ethanol to check solubility.

Keywords: *Carbopol gel, Solubility , polymer content.*

Introduction.

Solubility study was done to determine carbopol 940 polymer content and structure of carbopol polymer 940 in 1% carbopol 940 polymer blank gel base

Solubility Study was studied for pre formulation factors like diffusion of developed gel into solution.

Materials.

- **Requirements:**
- **Chemicals:** Carbopol 940 polymer blank gel base, Distilled Water.

  Apparatus: Filter paper, Microprocessor UV-VISIBLE Double Beam Spectrophotometer LI-2700, test tube, weighing machine.

Method.

- **Method: [Reference No.8.1]**
- **Solubility Study of Carbopol 940 polymer blank gel base.**
- 1% Carbopol 940 polymer blank gel base solution was made into distilled water for solubility analysis of formulation code F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11 and F12 .
- Further 1% Carbopol 940 polymer blank gel base solution was filtered through filter paper to get clear solution. Then Absorbance was measured by Microprocessor UV-VISIBLE Double Beam Spectrophotometer LI-270 using water as reference at lambda maximum 287 nm to measure unknown concentration using reference data.
- UV absorbance showing at different wavelength for 1% Carbopol 940 polymer blank gel base solution and peaks showing at different wavelength for soluble polymer in water

were observed by Microprocessor UV-VISIBLE Double Beam Spectrophotometer LI-2700 respectively.

- **Observation**:
- Solubility Study was done for 1% Carbopol 940 polymer blank gel base solution in water of formulation code F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11 and F12 .
- After dissolving 1% Carbopol 940 polymer blank gel base in water, absorbance was checked for F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11 and F12 at 287 nm.
- Different Absorbance was seen at different wavelength by wavelength scan with peak data from 190nm to 900nm.
- Percentage of solubility was calculated for unknown concentration of solution using reference data.

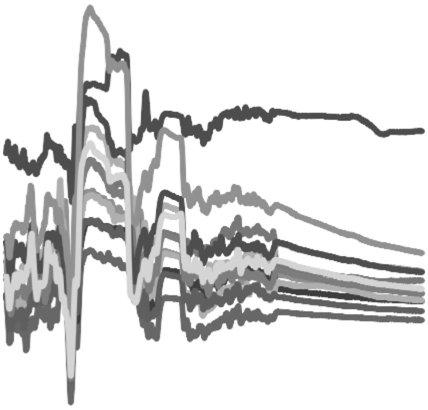
Table No.10.1: Data for % Solubility of prepared methanoilc neem bark extract in water, ethanol, and methanol.

Serial no.	Formulation code.	Name of the solvent.	Absorbanc e found at 287 nm.	Unknown concentration of 1% carbopol blank gel base= concentration of standard*absorba nce of sample/absorbanc e of standard in µg/ml		Standard absorbanc e at 303 nm.	Standard concentration.(in µg/ml)	% solubility. (1µg/ml =1/10000%w/w)	
1.	F1	Water.	0.087	30 *0.087/0.021	124.285714	0.021	30	124.285714/10000	0.01242857
2.	F2	Water.	0.005	30 *0.005/0.021	7.14285714	0.021	30	7.14285714/10000	0.00071429
3.	F3	Water.	0.027	30 *0.027/0.021	38.5714286	0.021	30	38.5714286/10000	0.00385714
4.	F4	Water.	0.025	30 *0.025/0.021	35.7142857	0.021	30	35.7142857/10000	0.00357143
5.	F5	Water.	0.036	30 *0.036/0.021	51.4285714	0.021	30	51.4285714/10000	0.00514286
6.	F6	Water.	0.0	30	28.57142	0.021	30	28.5	0.0028

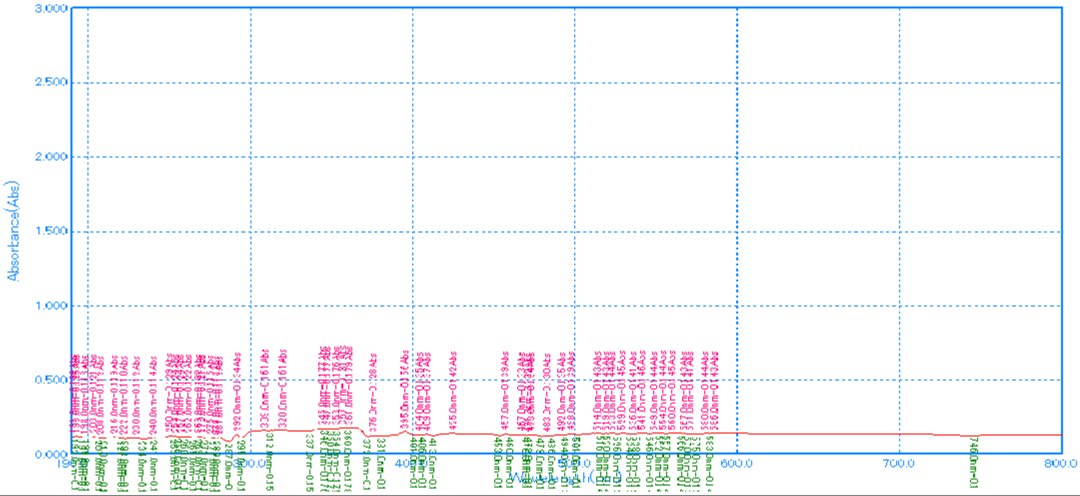
			20	*0.020/0.021	86			714286/10000	5714
7.	F7	Water.	0.020	30*0.020/0.021	28.5714286	0.021	30	28.5714286/10000	0.00285714
8.	F8	Water.	0.007	30*0.007/0.021	10	0.021	30	10/10000	0.001
9.	F9	Water.	0.030	30*0.030/0.021	42.8571429	0.021	30	42.8571429/10000	0.00428571
10.	F10	Water.	0.029	30*0.029/0.021	41.4285714	0.021	30	41.4285714/10000	0.00414286
11.	F11	Water.	0.024	30*0.024/0.021	34.2857143	0.021	30	34.2857143/10000	0.00342857
12.	F12	Water.	0.014	30*0.014/0.021	20	0.021	30	20/10000	0.002

UV absorbance showing at different wavelength for solution of unknownconcentration of carbopol 940 polymer gel base in distilled water bywavelength scan from 190nm to 900nm.

Peaks showing at different wavelength for 1%solution of carbopol gelbase from 200nm to 900nm of F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12by wavelength scan from 190nm to 900nm following.

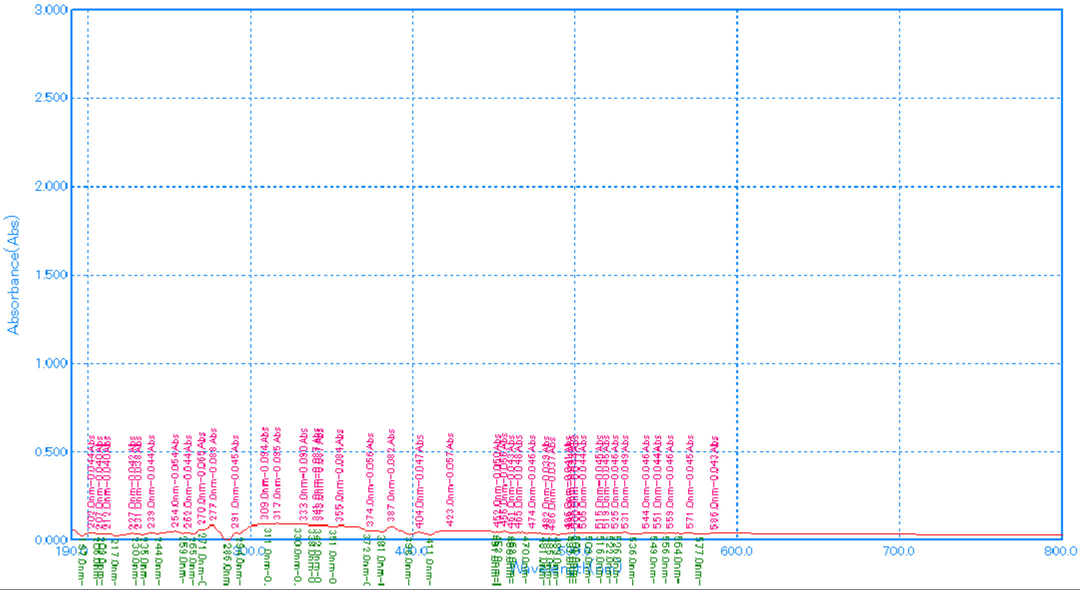


- **F1.**



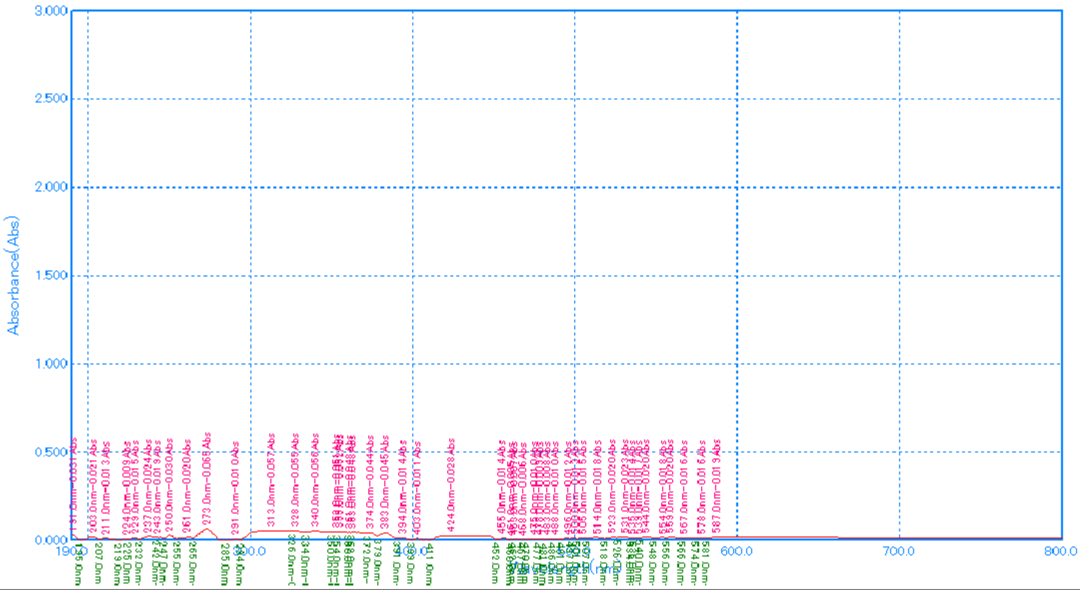
3.000
2.500
2.000
1.500
1.000
0.500
0.000
Absorbance(Abs)
600.0
700.0
800.0

- **F2**

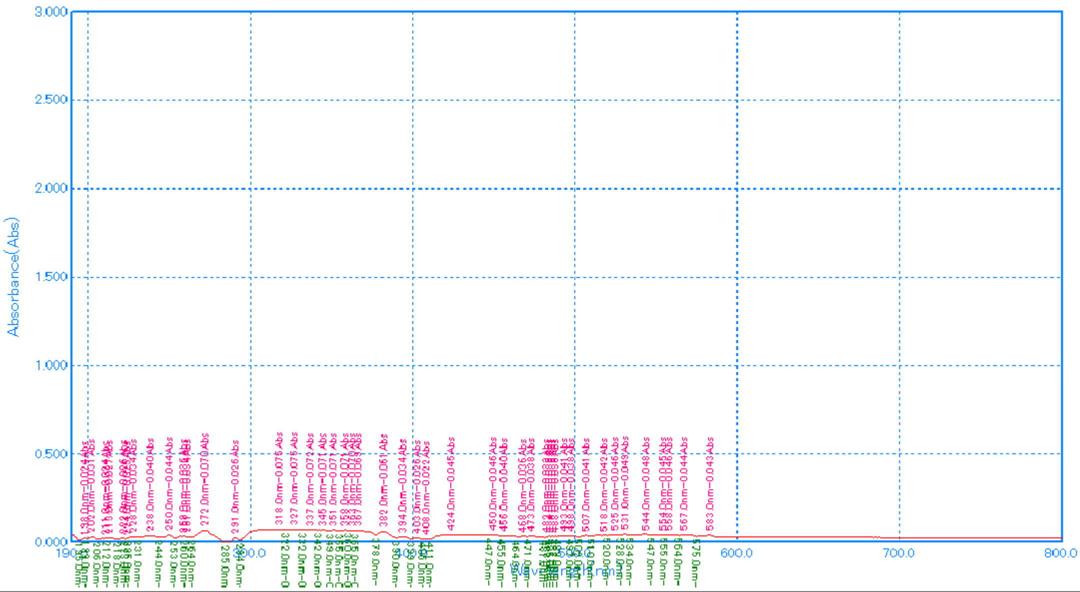


3.000
2.500
2.000
1.500
1.000
0.500
0.000
Absorbance(Abs)
190.0
600.0
700.0
800.0

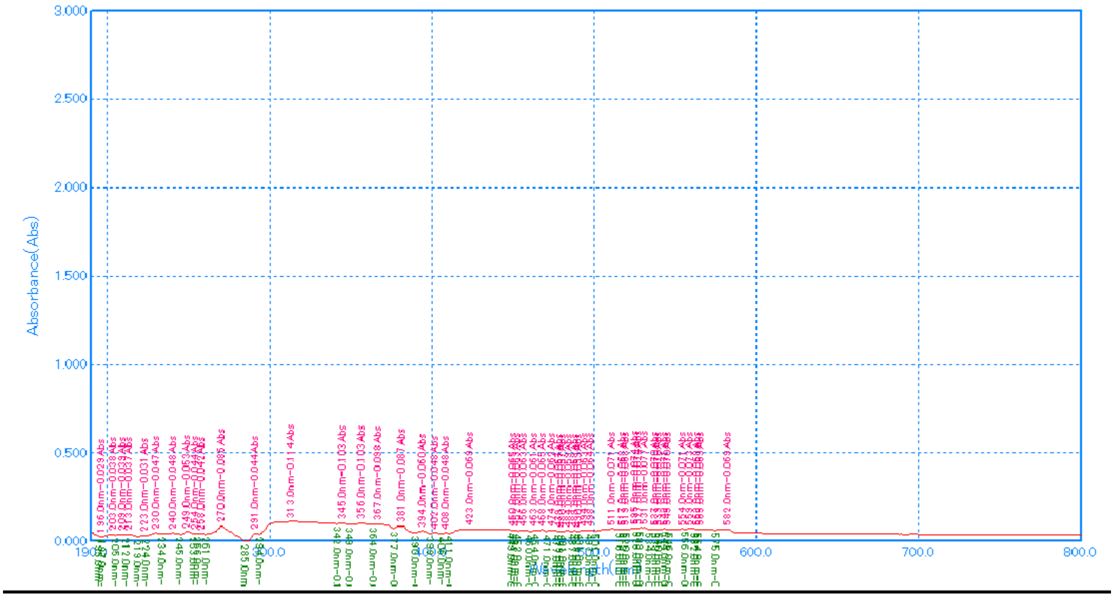
- **F3**


3.000
2.500
2.000
1.500
1.000
0.500
0.000
Absorbance(Abs)
600.0
700.0
800.0

- **F4**

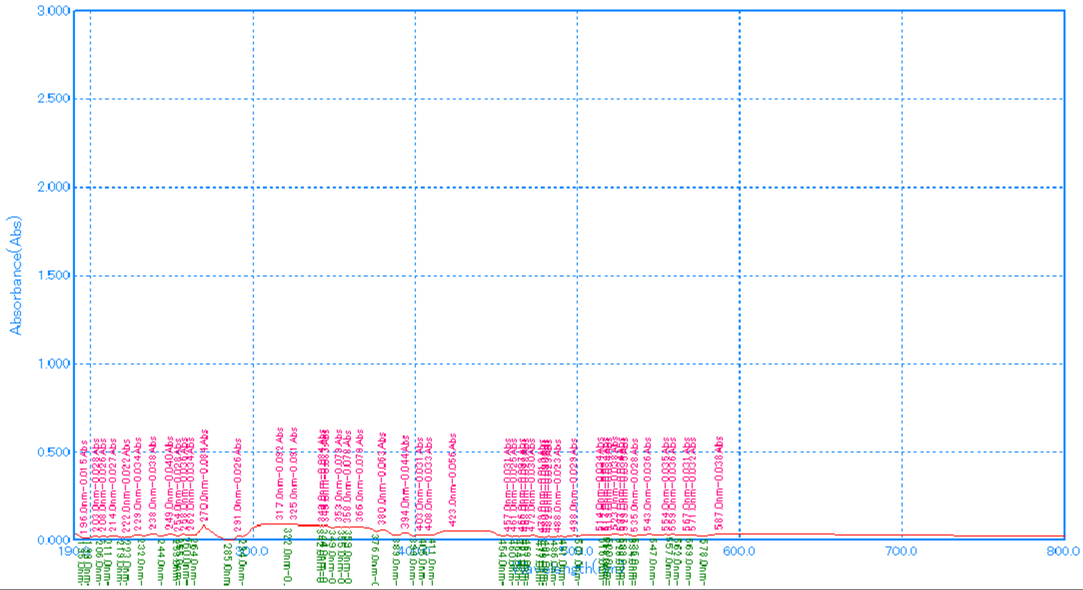

3.000
2.500
2.000
1.500
1.000
0.500
0.000
Absorbance(Abs)
600.0
700.0
800.0

- **F5**



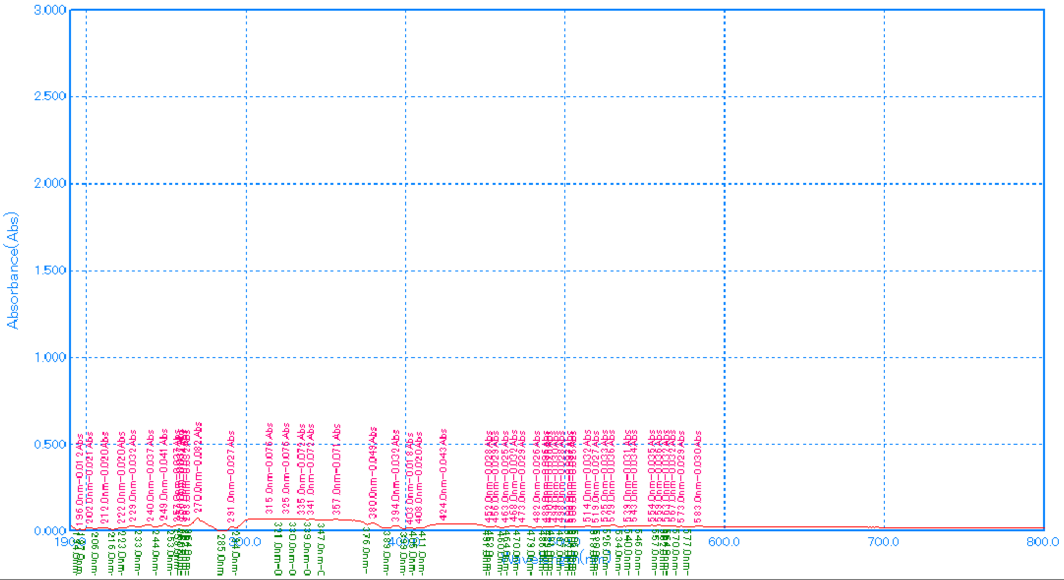
Absorbance(Abs)
3.000
2.500
2.000
1.500
1.000
0.500
0.000
600.0
700.0
800.0

- **F6**

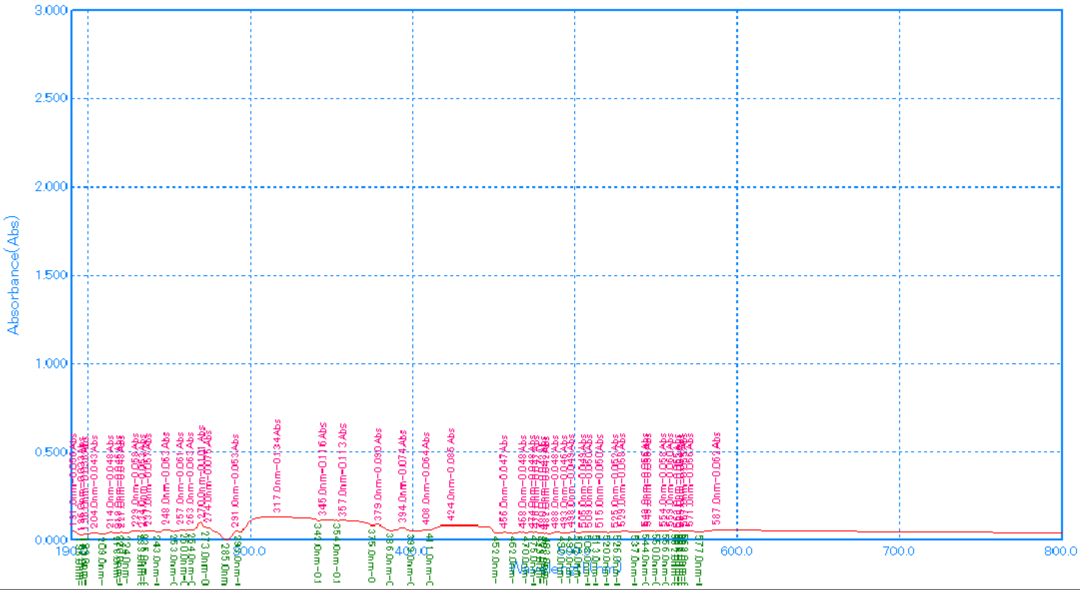


Absorbance(Abs)
3.000
2.500
2.000
1.500
1.000
0.500
0.000
600.0
700.0
800.0

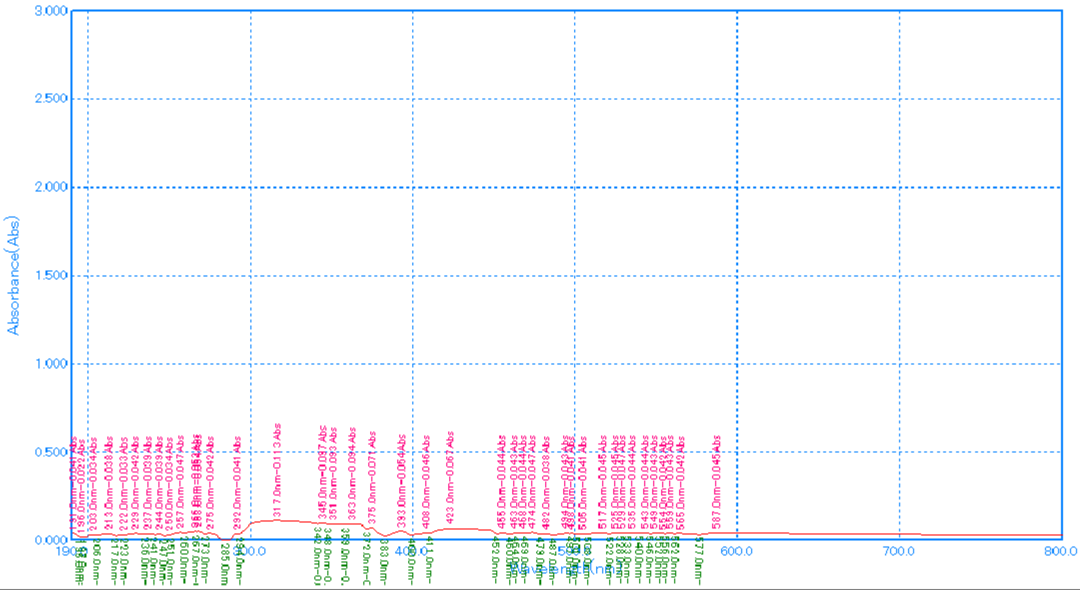
- **F7**


3.000
2.500
2.000
1.500
1.000
0.500
0.000
Absorbance(Abs)
600.0
700.0
800.0

- **F8**

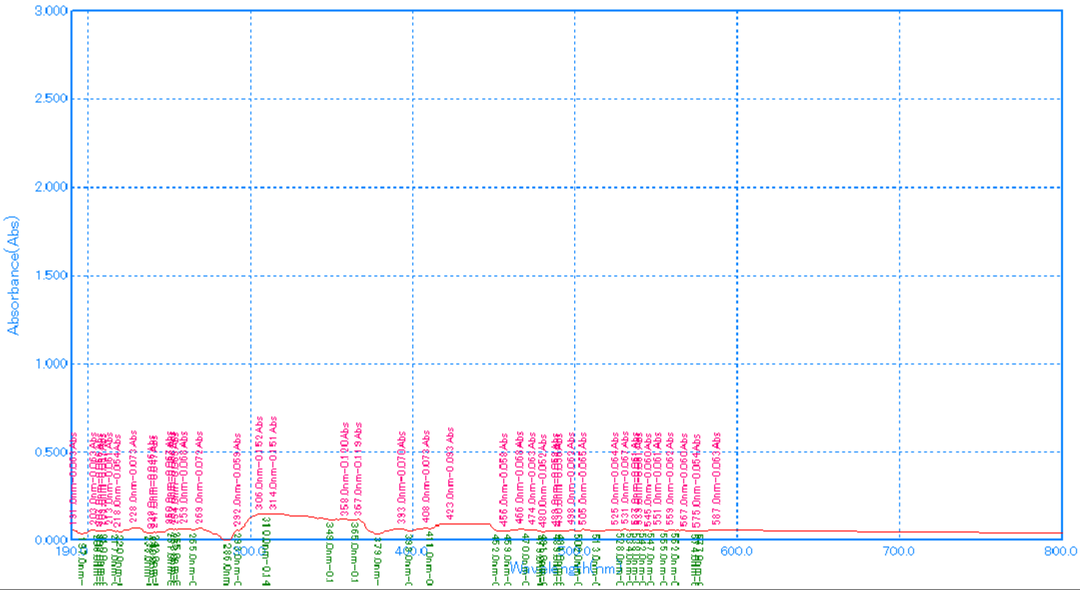

3.000
2.500
2.000
1.500
1.000
0.500
0.000
Absorbance(Abs)
600.0
700.0
800.0

- **F9**



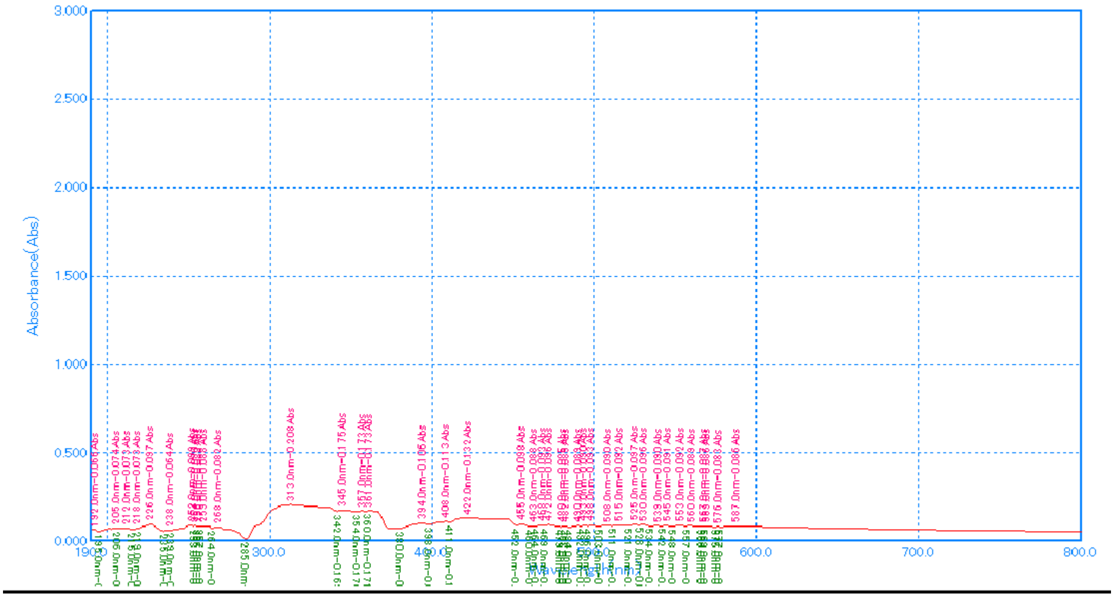
Absorbance(Abs)
3.000
2.500
2.000
1.500
1.000
0.500
0.000
190.0
300.0
400.0
500.0
600.0
700.0
800.0
Wavelength(nm)

- **F10**

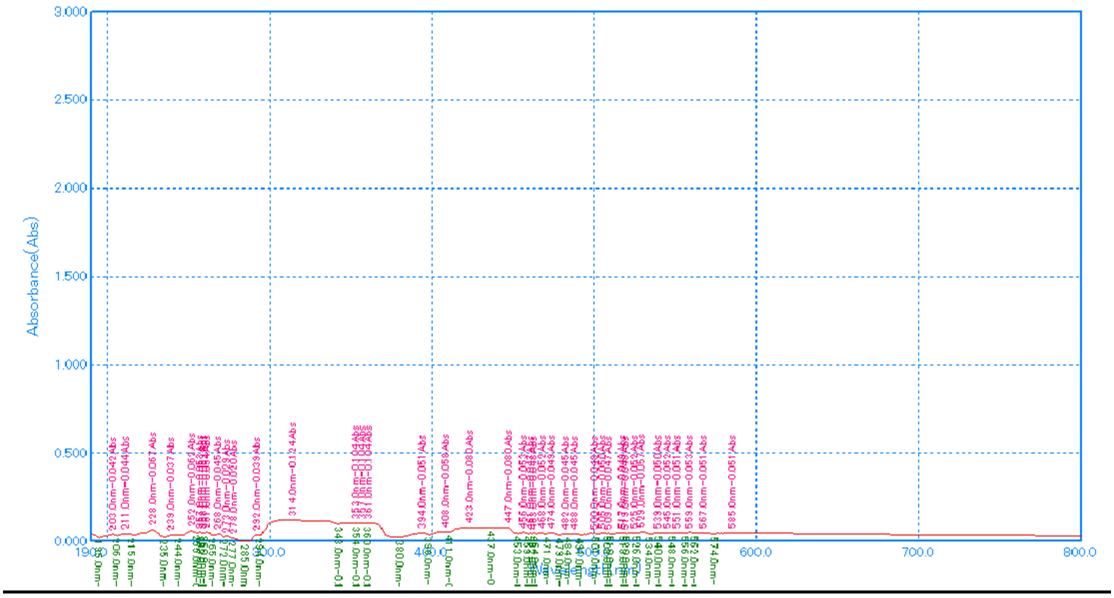


Absorbance(Abs)
3.000
2.500
2.000
1.500
1.000
0.500
0.000
190.0
300.0
400.0
500.0
600.0
700.0
800.0
Wavelength(nm)

- **F11**



- **F12**



Result.

- Solubility study was performed for blank gel base F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11 and F12.
- % Solubility and polymer content was determined for each formulation F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11 and F12. There were results of table mentioned below.

Table No.10.2

Serial No.	Formulati on code .	Name of the Solvent.	Polymer Content in µg/ml.	% Solubility. (1µg/ml =1/10000%w/w)
	F1	Water.	124.285714	0.01242857
	F2	Water.	7.14285714	0.00071429
	F3	Water.	38.5714286	0.00385714
	F4	Water.	35.7142857	0.00357143
	F5	Water.	51.4285714	0.00514286

F6	Water.	28.5714286	0.00285714
F7	Water.	28.5714286	0.00285714
F8	Water.	10	0.001
F9	Water.	42.8571429	0.00428571
F10	Water.	41.4285714	0.00414286
F11	Water.	34.2857143	0.00342857
F12	Water.	20	0.002

Discussion:

- Solubility study and polymer content study was a parameter for preformulation study of F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11 and F12 of 1% blank carbopol 940 polymer gel base solution in water as this gel was being continued for extract incorporation.
- Absorbance at wavelength curve was estimated using wavelength scan data for F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11 and F12 of 1% blank carbopol 940 polymer gel base solution in water.

Conclusion:

- Polymer content was analyzed by UV absorbance method for 1%blank gel base
- F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11 and F12.
- Absorbance was found at different wavelength from 200nm to 900nm by wavelength scan.
- Structure of carbopol polymer 940 in 1% gel solution was confirmed by peak data at different wavelength.

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Acknowledgement:

1. This research work was being acknowledged to my father Mr. Ramesh Chandra Roy and My mother Mrs Sandhya Roy for their support during this research work.
2. This research work was being acknowledged to my supervisor Dr. Anirudh Singh Deora, Dean of P.G. Studies, Principal of Bhupal Nobles University, Udaipur, and Rajasthan for their guidance and project work enhancement for socio economic value.

3. This research work was being acknowledged to Dr. Amitava Mandal, Assistant Professor and his research scholars, Department of chemistry, Raiganj University, Raiganj, Uttardinajpur, India for performing my analytical research work, and his advice into laboratory.

CHAPTER-31

CASHLESS SOCIETY

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Abstract:

The Government of India abruptly decided to bank currency notes on 8th November 2016, the government of India abruptly withdrew RS.500 and RS 1000 currency notes from circulation. The rise in cashless transactions in India has made it easier to control all these problems like corruption, terrorism, black money, counterfeit notes, criminal tendencies etc. All ordinary citizens do cashless transactions even using mobile phones. It is seen that technology is being used for cashless transactions.

Keywords-:*Cashless transactions, curb crime, ordinary citizens, use of mobile.*

Introduction-:

after the denomination, all the citizens of the country were affected for a short period and had to bear the brunt of the denomination. Turnover seems to have turned to rupees 500 and rupees 1000 notes which were about 86%. According to various economists, our country has about 7% black money. Finance Minister Arun Jaitley had announced several concessions on December 8, 2016, to promote cashless transactions. It is difficult to control corruption in a country with such a large population but if you use cashless transactions, it will be easier for you to control corruption as well as curb corruption. In government accounts as you can easily access government transactions digitally. Cash transactions are much higher than digital transactions in India but in recent years the use of plastic money (debit card /credit cards) has increased drastically. India is in dire need of cashless transactions which do not include printed notes. The use of mobile for cashless transactions has also increased in among the common people. Cashless transactions will create transparency in all transactions so that fraud will be curtailed.

Objectives-:

- To study the growing proportion of cashless transactions in India.
- Study the options used to complete cashless transactions.
- To study the benefits of cashless transactions.
- To study how to be careful in cashless transactions.

Research methodology-:

The Research is based on the secondary data the last 6 years observations regarding to the cashless society is the base of secondary data. Like various newspapers, internet, research papers etc.

Benefits of a cashless society-:

- Citizens of the country will get benefits from cashless transactions as per their needs.
- Citizens do not need to keep the cash.
- Financial transactions can be done very fast.
- Control of counterfeit note printing fraud.

- The cost to the Government of printing notes can be saved.
- Cashless transactions will make it easier for the income tax department to record every transaction.
- Cashless transactions will save time for the citizens of the country.
- Citizens of the country can avail cashless treatment through health insurance.
- Demand for the paper will decrease as cashless financial transactions will reduce the need to print paper currency.

Options available for completing cashless transactions-:

- Internet banking
- UPI
- From Aadhar card
- Mobile banking or USSD
- Plastic money (debit card/ credit card)
- E-wallet, mobile wallet
- POS -point of sale

1. **Internet banking-:**

Through internet banking, the citizens of the country can do all financial transactions online which the customer has to apply to the bank then the bank gives you the user ID and password. Through this, the customer can open an online bank account using the user ID and password the customer can log in to the internet banking website. The customer has to log in to make online transactions OTP comes to his mobile for transactions. After login transactions are made from your bank account. And there is also an SMS so that you can keep track of the transactions that have taken place. The customer can view the records of all the transactions done offline or online on the website or even take out the statement print of the transactions that we call "Net Banking".

2. UPI (unified payment interface)-:

UPI is an option used for cashless transactions. UPI is also being used in India does not require a user ID password, Bank account number, and IFSC for UPI transactions can be used directly through the bank using the username. This username is called VPA through which remittances can be made in less time. No payment is required in UPI. Transactions are completed through a bank account. After downloading the official app on the phone and connecting the mobile number to UPI, they can use the app to complete the transactions.

3. From Aadhar card-:

There is a special system for this which we call Apes'- i.e., Aadhaar enables a payment system. In this system, customers have to link their Aadhar card with the bank account so transactions can be made by customers through Aadhar card.

4. Mobile Banking and USSD-:

Mobile banking is designed for phones without the internet. There are two options in mobile banking. If the customer wants to use these two transactions can be made through USSD(NUUP) to check the account balance and send money to the customer for this by informing all the banks through the government the single number options the customer mobile number has to be linked to the customer's account in the bank and then the customer is given MMID, username, and password. Account number and IFSC code. This information can be sent via SMS. Customers can use this option even when there is no internet.

I) Some special terms are used here as per Bank rules through SMS for example <IMPS><mobile number><MMID><amount><user ID><MPIN> is the term for SBI.

II) Transaction can be made through USSD (NUUP) to check the account balance and send money to the customers. For this, by informing the banks through the government the single number *99# has access fixed. Customers can access their account information using this number.

5. Plastic Money (Debit card/Credit card)-:

Plastic money uses debit card/ credit card

Debit card-:

A debit card (Prepay) is used for transactions/ purchases from the amount already in the customer's account.

Credit card-:

The credit card (post pay) is used to deposit the amount in the bank as per the bill sent by the bank at the end of the month after the purchase through the customer's credit card.

6. E-Wallet / Mobile Wallet-:

A mobile wallet is a virtual wallet on a mobile. You can deposit a certain amount in the mobile wallet and use this amount for transactions anywhere. We all use mobile wallets easily. A mobile wallet is used for online transactions like ready recharge, remittance, etc. In the mobile

wallet, customers can make payments from their bank account through debit cards, credit cards, net banking, etc. After that customer can use options like send money or receive money in a mobile wallet. while using the mobile wallet, the user ID and password secure the mobile wallet. The customer also receives an email and an SMS from the mobile wallet after making any transaction.

7. POS-Point Of Sale-:

The use of POS has increased these days. POS is one of the many options available for cashless financial transactions. Currently, POS is used in shops, petrol pumps, etc. In POS the customer buys goods from the seller then the seller tells the customer the bill amount then the seller is asked to enter the card into the POS machine and press the PIN. After the money is credited to the seller's account from the bank account, the customer receives a printed receipt.

Care to be taken in the cashless transaction-:

- The customer should not disclose any information related to their bank account even if they receive a phone call.
- CVV or OTP should not be shared with anyone.
- Changing the PIN after certain days.
- Cards details should not be saved on any website
- Customers should use a virtual keyboard while net banking.

Conclusion-:

This research paper concludes that cashless transactions are one of the best and strongest decision of the Government of India. The concept of a cashless transaction system is accepted by many. The cashless transaction helps to fight against large-scale illegal or immoral activities in the economy like terrorism, corruption, money laundering, etc. Cashless transactions are also on the rise in India as different options are being used for cashless transactions. People in our country seem to be focusing on cashless transactions instead of cash. Recently, cashless transactions are also being favoured in urban and rural areas.

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APPENDIX-:

UPI – UNIFIED PAYMENTS INTERFACE
OTP- ONE TIME PASSWORD
SMS-SHORT MESSAGING SERVICE
IFSC-INDIAN FINANCIAL SYSTEM CODE
VPA-VIRTUAL PAYMENT ADDRESS
AEPS- AADHAAR ENABLED PAYMENT SYSTEM
USSD-UNSTUCUTURED SUPPLIMENTRY SERVICES DATA
NUUP-NATIONAL UNIFIED USSD PLATFORM
IMPS- IMMEDIATE PAYMENT SERVICE
MMID- MOBILE MONEY IDENTIFIER
MPIN-MOBILE BANKING PERSONAL IDENTIFICATION NUMBER
SBI- STATE BANK OF INDIA
POS- POINT OF SALE
PIN- PERSONAL IDENTIFICATION NUMBER
CVV-CARD VERIFICATION VALUE

CHAPTER-32

ROLE OF SHRI MAHILA SEWA SAHAKARI BANK LTD. TOWARDS WOMEN EMPOWERMENT

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Abstract:

Women who work for themselves are locked in a vicious cycle of poverty, which includes debt, assetlessness, and low income. Directly tying these women to nationalised banks could be one way to break them free from this terrible cycle. However, for a variety of reasons, formal sector institutions were unable to fully address the financial demands of women employees. Complicated forms, which were primarily unavailable to uneducated women, the requirement for significant levels of collateral to obtain credit, and so on were among them. Due to the failure of conventional financial institutions to address the needs of women workers, SEWA Bank developed informal delivery methods for loans, savings, and insurance to assist these women in breaking free from the cycle.

Ela Bhatt, as the head of a textile labour union's women's wing, recognised the many challenges faced by women workers in the late 1960s and gradually organised them into the Self-Employed Women's Association by 1972. (SEWA). Its creators quickly realised that these working women required savings and credit services, but that conventional banks were hesitant to deal with illiterate women who wouldn't know how to manage their passbooks, would arrive in work-stained clothes, and would frequently have new-borns in their arms. So, two years later, SEWA established a women's cooperative bank, which began with 4,000 members.

Keywords: *Indebtedness, Assetlessness, Inaccessible, Illiterate, Mechanism*

Introduction:

It's Ahmedabad's Shri Mahila SEWA Sahkari Bank Ltd, which has been in operation for 39 years. Ela Bhatt, as the head of a textile labour union's women's wing, recognised the many challenges faced by women workers in the late 1960s and gradually organised them into the Self-Employed Women's Association by 1972. (SEWA). Its creators quickly realised that these working women required savings and credit services, but that conventional banks were hesitant to deal with illiterate women who wouldn't know how to manage their passbooks, would arrive in work-stained clothes, and would frequently have new-borns in their arms. So, two years later, SEWA established a women's cooperative bank, which began with 4,000 members. Union finance minister P. Chidambaram proposed in the 2013-14 budget Chidambaram plans to provide Rs 1,000 crore to set up an all-women bank in the public sector. SEWA Bank, in contrast, began with Rs 1 lakh, contributed by members. Today, it has a working capital of Rs 200 crore and serves four lakh women.

Self-employed workers are people who make a living by running their own small business or selling their services. These are workers who do not have a formal employer-employee connection and rely on their own labour to make ends meet. They are impoverished, ignorant, and helpless. They don't have much in the way of assets or operating capital. They are, nonetheless, tremendously economically engaged, and their labour contributes greatly to the economy and society. The unorganised sector of the economy is referred to as such.

Objectives:

To study the role of Shri Mahila SEWA Sahakari Bank Limited towards Women Empowerment.

Hypothesis:

Shri Mahila SEWA Sahakari Bank empowered women of unorganized sector of Gujarat State.

Methodology:

The research relies heavily on secondary data and information. The data was gathered from a variety of published sources. Books, journals, government reports and publications, research articles, websites, newspapers, and other sources are examples.

Women Empowerment:

Women's empowerment can be defined as the promotion of a woman's sense of self-worth, ability to make her own decisions, and right to influence societal change for herself and others.

Women's self-strength and efficiency are among the topics covered. Women's empowerment, on the other hand, can now be broken down into five categories: social, educational, economic, political, and psychological.

Mission of Shri Mahila SEWA Sahakari Bank Ltd.:

Sewa Bank exists to maximise the empowerment of impoverished women workers in the unorganised sector by providing them with appropriate financial services for socio-economic empowerment and self-development, all while allowing them to run and control their own businesses.

Approach:

SEWA Bank's approach to banking has been to consider the life cycle needs of women and to try to meet those needs, based on its ideology and lengthy experience of dealing with mainstream poor women in the informal sector. SEWA Bank's expertise in analysing the long-term needs of poor women workers has revealed that they are mainly locked in a vicious cycle of poverty, and the major goal is to assist women in escaping this spiralling poverty syndrome.

The Vicious Circle of Poverty:

Indebtedness, assetlessness, and low income levels trap self-employed women workers in a vicious cycle of poverty. Directly tying these women to nationalised banks could be one way to break them free from the terrible cycle. However, for a variety of reasons, formal sector institutions were unable to fully address the financial demands of women employees. Complicated forms, which were primarily unavailable to uneducated women, the requirement for a significant level of collateral to obtain credit, and so on. Since conventional financial institutions have been unable to address the needs of female workers. SEWA Bank has developed an informal delivery system for loans, savings, and insurance to assist these women in breaking free from the cycle.

Process of Capitalisation:

When a woman joins SEWA Bank, she begins to capitalise her life. At SEWA Bank, capitalisation is defined as the process of forming capital in order to achieve long-term sustainability and growth, both at the individual and household levels.

It is usually her first exposure to (formal) banking when she joins SEWA Bank. She is frequently already in debt and must first repay her debts before saving and then taking out loans to build up her capital foundation. She begins saving immediately and accumulates an asset over time, which she can use to either start a new business or upgrade an existing one, or to satisfy future consumption expenditures.

Women Workers Need to Provide for Planned, Unplanned and Productive Expenditure during their Lifetime:

The traditional banking institutions have mainly ignored women workers, particularly those in the informal economy. They are, nevertheless, economically engaged and have different spending patterns based on their trade or employment, family circumstances, and socioeconomic status.

In order to offer appropriate goods and services, SEWA Bank relies on a thorough understanding of its clients' spending habits.

As a result of SEWA Bank's experience over the last 30 years, three key products have emerged, as shown above.

This type of financial services have been developed by SEWA Bank till date, through various schemes, to broadly meet these different financial needs.

Self-employed workers are people who make a living by running their own small business or selling their services. These are workers who do not have a formal employer-employee connection and rely on their own labour to make ends meet. They are impoverished, ignorant, and helpless. They don't have much in the way of assets or operating capital. They are, nonetheless, tremendously economically engaged, and their labour contributes greatly to the economy and society. The unorganised sector of the economy is referred to as such.

- There are four types of self-employed or unorganised sector workers.
  Hawkers, vendors and small business women selling vegetable, fruit, fish, eggs and other food items, household goods and clothes.
- Home-based workers like Weavers, Potters, Bidi and Agarbatti workers, Papad Rollers, ready-made garment workers, women who process agricultural products and artisans.
- Manual labourers & service providers like agricultural labourers, construction workers, contract labourers, handcart pullers, head-loaders, domestic workers and laundry workers.
- Producers.

When the Self Employed Women's Association (SEWA) was established as a trade union in Gujarat in 1972, a group of such self-employed women founded their own organisation with the goal of "strengthening its members' bargaining power to increase income, employment, and access to social protection." SEWA sees itself as a movement, not just a workers' group.

It is, in fact, the result of the convergence of three movements. The labour movement, as well as the cooperative and women's movements. SEWA draws its influence from Gandhi's philosophy. SEWA is a pan-India organisation that employs a twin strategy of fight and development, allowing people to integrate into the economy. Women have grown more self-assured and independent as a result of this process. SEWA's combined strategy has aided employees in organising around a variety of issues, allowing them to bring these issues to the attention of the government as well as the broader public.

SEWA Bank

A small group of disadvantaged self-employed women in Ahmedabad, who were members of the Self Employed Women's Association (SEWA), a trade organisation for women in the unorganised sector, saw the need to "PROMOTE" THEIR OWN FINANCIAL INSTITUTION.

This need was based on four major reasons.

- They need capital for running their day to day business as well as for buying equipment's for this business.
- Such borrowings were on exploitative terms and they desperately wanted to come out of the clutches of these money-lender.
- They wanted some safe place to put their "**Savings**"
- Their experience in dealing with formal banks through SEWA UNION had made them realize that it will be extremely difficult for them to avail banking services from these formal Institutions.

They presented this proposal to Sewa members in 1974, took responsibility for persuading other poor women, contributed the necessary starting share capital for establishing their own bank, and signed as "PROMOTERS." Only two non-poor Promoters out of a total of 15 aided the registration procedure.

So, the first Micro-finance Institution, was established in year 1974, as an Urban Co-operative Bank, at the initiative of few poor self-employed women.

Women who work as self-employed employees and producers are economically active and contribute to the economy's growth. They primarily work in manufacturing, trading, and the service industry. Despite their hard labour and contribution to the country's gross domestic product, they lack access to financial services that would enable them to improve their work and productivity.

Growth Profile of Bank:-

Particulars	2016-17	2015-16	2014-15	2013-14	2012-13
No. of Members	471653	450000	401322	408276	448434
Total Deposits (Rs. In Lacs)	24374.00	17221.3	14460.65	12199.69	11411.64
Working Capital (Rs. In Lacs)	34593.00	26123.00	21871.10	19030.19	17671.45
Loans & Advances (Rs. In Lacs)	14842.00	11438.00	9055.86	8339.01	7042.39
Profit (Rs. In Lacs)	366.00	200.00	180.79	169.56	161.58

SEWA bank currently serving following financial services:

Saving:

Recurring: Chinta Nivaran Yojana (Worry Riddance Scheme), Kishori Gold Yojana, Mangal Prasang Yojana, Ghar Fund Yojana (Housing Fund Scheme)

Pension: Design Own Pension Saving product in the year 1995, Linked with Pension Product of UTI in year 2006, Linked with NPS from February, 2012

Loans: Housing Loans, House Repairing Loans, Secured (gold) Loans

Fixed Deposit:

Conclusion:

Shri Mahila SEWA Sahakari Bank is a pioneer bank for self-employed women, as it played a critical role for women working in the unorganised sector. This bank assists customers with their financial needs as well as encouraging them to save and invest wisely. This bank helps and educates people about financial assets. Banks provide them with a variety of loans to meet their demands on a regular basis, and these ladies do not hesitate to take out loans and repay them on time. This form of bank assists women in the unorganised sector in standing on their own two feet.

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CHAPTER-33

THE TRADE RELATION BETWEEN INDIA AND UKRAINE FROM: 2016-17 TO 2020-21

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Abstract:

The five year import and export trade between India and Ukraine from 2016-17 to 2020-21. During this period, India received 11,379.12 from Ukraine. India exported 5 1945.84 million to Ukraine over a five-year period. India major exports to Ukraine are electrical and electronic equipment, plastics and related articles, oil seeds, elegiac fruits, grain, fruits, seeds and chemical products. India's major Import from Ukraine is Animal or vegetable fats and oils and there cleavage products, fertilizers, inorganic chemicals, plastic, wood and articles of wood charcoal, iron steel, nuclear reactors boiler machinery.

Keywords: *Trade, India, Ukraine, Export, Import*

Introduction:

India and Ukraine established diplomatic relations in January 1992.Ukraine is India's second largest trade partner after Russia in the former Soviet Union. In March, 1992 the 'Treaty on Friendship and Co-operation' was signed between India and Ukraine, providing a major boost to India-Ukraine trade relations. On 24 February 2022 Russia Ukraine war is started. This war is affected global economy as well as Indian economy. So it is important to study the trade relationship between India and Ukraine.

Discussion:

Table no.1 shows the five year import and export trade between India and Ukraine from 2016-17 to 2020-21. During this period, India received 11,379.12 from Ukraine. Millions of dollars have been imported. Ukraine accounted for 0.5095 percent of India's total imports in the last five years. During the period, import from Ukraine increased by 27.89 percent. But in the post-2016-17 period, the export from Ukraine is declining. In 2016-17, India imported 8 2481.47 million from Ukraine. That is down from 3 2139.86 million in 2020-21.

Table No. – 1

India's Total Import and Exportto Ukraine: (2016-17 to 2020-21)

(Values in U$$ Million)

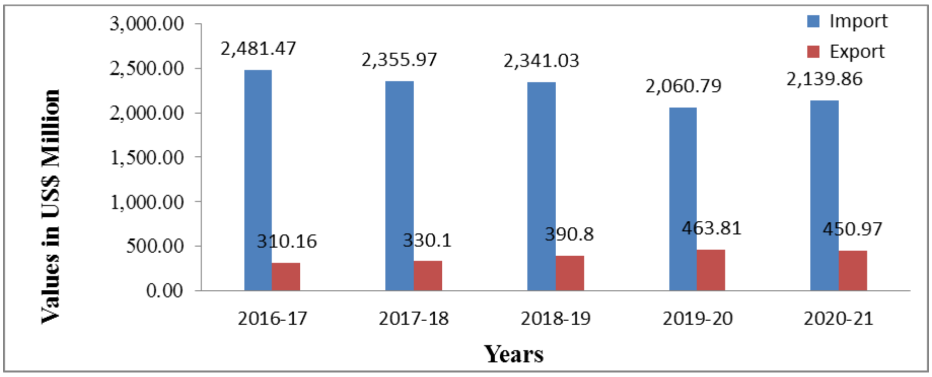
Year	**Indies Total Import From Ukraine**	**Indies Total Import**	**%Share**	**Growth in %**	**Indies Total Export For Ukraine**	**India's Total Export**	**%Share**	**%Growth**	**Balance of Payments**
1	2	3	4= 2÷3*100	5	6	7	8= 6÷7*100	9	10 = 2 -6
2016-17	2,481.47	384,357.03	0.6456	41.71	310.16	275,852.43	0.1124	19.7	-2,171.31
2017-18	2,355.97	465,580.99	0.506	-5.06	330.1	303,526.16	0.1088	6.43	-2,025.87
2018-19	2,341.03	514,078.42	0.4554	-0.63	390.8	330,078.09	0.1184	18.39	-1,950.23
2019-20	2,060.79	474,709.28	0.4341	-11.97	463.81	313,361.04	0.148	18.68	-1,596.98
2020-21	2,139.86	394,435.88	0.5425	3.84	450.97	291,808.48	0.1545	-2.77	-1,688.89
Total	**11,379.12**	**2,233,161.60**	**0.5095**	**27.89**	**1945.84**	**1,514,626.20**	**0.1284**	**60.43**	**- 9,433.28**

Source: Export Import Data Bank, Department of Commerce, Ministry of Commerce and Industry Dated: 19/3/2022.

India exported 5 1945.84 million to Ukraine over a five-year period from 2016-17 to 2020-21. Ukraine accounted for 0.1284 per cent of India's total exports during the five-year period. During this period, exports to Ukraine increased by 60.43 percent. Exports to Ukraine have been increasing since 2016-17. In 2016-17, India exported 31 310.16 million to Ukraine. That's up from 50 450.97 million in 2020-21.

Chart No. -1

India's Balance of Payments to Ukraine: (2016-17 to 2020-21)



Source: Table No.1

From 2016-17 to 2020-21, India imported 311379.12 million from Ukraine and exported 1941945.84 million to Ukraine. This means that India's balance of payments with Ukraine over the next five years is 151596.98 million.

Table no. 1 above shows imports and exports between India and Ukraine. The table shows that India's screen exports are increasing while its imports from Ukraine are declining.

Table No. - 2

Top Ten Commodity of India's Export and Import to Ukraine: 2020-21

Sr.No.	Name of Commodity	Export Value	Growth %	Name of Commodity	Import Value	%Growth
1	PHARMACEUTICAL PRODUCTS	173.68	43.88	ANIMAL OR VEGETABLE FATS AND OILS AND THEIR CLEAVAGE PRODUCTS; PRE. EDIBLE FATS; ANIMAL OR VEGETABLE WAXEX.	1,607.12	7.13
2	ELECTRICAL MACHINERY AND EQUIPMENT AND PARTS THEREOF; SOUND RECORDERS AND REPRODUCERS, TELEVISION IMAGE AND SOUND RECORDERS AND REPRODUCERS, AND PARTS.	20.85	-70.08	FERTILISERS.	279.53	97.78
3	PLASTIC AND ARTICLES THEREOF.	20.64	-8.27	INORGANIC CHEMICALS; ORGANIC OR INORGANIC COMPOUNDS OF PRECIOUS METALS, OF RARE-EARTH METALS, OR RADI. ELEM. OR OF ISOTOPES.	66.83	-6.27
4	OIL SEEDS AND OLEA. FRUITS; MISC. GRAINS, SEEDS AND FRUIT; INDUSTRIAL OR MEDICINAL PLANTS; STRAW AND FODDER.	18.85	-19.71	PLASTIC AND ARTICLES THEREOF.	29.49	-63.35
5	VEHICLES OTHER THAN RAILWAY OR TRAMWAY ROLLING STOCK, AND PARTS AND ACCESSORIES THEREOF.	16.61	22.84	WOOD AND ARTICLES OF WOOD; WOOD CHARCOAL.	24.96	15.97

6	ORGANIC CHEMICALS	15.96	31.95	IRON AND STEEL	24.01	-57.71
7	MISCELLANEOUS CHEMICAL PRODUCTS.	14.88	-57.6	NUCLEAR REACTORS, BOILERS, MACHINERY AND MECHANICAL APPLIANCES; PARTS THEREOF.	23.81	0.52
8	NUCLEAR REACTORS, BOILERS, MACHINERY AND MECHANICAL APPLIANCES; PARTS THEREOF.	14.38	-15.32	ORES, SLAG AND ASH.	14.95	349.43
9	CEREALS.	14.04	51.62	OPTICAL, PHOTOGRAPHIC CINEMATOGRAPHIC MEASURING, CHECKING PRECISION, MEDICAL OR SURGICAL INST. AND APPARATUS PARTS AND ACCESSORIES THEREOF;	10.37	427.2
10	CERAMIC PRODUCTS.	12.73	62.6	RESIDUES AND WASTE FROM THE FOOD INDUSTRIES; PREPARED ANIMAL FODER.	9.62	-49.49
	Total of Top Ten Commodity Export	322.62	69.55	Total of Top Ten Commodity Import	**2090.69**	**97.74**
	India's Total Export to Ukraine	**450.97**	**-2.77**	India's Total Import to Ukraine	**2,139.86**	**3.84**
	India's Total Export	**2,91,808.48**	**0.1545**	India's Total Import	**3,94,435.88**	**0.5425**

India major exports to Ukraine are electrical and electronic equipment, plastics and related articles, oil seeds, elegiac fruits, grain, fruits, seeds and chemical products. India's total exports to Ukraine in 2020-21 were 4 450.97 million, of which Pharmaceutical Products the highest was 3 173.68 million. Then electrical machinery and equipment and parts trade of sound recorder and reproductions television image and sound recorder and parts exported 20.85 million. The top ten exports from India are valued at 2 322.62 million. In other words, 71.53 percent of export from India to Ukraine go to the above ten items.

India's major Import from Ukraine is Animal or vegetable fats and oils and there cleavage products, fertilizers, inorganic chemicals, plastic, wood and articles of wood charcoal, iron steel, nuclear reactors boiler machinery. 2020 - 21 India imported total 2139.86 billion Dollar’s from Ukraine, of which the Ten most imported goods were valued at 20

2090.69 million dollars. In 2020-21, India imported the most Animal or vegetable fats and oils and there cleavage products from Ukraine. It is valued at 60 1.607 million.

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CHAPTER-34

DISTRIBUTED COMPUTING TECHNIQUES: HANDLING BIG DATA CHALLENGES

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Introduction: Due to lot of new technologies, devices and communication medium like facebook, social networking sites large amount of data created every year. Till 2003 in US the amount of data produces in a year 5 billion Gigabytes. But now day's incredible data being produce every year, approximate 2.5 quintillion bytes of data created in 2021. Due to that the big data concept was incoming in picture.

Big Data

Big data is a collection of huge volume of data which is growing exponentially with respect to time.

Traditional data management tools cannot store or process it efficiently. Big data includes large volume, velocity and variety of data , Which is categories into 3 types

Structured Data – Relational Data

Semi structured Data – XML Data

Un structured Data – Word, PDF, Text, Media logs.

Big data helps to create new ideas or methods for development of organizations . How it use correctly Big data solutions and Big data Analytics can only encourage the development of data driven decision making , but also powerful way which add values to business.

Various technologies in the markets handle big data. While looking into the technologies that handle Big data two classes of technology are used.

- Operational Big Data
- Analytical Big Data

Operational Big Data:

Operation Big data includes real data on daily basis such as online transacting social media platforms etc. which is usually used for analysis based on Big data technologies. Operational data used as raw input for several Analytical Big Data technologies.

Analytical Big Data:

Analytical Big Data used real time decision based report created by analyzing operational data.

Big Data Challenges:

- Capturing Data
- Curation
- Storage
- Searching
- Sharing
- Transfer
- Analysis

- Presentation

To fulfill the above challenges, organizations normally take the help of enterprise servers.
To address big data challenges, Distributed computing techniques have been developed. For that the general purpose big data framework used following types of services.

1. Distributed data ingestion (e.g. Apache Flume)
2. Distributed file system (e.g. HDFS)
3. Map Reduce –like computation models (e.g. Apache Spark)
4. Large scale stream processing (e.g. Apache kafka)
5. Container – Orchestration frameworks (e.g. Kubernetes)

1. Distributed data ingestion:

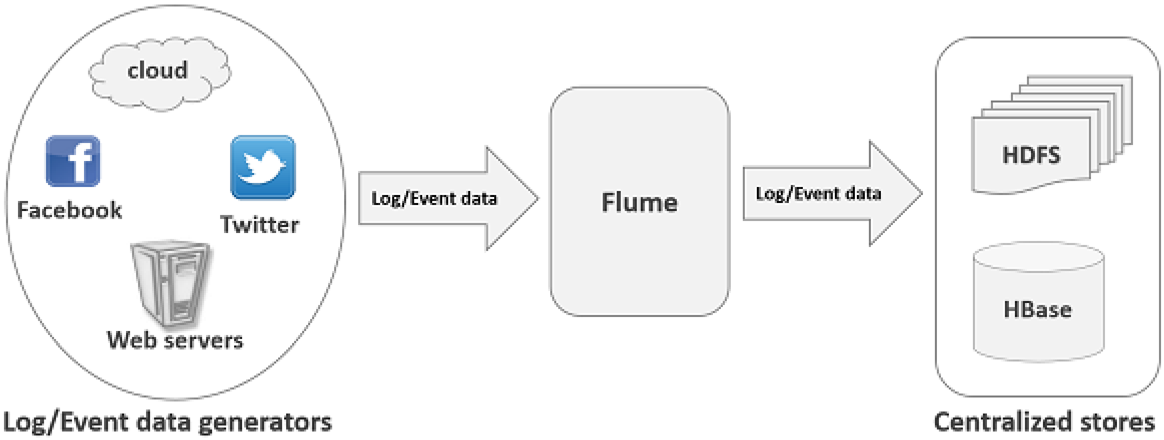
Data ingestion is the method involved with streaming in enormous measures of information data in our system, from a few different outside sources, for running examination and different task expected by the business. Data is ingested to understand and sort out such monstrous measure of data to develop the business.

Apache Flume is one of the tool used for distributed data ingestion.

Apache Flume

Apache flume is one of the tool used in data ingestion mechanism for collecting, arrogating and transporting large amounts of streaming data from various sources to centralized data store.

Apache flume is a tool designed to copy streaming data from various web servers to HDFS.



Application of Flume:

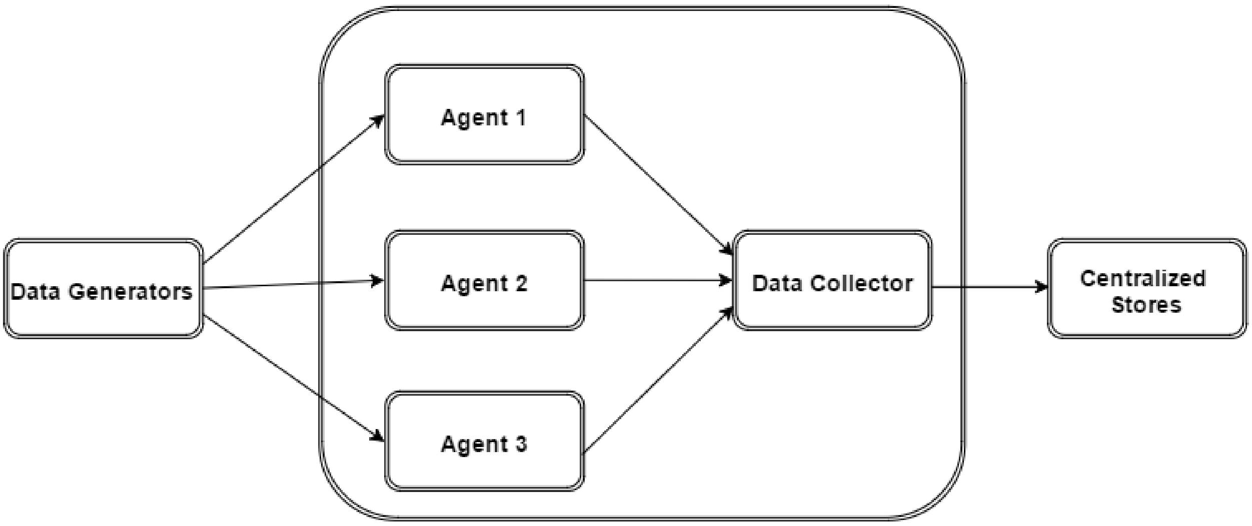
To analyze the customer behavior of particular region in e-commerce web application. To do this process, log data wants to moves into Hadoop for analysis.

Log data generated by application servers move into HDFS at higher speed.

Silent features of Flume:

- Log data is ingests from multiple web servers into a centralized store (HDFS, HBase)in Flume.
- With the help of Flume, data are collected from multiple servers in fraction of seconds into Hadoop.
- Large data produced by social sites like Facebook , Twitter etc is import by Flume.
- Flume collects the data from various sources and send it to large number of destinations.
- Flume supports multi-hop flows, fan-in fan-out flows, contextual routing, etc.

Flume architecture:

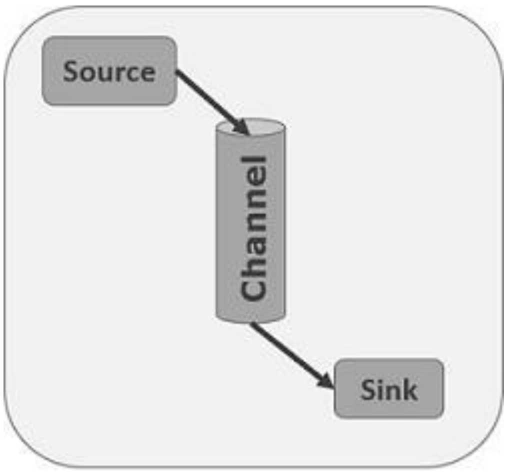


Flume

Data created by Facebook, Twitter etc. is collected by Data generator and send it to agents of Flume .Then , a data collector collect all data generated by various agents ,aggregated it and send to HDFS or HBase to collect at centralized location.
An event is the essential unit of the data moved inside Flume. It contains a payload of byte cluster that will be moved from the source to the destination joined by discretionary headers. A run of the mill Flume event would have the accompanying construction.

Flume event

An agent is an autonomous daemon process (JVM) in Flume. It gets the data (events) from clients or different agents and advances it to its next destination. Flume might have more than one agent. Following diagram addresses a Flume Agent.



Flume Agent

Diagram contains three main components of a Flume Agent namely, **source**, **channel**, and **sink**.

Additional components of Flume:

Source, channel and sink are the primitive components of the Flume agents. Interceptors, Channel Selectors, Sink Processors are some components which play a important role in transferring the events from the data generator to the centralized stores.

Interceptors

Interceptors are utilized to change/assess flume events which are moved among source and channel.

Channel Selectors

These are utilized to figure out which channel is to be selected to move the data in the event of different channels. There are two kinds of channel selectors −

> ***Default channel selectors*** − These are otherwise called reproducing channel selectors they duplicates every one of the events in each channel.
>
> ***Multiplexing channel selectors*** − These chooses the channel to send an event in light of the location in the header of that event.

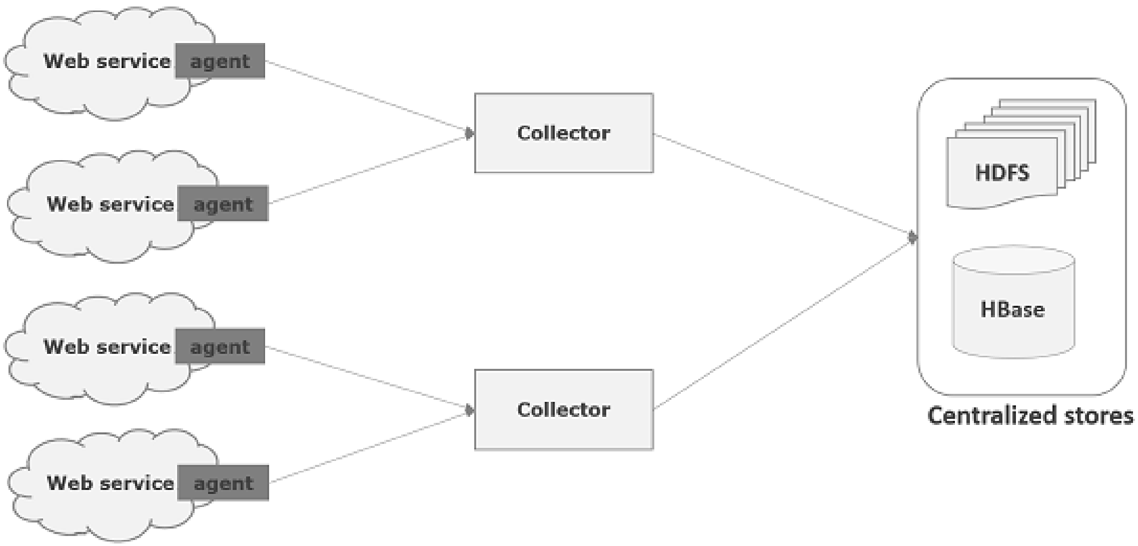
Sink Processors

These are utilized to conjure a specific sink from the chose gathering of sinks. These are utilized to make failover ways for your sinks or burden balance events across numerous sinks from a channel.

Flume is a framework which is utilized to move log data into HDFS. By and large events and log data are created by the log servers and these servers have Flume agents running on them. These agents get the data from the data generators.

The data in these agents will be gathered by a middle of the road hub known as Collector. Very much like agents, there can be various gatherers in Flume.

At last, the data from this multitude of authorities will be amassed and pushed to a concentrated store like HBase or HDFS. The accompanying outline makes sense of the data stream in Flume.



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Multi-hop Flow

Within Flume, there can be multiple agents and prior to reaching the final destination, an event might go through more than one agent. This is known as multi-hop flow.

Fan-out Flow

The dataflow from one source to multiple channels is known as fan-out flow. It is of two kinds −

Replicating − The data flow where the data will be imitated in every one of the designed channels.

Multiplexing − The data flow where the data will be shipped off a chose channel which is referenced in the header of the event.

Fan-in Flow

The data flow in which the data will be moved from many sources to one channel is known as fan-in flow.

2. Distributed file system

In distributed file system data stored on a server which share among users through network in a controlled and authorized way. The server gives the permission to client to share files and store data again on the server just as local storage technique. The sever have complete control of data and give access to the clients.

HDFS is one of the tool used for distributed file system.

HDFS

The Hadoop Distributed File System (HDFS) is the essential data stockpiling framework utilized by Hadoop applications. HDFS utilizes a NameNode and DataNode engineering to execute an appropriated record framework that gives superior execution admittance to data across exceptionally adaptable Hadoop clusters.

Hadoop itself is an open source conveyed handling system that oversees data handling and capacity for big data applications. HDFS is a critical piece of the numerous Hadoop biological system advancements. It gives a solid means to overseeing pools of big data and supporting related big data examination applications.

Application of HDFS:

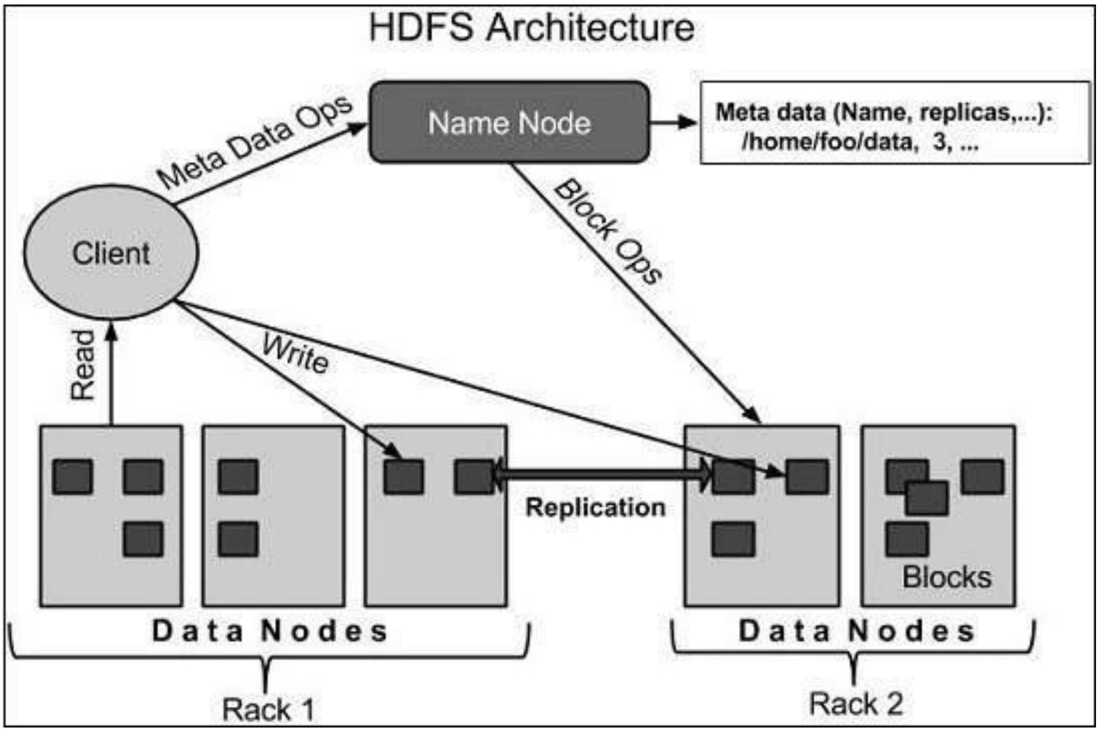
Hadoop Distributed File System technology is used in various domain .

- Stream processing, fraud detection, and prevention, content management, risk management. Financial sectors, healthcare sector, Government agencies, Retailers, Financial trading and Forecasting, etc.

Silent features of HDFS:

- It is appropriate for the dispersed storage and processing.
- Hadoop furnishes an order interface to collaborate with HDFS.
- The implicit servers of namenode and datanode assist clients with effectively looking at the situation with cluster.
- Streaming admittance to document framework data.
- HDFS gives document authorizations and validation.

HDFS architecture:



HDFS follows the client server architecture which contain the following elements.

Namenode

The namenode is the ware equipment that contains the GNU/Linux working framework and the namenode software. A software can be run on ware equipment. The framework having the namenode goes about as the expert server and it does the accompanying undertakings −

- Deals with the document framework namespace.
- Controls client's admittance to records.
- It additionally executes record framework activities, for example, renaming, shutting, and opening documents and registries.

Datanode

The datanode is an item equipment having the GNU/Linux working framework and datanode software. For each hub (Commodity equipment/System) in a bunch, there will be a datanode. These hubs deal with the data stockpiling of their framework.

- Datanodes perform read-compose procedure on the document frameworks, according to client demand.
- They additionally perform activities like square creation, erasure, and replication as per the guidelines of the namenode.

Block

The client data is put away in the files of HDFS. The document in a record framework will be partitioned into at least one portions or potentially put away in individual data hubs. These record sections are called as squares. At the end of the day, the base measure of data that HDFS can peruse or compose is known as a Block. The default block size is 64MB, yet it tends to be expanded according to the need to change in HDFS arrangement.

3. Map Reduce

MapReduce is a processing procedure and a program model for distributed computing in light of java. The MapReduce calculation contains two significant undertakings, in particular Map and Reduce. Map takes a bunch of data and converts it into one more arrangement of data, where individual components are separated into tuples (key/esteem matches). Furthermore, diminish task, which takes the result from a guide as an information and joins those data tuples into a more modest arrangement of tuples. As the succession of the name MapReduce infers, the decrease task is generally performed after the guide work.

The significant benefit of MapReduce is that it is not difficult to scale data processing over different computing hubs. Under the MapReduce model, the data processing natives are called mappers and minimizers. Breaking down a data processing application into mappers and minimizers is now and again nontrivial. In any case, when we compose an application in the MapReduce structure, scaling the application to run north of hundreds, thousands, or even huge number of machines in a group is only a design change. This straightforward versatility has drawn in numerous software engineers to utilize the MapReduce model

Apache Spark is one of the tool used for Map Reduce.

Apache Spark:

Apache Spark is a lightning-quick cluster computing technology, intended for quick calculation. It depends on Hadoop MapReduce and it stretches out the MapReduce model to proficiently involve it for additional kinds of calculations, which incorporates intelligent inquiries and stream processing. The principle element of Spark is its in-memory cluster computing that speeds up an application.

Spark is intended to cover a wide scope of responsibilities like clump applications, iterative calculations, intelligent inquiries and streaming. Aside from supporting every one of these responsibility in a particular framework, it lessens the administration weight of keeping up with independent instruments.

Application of Apache Spark:

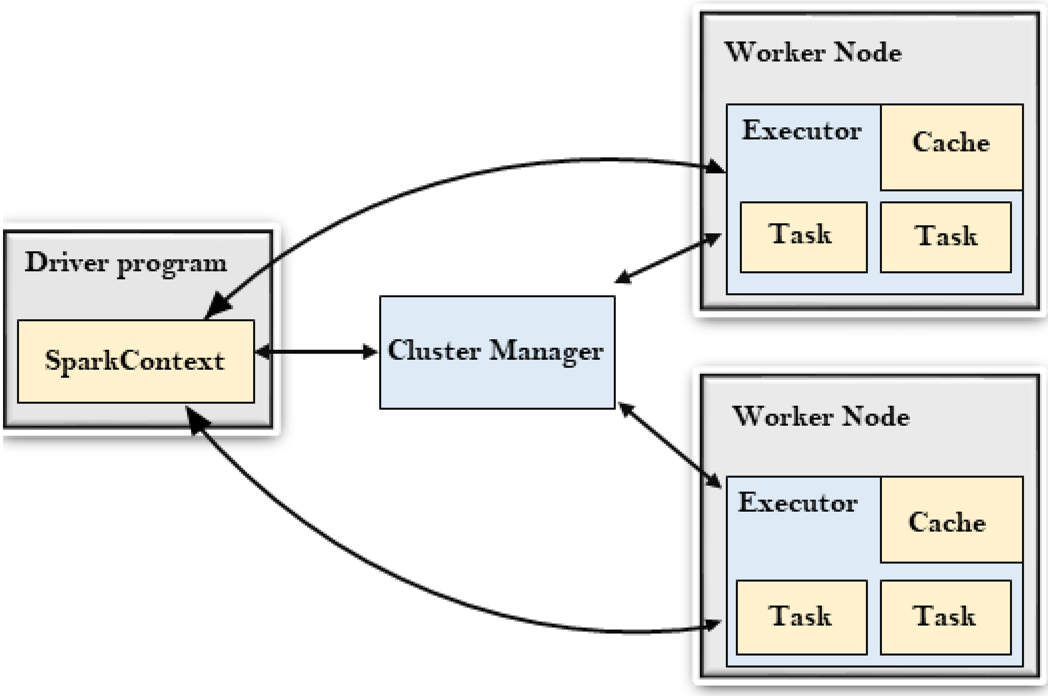
As the reception of Spark across businesses keeps on rising consistently, it is bringing forth exceptional and shifted Spark applications. These Spark applications are as a rule effectively carried out and executed in genuine situations. Following are some applications of Apache spark.

- Machine Learning
- Fog computing
- Event detection
- Interactive analysis

Silent features of Apache Spark:

- Lighting-quick processing speed.
- Convenience
- It offers support for refined examination
- Constant stream processing
- It is adaptable
- Dynamic and growing local area

Apache Spark architecture:



Driver Program

The Driver Program is a process that runs the fundamental() capacity of the application and makes the SparkContext object. The reason for SparkContext is to organize the flash applications, running as autonomous arrangements of processes on a cluster.

To run on a cluster, the SparkContext associates with an alternate kind of cluster directors and afterward play out the accompanying assignments: -

- It obtains executors on hubs in the cluster.
- Then, it sends your application code to the executors. Here, the application code can be characterized by JAR or Python files passed to the SparkContext.
- At last, the SparkContext sends undertakings to the executors to run.

Cluster Manager

- The job of the cluster manager is to dispense assets across applications. The Spark is fit enough of running on an enormous number of clusters.
- It comprises of different kinds of cluster managers like Hadoop YARN, Apache Mesos and Standalone Scheduler.
- Here, the Standalone Scheduler is an independent spark cluster manager that works with to introduce Spark on an unfilled arrangement of machines.

Worker Node

- The worker node act as a slave node
- Role of worker node is to run the application code on the cluster.

Executor

- An executor is a one of the process which is used for an application on a worker node.
- Executor runs tasks and store data on memory or disk .
- It also read and write data from or to the external sources.
- Each and every application contains its executor.

Task

- A process of work that will be sent to one executor.

Two Main Abstractions of Apache Spark

The Spark consists of master-slave architecture. In spark cluster has a single master and multiple slaves.

To implement Spark architecture two idea are used that are:

- Resilient Distributed Dataset (RDD)
- Directed Acyclic Graph (DAG)

Resilient Distributed Datasets (RDD)

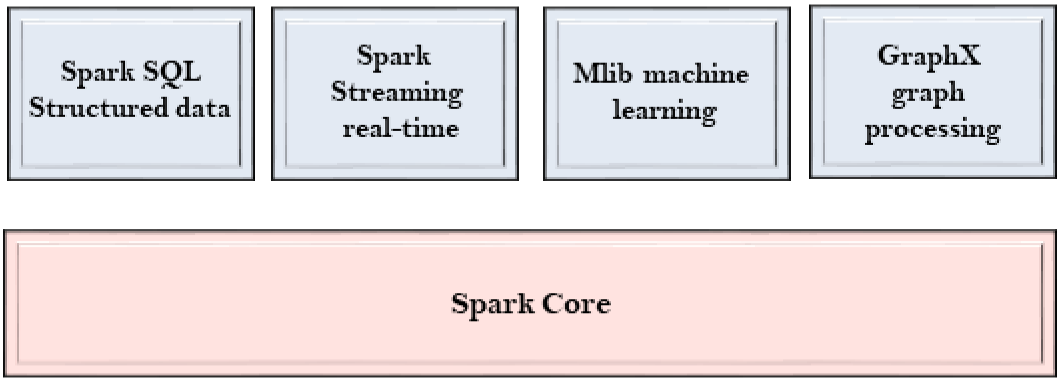
- The Resilient Distributed Datasets are the gathering of data things that can be put away in-memory on specialist hubs. Here,
- Resilient: Restore the data on disappointment.
- Distributed: Data is dispersed among various hubs.
- Dataset: Group of data.

Directed Acyclic Graph (DAG)

Coordinated Acyclic Graph is a limited direct graph that plays out an arrangement of calculations on data. Every hub is a RDD segment, and the edge is a change on top of data. Here, the graph alludes the route while guided and acyclic alludes to how it is finished.

Components of Apache Spark:

The Spark contents different types of integrated components. At its core, Spark is a computational engine that can schedule, distribute and monitor multiple applications.



Spark Core

- The Spark Core is the centre of Spark which performs the main functionality.
- It deals with the task scheduling, fault recovery, interacting with storage systems and memory management.

Spark SQL

- The Spark SQL is based on the highest point of Spark Core. It offers help for organized data.
- It permits to question the data by means of SQL (Structured Query Language) as well as the Apache Hive variation of SQL?called the HQL (Hive Query Language).
- It upholds JDBC and ODBC associations that lay out a connection between Java protests and existing databases, data distribution centers and business knowledge apparatuses.
- It likewise upholds different wellsprings of data like Hive tables, Parquet, and JSON.

Spark Streaming

- Spark Streaming is a Spark part that upholds versatile and fault-tolerant processing of streaming data.
- It utilizes Spark Core's quick planning ability to perform streaming examination.
- It acknowledges data in little bunches and performs RDD changes on that data.
- Its configuration guarantees that the applications composed for streaming data can be reused to dissect bunches of authentic data with little adjustment.
- The log files produced by web servers can be considered as a constant illustration of a data stream.

MLlib

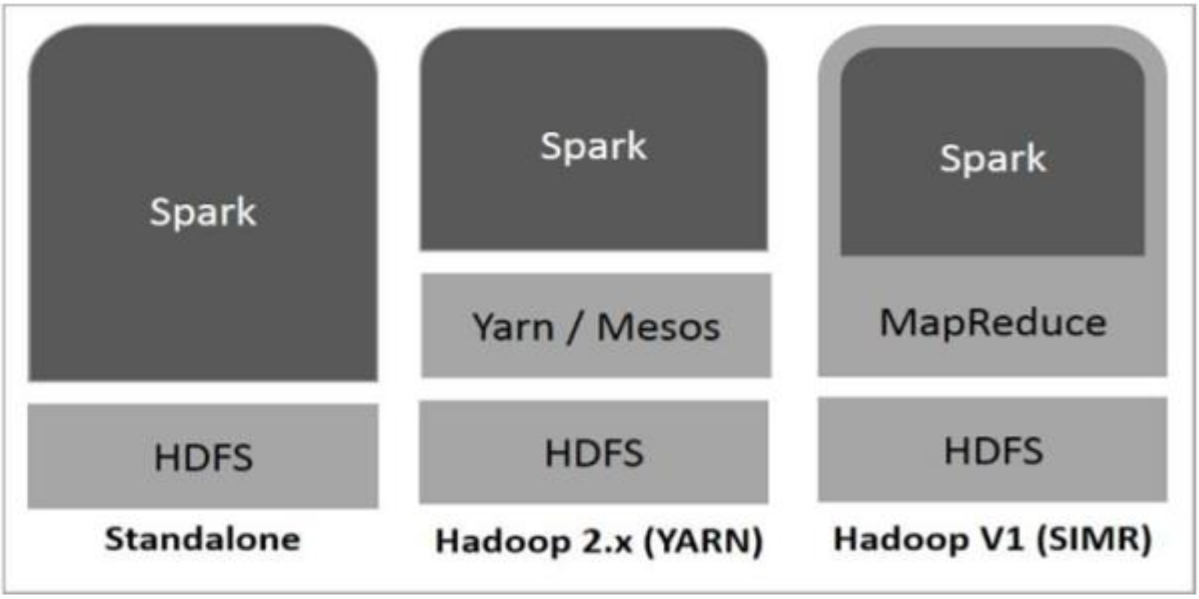
- The MLlib is a Machine Learning library that contains different AI calculations.
- These incorporate connections and speculation testing, order and relapse, clustering, and head part investigation.
- It is multiple times quicker than the circle based execution utilized by Apache Mahout.

GraphX

- The GraphX is a library that is utilized to control graphs and perform graph-equal calculations.
- It works with to make a coordinated graph with erratic properties connected to every vertex and edge.
- To control graph, it upholds different principal administrators like subgraph, join Vertices, and total Messages.

How Spark Built on Hadoop ?

There are three ways to bulit Spark with Hadoop components.



- Standalone − Spark Standalone organization implies Spark involves the put on top of HDFS(Hadoop Distributed File System) and space is allotted for HDFS, unequivocally. Here, Spark and MapReduce will show side to side to cover all spark occupations on cluster.

- Hadoop Yarn − Hadoop Yarn organization implies, basically, spark runs on Yarn with no pre-establishment or root access required. It assists with incorporating Spark into Hadoop environment or Hadoop stack. It permits different components to run on top of stack.
- Spark in MapReduce (SIMR) − Spark in MapReduce is utilized to send off spark work notwithstanding standalone organization. With SIMR, client can begin Spark and uses its shell with no managerial access.

4. Large Scale stream processing:

Stream processing is a major data innovation that spotlights on the ongoing processing of persistent streams of data moving. A stream processing structure works on parallel equipment and programming by confining the exhibition of parallel calculation.

Stream processing is a data the executive method that includes ingesting a ceaseless data stream to rapidly investigate, channel, change or upgrade the data continuously. When processed, the data is given to an application, data store or another stream processing motor.

Apache Kafka is one of the tool used for large scale stream processing.

Apache Kafka

Apache Kafka is a product stage which depends on a conveyed streaming process. It is a distribute buy in informing framework which let trading of data between applications, servers, and processors also. Apache Kafka was initially evolved by LinkedIn, and later it was given to the Apache Software Foundation. Presently, it is kept up with by Confluent under Apache Software Foundation. Apache Kafka has settled the dormant difficulty of data correspondence between a sender and a receiver.

Kafka is used for both offline and online message transferring. Kafka messages are persisted on the disk and replicated within the cluster to prevent data loss. Kafka is built on top of the ZooKeeper synchronization service. It integrates very well with Apache Storm and Spark for real-time streaming data analysis.

Application of Apache Kafka:

Apache Kafka is an open-source distributed event streaming stage involved by huge number of organizations for superior execution data pipelines, streaming investigation, data mix, and strategic applications.

Some of its application is as follows:

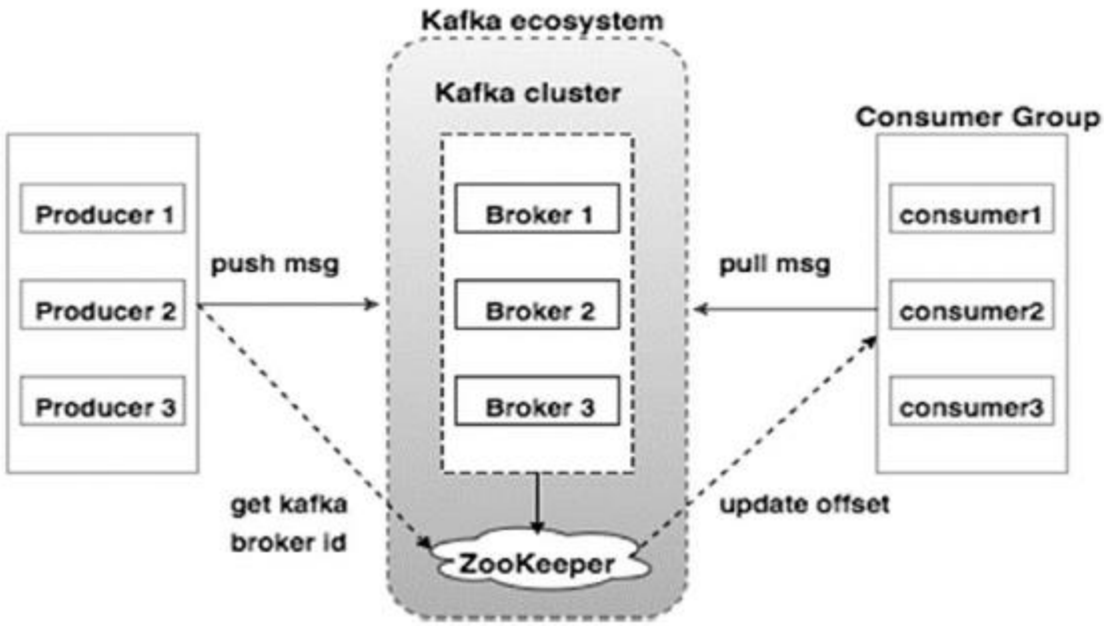
- Twitter
- LinkedIn
- Netflix
- Mozilla
- Oracle

Silent features of Apache Kafka:

- Kafka is distributed, partitioned, replicated and fault tolerance.
- Kafka messaging system scales easily without down time with four dimensions, i.e. event producers, event processors, event consumers and event connectors.
- Kafka is durable because means messages persists on disk as fast as possible.

- Kafka has high throughput because of both publishing and subscribing messages. It maintains stable performance even many TB of messages are stored.
- Kafka is very fast and guarantees zero downtime and zero data loss.

Apache Kafka architecture:



Broker : Kafka cluster typically consists of multiple brokers to maintain load balance. Kafka brokers are stateless, so they use ZooKeeper for maintaining their cluster state. One Kafka broker instance can handle hundreds of thousands of reads and writes per second and each bro-ker can handle TB of messages without performance impact. Kafka broker leader election can be done by ZooKeeper.

ZooKeeper : ZooKeeper is used for managing and coordinating Kafka broker. ZooKeeper service is mainly used to notify producer and consumer about the presence of any new broker in the Kafka system or failure of the broker in the Kafka system. As per the notification received by the Zookeeper regarding presence or failure of the broker then producer and consumer takes decision and starts coordinating their task with some other broker.

Producers: Producers push information to brokers. Whenever the new broker is begun, every one of the producers search it and automatically makes an impression on that new broker. Kafka producer doesn't sit tight for affirmations from the broker and sends messages as fast as the broker can handle.

Consumers: Since Kafka brokers are stateless, and that implies that the consumer has to maintain the number of messages have been consumed by using allotment offset. Assuming the consumer recognizes a specific message offset, it suggests that the consumer has consumed every single prior message. The consumer issues an asynchronous draw solicitation to the broker to have a cushion of bytes prepared to consume. The consumers can rewind or jump to any point in a parcel just by supplying an offset esteem. Consumer offset esteem is told by ZooKeeper.

5.Container –Orchestration frameworks

Container orchestration is the automated process of organizing the elements of measured, containerized components that make the infrastructure of an application. Container orchestration is especially basic to managing the powerful microservice structures of enterprise-grade applications.

Kuberntes is one of the tool used for Container –Orchestration frameworks.

Kubernetes

Kubernetes in an open source container the board tool facilitated by Cloud Native Computing Foundation (CNCF). This is also known as the upgraded form of Borg which was created at Google to oversee both long running processes and clump occupations, which was prior handled by independent systems.

Kubernetes accompanies an ability of automating organization, scaling of use, and operations of utilization containers across clusters. It is fit for creating container driven infrastructure.

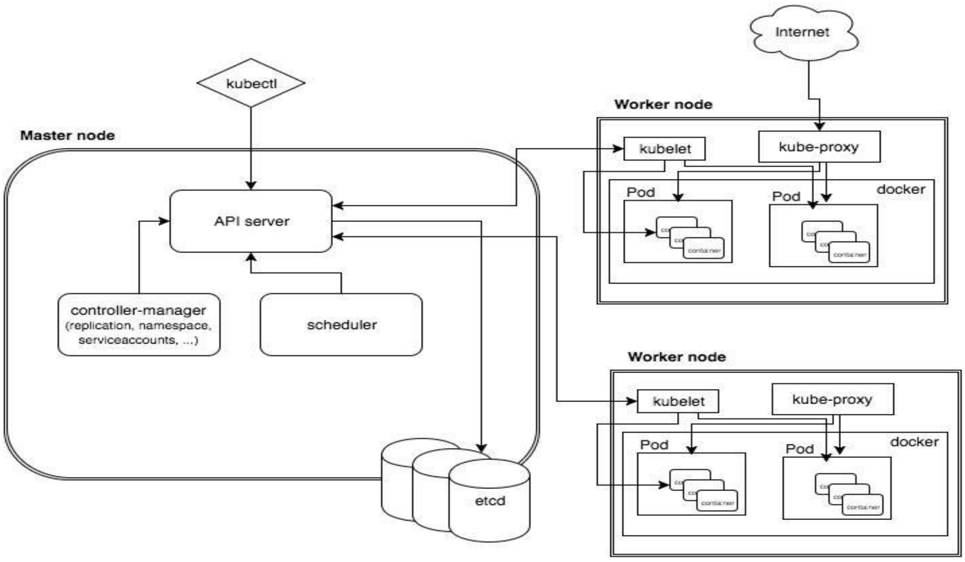
Application of Kuberbetes :

Kubernetes applications are enterprise-prepared containerized solutions with prebuilt sending layouts, featuring portability, improved licensing, and consolidated billing. They can be run on Anthos, in the cloud, on-premises, or on Kubernetes clusters facilitated in other conditions.

Silent features Kuberbetes:

- Continues advancement, integration and organization
- Containerized infrastructure
- Application-driven administration
- Auto-adaptable infrastructure
- Climate consistency across advancement testing and production
- Approximately coupled infrastructure, where each component can go about as a different unit
- Higher thickness of resource use
- Unsurprising infrastructure which is going to be made

Kuberbetes architecture:



Kubernetes has master and worker nodes.

Following are the Kubernetes Master Machine Components:

etcd : It stores the arrangement information which can be used by each of the hubs in the cluster. It is a high accessibility key worth store that can be distributed among multiple hubs. It is open simply by Kubernetes API server as it might have some delicate information. It is a distributed key worth Store which is open to all.

API Server : Kubernetes is an API server which provides all the operation on cluster using the API. Programming interface server executes an interface, and that implies various tools and libraries can promptly speak with it. Kubeconfig is a bundle alongside the server side tools that can be used for correspondence. It uncovered Kubernetes API.

Controller Manager : This component is liable for a large portion of the collectors that directs the state of cluster and performs a task. As a general rule, it very well may be considered as a daemon which runs in nonterminating circle and is liable for collecting and sending information to API server. It works toward getting the shared state of cluster and then make changes to bring the current status of the server to the ideal state. The key regulators are replication regulator, endpoint regulator, namespace regulator, and service account regulator. The regulator supervisor runs different kind of regulators to handle hubs, endpoints, and so on

Scheduler : This is one of the critical components of Kubernetes master. It is a service in master answerable for distributing the workload. It is answerable for tracking usage of working load on cluster hubs and then placing the workload on which resources are accessible and acknowledge the workload. In other words, this is the mechanism liable for allocating units to accessible hubs. The scheduler is liable for workload use and allocating case to new hub.

Following are the Kubernetes Node Components:

Docker : The main prerequisite of each hub is Docker which helps in running the exemplified application containers in a generally isolated yet lightweight operating climate.

Kubelet Service : This is a little service in each hub liable for relaying information to and from control plane service. It interacts with etcd store to peruse arrangement subtleties and wright values. This speaks with the master component to get commands and work. The kubelet process then assumes liability regarding maintaining the state of work and the hub server. It oversees network rules, port forwarding, and so on

Kubernetes Proxy Service : This is a proxy service which runs on each hub and helps in making services accessible to the outer host. It helps in forwarding the solicitation to correct containers and is fit for performing crude load balancing. It ensures that the networking climate is unsurprising and open and simultaneously it is isolated as well. It oversees cases on hub, volumes, mysteries, creating new containers' wellbeing test, and so on.

Summary:

- Big data is a collection of huge volume of data which is growing exponentially with respect to time.
- Big data two classes are operational Big Data and analytical Big Data.
- To deal with big data challenges, various distributed computing techniques have been developed .For that the general purpose big data framework used Distributed data

ingestion ,Distributed file system , Map Reduce ,Large scale stream processing ,Container – Orchestration frameworks .

- Data ingestion is the method involved with streaming.
- Apache flume is one of the tool used in data ingestion mechanism for collecting, arrogating and transporting large amounts of streaming data from various sources to centralized data store.
- Distributed file system data stored on a server which share among users through network in a controlled and authorized way.
- The Hadoop Distributed File System (HDFS) is the essential data stockpiling framework utilized by Hadoop applications.
- MapReduce is a processing procedure and a program model for distributed computing in light of java.
- Apache Spark is a lightning-quick cluster computing technology, intended for quick calculation.
- Stream processing is a major data innovation that spotlights on the ongoing processing of persistent streams of data moving.
- Apache Kafka is a product stage which depends on a conveyed streaming process.
- Container orchestration is the automated process of organizing the elements of measured, containerized components that make the infrastructure of an application.
- Kubernetes in an open source container the board tool facilitated by Cloud Native Computing Foundation

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CHAPTER-35

A ROLE OF GREEN TECHNOLOGY IN SUISTANBLE DEVELPOMENT

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ABSTRACT- *Nations overall growth is determine by various factors. In modern technology era new sectors are opened up which are contributed lot in overall development. Still some factors which are been consider are traditional one has played an important role. Agriculture is the sector which plays an important role from ancient period in economy. Large section of our population is still depending on agriculture. Though we have witness the tremendous growth in agriculture and Industrial sector still there is vast hidden potential in these sectors. Applying modern technological means in agriculture and Industrial sector will certainly uplift life of workers and farmers. Application of technology in field of agriculture is not a new concept, several decades prior several technological concept related to irrigation, harvesting and other sector were been implemented. Machineries like tractors, harvesters, electric motors, and several other gazettes are widely used in India same way several new technologies are introduced in Industrial sector. The overall growth is rapidly increased during the phase of green and Industrial revolution. But still we are not able to achieve the peak .in several other sectors we are lag behind when compare with other nation in term of overall production ratio. The answer for the question relate to these topic is the application of green technology in field of agriculture and industry.*

Keywords*: Green Technology, sustainable development, Agriculture, Economy, Energy.*

INTRODUCTION

Energy development is inextricably related to economic development. Fossil fuels produce the majority of the world's commercial energy, with related emissions generating global environmental concerns. It is feared that not just these would be affected. Energy output and consumption levels from existing energy sources are difficult to predict. achieve, but it's not a long-term solution. As a result, energy efficiency must be improved. to keep energy growth under control while increasing the share of sustainable energy sources To lessen the negative environmental effects of energy use, it must be raised .Green energy has the potential to be a viable alternative to existing energy sources. The fact is that renewable energy contributes only a small percentage of the world's energy needs (Commercial) energy demand indicates that there is a gap in their supply chainpotential as well as. their implementation - obstacles to implementation. These obstacles (either physical or mental) In order to design, all issues (financial and non-financial) must be identified and handled. policy initiatives for international and local financing that are creative or technologies for renewable energy. Renewable energy has the potential to play a significant role in the future. Assisting in the meeting of fundamental energy needs through the application of contemporary technologies Green Technologies at a United Nations summit on climate change, the Rio Declaration was approved. In Rio, the theme of environment and development highlights the right to a healthy and prosperous environment. Incorporating environmental conservation into a productive human existence is a win-win situation. process of development On June 14, 1992, the Earth Summit in Rio de Janeiro endorsed Agenda 21.This proposes a variety of actions to be taken now and in the twenty-first century to accelerate long-term sustainability development

Green technology: We're seeing the term "green" applied to technology and things that aren't genuinely green since "green" is such a desirable name. This is referred to as "green washing." This begs the question, what exactly is green technology? We'll start with a high-level overview before moving on to real-world instances of green technology.

Green technology is any technology that aims to lessen human effect on the environment. This could include devices that use less energy and utilize renewable resources. It also includes technology that helps to repair environmental harm, albeit there are few items in this area. Methods of soil remediation and carbon sequestration technologies would be considered.

Sustainable development: is a guiding principle for achieving human development goals while simultaneously ensuring natural systems' ability to supply the natural resources and ecosystem services that the economy and society rely on. The targeted outcome is a state of society in which living circumstances and resources are utilised to suit human needs without jeopardising the natural system's integrity and stability. Sustainable development is defined as development that meets current needs while not jeopardising future generations' ability to meet their own. It is tied to the concept of long-term sustainability.

While the modern concept of sustainable development is mostly based on the Brundtland Report of 1987, it is also influenced by older ideas about sustainable forest management and environmental concerns from the twentieth century. As the concept of sustainable development evolved, it switched its focus to future generations' economic progress, social development, and environmental conservation.

OBECTIVE OF STUDY-

- To study the present scenario of sustainable development
- To study the present status of green technology
- To study the role of citizens and government in application of green technology.
- To highlight the need of sustainable development.
- To highlight benefit of green technology in sustainable development.

RESEACH METHODOLOGY:

Secondary research was conducted to review the role of green technology in sustainable development. Data has been collected through secondary sources i.e. published articles, journals, newspapers, reports, books and websites.

SOURCE OF GREEN TECHONOLOGY TO SUPPORT IN SUSTAINABLE DEVELOPMENT

- **Solar energy:** is a term that refers to the use of solar energy to generate electricity, solar thermal energy, such as solar water heating, and solar architecture to harness the sun's radiant light and heat. It is an important source of renewable energy, and depending on how it captures and distributes solar energy or converts it to solar power, its technologies are classified as passive or active solar. To harness the energy, active solar solutions include photovoltaic systems, concentrated solar power, and solar water heating.

Orienting a structure to the Sun, selecting materials with favorable thermal mass or light-dispersing qualities, and designing rooms that naturally circulate air are all examples of passive solar approaches.The enormous amount of solar energy accessible makes it a very tempting source of power. Since 2021, solar energy has been less expensive than fossil fuels. The International Energy Agency stated in 2011 that "Longer-term benefits will accrue from the development of affordable, limitless, and clean solar energy technology. It will improve countries' energy security by relying on an indigenous, inexhaustible, and largely import-independent resource, as well as boost sustainability, reduce pollution, and minimize the costs of addressing global warming "

- **Biogas**: Bio gas is the product of anaerobic digestion of organic matters by methanogenic bacteria. Bio gas qualifies on the merits that this technology utilizes Cattle excrement and converts it to fuel and fertilizer. Bio gas made most benefit able to fuel-wood, agriculture residue, livestock manure, and kerosene savings as well as Increases in soil fertility and crop production. Bio gas also solves the problem of indoor air pollution and improves household or communal sanitation. As a part of our Prime Ministers' vision to increase farmers' income to double by the year 2022, Banes Dairy have taken many initiatives as described above including multi beneficial Biogas project. India's bio gas potential is estimated to be 12 million bio gas plants (according the Tamil Nadu report Tamil Nadu estimated 2x1063 KWE biogas power plant in deferent 6 main operating units.) Nepal carries the potential of 1.9 million bio gas plants. In Malaysia Palm Oil Mill, Effluent (POME) can generate 177 MW and China can generate 4 billion cubic meters of bio gas
- **Green-chemistry:** Green chemistry is called sustainable chemistry , it is a philosophy of chemical research and engineering which encourages the design of products and processes which minimize the utilization and generation of hazardous materials. Moreover, in 1990 the Pollution Prevention Act was passed in United States. In addition, this act assisted to create a modus operandi for dealing with pollution in an original and innovative way. Besides, it aims to refrain difficulties prior they take place. Moreover, green chemistry applies to organic chemistry, inorganic chemistry, biochemistry, analytical chemistry and even
  Principle of green chemistry
  - Prevent waste
  - Renewable materials
  - Degradable chemical products
  - Pollution prevention
  - Design for energy efficiency
- **Wind Energy:** Wind energy is in a boom cycle. Its importance is increasing in the sense that comparatively with other sources; the wind energy produces fewer air pollutants or greenhouse gases. Wind turbine for electricity or mechanical power generation is a proven technology. Available in 75% of the world, wind turbines of sizes ranging from 900 W to 50 kW can be applied off-grid for pumping and treating drinking water, irrigation, telecommunications, homes, schools, clinics and for supplementing larger power stations. Wind turbines used in pumping water for irrigation can increase agricultural growth without carbon emission.

- **Hydroelectricity:** Hydroelectricity, or hydroelectric power, is one of the oldest and most important renewable energy sources, using the natural flow of moving water to generate electricity. The National Convention on Renewable Hydropower varies from country to country. Hydroelectric power plants ranging from a maximum capacity of 500 kW in Nepal to 25 MW in India are designed for renewable. Typically used in rural electrification, hydroelectric plants can play an equally important role in supporting irrigation and adding value to agricultural produce at source. Hydroelectricity currently accounts for 37% of total renewable electricity generation in the United States and approximately 7% of total U.S. electricity production. While most people can relate power to the Hoover Dam, a giant construction that harnesses the power of an entire river behind its walls, hydroelectric structures come in all sizes. Some can be very large but can also be very small, taking advantage of water flows in municipal water facilities or irrigation ditches. They can even be "dams", with diversions or river structures that direct part of the stream through a power plant before the water enters the main river. Either way, hydroelectricity is easier to obtain and much more widely used than most people realize. In fact, all but two states (Delaware and Mississippi) use hydroelectricity to provide electricity, some more than others. For example, about 74% of Washington State's electricity comes from hydroelectricity.
- **Bio-fuels:** Bio-fuels such as bio-ethanol and biodiesel have the potential to take on a substantial portfolio in the future energy sector. Care should be taken when evaluating bio-fuels as a green agricultural technology. Food security concerns and risks to the environment and biodiversity are parameters that must necessarily be taken into account when analyzing the sustainability link between agriculture and bio-fuels. In addition, the conversion of wasteland to agricultural land with certain farming options can be seen as a positive impact.
- **Biomass**: Agricultural by-products and wastes are converted into electrical and thermal energy through processes such as combustion, gasification and cogeneration. Biomass technology complements traditional agricultural production and reduces or completely replaces traditional fuel consumption. Experience from several countries shows that biomass is an effective way to increase farm income and conserve depleted resources.

CONCLUSION

For sustainable growth, environmental protection, resource conservation, and other socioeconomic issues must be addressed. Green measures for resource conservation and environmental protection will aid in the long-term viability of the company. Higher economic growth rates are required to meet fundamental necessities at a reasonable cost. In the future, the quality of living will be improved. Sustainable development, according to the Brundtland Commission (1983), the definition of development is "development that serves the requirements of the present without sacrificing the future." The Importance of Energy Efficiency and Green Technologies... 949 putting future generations' ability to meet their own needs in jeopardy Sustainable It is possible to develop in a way that is respectful of social fairness and environmental health. Only when there is a greater international awareness and large-scale reforms will they materialize. Consumption trends inclinations recognizing the incapacitating and devastating effects of advertising. - As a result of the consequences of climate change, countries all around the world should take action. commitment to minimize their carbon footprint and hence their impact on the environment Emissions. Policymakers should examine the following factors in order to move toward sustainable development. not only internal economic issues, but also fundamental scientific and technological difficulties All countries are facing issues.

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CHAPTER-36

THE NEP 2020 – PROVISIONS AND ISSUES REGARDING SCHOOLING OF THE MARGINALIZED STUDENTS

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Abstract

The National Education Policy (NEP) is a radical new attempt, after 34 years, to present a new education policy which attempts to break from the past in terms of learning pedagogy, restructuring educational format, public-philanthropic partnership, multidisciplinarity and a light-but-tight approach, as proposed in the policy. With major transformations proposed in the NEP we shall take into account those aspects that have implications for the underprivileged communities of the society or the URG's (Under-represented Groups) as mentioned in the policy. . Early Childhood and Care Education (ECCE) - There are two issues here – firstly, are the URG children in a position to join and participate in a formal education system at such a tender age – given the general socio-economic frailty of such families, the general under-nourished health of these children and secondly, do children of such tender age-group be pushed into a formal and learning and enforced use of fingers for writing – the practice that has been banned internationally. Digital/Online Education -the policy does not clarify in concrete terms, how the existing digital divide shall be bridged. This digital divide could further lead to backing away of the students from the marginalized communities. Public – Philanthropic model of School - The NEP has proposed different public-private philanthropic schools. Here it is not clear how a private philanthropic school will work.Schooling structure, Choice of Subjects and Exit Policy - it will be impossible, especially for the marginal section students to study for an additional three years. Skill Development Options in Schooling - The NEP 2020 promotes the idea of mixing imparting vocational training along with theoretical studies at the schooling level. Medium of Instruction - An increased emphasis on the mother tongue as a medium of instruction is not without implications for the marginalized students, especially in a country where English is widely associated with employability and privilege.School Complex - The NEP 2020 proposes re-organizing smaller schools with very low enrolment into a 'school complex' structure, which connects 10-15 such small schools into one administrative unit, that'll help reduce school isolation, efficiently use teaching learning resources, and increase governance and accountability, especially in rural/adivasi parts of India. NEP 2020 and Provisions of the Right to Education Act – The NEP 2020 extends the Right to Education eligibility window of free and compulsory education from 6-14 years to 3-18 years with a goal of having 100 percent of children 'school ready' by 2030.Six percent of GDP for Education – This biggest highlight of the NEP is a fulfillment of the 1966 Kothari – JP Naik Commission Report recommendations.

Keywords: *New Education Policy, Marginalized, Public-Philanthropic, Online education.*

The National Education Policy (NEP) was approved by the Union Cabinet of India on July 28th, 2020. It is a radical new attempt, after 34 years, to present a new education policy which attempts to break from the past in terms of learning pedagogy, restructuring educational format, public-philanthropic partnership, multidisciplinarity and a light-but-tight approach, as proposed in the policy. The NEP is a path-breaking effort at re-looking and restructuring the education policy of India. The basic tenets of earlier education policies, especially 1986, amended in 2992, has been universalisation of education, primarily public education with increasing space for private education, gender justice in education and inclusive education of the marginalized communities of the society. With major transformations proposed in the NEP we shall take into account those aspects that have implications for the underprivileged communities of the society or the URG's (Under-represented Groups) as mentioned in the policy. One of the key concerns with this education policy is that, unlike earlier policies it may be attempting to do too much. As a system, we first need to focus on getting the basics right – ensure that all children achieve foundational literacy and numeracy by class three. Without this prioritization, the system will continue to grapple with a multitude of competing priorities. With too many objectives the danger of dilution and dissipation is ever present, especially impacting the marginalized groups students who are even otherwise always on the socio-economic sidelines and academically challenged.

We shall consider specific proposals of the NEP that have implications for the marginalized students –

1. Early Childhood and Care Education (ECCE) – The ECCE till now has been seen through the Anganwadi's that focused on the initiation of the child to group activities and engagement along with nourishment and health upkeep. The policy proposes induction of the ECCE age-group into formal education i.e. 3-6 years. The NEP proposes an activity based foundational period preparing children for formal schooling. The problem here is firstly, whether rural children and girls from socio-economically under-privileged backgrounds like those from scheduled castes (SC), scheduled tribes (ST), other backward classes (OBS) and women shall be ready in a position to enter a formal education set-up at such a young age. The anganwadi's have been a place for fun, playing and nourishment along with light learning experience. The ECCE proposes too many formal objectives instead of playfulness, arousing curiosity and engagement along with inquisitiveness. There are two issues here – firstly, are the URG children in a position to join and participate in a formal education system at such a tender age – given the general socio-economic frailty of such families, the general under-nourished health of these children and secondly, do children of such tender age-group be pushed into a formal and learning and enforced use of fingers for writing – the practice that has been banned internationally.

2. Digital/Online Education – The NEP has proposed digital/online education in a big way, especially in the backdrop of the national lockdown induced by the Covid 19 pandemic. The NEP proposes to build digital infrastructure, impart training, online teaching platforms and tools along with blended models of teaching. But with the grim socio-economic and educational realities of India and its rural-poor and marginal communities, digital education seems to be a tough proposition to succeed in a big way. The face that only thirty percent of our population have smart phones and far less have computers/laptops renders them ineligible for access to digital/on;ine education. The issue of comprehensive digital training of all teachers and online learning efficacy of students also arises. The third issue is the pedagogy that will suffer due to lack of face-to-face teaching. The digital/online teaching lacks in the face-to-face connect and understanding of feelings. Without this effective learning is not possible. Moreover, the policy does not clarify in concrete terms, how the existing digital divide shall be bridged. This digital divide could further lead to backing away of the students from the marginalized communities. Digital divide could turn out to be the most significant obstacle in the learning process of children from the marginalized communities.

3. Public – Philanthropic model of School – The NEP has proposed different public-private philanthropic schools. Here it is not clear how a private philanthropic school will work. For philanthropy or for profit ? The question that arises is that with the huge boost for privatization of education, why and how many entities shall come up with philanthropic school models on a no-profit basis. This seems unlikely. The philanthropic bodies could be set up through Corporate Social Responsibility that are formed by private corporate companies. And it is not clear how the policy of Education-not-for-profit shall be implemented in such circumstances. This policy based on philanthropy shall probably lead to privatization of education. Privatisation of education is essentially based on the principle of commodification of education and sale at a profit-price. This will affect the education of the masses, especially children from the marginalized communities of India. The solution, if we believe that only private schools can deliver good quality education, is that the government should just fund education and leave the delivery to both the public and private educational entities. In this approach the marginalized communities' children can also avail of private e-schooling since public schooling quality is not up to the mark.

4. Schooling structure, Choice of Subjects and Exit Policy – The NEP 2020 proposed a school education that is a 15-year long affair. Most students from poor and marginal sections face immense difficulties in completing even the prevalent 12-years of schooling, it will be impossible, especially for the marginal section students to study for an additional three years This will eventually force more dropouts and only those with better financial disposition shall complete the 15-year schooling.

With a schooling having multiple exit points and inter-mixing of vocational and theoretical studies the NEP 2020 is actually promoting a system, where those who can't afford 15 years of schooling could be left out to the pool of the laboring masses, and those who can, will get a leeway to earn additional skills and degrees to become specialized technocrats or clerks.

5. Skill Development Options in Schooling – The NEP 2020 promotes the idea of mixing imparting vocational training along with theoretical studies at the schooling level. The issue is what or who will decide which student stays on for theoretical subjects and which student opts for vocational subject/training. As has been, it is highly possible that students from the marginalized sections opt for the vocational subjects/training due to their vulnerable socio-economic backgrounds. And the fact that most students from these sections shall be forced to exit on inability to complete the 15 year long schooling. And through the NEP they have got formal exit routes to go for jobs after vocational training at school levels.

6. Medium of Instruction – The NEP 2020 has proposed that education upto class 5, and preferably until class 8, will be imparted in the mother tongues of students. Classical languages like Sanskrit, Pali and Prakrit have been proposed at all levels, while foreign languages will also be offered from the secondary school levels. The policy, however, says that "no language will be imposed on any student". But given the diversity of languages and dialects in India, a growing internal migration, it will be very difficult to implement a mother tongue – based learning. There is no definitive clause or guideline around the language of instruction.

For example, the policy asks to use local languages 'wherever possible' which leaves a lot of room for the status quo – which is the existing three language formula – to continue. The issue of children's' mother tongue and home language being different from the local language used for instruction in schools, especially in the case of migrant and adivasi families, has not been addressed. Even otherwise, while considering that education is a good step, how is the Centre to convince the States to follow per se, as they have an equal stake in implementing the NEP as education is on the concurrent list. The recent ASER Reports have shown a shift in enrolment towards private schooling, and especially within private schools, a surge in English learning levels. English has become a necessity (as a skill-set or for screening purposes) in the science sector jobs, the only shot at upward mobility for a majority of rural Indians. An increased emphasis on the mother tongue as a medium of instruction is not without implications for the marginalized students, especially in a country where English is widely associated with employability and privilege. Even though the major reason for advocating learning in the mother tongue is for ease of learning, it could in fact, impede the progress of the marginalized sections in terms of accessibility to employment and educational opportunities.

7. School Complex – The NEP 2020 proposes re-organizing smaller schools with very low enrolment into a 'school complex' structure, which connects 10-15 such small schools into one administrative unit, that'll help reduce school isolation, efficiently use teaching learning resources, and increase governance and accountability, especially in rural/adivasi parts of India. In this provision a safe and affordable mobility of students, especially rural and girl students is assumed. And further this centrality of school complex makes it difficult for poor students from remote localities to attend school closer to their homes and may thereby deprive them of school education. The National Education Policy of 1968, by Prof. Kothari and J.P. Naik had proposed a Common School System, that mandated all neighborhood children to attend a common local school, was a great idea but never implemented by any state establishment.

8. NEP 2020 and Provisions of the Right to Education Act – The NEP 2020 extends the Right to Education eligibility window of free and compulsory education from 6-14 years to 3-18 years with a goal of having 100 percent of children 'school ready' by 2030. But the NEP 2020 has mentioned the RTE only once in the whole policy. And also if this extended age window is is compulsory and a legal right is not mentioned explicitly in the policy. In the context of the marginalized students it is extremely crucial that the statutory obligations of the RTE are retained in the NEP 2020 explicitly. Or else the already higher drop-out rate of the marginalized students shall further go down.

9. Six percent of GDP for Education – This biggest highlight of the NEP is a fulfillment of the 1966 Kothari – JP Naik Commission Report recommendations. But the time schedule and allocation heads should also be made clear. It can be construed that the higher the education budget the more beneficial for the marginalized students of the society.

While the visionary ideas and bold innovative proposals for sweeping and transformative reforms aimed at overhauling the present creeking education system is laudable but there is fear that it will promote excessive privatization and commercialization. The focus on ECCE, multi-disciplinarity, vocationalisation, revamping governance structures, increasing public investment to six percent are all praiseworthy. But implementing all these radical changes through a rigid bureaucratic structure and making psychological space for these changes is a huge challenge.

The NEP 2020 should ensure that the language policy does not keep the marginalized community students from access to English language and thus from access to higher education. It should also ensure that they do not stumble at the proposed board exams at 3rd, 5th and 8th standards. The NEP needs to rethink the School Complex provision to avoid schooling inaccessibility to marginal students from rural, remote regions. The policy should ensure availability of gadgets, internet service and uninterrupted electricity supply to rural and marginalized households. The NEP 2020 is a great deviation and radical endeavor but needs careful and gradual implementation, especially if it has to also benefit the marginalized students.

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CHAPTER-37

IMPACTS OF NATURAL DISASTERS ON SUPPLY CHAINS IN INDIA - RECENT PERSPECTIVES

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Abstract

Various regions of India face natural disasters such as floods, cyclones, droughts and earthquakes on an ongoing basis. When the disasters hit, they paralyze the transport, logistics and infrastructure thereby having severe impact on the supply chains. They cause halted or postponed deliveries, closed ports, roads, railways and other routes of transport, cancellation of cargo flights, imbalance in supply and demand and various cascading effects on the other shipping lines and exports and imports thereby disrupting the supply chain network. This results in harmful impacts on the production and provision of services. For improving the efficiency of supply chains, the Government of India has taken various initiatives. The measures such as usage of integrated system for supply chain management, automation of supply chains, improving the supply chain linkages, alliance with suppliers, support and involvement of private companies and investors, discovering local area supply chains and effective supply chain reforms in collaboration of both government and industry are salient suggestions to make the supply chains more competent and sustainable. Effective supply chain reforms at national level with the collaboration of both government and industry are a prerequisite for India's aspiration to become a global manufacturing/supply powerhouse.

Keywords*: Natural Disasters, supply chain, India*

Objectives:

- To overview the recent perspectives of the impacts of natural disasters on supply chains in India
- To suggest measures for preparedness to manage the ill effects of natural disasters on the supply chains

Research Methodology:

The current research is a descriptive research based on secondary data. The data has been collected from different articles, reports, research papers, journals and websites.

Significance of Study:

The present study will help industries, policy makers, academicians, organizations and the society in general in understanding the various perspectives of impacts of natural disasters on supply chains in India and themeasures for preparedness to manage the ill effects of natural disasters on the supply chains.

Introduction:

All over the world the concern about impacts of natural disasters on the supply chain has always remained a cause of concern. The earthquake followed by a tsunami in Fukushima, Japan was one of the worst natural disasters which had severe effects on global supply chain in 2011. As a consequence of this disaster, Japan which is a global manufacturing hub and the fourth largest export country in the world suffered various ill effects such as scarcities of critical components, operational disruptions and shut downs, rise of cost due to lack of materials etc. In India it has been observed time and again that the natural disasters affect businesses and supply chains in a severe manner causing huge losses. Various regions of India face natural disasters such as floods, cyclones, droughts and earthquakes on an ongoing basis. As per the reports of the Government, there is a risk of earthquakes of different intensities on more than 58.6 per cent of its land and more than 12% of its land gets affected due to floods. More than 50% of India's coastal area is vulnerable to cyclones and tsunamis and almost 68% of its cultivable area is susceptible to drought. The mountainous areas are vulnerable to landslides and avalanches of different intensities. Natural disasters hit without much warning and they paralyze the transport, logistics and infrastructure thereby having severe impact on the supply chains. This results in harmful impacts on the production and provision of services. As per the IBEF report, the investment in logistics sector is expected to reach $ 500 billion by 2025. Hence understanding the impacts of natural disasters on this sector and taking cautious efforts to minimize the ill effects can go a long way to make this sector resilient and profit-making which will give a strength to the production activities and provision of services. For effectively catering to the demand, each of the components of our supply chain needs to be made stronger. For this it is important to manage the risks caused due to the natural disasters to the supply chain management in India.

Literature Review:

Er, Merve and Er, Merve and Ghadge, Abhijeet and Bititci, Umit (2020) conceptualized the interaction between climate change risk and supply chain performance for assessing the impact of one over other. It was observed that sourcing, manufacturing and logistics are supply chain operations that are most vulnerable to climate change due to the combined impact of temperature increase, decrease in available land and extreme weather events on the availability of raw materials and resource capacity. The results indicated a significant reduction in the availability of natural resources/raw material and capacity, leading to increase in stock-outs, inventory costs and bottlenecks disrupting procurement, manufacturing and logistics functions. Supply chain performance captured through efficiency and effectiveness shows a negative trend with increasing climate change consequences. The systems approach followed in this paper gives a quantitative model to assess the impact of climate change risk on supply chain.

Mani, V., Delgado, C., Hazen, B., & Patel, P. (2017) mention that predicting and addressing the risks that social issues cause in the supply chain is of paramount importance to the sustainable enterprise. The aim of their research was to explore social and environmental issues causing disruptions in the supply chain and to determine how to mitigate such risks through Big Data Analytics (BDA). The research explored and has illustrated the practitioner's perspective through real-time implementation of BDA for supply chain sustainability. Through this research, they have identified various social and environmental issues leading to supply chain risk.

Ong, Jimmy & Wang, Zhaoxia & Goh, Rick & Yin, Xiao & Xin, Xin & Fu, Xiuju. (2015) investigated natural disasters through Web data analysis for supply chain risk management. They mention that understanding natural disasters as risks in supply chain management is a good utilization of Web data. Their research offers new ideas for organizations and enterprises who wish to probe deeper to leverage Web data in supply chain management as well as issues in other domains. They conclude that improved intelligent system approaches for Web data collection, analysis, visualization and monitoring will support smarter decisions and enable better risk management in supply chains.

Sharma, S.K., Srivastava, P.R., Kumar, A. *et al.* (2021) carried out extant literature review and interviews with the experts to identify supply chain vulnerability factors. The relative criticality of vulnerability factors was assessed by analytical hierarchy process (AHP). Critical part supplier, location of supplier, long supply chain lead times, fixing process owners and mis-aligned incentives in supply chain were identified as the most critical factors. They conclude that not only long and complex supply chains but supply chain practices adopted by firms also increase supply chain vulnerability. The relative assessment of vulnerability factors enables professionals to take appropriate mitigation strategies to make the supply chains more robust.

Vishnu, C. R., & Sridharan, R. (2016) discuss the supply chain disruption issues from the four major sectors of the economy caused due to the unprecedented rains which battered Tamil Nadu's northern districts such as Chennai, Tiruvallur, Kanchipuram and Cuddalore in December 2015. From this, it can be noted how a single natural calamity raises issues of various supply chain risks. They mention about the need to design and execute agile supply chain strategies instead of traditional supply chain strategies. In order to execute these strategies, firms should reconfigure their supply chain design and operations that can handle high levels of demand, supply uncertainty and supply chain disruptions effectively by improving their reliability and flexibility.

Case study of impact of cyclone Tauktae on Supply Chain:

On 14th May 2021, Cyclone Tauktae struck India. This impact disrupted the country’s shipping networks as it affected the Indian port of Pipavav and forced a temporary shut-down. APM Terminals Pipavav is located in the state of Gujarat, to northwest of Mumbai on the west coast of India. Gujarat is one of the leading industrially developed states in India and contributes about a quarter of India’s goods exports. Key markets in the nearby regions account for almost 60% of India's cargo. The total damage caused due to the cyclone was approximately Rs. 150 crore. Due to the impact of cyclone Taukte, all the EXIM, domestic and coastal marine, rail and road operations remained suspended for a long period. Non-availability of power due to the disruption caused by the cyclone rendered port non-operational resulting in huge losses. The private ports sector of Gujarat suffered losses of over Rs 700 crores in the cyclone while Gujarat Maritime Board-owned ports incurred losses of nearly Rs 5 crores. Although there were no major damages to the port infrastructure, its power supply and communication links were disrupted. The port’s closure prompted forwarders to signal further cargo disruption, with containerships being diverted which had cascading effects on shipping lines, importers, and exporters. As the supply chains had already been reeling under the second wave of COVID-19, this cyclone further intensified the strain by escalating costs and delaying shipments.

Salient causes of vulnerability of the supply chain sector due to natural disasters:

- Increase of occurrences and intensity of natural disasters

- Intensive utilization of supply chains due to rise of trade and commerce and fierce competition in the business world
- Rise in interconnectivity and interdependence
- Increased complexity of industrial activities
- Reduced capacity in terms of storage resulting in the frequent and instant transport of goods

From the supply chain perspective, the natural disasters cause:

- Halted or postponed deliveries
- closed ports, roads, railways and other routes of transport
- canceled cargo flights
- Imbalance in supply and demand.
- Ill effects on the shipping lines, rail, road and air transport and exports and imports

Overview of the Recent Initiatives of Indian Government:

- Network of 35 MMLPs (Multi Modal Logistics Parks) around different states at strategic locations which will help reduce freight, warehouse charges and overall logistics cost and vehicle congestion.
- Improved utilization of vehicles, reduced cost, and elimination of various warehouse stations across Indian states due to the integration of multiple layers of taxes through GST Implementation.
- The Road Transport Sector accounts for about 60% of freight traffic movement in the country. The Ministry of Road transport and Highways has taken several initiatives in the transport sector. The permissible safe axle weight of goods vehicles was revised and increased by about 15% to 20 % for different configurations of axles in order to improve the carrying capacity of goods transport vehicles and reduce the logistics cost. The amendment will increase the carrying capacity of goods vehicles by about 20-25 % and lower logistics costs by about 2%.
- Earlier different states had different policies regarding the processing of documents such as Registration Certificate (RC) and Driving License (DL). Now the Government has offered these services through the mobile app mParivahan which makes it easy to get information on the RC and DL.
- The documents are accepted in electronic form through DigiLocker platform. Such electronic records available on DigiLocker or mParivahan are deemed to be legally recognized at par with the original documents making the transport easy and convenient.
- The E-Way bill system of permit for the interstate and intra-state transportation of goods helps the elimination of the state boundary check posts and physical paperwork to make the vehicles' movement easy and time saving.

Recommendations:

- Usage of integrated system for supply chain management - Although it is difficult to foresee natural disasters, an integrated system of supply chain management can track the shipments in real-time hence it will be easy to respond as the disaster strikes. This system can help to take better-informed decisions and the supply chain will become more strong and transparent,

- Automation of supply chains - Usage of automation can help to improvise risk prediction and reduce uncertainty. Automation in handling process can reduce time and cost. Usage of robots and AI can take care of the most tedious or routine jobs in logistics, while the managers can focus on other key areas.
- Improving the supply chain linkages - Improving the linkages that an organization creates with critical entities of its supply chain help to manage the flow and/or quality of inputs from suppliers and of outputs from the firm to customers.
- Alliance with suppliers - Fostering relationships with suppliers can help to establish mutual trust and understanding which can be of immense help during crisis. The collaboration with suppliers can ensure availability of good quality materials, at competitive prices so that the response to the disaster can be effective.
- Support and involvement of private companies and investors - Companies and investors can support adaptation efforts, resilient micro-grids, and supply chains and logistics so that the disruption can be controlled when disasters strike.
- Discovering local area supply chains- The local area supply chain involve having regional suppliers and manufacturers in an area very close to location of the business/ industry. The nearness of local suppliers can be beneficial if the area is cut off from the other suppliers.
- Effective supply chain reforms in collaboration of both government and industry- Effective supply chain reforms are required to be made at national level in collaboration of both government and industry to ensure a holistic approach for efficient supply chains.

Conclusion:

Various regions of India face natural disasters such as floods, cyclones, droughts and earthquakes on an ongoing basis. They cause halted or postponed deliveries, closed ports, roads, railways and other routes of transport, cancellation of cargo flights, imbalance in supply and demand and various cascading effects on the shipping lines and exports and imports thereby disrupting the supply chain network. For improving the efficiency of supply chains, the Government of India has taken various initiatives such as network of 35 MMLPs, integration of multiple layers of taxes through GST Implementation, revision of the permissible safe axle weight of goods vehicles, introduction of the mobile app mParivahan for smooth processing of the documents, acceptance of the documents in electronic form through DigiLocker platform and E-Way bill system. Usage of integrated system for supply chain management, automation of supply chains, improving the supply chain linkages, alliance with suppliers, support and involvement of private companies and investors, discovering local area supply chains and effective supply chain reforms in collaboration of both government and industry are salient suggestions to make the supply chains more competent and sustainable. A focus on the improvement of this linkage sector is important to for operational smoothness, growth and profitability of industries. Effective supply chain reforms at national level with the collaboration of both government and industry are a prerequisite for India’s aspiration to become a global manufacturing/supply powerhouse. Although there are several challenges in the effective management of supply chains, the loss and stoppages caused due to supply chain disruptions can be efficiently managed and resilience can be improved by having a holistic view to the disaster management planning and implementation.

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CHAPTER-38

EFFECT OF DIFFERENT DETERGENTS ON SURFACE TENSION OF WATER

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Introduction:

Karjat is one of the famous tehsil places of Ahmednagar district because of Saints “Godad Maharaj”. As per the ground water quality report, slightly alkaline water is available thorough out the Ahmednagar district. At some places, potability is affected due to NO_3 and total hardness (TH). Ahmednagar is rain shadow region of Western Ghats along with Karjat is one of the drought places. The ground water quality is non-potable in Karjat- Jamkhed region it is because of NO_3 and TH concentration crosses the desirable limit [TH -300mg/L, NO_3- 45mg/L and F- 1.0mg/L]. The suitability of ground water for drinking purpose determined as per the Bureau of Indian standard (BIS) by considering different parameters like pH, Electrical Conductivity (EC), Total Hardness, Nitrate (NO3) and Fluoride (F) content in sample of water collected by CGWB throughout district. The quality of water for irrigation purpose is determined by electrical conductivity and residual sodium carbonates present in the water. TDS level of raw water in Karjat is 650 and water collected from filter is 120 mg/L using TDS-3 measuring meter. [1-3]

Varieties of detergents are being used to clean cloths all the time. Different detergents are made with different ingredient like cleaning agents, water softeners, fabric whiteners, anti-re-deposition agents, perfume washer, protection agents and processing aids etc. Sodium carbonate is one of the water softeners used in detergent. There are many detergents are available in market. These detergents plays important role in daily life of human being. A famous branded detergent powders are Ariel, Surf Excel, Tide, Nirma, Wheel etc. This detergent makes foam with water while adding different weights in bucket of water (5ltr). Is it really helpful to clean the cloths with this method? This method is adapted by experience of washer man or washerwoman. No any scientific details are available with them. Hence, with the help of surface tension i.e. basic concept in physics is used for detail analysis of detergents when added in water is carried out in this chapter.

In this chapter, we used surface tension phenomena to study the surface tension of water while adding different detergents at particular concentration. Surface tension is a phenomenon in which the surface of a liquid is in contact with gas acts like a thin elastic sheet. This term is typically used only when the liquid surface is in contact with gas (such as air). The tension between two liquid surfaces (such as water and oil) is called "interface tension”. Water spread over a solid surface is due to surface tension. The cohesive and adhesive forces between water, solid and gases are important while studying surface tension.

Definition: Surface tension is defined as the ratio of surface force to the length “d” along which the force acts

$\Upsilon = \frac{F}{d}$ SI unit (N/m) and CGS unit is (dyne/cm)……(1)

In order consider the thermodynamics of the situation; it is sometimes useful to consider it in terms of work done per unit area. (SI unit is J/m^2 and CGS erg/cm^2)

Example of surface tension

1. Drop of water
2. Insect walking on the water surface
3. Needle floating on the water

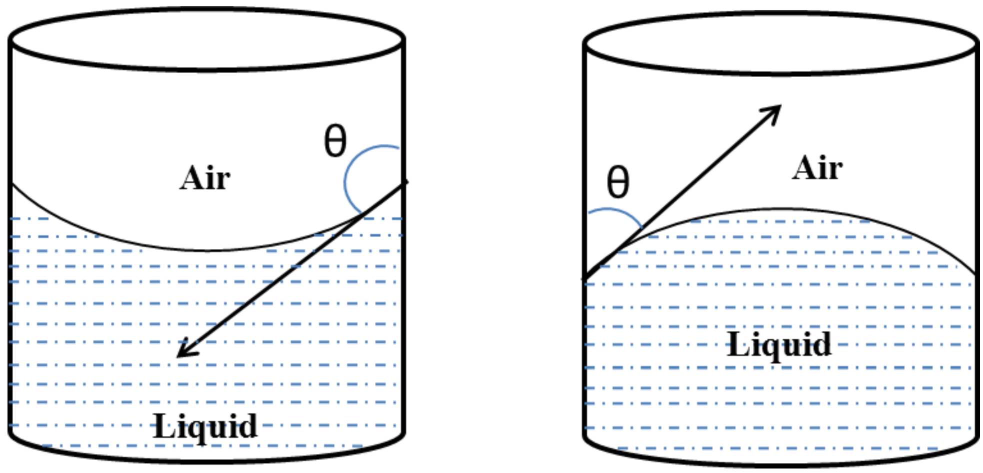
Important Concept of Surface Tension:

Angle of contact: angle made by tangent drawn to liquid surface to solid surface.

Adhesive force: forces between different media/ material/ phase

Cohesive forces: Forces between similar media/ material/phase

Surface tension occurs during gas-liquid interface, if that interface comes in contact with solid surface such as walls of the container the interface usually curves up or down near that surface. Such a concave on convex surface shape is known as meniscus.



The contact angle θ is determined as shown in the picture

The contact angle can be used to determine the relation between the liquid-solid interface and the liquid-gas interface as follow

$$\Upsilon = - \Upsilon' \text{ lg } \cos\theta \qquad \text{……………..(2)}$$

whare Υ' =liquid-solid interface

1g=liquid-gas interface,

θ=contact angle

A drop of liquid contacting a solid surface can remain exactly spherical in which core no wetting occurs or it can spread out to a perfectly flat film indicating complete wetting. The angle of contact is the angle between tangent drawn to periphery of meniscus of liquid with the solid surface when the drop spread over a perfectly flat surface. It remains exactly spherical.[4-5]

Capillary action

Capillary action (sometimes capillarity, capillary motion or wicking) is the ability of a liquid to flow in narrow spaces without the assistance of external forces like gravity. The effect can be seen in the drawing up of liquids between the hairs of a paint-brush, in a thin tube, in porous materials such as paper, in some non-porous materials such as liquefied carbon fiber or in a cell. It occurs because of intermolecular forces between the liquid and surrounding solid surfaces. If the diameter of the tube is sufficiently small, then the combination of surface tension (which is caused by cohesion within the liquid or adhesion between the liquid and container) act to lift the liquid. In short, the capillary action is due to the pressure of cohesion or adhesion which causes the liquid to work against gravity.

Capillary Tube: A capillary tube is a glass tube with a fine bore and thick wall.

Effect of Temperature on surface tension:

Surface tension is dependent on temperature. The general trend is that surface tension decreases with increasing temperature i.e. surface tension is inversely proportional to the temperature.

$$S.T \propto \frac{1}{T} \qquad \text{……………..(3)}$$

Effect of density of liquid on surface tension:

Higher density has higher surface tension i.e. surface tension is directly proportional to the density of liquid (ρ).

$$S.T \propto \rho \qquad \text{…………….(4)}$$

Effect of Surface area on Surface tension:

Surface tension has the dimension of force per unit length which is the same as energy per unit area. Hence for a given surface area, multiplying it with the surface tension will yield the total energy of the surface. It relates with work done on the liquid surface.[4,5]

Different Methods for Surface Tension determinations

1 Wilhelmy Method-

This method is useful to determine the approximate value of surface tension of liquids such as water, paraffin, oil turpentine. A clean wire preferably platinum is bending into the form. Making three side of rectangle of length 1 cm. It is then suspended from a beam of a balance by means of a thin wire and counterpoised when the upper horizontal arm B of the frame is almost immersed in the liquid. When a balance is obtained the frame is dipped under the surface of the liquid by lowering the beam of the balance and then withdrawn again. A film of the liquid will be formed in the frame. Due to the downward surface-tension on each side of the film there will be an apparent increase in weight i.e. 2* l*T.

This can be found experimentally by adding weights to the other scale pan, until on raising the beam it remains horizontal. Clean the frame by holding it in a Bunsen flame until red hot and repeats the experiment as described above several time. Take the mean value M of the added mass.[6]

$$2Tl = mg$$

$$T = \frac{mg}{2l} \quad \text{dyne/cm} \qquad \text{…………….(5)}$$

2 Fergusons Method

Ferguson made modification in capillary rise method. The advantages of this method are that only small volume of liquid is required. First introduce a small amount of liquid in capillary tube the different in the pressure on two side of the liquid can be measured by means of manometer level a liquid of lowered density such as water can be chosen for the manometer with the advantages that the considerable length it is measured dry the outer surface of the tube by blotting paper. Reflect the light from a small lamp on the free end of tube and observe the surface by means of traveling microscope. The first we observe the clear image of the filament of the bulb then press the rubber ball gently till the surface of the liquid A at becomes flat i.e. image of filament just appear. Note down level of liquid in manometer is h1 &h2. In second part of the experiment the radius of bore is calculated by using travelling microscope.[7] The formula used to calculate surface tension in this method is

$$2T/a = h\rho g \qquad \text{……………(6)}$$

3 Measurements of Bubbles

This method is useful to determine surface tension of soap solution. Inside any curve film in equilibrium there is an excess of pressure out-side by an amount which depends on T and R be the radius of curvature. Consider the equilibrium of hemisphere ABC of a bubble. The forces are due to the excess pressure P inside the bubble.

For equilibrium these are equal and opposite i.e.

$$4\pi TR = \pi R^2 P$$

$$P = \frac{4T}{R} \qquad \text{…………..(7)}$$

To measure the value of P and R the apparatus we know. The apparatus consist of tube T-piece, rubber tube- R and piston-P [8]

4 By Weighing Drops- The liquid whose surface tension T is to the measurement is allowed to form a drop at the end of a narrow tube.[8-10]

If $mg = kT$ is the mass where k is constant.

then $mg = \pi rT$ …………….(8)

When the drop is about to break away from the tube we will assume it has the cylindrical form shown in the fire line D the broken line indicates one of the subsequent forms. If 'r' is the radius of the orifice. We have at this level inside the drop an excess of pressure equal to T/R due to the cylindrical curvature of the liquid surface producing a down-word force. The weight of the drop being mg the total own-word force is $T\pi r + mg$. This is equal to the up-word force due to the surface-tension over the circle of contact i.e.$T2\pi r$.

$$2T\pi r = \pi Tr + mg \qquad \text{…………(9)}$$

or

$$T\pi r = mg. \qquad \text{………….(10)}$$

This is deduced assuming static conditions to hold in the actual case.

5 Quinkes Method:-

This method is used for the determination of the surface tension of mercury. A large flat drop is formed on horizontal plat form. Dimension of drop are measured by means of travelling microscope. The value of the surface tension and perpendicular to the angle of contact on the plat form may be calculated. We will assume that the radius of the drop R large so that the drop is flat i.e. the pressure at the point just above and just below the upper surface is same.[8-10]

$$T = \rho h \qquad \text{……………..(11)}$$

And angle θ is $\sin sin\,\theta = \frac{h}{h'\sqrt{2}}$ ………………(12)

6 Rayleighs Method:-

This method depends on a measurement of the wavelength of ripples formed on the surface of the liquid whose surface tension is to be determined. The liquid is placed in a large flat dish, such as a photographic developing. For the measurement of surface tension the dish and everything that comes into contact with the liquids must be thoroughly clear. Ripple are produced in the liquid by means of dipper attached to a prong of a tuning forks, which is electrically maintained. The dipper may conveniently consist of a thin sheet of AI and penetrate the liquid at one end of the dish.[8-10]

The formula used for the calculation the surface tension by this method is

$$T = \frac{\lambda^2 P}{4\Pi^2}\left(2n^2\Pi - g\right) \qquad \text{...............(13)}$$

where n=frequency of form

λ= wavelength

g=acceleration due to gravity

7 Capillary Rise Method:-

Select piece of glass tube and heat it in flame. On smoothening one end of tube, press heated end of tube and close it. Thus constructed tube is a dean condition which is absolutely essential to obtain reliable value of T.

Clamp the capillary tube inverted condition in the liquid whose surface tension is to be measured. Immerse capillary tube inside the liquid. Level of liquid in capillary is at more height than vessel or flask of liquid. The forces acting on liquid surface in side flask and capillary are different and hence liquid level is rise until the force is balance. The height difference is measured with reference to level of liquid surface in the vessel. The travelling microscope is focused on liquid level (meniscus) inside capillary tube and another pointer which is touched to liquid surface inside vessel. The difference between these two readings gives the height difference of liquid in the capillary i.e. 'h'. The diameter of the tube is determined by using travelling microscope. We get the radius of that capillary bore.[8-10]

Use a formula for determination of surface tension is,

$$T = \frac{h\rho g r}{2} \qquad \text{...........(14)}$$

Experimental Work:

In the present experimental work, one of the best practices is carried out for determination of surface tension of water collected from Karjat, district Ahmednagar. For this, it is used branded, well known detergents like Surf excel, Tide, Wheel and Nirma powder. Following is the experimental procedure of capillary rise method used in this work.

Procedure of experiment:-

1. Use of capillary rise method for the determination of surface tension.
2. Determine radius of capillary tube by using traveling microscope.
3. The mean radius of capillary is 0.072cm.
4. Water sample is prepared by mixing 0.5 gm and 1gm of Surf excel, Tide, Nirma and Wheel powders in 100ml of raw water collected from Karjat district Ahmednagar.
5. Note down the reading of height difference 'h' and calculate surface tension for 0.5 gm and 1gm of detergent.
6. Follow the same procedure for Tide, Nirma and Wheel powders also.

The surface tension is determined by the following formula

$$T = \frac{h\rho g r}{2}$$

where, h is height difference measure by travelling microscope

g is acceleration due to gravity =980 cm/s^2

ρ is density of water =1gm/cc

r is bore radius of capillary tube used in experiment

Results obtained for above experimental procedure:

Obs No.	Detergent Sample	Height difference (h) cm	Weight of detergent (gm) + 100 ml of water	Surface Tension (dyne/cm)
01	Surf Excel	0.630	0.5	21.68
		0.695	1.0	23.32
02	Tide	0.621	0.5	21.31
		0.767	1.0	26.30
03	Wheel	0.578	0.5	19.82
		0.641	1.0	21.97
04	Nirma	0.577	0.5	**19.80**
		0.602	1.0	**20.66**

Conclusion:

The height difference measured in the experimental process is used in formula to calculate surface tension. While using surf excel, tide, wheel and Nirma, height difference is gradually decreases. Hence surface tension decreases accordingly. The Nirma detergent shows minimum value of surface tension as compare to other detergents.

Hence Nirma is suitable for cleaning cloths by using raw water having TDS value ~ 650(mg/l). The results are produced with the help of basic experiment in physics of measuring surface tension by capillary rise method.

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CHAPTER-39

AN OVERVIEW OF PHYTOCHEMICAL AND PHARMACOLOGICAL POTENTIALS OF SOLANUM NIGRUM LINN

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Since from thousands of years, nature has been playing a vital role by serving the source for the effective and an impressive modern drugs development that have been derived from natural sources, many of these isolations were based on the uses of the agents in traditional medicine (Cragg and Newman, 2001). Wink, 1990 reported that plants produce the broad spectrum of natural products, the so-called secondary metabolite, which play a variety of roles such as defense molecules against attacks by animals and microorganisms.

In current era also plants are still remaining the major source of many vital medicinal compounds. Secondary plant metabolites play the crucial roles in human health and may be nutritionally important had been proven (Hertog *et al.,* 1993). Several active phytocompounds are extracted and characterized from these green factories have led to some high activity profile drugs (Mandal *et al.,* 2007). Many phytochemical screenings had revealed the presence of numerous phytochemically active compounds including alkaloids, flavonoids, tannins, glycosides, steroids, saponins etc.; out of which many phytochemicals and plant extract show antioxidant/free radical scavenging properties (Larson 1988; Nair *et al.,* 2007; Parekh and Chanda, 2007). The defense mechanisms against attack by many microorganisms, insects and herbivores serve by the secondary metabolites (Lutterodt *et al.,* 1999; Marjorie 1999). Plant products can be derived from any part of the plant like bark, leaves, flowers, roots, fruits, seeds, etc (Gordon and David 2001) i.e., any part of the plant may contain active components.

Solanum nigrum Linn. (Solanaceae):

The *Solanum nigrum* complex also known as solanum L from Solanaceae family is a group of Solanum species with general black night shade characteristic and commonly known as Makoi. Solanum species is one of the largest, most diverse and taxonomically confused as group of Solanum species have many varieties and forms. Such huge diversity occurs due to hybridization between species and many intermediate forms present in nature (Trees GE and Evans MC, 1983).

Solanum nigrum L is a fairly short-lived perennial shrub, herb or dicot weed commonly found in many woody lands as well as disturbed habitats. It has a height of 30-120 cm, leaves 4-7 cm and 2-5 cm wide with both surfaces hairy or hairless; petiole 1 to 3 cm (0.5

to 1 in) long with a winged upper portion. The flowers have petals greenish to whitish, recovered when aged and surround prominent bright yellow anthers. The berry is mostly 6-8 mm diameter dull black or purple-black in India (Venkateswarlu J *et al.*, 2006). Flowers 3-8 in extra axillary drooping sub umbellate cymes; fruits purplish black or reddish berries; seeds many, discoid, yellow minutely (TS Mohamed Saleem *et al*., 2009).

Generally, in moist habitats and in different kinds of soils, including dry, stony, shallow, or deep soils *Solanum nigrum* L can be grown as a weed and can be cultivated in tropical and subtropical agro-climatic regions during April-May by sowing the seeds in well-fertilized nursery beds; it can be benefitted for reclaiming the degraded land as well (Kiran *et al*., 2009).

Taxonomical classification:

Division	Embryophyta
Sub-division	Angiospermae
Class	Dicotyledoneae
Order	Tube florae
Sub-order	Solanales
Family	Solanaceae
Genera	Solanum
Species	*S. nigrum*

Binomial name: *Solanum nigrum Linn*

Table: Taxonomical classification of *Solanum nigrum*

Vernacular names:

Common name: Black nightshade, Black-berry night shade, Nightshade, Poisonberry

- *Manipuri: Leipungkhangga*
- *Tamil: Manatakkali*
- *Hindi: Mokoi*
- *Malayalam: Mulaku-thakkali*
- *Telugu: Kasaka*
- *Marathi: Laghukavali*
- *Urdu: Makoya*

Medicinal properties:

In India and otherparts of the world, the *Solanum nigrum* are widely used as a traditional medicine to cure chronic skin illness viz. psoriasis and ringworm, painful periods, fevers, diarrhea, eye diseases, hydrophobia, inflammatory conditions and liver disorders etc.*Solanum nigrum* is a popularly known for its toxic content of Solanine, a glycoalkaloid, a phytochemical found in most parts of the plant, the high concentration of solanine is found in the unripened berries (Cooper and Johnson, 1984).

Although it's high toxicity it serves as a reservoir of phytochemicals with pharmacological prospects (Lee and Lim, 2006). After 6 to 12 hours of ingestion the poisonous symptoms can be seen (Schep LJ *et al*., 1970). The solanine in *Solanum* *nigrum*have the decomposition temperature of about 243ºC and hence not get destroyed during normal cooking (North P, 1977). *S. nigrum* has been widely used traditionally as to treat various ailments such as pain, fever and inflammation, etc (Acharya E and Pokhrel B, 2006; Zakaria ZA *et al.*, 2006).

S. nigrum is extensively used in many traditional systems of medicine worldwide for disparate ailments but has not garnered attention for modern therapeutic use (Ramya Jain *et al.*, 2010). The crude polysaccharide isolated from *S. nigrum linn.* was examined both in vivo and in vitro on U14 cervical cancer cells (Jian L *et al.*,2009) hence considered as the basis for its use as an anticancer agent (Muto M, 2006).

Many investigations showed that many extracts of *Solanum nigrum* suppressed the oxidant mediated DNA sugar damage, and this plant also shows cytoprotection against gentamicin induced toxicity on Vero cells and antineoplastic activity against Sarcoma 180 in mice. The extract from *Solanum nigrum* showed the inhibitory effect on 12-O-tetradecanoylphorbol 13-acetate (TPA)-induced tumor promotion in HCT116 cells while the ethanol extract of dried fruits of *Solanum nigrum* had significant hepatoprotective effects against CCl_4 induced hepatic damage. Recently, Lin *et at.*, experimented and revealed the presence of several antioxidants viz. gallic acid, catechin, epicathein, caffeic acid, PCA, rutin and narigenin, and possesses strong antioxidative activity in vitro from water extract of *Solanum nigrum* (M. Athar *et al.*, 1995 and F. Chou *et al.*, 2008). The study suggests that hepatoprotective effect against the CCl_4 induced liver damage in rats, might be due to its ability to modulate the detoxification enzymes and its antioxidant and free radical scavenger effects (F. Chou *et al.*, 2008).

Certain experimental observation results had been proven that the fruit of *Solanum nigrum* possesses potential CNS depressant action (R.M.G. Perez., 1998). Some research reported that thioacetamide induced hepatic fibrosis in mice can significantly reduce by administration of *Solanum nigrum* orally, may be through the reduction of TGF1 secretion (W. Lina *et al.*, 2008). *Solanum nigrum* juice is used on ulcers and other skin diseases. The fruits are used as an appetite stimulant and also for treating asthma and excessive thirst. It also helps in stomach complaint and dysentery (Jai, 1968).

It has been reported that glycoprotein isolated from *Solanum nigrum* has a strong free radical scavenging effect against reactive oxygen radicals, low concentration of these glycoproteins also shows the cytotoxic effect against MCF7 and HT29 cells and growth inhibition effects against JA221 and XL1Blue (K.S.Heo *et al.*, 2004; K.Lim *et al.*, 2004). The berries extract reported of having significant larvicidal, anti-inflammatory and anti-convulsant activity (S.P. Singh *et al.*, 2001; V.Ravi *et al.*, 2009). The leaves extract can be given both as a prophylactic and therapeutic supplement for scavenging free radicals (T. AlQirim, 2008). This plant fruit holds the beneficial activity as antiulcer, antioxidant and antitumor promoting agent in rats as reported (M. Jainu and C.S.S. Devi, 2004).

Phytochemistry of *Solanum nigrum Linn.*:

Phytochemical studies of the whole plant reported the presence of containing various compounds like alkaloids, carbohydrates, coumarins, flavonoids, glycosides, proteins, poly sterol's, saponins, tannins, etc. Phytochemical studies on *Solanum nigrum* contain the active substances, such as total alkaloid (L.An *et al.*, 2006), steroid alkaloid (Y.B.Ji *et al.*, 2008), steroidal saponins (X. Zhou *et al.*, 2006) and glycoprotein (K.S. Heo *et al.*, 2004) , exhibiting antitumor activity (W. Lina *et al.*, 2008) . Researchers studied the chemical characterization of osmotin like protein from this plant (P.B. Kirti *et al.*, 2007). Researchers identified new glycoprotein (150 KDa) and has been isolated from this plant which consists carbohydrate content (69.74%) and protein content (30.26%) having glycine and proline hydrophobic amino acids contribute to 50% of total protein content (S.J. Lee and K.T. Lim, 2006).

Small unripe fruits of *Solanum nigrum* are highly toxic due to the high concentration of solasodine, but the toxicity of fruit decreases with fruit maturation both the concentration and the absolute amount (Elsadig *et al.*, 1997). The berries of *Solanum nigrum* have found to have steroidal genin and recently the berries from New Zealand been studied and results to contain four steroidal alkaloid glycosides namely Solamargine, α and β solanigrine, Solasonine (I.P. Varsheny and S.C. Sharma, 1965). Ascorbic acid in the fruits of *Solanum nigrum* was also found by some researchers, ascorbic acid is also presents in roots also but to very small amounts (B.B.S. Kapoor *et al.*, 2004).

Solanum nigrum seeds contain high lipid content. Their protein content and minerals elements (Mg being prominent) are considerable and one of the important sources of linoleic oil is *Solanum nigrum* oil (J.R. Dhellot *et al.*, 2006). Two novel disaccharides were isolated and structurally were determined as ethyl β-D-thevetopyranosyl-(1-4)-β-D-oleandropyranoside and ethyl β-D-thevetopyranosyl-(1-4)-α-D-oleandropyranoside respectively, by chemical and spectroscopic methods (Chen *et al.*, 2009). From the whole parts of the plants many compounds were isolated by the researchers such as six new steroidal saponins, solanigrosides C-H, and one known saponin, degalactotigonin (X. Zhou *et al.*, 2006), two new steroidal saponins, named nigrumnins I and II, together with two known saponins were also isolated (T. Ikeda *et al.*, 2000).

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CHAPTER-40

BIOINDICATOR SPECIES AND THEIR USE IN BIOMONITORING OF ENVIRONMENTAL POLLUTION

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Bioindicators are living organisms such as plants, planktons, animals and microbes, which are utilized to screen the health of the natural ecosystem in the environment. They are used for assessing environmental health and biogeographic changes taking place in the environment.

A bioindicator is any species (an indicator species) or group of species whose function, population, or status can reveal the qualitative status of the environment. For example, copepods and other small water crustaceans that are present in many water bodies can be monitored for changes (biochemical, physiological, or behavioural) that may indicate a problem within their ecosystem. Bioindicators can tell us about the cumulative effects of different pollutants in the ecosystem and about how long a problem may have been present, which physical and chemical testing cannot.[2]

A biological monitor or biomonitor is an organism that supply quantitative information on the quality of the environment around it.[3] Therefore, a good biomonitor will indicate the presence of the pollutant and can also be used in an attempt to provide more information about the amount and intensity of the exposure.

A **biological indicator** is also the name given to a process for evaluate the sterility of an environment through the use of resistant microorganism strains (e.g. *Bacillus* or *Geobacillus*).[4] Biological indicators can be described as the introduction of a highly resistant microorganisms to a given environment before sterility, tests are conducted to measure the impact of the sterilization processes. As biological indicators use highly unaffected by microorganisms, any sterilization process that renders them inactive will have also distroy off more common, weaker contagious.

Naturally occurring Bioindicators are used to assess the health of the environment and are also an important tool for testing changes in the environment, either positive or negative, and their subsequent effects on human being. There are a certain factors which govern the presence of Bioindicators in environment such as transmission of light, water, temperature, and suspended solids. Through the application of Bioindicators we can predict the natural state of a certain region or the level/degree of contamination (Khatri & Tyagi 2015). The advantages associated with using Bioindicators are as follows:

a. Biological impacts can be determined.
b. To monitor synergetic and antagonistic effect of various pollutants on a creature.
c. Early stage diagnosis as well as harmful effects of toxins to plants, as well as human beings, can be indicated.
d. Can be easily counted, due to their prevalence.

e. Economically viable alternative when compared with other specialized measuring systems.

Types of Bioindicator.

Microbes indicator –used in indicating the maritime or physical natural community health. Bioluminescent microorganisms are generally used to test water for natural toxins.

Animal indicator---- an expand or decrease in a creature populace might slow harm to biological community brought on by contamination.

zooplanktons like alona guttata, moscyclopesedex, cyclips, Aheyella.

Plant indicator – region or nonappearance of certain plant or vegetative life in a natural group can give basic bits of data about the well-being of the environment.

Eg. Lichens, planktons.

A bioindicator is an organism or biological response that reveals the presence of pollutants by the occurrence of typical symptoms or measurable responses and is, therefore, more qualitative. These organisms (or communities of organisms) can be used to deliver information on alterations in the environment or the quantity of environmental pollutants by changing in one of the following ways: physiologically, chemically or behaviourally. The information can be deduced through the study of:

1. their content of certain elements or compounds
2. their morphological or cellular structure
3. metabolic biochemical processes
4. behaviour
5. population structure(s).

The importance and relevance of biomonitors, rather than man-made equipment, are justified by the observation that the best indicator of the status of a species or system is itself.[5] Bioindicators can reveal indirect biotic effects of pollutants when many physical or chemical measurements cannot. Through bioindicators, scientists need to observe only the single indicating species to test on the environment rather than monitor the whole community.[6]

The use of a biomonitor is described as biological monitoring and is the use of the properties of an organism to obtain information on certain aspects of the biosphere. Biomonitoring of air pollutants can be passive or active. Experts use passive methods to observe plants growing naturally within the area of interest. Active methods are used to detect the presence of air pollutants by placing test plants of known response and genotype into the study area.

The use of a biomonitor is described as biological monitoring. This refers to the measurement of specific properties of an organism to obtain information on the surrounding physical and chemical environment.[7]

Bioaccumulative indicators are frequently regarded as biomonitors. Depending on the organism selected and their use, there are several types of bioindicators.[8][9]

Uses

In most instances, baseline data for biotic conditions within a pre-determined reference site are collected. Reference sites must be characterized by little to no outside disturbance (e.g. anthropogenic disturbances, land use change, invasive species). The biotic conditions of a specific indicator species are measured within both the reference site and the study region over time. Data collected from the study region are compared against similar data collected from the reference site in order to infer the relative environmental health or integrity of the study region.[10]

An important limitation of bioindicators in general is that they have been reported as inaccurate when applied to geographically and environmentally diverse regions.[11] As a result, researchers who use bioindicators need to consistently ensure that each set of indices is relevant within the environmental conditions they plan to monitor.[12]

Animal indicators and toxins[edit]

Populations of American crows (Corvus brachyrhynchos) are especially susceptible to the West Nile Virus, and can be used as a bioindicator species for the disease's presence in an area.

Changes in animal populations, whether increases or decreases, can indicate pollution.[14] For example, if pollution causes depletion of a plant, animal species that depend on that plant will experience population decline. Conversely, overpopulation may be opportunistic growth of a species in response to loss of other species in an ecosystem. On the other hand, stress-induced sub-lethal effects can be manifested in animal physiology, morphology, and behaviour of individuals long before responses are expressed and observed at the population level.[15] Such sub-lethal responses can be very useful as "early warning signals" to predict how populations will further respond.

Pollution and other stress agents can be monitored by measuring any of several variables in animals: the concentration of toxins in animal tissues; the rate at which deformities arise in animal populations; behaviour in the field or in the laboratory;[16] and by assessing changes in individual physiology.[17]

Frogs and toads

Amphibians, particularly anurans (frogs and toads), are increasingly used as bioindicators of contaminant accumulation in pollution studies.[18] Anurans absorb toxic chemicals through their skin and their larval gill membranes and are sensitive to alterations in their environment.[19] They have a poor ability to detoxify pesticides that are absorbed, inhaled, or ingested by eating contaminated food.[19] This allows residues, especially of organochlorine pesticides, to accumulate in their systems.[19] They also have permeable skin that can easily absorb toxic chemicals, making them a model organism for assessing the effects of environmental factors that may cause the declines of the amphibian population.[19] These factors allow them to be used as bioindicator organisms to follow changes in their habitats and in ecotoxicological studies due to humans increasing demands on the environment.[20]

Knowledge and control of environmental agents is essential for sustaining the health of ecosystems.Anurans are increasingly utilized as bioindicator organisms in pollution studies, such as studying the effects of agricultural pesticides on the environment.Environmental assessment to study the environment in which they live is performed by analyzing their abundance in the area as well as assessing their locomotive ability and any abnormal morphological changes, which are deformities and abnormalities in development. Decline of anurans and malformations could also suggest increased exposure to ultra-violet light and parasites.[20] Expansive application of agrochemicals such as glyphosate have been shown to have harmful effects on frog populations throughout their lifecycle due to run off of these agrochemicals into the water systems these species live and their proximity to human development.

Pond-breeding anurans are especially sensitive to pollution because of their complex life cycles, which could consist of terrestrial and aquatic living.[18] During their embryonic development, morphological and behavioral alterations are the effects most frequently cited in connection with chemical exposures. Effects of exposure may result in shorter body length, lower body mass and malformations of limbs or other organs.[18] The slow development, late morphological change, and small metamorph size result in increased risk of mortality and exposure to predation.[18]

Crustaceans

Crayfish have also been hypothesized as being suitable bioindicators, under the appropriate conditions.

Microbial indicators

Chemical pollutants

Microorganisms can be used as indicators of aquatic or terrestrial ecosystem health. Found in large quantities, microorganisms are easier to sample than other organisms. Some microorganisms will produce new proteins, called stress proteins, when exposed to contaminants such as cadmium and benzene. These stress proteins can be used as an early warning system to detect changes in levels of pollution.

In oil and gas exploration

Microbial Prospecting for oil and gas (MPOG) is often used to identify prospective areas for oil and gas occurrences. In many cases, oil and gas is known to seep toward the surface as a hydrocarbon reservoir will usually leak or have leaked towards the surface through buoyancy forces overcoming sealing pressures. These hydrocarbons can alter the chemical and microbial occurrences found in the near-surface soils or can be picked up directly. Techniques used for MPOG include DNA analysis, simple bug counts after culturing a soil sample in a hydrocarbon-based medium or by looking at the consumption of hydrocarbon gases in a culture cell.

Microalgae in water quality

Microalgae have gained attention in recent years due to several reasons including their greater sensitivity to pollutants than many other organisms. In addition, they occur abundantly in nature, they are an essential component in very many food webs, they are easy to culture and to use in assays and there are few if any ethical issues involved in their use.

Gravitactic mechanism of the microalgae *Euglena gracilis* (A) in the absence and (B) in the presence of pollutants.

Euglena gracilis is a motile, freshwater, photosynthetic flagellate. Although *Euglena* is rather tolerant to acidity, it responds rapidly and sensitively to environmental stresses such as heavy metals or inorganic and organic compounds. Typical responses are the inhibition of movement and a change of orientation parameters. Moreover, this organism is very easy to handle and grow, making it a very useful tool for eco-toxicological assessments. One very useful particularity of this organism is gravitactic orientation, which is very sensitive to pollutants. The gravireceptors are impaired by pollutants such as heavy metals and organic or inorganic compounds. Therefore, the presence of such substances is associated with random movement of the cells in the water column. For short-term tests, gravitactic orientation of *E. gracilis* is very sensitive. Other species such as *Paramecium biaurelia* (see *Paramecium aurelia*) also use gravitactic orientation.

Automatic bioassay is possible, using the flagellate *Euglena gracilis* in a device which measures their motility at different dilutions of the possibly polluted water sample, to determine the EC_{50} (the concentration of sample which affects 50 percent of organisms) and the G-value (lowest dilution factor at which no-significant toxic effect can be measured).

Macroinvertebrates[edit]

Macroinvertebrates are useful and convenient indicators of the ecological health of water bodies and terrestrial ecosystems.They are almost always present, and are easy to sample and identify. This is largely due to the fact that most macro-invertebrates are visible to the naked eye, they typically have a short life-cycle (often the length of a single season) and are generally sedentary. Pre-existing river conditions such as river type and flow will affect macro invertebrate assemblages and so various methods and indices will be appropriate for specific stream types and within specific eco-regions. While some benthic macroinvertebrates are highly tolerant to various types of water pollution, others are not. Changes in population size and species type in specific study regions indicate the physical and chemical state of streams and rivers.[7] Tolerance values are commonly used to assess water pollution and environmental degradation, such as human activities (e.g. selective logging and wildfires) in tropical forests

An integrative biological assessment of sites in the Custer National Forest, Ashland Ranger District

Benthic indicators for water quality testing

Benthic macroinvertebrates are found within the benthic zone of a stream or river. They consist of aquatic insects, crustaceans, worms and mollusks that live in the vegetation and stream beds of rivers.[7] Macroinvertebrate species can be found in nearly every stream and river, except in some of the world's harshest environments. They also can be found in mostly any size of stream or river, prohibiting only those that dry up within a short timeframe. This makes the beneficial for many studies because they can be found in regions where stream beds are too shallow to support larger species such as fish.[7] Benthic indicators are often used to measure the biological components of fresh water streams and rivers. In general, if the biological functioning of a stream is considered to be in good standing, then it is assumed that the chemical and physical components of the stream are also in good condition.[7] Benthic indicators are the most frequently used water quality test within the United States.[7] While benthic indicators should not be used to track the origins of stressors in rivers and streams, they can provide background on the types of sources that are often associated with the observed stressors.

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CHAPTER-41

ANALYSIS OF STUDENTS PARTICIPATION IN CULTURAL ACTIVITIES: SPECIAL REFERENCE TO VESASC COLLEGE, CHEMBUR

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Abstract:

This research analyzes the working of cultural committees and how it is beneficial to the students of Vivekanand Education Society's Arts, Science, Commerce, College. The Cultural Committee shall be responsible for all intra and inter collegiate cultural events, and youth festivals organized by University of Mumbai. They also plan and schedule cultural events for the academic year and provide a platform to students to exhibit their inner musicians, dancers, actors, painters, writers, photographers and dreamers etc. This committee also ensures there should be maximum participation from all the streams. The committee also guides students to inculcate leadership qualities among students. This committee plans various ways to inculcate and imbibe in the students the concept of Unity in Diversity and enable them to develop the organizational skills.

Keywords: *Cultural committee, college students, intercollegiate competition , cultural queen and cultural king.*

AIMS AND OBJECTIVES:

The aims and objectives of the cultural committee is to reach out to all the students, also ensuring maximum participations and to achieve recognition of own college at different level

Following are the aims -

1. To know about the working of culture committee
2. To know about how committee tries to send more students participants at different competition
3. To guide the students to showcase their talents.
4. How the data is to be collected by a committee for recognitions purposes.
5. How felicitating the achievement of the students

Following are the objectives -

1. To provide diverse experience and enhance the skills of the students.
2. To always encourage and motivate them to participate in various events whether it be intra or inter collegiate competition.
3. To help students if they are facing any difficulty during competition.
4. To provide the best to the students so they feel connected.

Introduction

To promote and develop the cultural sense among students the Cultural Committee of the college is responsible in arranging and conducting various extra-curricular activities throughout the academic year. The committee shoulders the responsibility to nurture and train the students and bring out the hidden talents of the students that help them showcase their artistry in the field of performing, literary and fine arts. Through its varied events the college gives its students the opportunity to overcome their inhibitions and exhibit their aptitude in the cultural realm.

The Cultural Committee is one of the most dedicated platforms whose main motive is to find its students' inner talent and abilities. With a wide range of departments to choose from they provide a plethora of opportunities for the students.

RESEARCH AND METHODOLOGY

- PRIMARY DATA - This research is based on a survey method. A google form was circulated to collect students data with the aim to understand and analyze their perspectives towards their college Cultural Committee. Whereby this research has received 292 responses from the students.
- SECONDARY DATA - Secondary data was collected to gain information about how cultural committees are working in different colleges. Various College Websites were analyzed to know the role and working of the cultural committee.

WHAT IS CULTURAL COMMITTEE :

The cultural committee is one of the crucial committees responsible for the jazz factor during the students' college life . They are a bunch of motivated individuals who believe that a college should have its equal share of fun & frolic along with case studies. Culture committee offering them a platform to showcase their inner musicians, dancers, actors, painters, writers, photographers and dreamers.

Responsibility of cultural committee

- To prepare the annual budget for various cultural event.
- To encourage students to take part in various inter and intra collegiate events.
  To give them various opportunities to showcase their inner talents to the world.
  To make sure maximum students take part in cultural activities.
- To help them explore and excel in both their academics as well as building their talents and skills.

SIGNIFICANCE OF CULTURAL COMMITTEE IN COLLEGE -

Why is cultural committee important?

1) Provides a platform -

Cultural committee provides a platform to the students for showcasing their skills and talents. They are providing details of number of events held outside the college so that students can participate.

2) Motivate and encourage students -

Cultural committee not only provides platform but also at the same time if any participant is feeling demotivated then they encourage them and motivate them to give their best.

3) Helps during difficulties -

Cultural committee also helps the students if they are facing any difficulties whether the event is online or offline doesn't matter they always are their at the backend to help.

4) Friendly approach -

If we talk about cultural committee then the conveyor, teachers as well as student body are very much friendly if you are having any problem definately they will help you to find the solution.

5) Helps to fight with fears -

There are many students who gets afraid at the last moment so Cultural Committee at that point of time motivates and encourages participant to give a try so that he or she can fight with their fears.

6) Provides facilities to students -

Cultural committee not only provides details of various competitions but also provides facilities such as providing A.V. ROOM, AUDITORIUM to the students for their competition.

INTER – COLLEGIATE EVENTS

Intercollegiate competitions are competitions which are organize by different college other than VESASC .

Intra – collegiate events

Intra Collegiate competitions are the competitions Conducted by our VESASC for its students.

YOUTH FESTIVAL BY UNIVERSITY

- Youth Festival Youth festival or “Yuva Mahotsav” is **a inter college Cultural competition conducted by the Mumbai university** for the colleges affiliated to Mumbai university.
- It promotes culture among students in fields such as Dance, Singing, Theatre, Music, Fine arts and Literary events.

CRUCIAL ROLE OF CULTURAL COMMITTEE -

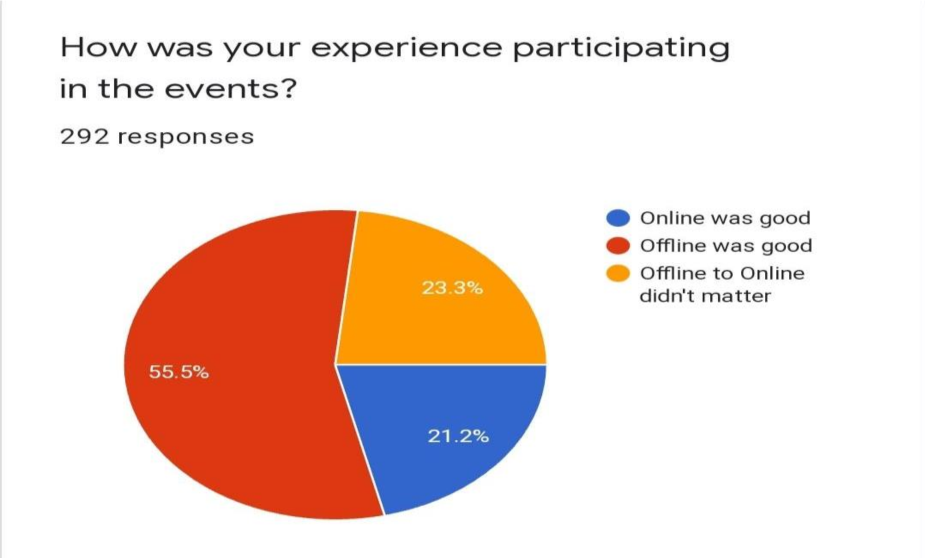
- Official WHATSAPP Group - This group is created to provide regular updates regarding the upcoming events so that maximum students can participate in different competitions.
- Official Google Classroom - This group is created to provide regular updates regarding the upcoming events so that maximum students can participate in different competitions.
- Record Maintainance System - Through google forms th Cultural Committee collects students data like participation, winning, etc in various events and competitions.
- Form for upload Participation Certificate - The students data collected by Cultural Committee is recorded and maintained by them.
- Form for upload Winning Certificate - The students data collected by Cultural Committee is recorded and maintained by them.
- CC code for Inter Collegiate events - Various CC meets are attended and cc codes are provided to the students. Indeed, its a bridge between students and various other colleges conducting various competitions.

CULTURAL QUEEN & CULTURAL KING

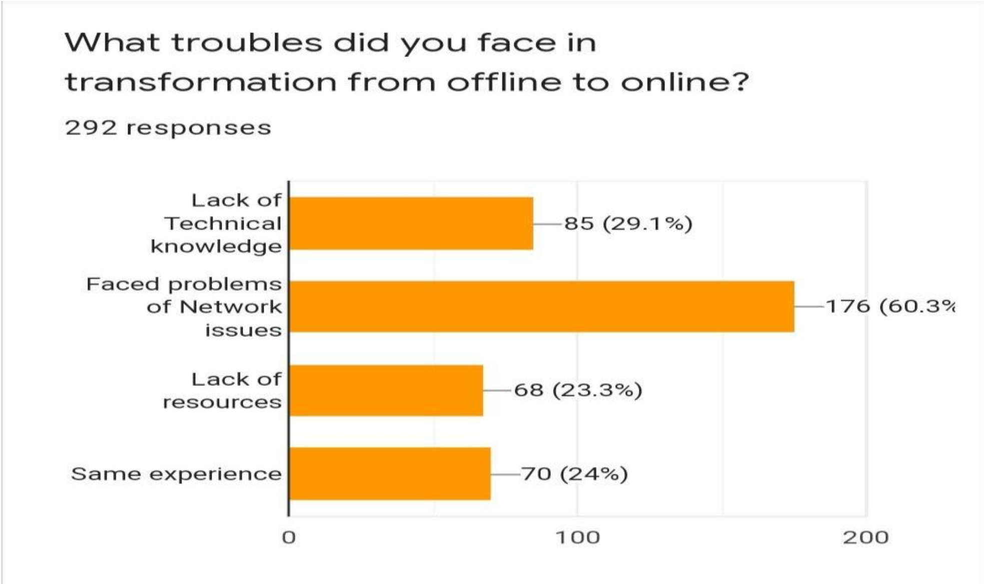
Cultural Queen & Cultural King is the most prestigious award which every student dreams of. The student who received Maximum Prizes during Academic year he/she entitle to get these respective award. Criteria is Max Prizes in “Inter-Collegiate competitions + University Level + State Level competitions”. From the Academic year 2020 we started to give these awards inorder to appreciate and motivate our students to always participate in various competitions and grab all the opportunities provided to them.

Data analysis and Interpretation

All around 292 responses were collected among students from diverse streams of college for instance - BSC, B-COM, BFM, BAF, BMS, B.A, etc. https://forms.gle/VGJtuYamgkzdqXt19 Link for the same is attached .

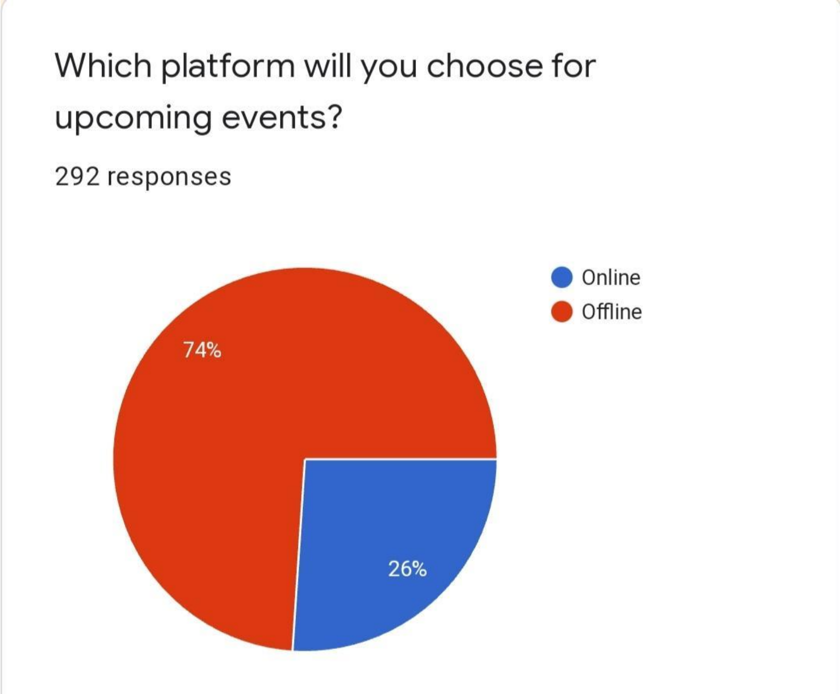


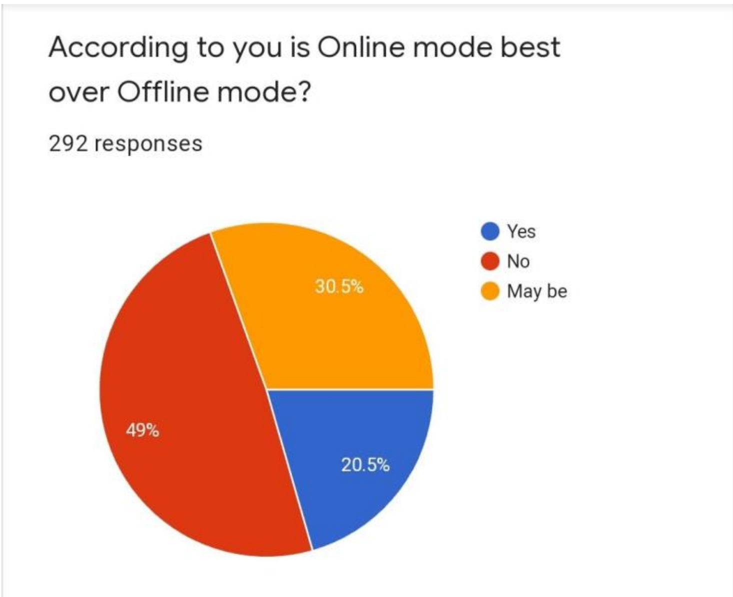
1) The experience of students participating in the offline event is maximum. 55.5%, Students prefer offline mode participation, whereas 21.2% students prefer online mode and for 23.3% students online or offline didn't matter they just liked to take part in various competitions.



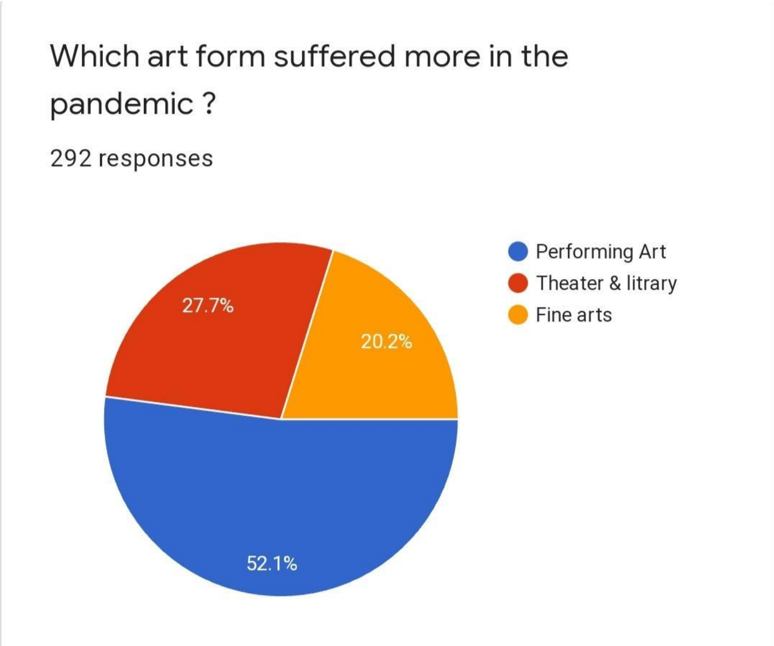
2) There were various problems faced by students in transforming from offline to online mode. 29.1% of college students were not having efficient technical knowledge, 60.3% students faced the problem of network issues while performing. 23.3% students wanted to perform in online mode too, but were not having those adequate resources. 24% of students had the same experience during the performance. In short, offline or online didn't matter to

them, they just concentrated on their performance.

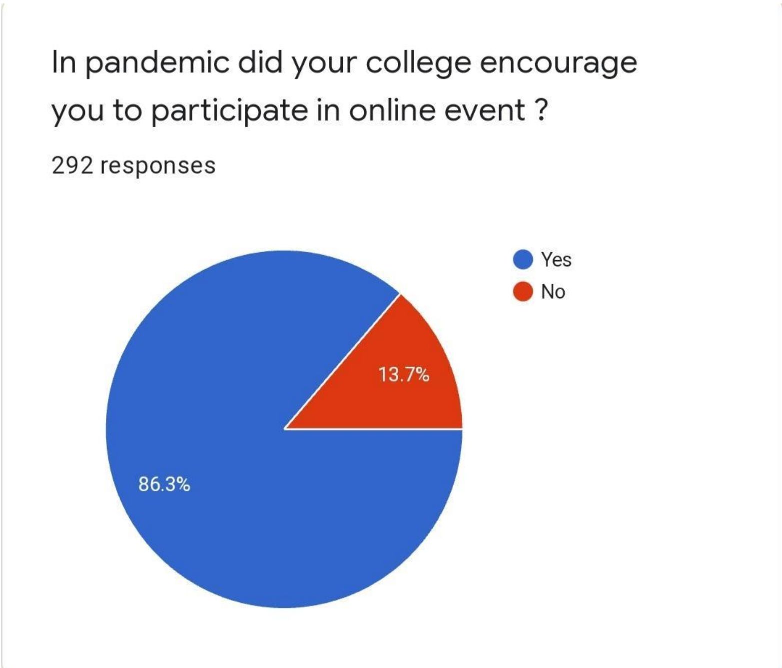




4. According to the number of responses gained, here many students feel that offline competition was better as compared to online competition. Students agreeing to best is online mode are less ie. 20.5% whereas students denying it are 49.% rest 20.5% students are not sure.



5. According to the above graph college students agree that performing arts as compared to other forms of artshave suffered a lot during the pandemic. The majority of responses for performing art is 52.1%, whereas for theater and literary art it is 27.7% and for fine arts it is 20.2%



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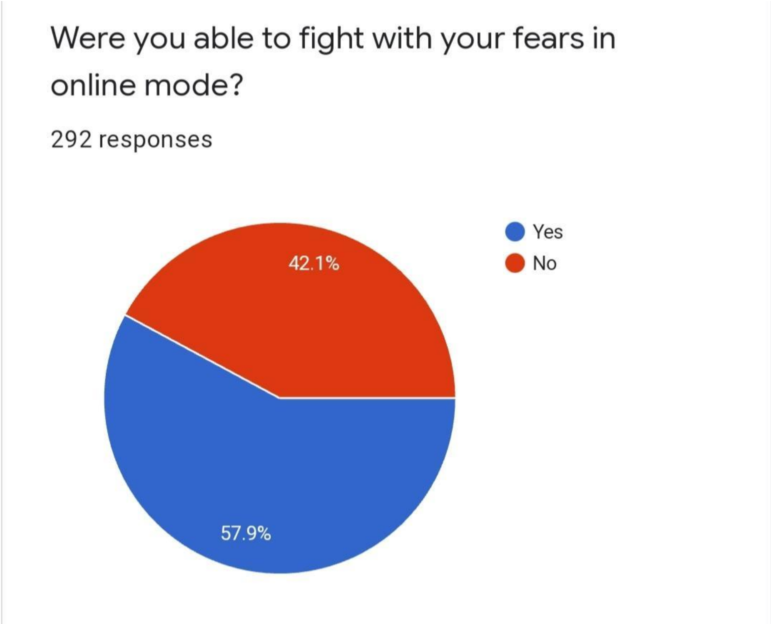
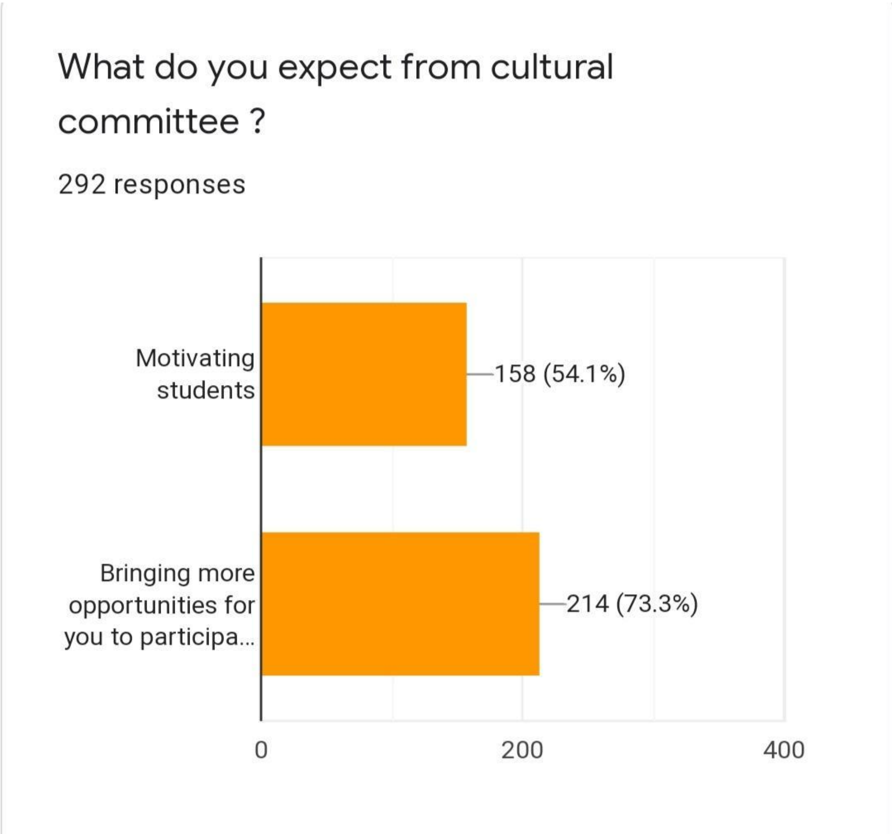
6. According to the above chart majority students ie. 86.3% felt that their college has encouraged them a lot to participate in online events as well. Only 13.7% of students disagree with it.



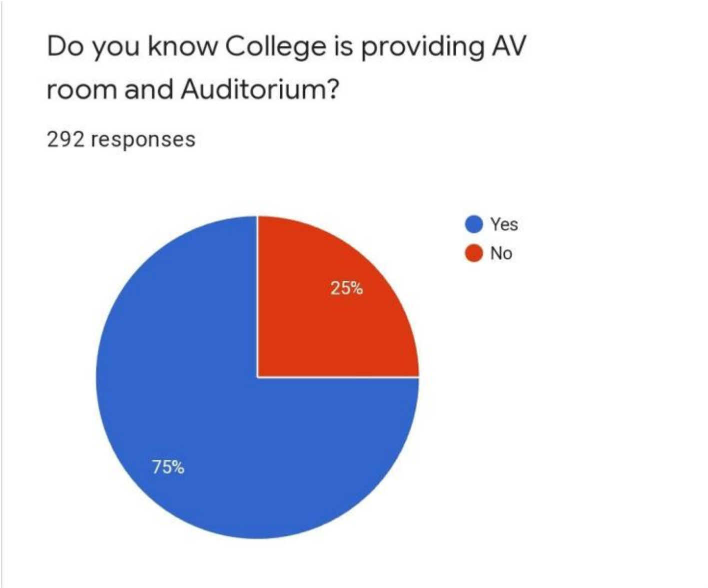
7. As compared to offline competition giving online competition was quite helping to fight with fears. Students felt less fearful because here they are giving competition from your comfort zones ie. homes. 57.9% students agreed this whereas 42.1% still werent able to fight with their fears.



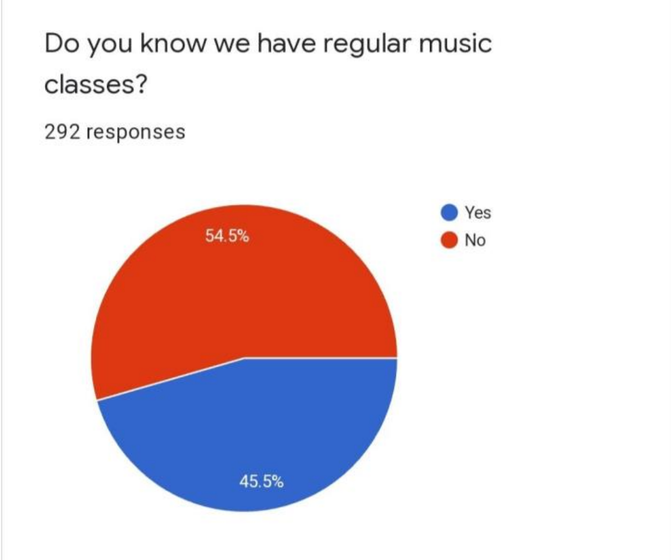
8. According to the above graph 54.1% of college students felt that the cultural committee should motivate them and the rest 73.3% responded that the cultural committee should bring

more opportunities for them to participate.

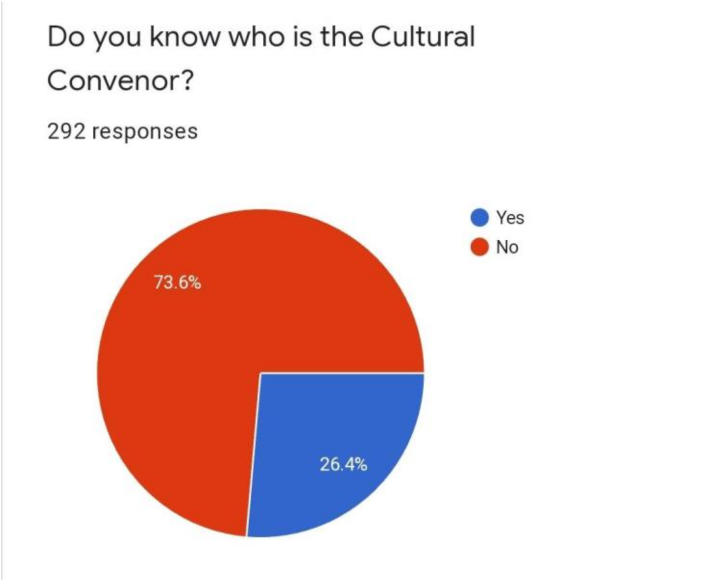
9. This diagram depicts some reasons that encouraged young talents to participate. 35.3% students said they gained confidence in online mode, 46.2% said that they can show more creativity with the help of the internet, 36% responded that online saves traveling time and 22.6% students had different reasons which ultimately encouraged them to participate.



10. From the above chart 75.% students are very well aware about the facilities provided by their college like A.V room and Auditorium. Whereas 25% students still aren't aware.

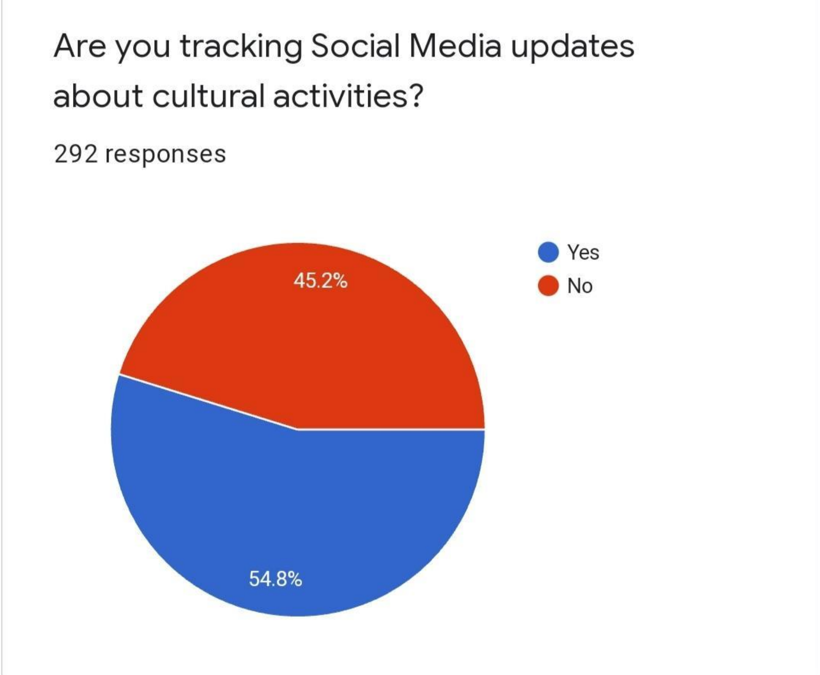


11. The chart here analyses that 45.5% students know that college is providing facilities for regular music classes in our college premises, whereas 54.5% students didn't know it.

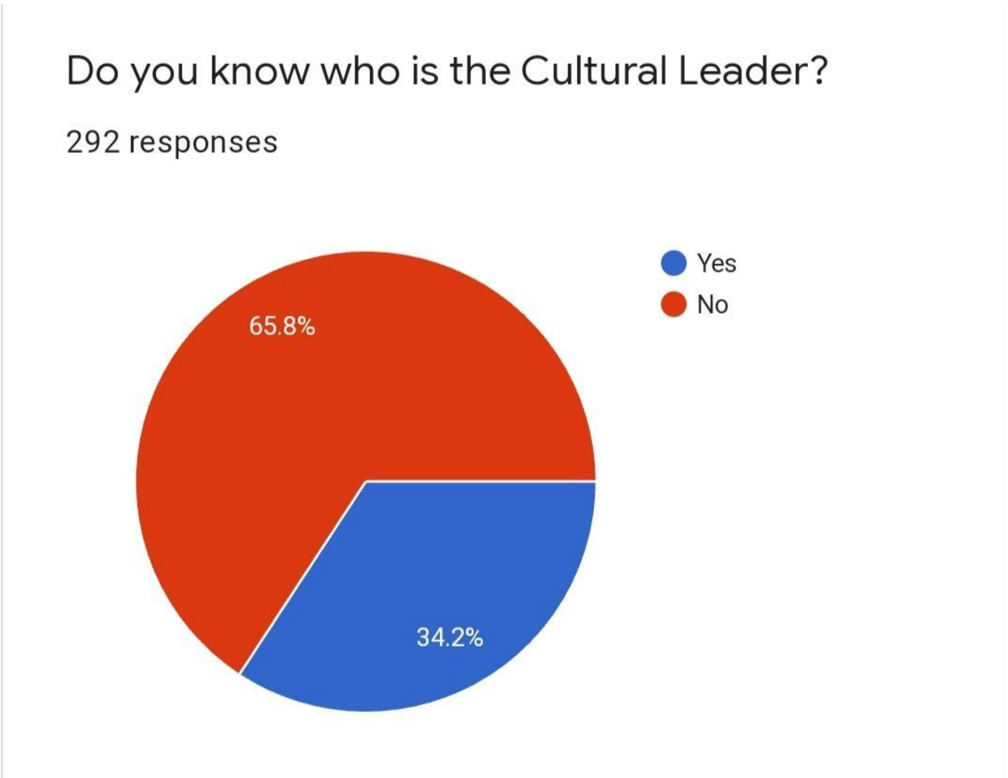


12. Pie chart depicts majority of students ie. 73.6% don't know who the Cultural Convenor and committee members, whereas only 26.4% students already know about the Convenor and

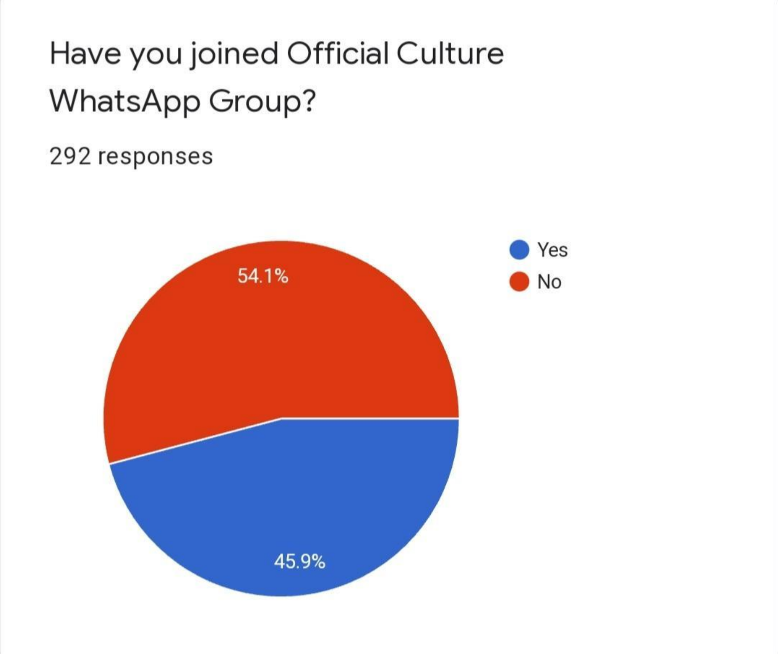
members of the college Cultural Committee.



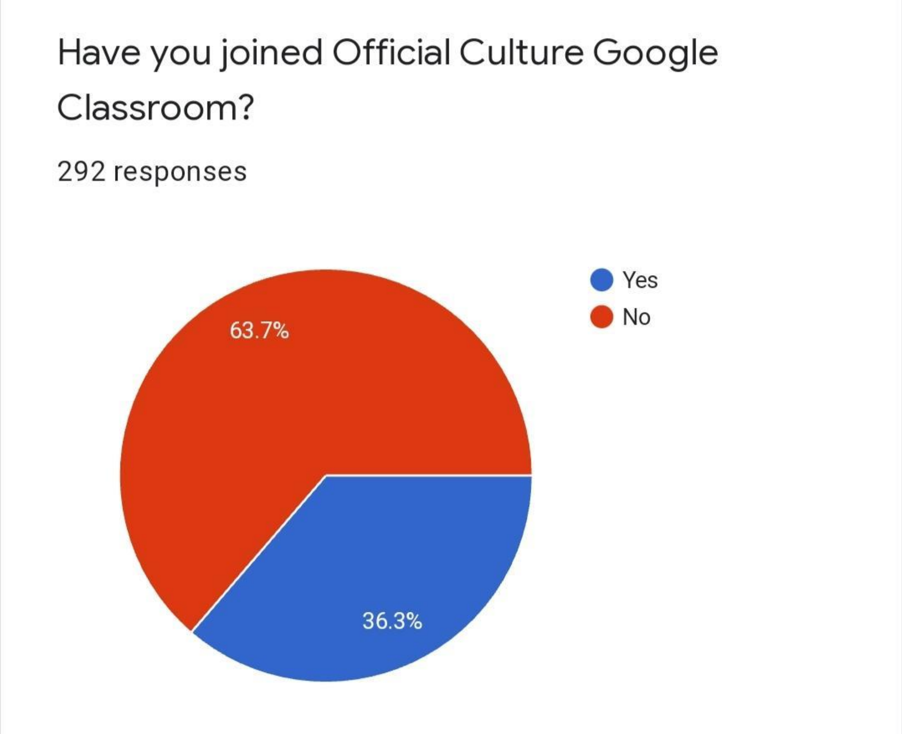
13. The diagram shows that 54.8% students keep a track social media updates about cultural committee whereas 45.2% don't track the activities on social media due to lack of interest and time.



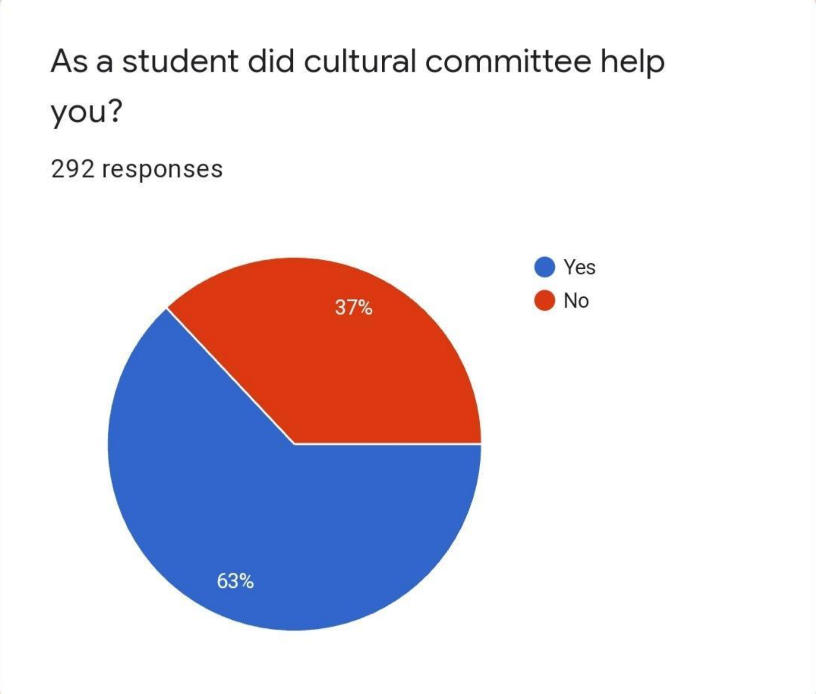
14. According to this 65.8% of the students are not aware of who is the Cultural Leader whereas only 34.2% are aware about the Cultural Leader.



15. Pie chart says 45.9% college students have joined the official WhatsApp group of the cultural committee where they receive updates regarding upcoming events and various competitions and 54.1% students haven't joined the official WhatsApp group due to lack of awareness and interest in cultural activities amongst them.



16. The chart depicts 63.7% students haven't joined the Cultural Google Classroom where they receive updates regarding upcoming events and various competitions, the rest only 36.3% students have joined the Official Google Classroom.



17. This diagram depicts that 63% of students felt that the cultural committee helps them rest. 37% of students didn't feel that they received help from the Cultural Committee and grew.

Analysis of Feedback received from the students -

1) They should communicate with us and encourage for participating.
2) To get more opportunities to participate in every event...so that I can get the overall best experience and can enjoy the fullest... want to see more growth in self.
3) Now the college is autonomous I think the college cultural committee will be more active.
4) Proper updates and information and Add us in the official cultural group for more information.
5) The Cultural committee should encourage the students to participate and boost their confidence and get much more attracted towards the cultural domain.
6) My expectations from the cultural committee are providing the students with opportunities and guidance.
7) Being helpful like they are already
8) Bring more opportunities for students, whether it is online or offline mode doesn't matter.
9) They bring various activities for us and I believe all always do your best and better
10) I'm in my last year of course and I didn't know that something like a cultural committee exists. I think they need to tell the students that cultural activities also happen in our college.

Many students want more motivation and encouragement from the Cultural Committee. Most of the students are eager and want to participate more in various competitions. Few who aren't aware want to join Official groups to stay updated with the upcoming events so that they can explore their inner talents and skills. Indeed, the platform which the Cultural Committee is providing to the students is helping them a lot to build their future.

Conclusion

Cultural committee is a platform for the students to get motivated by their own talents and also diverse their way of approach towards how to begin or continue to showcase them. It is a friendly committee which is always there to help students solve their problems and adjust into a safe environment. It provides all the information regarding opportunities of inter - collegiate events so each and every student of the college participates in the event they like and are good at. Cultural committee plays a very important role in motivating and encouraging students to participate.

Many students who weren't aware of the facilities the college provides for our development, and specifically those who didn't know whom to approach, will now be informed, prior and we'll reach maximum students. This survey has thrown light for the committee as well. We got to know so much more about our college mates and their willingness to participate in any mode, may that be online and offline.

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CHAPTER-42

A REVIEW ON AEROBIOLOGY STUDY IN INDIA

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The environment is made up of a diverse range of living species, ranging from microorganisms to the macroorganisms. Air is one of the most vital components of the ecosystem. The first thing a human does after birth is breathing in the air, and the respiratory system is the first target organ. A typical human can survive for a few weeks without food, a few days without drink, but just a few minutes without air. If the food is spoiled, one can refuse to eat it; if the water is contaminated, one can refuse to drink it; but if the air is polluted, one cannot stop breathing; one must inhale it for survival, whether it is pure or polluted. Pollution is of two kinds chemical and biological, Biological incudes Pollen grains, fungal spores, hyphal fragments, plant hairs, and other miscellaneous debris are some of the organic particles in the atmosphere beyond a threshold value. Aerospora is the microbial population in the atmosphere at any given location. Aerobiology is a discipline of biology concerned with the dissemination of insects, fungal spores, bacteria, viruses, pollen, and other organisms. Since 1930, the term aerobiology has been used to refer to the study of airspora, such as airborne fungal spores. Aerobiology is a multidisciplinary discipline that integrates mycology, phycology, palynology, air pollution, allergies, entomology, phytogeography, and bio-deterioration. The term was further expanded to incorporate studies of airborne biological materials with the establishment of the International Biological Programme in 1964. Aerobiological investigations are of two different types intramural (indoor) and extramural (outdoor). Intramural aerobiological investigations include studies inside library, laboratory, poultry shade, warehouse, hospitals, buildings etc. whereas extramural aerobiological investigations include studies over crop fields, garbage depot, gardens, parks, markets etc.

An exciting aspect of aerobiology is its history. It can be traced back to Hippocrates, the father of medical science, who was aware that men were affected by epidemic fever when they inhaled air contaminated with pollutants harmful to the human race, and it was probably one of the first times that the idea that the atmosphere is a corridor, if not a home for microorganisms, was conceived.

However, contemporary research in aerobiology dates back over a century, when Louis Pasteur (1861) demonstrated via his classical experiments in battling the hypothesis of spontaneous production of life and inventing the germ theory of diseases that the air is a carrier of many common germs. But, with Ehrenberg's (1872) first published information on the microorganisms he collected from atmospheric dust and Cunningham's (1873) analysis of microorganism’s contents in the air over Presidency jails in Calcutta, India. Our existing knowledge about the composition of airspora can be said to have started accumulating during the 1870’s. Miquel (1883) pioneered experimental aerobiology and developed procedures for analyzing atmospheric microbial composition. Frankland (1886 and 1887) was perhaps the first to perform long-term studies to explore the effect of aerodynamics on the airspora, and he noted that aerodynamic effects are crucial in creating a system for trapping airborne particles. Saito (1904 and 1922) in Japan, and Bullar and Lav (1911) in Canada, concentrated on investigations to analyze the components of airspora using various methodologies during the turn of the century. However, credit for establishing the subject of microbiology of the atmosphere as a special discipline goes to Meir *et. al.*, (1933) of the United States and Stepnove (1933) of the Soviet Union, since this branch of science concerning the atmosphere began to gain interest and importance, and by the mid-twentieth century, a flurry of contributions poured in from aerobiologists from all over the world.

Gregory (1945 and onward) conducted extensive and detailed studies on airspora in the United Kingdom. At Cardiff, Hyde and Willims (1949) conducted a census of mould spores in the air. Collins-Willims and Best (1955) recorded air mould counts in Toronto, and Hirst (1952 and onwards) conducted experiments in the United Kingdom (Canada) Di-Meena (1955) investigated the Duenedin airspora (New Zealand). Pady, Kramer, and their co-workers in the United States (1961 and onwards), Meredith in the West Indies (1961 and onwards), Sreeramlu and his co-workers in Waltair (1958 and onwards), Tilak and his co-workers in Aurangabad (1958 and onwards) in India, and Subba Reddy and his co-workers in Waltiar (1970 and onwards) in India. Gregory and Hirst (1957) on Rothamstad airspora, Haroenden, Dransfield (1966) on Samaru aerospora, and Turner (1966) on Hongkong airspora are also noteworthy. Aeromycological work by Derric and Mchenna (1963 & 1966) in Melbourne (Victoria), Australia, Goodman et al (1965) in the Phoenix metropolitan area, Shapiro et al (1965) in Los Angeles, California, Barlow (1963) in Southern and Central Ontario, Lentimake (1977) in Finland, Finegold (1975) in South-east Florida, and Al-Doory et al (1980) in Washington is worth mentioning. In Baghdad, Iraq, Atikrita et al (1980), Penny Cook (1980), McDonald and Odriscoll (1980) in Ireland, and Calvo et al (1980) in Barcelona, Spain. These persons obtained a huge data on general aeromycology and worked out the composition and components of airspora.

Cunningham (1873), for his aerobiological investigations at Calcutta jail, is credited for doing the first research on aerobiology in India. "Microscopic examination of air" was the title of his comprehensive work, which he published as a book. It's possible that this was India's first aerobiology paper.

Mehta (1940) examined airspora in relation to wheat phytopathological concerns after a lengthy hiatus. He was working on a solution to the problem of wheat rust. After that, Sreeramlu and his coworkers in Visakhapatnam (1958 and onward), Tilak and his coworkers in Aurangabad (1960 and onward), and Subba Reddy and his coworkers in Waltiar (1970 and onward) gathered a large amount of data on general aeromycology and worked out the composition and components of airspora.

In Maharashtra, Karla and Dumbry (1957) started aerobiological studies at Army Medical College in Pune, and later Karnik (1962), Chaubal and Deodikar (1964), and Chitle and Bajaj (1973, 1974, and 1975) published their work in Nagpur. Tilak is responsible for the development of aerobiological research in the Maharashtra region. Tilak and his colleagues examined airspora over Jowar, sugarcane, maize, bajra, cotton, vegetables, arhar, groundnut banana, as well as in the vegetable market, cattle barn, hospital words, industry area, and other places in Aurangabad from 1967 onwards. At Aurangabad, Tilak and Srinivasulu (1967) reported airspora. From Aurangabad, Talde (1969) examined airspora over sugarcane and vegetable crops. Gailwad (1974) investigated the airspora over Ahmadpur's sorghum farms. At Nanded, Pande (1976) investigated the airspora over orange, mung, and CSH-1 hybrid Jowar. At Vaijapur, Mane (1978) researched the airspora over bajra and wheat crops. The concentration of airspora over bajra fields was highlighted by Tilak and Chakre (1978). At Aurangabad, Bhalke (1981) analysed the airspora over a sorghum field and a vegetable market. At Aurangabad, Babu (1983), Patil (1983), Shanta (1983), Saibaba (1983), Bhasale (1983), Wankhede (1983), Jogdand (1987), Ramchander Rao (1987) investigated the airspora over bajra, cotton, vegetable, and Jowar fields, respectively. Many workers have made major contributions during the previous 20 years, with many new research centers. During the last twenty years several workers have contributed significantly as mentioned below.

Nautial and Sahaney (Allahabad), Kamal and Srivastava (Gorakhpur) Chauhan (Agra), Mishra and Khandelwal (Lucknow), Mahesh Roy ,Mishra, Trivedi (Patna), Kale Ghani (Bhagalpur),Tiwari & Jadhav (Raipur), Agashe (Banglore), Rajasab (Gulberga), Karuna Verma (Jabalpur), A.K.Jain (Gwalior), Ramchandar Rao and Bhagya Laxmi (Hyderabad), Tilak and Pande (Aurangabad) Tilak, More and Jogdand (Pune), Gaikwad and Jagannath (Ahmadpur), Vitthal (Chennai), C.S.Reddi and Atuluri (Waltair), K.M.Munshi (Shrinagar), and recently Sarma (1993) (at Gawahati), Srivastava & Shukla (1990) (at Balrampur), Karlekar & Patil (1998) Mari Bhat (1991) (Gulberga), Jyoti Nair (1991) (Sikanderabad), Satish et al (1993) (at Tiruchirapalli). Gupta et al (1993), Jain (1990, 1991, 1992, 1994, 1998, 1995, 1996) Jadhav (1994, 1991,1994,1997), Kalkar (1990,1994), Kakde and Saoji (1998), Prabhudesai(2006), Reddi (1994, 2002, 2005,) Ramlingum (1994), Ramchander Rao (1995, 1990) Sinha et al (1988), Singh et al (1994), Singh (1991), Talde (1994), Tilak (1990-91),Tilak and Jogdand Aurangabad(1987, 1989, 1989), Jogdand(1997), Tilak and Pande (1999), Tilak (1996, 1998, 2005) Tiwari et al (1991, 1995, 1997, 2004), Verma and Khare (1990), N.I.Singh (1990),(Manipur).

The volume of research work and publications has skyrocketed; indicating that this applied area of Aerobiology is growing, developing, and establishing itself. Wherever possible, for the sake of convenience and in the interest of the researcher's relevant important observations on previous reviews, have been added. We must keep up with modern and recent breakthroughs and do even more to push aerobiology forward. It's encouraging to see how far we've come.

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CHAPTER-43

POTENTIALS OF PUNICA GRANATUN L

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Plants are thought to be an ancient source of medicinal and pharmacological active components.[1]This plants sources have many medicinal values which plays an important role in developing new therapeutic drugs which are utilized in the indigenous system of medicine as described in ancient literature.[2]Medicinal plants are an excellent source of new bioactive compounds and due to thisthe interest for phytomedicinal sector is developing vigorously.[3] As a result of Phyto-constituentsidentification analysis, around 74% of drugs of plant origin were notified and isolated for their traditional medicinal use.[4]This natural productwhich has plant origin act as primary ingredient for drug development.[5]Medicinal plants serve as the key source for herbal medicine, traditional medicine and for various dietary supplements.[6]Recently, the cheapest source of medicine used by the majority of population of the globe which is considered as very safe with less or no side effects is from plants source.[7]

Classification:
Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Order: Myrtales
Family: Lythraceae
Genus: *Punica*
Species: *granatum*

Venacular names:
Arabic: Rumman, shajraturrumman
Assamese: Dalim
Bengali: Dalimgachh
Hindi: Anar, Dhalim, Dharimb
Italian: Melogrante

Malyalam: Dadiman
Marathi: Dalimba
Persian: Anar, Darakhteanar
Philipin: Granda
Punjabi: Anar, Dan, Danu
Russian: Granate, Granantik
Sanskrit: Bijapura, Dadima, Dadimasara, Dalika
Spanish: Grando
Swedish: Granatrad
Tamil: Kalumalmadalai, Madulam, Madulangam
Telegu: Didymium, Marimba
Turkish: Nar agaci
Urdu: Anarmitha

The plant is distributed throughout the world but believed to be originated from Iran and the Himalayan region.The fruit of this plant have potent phytochemicals constituents.The plant is an evergreen shrub, with multiple tiny stems and usually grows up to 1.8 – 4.6 m in height.*P. granatum* is found to have deciduous and shiny leaves which are around 7.6 cm long. The flowers of *P. granatum* are around 5 cm long and normally double trumpet-shaped orangered ruffled petals which seen throughout the summer.The fruit is globose with a tough leathery skin with a diameter of around 5- 7.6 cm. The mature fruit has reddish or yellowish green shiny skin. The fruit is known for its berry which is composed of spongy membranous walls which contains reddish or whitish pulp with crunchy seeds. The seeds present in fruit composed around52% of the entire mass of the fruit.[7-11]

Chemical constituents:

The juice of *P. granatum* contains many of the active chemical constituents such as anthocyanins, quercetin, rutin, glucose, ascorbic acid, ellagic acid, gallic acid, caffeic acid, catechin, epigallocatechin gallate, iron and amino acids. While in the seed oil of pomegranate one can find out punicic acid and sterols. The fruit outer peel of *P. granatum* contains punicalagin, flavones, flavonones and other flavanols. The leaves are found to contain punicalin and punicafolin like tannins and luteolin and apigenin like flavone glycosides, which are considered to be the vital constituent of *P. granatum*. The flowers of the plant whereas contain Ursolic acid, triterpinoids and Asiatic acid, the roots and barks have piperdinealkaloids andellagitannins phytochemicals. In the aril juice of pomegranate necessary components like vitamin C, vitamin B5, potassium and natural phenols like ellagitannins and flavonoids are also present which constitute round 16% of an individual's daily requirement .[12]

Pharmacological activities:

Due to the presence of various phytochemical constituents like tannins, alkaloids, glycosides, volatile oils, flavonoids and resins, gums, etc*P.granatum* possess the lots of therapeutical significance. Pharmacological activities shown by *P.granatum* like antioxidant, antimicrobial, antiviral, antidiabetic, anticancer, Alzheimer's disease, etc., due to the presence of bioactive compounds. This plant possessed the best antioxidant activity, independent of the antioxidant between phenolics concentration and antioxidant capacity.[13]One of the important Phytochemical in pomegranate and the seed oil is Ellagic acid which is potent against various cancers including prostate, skin, colon, lung,bladder, blood, oral, oesophagus and leukaemia cancers.[14]Recent studies shows that by the anticancer activity of pomegranate breast cancer can be prevented.[15] The significant antimicrobial activity against *S.aureus, E.coli* and *Shigella dysentriae*were exhibited by alcoholic extracts of the fruits.[16]Extract of the plant also act as an antagonist against microbes which generally causes urinary tract infection. The effective inhibition of the inflammatory cytokine- induced production of PGE2 and nitric oxide by the extract of *P. granatum* had been reported in *in vivo* studies which gives its anti-inflammatory activity .[17]Pomegranate derived products which possess anti-atherogenic effects can be prevent and suppress the atherosclerosis.[18]Pomegranate possess neuroprotective properties and were tested for Alzheimer’s disease in an animal model due to presence polyphenols. The transgenic mice with Alzheimer’s kind of pathology when administered with pomegranate juice, were observed to have 50% less accumulation of soluble amyloid-beta and hippocampal amyloid deposition thatconsumed sugar water. This study suggested that pomegranate juice has neuroprotective activity.[19]The fruit rind extract exhibits an excellent-blood sugar- lowering effect which shows its anti-diabetic activity.[20]Pomegranate play a vital role in protecting people against gastric ulcer due to its tannins content.[21]The traditional system of medicine and herbal medicine has become important in the field of medicine now a days as they have no or very less side effects.

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CHAPTER-44

EFFECT OF TRAINING ON COMPETITION STRESS OF KABADDI WOMEN PLAYERS

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INTRODUCTION

Kabaddi, 12-a-side field pursuit game (only 9players on each side may take the field at once) very common in India, and also played in Pakistan, Myanmar, Sri Lanka, and China. Its most remarkable feature is that players must hold their breath for long periods. It is probably the only field game in the world which has categories for age and weight. Moreover, no equipment is needed and there are no goals. Provided the ground is reasonably level a pitch can be marked on many different kinds of surface.

Purpose of this study was to examine the effect of training on the competition stress of Kabaddi players. Twenty Kho-kho players were in each group during three months period, Motivation Training and Psycho regulation Training was given to each group

HISTORY AND DEVELOPMENT OF KHO-KHO

Kabaddi in India is aptly known as the "GAME OF THE MASSES" due to its popularity; Simple, easy to comprehend rules, and public appeal. The game calls for no sophisticated equipment what so ever, which makes it a very popular sport in the developing countries. Though it is basically an out door sports played on clay court, of late the game is being played on synthetic surface indoors with great success. The duration of the game is 45 minutes for men and junior boys with a 5minutes break in between for the term to change sides. In the case of women/girls and sub junior boys, the duration is35 minutes with a 5 minutes break in between.

Fitness parameters for the game of Kabaddi

Kho-kho game needs excellent physical fitness with certain fitness parameter such as

A. Strength, maximum strength, strength endurance, explosive strength.
B. endurance, aerobic endurance, specific endurance, speed endurance
C. speed, acceleration ability, agility , reaction time

As the game involve a high standard of agility , strength , judgment , alertness of mind fearless ness , tact and skill full bodily movement on the part of participation and finally provide scope for self expression ,creative , imagination and opportunities for a sustained interest in the game

Objective of study

1. To measuring effect of motivation training on Competition stress of Kho-kho players.
2. To measuring effect of psycho-regulation training on Competition stress of Kho-kho players

Importance of problem:

1. It will help physical teacher to select team player for Kabaddi game

2. The present study will prove beneficial to assemment skill performance in Kabaddi Game
3. The study will open avenues for further research in this direction

REVIEW OF RELATED LITERATURE

Borer and miller devised a test of tennis ability with college women utilizing a regulation court and fore hand and back hand strokes. the result based on small group's yielded validity co-efficient of .85 for the intermediate group and .61 for beginners with the criterion of judges rating. Reliability co-efficient of .80 were reported for both groups.

The Wisconsin wall test for serve correlated 0.62 with tournament rankings in 9 classes (299students) at Memphis state university

Hulbert used Wisconsin wall conversion table values of Wisconsin wall test for serve to apply to a forehand drive test. The wall markings and the 42 1|2- foot

Opinion of the research scholar

Studying the review presented above, it is understood that construction of sports skill test is a very scientific process. For the assessment of any skill in sports, the test must possess sufficient validity, reliability and objectivity. Various sports disciplines and sports scientists have developed very authentic sports skill tests. The researcher did not come across standardized skill tests for the skill assessment of Kabaddi players in sub junior group; hence the researcher thought it desirable to undertake the research entitled:

"Effect of Training on Competition stress of Kabaddi players"

Methodology

The present study focuses on the effect of special training on the under 14 girls. Pre-test post-test equivalent group design was utilized to study the effect of the training on Psycho-regulation

and motivation training for skill performance. Twenty subjects in each group were divided by purposive random sampling. Three-month special training, which included special drills for developing Psycho-regulation and motivation training, was given whereas control group was not given any specific training. Data was analysed with independent sample "T" test.

The following questionnaires were employed to ascertain the selected 20 players in each group using purposive random sampling method:

- Self-Confidence Inventory (SCI) developed by Agnihotry was used to measure self-confidence. This is a standardized inventory and reliability and validity is 0.91 and 0.82 respectively.
- State-Trait Anxiety Test (STAT) developed by PSY-COM Services was used to measure anxiety of subjects. The STAT is a standardized test and reliability of the test is 0.88.
- A two tailed t-test was applied to find out the difference of means of the two variables of pre test and post test.

Training Components

- **Psycho-regulation**

1. Breath control: Simple breath exercise such as bhasarika, kumbhak, pranayama.
2. Self-instruction: under control situation self instruction are applied.
3. Imagery: practice under Imagery technique.
4. Autogenic: self control by some simple instruction.

TRAINING SCHEDULE (as per time)

Sr. No.	Period	Physical Preparation Fitness	Skill Related Fitness	Psychological Preparation	Others
1	September - 3 Weeks	60%	20%	10%	5%
2	Sept. to Oct. – 3 Weeks	30%	30%	15%	5%
3	Oct. to Nov. – 3 Weeks	20%	30%	30%	5%
4	November – 3 Weeks	10%	35%	35%	5%

Statistical analysis

This chapter provides correlation analysis of data utilizing statistical Procedure.

It helps for an easy under standing of data processing, which is in a simple to complex manner. So that over all results can be viewed distantly. The data collected by the Researcher in the tests and retests was computed and the final results are presented in this chapter in the form of different tables with their interoperation. In this chapter the stated problem is solved and the formulated hypothesis is tested in the investigation. Various sophisticated statistical procedures were designed and used for their analysis of data.

Independent Sample Test			
	T-Value	**Df**	**Mean Difference**
SCI	3.08*	32.00	14.20
STAT	2.97*	32.00	3.70
*Significant at 0.05 Level			

t-test

Findings

The applicability of the psychology training was assessed by this research design. Here, the stability of the test was assessed statistically by administering the test on another group of 80 players and the test administrators were other 3 experts from Kabaddi. After SCI test although found reliable and valid, it was necessary to evaluate its applicability. For this, the follow – Up study has been undertaken. The Follow –Up study helped to judge the applicability of SATA test in terms of assessing the offensive performance of Kabddi player. Thus, the “Effect of Training on Competition stress of Kho-kho players” developed in this study has justifiable applicability in the area of the game of “Kabaddi.”

- The mean value of self confidence level for pre test is found 12.23 and for post test 20.60.
- The mean value of anxiety level for pre test is found 32.50 and post test 41.30.
- The significant difference exists in the self-confidence and anxiety levels of thepre test and post test.

Discussion

- The Psycho-regulation training for Kabaddi players may be used in sports school, sports hostel, and school education departments.
- Motivation training may be used for professional students of physical education to motivate and to improve self confidence.

Suggestions

Summary

In India, the curriculum of school physical education contains many sports activities, which are foreign Origin whereas the games Kabaddi are evolve in the Indian soil .since inclusion of almost all the sports Activities in the curriculum has base on extensive research investigations, similar approach is need of the Day in case of Indian games included in the curriculum.

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CHAPTER-45

COMPUTER VISION, VIRTUAL REALITY AND AUGMENTED REALITY AND ARTIFICIAL INTELLIGENCE --ITS INTER CONNECTION WITH HUMAN PSYCHOLOGY

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Abstract-

Long ago since the origin of human life vision is one of the essential sense organ which is beautiful but complex. Some years ago it was very difficult to interpret vision process with the help of machines. Computer vision is the concept taken from human vision working mechanism. Likewise human eyes capture image or video, send signals to brain to process and then interpret, similarly computer vision is also captures image or video through camera send input for processing through special software algorithm and interpreted. This concept some years ago was dream but thanks to innovation in computer field. Many of scientist tried to work on it but few are successided.

This computer vision takes the help of artificial intelligence to train computers to understand and to interpret the actual visual area or field. Basic concept of artificial intelligence is an intelligence used by "trained" machines verses an intelligence used "naturally" by animals and humans. Revolutionary changes are happening due to innovations of various technologies. Artificial Intelligence is also now a days helping many sectors like health care systems. Like wise artificial intelligence early diagnosis is possible and bad prognosis is prevented. Now this artificial intelligence is also one of the examples of digital innovation and transformation of world towards the betterment.

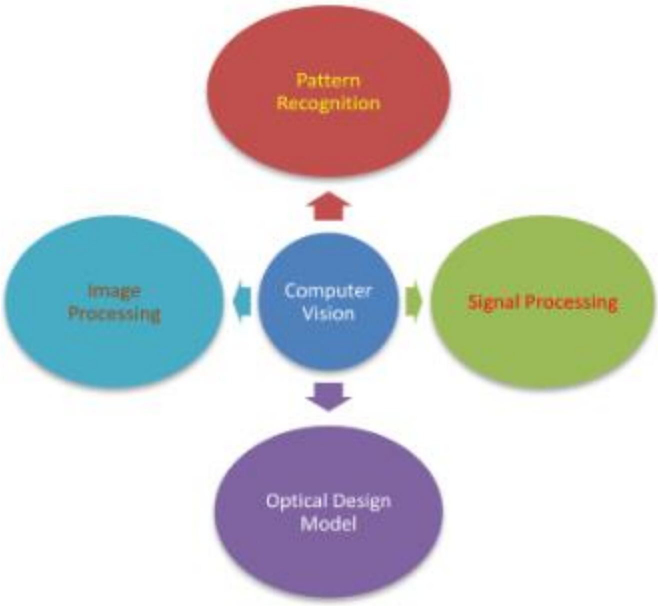
Augmented reality and virtual reality are also based on the concept of processing of higher sense organs.

All of these process of vision and its interpretation or understanding and replying according to diagnosis shows involvement of psychology. This psychological aspect is taken as toolkit by many of researchers and they are developing modern technologies such as computer vision, artificial intelligence.

Keywords*—Artificial Intelligence, Computer Vision, Technology, Augmented Reality, Virtual Reality, Algorithm, Psychology*

Introduction—

Ultimate goal of computer vision is to give computer a better ability to catch hold and extract a high level understanding of the visual world in the form of digital images and videos. Now these days everyone has used smart phones, tablets which shows computer vision is better in capturing images and videos. This is one of day today example of innovation based on involvement of human psychology.



The base line concept of computer vision is teaching computers to process an image at pixel level and understand it. In technical terms its all possible through special software algorithm.

Augmented reality and virtual reality are another examples for digital innovation and transformation of world toward betterment. The concept of augmented reality is combination of real things that exists in world and virtual world. It is because of involvement of different sense organs such as visual, auditory, somatosensory. It is accurate 3 D version of real along with virtual world.

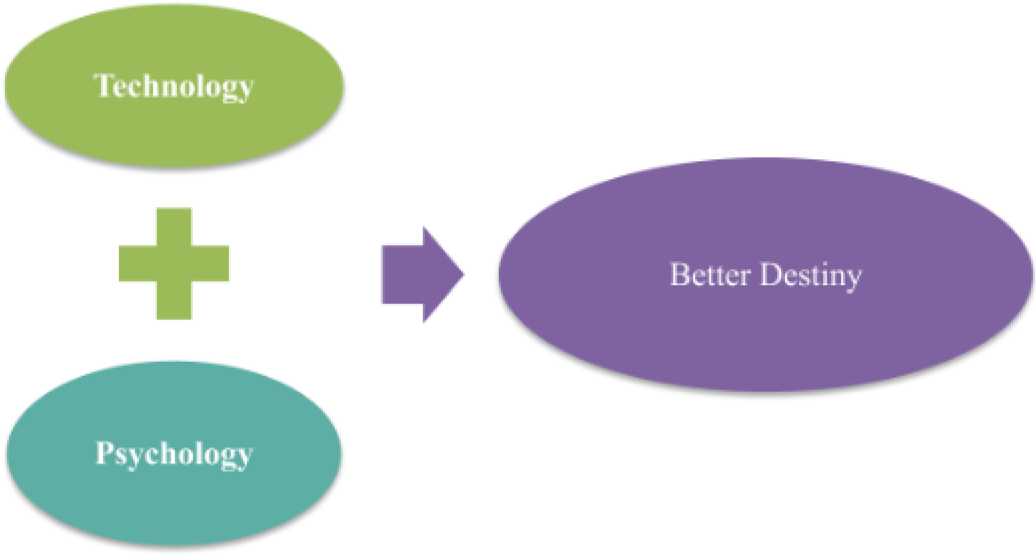
Technology used in augmented reality helps to improve natural environmental and gives perceptually rich experiences. If this augmented reality is implemented in smart phones or tablet or laptop then the surrounding world information in which we live becomes interactive and digitally manipulated.

In many fields these all computer vision, artificial intelligence, augmented reality, virtual reality can be used. Augmented reality can be applicable in industrial manufacturing, medical field, E Commerce, architecture. Augmented reality concept is taken up by cosmetics company also say for example lipsticks may be tried virtually and shade is selected according to tone of skin and liking of customer.

Some of elaborated examples are as follows:

- Healthcare sectors—The analysis of result of ultra sound, MRI, CT scan are made easy due to advance technologies such as computer vision and artificial intelligence. A lot of burden is reduced from human mind that is from healthcare workers due to this easy analysis of various diagnostic tools. But on cognitive bases there will be no replacement where doctors and that field expert person can only tell the explanation. Now the latest example is technology used during COVID 19 pandemic. Image segmentation in CT scan can helped physicians and healthcare workers.
- Automobile industry—Self driven vehicles are the examples for combination of artificial intelligence and computer vision along with other expert systems. Let us take an example, algorithm on which the car is controlled must be always aware of the

surroundings and environment at all times. These algorithm includes how road goes, what is positions of other vehicles near the car, what is speed of near by passing or overtaking car, what is distance of potential obstacles and objects. For all these reasons, that autonomous vehicle must be equipped with camera that is computer vision which captures videos and images for wide spread areas. The footage is then monitored for interpretation of image recognition algorithms. These algorithms are which can classify relevant objects not only in halting or static objects but also moving objects.



- Finger Print Recognition--

  Previously one register is getting kept at main door or at department level to log attendance of an employee so that when employee comes in an office, member or security person can keep record of employee's attendance.

  After this, many companies started process to give employee an iCard through which they can register attendance.

  Now the situation is different as biometric attendance system is introduced. There are finger print scanners which get placed at the entrance or the common area. Employee needs to be put his/her finger on machine which was used for registration and that's it, machine will detect and log employee's log in or log out time.

  Biometric scanner records the data and keeps in data file. When user logs in, machine identifies which person is asking access.

  Attendance task is more realistic now and these systems are also getting used to give permissible access to people for particular area.
- Face Recognition--

  Nowadays it is common in android or iPhone devices to unlock your phone using face recognition module. We don't need to enter password; we just need to enable face recognition functionality on phone. This feature keeps your device and data safe and hence privacy is getting maintained.

  If we consider only phone, it does not have massive database. It only saves and recognizes one user of the device.

In case of Facebook or security checking by government organizations, all images get saved in database and software helps to identify people by their facial landmark. In current situation, we can find this kind of feature in Facebook or Google as it suggests names of your contact list by recognizing faces on their webpages.

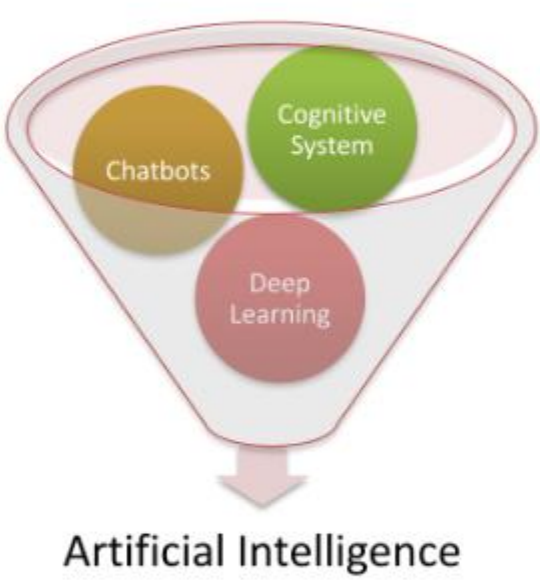
- E Commerce—

  Based on intelligent search analysis, E commerce get the ability to give offers on the product on which that customer is more likely to buy. Now this process is also taking the help of Artificial Intelligence mechanism. Customer satisfaction rate can be increased by taking feedback or enhancing the interactions by mail or SMS. Various mobile devices such as tablet, laptop, smartphone usage has been increased. So, it is an opportunity to make the use of this advanced digitalization for betterment of business. Because of various apps the market is 24X7 open, so with customers convenient time, place, choice buying, or selling is made very easy. Because of invention of internet all these digitalization is made easy. Globally also there is no limitation for buying or selling the products.

Discussion—

- **Artificial intelligence--**

Artificial intelligence is concept which describes the ability of technology which is designed to perform specialized activities which requires human intelligence. Artificial intelligence is taken fast pace since last few decades. The algorithms which helps to programmed technology, now those technology will perform activity which requires involvement of cognition. Some decades ago it was dream but the constant efforts of scientist and researcher helped to evolve the concept of artificial intelligence. In simple term cognitive thinking is converted into algorithm and work will be done from various machines.



Traditionally few years ago large scale data was maintained manually but now because of artificial intelligence it became very quick and less time consuming and more of less possibility of making mistakes. There are many sectors in society where artificial intelligence is used very commonly like education, healthcare, industries, business, bank, E commerce etc. Along with augmented reality and virtual reality artificial intelligence all can be categorized under digitalization. Modern world is more dependent on digitalization. People have accepted soon this concept of digitalization.

- **Influence of virtual reality and augmented reality on education—**

In the education sector augmented reality and virtual reality plays very important role to understand the concept of the topic. In healthcare sectors it's very easy to understand different anatomical positions and with the help of augmented reality the concepts of physiological functions are easy to understand.

1. *Gaining immersive experience*—to understand the topic concept deeply virtual reality helps to students as well as creates deep knowledge. This will lead to permanent gaining of the knowledge.
2. *Hands on learning*—some years ago actual frog dissection was done in school biology practical. But thanks to augmented reality and virtual reality these dissections are done virtually without actually not dissecting animal and not harming the any living animal. This also prevents spreading of diseases.
3. *Training sessions are made easy*-- some of the professionals require training session for saving life, but actual giving the training like real life scenario is too dangerous and not ecofriendly too. For this situation let us take one classical example of job of fire fighter. In this case giving the training with the help of virtual reality or augmented reality is much more feasible because actual giving the training is next to impossible and the person who is taking training is in directly taking risk for life as he might be facing some situations in which he does not know what protocol he must follow. So now in this case it is easy to give training under these two headings that is augmented reality and virtual training.
4. *Field trips can be possible*—for school purpose visit to pole is very much easy because of the augmented reality. Walking on moon as astronaut made easy, thanks to augmented reality. This also helped in point of cost effectiveness. History lovers will be easily visiting museums, monuments under the technology of augmented reality.

- **Effect of virtual reality and augmented reality in healthcare sector-**

1. *Finding vein for IV or for injections*--For giving intravenous injections doctor or nurse can easily visualize the main vein or alternative vein.
2. *Best option in training of surgeries—*Everyone knows that when it comes to any operation precision makes the point. So, to make this precision and perfectness surgeons should go under training. So now augmented reality provides good technology for such type of training. On top of that no one is harmed, no one is bleeding, no mistakes so, no question of legal point to be raise.
3. *Study of anatomy and functioning of body physiology made easy—*By combination of real and virtual images it is very easy to show actual location of organ in body, or vein in body. Other example is to study the interior structures of brain and spinal cord made very easy because of augmented reality.
4. *Augmented Reality in dentistry—*Artificial Intelligence software helps dentist to build precise crown or caps.

5. *Line Of Treatment for patients—*Virtual Reality helps to plan in advance complex surgeries for example neurosurgical procedures. In cases of PTSD-Post Traumatic Syndrome or Stress Disorder situation similar recreated and patient is slowly exposed in virtual world but this is strictly done by expert team at their therapy centers. Immersive virtual reality is useful to distract the patients when anesthesia or sedatives are contraindicated.

- **Impact of Modern technology on Human Psychology--**

As we all know since last few decades modern technology has progressed with very fast rate. Smartphones, internet, cloud computing, computer vision, augmented reality, visual reality, and all types of other digitalization aspects are affecting and changing every angle of human life. These various angles of human life are industrialization, trading, E commerce, business, government, travelling, bank, agriculture, education etc. so the question may arise what about human psychology? So regarding this scientist are still working on it, and most of the studies are in very initial phase. There is little date available with us saying that technology is shaping the way we think. Modern technology is surely affecting the way we interact with entire world or the way forthcoming new generation brain development. Some of the areas are as follows:

- Attentiveness and attention—

  Many studies showed that we relay on internet and mobile phones for our many things which is decreasing our attention towards many subjects. We often miss conversation with person sitting next to us as we are busy and mesmerized with many other augmented and virtual reality things. Of course all these affects our attention span and it comes with its consequences.
- Ability of decision making—

  Here we will take a simple example, if we are planning for dinner then what first in mind is open internet and start search for best restaurant near by me. Or other examples if we want to buy a car, again we go and search review for certain cars. It shows that instead of manual gathering of information is now very less role like previous and which is replaced by facts and knowledge for making the informed decisions.
- Memory—

  Our life is being now a days dependent on our computers, smart phones, tablets. The reason for this is we simply relay on phonebook for phone number of of our near and dear ones. Shopping apps has add to cart so need not to memories what we will be requiring, imagination is reduced due to virtual reality and augmented reality. By taking thousands and millions of photo and saving it on internet made our memory dictionary easy but forgetful too. While typing because of auto correction basic spellings we are tending to forget.
- Relationship—

  If we are with our family members for dinner, and we texting to our close friend in Canada and also making tweet acquaintances about activities in Japan, so in this case are we are giving our full involvement in any single relationship? Many thinks that internet is boon to us but we have to awake before it makes our deep relationship uncomfortable or make isolated form close contacts. It mainly applicable to new upcoming generations.

- **Conclusion—**

From above discussion we can say that the concept of artificial intelligence, augmented reality, virtual reality, computer vision are based on human psychology. Cognitive behavior of human is studied deeply and accordingly algorithms formed to invent new machines. Now these machines are performing at faster pace, requires little attention, accuracy rate is also higher. Many sectors have changed their traditional method of working and accepted the newer modern digitalized technologies. And results are much more better.

But along with advantages there are disadvantages also. But this depends on us how far we go along with digital world. Ethical use of all these technologies will be definitely help us in future. Because human being chooses which data to be used to train the artificial intelligence in machine, so after all it depend on human only. Because internet addiction is commonest example, despite of all these potential risks, there are certain regulations are coming up to use of all these modern technologies where cognitive process and technology are together used. Now this is one of the aspect but looking on other side, we have been blessed with all these modern technologies.

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CHAPTER-46

HELMINTHS: CLASSIFICATION, BIODIVERSITY AND ITS SALIENT FEATURES

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INTRODUCTION:

Parasitic worms that inhabit or associate with the intestinal tract (blood, tissue and organs) of humans are referred to as helminths. They receive nourishment and protection by living within the host where they cause disease. The parasitic intestinal helminths can be divided into three groups which include Nematodes (roundworms), Cestodes (tapeworms), and Trematodes (flukes). Helminths share numerous characteristics that contribute to their parasitic quality including the presence of attachment organs. These attachment organs include bothria (sucking grooves: Cestodes or tapeworms, which may also have a rostellum (crown of thorns with hooks); Old World Hookworms: cutting teeth; New World Hookworms: cutting plate. These attachment organs allow these particular helminths to reside within their human host.

The word ‘helminth’ is a general term meaning ‘worm’, but there are many different types of worms. Prefixes are therefore used to designate types: platy-helminths for flat-worms and nemat-helminths for round-worms. All helminths are multicellular eukaryotic invertebrates with tube-like or flattened bodies exhibiting bilateral symmetry. They are triploblastic (with endo-, meso- and ecto-dermal tissues) but the flatworms are acoelomate (do not have body cavities) while the roundworms are pseudocoelomate (with body cavities not enclosed by mesoderm). In contrast, segmented annelids (such as earthworms) are coelomate (with body cavities enclosed by mesoderm).

Helminths are large, multicellular organisms that are visible to the eye once in the adult stage of their life cycle. Many helminths are free-living organisms in aquatic and terrestrial environments whereas others occur as parasites in most animals and some plants. Parasitic helminths are an almost universal feature of vertebrate animals; most species have worms in them somewhere. In their adult form, helminths are unable to multiply in humans and utilize numerous mechanisms of transmission to ensure reproductive success. These parasites live in and feed on hosts which allow them to obtain nourishment while disrupting the hosts’ nutrient absorption. Parasitic worms are commonly found within the intestine and thus, are called intestinal parasites. They are able to live in both humans and animals.

Helminths are worm-like parasites that survive by feeding on a living host to gain nourishment and protection, sometimes resulting in illness of the host. There are a variety of different helminths from the very large to the microscopic.

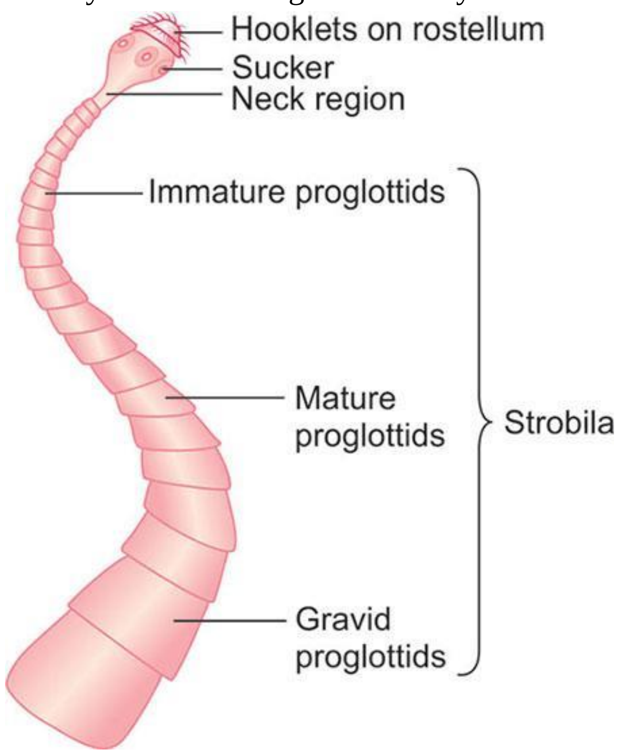
BIODIVERSITY:

Three major assemblages of parasitic helminths are recognized: the Nemathelminthes (nematodes) and the Platyhelminthes (flatworms), the latter being subdivided into the Cestoda (tapeworms) and the Trematoda (flukes):.

I.Cestodes: Cestodes (tapeworms) have long flat ribbon-like bodies with a single anterior holdfast organ (scolex) and numerous segments. They do not have a gut and all nutrients are taken up through the tegument. They do not have a body cavity (acoelomate) and are flattened to facilitate perfusion to all tissues. Segments exhibit slow body flexion produced by longitudinal and transverse muscles. All tapeworms are hermaphroditic and each segment contains both male and female organs. Cestodes or tapeworms are the members of the class Cestoda of the phylum Platyhelminthes. About 6000 species of cestodes are identified as parasites and they are mainly intestinal. They are both marine and terrestrial; vertebrates are the definitive hosts and their intermediate hosts are crustaceans, insects, annelids, mollusks, etc.

The species *Taenia saginata* (beef tapeworm) can grow up to 20 m in length while the largest tapeworm, known as the whale tapeworm, *Tetragonoporus calyptocephalus* can grow up to 30 m or more. Besides these, the smallest parasite, known as vole and lemming tapeworms, can grow up to only 13–240 mm in length. Among the Tapeworms, *Taenia solium, Taenia saginatum, Hymenolepis nana* and *Diphyllobothrium latum* are the most common parasite of human.

Adult Cestodes: Adult cestodes have tape-like, ribbon shaped and segmented body and the length varies from few mm to several meters. They are flattened dorso-ventrally. An adult worm has three regions- Head or Scolex; Neck and Strobila (a trunk or body) consisting of proglottid or segments. Head is provided with attachments. Rostellum is a beak-like projection on the head which carries hooklets. Proglottid or segment is essentially a functional individual, i.e. a complete unit of a tapeworm. A segment is called immature if the male and female reproductive organs are not differentiated, mature if the reproductive organs are differentiated and gravid if the uterus is filled with eggs. These are seen from front to backwards. Mouth, alimentary and body cavity are absent. Glucose or other simple nutrients are absorbed directly from the host gut. Excretory and nervous systems are present.



Reproductive system: Each worm is a hermaphrodite.

(A) Male genital system: It lies on the dorsal surface of each segment and mature before the female genital system. It consists of testes, vas deferens and cirus(penis). The cirus and vagina open into a common genital pore which is on the mid-ventral surface in Pseudollidea and on the lateral border in Cyclophylidea.

(B) Female genital system: It lies on the ventral surface and consists of ovary (single or paired), vagina from genital pore to ootype, uterus which is open in Pseudophyllidea and a blind sac in Cyclophyllidea and Ootype where ovum is fertilized.

Fertilization: It takes place between the segments. It may be a self-fertilization or a cross-fertilization between the segments of same or other worm. Eggs are formed in ootype and are present in large numbers in gravid segments. An egg may be: (a) Operculated has a ciliated epithelium or (b) Non-operculated in Cyclophyllidea. It has two coverings-outer egg-shell and inner embryophore which surrounds the embryo. The formed embryo is a six hooked (hexacanth) sphere called oncosphere or hexacanth embryo. The space between the embryophore and the eggs shell contains yolk material. The following types of larvae are found in cestodes: (a) Cysticercus: The entire larva is transformed into a bladder from which the head or scolex of the worm sprouts. One adult worm develops from each scolex. This consists of a bladder with one scolex as in *Taenia saginata and Taenia solium*.; (b) Hydatid cyst: This is the cystic larval form. A bladder multiplies through the process of budding and produces many bladders. On the wall of these cysts, brood capsules are produced, inside which the scolices as in *Enterococcus granulosus*. (c) Cysticercoid: The entire larva is solid containing a scolex, e.g. in *Hymenolepis nana*. (d) Plerocercoid and procercoid are found in fish tapeworm.

Economic Importance of Cestodes:

The most of the tapeworms are the harmful organisms. They are the parasitic worms and they are found in the intestine of human (adult form) and cattle (larval forms). Both the tapeworms and bladder worms contribute to loss of meat production of cattle throughout the world. Besides these, they have a few economic importance. In some cases, the tapeworms act as natural fertilizing agent and help to increase the fertility of the soil.

Classification of Cestodes: According to Habitat, the cestodes are the following types:

A. Intestinal Tapeworms: Adults live in intestine of human: *Taenia saginata* (Beef tapeworm);*Taenia solium* (Pork tapeworm)**;** *Hymenolepis nana* (Dwarf tapeworm)**;** *Hymenolepis diminuta* (Rat tapeworm)**;** *Diphylobothrium latum* (Fish tapeworm)**;** *Diphylidium carinum* (Double-pored Dog tapeworm).

B. Tissue Tapeworms-Larval Stage: Hydatid cyst of *Echinococcus granulosus* (Dog tapeworm), *E. Multilocularis*Cysticercus cellulose of *Taenia solium*.

II.Trematodes: Trematodes (flukes) have small flat leaf-like bodies with oral and ventral suckers and a blind sac-like gut. They do not have a body cavity (acoelomate) and are dorsoventrally flattened with bilateral symmetry. They exhibit elaborate gliding or creeping motion over substrates using compact 3-D arrays of muscles. Most species are hermaphroditic (individuals with male and female reproductive systems) although some blood flukes form separate male and female adults.

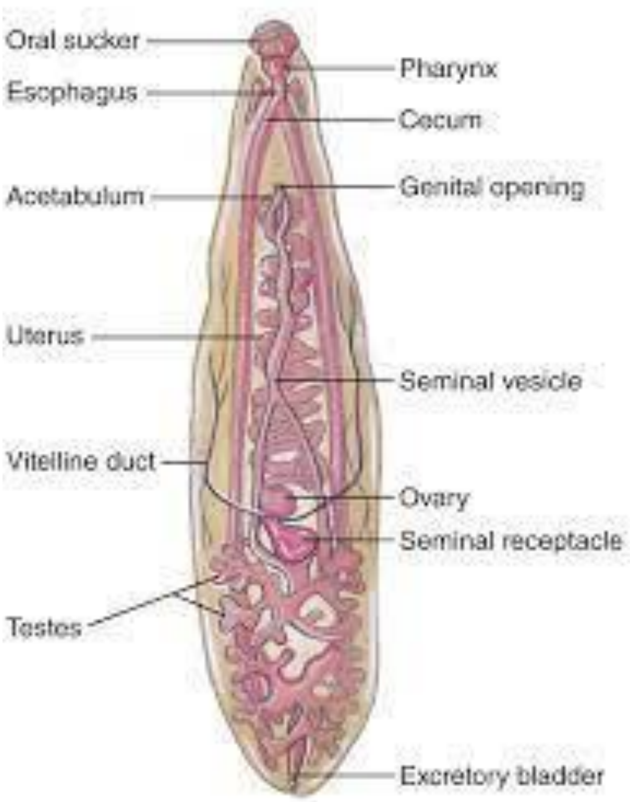
Characters: Body is dorso-ventrally flattened, unsegmented and leaf-like. All organs are embedded in parenchyma and there is no body cavity. Suckers/hooks or clamps are present to attach to the host. The mouth(oral aparture) and alimentary canal is present but no anus. Mouth leads to muscular pharynx, oesophagus followed by two (branched or unbranched) branched caeca. The branched excretory system has flame cells and it discharges the waste product into excretory bladder, which usually has a posterior opening. All trematodes are hermaphrodites except the members of the family "Schistosmatidae", which are unisexual. The life cycle is usually indirect in Digenea and direct in Monogenea.

Three subclasses under the class Trematoda are:

Subclass: Aspidogastrea: Most of them have only one host, a mollusc. Few are found in turtle and fishes with molluscs and lobsters as intermediate hosts, but none are found in domestic animals. Adhesive organs on ventral side known as "Baer's disc" or "opisthaptor".

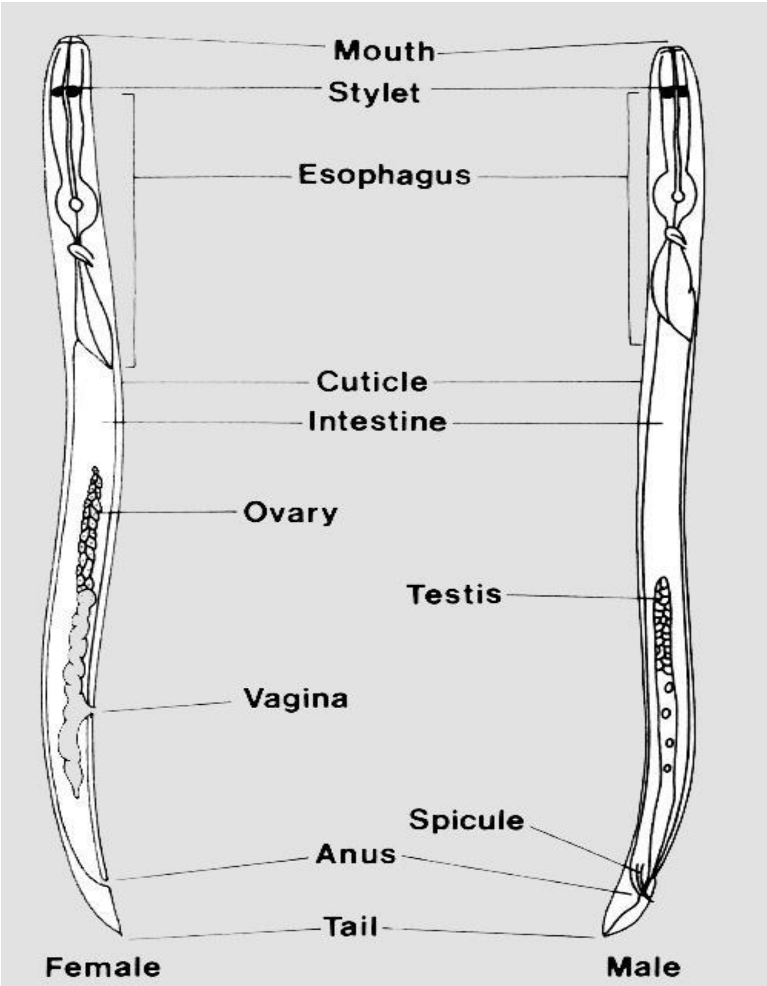
Monogenea: Parasites of cold aquatic vertebrates, fishes, amphibians and reptiles. Most of them are ectoparasite. None on domestic animals. Life cycle is direct. They have posterior adhesive organ called as 'HAPTOR' which serves as suckers, clamps or hooks. They are oviparous or viviparous.

Digenea: All the species are parasitic in animals, birds and humans. They have 2 suckers. Oral suckers Found on dorsal side of the anterior end. Ventral sucker Found on ventral surface. Life cycle is indirect. It requires one or two intermediate hosts. Invariably Snail act as first Intermediate host. Common forms of Adult digenetic Trematodes *Distome,Monostome, Gasterostome,Amphistome,Echinostome,Strigeoid,Schistosome.*



III.Nematodes: Nematodes (roundworms) have long thin unsegmented tube-like bodies with anterior mouths and longitudinal digestive tracts. They have a fluid-filled internal body cavity (pseudocoelum) which acts as a hydrostatic skeleton providing rigidity (so-called 'tubes under pressure'). Worms use longitudinal muscles to produce a sideways thrashing motion. Adult worms form separate sexes with well-developed reproductive systems.

The organisms belonging to the phylum Nematoda are also known as "roundworms". There are 28000 species of Nematoda identified till date. They are unsegmented vermiform animals. The epidermis has dorsal and ventral nerve cords.



Characters: Nematodes are widely distributed, aquatic, terrestrial, parasitic or free-living. Body is elongated, cylindrical, unsegmented, worm-like, bilaterally symmetrical and tapering at both ends. Nematodes are triploblastic animals with perivisceral cavity more extensive than that of platyhelminths. The body is of organ -system grade organization. The body is generally covered with thick, flexible multi-layered collagenous cuticle and often bears cuticle setae (hairs), spines or annulations. Roundworm have cellular or syncytial epidermis I.e. the nuclei are not separated from each other by cell membranes. They consist of only longitudinal muscle fibers with four bands. Nematode lack true coelom. The body cavity is pseudocoel or blastocoel not lined by mesoderm and filled with parenchyma in most cases. They lack cilia. circulatory and respiratory systems are absent. i.e. respiration occurs through general body surface and aerobic in free-living form and anaerobic in parasitic form. Internal cephalization is present but externally there is little differentiation between the anterior and posterior region. i.e. distinct head is lacking. However, the mouth is present in the anterior region. The digestive system is complete with a distinct mouth and anus. Muscular pharynx and the inner surface of the gut usually not lined by cilia. Extracellular digestion occurs in them. The mouth is surrounded by six lips. Excretory without flame cell and nephridia. In the class Adenophorea glandular renette cells with the duct. The nervous system is not much developed. i.e. consists of circucumpharyngeal ring and longitudinal nerve cord. Sense organ are poorly developed in the form of papillae, which are well defined as amphid (in mouth) and plasmid (anus). Sexes are separate (gonochoristic). the male is smaller than females. Tubular gonad is present in them. Male genital duct leads into the cloaca. Female genital ducts with a separate opening. Amoeboid sperm cells. No asexual reproduction. Fertilization is internal or maybe cross or self. Development may be direct, with or without an intermediate host or indirect. Various lateral lines and pores are present on the surface of the body.

Classification of Nematodes:

Nematoda are among the most numerous of any phylum. About 15,000 species of nematodes are known at present. Due to much diversity in form and structures difficult to classify. Chitwood (1933) divided them into 2 classes phasmidia and Aphasmidia on the basis of presence and absence of phasmids.

Nematodes are classified into the following classes:

1. Phasmidia or Secernentea: Unicellular, pouch-like sense organs called plasmids are present.Pore-like amphids. These are mostly parasitic.Caudal glands are absent.The excretory system has paired lateral canals. Weekly developed mesenterial tissue**.** Eg., *Ascaris*, *Enterobius*.

The class Phasmidia is divided into the following orders:

i. **Rhabditida:** They have smooth and ringed cuticle. There is a posterior lobe at the pharynx. They are free-living and parasitic. Males have copulatory spicules. Eg., *Rhabditis*
ii. **Strongylida:** They are vertebrate parasites devoid of lips. The pharynx has no bulb. They have a well-developed buccal capsule. They possess a true copulatory bursa. For eg., *Strongylus*
iii. **Oxyurida:** They can be small or moderate in size. Males have copulatory spicules. Caudal alae are present. They can be invertebrates or vertebrates. The mouth consists of 3-4 simple lips. For eg., *Oxyuris*
iv. **Ascaridida**: These are oviparous, large stout nematodes living as parasites in the intestine of the vertebrates. The pharynx may or may not contain a posterior bulb. Mouth possess 3 prominent lips. There is no buccal capsule. For eg., *Ascaris*
v. **Spirurida:** These are thread-like organisms that vary in size from moderate to large. The pharynx is devoid of bulb. The females are larger than males and can be oviparous or viviparous. The mouth contains two prominent lips. For eg., *Spirura*
vi. **Trichuroida:** These are commonly known as whip-worms. They possess a slender pharynx. The mouth is devoid of lips. For eg., *Trichuris*
vii. **Camallanida:** These are oviparous, thread-like organisms. The males have no bursa. The bursa of adult females is degenerated. For eg., *Camallanus*

2. Aphasmidia or Adenophorea: Phasmids (causal sensory organs) are absent. Amphids (anterior sense organs) of various types, rarely pore-like. They are free-living organisms.The excretory system has no lateral canals. Caudal glands are present.Well-developed mesenterial tissue**.** Eg., *Capillaria, Trichinella*

The class Aphasmidia or adenophorea is divided into the following orders:

i. **Enoplida:** They are mostly marine. The cuticle contains bristles. These are Cyanthiform amphids. For eg., *Anticoma*
ii. **Dorylaimida:** The cuticle is smooth without any bristles. These are mostly terrestrial. The buccal cavity consists of a protrusible spear. It consists of 6-10 labial papillae. For eg., *Trichodoris*
iii. **Mermithida:** The cuticle is smooth. Amphids are reduced. In the larval stage, they live as parasites, whereas, the adult stage is free-living. For eg., *Mermis*, *Agamermis*
iv. **Chromedorida:** The cuticle is smooth or ringed. The cuticle is devoid of any bristles. There is a posterior bulb at the pharynx. They are free-living or marine. For eg., *Paracanthonchus*
v. **Desmoscolecida:** The cuticle is ringed with prominent bristles. There are four sensory bristles at the anterior end. They are marine or free-living. For eg., *Desmoscolex*
vi. **Monohysterida:** The cuticle is smooth, ringed and contains bristles. They possess circular amphids. They can be marine, freshwater, or terrestrial. For eg., *Monohystera*
vii. **Araeolaimida:** The cuticle is smooth and might or might not contain bristles. The amphids are spiral. They possess labial papillae. For eg., *Plectus*

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CHAPTER-47

A STUDY OF WATER SOLUBLE FERTILIZERS AND MICRONUTRIENTS ON LEAF AREA DURING THE GROWING PERIOD OF GRAND NAIN CULTIVAR OF BANANA

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ABSTRACT

During the present studies different treatments of water soluble fertilizers were applied to the plants of test banana cultivar during two trial years. From the results it is clear that application of all treatments of the water soluble fertilizers found to be stimulatory for increasing the leaf area of during both the trial years. Application of M2 treatment along with micronutrients was found to be superior treatment for increasing the leaf area. It was interesting to know that the leaf area was found to be superior in both the trial years.

Introduction

The banana (*Musa paradisiaca* L.) an important fruit crop of the world. It is consumed by human beings since centuries long back. It is known to be mans first food and hence called it as Adams fruit. It is highly nutritious. It is cheap and hence nicknamed as **poor man's apple**. Apart from using banana as food, the fruit, leaves and other plant parts are used in several occasions and religious purposes. It is evident from the literature that there are about 250-300 cultivated banana varities in India. About 90 per cent farmers in Nanded district used to grow grand nain cultivar. Grand Nain is suitable for Nanded region in terms of vigour, yield, quality and long shelf-life. The yield and quality of banana requires vegetative growth and good vegetative growth requires recommended dose of macro and micronutrients. The macronutrients (Nitrogen, Phosphorous and Potassium) promote vegetative growth and production. The micronutrients in small dose promote enzymatic activities and synthesis resulting into high yield and quality (Kumar, 2002, Das, 2003). Considering these facts the research topic entitled **Effect of Water Soluble Fertilizers and Micronutrients on Banana (*Musa paradisiaca* L.) Productivity** was selected for the present studies.

Materials and Methods

During the present studies different treatments of water soluble fertilizers were applied to the plants of test banana cultivar during two trial years. The plants under conventional method of application of fertilizers were served as control during both the trial years. During the present studies length of a leaf measured from the base of the leaf petiole to the top width of the leaf was measured at the maximum width of leaf lamina. The leaf area was calculated as the multiplication of length and width with leaf area factor 0.8 as recommended by Obeifuna and Ndubizu (1979). The result are presented in table – 1 and 1a. Both the leaf area and the total leaf area per plant were calculated by using the formulae as:

1. Leaf area=length of a leaf x width of leaf x 0.8 factor.

2.Total leaf area per plant = leaf area x total no. of leaves per plant

Treatment Details:

Table- Details of application schedule of fertilizers

Treatments	**Treatment Details**
I. Main Plot treatments	
M_1	50 % RDF through WSF (12:61:00, 13:0:45 and Urea)
M_2	75 % RDF through WSF (12:61:00, 13:0:45 and Urea)
M_3	50% RDF through WSF (Urea, Orthophosphoric acid and White potash)
M_4	75% RDF through WSF (Urea, Orthophosphoric acid and White potash)
M_5	100 % RDF through soil application (Urea, SSP and MOP)
II. Sub-Plot treatments	
S_0	Without micronutrients
S_1	With micronutrients
Replications	4 (Four)
Design	Split plot Design (SPD)
Year (Seasons)	Two (2015-16 and 2016-17)
Location	A/P Pardi (Mukta) Tq. Ardhapur Nanded district of Maharashtra sta
Crop and Cultivar	Banana Cv. Grand Nain
Spacing	Row to row 1.8 meters and plant to plant 1.5 meters
Number plants/treatment	16
Total number of plants	640
Total number treatments	10 (Main plot treatments 5 x Sub-plot treatments 2)

WSF = water soluble fertilizers through fertigation

RDF = Recommended Dose of Fertilizer (200:160:200 grams NPK per plant)

NPK=Nitrogen, Phosphorous and Potasssium

SSP=Single Super Phosphate

MOP=Murate of potash

Results and Discussions

From the results presented in table - 1 and 1a it is evident that all the water soluble fertilizer treatments (M_1, M_2, M_3 and M_4) with micronutrients (S_1) applied to test banana plants were found to be stimulatory for the increase in total leaf area as compared to controlled conventional fertilizer treatment during both the trial years.

It is clear from the results that the plants applied with treatment M_2 were found to be with more total leaf area (16.21 sq. m., 18.40 sq.m.) and the plants applied with treatment M_3 were found to be with very less total leaf area (14.48 sq. m., 16.54 sq. m.) after nine months of planting during both the trial years as compared to the other treatments M_1 and M_4. During present studies increase in leaf area might be due to increased rate of photosynthesis stimulated by the influence of fertigation at different levels. The drip fertigation might have tend to active absorption and utilization of plant nutrients. The work on the same line is carried out by different workers like Shrivastava (1970), Arora and Singh (1970), Singh and Rajput (1976), Das and Mohan (1993), Subramanian and Pillai (1997), Kaniszewski et al. (1999), Ram and Bose (2000), Haque et al. (2000), Singh and Singh (2002), Singh et al. (2005), Yadlod and Kadam (2008), Kumar and Pandey (2008), Bhakare and Fatkal (2008), Khalid and Rashid (2009), Yadav et al. (2009), Hazarika and Ansari (2010), Pathak et al. (2011), Modi et al. (2012), Kumar et al. (2012), Patil and shinde (2013) and Hussain et al. (2017).

Table-1: Studies on application of water soluble fertilizers and micronutrients in relation to total leaf area during growing period of Grand Nain cultivar of Banana.

Treatments	**Total leaf area at harvest (m^2)**		
	Ist year	**IInd year**	**Pooled**
Main Plot treatments: Water soluble fertilizer treatments (M)			
M_1	14.90	16.99	15.94
M_2	16.21	18.40	17.31
M_3	14.48	16.54	15.51
M_4	15.11	17.15	16.13
M_5	13.00	15.05	14.03
S.Em. ±	0.60	0.56	0.29
CD@5%	1.84	1.74	0.82
Sub Plot treatments: Micronutrient treatments (S)			
S_0	13.52	15.67	14.59
S_1	15.96	17.99	16.97
S.Em. ±	0.11	0.16	0.18
CD@5%	0.34	0.49	0.52
Interactions			
M×S			
S.Em. ±	1.25	1.37	1.41
CD@5%	NS	NS	NS
Y×M			
S.Em. ±			0.41
CD@5%			NS
Y× S			
S.Em. ±			0.26
CD@5%			NS
Y×M×S			
S.Em. ±			0.58
CD@5%			NS
CV.	12.46	11.93	12.36
GM.	**14.74**	**16.83**	**15.78**

: Significance and at par values of total leaf area based on statistical analysis resulted by the treatments of water soluble fertilizers and micronutrients during growing periods of Banana cultivar Grand Nain

Total leaf Area								
Year/ Pooled	**Main Plot**					**Sub Plot**		**Interactions**
I Year	M_2	M_4	M_1	M_3	M_5	S_1	S_0	NS
	16.21	15.11	14.90	14.18	13.00	15.96	13.52	
II Year	M_2	M_4	M_1	M_3	M_5	S_1	S_0	NS
	18.40	17.15	16.99	16.54	15.05	17.99	15.67	
Pooled	M_2	M_4	M_1	M_3	M_5	S_1	S_0	NS
	17.31	16.13	15.94	15.51	14.03	16.97	15.56	

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CHAPTER-48

A COMPARATIVE STUDY OF SBI AND ICICI BANK

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Introduction

Banking sector is the backbone of any country's economy and important role play in our society without it is not possible to imagine the economic development of any country. During the Corona period, there was no such area which was not affected by this epidemic in which agriculture, business, banking, education etc. were mainly affected. Finance is the blood of our society and that procedure and growing system are needed for every sector. The Bank (Government and private) always tried to better living of high standard to society and life easy to work and run without any hurdle. At the present time bank are facilities lots of services and try to get customers satisfaction.

SBI Bank Profile

State bank of India is the first bank of India which was establish in 1806 at Calcutta and their head office in Mumbai. Over of period of time evolved in to SBI. It is the oldest and popular bank in our Indian society which is representing great legacy.SBI provides lots of services and facilities in terms of deposits. Profit, branches, number of customers and employee satisfaction etc. Total numbers of employee 2,45,642, total number of branch 22219 in India, 62617 ATMs, 45.92 Crores customers are getting their fruitful services.101 zonal office located in important cities and 17 local head offices.

ICICI Bank Profile

ICICI (Indian credit and investment corporation of India) bank is the third leading private bank of India which was founded 5th January 1948.the present company formed in 1955 with the joint venture of World Bank and their Head quarter situated in vadodara. It offers lots of product and giving financial service to retail and corporate customers. The bank has 5288 branches, 13723 ATMs, 1.4 million active customers and total number of employee are 97354 across the India.

Objective of Study

- To compare the financial performance of SBI and ICICI Bank.
- To study the financial performance of SBI and ICICI Bank.
- To study selected year 2016-17 to 2020-21 for financial performance of SBI and ICICI Bank

Research Methodology

This is study based on secondary data. This has been collected from annual reports of SBI and ICICI bank from 2016-17 to 2020-21 and analyzed and compare financial performance of Public Sector (SBI Bank) and Private Sector (ICICI Bank).

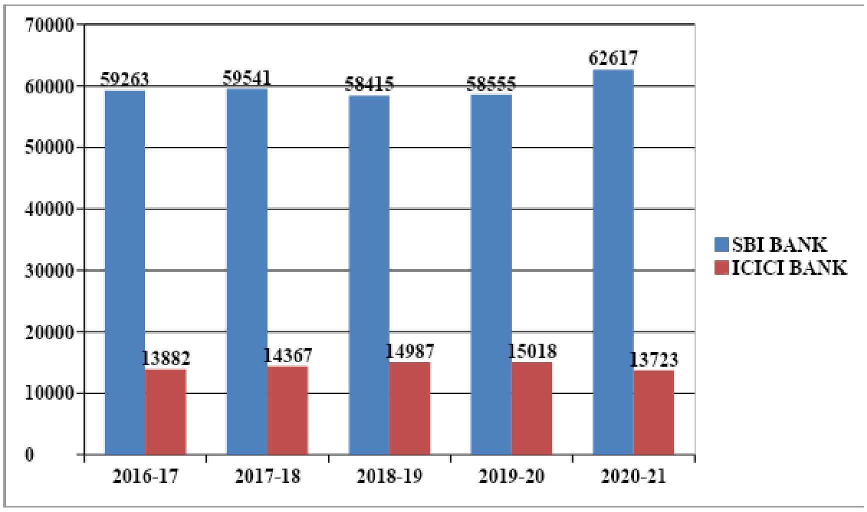
Analysis of the study

Number of ATM of SBI and ICICI

Table-1

Year	SBI		ICICI	
	Numbers	Additional made	Numbers	Additional made
2016-17	59263	-	13882	-
2017-18	59541	278	14367	485
2018-19	58415	(1126)	14987	620
2019-20	58555	140	15018	31
2020-21	62617	4062	13723	(1295)

Source-Annual Reports of SBI and ICICI Bank



(Graph-1) Graphical Presentation of total numbers of ATM Branches

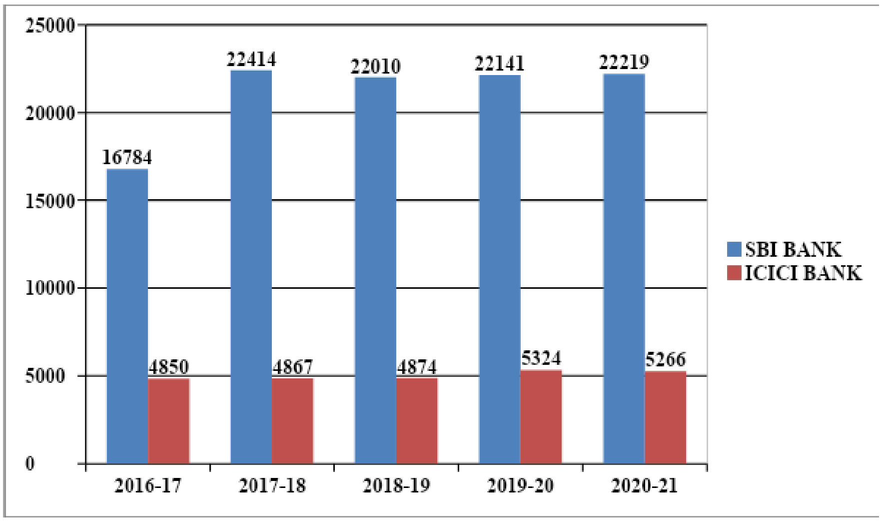
As per Table and graph-1 find out that SBI ATMs 278 Branches increase in the year 2017-18 but 2018-19 ATMs branches 1126 decrease and after that increase from the year 2019-2021 are140 to 4062 and ICICI ATMs Branches increase from the year 2017-2020 but in the year of 2021 decrease 1295 ATMs Branches so as compare of number of ATMs branches SBI bank position is good but ICICI bank condition is poor. So as per the above analysis finally find out that SBI Bank year by year continually growth as compare to ICICI Bank while SBI is Government and ICICI bank Private.

Numbers of Branches of SBI and ICICI Bank

Table-2

Year	SBI		ICICI	
	Numbers	Additional made	Numbers	Additional made
2016-17	16784	-	4850	-
2017-18	22414	5630	4867	17
2018-19	22010	(404)	4874	7
2019-20	22141	131	5324	450
2020-21	22219	78	5266	(58)

Source-Annual Reports of SBI and ICICI Bank



(Graph-2) Graphical Presentation of total numbers of bank Branches

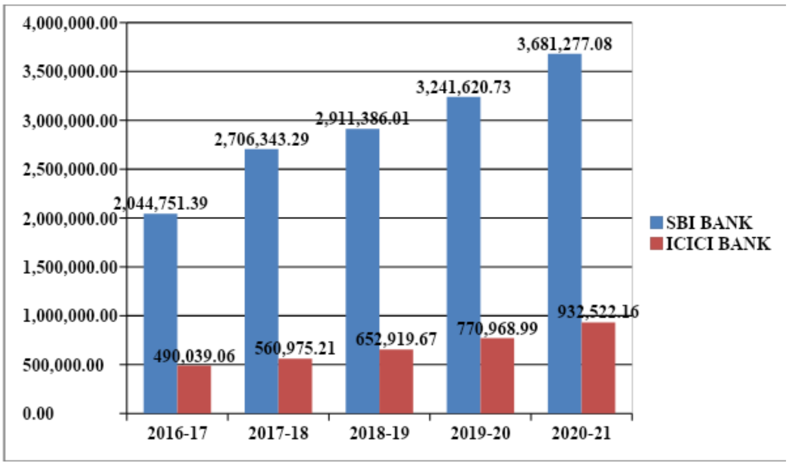
As per the Table and graph-2 find out that SBI bank Branches **5630 (33.54%)** increase in the year 2017-18 but 2018-19 SBI bank branches 404(1.81%) decrease and after that increase from the year 2019-2021 are **131(0.60%)** and **78 (0.35%).** ICICI bank **17 (0.35%)** in the year of 2017-18 and **7 (0.14%)** branches in the year 2018-19 and **450 (9.23%)** branches increase in the year 2019-20 but **58 (1.09%)** branches decrease in the year 2020-21. so as compare of number of bank branches, SBI bank position is good but ICICI bank condition is poor. So as per the above analysis finally find out that SBI Bank year by year continually growth as compare to ICICI Bank

Deposits of SBI and ICICI Bank

Table-3

Year	SBI		ICICI	
	Total Deposit(Crores)	Additional made	Total Deposit(Crores)	Additional made
2016-17	2,044,751.39		490,039.06	
2017-18	2,706,343.29	661591.9	560,975.21	70936.15
2018-19	2,911,386.01	205042.72	652,919.67	91944.46
2019-20	3,241,620.73	330234.72	770,968.99	118049.32
2020-21	3,681,277.08	439656.35	932,522.16	161553.17

Source-https://www.moneycontrol.com/financials/statebankindia/balance-sheetVI/SBI
https://www.moneycontrol.com/financials/icicibank/balance-sheetVI/ICI02



(Graph-3) Graphical Presentation of total Deposits

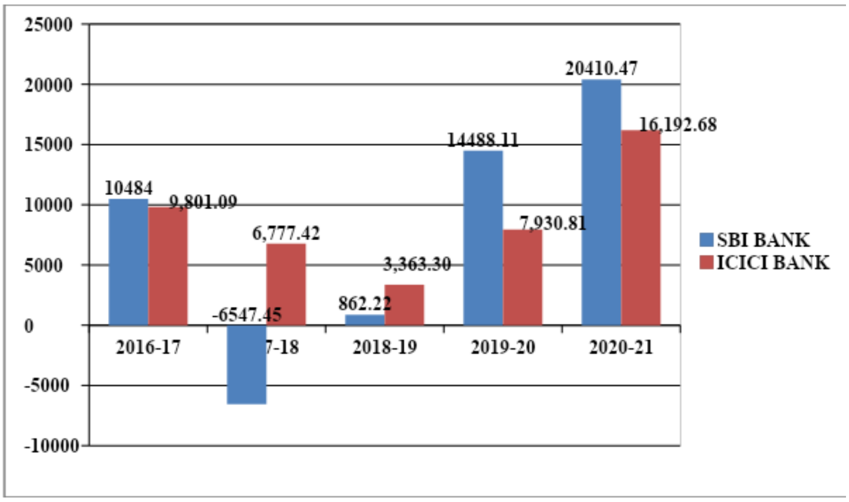
As per the Table and graph-3 find out that SBI bank Deposit **6, 61,591.9 Crores (3.24%)** in the year 2017-18. Deposit 2018-19 is **205042.72 Crores(7.58%).** Deposit 2019-20 is **330234.72 Crores (11.34%)** and Deposit 2020-21 is **439656.35 Crores (13.56%)** Additional increase. ICICI bank Deposit **70936.15 Crores (14.48%)** in the year 2017-18. Deposit 2018-19 is **91944.46 Crores(16.39%).** Deposit 2019-20 is **118049.32Crores (18.08%)** and Deposit 2020-21 is **161553.17 Crores (20.96%)** Additional increase. So as compare of Deposit of SBI bank position is good but ICICI bank position is weak. The above analysis finally finds out that SBI Bank Deposit year by year continually growth as compare to ICICI Bank.

Net Profit after Tax of SBI and ICICI Bank

Table-4

Year	SBI		ICICI	
	Total N.P.A.T(Crores)	Additional made	Total N.P.A.T(Crores)	Additional made
2016-17	10484	-	9,801.09	-
2017-18	(6547.45)	(3936.55)	6,777.42	(3023.67)
2018-19	862.22	862.22	3,363.30	(3414.12)
2019-20	14488.11	13625.89	7,930.81	4567.51
2020-21	20410.47	5922.36	16,192.68	8261.87

Source-https://www.moneycontrol.com/financials/statebankindia/profit-lossVI/SBI
https://www.moneycontrol.com/financials/icicibank/profit-lossVI/ICI02



(Graph-4) Graphical Presentation of Total Net profit after Tax

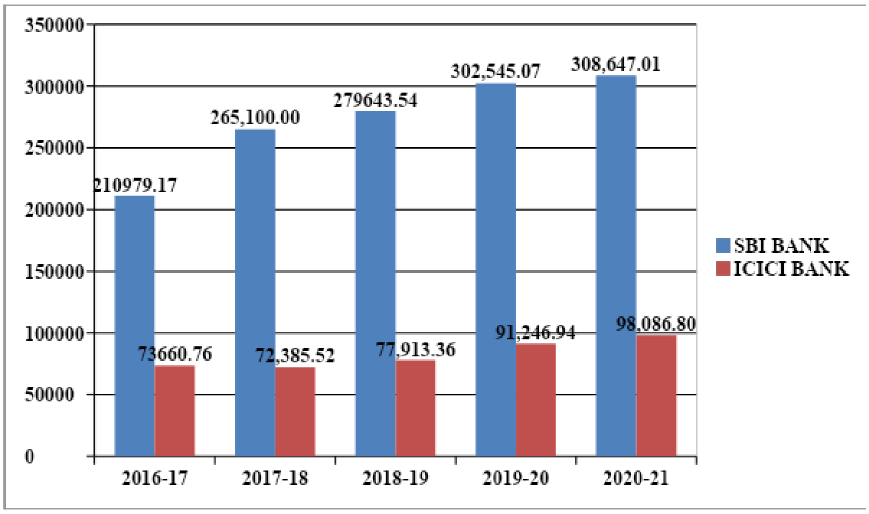
As per the Table and graph- 4 find out that SBI bank NPAT **3936.55 Crores (37.54%) Additional decrease** in the year 2017-18. NPAT 2018-19 is **862.22 Crores(13.16%).** NPAT 2019-20 is **13625.89 Crores** and NPAT 2020-21 is **5922.36 Crores (40.87%)** Additional increase. ICICI bank NPAT **3023.67 Crores (30.86%)** in the year 2017-18. NPAT 2018-19 is **3414.12 Crores(50.37%) Additional decrease.** NPAT 2019-20 is **4567.51 Crores (135.80%)** and NPAT 2020-21 is **8261.87 Crores (104.17%)** Additional increase. So as compare of NPAT of SBI bank position is good but ICICI bank position is weak. The above analysis finally findout that SBI Bank NPAT year by year continually growth as compare to ICICI Bank.

Total Income in SBI and ICICI Bank

Table-5

Year	SBI		ICICI	
	Total Income (Crores)	Additional made	Total Income	Additional made
2016-17	210979.17	-	73660.76	-
2017-18	265,100.00	54120.83	72,385.52	(1275.24)
2018-19	279643.54	14543.54	77,913.36	5527.84
2019-20	302,545.07	22901.53	91,246.94	13333.58
2020-21	308,647.01	6101.94	98,086.80	6839.86

Source- https://www.moneycontrol.com/financials/statebankindia/profit-lossVI/SBI
https://www.moneycontrol.com/financials/icicibank/profit-lossVI/ICI02



(Graph-5) Graphical Presentation of Total Income

As per the Table and graph-5 find out that SBI bank Total income **54120.83 Crores (25.65%)** in the year 2017-18. Total income 2018-19 is **14543.54 Crores(5.48%).** Total income 2019-20 is **22901.53 Crores (8.19%)** and Total income 2020-21 is **6101.94 Crores (2.01%)** Additional increase over there ICICI bank Total income **1275.24 Crores (1.73%)** Additional decrease in the year 2017-18. Total income 2018-19 is **5527.84 Crores(7.64%).** Total income 2019-20 is **13333.58 Crores (17.11%)** and Total income 2020-21 is **6839.86 Crores (7.50%)** Additional increase. So as compare of Total income of SBI bank position is good but ICICI bank position is weak. The above analysis finally finds out that SBI Bank Total income year by year continually growth as compare to ICICI Bank.

CONCLUSION

Banking system is required to manage and progress of any nation. Banking system is most important part of our society whether it is a common person or rich person or a poor person. all types of people need baking system.SBI banking system and management in the case of Net profit after Tax, ATMs Branches, Total income and Deposit wise as compare SBI bank is greater than ICICI bank. As per the above facts and data analysis ATMs, Collection, Deposits, NPAT SBI is in winning position but we see the graph and figures of SBI then is moving up and down. Both and others banks activities implementation is most important for us.

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CHAPTER-49

WILD EDIBLE PLANTS OF AMBEGAON AREA, PUNE DISTRICT, MAHARASHTRA, INDIA

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Abstract:
The current investigation is different wild edible plant use by tribal peoples as a food. The field survey was carried out in Ambegaon region of Maharashtra state. Local people were using plants using plant part root, stem, leaves, fruit, seeds and whole plants use food commonly occurring in this area. The wild vegetable also has medicinal value and hence food supplement they also act as nutritional supplement to the people of this area. Total 86 plant species belonging 52 families were documented uses food in the area.
Keywords: *wild edible, fruit, food, supplement.*

INTRODUCTION:

Wild edible plants used as a food source (Kiran et al., 2019). Wild edible plants are also a part of natural vegetation, which helps to preserve the ecological balance of the environment. All of today's common vegetables and fruits were previously wild plants that were cultivated and enhanced by our forefathers for their nutritional value. The diversity of wild food plants available for usage was noted throughout these studies, which included data on wild uses of the plants consumed by people. For vegetarians, eating wild edible plants is a major source of vitamins and micronutrients. Their knowledge of these edible plants is an important component of their culture.

Earlier investigations on wild edible plants and their uses were conducted by a variety of researchers. Kar A and Borthakur SK, (2008), Kuvar S D and Shinde R D (2019) , Deshpande S., Joshi R., and Kulkarni, D. K. (2015), Sinha R. and Lakra V., (2005), Patil M. V and Patil D. A. (2000), Mishra A., Swamy S.L., Thakur T.K., Bhat R., Bijalwan, A., Kumar A. (2021). Panta S., Parajulee D., Subedi G., Giri B., (2021)

METHODOLOGY:

STUDY AREA:

Ambegaon tehsil is located in the northern zone of the Pune District of Maharashtra state. This region extends between 19°2′ 5″ north latitudes and 73°50′11″ east longitudes. The total villages 142, cities Manchar and Ghodegaon. The human population according to the 2001 census approximate 2,13,842 and tribals population 42,907 percentage of total population to the tribal population 20.06 %. The total area is approximately 87,851 hectors. Adavasi tribes are found in large number in this region. This tehsil falls to the foothill of Sahyadri Mountain range.

The present study has been conducted in two steps:

Step I- A survey was conducted among the tribal peoples of Ambegaon region Pune district during 2019- 2021 to gather knowledge on wild plants used for food.

Step II- Plants of flowering and fruit were identified by the help of Cooke, T. (1958), Hooker, J. D. (1872-1897). The knowledge about the importance of plants species was collected tribals of Ambegaon area.

RESULTS AND DISSCUSSION:

The present study brought knowledge of tribal for use of wild edible plants. The plant specimens have been identified by the flora, the plants species are alphabetically arranged information.

1. *Abelmoschus manihot* (L.) Medic. Family- Malvaceae, Local name- Ran Bhendi, Part used- Fruit, Use- Fruits are used as vegetable.
2. *Alternanthera sessilis* (L.) R. Br. ex DC. Family- Amaranthaceae, Local name-Matala, Part used-Leaves, Use- Leaves are used as vegetable.
3. *Amaranthus viridies* L. Family-Amaranthaceae, Local name- Tandulja, Part used- Whole plant, Use: Whole plant is used as a vegetable.
4. *Amorphophallus commutatus* (Scoot) Engl Family- Araceae, Local name- Shevalkand, Part used- Rhizome, Use- Rhizome is cut into pieces boiled, cooked and eaten as vegetable.
5. *Ampelocissus latifolia* (Roxb.) Planch Family- Vitaceae, Local name-Bahinicha vel, Part used-Fruit, Use- Fruits are eaten.
6. *Argyreia nervosa* (Burm. f.) Bojer Family- Convolvulaceae, Local name- Baswrael, Part used- Leaf, Use- Wheat flour paste is applied over the leaf from both sides and steamed after that chopped to small pieces and fries are made and consumed as food.
7. *Bauhinia purpurea* L. Family- Caesalpiniaceae, Local name- Kowdel, Part used- Leaves, pods, seeds, Uses- Tender leaves are cooked as vegetable. Tender pods are cooked as a vegetable. Seed are Roasted and eaten as food.
8. *Bombax ceiba* L. Family-Bombacaceae, Local name- Kate Savar, Part used- Flower, Use-Flower is used as vegetable.
9. *Boerhavia diffusa* (L.) Hook. Family- Nyctaginaceae, Local name- Punarnava, Part used-Leaves, Use-Leaves are cooked as a vegetable.
10. *Caesullia axillaris* Roxb. Family-Asteraceae, Local name- Bondala, Part used-Leaves, Use- Leaves are used as vegetable.
11. *Capparis zeyalinica* L. Family- Capparidaceae, Local name- Waghati, Part used- Fruit, Use- Cooked fruits are eaten as vegetable.
12. *Canavalia gladiata* (Jacq.) DC. Family- Fabaceae, Local name - Jungli abhui, parts used-Fruit, Use- Fruits are used as vegetable.
13. *Carissa carandas* L. Family- Apocynaceae, Local name- Karvand, Parts used- Fruit, Use-Fruits are eaten.
14. *Cassia tora* L. Family- Caesalpiniaceae, Local name-Tarota, Part used- Leaves, Use-Tender leaves are cooked as a vegetable.
15. *Catunaregam spinosa* (Thunb.) Tiruveng. Family-Rubiaceae, Local name- Gal, Parts used- Flower, Use- Flowers are cooked and used as vegetable.

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16. *Celastrus paniculatus* Willd. Family- Celastraceae, Local name- Pimpli cha baar, Part used-Flower, Use-Flowers are boiled and water is removed and cooked as a vegetable.
17. *Celosia argentea* L. Family- Amaranthaceae, Local name- Kurdu, Parts used- Leaves, Use- Leaves are used as vegetable.
18. *Centella asiatica* (L.) Urban Family- Apiaceae, Local name- Bramhi, Part used- Leaves, Use-Leaves are crushed to paste and pinch of Pepper and salt is added and mixed to make chutney be eaten.
19. *Ceriscoides turgida* (Roxb.) Tirveng. Family- Rubiaceae, Local name- Pandhara fendra, Part used- Fruit, Use- Raw fruits are chopped into pieces and cooked as a vegetable.
20. *Cheilocostus speciosus* (J. Konig) C. Specht Family- Costaceae, Local name- Pewda, Parts used- Tuber, Use- Tuber is used as vegetable.
21. *Chenopodium murale* L. family- Chenopodiaceae, Local name- Chilni bhaji, Parts used- Entire plant, Use- Entire plant is used as vegetable.
22. *Chlorophytum tuberosum* (Roxb.) Baker Family-Liliaceae, Local name- Dombali, Parts used- Leaves, Use- Leaves are used as vegetable.
23. *Commelina forkalae* Vahl Family- Commelinaceae, Local name- Kulu, Part used- Leaves, Use- Leaves are cooked and eaten as vegetable
24. *Corchorus capsularis* L. Family- Tiliaceae, Local name- Fotakani, Part used- Leaves, Use-Young and tender leaves are cooked as a vegetable.
25. *Cordia dichotoma* Forst. f. Family-Ehretiaceae, Local name-Bhokar, Parts used- Inflorescence and fruits, Use- The inflorescence is used as vegetable and fruits are eaten.
26. *Cucumis setosus* Cogn. Family-Cucurbitaceae, Local name- Mekkha, Parts used- Fruits, Use- Fruits are used as vegetable.
27. *Curcuma pseudomontana* Graham Family- Zingiberaceae, Local name- Ran Halad, Parts used- Rhizome, Use- Rhizomes are used as vegetable.
28. *Dendropthoe falcata* (L.f.) Ettingsh Family- Loranthaceae, Local name-Bandgul, Part used-Fruit, Use- Fruits are eaten.
29. *Diasporas wallichii* Hook f. Family- Dioscroreaceae, Local name- Chaichamur, Part used- Leaves and inflorescence, Use- Leaves and young inflorescence are used as vegetable.
30. *Digera muricata* (L). Mart. Family-Amaranthaceae, Local name- Tanduli – Matala, Part used- Leaves, Use-Leaves are used as vegetable.
31. *Diospyros melanoxylon* Roxb. Family-Ebenaceae, Local name- Tembhurni, Parts used- Fruit, Use- Fruits are eaten.
32. *Diplocyclos palmatus* (L.) C. Jeffrey Family-Cucurbitaceae, Local name- Mahadevpind, Part used- Leaves, Use- Leaves are used as vegetable.
33. *Dioscorea bulbifera* L. Family- Dioscoreacene, Local name- Kadukand, Part used- Tuber, bulbils, Use- Boiled tubers and bulbils are eaten.
34. *Dioscorea hispida* Dennst. Family-Dioscoreaceae, Local name- Vaskand, Part used- Tuber, Use- Tuber is eaten.
35. *Embelia basaal* (Roem. & Schult). A. DC. Family-Myrsinaceae, Local name- Ambati, Parts used- Fruit, Use- Fruits are eaten.
36. *Ensete superbum* (Roxb.) Cheesm Family-Musaceae, Local name- Ran-Keli, Part used- Inflorescence, Use- Inflorescence is used as vegetable. Rhizomes are eaten.

37. *Ficus amplissima* Sm. Family-Moraceae, Local name-Payar, Part used-Fruit,
38. Use- Fruits are eaten.
39. *Ficus arnottiana* (Miq.) Miq. Family-Moraceae, Local name- Khadak - Payar, Part used-Fruit, Use- Fruits are eaten.
40. *Ficus racemosa* Linn. Family- Moraceae, Local name- Umber, Part used- Fruit, Use-Ripened fruits are eaten.
41. *Flacourtia indica* (Burm.f.) Merill Family-Portulacaceae, Local name- Bam, Part used-Whole plant, Use- Whole plant is used as vegetable.
42. *Flueggea leucopyrus* Willd. Family-Euphorbiaceae, Local name- Pichrun, Part used-Leaves and fruits,Uses: Leaves are used as vegetable and fruits are eaten.
43. *Gmelina arborea* Roxb. Family-Verbenaceae, Local name- Shivan, Part used- Fruits, Use- Ripe fruits are eaten.
44. *Grewia hirsuta* Vahl. Family-Tiliaceae, Local name- Kirmid, Part used-Fruits, Use- Ripe fruits are eaten.
45. *Holoptelea integrifolia* (Roxb.) Planch. Family- Ulmaceae, Local name- Papada, Part used- Seeds, Use-Seeds are roasted and eaten as food.
46. *Holostemma ada-kodien* Schult. Family-Asclepiadaceae, Local name- Shiri, Part used-flower,Use- Flowers are eaten.
47. *Indigofera cordifolia* Heyne ex Rot Family- Papilionaceae, Local name- Barbada, Part used- Seeds, Use- Dried seeds are ground, chapattis made form flour are consumed.
48. *Ipomoea aquatica* Forsk. Family-Convolvulaceae, Local name- Nali, Parts used- Leaves, Use- Leaves are used as vegetable.
49. *Jasminum malabaricum* Wight Family- Oleaceae, Local name- Kanser, Part used- Fruit, Use- Fruits are sour in taste, they are boiled and eaten as vegetable.
50. *Lantana camara* L. Family- Verbenaceae, Local name- Kaamoni, Part used-Fruits, Use-Ripened fruits are eaten.
51. *Lathyrus sativus* L. Family- Fabaceae, Local name- Lakholi, Part used- Leaves and pods, Use-Tender leaves are cooked as a vegetable. Pods are roasted and eaten.
52. *Limonia acidissima* L. Family-Rutaceae, Local name – Kavath, Part used- Fruit, Use-Ripe fruit is eaten.
53. *Madhuca longifolia* (Koen.) Mac Bride, Family- Sapotaceae, Local name- Moha, Part used- Flower, fruit, Use- Fleshy flowers and fruits are eaten.
54. *Manilkara hexandra* (Roxb.) Dub. Family- Sapotaceae, Local name-Khirni, Part used-Fruit, Use- Ripened fruits are eaten.
55. *Maytenus senegalensis* (Lam.) Excell. Family- Celastraceae, Local name- Bharkad, Part used- Flowers, Use-Young flowers and buds are boiled and then water is taken out and then cooked as a vegetable.
56. *Merremia hederacea* (Burm. f.) Hall. Family- Convolvulaceae, Local name- Diwati, Parts used- Seeds, Use-Seeds are eaten raw and roasted.
57. *Meyna spinosa* Roxb. ex Link., Gewachsk. Family-Rubiaceae, Local name- Aliv, parts used- Fruit, Use- Fruits are eaten.
58. *Momordica dioica* Roxb. ex. Willd. Family-Cucurbitaceae, Local name- Kartule, Part used- Fruit, Use-Fruits are used as vegetable.

59. *Moringa concanensis* Nimmo ex Dalz. and Gibs. Family-Moringaceae, Local name-Jungli Shewaga, Part used- Fruit, Use- Fruits are boiled in water and used as vegetable.
60. *Mucuna pruriens* L. Family- Papilionaceae, Local name- Khajol, Part used- Leaves, Use-Leaves are cooked and used as vegetable
61. *Mukia maderaspatana* (L.) Roem. Family-Cucurbitaceae, Local name- Math Ghughri, Part Used-Fruit, Use- Ripe fruits are eaten.
62. *Nicandra physalodes* (L.) Gaertn. Family-Solanaceae, Local name- Ran popati, Part used-Fruit, Use- Fruits are eaten.
63. *Olax psittacorum* (Willd.) Vahl Family- Olacaceae, Local name- Haratfari, Part used-Leaves, Use-Tender leaves and shoots are plucked and boiled and cooked as a vegetable.
64. *Opuntia elatior* Mill. Family-Cactaceae, Local name- Phansavar, Part used-Fruit, Use-The inner part of fruit is eaten.
65. *Oroxylum indicum* (L.) Vent. Family- Bignoniaceae, Local name-Tattu, Part used- flower and fruit, Use-Flowers are boiled and cooked as a vegetable. Fruits are chopped to small pieces and used to make pickle.
66. *Oxalis corniculata* L. Family- Oxalidaceae, Local name-Chihoda Bhaji, Part used-Leaves, Use-Leaves are cooked as a vegetable.
67. *Pergularia daemia* (Forssk.) Choiv. Family- Asclepiadaceae, Local name- Utaran, Part used- Fruit, Use- Raw fruits are pilled off and chopped into small pieces and cooked as a vegetable
68. *Persicaria glabra* (Willd.) M. Gomez. Family-Polygonaceae, Local name: Mendi, Part used- Leaves, Use-Leaves are used as vegetable.
69. *Phyllanthus reticulatus* Poir. Family-Euphorbiaceae, Local name- Pichrundi, Part used-Fruit, Use- Ripe fruits are eaten.
70. *Physalis minima* L. Family-Solanaceae, Local name- Phuga, Part used- Fruit, Use- Fruits are eaten.
71. 70. *Piliostigma malabaricum* (Roxb) Bth Family- Ceasalpiniaceae, Local name- Shind. Part used Leaves, Use- Tender leaves cooked and eaten as vegetable.
72. *Portulaca oleracea* L. Family-Portulacaceae, Local name-Bam, Part used- Whole plant, Use- Whole plant is used as vegetable.
73. Pueraria tuberosa (Willd.) DC. Family-Fabaceae, Local name- Shirvala, Part used-Tubers, Use- Tubers are eaten.
74. *Rivea hypocrateriformis* Choisy Family-Convolvulaceae, Local name- Phang, Part used-Leaves. Use-Leaves are used as vegetables.
75. *Schrebera swieteniodes* Roxb. Family-Oleaceae, Local name- Mokha, Part used- Leaves and fruit, Use- Leaves are used as vegetable and fruits are eaten.
76. *Schleichera oleosa* (Lour.) Merr. Family-Sapindaceae, Local name-Koshimb, Part used-Fruit, Use- Fruits are eaten.
77. *Scripus grossus* (L.f.) Palla Family-Cyperaceae, Local name- Kachar Kaandaa, Part Used-Root, Use- Rootstocks are boiled and external layer is scaled and eaten as food.
78. *Semecarpus anacardium* L. f. Family-Anacardiaceae, Local name- Biba, Parts used-Flower thalamus, Use-Ripened thalamus is eaten.
79. *Senna tora* (L.) Roxb. Family-Caesalpiniaceae, Local name- Turtha, part used- Leaves, Use- Leaves are used as vegetable.

80. *Setaria pumila* (Poir) R and S., Family- Poacee, Local name-Kolhu, Part Used-Leaves, Use- Young leaves are boiled and cooked as vegetable
81. *Smilax zeylanica* L. Family- Smilacaceae, Local name- Sherdire, Part used- Shoots, Use- Young tendril and shoots are boiled and cooked as vegetable.
82. *Smithia conferta* J.E. Sm Family- Papilionaceae, Local name- Kawali, Part used- Leaves, Use- Leaves are cooked and used as vegetable.
83. *Sphaeranthus indicus* L. Family-Asteraceae, Local name- Bothada, Part used- Leaves, Use- Young shoots and leaves are used as vegetable.
84. *Sterculia urens* Roxb. Family-Sterculiaceae, Local name- Kahandol, Part used- Seeds, Use- Seeds are roasted and eaten.
85. *Tamilnadia uliginosa* (Retz.) Tirveng. and Sastre Family- Rubiaceae, Local name- Kala Fendra, Parts used- Fruits, Use- Raw fruits are chopped into pieces and cooked as a vegetable. Ripened fruits are eaten.
86. *Terminalia bellirica* (Gaertn.) Roxb. Family- Combretaceae, Local name- Behada, Part used -Seed, Use-Seed testa is removed and cotyledons are eaten as food.
87. *Xanthium strumarium* L. Family-Asteraceae, Local name- Lepadi, Parts Used-Leaves, Use- Young leaves are used as vegetable.

CONCLUSION:

Ethno-botanical research work is enlisting the WEP for consumption tribals. The tribals in the area are dependent on limited agriculture land and local plant products. In this investigation 86 plants belonging 52 families have been documented.

ACKNOWLEDGMENTS:

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CHAPTER-50

RESEARCH AND ITS THEORY PERSPECTIVES AND CORELATION OF MICROBIOLOGY WITH HOMOEOPATHY

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Abstract *– research is important in development of different field of health care sectors and other branches of technologies. Microbiology is the branch of biology where microscopic structure of bacteria, parasite, virus and fungi study in detail, applied microbiology is the branch of medical microbiology which focous on diagnois, therapeutic intervention, prevention and treatment of microbial infection. Different types of human constitutions studied in homeopathy along with its temperament. Based on this individualised homeopathic medicine is given to patient. Pathology is important in selection of medicine, potency and classification of disease. Depend on susceptibility of an individual*

Keyworkd *-Research, Hormones, constitution, Homoeopathy*

INTRODUCTION –

Research is systemic work which is creative in origin utilize for new knowledge in work field.

According to Cambridge dictionary it is detail study of subject to discover the new information or reach new understanding, research includes formation, collection and analysis of data in systemic way to generate knowledge , methodologies and new concepts.

Epistemology is important for approach to research.

Research involves inductive and deductive methods .inductivemethods for qualitative analysis of observed event . and deductive for quantitative analysis.

Types of research- research helps in scientific proving of facts and to validate results with proper methodology .

1. Original or primary research- related to knowledge e.g. – dissertations.
2. Scientific research it is subject related research which includes Observations and formation of the topic, Hypothesis , conceptual and operational definition , Gathering of data, Analysis of data, Data Interpretation followed by Conclusion .

- Quantitative Research. ...here collection of data is mainly based on numbers and graph prepare on the basis on this numbers to quantify research, here we can easily explain results with minimum explanation based on quantity of numbers. Example survey.
- Here data should be valid, accurate, in proper time frame and Reliable.
- Qualitative Research. - it is not basedon numbers but it is mainly based on summary for formation of theories .example case study.

- Analytical Research. - its mainly based on research which is already done on facts are evaluation of material done in this method
- Applied Research- generally it is scientific research which is use for solving practical problems , like daily work , wellbeing, and health issues.
- Fundamental Research. – This is basic research in science, which can be done broadly and share with scientific communities and could be published without restrictions.
- Conclusive Research.- it help in formation of hypothesis for proper result , here proper research methodology design chosen for answer the research topic .
- Empirical research – which is experienced by researchers by their observation and experiences. Here knowledge gain by observation either direct or indirect, it can be quantitative or qualitative research, but conclusion always based on real experiences.
- Flexible research it includes Case study and Ethnographic studies.
- survey are also important part of research.

Research purpose is at early stages proper question should be ask and decision takes

- **Exploratory Research-** it is use innew problem areas which is not explored before , it is not structural and done by asking questions.
- **Descriptive Research -** here we explain, describe, and validate the findings and facts . It based on variable even one is enough .its about expand knowledge on present issues by data collection, here facts are consider and based on it survey and case reports are done.
- **Explanatory Research -** mainly based on understanding the impact of specific changes in existing standard procedures, here causal relationship explained.

For doing **Accurate research** we have to Identify and describe the problem in recent trends and issues. It should be ethical . Find out different opportunities and frequency of problems also Find out possibilities of finding from highest to lowest. Does analysis of problems find out Strength in doing research and weakness of problems. Prepare strategies for conclusions and recommendation of research work, find out efficient methods for analysis and evaluation of results. Work on different references and information for final conclusion. This is statistic which is use for recording of observation and measurement of collected data for research.

There are variable in statistic for its qualitative and quantitative measurement. Different scales are utilize in research for validation of results , there are mainly four types of scales -

Nominal scales – qualitative data

Ordinal scale- qualitative data

Interval scales – for quantitative data

Ratio scale- for quantitative data it measure variable, mainly use for comparison of intervals and differences.

Homeopathy and research –

Homeopathy is alternative and complementary therapy in medicine which is based on principles similia similibus and curenture.

Founder of Homeopathy system is dr. Samuel Hahnemann. He has done lot of research in Homoeopathy like drug proving, potentization of medicine.

Different types of research are going on in homeopathy for its development like Ethnographic studies.

Homeopathic medicine which has been taken from experimental proving , healthy body proving, clinical proving , Proving on healthy animals, Proving on healthy plant, Chemical sources, Imperical sources,Accidental sources, Toxicological sources, Clinical observation,Laboratory experiment,Doctrine of signature.

Homoeopathic system is one one the most important system which helps to cure different types of immunological and infectious diseases , it has offer good medicine to cure the latent or hidden infection by improving immune status of patient . it is basically works on the principle of vital force. Here small amount of potentised medicine given to patient depend on totality of symptoms .

In 19 th century there is lot is inventions occur in different laboratory techniques for identification and measurement of results specifically in immunology and microbiology . Investigations helps to evaluate results of Homeopathic system of medicine .It validate results of the research techniques and selection of scale for Research becomes easy .

Homeopathic medicines shows immune modulator effect on body it suppress the exaggerated immune response which can be clearly studied in cases of rheumatoid arthritis.

Ultimate aim is to improve health status of an individual with the help of similimum medicine.

Different researches in homoeopathy shown that Medicne act at mental and physical level in an individual.

Different Hormones of Happiness and its importance -

Human life is always in want of happiness and happy life, but because of environmental , physical , social and mental factors they have to face tremendous pressure and stress which somehow ruined their happiness .

Basically when we talk about happiness its all about the temperament that is inner me , which has been studied in detail in homoeopathy , we can find various temperaments like sanguineous , phlegmatic, choleric and melancholic temperament . our personality and reactive pattern is mainly denoted by these types .

Human beings personality his reactive pattern depend on hormones which make them happy. Here we are going to discuss about Serotonin, dopamine, oxytocin, endorphin,, estrogen, progesterone , acetyl choline , phenyletrymin, norepinephrine, melatonin, serotonin.

These chemicals and hormones responsible for mood and reactive pattern of human beings .

Happiness hormones are essential for contentment and healthy life

Dopamine- This is reward hormone -- release during pleasurable situations

- When task is completed within time.
- eating food like nuts and paneer
- Celebration of small events
- By performing self-care activities
- Healthy activities like yoga
- Good sleep

Endrophins– This is painkiller hormone -- Release after exercise and .

- Doing laughter exercise
- Eating dark chocolates
- Exercise
- Watching funny videos and comedy serials.

Oxytocin- this is called as love hormone , release during sex, child birth and lactation also called as trust chemical , it is important for emotionsandhealthy relationship .

- Playing with pets example- dog ,parrots
- Playing with small kids
- Receiving complements
- Taking weakly massage
- Good relationship with family members by spending time with them holding hand , hugging then by taking meal with them

Serotonin – this is an mood stabilizer hormone and self-esteem and sleep chemical it is sensitive to diet than other neurotransmitter. It help to fight against depression.

- Meditation
- Exercise- walking swimming , cycling
- Exposure to sun
- Diet – increase levels of carbs (fruits , grains, dairy products- ghee, milk , nuts lentil)

Acetyl choline- this is main chemical of alertness. It is Neurotransmitter of autonomic nervous system . Play major role in**,**attention, learning, motivation, arousal and memory also for promation of REM sleep

Phenylethylamine- chemical of bliss and infactuation,effects on people's moods and energy, involved in passionate love .

Norepinephrine – chemical of excitement

Melantonine –sleep-awake cycle , use in cases of insomnia. Produces in dark , if person exposed to light at night then it will block melatonin.

Estrogen –it decreases anxiety irritation and keep you calm

- Yoga and meditation

Progesterone- helps in stabilization of mood swing and irritation. Help in relieving stress and helps in long sleep.

- Food – Avoid, fat , sugar and junk food
- Exercise
- According to dr. sigmoid freud every individual strive for happiness and according to Kringelbach and Berridge argue about pleasure and happiness can be studied by hedonic brain circuits. pleasure is important part of Happiness .

Happiness is subjective feeling it is not measurable by quantitative scale different validated scales are available to measure happiness for supporting their validity in an scientific construct.

Unique theory of happiness developed by positive psychology.

Microbiology and homeopathy

Microbiology is basically deals with different sections like Bacteriology, parasitology, virology, and mycology.

Bacteriology – here different types of bacteria studied. Few medically important bacteria like Streptococcus , staphylococcus, Pneumococci, Corynebacteria, clostridium, Neisseria, Mycobacterium .

Here all bacteria differ from each other by their morphological properties, cultural characteristic, and biochemical reaction. It is useful for identification of bacterial infections .

When is talk about the research aspect of bacteria we have to check serological investigation , microscopy, animal inoculation cultural characteristics
, and toxins .

Example if we want to do research about incidence of diphtheria in pediatric age group. So here for confirmation of diphtheria we have to do staining for identification of kleb loefflers bacilli.

Parasitology consist of study of different nematodes, cystodes and trematodes

Example nematodes like round worm , hook worm , pin worm . many patient with worm infestation come to homoeopath , here different patients treated positively with homeopathic medicine .

Fungal infections e.g. tinea vesicularis, candid infections even treated with homeopathic medicines

group study of cases can be done in homeopathy about different infective diseses.

Bacteriology consist of study of different gram positive , gram negative bacteria , aerobic & anaerobic bacteria pathogenic and non pathogenic bacteria.

Study in detail with the help of their structure , toxins and disease presentation.

We could able to do proper research in homeopathic system of medicine.

Many patient with tonsillitis is cured by homeopathic practitioner mainly on the basis of totality but etiological factor also consider while giving prescription.

The main aim of treatment is to find out the peculiarities in the constitution .

Constitution is the basic of individualization of patient on which we are treating the infectious disease.

Hahneman used latin word that is "**konstitutionen"** which mean the constitutionin a traditional medical sense. In his organon of medicine in aphorism no. 5 he explain about constitution.in german organon aphorism 81 he explain about congenital bodily constitution.

In ayurvedic and siddha they consider the constitution as vatha, pitha and kapha.

Diffrents authors view about constitution -

<u>Jahr`s view :</u>**It is** reaction between patient and disease.

Constitutional symptoms and pathognomic symptoms

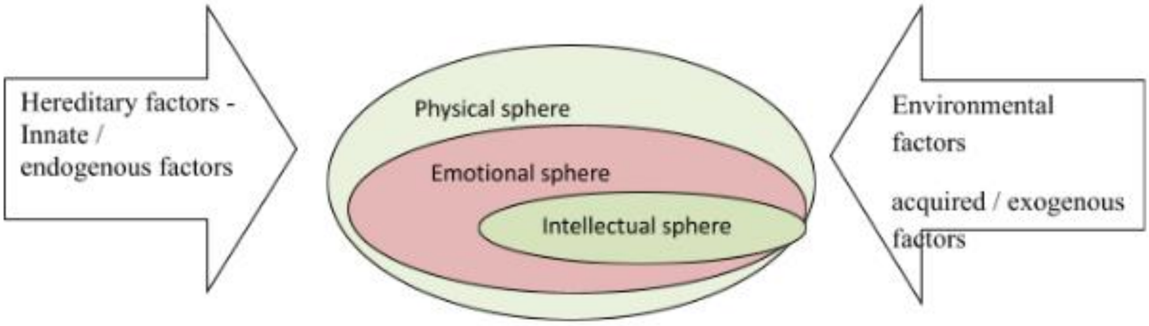
The pathognomic symptoms are related to location, sensation and modalities of disease. The constitutional concomitants are general symptoms that are not part of disease pathology but they do reflect the patient`s individual state.

Kent – physical constitution is external disorder following disorder in man, the vital force.

Stuart close – constitution is that aggregate of hereditary characters influenced more or less by environment which determines the individual reaction, successful or unsuccessful to stress of environment.

<u>Constitution -</u>

<u>Different Factors related to constitution</u> : thermal hot and cold relation,Physical make up of body, Temperament ,Desire, aversion and intolerance to food,Miasm ,Diathesis,Susceptibility and responses, Addictions, habits etc



Hippocratic classification :

Dominance of fluid type in body	Personality type	Temperamental characteristics
blood	Sanguine	Light heated, optimistic, happy, hopeful and accommodating
Yellow bile	Choleric	Irritable, angry but passionate and strong with active imagination
Phlegm (mucus)	Phlegmatic	Cold, calm, slow, sluggish, indifference
Black bile	Melancholic	Bad tempered, dejected, sad, depressed, pessimistic, deplorable and self involved.

Dr. Von Grauvogal constitution :

A. hydrogenoid constitution

B. oxygenoid constitution

C. carbo nitrogenoid constitution

Constituional diagnosis means assessment of the peculiarities of an individual during his or her healthy state , their basic reaction patterns are studied example- their basic reaction in time , situation to different environmental factors are studied in detail

Constitutional remedy :

Constitutional remedy is selected mainly based on mental, physical general characteristics and emotional reaction of person

Constitution is fixed one it is not changeable.

Constitutional medicine maily selected on the basis of different circumstances

Constitutional medicine given for removal of miasmatic blockage. It will strengthen the immune status of the person and prevent recurrence of infection.

There might be possibilities that it is contraindicated in certain advanced state of chronic conditions so based on totality only medicine given to patient.

CONCLUSION –

Conclusion and result – this article shows that mood swing ,stress and depression can be managed by increasing these hormones by doing regular exercise and good food and healthy relationship. Here we understand types of happiness hormones and the methods by which we can control these Hormones. In homeopathy various constitutions are studied . one of the important personality type is sanguine temperament which is happy and go lucky. So for this only physiological action of different hormones is studied .

Different elaborative studies are carried out by dr. Hahnemann and stalwarts for finding out predisposition of particular constitution toward diseases condition. On the basis of constitution we select medicine . important things consider are etiological factors and reaction of particular individual to that situation.

Different microbial infections affect different constitution. In modern medicine same medicine given to same kind of infection example streptococcal ammoxycillin given . but in Homeopathic system medicine is given on the basis of constitution , here it is believed that treat man in disease not disease in man as homeopathic medicines having immunomodulator effect which help to enhancement of immune status of person and he will be free from infection by the stronger vital force which annihilate the disease condition and permanent cure takes place.

For explanation of sanguine temperament which is happy go lucky , different hormones also discussed to understand physiological action of this on body . ultimately homeopathy helps in happy life of person by complete recovery of person.

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CHAPTER-51

THEORY, PERSPECTIVE AND PRACTICES ON SOCIAL AND EMOTIONAL INTELLIGENCE TO SOLVE GLOBAL POLITICAL AND ECONOMIC PROBLEMS

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Abstract:
Advocators in Education argue that effective schools should foster multidimensional educational goals that not only include cognitive but also non-cognitive outcomes. Social and emotional skills are one of the most important non-cognitive outcomes. Previous research showed that teacher is one of the most important factors for enhancing students' social and emotional learning (SEL). EI - Emotional intelligence is an ability to notice, identify, understand and manage our own feelings and the emotions of others. EI incorporates self-control, social skills, relationships, communication and influencing or motivating other people. These are all great skills for professional and personal development or success. Recent report In the 4.0 industrial revolutions put forth the thought that if we want to survive in market place then it becomes necessary to improve the skills. The world economic forum report state that social & emotional skills are essential to the workforce of the future the kinds of the skills that SEL address such as problem solving and collaboration are necessary for the job and employment. The whole thing has to be summed up that there is a great need to bring about positive social change so as to give best possible result with our science. This indirectly helps to solve the global political and economic problems.
Keywords: *Emotional intelligence (EI), Social and emotional learning (SEL), Personality traits, Cognitive and Non-Cognitive learning.*

Introduction:

Barbey stated that:

"Intelligence, not only, base on basic abilities of cognition, like attention, perception, memory and language, but it also depends on interacting with other people. We're basically a social beings and our understanding not only involves basic cognitive abilities but also involves productive application of those abilities to social situations so that we can understand others and pilot the social world". Thus this study presents an interesting perspective on the interdependence of general and emotional intelligence.

An author, psychologist and science journalist Daniel Goleman claimed that 'Emotional intelligence can be as powerful, and even more powerful than IQ. He stated that academic intelligence has little impact on emotional life of individuals. Person with high IQ scores can have poor social lives and that too prone to unbridled passions and impulses. He further stated that IQ contributes approximately 20% to the life successes and 80 % is contributed by emotional intelligence abilities. Goleman reported that EI proved to be twice as important as technical skills and IQ in his study of an organization's most outstanding leaders.

Raymond Cattell, PhD was a British chemist, statistician and psychologist stated that if human nature could be better understood, it would bring mankind closer to solving global political and economic problems. In 1949 Raymond Cattell published the 16 personality factors. It is widely recognized tools to assess personality and a powerful means of gauging an individual's work style and strengths, so you can grab the “great” from the “good” and help guide millennial interested in mental health, self development, career evaluation, for couples counseling, personality assessment and goals achievement and also can identify anxiety, behavioral adjustment, academic, emotional, and social problems.

Difference between EQ and IQ:

- Intelligence Quotient (IQ) is used to measure and quantify Intelligence whereas EI is indicated by Emotional Quotient (EQ).
- Emotional Intelligence can be learned unlike IQ, which is essentially fixed within narrow parameters at birth, EQ can be developed and enhanced.
- A high IQ does not means a high EQ, while having a high EQ may indicate at least a high or average IQ, and predict success at work better than IQ itself.
- Though IQ can predict academic success, it may not necessarily lead to success in life whereas EQ predicts success and effectiveness in life.

Emotional Intelligence is a key to success in life! Even though this theories of emotional intelligence really came late about in 1990. Some people argued on the point that ‘emotion quotient’, is even more important than the ‘intelligence quotient’. Can we imagine a world in which we didn't understand any of our feelings, or we couldn't perceive what another person is feeling only by looking at their faces. So wherever we look we can find Emotional intelligence it is a key part of the human experience. Intelligence is a human unique mental ability to handle and reason about information.

Emotional intelligence (EI):

“It is an ability to accomplish accurate reasoning about emotions and also the ability to use emotions and emotional knowledge to enhance thought”.

It is the result of the interaction of intelligence and emotion. It is an individual's capacity to understand and manage emotions.

Five pillars of emotional intelligence:

The EI consisting of five different components or pillars was first introduced by Daniel Goleman, a psychologist, and best-selling author and those are:

1. Self-awareness

It is the capacity to recognize and understand emotions and to enfold a sense of how one's actions; moods and the emotions of others get affected. It keeps track of emotions and notice different emotional reactions, as well as being able to identify the emotions correctly. It recognizes that how we feel and what we do, and make aware of one's own personal strengths and limitations. It associated with being open to different experiences and new ideas and learning from social interactions.

2. Self-regulation

It is the component of EI which involves the appropriate expression of emotion. It regulates self such as being flexible, coping with change, and manages conflict. It also helps for diffusing difficult or tense situations and being aware of how one's actions affect others and take ownership of those actions.

3. Social skills

It means interacting well with other people and understanding of the emotions of us and others to communicate and interact with others on a day-to-day basis. These skills include – active listening, verbal communication skills, non-verbal communication skills, leadership, and developing harmonious relationship.

4. Empathy

It is ability to understand how other people are feeling. It helps an individual to recognizing the emotions of other people and respond appropriately. It facilitates people to judge power dynamics to maintain social relationships and workplace relations by understanding how these affect feelings and behavior, as well as help to perceive situations exactly.

5. Motivation

When considered motivation, It means to intrinsic motivation. Individual is driven to meet personal needs and goals by internal motivation, rather than being motivated by external rewards such as money, fame, and recognition. They get motivated by being in an activity. These peoples are more likely to be action-oriented, and set goals. They typically have a need for achievement and search for ways to improve. These are committed people and always take initiative.

Models and Frameworks of the Emotional Intelligence Concept:

Previous theory of EI explained that EI is a component of social intelligence. It includes an awareness of the 'feelings' of self and others. Basically the EI is different from the 'personal' intelligences as it does not focus on a general sense of self and the appraisal of others – rather, it focused on recognizing and using the emotional states of the self and others to solve problems and regulate behavior.

Models of emotional intelligence: Faltas state that there are three major models of emotional intelligence as follows:-

a. Goleman's EI performance model
b. Bar-On's EI competencies model
c. EI ability model by Mayer, Salovey, and Caruso's

All these models have been developed from research, analysis, and scientific studies. study each of these in more detail-

Goleman's EI Performance Model

According to Goleman, EI is a cluster of skills and competencies, which are focused on four capabilities: self-awareness, relationship management, and social awareness. Goleman argues that these four capabilities form the basis of 12 'subscales' of EI.

Goleman developed these 12 subscales from research into EI in the workforce and those **subscales are:**

- emotional self-awareness
- emotional self-control
- adaptability

- achievement orientation
- positive outlook
- influence
- coaching and mentoring
- empathy
- conflict management
- teamwork
- organizational awareness
- inspirational leadership

EI Competencies Model by Bar-On's

He put forward the suggestion that EI is a system of interconnected behavior that arises from emotional and social competencies and these competencies have an influence on performance and behavior.

Scales of Bar-On's model of EI: it consists of five scales that is self-perception, self-expression, interpersonal, decision-making, and stress management. There are similarities that are appearing in these models of EI-

Bar-On also proposed 15 subscales of the EI concept:

- self-regard,
- self-actualization,
- emotional self-awareness,
- emotional expression,
- assertiveness,
- independence,
- interpersonal relationships,
- empathy,
- social responsibility,
- problem solving,
- reality testing,
- impulse control,
- flexibility,
- stress tolerance and
- optimism.

According to Bar-On, these abilities are components of EI, drive human behavior and relationships.

EI Ability Model by Mayer, Salovey and Caruso's:

EI ability model suggests that information which is perceived from understanding emotions and managing emotions is used to facilitate thinking and guide our decision making. According to Mayer and colleagues, the abilities and skills of EI can be divided into 4 areas. Such as:

- The ability to Perceive emotion
- The ability to Use emotion to facilitate thought
- The ability to Understand emotions, and
- The ability to Manage emotion.

Types of Emotional Intelligence:

EI is differentiated into 7 types on the basis of capacity of peoples to do or perform-

So to examine the 'types' of EI, we have to examine the capability of people who have high EI.

1. Solve emotion-based problems: they are able to quickly and accurately solve a range of emotion-related problems.
2. Facial perception: Those who are high in EI can accurately perceive emotions in other people's faces.
3. Understanding emotions and how they can drive thinking**:** People with high EI identify that certain emotional states are associated with specific ways of thinking. For example, sadness actually facilitates analytic thinking of a person, so they may, therefore, choose to analyze things when they are in a sad mood.
4. Read emotion**:** People high in EI recognized an emotion and its meaning – for example, they may recognize people who are angry are potentially dangerous, as well as happy peoples are more likely to want to socialize compared to that of sad people who are preferred to be alone.
5. Effective emotion management: Highly EI individuals are able to manage the emotions of themselves and others.
6. Socio-emotional awareness: These individuals also understand that compared to people who are sad, or afraid, people who are happy are more likely to be willing to attend a social activities.
7. Demonstrates: those high in EI have an appreciation of how emotional reactions unfold.

Scope of the EI Concept:

When examining the dimensions of EI, it is necessary to differentiate between emotions and EI. Faltas state that emotions are developed in our environment, resulting from circumstances and knowledge. Emotion may be described as "a natural instinctive state of mind that derives from our current and past experiences and situations". It is observed that our feelings and things that we experience affect our emotions.

On the other hand, EI is an ability of awareness, and skill, in order to know, recognize, and understand feelings, moods, and emotions and use them in an adaptive way.

Emotional Intelligence involves learning how to manage feelings and emotions and to use this information to guide our behavior. It drives how we act including decision-making, problem-solving, self-management and demonstrating leadership.

EI has been shown to be a relatively stable aptitude, as opposed to emotional 'knowledge' which is the sort of information that EI actually uses. EI can be taught and acquired more readily, in comparison to emotional knowledge.

The mental processes related to EI are "use of emotions in adaptive ways, appraising and expressing emotions in the self and other people, regulating emotion in the self and other people".

Every aspect of our lives touches and influences by EI. Hence dimensions of EI, include driving behavior and affecting decision-making.

Other dimensions of the EI include solving conflicts, and affecting both how we feel about ourselves and also how we communicate with others.

It affects the management of the stress that occurs in day-to-day life, as well as how we perform in the workplace and manage and lead the teams.

EI has a significant effect on all areas of our personal and professional development. It helps us to improve, to mature, and to accomplish our goals.

Discussion:

"We think the Intelligence; only depends on basic cognitive abilities, like attention and perception, memory and language. But it also depends on interacting with other people. We're fundamentally social beings and our understanding not only involves basic cognitive abilities but also involves productive application of those abilities to social situations so that we can understand others and navigate the social world". Hence this study provides an interesting perspective on the interdependence of general and emotional intelligence. From the time when educational institutions have been established, ongoing discussions about the objectives of schooling have emerged. Schools make sure that students gain skills in reading, writing, math, and science. They also encourage a good comprehension of history, literature, arts, foreign languages, and diverse cultures. These knowledge and skills are undeniably important cognitive student outcomes. However, over the past decade, the attention of which outcomes students shall achieve broadened from these cognitive to so-called "non-cognitive" factors as additional important school outcomes and concepts of educating the "whole child" became more prominent. According to multiple reviews and studies, non-cognitive factors are essential for success in education as well as in occupation. They are the most important factors, that are not identified with traditional indicators of cognitive capability or intellectual functioning and are often described under such terms as socio-emotional skills, character, personality, or 21st-century skills. Recent report In the 4.0 industrial revolutions put forth the thought that if we want to survive in market place then it becomes necessary to improve the skills. The world economic forum report state that social & emotional skills are essential to the workforce of the future the kinds of the skills that SEL address such as problem solving and collaboration are necessary for the job and employment. The whole thing has to be summed up that there is a great need to bring about positive social change so as to give best possible result with our science. This indirectly helps to solve the global political and economic problems. One of the most important non-cognitive facet is social and emotional learning (SEL), including, among other things, students' self-awareness, social awareness and self-management. These skills foster learners' performance and facilitate positive social behaviors, goal orientations, emotion management, and social relationship-building skills in the same way they lessen the behavior problems and psychological distress that's why they are the important skills that help students succeed in school, work, and personal life, relationships with families and friends, and society in general. Social and emotional learning involves processes of thinking, feeling, and behaving in order to regulate self-behavior and the behavior of others, become aware of the self and others, and to make responsible decisions. 5 Different interrelated core social and emotional competencies are: (1) self-awareness, (2) social awareness, (3) self-management, (4) relationship skills, and (5) responsible decision-making. If we are aware about our emotions then we can handle it properly for our better performance and to manage our life in a better way. Raymond Cattell, PhD was a British chemist, statistician and psychologist stated that if human nature could be better understood, it would bring mankind closer to solving global political and economic problems. Raymond Cattell published the 16 personality factors, also known as the Cattell's 16 Personality Factors and 16 PF test, in 1949. It is widely recognized tools to assess personality and a powerful means of gauging an individual's work style and strengths, so you can separate the "great" from the "good" and help guide millennial interested in mental health, self development, career evaluation, for couples counseling, personality assessment and goals achievement and also can identify anxiety, behavioral adjustment, academic, emotional, and social problems.

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CHAPTER-52

EXPORT PERFORMANCE OF SPECIAL ECONOMIC ZONES (SEZS) IN INDIA

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Abstract

Special Economic Zones are the growth engines of the Indian economy. These zones were introduced to promote the trade capacity and to attract the investment from the foreign countries to accelerate the growth of the country. SEZs contribute to enhance the employment rate, better infrastructural facilities and technology development. SEZ is currently operating in 19 states and 3 Union Territories of India. Telangana, Karnataka, Kerala, Gujarat, Tamil Nadu, Andhra Pradesh, and Maharashtra states are actively performing in the area of SEZs. The performance of Indian SEZs in the past few years have been contributing a tremendous increase in total export. This paper is an attempt to understand the performance of SEZs and to analyze the contribution of export of SEZs in total export of India.

Keywords: *Special Economic Zones, Export, Economy.*

Introduction

Asia's first Export Processing Zone was established in Kandla, Gujarat state in 1965 for promoting exports and then after by the 1990s, seven more export processing zones had come into existence. In 2000, these eight export processing zones were converted into special economic zones under foreign trade policy and from 1.11.2000 to 09.02.2006 these zones functioned under the Foreign Trade Policy. Then after, SEZ Act was passed by the Government of India in May 2005, and SEZ Act, 2005 and SEZ Rules became effective on and from 10th February 2006. SEZs help to encourage domestic and foreign investment, boost India's exports and create new employment opportunities

As per the information available on 17th February 2022, on SEZINDIA website, after the coming into force of the SEZ Act, 2005 on February 10, 2006, 425 formal approvals have been granted for setting up of Special Economic Zones, out of which 376 SEZs have been notified and are in various stages of operation. A total of 268 SEZs (as on 31th December 2021) are exporting. SEZ is currently operating in 19 states and 3 Union Territories of India. Telangana, Karnataka, Kerala, Gujarat, Tamil Nadu, Andhra Pradesh, and Maharashtra states are actively performing in the area of SEZs. In sector-wise distribution of formally approved and notified SEZs, IT/ITES/Electronic Hardware/Telecom equipment is the single most important segment accounting for around sixty five percent of the total formal approvals and rest of the part is related to Multi-Product, Pharmaceuticals, Biotech, Engineering and others. More than three fourth segment of the 425 formal approvals issued so far have reached the stage of notified SEZs (annual report 2020-21).

Review of Literature

There are lots of research has been done to analyze the growth, performance and historical journey of the SEZs. Special Economic Zone is not a new thought. Other countries had also established SEZ but with different names. In New York (1937) and in Puerto Rico (1942) established Foreign Trade Zone (FTZ). In 1960, Iceland and Taiwan also established these type of zones. Since 1980, China has established special economic zones in Shenzhen, Zhuhai and Shantou and Xiamen (Pakdeenurit et al., 2014).

Aravindaraj K. & A.Muthusamy(2019) observed that Special Economic Zone plays a crucial role in generating additional economic activities for the nation. The export and employment generation objectives of the SEZ should not be the rewared of compromising the quality of the working conditions within the zones and to attract more FDI country must pay attension to improve the investment climate of the country.

Aggarwal A. (2017) reveled that SEZs could be a versatile tool to achieve a variety of goals if used strategically. Success and economic outcomes of SEZs depend on the strategic approach adopted by policy makers towards SEZs. There is no single method of their success or development outcomes until using appropriate planning.

Tantri (2012) explained that the SEZs cannot be expected to deliver optimum performance until the conditions are supportive and favorable, which may differ between countries, SEZs and between sectors within a given economy. Kumar & Singh (2011) and Dave (2012) in their papers found that SEZs are promoting exports and employment. In 2009-10 there was a huge rate of growth in exports i.e.52.5% and the employment increased from 134704 to 489831 from 2006 to 2009.

The study of Shah (2012) concluded that there is no direct correlation between the levels of investment and employment in SEZ across the states in the country. More, J.B. (2015) defined the positive and negative aspects of Special Economic Zones (SEZs) in India and also explained some cures steps to resolve the challenges of the SEZ.

Singala, Atmavilas & Singh (2011) observed that the impact of SEZs on Indian economy is not according to the performance of its Chinese models in terms of the overall exports. Additionally, due to the land acquisition related issues the government should concentrate on implementing the SEZ policy and to retrieve the satisfactory results.

Objectives of the Study

The current research is based on following research objectives:

1. To understand the performance of SEZs in India.
2. To analysis the contribution of export of SEZs in total export of India.

Hypothesis –

H_1 – There is significant relationship between Export of SEZs and total Export in India.

Research Methodology

Present study is based on secondary data and these data is collected from the official records of SEZs, ministry of commerce and industry, SEZ website, articles and research papers published in reputed national & international journals, Govt. Notification & Circulars. In order to analyze the data various statistical tools like growth rate, percentage etc. have been used and correlation coefficient is used to understand the relationship between export of SEZs and total export. The study period is starting from 2005-06 to 2020-21.

Result and Discussion-

The analysis of the paper is divided into two parts. First part explains about the export performance of SEZs and its contribution in total export of India. Whereas, another part explains about the level of relationship between the SEZs export and total export and it is analyzed with the help of correlation using SPSS.

1. **Export Performance of SEZs**

The performance of Indian SEZs in the past few years have been contributing a tremendous increase in total export. The last decade has witnessed a remarkable rise in exports from SEZs and total export of India. Table 1 shows the share of the SEZ exports in India's total exports during the period of study i.e.2005-06 to 2020-21:

Table 1: Export Performance of SEZ along with Total Export of India

Year	Export of SEZ (in RS. Crores)	Annual Growth Rate (%) (over previous year)	Total Export of India (in RS. Crores)	Contribution of SEZ Export in Total Export of India
2005-06	22,840	-	4,56,418	5.00%
2006-07	34,615	52%	5,71,779	6.06%
2007-08	66,638	93%	6,55,864	10.16%
2008-09	99,689	50%	8,40,755	11.86%
2009-10	2,20,711	121%	8,45,534	26.10%
2010-11	3,15,868	43.11%	11,36,964	27.78%
2011-12	3,64,478	15.39%	14,65,959	24.86%
2012-13	4,76,159	31%	16,34,318	29.14%
2013-14	4,94,077	4%	19,05,011	25.94%
2014-15	4,63,770	-6.13%	18,96,445	24.45%
2015-16	4,67,337	0.77%	17,16,384	27.23%
2016-17	5,23,637	12.05%	18,49,434	28.31%
2017-18	5,81,033	11%	19,56,515	29.70%
2018-19	7,01,179	21%	23,07,726	30.38%
2019-20	7,96,669	13.62%	22,19,854	35.89%
2020-21	7,59,524	-4.66%	21,54,339	35.26%

Source: Compiled from Ministry of Commerce and Industry, Govt. of India& SEZ India (2021).

The above table shows the figures of SEZs export, growth rate and total exports of India during the period from 2005-06 to 2020-21. The total exports of India in 2005-06 was valued at 4, 56,418 crores which is in 2020-21 turned into 21, 54,339 crores. Similarly, in 2005-06 exports of SEZs was valued at 22,840 crores which is in 2020-21 turned into 7, 59,524 crores. Contribution of SEZs exports in total export of India was counted 5% in 2005-06, which is in 2020-21 turned into 35.26%. The highest contribution of SEZs exports in total export of India has been observed as 35.89% in 2019-20.

2. **Correlation Analysis**

The purpose of correlation analysis is to determine the degree of association between two or more variables and the correlation coefficient (r) is a statistical measures of the strength and direction of the relationship between variables. Its range lies between +1 and -1.

Table 2: Correlation Analysis of Variables

		Total Export	SEZs Export
Total Export	Pearson Correlation	1	.974**
	Sig. (2-tailed)		.000
	N	16	16
SEZs Export	Pearson Correlation	.974**	1
	Sig. (2-tailed)	.000	
	N	16	16

**. Correlation is significant at the 0.01 level (2-tailed).

In table 2 Pearson product correlation of total export and SEZs export is found to be very high positive correlation and statistically significant ($r = .974$, $p < 0.01$). Hence, $\mathbf{H_1}$ is supported through above analysis. This shows that there is significant relationship between Export of SEZs and total Export of India.

Conclusion

SEZ is contributing a significant role in Indian economy and positively promoting total export value of the country. It is been found that few states i.e. Gujarat, Tamil Nadu, Kerala, Andhra Pradesh, Karnataka and Maharashtra states are actively performing in the area of SEZs and their contribution is more than half of the Export value from SEZs. Performance of SEZs with respect to employability, SEZs in India provide direct employment to over 26,16,097 persons (As on 31.12.2021). With respect to investment in Special Economic, the total investment in the SEZ is Rs.6, 38,234.83 crore (As on 31.12.2021). These contribution could be improve more with the help of flexible government policies. The government has to ensure that strategies are developed in an appropriate manner to strengthen the opportunities that are likely to emerge and protect interests of the Special Economic Zones.

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