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JIGYASA

The Journal of Educational Research and Innovation
A Peer Reviewed Journal of CPE Project for All Subjects

Magadh Mahila College
[Estd. : 1946]
NAAC Re-Accredited **'A'** Grade College
College with Potential for Excellence (CPE)
Status Accorded by UGC

Patna University, Patna
North Gandhi Maidan Patna - 800 001, Bihar, (India)

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हमारा संदेश (OUR MESSAGE)

जागृति (Awareness),
मैत्री (Universal Brotherhood),
प्रगति (Progress)

जागृति • मैत्री • प्रगति

मगध महिला कॉलेज
पटना विश्वविद्यालय

About The College

Magadh Mahila College, a pioneer institution of higher education for young women in Bihar, was established in **1946. A** constituent unit of Patna University, possessing a permanent affiliation under section **12B of UGC** Act since **1952 and r**eaccredited with **'A' grade** (3.02 CGPA) by **NAAC** in **January 2013, it is** imparting education to more than **4500** students in various disciplines. It has also been awarded **CPE** (College with Potential for Excellence) Status by the **UGC, New Delhi for 2011-2016, and has retained the Status of CPE till 2021.**

The College has been honoured with **'Best College Award'** on 'Shiksha Diwas 2014' by Sri Nitish Kumar, the Chief Minister of Bihar and has also been awarded **'Excellent Institution of Higher Education for Girls in Bihar'** by His Excellency Sri Ram Nath Kovind, the Governor-cum Chancellor of Universities of Bihar, on the occasion of National Education Bihar Summit and Award 2016.

A **multi-faculty institution** offering Bachelor (Honours) Degree Courses in Humanities, Social Sciences, Commerce, as well as Physical and Life Sciences, the college also offers Post Graduate Courses in **five** subjects. A large number of Professional Courses are also conducted under Self-financing Schemes.

Quality teaching, Computer education, facility for extracurricular activities including **Sports**, **Music**, **NSS, NCC, Science and IT Society, Students' Counselling Cell, Grievance Redressal Cell, Anti-Ragging Cell, Gender Knowledge Centre, Green Earth Brigade, Red Ribbon Club, Language Lab** and **Hostel** accommodation are inside the campus with modern facilities. **A Wi-Fi** campus, green and clean environment on the bank of the river Ganga add a remarkable aura to this institution, highly desirable for women education throughout Bihar and neighbouring states.

The students of Magadh Mahila College have excelled in **academics**, as well as in **sports** and **music** for the last seven decades. They have also brought accolades for the college with their extra ordinary performances in **Software Engineering and I.T Sectors**. The demand for its vocational courses is ever increasing. The college administration is sensitive to the needs of society and proposes to introduce new vocational courses in each academic session. Presently there are **five** hostels **(Gargi, Maitreyi, Awantika ,Vaidehi** and **Welfare Hostel**) inside the campus. The **Welfare Hostel** constructed by the Department of Welfare, Govt. of Bihar is meant exclusively for the students of SC/ ST and weaker sections of the society.

The College **Central Library** is well equipped with more than one **lakh (1, 23, and 303)** books including e-books on various topics, computers with networking and internet connection. A huge collection of well recognized periodicals, journals, magazines and daily newspapers is also available in the library. The College has a very old **Alumnae Association**. College Alumnae Meet is organized in the college every year.

The concept of **inclusive growth** in the entire academic and extracurricular activities is given priority. Considering the growing demand for foreign languages in the job market, the college has started a short term **German Language Proficiency Course** done on two levels. Each level is of three months duration. Some more language courses are to be started very shortly.

Magadh Mahila College has striven not only to meet these ideals but also to enlighten its students with the help of its well-qualified and dedicated academic staff.

Vision And Mission

Magadh Mahila College is a premier institution of higher education for young women in Bihar and well known in the region for its value based education, quality teaching and discipline. This is the first girls' college in the state where teaching in science subjects started as early as 1947. Presently it is imparting education to more than 4500 students in 32 degree and diploma courses in the faculty of Arts, Humanities, Fine Arts, Social Sciences, Science, Commerce, Business Administration and Computer Applications at different levels.

The College Emblem comprising of three symbols conveys the message of Awareness, Brotherhood and Progress. The emblem represents the vision and mission of the esteemed women's institution. The holistic vision of college is committed to inculcate the pursuit of knowledge with preservation of our culture and traditional values leading to the empowerment of women and in particular, bringing about inclusive growth and qualitative changes in the society. **The college directs its efforts to support the mission of Patna University and dedicates itself to promote an academic culture that provides opportunities to obtain the skill, knowledge and behaviour for empowering our students to be productive citizens. Our efforts focus to broaden their understanding of themselves and the world they live in, by developing strong communication and leadership skills, lifelong learning skills, profound social skills, appreciation for healthy environment and life styles and commitment to the nation, society and humanity.**

The mission of college is to empower girl students through knowledge and skills to enable them to cope and compete with the demands of modern age. Our **mission is to provide and sustain a modern and respectful environment that ensures our students as well as the faculty members attain a high level of personal and academic achievement as determined by local, state, national and international standards.**

In the light of **Vision and Mission Statement** our teachers and non-teaching staff take a keen interest in building the personality and career of students and work hard towards making the students realize the following objectives:

- To be a good citizen of the country
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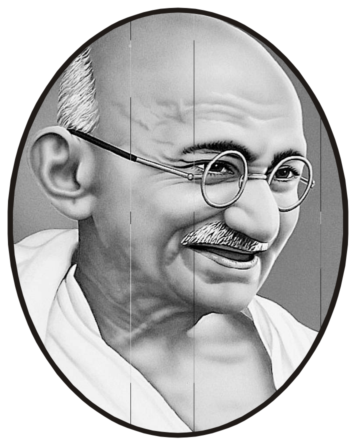

Power is of two kinds. One is obtained by the fear
of punishment and the other by acts of love.
Power based on love is a thousand times more
effective and permanent then the one
derived from fear of punishment.

– Mahatama Gandhi

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From the Principal's Desk

It is a matter of pride and pleasure to me that 2016 edition of '**JIGYASA**' a Research Journal of Magadh Mahila College is being published. This journal is an outcome of continuous and sincere efforts of our students (UG, PG & Research Scholars). A sizeable number of our students undertake Short-Term Project on various point of interest related to current and relevant issues under the CPE scheme of the UGC.

After the presentation a report is prepared by a peer team of 2-3 students and their supervisors from various departments on the basis of primary data collected through empirical survey and lab - work of findings. The same is summarized and published through the said journal so that it is open to critics for their suggestions.

Indeed, the efforts of our students are commendable. Our effort to promote and inculcate research ability among the students is also fulfilled which is very helpful for their future career.

I wish this journal achieves a great height in its popularity and quality.

Asha Singh

Prof. (Dr.) Asha Singh
Principal, Magadh Mahila College
Patna University, Patna

From the Editors's Desk

We are proud to present you **Volume III**, of **JIGYASA from** Magadh Mahila College for the academic year 2015-2016. As we look at **JIGYASA**, it is important to keep in mind that it represents the collective thinking of a group of innovative individuals with whom I am privileged to work. The journal documents and captures the innovative research work of Undergraduate and Postgraduate students across all discipline. It's an initiative towards motivating and encouraging students to undertake research work and learn from the experiences of their seniors.

'JIGYASA'- The Journal of Magadh Mahila College, Patna University, Patna is a peer reviewed academic journal on educational research and innovation to encourage and promote the research work among Undergraduate and Postgraduate students in all disciplines. The Journal in its **3rd Edition** will not only act as a compilation of research work conducted by students but will also work as inspiration and true guide for new students who will undertake fresh projects for the academic year 2016-2017.

Magadh Mahila College, the oldest pioneer institution of young women in Bihar was re-accredited by NAAC, with "A" Grade in January 2013 and the institution was also accorded the **'College with Potential for Excellence (CPE)** Status by UGC, New Delhi for 2011-16. Under the CPE Project, the grant is sanctioned for improving the infrastructure and promoting the students of all departments towards research work. All Research Programmes are initiated and completed according to the CPE Scheme Guidelines.

I am extremely proud of our board members and fortunate enough to draw upon their individual and collective knowledge, talent, judgment, and disciplinary backgrounds to advance research work worldwide.

It is with great pride, enthusiasm, and anticipation that from the desk of **JIGYASA-** we invite quality research papers from Undergraduate and Postgraduate students, and Research Scholars from all faculty of all Colleges, Universities and Research Institutes.

I look forward to continue our journey together as we develop **JIGYASA** into its fullest potential.

Shashi Sharma

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PSYCHOANALYSIS : A REVOLUTIONARY APPROACH TO HUMAN PERSONALITY

Rajeshwari Ranjan * Pallavi Kumari * Shruti Priya * Deepika Tiwari *

ABSTRACT : *Psychoanalysis is both a theory and a therapy, largely based on the work of Sigmund Freud but widely expanded over the last hundred years. Freudian psychology is the science based on the unconscious (ID) and the conscious (EGO) and SUPER EGO. Four core models (ego psychology, drive theory,object relations and self psychology) evolved from Freud's theory of the mind. Various aspects of Freudian thinking are examined from a modern perspective and the relevance of the psychoanalytical theory of consciousness is projected.*

KEYWORD : Psychoanalysis, Sigmund Freud, Id, Ego, Super Ego.

INTRODUCTION

Psychoanalytic criticism is a form of literary criticism based on the theory of Psychoanalysis. It adopts the methods employed by the psychoanalysts to Interpret texts. 'psychoanalysis' name given by Sigmund Freud to a system of interpretation and therapeutic treatment of psychological disorders. It began after Freud studied (1885-1886) with the French neurologist J.M Charcot in Paris and became convinced that hysteria was caused not by organic symptoms in the nervous system but by emotional disturbance. Later in collaboration with Viennese physician Joseph Breuer, Freud wrote two papers on hysteria (1893,1885) that were the precursors of his vast body of psychoanalytic theory. Freud used his method primarily to that patients suffering from a variety of mild mental disorders classified until recently as 'neuroses'. Freud was joined by an increasing number of students and physicians among whom were C.J Jung and Alfred Adler. Both made significant contributions, but by 1913 ceased to be identified with the main body of psychoanalysts because of theoretical disagreements with Freud's strong emphasis on sexual motivation. Psychoanalysis is the analysis of human psyche. Sigmund Freud is a true pioneer in the recognition of the importance of unconscious mental activity. His theories on the inner working of the human mind, which seemed so revolutionary at the turn of century, are now widely accepted by

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most schools of psychological thought. He coined the term 'psychoanalysis' in 1896 and after this he worked throughout developing it.

In his work, 'An outline of psychoanalysis' ,Freud has explained the human psyche. According to Freud the human mind has a conscious and unconscious part. The unconscious mind is hidden from the conscious mind which Freud compares to the small portion of iceberg that is visible above the surface of the water , the unconscious is like the powerful unseen mass below it. The conscious mind is one present awareness but the unconscious mind is the part where all our unfulfilled desires are stored. It is basically repressed. In an effort to describe the conscious and the unconscious mind, Freud divides human psyche into three parts:-

- ID
- EGO
- SUPER EGO

The 'Id' according to Freud is the part of the unconscious that seeks pleasure. It is that part of the mind which holds all of human's most basic and primal instincts. Freud explained that the 'pleasure principle'is controlled by the id because it makes people engage in need - satisfyingbehavior without any accordance to what is right or wrong. Freud compared id and ego to a horse and a rider. The id is compared to the horse, Which is directed and controlled , by the ego or the rider. This example goes to show that although the id is supposed to be controlled by the ego, theyoften interact with one another according to the drives of the id. The id obeysthe inexorable pleasure principle. It operates without any thoughts of consequence, anxiety, ethics, logic, precaution or morality. Demanding swift satisfaction of biological desire, it is lawless and amoral. It is the storehouse of the libido (psychosexual energy).In order for people to maintain a realistic sense here on earth, 'The Ego' is responsible for creating balance between pleasure and pain. It is impossible for all desires of the id to be met and the ego realize this but continues to seek pleasure and satisfaction. Although the ego doesn't know the difference between right and wrong, it is aware that not all drives can be met at a given time. The reality principle is what the ego operates by in order to help satisfy the id's demands as well as compromising according to reality. The ego is a person's 'self' composed of unconscious desires. The ego takes into account ethical and cultural ideals in order to balance out the desires originating in the id. Although both the id and the ego are unconscious, the ego has close contact with the perceptual system. The ego has the function of self - preservation, which is why it has the ability to control the instinctual demands from the id. It is the regulating agency, the rational governing agent. It regulates the id so that it doesn't become a source of destructive behaviour pattern. It stands for reason and rationality. It balances the Id and super ego.'The super ego', which develops around age four or five, incorporates morals of society Freud believed that the superego is what allows the mind to control its impulse that are looked down upon morally. The superego can be considered to be the conscience of the mind because it has the ability to distinguish between reality as well as what is right or wrong. Without the superego Freud would believe people would act out with aggression and other immoral behaviors because the mind would have no way of understanding the difference between right and wrong. The superego is considered to be the 'consciousness'of a person's personality and can override the drives from the Id. Freud seperates the superego into two separate categories, the ideal self and the conscious. The unconscious contains ideals and morals that exist within society that prevent people from acting out based on their internal desires. The ideal self contains images of how people ought to behave according to societal ideals.

EXAMPLES IN LITERATURE OF ID, EGO AND SUPEREGO

From Freud's perspective in shakespeare's play 'Macbeth' , the id, Madcuffrepresents the ego and Lady Macbeth represents the superego. Lady Macbeth is often considered to represent the superego. The Superego in Freud's term is for wanting to satisfy your own narcissistic tendencies. She seems to think that she should be the queen and therefore her husband should kill Duncan to get her what she wants - but she doesn't want to do it herself. Macbeth represents the id from Freud's perspective. The id is pleasure Center of our consciousness, according to Freud, Macbeth always acts onimpulse. He wants to be the king because the witches told him that he wouldbe the king And his wife would be egging him on. Macbeth is impressed by his wife's Ruthlessness. As stark contrast to Macbeth and his wife, Madcuffrepresents the Ego. The ego represents reality and Madcuff is always rooted in reality.

In Toni Morrison's Beloved, the girl Beloved is unquestionably the id, withher demanding, indisciplined needs. The purity of higher superego thinking is equivalent to baby suggs spiritual guidance and Sethe is the ego who ruins the family and tries to satiate Beloved's needs in every best possible way keeping in mind for the long run.

In Shakespeare's 'othello' , the most prominent representation of Freudian Theory is Iago's role in the story. Iago becomes the 'universal' id for the characters in the story. In the scene where Iago encourages Cassio to consume alcohol even though Cassio had already some. Because of this, he is taking the position of the id in Cassio's personality. However, the way he portrays himself to the other characters seems to say that he is putting on the mask of superego, trying to be the 'moral' character that everyone can trust and he knows the way that others can look upto him and eventually uses to manipulate them.

Oedipus complex is the most significant psychological aspect of a human having discussed by Freud. He picks up this term from a Greek work of 'Oedipus Rex' written by Sophocles. In 'oedipusrex' the king Oedipus kills his father and marries his mother. Freud argues that inOedipus complex a young boy forms an erotic attachment to his mother. He sees his father as a rival for the mother's love, the father restricts the child's expressions of love through a threat that the child imagines of castration, fearing castration by father, the male child represses his sexual desires, identifies with father and anticipates his own sexual union. For girls, Freud gives a term 'electra complex'. The girl child too has a strong attraction for her father and sees her mother as a rival but because she realizes she has already been castrated, she develops an attraction for her father who has the 'penis' she desires. When she fails to gather his attention, she identifies with her mother and awaits her own male partner.

All our suppressed desires of unconscious mind are fulfilled in the dreams when our mind is unconscious. Freud argues that dreams are the royal road to unconscious. It has two central dimensions: latent dream content and manifest dream content. Latent dream content is the actual content of the unconscious that seeks expression. The expression of the context in the form of images or events in one's dreams is the manifest dream content. The latent dream content undergoes four process or stages- the dream work- before it is expressed itself in the manifest dream content. These steps are:

- Condensation
- Displacement
- Representation
- Secondary revision

In Condensation several elements are superimposed on each other to produce a complex image in the manifest dream by which the latent content in the manifest dream. WhileIn the process of displacement the latent dream content marks as association and then is expressed in complex images. Here, one thing is displaced by the other.

The language of the dream often uses complex images that have no apparent basis in reality. As dreams are Symbolic in nature, they must symbolize something(especially sexual image) eg- physical objects that are concave in shape like lakes, cups, tunnels are assumed to be 'female symbols' andthose that are convex or whose length exceeds their diameter such as towers, trees are assumed to be the 'male or phallic symbols'.

In secondary Revision the dreamer himself/ herself interprets the dreams but revises it in the process. The process is accomplished by a certain amount of censorship where the dreamer ignores or forgets all the elements of the dream. The conscious mind organizes the elements of the dream into recognizable and acceptable themes or images and ignores the rest. Sigmund Freud himself applies the psychoanalytic insights of the study of literature and culture and later generations of psychoanalysts continued their tradition. Freud himself says, 'the drain thoughts which we first come across as we proceed with our analysis after strike us by the unusual form in which they are expressed, they are not clothed in the prosaic language usually employed by our thoughts but are on the contrary represented symbolically by means of similies and metaphors in images resembling those of poetic speech'. Most of the D.H Lawrence's works are open to psychoanalysis. In his famous novel "sons and lovers" Gertrude and Morel has a dysfunctional relationship with two sons, William and Paul. The drunkard nature of Morel causes the boys to hate him and they were sympathetic and protective towards the mother. In their mother the children see someone who is good and pure. Mrs. Morel always tries to keep her sons away from their father. As she is not happy with her marriage, she unconsciously moulds her sons into what she wants, so eventually they can replace her husband. This is the stimulus that allows the oedipal attachment to form in the boys. William's moving to London is his unconscious way of trying to free from the oedipal attachment to his mother. In London, he marries lily, but he is not happy. He has a misogynistic attitude towards her. It is very clear that lily doesn't possess the good qualities he sees in his mother and it angers and frustrates him. He has a conflicted feeling which is a struggle to rid himself of the oedipal fixation and the reader is not surprised when eventually he gets sick and dies. After William's death and Paul replaces him and becomes his mother's favourite. He is jealous of his father. He meets Mirriam and although he likes her he repeats the same mistake as William did with lily. He feels he would be betraying his mother by loving her. However, the idea that Paul is interested in someone other than his mother shows attempt to weak the oedipal fixation he has. But, the mother fails the attempt by making him feel guilty for wanting to be with Mirriam. When Morel falls ill, Paul gives him overdose of morphine to her which leads to her death. It seems equally likely that killing his mother is unconscious way of releasing himself from the Oedipus complex. But after her death also, he remains alone and the Oedipus is still intact. Some critics agree that Lawrence himself had an Oedipus complex. He has projected himself through Paul, his father was also a drunkard and he also had some special feelings for his mother that is beyond mother - son relation.

The theme of 'Hayavadana' by Girish Raghunath Karnad can be better understood if me we understand the psychology of Padmini. She has erotic desires for Kapila which she tries to repress in her unconscious, id. But as Freud says, the id tries to come out through different means like slip of pen, slip of tongue etc. The mistake in the transposition of the heads of Devadatta and Kapila can only be explained in term of Freudian slip activated by id. In other words, the subconscious desires for Kapila's body makes Padmini put unconsciously the head of Devadatta on Kapila's body. Critics have also analysed many playwrights and have drawn Some conclusion on them. For example, they talk of G.B Shaw being sufferer of Oedipus complex. This is hinted by the lack of a permanent woman in his life. He had an unconscious sexual desire for his mother. He wasn't able to find the qualities of his mother in any other woman. One of his characters, Henry Higgins reveals his own inner psyche. He is a misogynist who always humiliates Eliza, the heroine of the play. In the play, we find him saying that he wants a woman as similar to his mother as possible. This is actually the inner desire of Shaw himself. The object of psychoanalytic literary criticism at its very simplest, can be the psychoanalysis of the author or of a particularly interesting character in a given work. The criticism is similar to psychoanalysis itself, closely following the analytic interpretive process discussed in Freud's 'The interpretation of dreams' and other works. Like all forms of literary criticism, psychoanalytic criticism can yield useful clues to the sometime baffling symbols, actions and settings in a literary work; however, like all forms of literary criticism,it has its limits. For one thing, some critics rely on psychocriticism, as a "one size fits all" approach, when other literary scholars argue that no one approach can adequately illuminate or interpret a complex work of art. As Guerin, et al. put it in A Handbook of Critical Approaches to Literature. The danger is that the serious student may become theory - ridden,forgetting that Freud's is not the only approach to literary criticism.

REFERENCES

- Dr Kumar, Abnormal Psychology
- Ann B Dobie, Theory into Practice, An Intoduction to Literary Criticism
- Pramod K.Nayar, Contemporary Literary and Cultural Theory
- Peter Barry, Beginning Theory, An Introduction to Literary and Cultural Theory
- Psychology by Saundra K. Ciccarelli and Glenn E. Meyer (Theories of Personality, chapter 12)

INTERNET SOURCES

- www. wikipedia.org
- wiki/psychoanalytic theory
- www.boundless.com

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A BIRDS EYE VIEW OF ELIZABETHAN AGE

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ABSTRACT : *The word 'renaissance' literally means 'rebirth' and it began in Italy in the 14th century and subsequently spread throughout Europe during 15th, 16th, and 17th centuries. . The Italian Renaissance was a product of urban centres that were becoming richer through commerce;this includes Milan, Florence, and Venice. A number of important historical events contributed to making England a powerful nation during this period. England made significant advances in the realm of navigation and exploration.England's renaissance in the realm of thought and art is epitomised by the official recognition that Elizabeth 1 gave to Oxford and Cambridge.The arts flourished under Elizabeth 1. Her personal love of poetry, music, and drama helped to establish a climate in which it was fashionable for the wealthy members of the court to support the arts. The period marks the real beginning of drama. It is the golden age of English drama. The renewed study of classical drama shaped English drama in the formative years.*

Seneca influenced the development of English tragedy, and Plantus and Terence directed the formation of comedy. The classical drama gave English drama its five acts, its set scenes and many other features.Another dramatic genre,which emerged during this period, is tragic-comedy, which mixes lamentable tragedy with pleasant mirth.

The University Wits Lyly, Peele, Greene, Lodge, Nashe, Kyd and Marlowe are known as the university Wits because they came either from Cambridge or from Oxford.They were romantic by nature and they represented the spirit of Renaissance. The great merit of the University Wits was that they came with their passion and poetry, and their academic training. They paved the way for the successive writers like Shakespeare to express his genius.

Shakespeare is the best known of all of the Elizabethan Playwrights. Other writers of the period include Thomas Kyd, Christopher Marlowe, Ben Jonson, John Fletcher, and John Webster. Plays were usually performed in outdoor theatres in the afternoon. Poorer audience members were

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required to stand for the duration of the performance while wealthier people could sit in elevated seats. Often writers worked under the patronage of significant courtiers or wealthy noblemen. Experimentation with the English language led to rise in favour of Blank verse.

William Shakespeare was not of an age but of all ages. He wrote 37 plays, which may be classified as tragedies, comedies, romances or tragic-comedies and historical plays.

KEY WORDS : Renaissance, Subsequently, Navigation, Formation, Formative, Experimentation

INTRODUCTION

The word 'renaissance' literally means 'rebirth' and it began in Italy in the 14th century and subsequently spread throughout Europe during 15th , 16th , and 17th centuries. The feudal economies of the medieval period gave way to centralised political structures and the dominance of the church in aspect of cultural life such as music and the arts began to wane as secular interests rose. The Italian Renaissance was a product of urban centres that were becoming richer through commerce, This includes Milan , Florence, and Venice.

The Renaissance in England coincided with the reign of Elizabeth I who was Queen of England and Ireland from 1558 until 1603, so it is often referred to as the Elizabethan period. Elizabeth I's reign saw a rise in the concept of 'nationalism' in England and this can be seen in the increased interest that writers had in writing literary and dramatic works in the English language. As a result. Elizabethan England saw a significant growth in cultural developments.

A number of important historical events contributed to making England a powerful nation during this period. England made significant advances in the realm of navigation and exploration. Its most important accomplishment was the circumnavigation of the world by Sir Francis Drake between 1577 and 1580. England's reputation as strong naval power was enshrined in history by its defeat of the Spanish Armada in 1588 and by the turn of the century England was the forefront of international trade and the race for colonisation.

England's renaissance in the realm of thought and art is epitomised by the official recognition that Elizabeth 1 gave to Oxford and Cambridge. These universities were acknowledged as the focal point for the nation's learning and scholarly activities. Other historical development which shaped the direct ion of Elizabeth Literature include the invention of the printing press to England in 1476 which helped to make literature more widely available, the growth of a wealthy middle class of people who had the time of write and read, and the opening up of education to the laity rather than being the exclusive domain of the clergy.

The arts flourished under Elizabeth 1. Her personal love of poetry, music, and drama helped to establish a climate in which it was fashionable for the wealthy members of the court to support the arts. Theatres such as the Globe (1599) and the Rose (1587) were built and writers such as Ben Jonson, Christopher Marlowe, and William Shakespeare wrote comic and tragic plays.

The literary decline after Chaucer' death was due in considerable measure to political reasons. The dispute about the throne, which culminated in the War of Roses, dissipated the energy and resources of the country and finally destroyed in large measure and noble families, The art and literature depended on their patronage. The accession of Henary VII in 1485 brought about a period of quiet and recovery. Henry VII established a strong monarchy and restored social and political order. He curtailed the power and privileges of barons and patronized the new rich class. The country resumed its power among European nations, and began through them to feel the stimulus of the Renaissance. Coxton's press, which was established in 1476 in London, was the earliest forerunner of Renaissance in England. Rickett remarks: The Renaissance had come with Caxton. It began in London with the publication of English masterpieces that awakened a sense of their national life in the minds of the people.

King Henry VIII, Who accepted to the throne of England in 1509, began an era of significant and purpose full changes. He ruled in the spirit of modern statecraft He encouraged trade and manufacturers, and increased the wealth of the country. He hastened the decline of feudalism by allowing men of low birth to high positions. Thus the court became the field for the display of individual ambition. Men of talent and learning found honourable place in his court. During his reign England contributed her part to the spread of the new civilisation and new learning. Education was popularized. Cardinal's college and Christ Church College at Oxford were founded.

ELIZABETHAN POETRY

Latin was still used for much of the literature early in the period. However , as the new nationalism began to influence literary production, works began to appear in English. Edmund Spenser's " The Faerie Queen" was written in English and it broke new ground with respect to what could be achieved with this language. It was created to flatter Elizabeth I. Another innovative writer of the period was Sir Philip Sidney. The new directions that the philosophy of Humanism was creating at the time influenced both Spencer and Sydney. The new literary style borrowed heavily from classical Greek writing. A form of sonnet called either the Shakespearean Sonnet or the Elizabethan Sonnet became fashionable. One of the literary historians called Elizabethan age as a nest of singing birds about the composition of poetry in this period. There were many poets who contributed to develop this form of literature and it reached the peak of its development. The poet not only adopted and innovated the form of poetry and wrote on the varied themes. The poetry of Elizabethan era mirrors the spirit of Age. It reflects the spirit of conquest and self-glorification, humanism and vigorous imagination, emotional depth and passionate intensity. Sublimity was considered to be the essential quality of poverty. Spencer, Shakespeare and Marlowe had the immense power to exalt and sublimate the lovers of poetry. The poetry of this period is remarkable for the spirit of independence. The poets refused to follow set rules of poetic composition. Consequently, new poetic devices and new linguistic modes developed. All varieties of poetic forms like lyric, elegy, eclogue, ode, sonnet etc. were successfully attempted.

THEATRICAL CONDITIONS IN ELIZABETHAN ENGLAND

The period marks the real beginning of drama . It is the golden age of English drama. The renewed study of classical drama shaped English drama in the formative years. Seneca influenced the development of English tragedy, and Plantus and Terence directed the formation of comedy. The classical drama gave English drama its five acts, its set scenes and many other features. Regular English tragedy, comedy and historical play were successfully written during this period. Nichola Idal's Relph Roister Doister (1553) is the first English comedy of the classical school, which is divided into acts and scenes. Gamar Gurton's Needle (1575), written by an unknown writer is another comedy in the classical style.The first complete tragedy of the Senecan type is Gorbaduc (1562), which was written byThomas Morton and Thomas Sackville. The example of Garbaduc was followed by Thomas Hughes in The Misfortunes of Arthus (1588) and George Gascoigne's Jocasta(1566).All these tragedies were influenced by Seneca both in style and treatment of theme.

Another dramatic genre, which emerged during this period, is tragic-comedy, which mixes lamentable tragedy with pleasant mirth.

The University Wits : Lyly, Peele, Greene, Lodge, Nashe, Kyd and Marlowe are known as the university Wits becausethey came either from Cambridge or from Oxford. They were romantic by nature and they represented the spirit of Renaissance. The great merit of the University Wits was that they came with their passion and poetry, and their academic training. They paved the way for the successive writers like Shakespeare to express his genius.

John Lyly: Lyly wrote eight comedies of which the best are Campaspe, Endymion, Grallathia, Midas and Love's Metamorphosis. He wrote for the private theatres. His writing is replete with genuine romantic atmosphere,honour,fancy for romantic comedy, realism, classicism and romanticism. Lyly established prose as an expression of comedy. He deftly used prose to express light feelings of fun and laughter. He also used a suitable blank verse for the comedy. High comedy demands a nice sense of phrase, and Lyly is the first great phrase maker in English. He gave to English comedy a witty phraseology. He also made an important advance of successful comic portrayal. His characters are both types and individuals. Disguise as a devise was later popularized by Shakespeare in his plays especially in his comedies. The device of girl dressed as a boy is traced back to Lyly. The introduction of songs, symbolical of the mood owes its popularity to Lyly.

George Peele: His work consists of The Arraignment of Paris. The Battle of Alcazar, the Love of King David and Fair Bethsabe and The Old Wives' Tales. He has left behind a pastoral, a romantic tragedy,a chronicle history and a romantic satire. He juxtaposes romance and relity in his plays. As a humorist he influenced Shakespeare. In The Old Wives' Tales he for the first time introduced the note of satire in English drama.

Robert Greene: Greene wrote The Comical History of Alphonsus, King of Aragon and Friar Bacon and Friar Bungay. Greene was the first master of the art of plot construction in English drama. In his plays Greene has three distinct words mingled together - the world of magic, the world of aristocratic life, and the world of the country. There is peculiar romantic humour and rare combination of realism and idealism in his plays. He is the first to draw romantic heroines. His heroines Margaret and Dorothea anticipate Shakespeare's Rosalind and Celia.

Thomas Kyd: Kyd's The Spanish Trgedy, a Senecan tragedy, is an abiding contribution to the development of English tragedy. It is a well constructed play in which the dramatist has skilfully woven passion, pathos and fear until they reach a climax. Kyd succeeded in producing dialogue that is forceful and capable. He introduced the revenge motif into drama.He, thus, influenced Shakespeare's Hamlet and Webster's 'The Duchess of Malfi'.The device of play within play, which Shakespeare employed in Hamlet, is used for the first time in The Spanish Tragedy. He also introduced the hesitating typeof hero, suffering from bouts of madness, feigned or real, in the character of Hieronimo, who anticipates the character of Hamlet.

Christopher Marlowe: Marlowe's famous plays Tamburlaine, Dr. Faustus, 'Edward II' and The Jew of Malta give him a place of preemine nce among the University Wits. Swinburne calls him - the first great poet, the father of English tragedy and the creator of blank verse.He is, indeed, the protagonist of tragic drama in English and the forerunner of Shakespeare and his fellows.Marlowe provided big heroic subjects that appealed to human imagination. He for the first time imparted individually and dignity to the tragic hero. He also presented the tragic conflict between the good and evil forces in Dr. Faustus. He is the first tragic dramatist who used the device of Nemesis in an artistic and psychological manner. Marlowe for the first time made blank verse a powerful vehicle for the expression of varied human emotions. His blank verse , which Ben Jonson calls, - Marlowe's Mighty Line is noticeable for its splendour of diction, picturesqueness, vigour and energy, variety in place and its responsiveness to the demands of varying emotions. Marlowe has been termed the father of English tragedy. He was in fact the first to feel that romantic drama was the sole form in harmony with the temperament of the nation. He created authentic romantic tragedy in English and paved the way for the full blossoming of Shakespeare's dramatic genius.

Shakespeare is the best known of all of the Elizabethan Playwrights. Other writers of the period include Thomas Kyd, Christopher Marlowe, Ben Jonson, John Fletcher, and JohnWebster. Plays were usually performed in outdoor theatres in the afternoon. Poorer audience members were required to stand for the duration of the performance while wealthier people could sit in elevated seats. Often writers worked under the patronage of significant courtiers or wealthy noblemen. Experimentation with the English language led to rise in favour of Blank verse (which is unrhymed iambic pentameter)

The theatrical conditions of the period were such that companies flourished. During the period 1585-1642 there were typically two companies performing in London (and sometimes up to four companies). The population of London was only about 200,000 people so theatre companies often struggled to maintain audiences.

Performances took place six days a week and plays commenced at 2pm. Typically a different play was staged each day. A new play would be introduced into the repertoire every seventeen days. Individual plays normally only had about ten performances before they were dropped from the repertoire. This meant that playwrights were in high demand. Most plays were not published during the writers' lifetimes. Indeed, there was little consideration of reading the plays. Plays were for performances.

William Shakespeare was not of an age but of all ages. He wrote 37 plays, which may be classified as tragedies, comedies, romances or tragic-comedies and historical plays. The period of Shakespeare's dramatic activity spans twenty four years (1588-1612) which is divided into the following four sub-periods:i) The First Period (1588-96): It is a period of early experimentation. During this period he wrote Titus Andronicus, First Part of Henry VI, Love's Labour Lost, The Comedy of Errors, The Two Gentleman of Verona, A Midsummer Night's Dream, Richard II and Richard III and King John. His early poems The Rape of Laurece and Venus and Andonis belong to this period. Ii) The Second Period (1596-1600) : Shakespeare wrote his great comedies and chronicled plays during this period. Tworks of this period are The Merchant of Venice, The Taming of the Shrew, The Merry Wives of Windsor, Much Ado About Nothing As You Like It, The Twelfth Night, Henry IV, Part I & II, and Henry V.iii) The Third Period (1601-08) : It is a period of great tragedies Hamlet, Macbeth, King Lear Orthello,Julius Caesar, and of somber and better comedies All's Well That Ends Well, Measure For Measure and Troilus and Cressaida. Iv) The Fourth Period (1608-1613) : Shakespeare last period begins with Antony and Cleopatra, Coriolanus, Timon of Athens, Henry VII and Pericles. What distinguishes Shakespeare's last period is the reawakening of his first love romance in Cymbeline, The Tempest and The Winter's Tale.

SHAKESPEAREAN COMEDY

Shakespeare brought perfection to the writing of romantic comedy. His comedies are classified into the following three categories.

i) **The Early Comedies :** They are The Comedy of Errors, Love's Labour Lost and The Two Gentlemen of Verona. The play show signs of immaturity. The plots are less original, the characters are less finished and the style is also vigorous. The humour lacks the wide human sympathy of his mature comedies.

ii) **The Mature Comedies:** Shakespeare's comic genius finds expression in Much Ado About Nothing, Twelfth Night, The Merchant of Venice and As You Like It. These plays are full of love and romance, vigour and vitality, versatility of humour, humanity and well portrayed characters.

iii) **The Somber Comedies:** All's Well That Ends Well, Measure for Measure and Troilus and Cressida belong to the period of great tragedies. These comedies have a serious and somber time.

CHARACTERISTICS OF SHAKESPEAREAN COMEDY

Shakespearean comedy is pre-eminently romantic. His predecessors - Lyly, Greene and Peele influenced his art of writing comedy. The main characteristics of Shakespearean comedy are given below:

Romanare and Realism: Shakespearean comedy is romantic. The classical unities of time, place and action are not observed in it. The settings are all imaginative. The action takes place in some remote far off place, and not in familiar surroundings. According to Raleigh Shakespearean comedy is a - rainbow world of love in idleness. What distinguishes Shakespearean comedy is the fine and artistic blend of romance and realism. All his comedies are related to real life. There are contemporary figures and contemporary fashions in Love's Labour Lost. Bottom and his companions exist with fairies; Sir Toly Belch and Sir Andrew are companions of Viola and Olivia. Shakespeare character's are real. His dramatic personages are ordinary human beings and incidents are such as occurring in every day life. The romantic main plot and the realistic sub plot are harmoniously put together in As You Like It, Twelfth Night and Midsummer Night's Dream. Charlton writes: - Shakespearean comedies are not satiric; they are poetic. They are not conservative, they are creative.

Love: Shakespearean comedy is essentially a comedy of love, which ends with the ringing of marriage bells. Wooning distinguishes it from classical comedy. The entire atmosphere is surcharged with love. Not only the hero and the heroine are in love but all are in love. The Shakespearean comedy end not with the celebration of one marriage but with many marriages. Shakespeare has vividly exhibited carried manifestations of love in his comedies. In As You Like It he has described the love at first sight between Orlando and Rosalind, thoughtful love between Celia and Oliver, pastoral love between Phebo and Silvius

SHAKESPEAREAN TRAGEDY

Shakespearean comedy is romantic and not classical. It observes the fundamental requirements of trgedy expounded by Aristotle in The Poetics. The main characteristics of Shakespearean tragedy are as follows :

i) **Tragic Hero:** Shakespearean tragedy is pre-eminently the story of one person, the hero of the protagonist. It is, indeed, a tail of suffering and calamity resulting in the death of the hero. It is concerned always with person of high degree, often with Kings or princes or with leaders in the state like Coriolanus, Brutus and Antony. Shakespeare's tragic heroes are not only great men, they also suffer greatly, their calamity and suffering are exceptional. The sufferings and calamities of an ordinary man are not worthy of note, as they affect his own life. The story of the prince like Hamlet, or the King like Lear, or the generals like Macbeth or Othello has a greatness and dignity of its own. His fate affects the fate of a whole nation or empire. When he falls from the height of earthly greatness to the dust, his fall produces a sense of contrast of the powerlessness of man. His fall creates cathartic effects on the audience.

Shakespeare' tragic hero is endowed with noble qualities of head and heart, He is built on a grand scale. For instance, Macbeth has - vaulting ambition, Hamlet noble inaction, Othello credulity and rashness in action, and Lear the folly and incapacity to judge human character. Owing to this -fatal flaw the hero falls from a state of prosperity and greatness into adversity and unhappiness, and ultimately dies.

ii) **Tragic Waste:** In Shakespearean trgedy we find the element of tragic waste. All exceptional qualities of the protagonist are wasted. At the end of the tragedy, the Evil does not triumph.It is expelled but at the cost of much that is good and admirable. The fall of Macbeth does not only mean the death of evil in him, but also the waste of much that is essentially good and noble. In Hamlet and King Lear the good is also destroyed along with the evil. There is no tragedy in the expulsion of evil; the tragedy is that it involves the waste of good.

iii) **Fate and Character:** The action of the protagonist is of great importance as they lead to his death. What we do feel strongly as the tragedy advances to its close is that the calamities and catastrophe follow invetibly from the deeds of man, and that the main source of these deeds is character. But to call Shakespearean tragedy the story of human character is not the entire truth. Shakespeare's tragedies, as Nicoll points out are-tragedies of character and destiny. There is a tragic relationship between the hero and his environment. A.C. Bradley also points out that with Shakespeare-character are destiny is an exaggeration of a vital truth. Fate or destiny places the protagonist in just those circumstances and situations with which he is incapable of dealing. The flaw in the character of the protagonist proves fatal for him in the peculiar circumstances in which cruel Density has placed him. The essence of Shakespearean tragedy, therefore, is that Fate presents a problem which is difficult for the particular hero at a time when he is least fitted to tackle it. The tragic relationship between the hero and his surroundings is a significant factor in Shakespearean tragedy. So, both character and destiny are responsible for the hero's tragic end.

CONCLUSION

In this we have studied the importance of English Renaissance which exercised a great impact on the development of English literature. We have taken an outline of the socio-political milieu of the Elizabethan age including the literary features of these ages. Further we studied the different kinds of poetry like love poetry, patriotic poetry, philosophic poetry and satirical poetry to name few. Elizabethan prose and its various forms: essay, character writing, religious writing and prose romance. This prose writing projected the novel writing in the later ages. The final part focuses on the dramatic art developed by the Elizabethan playwrights. It includes the University wits and their contributions to drama, and as to how they pave the way for Shakespeare. It extensively studies the dramatic activities of William Shakespeare and characteristic of his different kinds of drama like comedy, tragedy and historical plays,

Thus we come to know that the Elizabethan age was an age of abundance in literary works of great splendour.

REFERENCES

- Daiches David, A Critical History of English Literature
- Albert Edward, History of English Literature
- Wikipedia

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DERRIDA AND DECONSTRUCTION

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ABSTRACT : *"Life is a text and there is nothing outside text", with this view Jacques Derrida stunned many previous philosophers and turned much of the western world view topsy-turvy.*

Among the theories propounded recently the theory of Deconstruction by Jacques Derrida is the most influential. It is a text/ language oriented theory that appeared in the late 1960's and caused many previous philosophers to be reassessed He was born in 1930 in the suburbs of the Algiers in a petty bourgeois Jewish Family. His Jewishness the sense of belonging to a marginal dispossessed culture and the rabbinic tradition had formative influences on his theory and he boycotted the concept of anything being central and the soul of any theory.

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It was in 1966, at a Johns Hopkins University, Derrida quite unexpectedly , cast the entire history of philosophy in the west into doubt . After this revolutionary debut in 1967 Derrida burst upon the scene of writing with three books : 'Writing and Difference', ' Of Grammatology' ,and 'Voice and Phenomenon'. And with these books appeared the most debated theory of 'Deconstruction'.

KEY WORDS : Deconstruktion, Phonocentric, Logocentric, Arche-writing, Traces.

MEANING

"Deconstruction" means "Decentering unmasking the problematic nature of all the centers. Derrida rejects the basic concept of the whole western philosophy that there is a centre, an origin ,a truth and ideal form fixed point ,an immovable mover, an essence of god a presence which guarantees all meaning freezing the marginal .

The problem with centers, for Derrida, is that they attempt to exclude. In doing so they marginalize, ignore or repress others. Centre wants to fix or freeze the free play of meaning.

He considers life a text made up of different traces that is symbols, and understanding.

He finds Deconstruction the best method to understand any text. Deconstruction is in fact a subversive mode of reading and the whole construction of deconstruction is raised on four the text means understanding the symbols.

PILLARS

- Concept of Binary Opposition by Friedrich Nietzsche
- Martin Heidegger's concept of Destruction
- Linguistic theory of Ferdinand-de-Saussure
- Freud's concept of conscious, subconscious and unconscious

CONCEPT OF BINARY OPPOSITION

Concept of Binary Opposition propounded by Friedrich Nietzsche (1844-1900), a German philosopher says that life is made up of binary opposites and we are prisoners of our own perspectives. Derrida shares with him his views and asserts that life is a dance of thoughts waltzing between extremes such as, beautiful, ugly ; life, death ; light, darkness; male, female; etc. It is a free play of opposites and we are prisoners of our own perspectives. We perceive and understand things according to our thoughts and experiences that are the different traces imprinted in our mind. So there is nothing privileged nothing marginal.

So the longing for a center spawns binary opposites, with one term of the opposition central and the other marginal.

HEIDEGGER'S THEORY OF DESTRUKTION

Actually, the term "deconstruction" comes from Martin Heidegger's (1889-1976) concept of Destruction that asserts that there is no Ultimate Reality. So Heidegger was in a practice of crossing out the terms after he had written asserting that meaning is open ended. Derrida borrowed from him the concept and started putting his terms under erasure using × leaving room for new meanings.

LINGUISTIC THEORY OF FERDINAND DE SAUSSURE

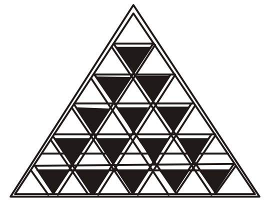
Saussure, a Swiss linguist, established that language is a symbolic system. He thought that there is an abstract structure that determines all languages concrete manifestations i.e. symbols and these symbols are arbitrary. Language is a system of differences with no stable "positive elements, no unchanging linguistic atom that might provide a meaning for language". 'CAT' IS CAT because it is not 'BAT'.

FREUD'S CONCEPT OF CONSCIOUS, UNCONSCIOUS, AND SUBCONSCIOUS

With Sigmund Freud (1856-1939), the originator of psycho-analysis Derrida questions the unity of the human psyche, which is always haunted by subconscious traces of past experiences. These traces always differ from one another and are always marked by difference.

In the whole theory, Derrida asserts that life is a dance of thoughts waltzing between extremes such as beautiful-ugly , life- death , day and night. It is a free play of opposites and we are the prisoners of our own thoughts. We perceive and understand things according to our own thoughts that are nothing but different traces imprinted in our mind. So there is nothing privileged and nothing marginal. All are like the configuration in which each triangle is coming out of the preceding configuration. There is no central configuration freezing the free plays of others.

Seeing the figure, we can say that one figure is dissolving into the other or the next one is coming out of the prior one. But there is an underlying structure.



So it is impossible to draw a clear -cut line between reality and representation. He examines Rousseau's 'Confessions'. Rousseau says "Writing is a dangerous supplement " , an addition to the natural resources of speech . Rousseau in his 'confession' marginalizes 'writing' and gives more importance to speech .Derrida points out, Rousseau debunks writing ,while a supplement is one that adds and makes the original more complete ; that is the original 'Speech' lacks something that is always haunted by a sense of 'absence' which is fulfilled by the written form .

Similarly, Derrida minutely examines Saussure's ideas on language. Saussure says: 'Language' and 'writing' are two distinct systems of sign; the second exists for the sole purpose of representing the first. The linguistics object is not both written and spoken forms of word; the spoken form alone constitutes the object. But the spoken word is so intimately connected to the written image that the latter manages to usurp the main role. People attach more importance to the sign itself (Course in general linguistics: 1916 pp 23)

Derrida shows how Saussure fails to grasp full significance of his own theories. Saussure, like Aristotle, Plato and Rousseau, marginalizes 'writing' and privileges 'speech' Derrida calls written form ' a signifier of the signifier'.

Privileging speech over writing is called phonocentricism, but to Derrida it is logocentricism because there is an Absolute Truth i.e. transcendental logos prescribed by inner conscience heard by "inner voice" and then uttered in the form of sound and these sounds are given the written symbol. So he says written from is 'a signifier.

Derrida uses writing in its narrow sense as well as in its broader sense to indicate all systems that show traces (like impressions, footprints where the object is absent). Derrida lays, there is an arche-writing before any kind of writing. A text and understanding a text is, understanding the text preceding it which itself takes birth from some text. A text becomes a trace, 'a signifier' as well as a signified. In this way there is never any thing present - only traces of the traces like the configuration of the triangles-one coming out of the other and dissolving into the other.

Thus, understanding a literary text is to scrutinize the traces and to reach very close to the 'Originary' because there is nothing absolute. All the concepts are relatively understood but while reading a text we must be very careful if we are not blinded by the visible. And this is possible when we adopt the subversive mode of reading.

When a text is presented before us, we must find out the binary opposites because all the different concepts are juxtaposed in opposition in which one is privileged over the other but in this subversive mode of reading we have to turn the upside down. The superior is made inferior making the inferior superior. The reversed hierarchy is again deconstructed and in this way one can penetrate into the structure of any discourse and can make a critical study of any text.

Thus, Derrida dismantled many established concepts in every field such as philosophy, anthropology and psychology. He puts every concept under erasure because he believed that there is nothing absolute and fixed. We defer from one meaning to another. We keep on moving from one to another. We keep moving from one signifier to another signifier. We never get to the signified, the signified gets lost in the search and we keep on going round and round.

Thus elements or entities are never fully present because language is a state of dissemination. Dissemination is a state of perpetually unfulfilled meaning. So, Derrida has no use for differences inscribed once and for all in a closed system or a static structure. He coins the term deference to express not only difference but also the endless deferment (Postponement).

Thus this method of reading may lead us to better under-standing but it is a methodology based on suspicion and skepticism and fits in the general mood of question.

One of the major problems associated with this method is that it gives the readers a fairly wide scope to operate but does not fix any real responsibilities on them. As it assumes that there can be no truth and takes the reader to in determinant meaning "half there -half not there".

DEATH BE NOT PROUD: DECONSTRUCTED

Binary Opposition

Proud — Not proud

Mighty & Dreadful — weak & helpless

Omnipotent, can kill anybody —Slave to fate , chance ,poison ,war & sickness

Sleep is soothing &gives rest to mind & body — long sleep giving more rest& pleasure

Death is a sleep that knows no more waking.

We wake eternally — no more death

DEATH ITSELF DIES

Death should not be proud.

REFERENCES

- Derrida Jacques — Of grammatology 1967
- Rousseau — Confession
- Saussure de Ferdinand — Course in general linguistics 1916 pp 23-24

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नागार्जुन की कविता में भूमि–आंदोलन का स्वरूप

रुचि कुमारी * इंदु मोआर *

सारांश : *नागार्जुन अपनी राजनीतिक कविताओं के लिए प्रसिद्ध हैं। हिन्दी के दूसरे कवियों ने भी राजनीतिक कविताएं लिखी हैं लेकिन आम आदमी की राजनीतिक भाषा एवं राजनीतिक चेतना को कविता के माध्यम से व्यक्त करने की जैसी क्षमता नागार्जुन में है वैसी किसी अन्य कवि में नहीं है। इसलिए हिन्दी कवियों में नागार्जुन अद्वितीय स्थान रखते हैं।*

हिन्दी काव्य साहित्य के क्षेत्र में नागार्जुन की पहचान एक क्रांतिकारी कवि के रूप में है। उनकी जनसरोकारगत कविताएँ यह स्पष्ट संदेश देती हैं, कि वे समाज में निवास करने वाले आमजनों की वेदना को महसूस करने वाले कवि हैं। उन्होंने अपनी जीवन–दृष्टि को साम्यवाद की मान्यताओं के अनुकूल बनाया और अपने काव्य के माध्यम से प्रगतिवाद की पुष्टि की। उनकी कविताओं में सामाजिक–राजनीतिक तत्त्वों की प्रधानता रहती है। व्यवस्था पर तीखा व्यंग उनकी काव्य का वैशिष्ट्य है। उनके व्यंग का क्षेत्र काफी विस्तृत है, जिसमें-पूँजीवाद, साम्राज्यवाद, सामंतवादी-मनोवृत्ति, बहुपत्नी-प्रथा, धार्मिक-पाखंड, सामाजिक-कुरीतियाँ, पाखंडी नेता, कर्मचारी वर्ग, खोखले राजनीतिज्ञ, सामाजसेवी सभी उनके व्यंग्य के पात्र बने हैं।

नागार्जुन ने अपनी कविताओं में व्यंग को राजनीतिक आलोचना के शस्त्र के रूप में व्यक्त किया है। अपनी व्यंग काव्य शैली के माध्यम से इनके द्वारा स्वाधीनता आंदोलन के समय और बाद के राजनीतिक नेताओं, दलों, विचारधाराओं को उनकी सार्थकता एवं निरर्थकता की कसौटी पर कसकर परखा गया और उसके यथार्थगत पहलू को जनता के सामने रखा गया है। अपनी व्यंगात्मक कविताओं के माध्यम से इन्होंने सत्ता की विसंगतियों की आलोचना समाज के सामने प्रस्तुत की है। भूमि पर मालिकाना हक़ किसका होगा–यह आजादी के बाद भी भारत में एक गंभीर राजनीतिक सवाल है, जिसका सीधा संबंध देश की मौजूदा वर्ग व्यवस्था से है।

देश में समय–समय पर चलाए जाने वाले जनआंदोलनों द्वारा भूमि पर मालिकाना हक़ के सवाल को केन्द्र में रखकर अपने–अपने अधिकारों की लड़ाइयाँ लड़ी गई हैं। संघर्षशील आमजन और भूमिहीन आबादी के ख़ुशहाली की कामना ही दरअसल वह आग है जिसने नागार्जुन को आजीवन अशांत रखा। आम जनता के सरोकार से वे गंभीर रूप से प्रभावित होते रहे और व्यक्तिगत गरीबी का विस्तार करोड़ों आमजनों में देखकर व्यवस्था के प्रति उनका आक्रोश निरंतर बढ़ता रहा।

शब्द कुंजी : नेतृत्वकारी, मालिकाना, जनआंदोलन, संघर्षशील, आमजन, गहरी चेतना

परिचय : नागार्जुन व्यवस्था में वंचित आबादी के दु:ख–दर्द से सरोकार रखने वाले और वर्तमान व्यवस्था से असंतुष्ट रहने वाले एक अति संवेदनशील कवि थे। अपनी कविता को करोड़ो लोगों के दर्द से जोड़ने की छटपटाहट को उनकी काव्य भाषा में स्पष्ट रूप से देखा जा सकता है। इनकी कविता जगत् का अधिकांश भाग इस बात की स्पष्ट रूपरेखा प्रस्तुत करता है। यद्यपि कविता सामाजिक और राजनीतिक घटनाओं का सीधा और स्थूल ऐतिहासिक उल्लेख नहीं है, फिर भी आजाद भारत में पहले पाँच

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दशक तक के महत्त्वपूर्ण राजनीतिक हलचलों, उसका बोध और इसके साथ जनमानस की भावधारा का इतिहास यदि कोई एक ही कवि में देखना चाहे तो नागार्जुन के काव्य संसार को देखा जा सकता है। देश के शासकों में अपनी रिआया के प्रति संवेदनशीलता की कमी रिआया की दुरवारियाँ और उनके मौजूदा बदहाली से नागार्जुन काफी व्यथित रहते थे। नागार्जुन का आरंभिक जीवन नाना प्रकार के अभावों में गुजरा, जिसका अक्श उनकी कविताओं में दिखाई पड़ता है। सन् 1946 में आजादी के ठीक पूर्व नागार्जुन की एक कविता-**'नवयुग का आरंभ'** का प्रकाशन हुआ। यह काव्य संग्रह उनकी विचारों की प्रगतिशीलता का द्योतक है–

"हो बुलंद सहयोग, प्रगति समता के नारे,
नवयुग का आरंभ करे ये गाँव हमारे।
बढ़े सहयोग भेद मिट जाए,
मिटे शोषण का नामो-निशान।
ढ़हे अन्यायों की दीवार,
सुखी होए मजदूर किसान।।"

आजादी के ठीक पहले से लेकर प्रथम आम चुनाव के बीच 'तेभागा और तेलंगाना किसान संघर्ष' भारतीय इतिहास का महत्त्वपूर्ण पड़ाव है। फसल के बँटवारे, लगान की जबरन वसूली व किसानों तथा जमींदारों के बीच गैर बराबरी पूर्ण संबंधों के ख़िलाफ भारत की कम्युनिष्ट पार्टी और बंग कृषक समाज के नेतृत्त्व में बंगाल में तेभागा सशस्त्र किसान आंदोलन चलाया गया था। उस आंदोलन का एक महत्त्वपूर्ण नारा था-'जमीन जोतने वालों की'। तेभागा और तेलंगाना जैसे महत्त्वपूर्ण आंदोलन हमारे इतिहास में हल न हो सके, इसी अंतर्विरोध की जमीन से उठ खड़ा हुआ था–

"उबड़ खाबड़ बालू वाली परती बंजर या उसर।
कैसी भी हो धरती निर्भर रहे जोतने वालों पर।।
कागज की आजादी मिलती, ले लो दो-दो आने में।
लाल भवानी प्रकट हुई हैं, सुना कि तेलंगाना में।।"

जनता के लिए अगर आजादी का अर्थ बहुत संकुचित भी कर दिया जाए तो इतनी उम्मीद तो थी ही कि हर किसी को भर पेट भोजन मिल सकेगा, लेकिन लोगों की ये बुनियादी ज़रूरत भी पूरी नहीं हो सकी। नागार्जुन की तीन कविताओं को एक साथ रखकर देखने से ऐसा लगता है जैसे वे सभी एक-दूसरे की पूरक हों। सन् 1950 में लिखी गई कविता **'प्रेत का बयान'**, 1953 में **'मास्टर'** और 1954 में लिखी गई कविता **'वह तो था बीमार'** तीनों ही कविताएं भूख की सच्चाई को अलग-अलग अंदाज में बयान करती हैं। इन कविताओं की पृष्ठभूमि में भूमिहीनों की मार्मिक स्थिति का वर्णन किया गया है।

भूदान की जमीनों का मुद्दा आज भी बिहार में जमीन के सवाल पर चल रहे संघर्षों का एक महत्त्वपूर्ण पक्ष है। भूदान की उसर-बंजर जमीनों पर गरीब मेहनतकशों ने काम करके उसे उपजाऊ बनाया और बाद में ज्यादातर जमीनें उन्हीं जमीनदारों द्वारा हड़प ली गई, जिन्होंने उसे दान किया था। बाबा नागार्जुन भूमिपतियों के हृदय परिवर्तन की राजनीति को को बख़ूबी जानते-समझते हैं।

'नदियाँ बदला ले ही लेंगी' शीर्षक कविता भूमिहीनों के सशस्त्र आंदोलन को मुखर रूप को सामने रखती है, तो **'आंखिन देखी'** में यह ख़ासियत है कि इसने नागार्जुन की काव्य भूमि को सोंधी बनाई है। स्वातंत्र्योत्तर भारत में ख़ास कर बिहार जैसे राज्य में भूमि संबंधी बुनियादी सवाल उठाकर नागार्जुन ने सही मायने में राजनीतिक आजादी और आर्थिक लोकतंत्र के लिए चलने वाले संघर्ष की आवाज़ को मजबूती दी। उनकी रचना का संसार फैज़ की पंक्ति 'चले चलो कि वह मंजिल अभी नहीं आई' का रचनात्मक विस्तार है। इस क्रम में वे महत्त्वपूर्ण तरीके से इस मंजिल को ही निगल जाने के लिए अधीर लोगों के प्रपंच को उद्घाटित करते हैं।

निष्कर्ष: इस प्रकार, नागार्जुन एक जनचेता, जनश्रुत और जनप्रतिबद्ध कवि थे इसलिए उनकी प्रत्येक रचना में जनता का हित समाहित है। वे विशेष रूप से गाँव के भोले-भाले लोग, आमजनता, किसान, बेरोजगार और भूमिहीनों के प्रति सहानुभूति प्रकट करते हैं तथा जमींदारी, महाजन, पूँजीवाद, साम्राज्यवाद और सामंती मनोवृत्ति के प्रति अपना रोष व्यक्त करते रहे हैं। उनकी कविताओं में प्रतिक्रियावादी मनोवृत्ति का परिचय मिलता है। नागार्जुन गरीबों, भूमिहीनों, एवं दलितों के सामाजिक सम्मान, जनहितकारी मुद्दों और जमीन पर उनके मालिकाना हक जैसे सवालों से जुड़ी समस्याओं के समाधान के लिए सदैव तत्पर दिखे हैं। इस प्रकार की कविताओं के माध्यम से नागार्जुन का व्यवस्था के प्रति आक्रोश सदैव व्यंग्य बनकर निकलता रहा है, सत्ता के प्रति और उनके लिए 'जन' ही मंच रहा और जन ही 'मंत्र'।

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IQUBAL - LIFE

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پیش کش

سعدیہ سلطانہ

رول نمبر- ۴٦٠

بی ۔اے سال سوم

فارسی آنرز

نگراں

ڈاکٹر شاہدہ خانم

صدر شعبۂ فارسی

مگدھ مہیلا کالج

پٹنہ یونیورسٹی، پٹنہ

اقبال: احوال و آثار شاعری اور ادبی خدمات کا مختصر جائزہ

ڈاکٹر محمد اقبال اردو اور فارسی ادب کے درخشندہ اور تابندہ ستاروں میں ایک ہیں۔ فارسی اور اردو ادب میں اقبال نے ایک مفکر، رہبر اور ایک دانشور کی حیثیت سے وہ مقام بنایا جو دوسرے شعراء کو نصیب نہ ہو سکا۔ آج ہندوستان اور ہندوستان کے باہر کا ہر دانشور، ادیب، نقاد اور اہل علم اقبال کو دنیا کے عظیم شاعروں کی صف میں جگہ دیتا ہے۔ علّامہ اقبال حکیم امت کے ساتھ ساتھ مشاہیر عالم کے نام سے دنیائے ادب میں مشہور ہیں۔

محمد اقبال کے آباؤ اجداد کشمیری برہمن تھے۔ ایک مسلمان بزرگ سے عقیدت کی وجہ سے وہ مسلمان ہوئے۔ کشمیر سے آ کر سیالکوٹ میں رہنے لگے۔ علامہ اقبال کے دادا شیخ محمد رفیق تھے۔ ان کے دو بیٹے شیخ نور محمد اور شیخ غلام قادر تھے۔ شیخ نور محمد جو بڑے پاکباز، سچے، نیک اور اللہ والے بزرگ تھے۔ وہ سیالکوٹ میں اپنی پرہیزگاری، سچائی اور نیکی کی وجہ سے ہر دل عزیز تھے۔ انکے دو بیٹے تھے عطا محمد اور محمد اقبال۔ نور محمد نے اپنے بیٹوں کی بھی اسی نہج پر تربیت کی اور ایک دن اقبال کو نصیحت کی کہ ''جب تم قرآن پڑھو تو یہ سمجھو کہ قرآن تم ہی پر اترا ہے یعنی اللہ تعالیٰ خود تم سے ہم کلام ہے۔'' اقبال کی ماں کا نام امام بی بی تھا جو بڑی سلیقہ مند اور پاکباز عورت تھیں۔

اقبال ۱۸۷۳ء میں سیالکوٹ میں پیدا ہوئے۔ انکے والد نے اپنے بچوں کو فارسی، اردو اور انگریزی کی

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خوب اچھی تعلیم دی۔ اقبال نے مشن اسکول میں تعلیم حاصل کر کے کالج میں داخلہ لیا اور دوسرے بڑی بھائی جنکا نام شیخ محمد عطا تھا وہ بڑے ہو کر انجینئر بن گئے۔ انکے بڑے بھائی اقبال سے ۱۱ سال بڑے تھے۔

اقبال بچپن سے ہی بڑے ذہین اور تیز طالب علم تھے۔ جب اسکول میں تعلیم حاصل کر رہے تھے تو اس وقت سے انکا شاعرانہ ذوق کافی عروج پر تھا۔ انکی نظر اور توجہ شاعری کی طرف تھی۔ پرائمری، مڈل اور انٹرنس کے امتحانوں میں آپ نے زبردست کامیابی حاصل کی اور اتنے اچھے نمبر لائے کہ اسکالرشپ بھی ملنے لگی۔ جب سیالکوٹ میں کالج کی تعمیر ہوگئی تو انہوں نے وہاں داخلہ لے لیا۔ محمد اقبال مولوی میر حسن نام کے ایک بڑے عربی اور فارسی کے استاد سے عربی اور فارسی کی تعلیم حاصل کرنے لگے۔ انکے پڑھانے کا انداز اتنا اچھا تھا کہ وہ جو بھی پڑھاتے تھے وہ سارا کچھ یاد ہو جاتا تھا۔ اسی وجہ سے علامہ اقبال کی عربی اور فارسی کی صلاحیت کافی اچھی ہوگئی۔ لاہور جو اس وقت اعلیٰ تعلیم کا محور تھا وہاں اعلیٰ تعلیم حاصل کرنے کے لئے سیالکوٹ سے ایف۔ اے کا امتحان پاس کر کے پہنچے اور گورنمنٹ کالج لاہور میں داخلہ لے لیا۔ وہاں کے ایک لائق اور کافی باصلاحیت استاد جنکا نام آرنلڈ تھا انکی بڑی محبت اقبال کے ساتھ تھی وہ اقبال کے اصلی جوہر کو پرکھ چکے تھے اور انکی ذہانت بھی اچھی طرح سے سمجھ چکے تھے۔ انہوں نے ہمیشہ اقبال کی ہمت افزائی کی اور ہمیشہ اقبال پر شفقت کی نگاہیں رکھتے تھے۔

لاہور اس وقت علم و ادب کا گہوارہ تھا۔ وہاں اکثر مشاعرے ہوا کرتے تھے۔ مشاعروں میں بہت سارے نامی-گرامی اور مشہور و معروف شعرا اپنے اشعار پڑھتے تھے۔ رفتہ رفتہ اقبال کو بھی لوگ جاننے لگے اور اقبال کی عمر جس وقت صرف ۲۲ر سال کی تھی اس کم عمری میں اقبال نے لاہور کے ایک مشاعرے میں اپنی ایک غزل پڑھی۔ اس زمانے میں مرزا ارشد گورگانی ایک زبردست اور اعلیٰ شاعر تھے، انہوں نے اقبال کے اشعار کی بڑی پذیرائی کی اور انکا شعر سن کر بالکل مضطرب اور بے چین ہو گئے اور بے ساختہ انکی زبان سے نکل پڑا - میاں صاحب زادے! سبحان اللہ! اس عمر میں یہ شعر! وہ شعر جو اقبال نے لکھا یہ تھا۔

موتی سمجھ کر شانِ کریمی نے چن لئے
قطرے جو تھے مرے عرقِ انفعال کے

اقبال نے بی۔اے کا امتحان دیا اور اس میں اتنی زبردست کامیابی حاصل کی کہ عربی اور انگریزی میں اوّل آئے جس کی وجہ سے انہیں دو سونے کا مڈل ملا۔اقبال پہلے اورینٹل کالج اور پھر گورمنٹ کالج میں فلسفہ کے پروفیسر مقرر ہوئے اور حقیقت یہ ہے کہ فلسفہ اقبال کی شاعری پر غالب آ گیا انکی شاعری کا ایک خاص مقصد رہا ہے اور اسی مقصد کو حاصل کرنے کے لئے انہوں نے شاعری کو وسیلہ بنایا۔اقبال کی شاعری کی دھوم مچ گئی تھی۔۱۸۹۹ء میں انجمن حمایت اسلام کے جلسہ میں آپ نے ایک رقت آمیز اور درد انگیز نظم پڑھی جسکا عنوان تھا ''نالہ یتیم''۔یہ ایسی نظم تھی کہ جس جس کے کان تک اسکے اشعار گئے اسکے دل بے چین ہو گئے اور جلسہ کے سارے لوگوں کی آنکھوں سے زاروقطار آنسو ٹپکنے لگے۔پھر آپنے ہمالہ، ہندوستان ہمارا وغیرہ بہت ساری قومی نظمیں بھی لکھیں۔ ۱۹۵۴ء میں اقبال یورپ روانہ ہو گئے اور وہاں ایم۔اے۔کی تعلیم حاصل کرنے کے لیے کیمبرج یونیورسٹی میں داخلہ لیا۔ جہاں وہ فلسفہ کی تعلیم حاصل کرنے لگے۔کیمبرج میں فلسفہ کا امتحان پاس کر کے آپ نے ایران کے فلسفہ کے متعلق ایک کتاب لکھی جس پر جرمنی کی میونخ یونیورسٹی نے آپ کو پی۔ایچ۔ڈی کی ڈگری عطا کی۔ جرمنی سے واپس آ کر آپ نے لندن میں بیرسٹری کا امتحان پاس کیا۔اس وقت پروفیسر آرنلڈ جو بڑے مشفق تھے وہ لندن یونیورسٹی میں عربی کے پروفیسر تھے جب وہ رخصت ہو گئے تو اقبال انکی جگہ ۶/ماہ تک عربی پڑھاتے رہے۔

اقبال یورپ کی تہذیب سے متنفر تھے کیونکہ یورپ والوں کی تہذیب میں خوبیاں کم اور خامیاں زیادہ تھیں۔ان کے اندر صرف ظاہری آب وتاب اور چمک دمک تھی۔ یہ چمک لوگوں کی آنکھوں کو تھوڑی دیر کے لئے خیرہ کر دیتی تھی لیکن انکا اندروں بالکل کھوکھلا تھا جب انھوں نے یہ حالت دیکھی تو انہیں بڑا صدمہ پہنچا اور انہوں نے ایسا سوچا کہ اگر ساری انسانی برادری کے لوگ ایک ہی کنبہ کے لوگ ہیں تو پھر اتنا فرق کیوں ہے۔یورپ کی دنیا انکے لیے بالکل نئی تھی کیوں کہ ہندوستان کا ماحول اس سے بالکل الگ تھا۔

ولایت سے واپس آ کر انہوں نے اردو میں بہت ساری نظمیں لکھیں لیکن اب انکی توجہ فارسی کی طرف زیادہ ہو گئی تھی۔ بہت دنوں تک انہوں نے اردو میں شعر کہنا ہی چھوڑ دیا تھا کیوں کہ ایک تو فارسی زبان شاعری کے لئے بہت موزوں ہے اور دوسرے وہ اپنے خیالات کو بغیر کسی تأمل کے فارسی میں کہہ جاتے تھے۔انکا یہ کہنا تھا کہ انکی شاعری صرف ہندوستان کے لئے نہیں بلکہ ساری دنیا کے مسلمانوں کے لئے ہے اور فارسی کے سوا کوئی زبان ایسی نہیں جسکے ذریعے اپنے خیالات دوسرے ممالک

کے مسلمانوں تک پہنچائے جاسکتے ہوں۔

اقبال ۱۸۸۴ء میں ولایت سے ہندوستان واپس آئے اور گورنمنٹ کالج میں استاد بن گئے جہاں سے ۵۰۰/روپے ہر ماہ انہیں تنخواہ ملتی تھی اور ساتھ ہی ساتھ وکالت کرنے کی بھی اجازت مل گئی تھی۔ اقبال نے ایک مختصر ڈھائی سال کی ملازمت کے بعد یکا یک استعفیٰ دے دیا اور ایسا انہوں نے اس لئے کیا کہ انہیں اپنے خیالات آزادی کے ساتھ ظاہر کرنے میں دشواری ہو رہی تھی۔ اسکے بعد انہوں نے بیریسٹری کی طرف زیادہ توجہ کی۔ انہیں دولت کا نشہ نہیں تھا بلکہ وہ صرف مقدموں سے اتنا ہی کمانا چاہتے تھے کہ انکے اخراجات پورے ہو جائیں۔

۱۹۱۴ء میں پہلی جنگ عظیم شروع ہوئی۔ اس زمانے میں اقبال اپنے خیالات کو اردو میں پوری طرح ظاہر کرنے میں بہت مشکل محسوس کر رہے تھے۔ اس لئے انہوں نے فارسی میں شعر کہنا شروع کیا۔

انہوں نے اس وقت کے مسلمانوں کے ذہن کو سمجھا اور یہ پایا کہ مسلمانوں نے جب یونانی کتابوں کا عربی زبان میں ترجمہ کیا تو یہ بات ان لوگوں میں پیدا ہو گئی کہ انسان کو اپنی خودی بالکل مٹا دینی چاہئے اور خدا پر بھروسہ کر کے صبر و قناعت کی زندگی گزارنی چاہئے۔ اس قسم کے خیالات نے مسلمانوں کو کاہل اور نکما بنا دیا تھا۔ اقبال نے ''اسرارِ خودی'' میں اس قسم کے خیالات کی زبردست مخالفت کی۔ اقبال کے اشعار میں قرآن پاک کی سچی تعلیم موجود ہے۔ وہ کہتے ہیں کہ اپنے آپ کو پہچانو۔ دنیا میں جو کچھ ہے سب تمہارے لیے ہے۔ دل سے ڈر اور خوف بالکل نکال دو۔ دریاؤں میں کود دو، لہروں سے لڑو، چٹانوں سے ٹکرا جاؤ۔ کیوں کہ زندگی پھولوں کی سیج نہیں بلکہ میدانِ کارزار ہے۔

۱۹۲۶ء میں وہ لاہور کے حلقہ سے کاؤنسل کی ممبری کے لئے کھڑے ہوئے۔ ۱۹۲۸ء میں مدراس سے انہیں لیکچرر کا عہدہ دیا گیا اور وہاں انکا شاندار استقبال کیا گیا۔ مدراس سے میسور اور وہاں سے حیدر آباد تشریف لے گئے وہاں بھی لوگوں نے انکا زبردست استقبال کیا۔ ۱۹۳۰ء میں مسلمانوں کی پرانی انجمن مسلم لیگ نے الہ آباد میں اپنا سالانہ جلسہ کیا۔ ڈاکٹر اقبال اس جلسہ کے صدر چنے گئے۔

اقبال جب ولایت سے واپس آئے تو ڈاکٹر اقبال کہلانے لگے۔ حکومت نے ان کو سر کا خطاب دیا تو آپنے اپنے استاد مولوی میر حسن کو شمس العلماء کا خطاب دلوایا لیکن خود قوم میں علامہ اقبال کہلانے لگے۔ اقبال ایک سچے اور سیدھے سادہ درویش

تھے۔انہوں نے اکثر شعروں میں خود کو درویش وفقیر کہا ہے اور اس فقیری و درویشی پر انہیں بہت ناز بھی تھا۔

زندگی کے آخری دور میں وہ بیمار رہنے لگے۔ انہیں گردہ کا درد کا مرض ہوگیا۔ ۱۹۳۴ء میں ان کی آواز بیٹھ گئی۔ کافی علاج کے باوجود ٹھیک نہ ہوئے جس کی وجہ سے ہائی کورٹ جانے سے معذور ہوگئے۔ بھوپال کے نواب نے ان کی مالی مشکلات دیکھ کر پانچ سو روپیہ ماہانہ وظیفہ دینا شروع کر دیا جو آخری دم تک انہیں ملتا رہا۔ ۱۹۳۵ء میں ان کی اہلیہ بھی اس دنیا سے کوچ کر گئیں جن کا انہیں بے حد صدمہ پہنچا اور طبیعت اور بھی زیادہ خراب ہوگئی۔ ان کی اس بگڑتی حالت کو دیکھ کر ان کے بڑے بھائی شیخ عطا محمد نے دو چار تسلی کی باتیں کہیں تو اقبال نے یہ شعر کیا۔

نشانِ مردِ مومن باتو گویم
چو مرگ آید تبسم برلب اوست

علامہ اقبال نے ۲۱/اپریل ۱۹۳۸ء کو انتقال کیا۔ ان کے والد کا انتقال ۱۹۳۰ء میں ہوا۔ یعنی والد محترم کے انتقال کے صرف آٹھ سال بعد علامہ اقبال نے اس دارِ فانی سے رخصت کیا۔

علامہ اقبالؔ نے اردو اور فارسی دونوں زبانوں میں زبردست شاعری کی جس پر ساری دنیا نازاں ہے۔ اقبال حقیقی معنوں میں فطری شاعر ہیں لیکن ان کے خیال میں شاعری تفریح طبع کا سامان نہیں بلکہ گمراہ اور بھٹکی ہوئی انسانی زندگی کو صحیح راستہ دکھانے کا ایک ذریعہ ہے۔ جیسا کہ خود انہوں نے اپنے اس شعر میں اس خیال کی وضاحت کی ہے۔

نغمہ کجا و من کجا ساز سخن بہانہ ایست
سوئے قطاری کشم ناقۂ بے زمام را

انہوں نے فارسی میں بہت سارے شعری مجموعے لکھے۔ اسرار خودی، رموز بیخودی، پیام مشرق، زبور عجم، جاوید نامہ، مسافر، پس چہ باید کرد اے اقوام مشرق ارمغان حجاز۔

<u>اسرار خودی:</u> یہ ایک طویل نظم ہے جو ۱۹۱۵ء میں شائع ہوئی۔ اس کتاب کا موضوع خودی ہے۔ اسرار خودی مولانا رومؔ اور ان کی مثنوی ''مثنویٔ معنوی'' سے متاثر ہو کر لکھی گئی۔ اسرار خودی کے اندر جو کیف و مستی اور گہرائی و گیرائی نظر آتی ہے اس کا منبع مولانا روم ہیں۔ یہ مثنوی تقریباً ایک ہزار صفحات پر مشتمل ہے جس میں اقبال نے فلسفۂ خودی کو اپنی فکر کا محور بنایا ہے۔ انہوں

نے اس میں اپنی روحانی بیتابی، اور ذہنی اضطرابی کو پیش کیا ہے۔ان کا کہنا ہے کہ رسول اکرمؐ نے جس دین کی تبلیغ کی اس پر چل کر ہی انسان دنیا اور عاقبت دونوں بہتر بنا سکتا ہے۔ پھر انہوں نے یہ بات بھی بتائی کہ دنیا کی حرص کی وجہ سے اگر کوئی کسی کے سامنے ہاتھ پھیلائے تو خودی کمزور ہو جاتی ہے۔ حکائتوں اور قصے کہانیوں کے ذریعہ انہوں نے اپنے خیالات کی وضاحت کی ہے کہ محکوم لوگوں کی ذہینت اپنی خودی کھو بیٹھتی ہے۔شاعروں کی حقیقت بیان کی ہے اور ساتھ ہی یہ بھی بتایا ہے کہ عجمی انداز شعر کے بجائے عربی انداز شعر ہی اپنانا چاہئے۔

<u>رموز بیخودی:</u> رموز بیخودی میں فرد سے آگے بڑھ کر پوری ملت وقوم کی خودی کی تربیت اور اس کی نشو ونما پر ضرب لگائی ہے۔فرد اور قوم وملت کی خودی کی تربیت اور اس کے استحکام کی راہیں دکھائی گئی ہیں۔ مغرب کی قومیت پرستی کے خلاف راہیں پیش کی گئی ہیں۔ یہ کتاب ۱۹۱۸ء میں شائع ہوئی۔مثنوی کے آغاز میں علامہ اقبال نے ملت اسلامیہ کو مخاطب کیا ہے۔ پھر یہ بتایا گیا ہے کہ ملت، افراد کے میل جول سے وجود میں آتی ہے اور اس کی تربیت وتکمیل، نبوت کی رہبری میں ہوتی ہے۔ حکایت کے وسیلے سے توحید کی پورے طور پر وضاحت کی گئی ہے۔ معاشرے میں آزادی اور برابری اور بھائی چارگی کی نشو ونما کے لئے بنی نوع انسان کی ذہنی فلاح اور روحانی سکون ضروری ہے۔ یہ اسقدر اچھی اور نادر و نایاب خیال والی کتاب ہے کہ اپنی اس تخلیق پر اقبال کو بھی فخر ہے۔ انہوں نے اس مثنوی میں ایسا فلسفۂ حیات پیش کیا ہے کہ جس نے اسلامی قوم وملت میں انقلاب پیدا کر دیا۔فلسفۂ حیات واقعی حیات اور زندگی دینے والا ہے اور اگر یہ کہا جائے کہ مردوں میں جان بخش دی گئی تو بیجا نہ ہوگا۔

<u>پیام مشرق:</u> یہ ۱۹۲۳ء میں شائع ہوئی۔اس میں نظمیں، غزلیں اور قطعات وغیرہ شامل ہیں۔ پیام مشرق مغربی مفکر گوئٹے سے ان کے گہرے ذہنی تعلق کا ثبوت ہے۔اقبال گوئٹے کا دیوان جس کا نام ''دیوانِ مغرب'' تھا اس کو اس لئے پسند کیا کیونکہ گوئٹے نے اپنی اس کتاب میں مغرب کی مادہ پرستی اور روحانی سرد مہری کا رونا رویا ہے۔اس کی آرزو یہ ہے کہ مغرب کا سینہ کسی طرح یقین کی روشنی سے جگمگا جائے۔ چنانچہ گوئٹے کی اسی آواز کو پوری کرنے کے لئے اقبال نے یہ پرمغز کتاب تحریر فرمائی۔

پیام مشرق کے تیسرے حصہ میں غزلیں ہیں جس میں عشق کی سرمستی اور شاعرانہ اسلوب موجود ہے۔اقبال کی سرمستی نیند کے خمار کو توڑتی اور خواب سے بیدار کرتی ہے۔

<u>زبور عجم:</u> اس کتاب کی اشاعت ۱۹۲۷ء میں ہوئی۔اقبال کے ایک ناقد ابوظفر عبدالواحد نے کہا ہے ''زبور عجم'' میں اقبال

نے اپنا فلسفۂ حیات راگ اور نغمے کے پیکر میں پیش کیا ہے۔فردوسی کو بھی دعویٰ تھا کہ اس نے اپنی فارسی سے عجم کو زندہ کیا ہے۔ مگر یہ دعویٰ قصہ، کہانیوں اور رزمیہ افسانہ نگاری کی حد تک درست تھا۔اقبال نے حقائق کو افسانے سے زیادہ دلچسپ بنا دیا ہے اور صدیوں کی سوئی ہوئی قوموں کو اپنے حیات پرور نغموں سے زندگی اور بیداری کا پیغام سنایا ہے۔ یہ جاں فزا ترانے غزل کے دلکش سانچے میں ڈھال لئے گئے ہیں۔ راگ اور رنگ مشرق کی جان ہے۔اقبال اس راز کو خوب جانتے ہیں اور ایک ماہر نفسیات کی طرح مریض کی نفسیات کو پہچان کر حافظ کی مینا میں خودی کی شراب چھلکائی ہے۔ پوری کتاب چار حصوں میں تقسیم ہے۔ پہلے حصے میں نغمے ہیں۔ میں ان کو نغمے ہی کہونگا اس لئے کہ ان کا ظاہری روپ غزل کا ہے مگر یہ غزلیں نہیں ہیں۔ان نغموں میں بعض کی بحریں اور ردیف اور قوافی، حافظ کی غزل کا کیف رکھتے ہیں، لیکن ان میں مدہوشی نہیں۔ دوسرا حصہ پہلے سے کم جاذب توجہ نہیں، اس میں اقبال کا سارا فلسفہ سمٹ سمٹا کر بیت الغزل بن گیا ہے۔''(۱)

جاوید نامہ: یہ کتاب ۱۹۳۲ء میں چھپی۔ اس کتاب کو پڑھنے کے بعد یہ معلوم ہوتا ہے کہ شاعر کی فکری پرواز اور فلسفیانہ بلندی کس عروج پر پہنچی ہوئی ہے۔ زبان و بیان کی پختگی اور بے انتہائی شیرینیت موجود ہے۔ بقول مولانا اسلم جیراج پوری،

''دیگر تصنیفات کی طرح یہ کتاب بھی دماغی لذت اور روحانی کیف کے لئے ایک لطیف نعمت ہے، بلکہ اس میں ایک جدت یہ ہے کہ شاعر نے پیر رومی کے ساتھ افلاک کی سیر کی ہے، مختلف سیاروں میں ارواح اور ملائک سے ملاقات ہوئی ہے اور ان سے حقائق وو عہد حاضر کے اہم مسائل پر سوالات اور جوابات ہوئے ہیں۔''

غرض یہ کتاب بھی بہت اہم ہے۔

مسافر: یہ فارسی مثنوی ۱۹۳۴ء میں شائع ہوئی۔ افغانستان کے سفر کرنے کے باعث علامہ اقبال نے یہ مثنوی تحریر فرمائی۔ اس سفر میں انہیں حکیم سنائی، سلطان محمود غزنوی اور داتا گنج بخشؒ کے والد وغیرہ کے مزاروں پر حاضری دینے کا موقع ملا۔ غرض یہ مشہور زمانہ مثنوی بھی پورے جذب و اثر میں ڈوبی ہوئی ہے۔

پس چہ باید کرد اے اقوام مشرق: یہ مثنوی ۱۹۳۶ء میں شائع ہوئی۔ اسکا انداز بھی ''مثنوی معنوی'' کی طرح ہے۔ پہلے تمہیدی اشعار ہیں جن میں مولانا روم نے یہ بتایا ہے کہ شاعر مشرق بیدار ہوں اور اپنے اشعار کو کس انداز سے لوگوں کے سامنے پیش کریں۔ پھر شاعر نے اپنے کلام میں اثر و تاثیر کی دعائیں کی ہیں اور حکمت کلیمی و حکمت فرعونی کا فرق واضح طور پر سمجھایا ہے۔

اس کے بعد لا الٰہ الا اللہ کی مفصل تفسیر بیان کی ہے۔اس کے بعد''فقر'' اور''مردحر'' کے بارے میں تفصیلی گفتگو کی ہے۔ پھر سیاسیات حاضرہ پر تبصرہ اور امتِ عربیہ سے مخاطبہ ہے۔اس کے بعد''پس چہ باید کرد اے اقوام مشرق'' کا عنوان ہے۔ یہی حصہ مثنوی کا اصل حصہ ہے۔جس میں اقبال نے مشرقی قوموں کو اپنے بازو کی قوت، اپنی سرزمین، دریا و پہاڑ وغیرہ پر فخر کرنے کا درس دیا ہے اور انگریزی تہذیب اور سیاست سے ہوشیار رہنے کی تلقین کی ہے۔

مثنوی کے آخر میں غلام قوموں کی ابتر حالت، فرنگیوں اور مغربی تہذیب سے ہوشیار رہنے کی نصیحت کرتے ہوئے مشرقی قوموں کی بے حسی اور بے غیرتی پر رونا رویا ہے اور آزادی و بیداری کی پُراثر دعائیں کی ہیں۔

<u>**ارمغان حجاز:**</u> یہ ایسی تصنیف ہے جو آدھی فارسی اور آدھی اردو میں ہے۔ ۱۹۳۸ء میں علامہ اقبال کی وفات کے بعد یہ کتاب چھپی۔علامہ اقبال نے جب حج کی تیاریاں شروع کیں تو ان کے دل میں اور آنکھوں میں حجاز کا منظر ایسا چھایا جیسے کہ وہ حجاز کا سفر کر رہے ہوں اور اللہ رب العزت اور حضور اکرمؐ کے دربار میں اپنی ملت کے لئے دعا گو ہیں۔

ان تصانیف کے علاوہ انہوں نے اردو میں بھی زبردست کارہائے نمایاں انجام دئے اور بانگ درا، بال جبریل، ضرب کلیم وغیرہ کتابیں لکھ ڈالیں جو بڑی ہی گرانقدر اور اعلیٰ درجہ کی حامل ہیں۔

پیش کش

سعدیہ سلطانہ

۷۸۶

نگراں

ڈاکٹر شاہدہ خانم

یہ مقالہ جس کا عنوان ''اقبالؔ: احوال وآثار، شاعری اور ادبی خدمات کا مختصر جائزہ'' ہے۔ فارسی آنرز، سال سوم کی طالبہ سعدیہ سلطانہ کی کاوشوں کا نتیجہ ہے۔ اس کا مطالعہ کرنے کے بعد یہ نتیجہ اخذ کیا گیا کہ علامہ اقبالؔ کی شخصیت دوسرے شعراء سے بہت بلند ہے۔ ان کی شاعری میں فلسفہ کا رنگ غالب ہے گویا انہوں نے اس مشکل فن کو بحسن وخوبی انجام دیا ہے۔ نادر تشبیہیں اور استعارات موجود ہیں۔ انہوں نے انسانیت کا پیغام دیا۔ خوابیدہ ذہن کے لوگوں کو بیدار کیا۔ قوم وملت کے لئے بہت کارآمد ثابت ہوئے۔

الغرض اس مختصر سے جائزہ میں ان کی شخصیت کو قلمبند کرنا گویا سمندر کو کوزے میں سمونا ہے۔

طلبہ کو علامہ اقبال کی مختلف کتابوں کا مطالعہ کرنا ضروری ہے۔

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प्राचीन भारत में प्राकृतिक चेतना : एक अनुशीलन

Payal Raj * Komal Kumari * Kiran Mala *

सारांश : *प्राचीन भारतीय संस्कृत सहित्य प्रकृति की आराधना के भाव से ओत-प्रोत है। इस साहित्य में समग्र सृष्टि के कल्याण के लिए प्रकृति के प्रति संरक्षण की भावना दिखाई देती है। प्रकृति के वातावरण को मानव अस्तित्व के संरक्षण और पोषक तत्त्वों के रूप में देखा गया है। आधुनिक युग में दिन प्रति दिन हम पर्यावरण प्रदूषण की समस्या से जूझ रहे हैं। प्राचीन भारत में प्रकृति के प्रति जो सहृदयता थी अगर हम उसको अपनी सामान्य दिनचर्या में अपना पाते तो आज आधुनिक युग में भी हम स्वच्छ वातावरण में सांस ले पाते। इस साहित्य द्वारा जनमानस को ये संदेश दिया गया है कि प्रकृति के प्रति मनुष्य को कृतज्ञ होने की जरूरत है। मनुष्य 'माता भूमि पुत्रेऽहं पृथिव्या' जैसे वाक्यों के द्वारा प्रकृति के प्रति अपनी कृतज्ञता प्रकट करता है।*

शब्द कुंजी : वैदिक साहित्य, वातावरण, संरक्षण

परिचय : पर्यावरण का मानव से सीधा सम्बन्ध है। हमारे जीवन-दर्शन का प्रमुख आधार वेदों में निहित है। वेदों के अध्ययन से विदित होता है कि प्राचीन ऋषि पर्यावरण के प्रति सचेत थे और उन्होंने पर्यावरण की सुरक्षा के उपायों का वेद मंत्रों में स्पष्ट उल्लेख किया है। प्रकृति के प्रति आर्ष-साहित्य में प्रतिपादित वचनों का अनुशीलन इस आलेख का उद्देश्य है।

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भारतीय ऋषियों ने प्रकृति के सुरम्य वातावरण में अपना समग्र जीवन व्यतीत कर प्राकृतिक तत्त्वों की खोज एवं जानकारी के लिए चिन्तन, मनन एवं उपासना की। उन्होंने मानव जीवन के कल्याणार्थ इसके महत्त्व और सुरक्षा के उपायों पर लगातार शोध किया और मनुष्य के शतायु होने की कामना की।

"जीवेम् शरदः शतम्।" (यजुर्वेद)

हमारी परमपरागत संस्कृति प्रकृति के साथ सामंजस्यपूर्वक जीना सिखाती है। वेद, मनुस्मृति, धर्मशास्त्र एवं उपनिषदों के नियम इस परमतत्त्व की इच्छा एवं आवश्यकता को प्रदर्शित करते हैं।

वैदिक संहिताओं में ऋग्वेद प्राचीनतम है जिसमें मुख्य रूप से प्रकृति को ही देवी मानकर स्तुति की गई है। वैदिक ऋषियों ने प्रकृति को माता माना है, इसलिए कहा **"माता भूमि पुत्रोऽहम पृथिव्याः"**। भूमि ही प्रकृति का प्रथम तत्त्व है। पृथ्वी में सम्पूर्ण भोगों की उत्पादकता है-इसलिए इसे 'श्री' कहा गया है। वेदों में वृक्षों के महत्त्व का सर्वाधिक उल्लेख किया गया है। वृक्षों में देवता का निवास माना गया है इसलिए प्राकृतिक पर्यावरण के संरक्षण की दृष्टि से इसको नहीं काटने पर बल दिया गया है।

भारतीय संस्कृति में बरगद, पीपल, आँवला, तुलसी आदि का पूजन करने का महत्त्व है, इसका अभिप्राय यह है कि ये सभी वृक्ष एवं पौधे मानव जीवन की सुरक्षा हेतु अत्यंत आवश्यक हैं। हिन्दू धर्म में प्रत्येक घर में तुलसी

का पौधा लगाने की सलाह दी गई है जिसका वैज्ञानिक कारण है। तुलसी ही संसार का एकमात्र ऐसा पौधा है जो दिन तथा रात दोनों समय ऑक्सीजन छोड़ता है, तथा उसकी पत्तियाँ प्रकाश संश्लेषण द्वारा सर्वाधिक मात्रा में सौर ऊर्जा शोषित करती हैं। धर्मशास्त्रों के अनुसार तुलसी में लक्ष्मी एवं विष्णु दोनों का निवास है। इसके पौराणिक महत्त्व को देखते हुए ऋषियों ने जनमानस में इसे धारण करने पर बल दिया है।

'वामन पुराण' में प्रातः काल उठते ही पाँच तत्त्वों का स्मरण करने की परम्परा पर जोर दिया गया है। इसके अनुसार पृथ्वी अपनी सुगन्ध, जल अपने बहाव, अग्नि अपने तेज अन्तरिक्ष अपने शब्द, ध्वनि और वायु अपने स्पर्श गुण के साथ हमारे प्रातः काल को अपना आशीर्वाद दें यही हमारी कामना है।

'गीता' में भगवान कृष्ण ने प्रकृति को अष्टकोणी बताया है। पाँच तत्त्वों के अलावा मन, बुद्धि एवं अहंकार की भी गणना की गई है। यह कामना की गई है कि ये पाँचों तत्त्व मिलकर मन-बुद्धि को निर्मल रखें तथा अहंकार को संयमित रखें।

'स्कन्द पुराण' के अनुसार जिस घर में प्रतिदिन तुलसी की पूजा होती है उसमें यमदूत प्रवेश नहीं कर सकता है। **(स्कन्द पुराण 21.66)।**

'वाराह पुराण' (172.39) में तो पेड़-पौधों और वनस्पतियों के रोपण-पोषण और संवद्धन को पुण्य कार्य माना गया है। मंत्र में व्यवस्था है कि यदि व्यक्ति अपने जीवन काल में एक पीपल, एक नीम, एक बरगद का वृक्ष लगाए, 10 फूलों वाले वृक्षों और लताओं का रोपण करे, अनार नारंगी आम के दो-दो वृक्ष लगाए तो वह कभी नरक का दर्शन नहीं करता है। संस्कृत साहित्य में प्रकृति को धर्म से जोड़कर देखने का मर्म यह है कि स्वस्थ पर्यावरण की दृष्टि से व्यक्ति सदैव प्रकृति का संरक्षण करे और मानव जीवन को स्वस्थ वातावरण मुहैया कराने की दृष्टि से कभी भूल कर भी पर्यावरण के विनाश की ओर कदम न बढ़ाये।

भारतीय संस्कृति में जल को पवित्र माना गया है। जल ही जीवन है। सम्पूर्ण प्राणियों, वनस्पतियों तथा औषधियों में सार तत्त्व के रूप में जल विद्यमान है। अतः इसे परमरस कहा गया है। सभी प्राणियों में जीवन-संचार करने हेतु मर्मतत्त्व होने की वजह से यह प्राण कहलाता है।

'ऋग्वेद' में जल के उचित प्रयोग पर विशेष निर्देश दिया गया है, और जो इसका दुरूपयोग करते हैं उनके साथ बुरा हो सकता है। वर्तमान में जल प्रदूषित होता जा रहा है, हमारी पवित्र जीवन दायिनी गंगा माँ प्रदूषित हो रही है। इसी प्रदूषण को रोकने के लिए **महाभारत** में कहा गया है कि-**"जल में 33 कोटि देवता निवास करते हैं, अतः इसमें मल मूत्र-त्याग सर्वथा वर्जित है।"**

'शथपथ' में एक कथानक है कि सृष्टि के पूर्व सब ओर विद्यमान जल में वायु ने प्रवेश कर उसे आलोकित किया जिससे फेन की उत्पत्ति हुई, तथा पुनः-पुनः आलोकित करने पर फेन से सिकता, सिकता से अश्मा (पत्थर) तथा अश्मा से पृथ्वी की उत्पत्ति हुई। वायु प्रदूषण आधुनिक युग की सबसे बड़ी समस्या है विशेषरूप से बड़े शहरों में।

भारतीय संस्कृति में अनेक पर्व एवं त्योहार पर हम वन्य जीवों की पूजा-अर्चना करते हैं। मोर सरस्वती के वाहन के रूप में, सिंह महाकाली के वाहन के रूप में, बैल शिव के वाहन के रूप में, हाथी इन्द्र के वाहन के रूप में तथा चूहा गणेश के वाहन के रूप में सदैव पूजनीय रहे हैं। मनुष्य की प्रकृति-प्रवृत्ति तथा उसके भूत, वर्तमान एवं भविष्य से जुड़ी ज्योतिषशास्त्र की बारह राशियां भी जीव-जन्तुओं से मानव जीवन के अटूट संबंध को दर्शाती हैं। हमारी संस्कृति में वन्य प्राणियों को प्रमुखता देकर मानव जीवन में न सिर्फ उनके महत्त्व को प्रतिष्ठित किया गया है बल्कि समय-समय पर लोगों ने प्राणों की आहुति देकर इनकी रक्षा भी की है। राजस्थान में ऐसे भी उदाहरण हैं जहाँ शासनादेश के बाद भी जनता ने कभी पेड़ नहीं काटने दिया। जोधपुर जिले के गाँव खेजड़ली में 363 बलिदानियों ने अपने प्राणों की आहुति देकर पेड़ों की रक्षा की। ऐसा उदाहरण विश्व में कहीं अन्यत्र नहीं मिलता है। **स्कन्द पुराण** के अनुसार सभी प्रकार के पेड़ों का कटना निन्दनीय है। धर्मकार्य में उपयोग के अलावा अन्य किसी भी वजह से पेड़ों की कटाई नहीं होनी चाहिए।

'पद्मपुराण' में उन व्यक्तियों को निश्चित रूप से नरक का अधिकारी माना गया है जो जीव हिंसा करते हैं या कुओं, तालाबों और उद्यानों को प्रदूषित करते हैं। पद्मपुराण में पीपल में जल डालना एवं बरगद का दर्शन करना, उसकी परिक्रमा करना धर्म कार्य माना गया है। रास्ते के दोनों ओर वृक्ष लगाना धर्म कार्य माना गया है।

'विष्णु पुराण' में कहा गया है कि 'हे दुष्टात्मा! यदि तुमने किसी पक्षी को भून कर खाया तो समझ लो तुम्हारे सारे यज्ञ पूजा-पाठ, तीर्थ यात्राएँ और पवित्र नदियों में स्नानादि व्यर्थ हैं।' जैन ग्रन्थ में यही भावना प्रतिपादित की गई है कि किसी भी प्राणी को मत मारो, यह धर्म का शाश्वत नियम है। जैनमत में केवल शारीरिक हिंसा ही वर्जित नहीं है अपितु वह बौद्धिक हिंसा को भी अनिवार्य रूप से वर्जित माना गया है।

रामायण में-

"मा निषाद् प्रतिष्ठांत्वामगमः शाश्वती समाः।
यत्क्रौञ्चमिथुनादेकमवधीः काममोहितं।।"

इस उक्ति में प्राणी में व्याप्त करुणा की अभिव्यक्ति है।

'महाभारत' के शान्ति पर्व में पशु-पक्षियों का वध करना तथा वृक्षों का काटना वर्जित है।

चाणक्य ने अर्थशास्त्र में वन्य प्राणियों की हत्या को रोकने के लिए दण्ड की व्यवस्था की थी। अपराधियों पर एक हजार पण का दण्ड लगाया जाता था।

हमारा पौराणिक साहित्य पर्यावरण संरक्षण के प्रति गहरी संवेदना दर्शाता है। पुराणों में हमारे पर्यावरण के प्रमुख जीव-जन्तुओं को देवताओं से संबंधित बताया गया है, यथा—हनुमान का कपि रूप, गणेश का हाथी रूप, नरसिंह का मनुष्य एवं सिंह रूप, विष्णु का मीनावतार, मत्स्यावतार, कच्छपावतार, वराहावतार आदि अवतार साक्षात् देव रूप में वर्णित है। इसके अतिरिक्त देवताओं का वाहन कहकर कुछ जीवों को संरक्षित करने की बात कही गयी है। यथा—शिव का वाहन वृषभ, गणेश का वाहन मूषक, सरस्वती का वाहन हंस, विष्णु का वाहन गरूड़, दुर्गा का वाहन सिंह, कार्तिकेय का वाहन मयूर, लक्ष्मी का वाहन उल्लू इत्यादि। इसके अतिरिक्त हमारे पौराणिक ग्रन्थ समस्त प्राणियों को ईश्वर के साथ जोड़कर उसके संरक्षण एवं संवर्द्धन की बात करते हैं। काव्य ग्रंथों में दार्शनिक एवं आयुर्वेदिक ग्रन्थों में नदियों पहाड़ों पर्वतों, वृक्षों, पादपों, जन्तुओं, वनस्पतियों को मानव का सहचार एवं हितैषी कहा गया है। काव्यों में प्रकृति के कोमल एवं कठोर दोनों पक्षों को रखकर हमें जागरुक किया गया है। हमारे प्राचीन साहित्य में संदेश है-

"सर्वे भवन्तु सुखिनः सर्वे सन्तु निरामयाः।
सर्वे भद्राणि पश्यन्तु मा कश्चित दु:ख भाग्वभेत्।।"

हमारे पर्यावरण में जैव विविधता है। हमें जैव विविधता से भरे पर्यावरण में अपने विकास के साथ-साथ समस्त जीव-जन्तुओं एवं पादपों को विकसित होते देखना है। हमारा संस्कृत साहित्य 84 लाख योनियों का संकेत करता है। ये समस्त जीव-जन्तु, पादप-वनस्पति हमारे पर्यावरण को संतुलित रखने के लिए आवश्यक हैं। इनके साथ हमारा संबंध सहोदर की भाँति है, अतएव हमारा व्यवहार इनके प्रति सदैव अनुकूल हो, ऐसी अपेक्षा की जाती है।

समग्र संस्कृत वाङ्मय पर्यावरण चेतना से ओत-प्रोत है और प्रकृति के प्रति कृतज्ञता से नतमस्तक है। परि एव आ पूर्वक वृ धातु में ल्यूट् प्रत्यय के योग से व्युत्पन्न हुआ है- पर्यावरण शब्द। जिसका सामान्य अर्थ है भौतिक परिवेश। जो जैव जगत को आवृत किये हुये है तथा जिसके प्रभाव से जीवन स्पन्दित होता है।

इस प्रकार पर्यावरण धरती को चारो ओर से घेरे हुए है। **"परितः आवृणोति जीव जगदिति पर्यावरणम्।"** इसके अन्तर्गत जल, भूमि, वायु, पशु, पक्षी, वृक्ष, सरिसृप आदि आते हैं। ये सभी पर्यावर्णिक तत्त्व मानव जीवन को आधार प्रदान करते हैं। जब-जब इन तत्त्वों में असंतुलन की स्थिति उत्पन्न होती है तब-तब मानव सभ्यता पर विकराल संकट उत्पन्न हो जाता है। वर्तमान समय में सम्पूर्ण विश्व इस पर्यावरण असंतुलन की विकट समस्या से जूझ रहा है। वृक्षों की अंधाधुंध कटाई, वैज्ञानिक प्रगति, औद्योगिकरण, औद्योगिकीकरण तथा भौतिकवाद की होड़ ने इस समस्या को और गंभीर बना दिया है।

हजारों साल पहले ही हमारे मनीषियों ने प्रकृति एवं पर्यावरण के प्रति जो सकारात्मक दृष्टिकोण अपनाया था, आज के संदर्भ में वह अत्यन्त उपयोगी और कल्याणकारी है। मानव जीवन का कोई भी ऐसा पक्ष नहीं जिस पर वेदों में चिन्तन न किया गया हो। पर्यावरण भी इसका अपवाद नहीं है। वेदों में पर्यावरण को ही 'प्रकृति' कहा गया है। जड़-जगत, पृथ्वी, पर्वत, नदियाँ एवं चेतन जगत के मध्य सृष्टि के प्रारम्भ से ही अनन्य संबंध रहा है। इसमें परस्पर समानुपातिक सामंजस्य से ही पर्यावरण का संतुलन संभव है। सृष्टि के आरम्भ से ही मानव प्रकृति का संरक्षण करता आया है और प्रकृति मानव का भरण-पोषण करती है। मनीषियों ने अपने आस-पास के वातावरण की प्रकृति को, पञ्चमहाभूतों से निर्मित माना है-

"तस्माद् वा एतस्मादात्मन आकाशः सम्भूतः।
आकाशात् वायुः।
वायोः अग्निः।
अग्नेः आपः।
अद्भ्यः पृथिवी।।" (तैतरीय उपनिषद्)

ये पञ्चमहाभूत विराट् से निर्मित हैं। सम्पूर्ण दृश्यमान जगत एक ही मूल तत्त्व का विस्तार है। वह मूल तत्त्व है प्रकृति जिसे आर्य दर्शन में विराट् की संज्ञा दी गई है। आधुनिक विज्ञान भी मानता है कि ब्रह्माण्ड इन्हीं तत्त्वों यथा–भूमि, जल, वायु, अग्नि और आकाश से निर्मित है।

संस्कृत वाङ्मय में इन पञ्चमहाभूतों के प्रति श्रद्धा, भक्ति एवं आदर का भाव रखा गया है और इन्हें देवत्त्व प्रदान कर इनकी पूजा उपासना की गई है। देव का अर्थ है-**"दिव्य गुणं समन्वितम्"**-ये पञ्चभूत दिव्य गुणों के दान से पर्यावरण को शुद्ध रखते हैं।

वेद के तत्त्वों में आधुनिक विज्ञान से भी उदात्ततर वैज्ञानिक सिद्धान्तों का प्रतिपादन है। यज्ञ को वेदों में सर्वाधिक महत्त्वपूर्ण स्थान प्राप्त है। एक यज्ञ वह है जो प्रकृति के द्वारा निरन्तर किया जा रहा है, जिसके द्वारा इस विश्व की सृष्टि हुई है और इसका पोषण हो रहा है। दूसरे प्रकार का यज्ञ लोक व्यवहार के लिए नितान्त आवश्यक है। इसका मूल-मंत्र है-अपनी प्रिय वस्तु का समाज कल्याण के उद्देश्य से देवताओं को समर्पण। यह दूसरा यज्ञ पहले प्रकार के यज्ञ पर आश्रित है जिसे पूरा करना मानव का कर्त्तव्य है। यह प्रकृति एवं मानव के बीच सामंजस्य स्थापित करता है। इसका संबंध प्रकृति से सम्बद्ध पञ्चमहाभूतों से है।

प्रकृति से सम्बद्ध चिन्तन

i) **वायु :** वेदों में प्राण वायु का उल्लेख है ये प्राण वायु ही ऑक्सीजन है। इसका शुद्ध होना कितना महत्त्वपूर्ण है इससे हमारे मनीषि परिचित थे। उनकी दृष्टि में अशुद्ध वातावरण को शुद्ध रखने के लिए यज्ञ का बहुत महत्त्व था। इसलिए यज्ञ को प्रजापति कहा गया है। क्योंकि इससे प्रजा का पालन होता था। यज्ञ में होम करने से हवन में प्रयोग की जाने वाली वस्तु शीघ्र भिन्न-भिन्न परमाणु रूप में परिणित होकर वायु और अग्नि के साथ आकाश में फैल जाता है। फिर ये परमाणु मेघ-मण्डल में वायु के आधारतत्त्व का कार्य करता है और परस्पर मेल से बादल बनकर वृष्टि के रूप में धरती पर मानव को नव जीवन देता है। वृष्टि से औषधि, औषधियों से अन्न, अन्न से धातु, धातु से शरीर और कर्म बनता है–

"अग्नवैंधूमो जायते धूमादभ्रमभ्राद् वृष्टिरनेर्वा एता जायन्ते तस्मादाहतयोजा इति।" (शतपथ ब्राह्मण)

जब होम से वायु, जल और औषधि आदि शुद्ध होता है तब संसार को सुख की प्राप्ति होती है और अशुद्ध होने पर कई प्रकार के दुःखों का सामना करना पड़ता है, इसलिए इसका शुद्धिकरण अपरिहार्य है।

ऋषियों ने वायु (वात) को अपने अनुकूल रहने के लिए इस प्रकार प्रार्थना की है–

"वात आवनु भेषजं शुभु मयोधु नो हृदे।
प्राण आभ्रूंषि तारिषत्।" (ऋग्वेद 10, 186)

अर्थात् वायु हमें ऐसी औषधि प्रदान करे जो हमारे हृदय के लिए शांतिकारक एवं अरोग्यकर हो, वायु हमारी आयु को बढ़ाए।

एक दूसरे मंत्र में ऋषियों ने वायु में निहित अमृत-तत्त्व की ओर संकेत किया है–

"यद्दो वात ते गृहे मृतस्य निधिर्हितः
ततो नो देहि जीवसे।।" (ऋग्वेद 1, 186, 3)

वायु में वर्तमान अमृत-तत्त्व ही ऑक्सीजन है, शुद्ध वायु फेफड़ों में पहुँच कर अशुद्ध रक्त को शुद्ध कर बाह्य श्वास के द्वारा रक्त के विकार को बाहर निकाल देता है–

"रू आ वात वाहि भेषजं विवात वाहि यरदरवः।"

दूषित वायु में साँस लेने पर यह प्रक्रिया संभव नहीं है। आज हम वृक्षारोपण और वन संरक्षण के उपाय कर रहे हैं। इस संबंध में वैदिक ऋषियों ने अपने भाव प्रकट करते हुये कहा है–

"ओषधीः प्रतिमोदध्वं पुष्पवती प्रसूवतीः।"
(अर्थववेद, 106)

सहस्त्रों पत्तोवाली औषधियाँ हमें प्रदूषण जनित मृत्यु से बचाएँ। हम सभी को यह ज्ञात है कि वृक्ष कार्बन डाईऑक्साइड को ग्रहण कर ऑक्सीजन का उत्सर्जन करता है जिससे वायु शुद्धिकरण की प्रक्रिया अनवरत रूप से चलती रहती है।

"वृक्षाणां पत्तये नमः, वनानां पतये नमः" के द्वारा ऋषियों की वन-सम्पदा के प्रति संरक्षण की भावना ध्वन्ति होती है।

"आ जुहोत हविषा मर्जयध्वम्" (सामवेद)

आदि मंत्रों द्वारा मानव मात्र का आह्वान अग्नि में शोधक द्रव्यों की हवि की आहुति डाल कर वायु मण्डल को शुद्ध करने के लिए किया गया है।

ii) **पृथ्वी :** वेदों में भूमि को माता कहा गया है–

"माता भूमिः पुत्रोऽहं पृथिव्याः" (अथर्ववेद, 12.12)

भूमि बेजान टुकड़ा मात्र नहीं है बल्कि यह तो माता के समान हमारा पालन–पोषण करती है। इसीलिए ऋषियों ने यह उद्‌गार व्यक्त किया है–

"पृथिवी मातमां मा हिंसीर्मो अहंत्वाम्।" (यजुर्वेद 10.23)

हे भूमि माता! तुम हमारी हिंसा मत करो और हम तुम्हारी हिंसा न करें। इससे हमें प्रेरणा मिलती है कि हम अपनी प्राकृतिक सम्पदा का संरक्षण करें जिससे भूमि कटाव, अत्यधिक रसायनिक खाद के प्रयोग से होने वाली हानि, मिट्‌टी प्रदूषण आदि समस्याओं को रोक सकेंगे, क्योंकि एक तरह से यह भूमि के प्रति हिंसा ही है।

वैदिक ऋषियों ने प्रार्थना की है कि सुखमय प्रदेश में उनका निवास हो–

"यस्यामिदं जिन्वति प्रणदेजत् सा नो भूमिः पूर्वयेये दधातु।।" (आप०सू०)

जो पृथ्वी नदी तथा समुद्र के जल से सनाथ है, जिसमें कृषि और अन्न होता है, जिससे प्राणी जगत तृप्त होता है, वह भूमि हमें रसमय प्रदेश में प्रतिष्ठित करे। दूषित भूमि के शुद्धिकरण का उपाय भी संस्कृत साहित्य में सुझाये गए हैं–

"सते वायुर्मातारिश्वा दधातु उतानाया हृदयं यद् विकस्तम्।"

अगर भूमि की उपजाऊ शक्ति न्यून अथवा समाप्त हो गयी हो तो कुछ समय उसे खाली छोड़ देने से वायु, सूर्य रश्मियाँ एवं वर्षा आदि के द्वारा उसमें पुनः शक्ति आ सकती है। शुद्ध वायु, जल और भूमि स्वच्छ पर्यावरण के निर्माण में महत्त्वपूर्ण भूमिका निभाते हैं।

iii) **जल :** जल ही जीवन है, यह विचार जीव मात्र के लिए कितना महत्त्व रखता है यह बताने की आवश्यकता नहीं है। जल एवं इसकी शक्ति का प्रतिपादन अनेक मंत्रों में किया गया है–

"शन्नो देवीरभिष्टय आपो भवन्तु पीतये
शं योरभिस्त्रवन्तु नः।"(ऋग्वेद, 1010, 4)

शुद्ध जल का पान करके एवं उसकी शुद्धता का संरक्षण करके मानव अपने स्वास्थ्य रूपी अभिष्ट को प्राप्त कर सकता है, क्योंकि ये जल समस्त प्रदूषण को बहा ले जाने कि क्षमता रखता है। **अथर्ववेद** के एक मंत्र में विभिन्न स्रोतों से प्राप्त जल को अलग–अलग गुणों से युक्त कहा गया है–

"शतं आवो हैमवतीः शमु ते सन्तूत्स्याः
शं ते सनिष्यदा आपः शमु ते सन्तुवर्ष्याः।।"

नदियों का जल अगर अशुद्ध हो जाए तो उसे शुद्ध करने का उपाय धर्मशास्त्रों में विस्तृत रूप में बताया गया है–

"यन्नदीषु परिजायते विषम्। विश्वेदेवा निरितस्तन् सुवन्तु।।"
(ऋग्वेद, 7/20/3)

यदि नदियों में विष उत्पन्न हो गया हो तो सारे विद्वान मिलकर उसे दूर कर लें–

"सर्वा नद्यो अशिमिदा भवन्तु।"

सभी नदियाँ प्रदूषण रहित हो जाएँ और दिव्य जल हमारे लिए सुखकारी हो। प्रदूषित जल के शुद्धिकरण का उपाय भी बताया गया है–

"सवितुर्वः प्रसव उत्युनपाभ्यच्छिद्रिण पवित्रेण सूर्यस्य रश्मिभिः।" (ऋग्वेद, 7/12/3)

सूर्यताप को यन्त्र द्वारा जल में पहुँचाना जल शोधन का एक विशिष्ट उपाय है।

iv) **अग्नि :** वर्तमान विज्ञान का मूल आधार विद्युत शक्ति है। वैदिक विज्ञान के मूल में प्राण शक्ति है। विद्युत शक्ति भी प्राणशक्ति का ही एक भेद है। वेदों के अनुसार प्राणों के भेद हैं–ऋषि, पितृ, देवता, गन्धर्व, असुर, इत्यादि। ये सब यज्ञ के परिचालक हैं। पाणिनि के अनुसार यज्ञ का अर्थ है–देव पूजा, संगतिकरण और दान। प्राण रूप देवों की पूजा अर्थात् प्रसादन करना यश है, और संगतिकरण–दो तत्त्वों को मिलाकर नया तत्त्व बनाना भी यज्ञ है। जगत के समस्त पदार्थों में जो दान–आदान की प्रक्रिया है वह भी यज्ञ है। यज्ञ के परिचालक देवता हैं–अग्नि और सोम। ये दोनों तत्त्व व्यापक हैं–**"अग्नि षोमात्मकं जगत्।"**

अग्नि निरन्तर सोम को खाता रहता है और अपने रूप में परिवर्तन करता रहता है। यज्ञ फल चतुर्दिक होता है–

"यज्ञस्य दोहो विततः पुरूषा।" (यजुर्वेद, 8/62)

अग्नि वायुमण्डल से समस्त विकारों एवं दूषक तत्त्वों का उनमूलन करता है–

"इदं हविर्यातुधानम् नदी फेनमिवावहता।"
(अथर्ववेद, 1/8/2)

अग्नि में होम की हुई हवि वायुमण्डल में रोग कृमि

रूप यातुधानों को वैसे ही विनष्ट कर देती है जैसे नदी झागों को।

सूर्य एक महाविशाल अग्निपिण्ड है, वह निरनतर जल रहा है। इसमें से अनन्त तेज या अग्नि समस्त ब्रह्माण्ड में फैलती है। लेकिन निरन्तर अग्नि फेंकता हुआ सूर्य क्षीण क्यों नहीं होता? इसका उत्तर वेदों में विद्यमान है– **"सोमेनदित्य बलिनः।"**

अर्थात् सोम की (अन्न की) आहुति उस पर होती रहती है और निरन्तर नई अग्नि उत्पन्न होती रहती है। यही सौर ऊर्जा है जो मानव एवं प्रकृति दोनों के लिए अत्यन्त महत्त्वपूर्ण है–

"सर्वो वै तत्र जीवति गौरश्वः पुरूषः पशुः।
यत्रेदं ब्रह्म क्रियते परिधिर्जीवनायकम्।।" (अर्थववेद)

आज हम **'ग्लोबलवार्मिंग'** से होने वाली समस्याओं यथा–ध्रुवीय प्रदेशों का पिघलना, इसकी वजह से समुद्र का जल स्तर बढ़ना, ऋतुक्रमों में व्यवधान, तेजाबी वर्षा इत्यादि का सामना कर रहे हैं। ओजोन परत में छिद्र होने के कारण सम्पूर्ण विश्व आनेवाले संकट से आशंकित है। हमारे मनीषियों ने बहुत पहले ही इस ओजोन परत के संबंध में अपना बहुमूल्य विचार रखा है। **अथर्ववेद** में पृथिवी के चारों ओर विद्यमान ओजोन परत का उल्लेख किया गया है। **आत्म विद्या सूक्त** में **'हिरण्य'** शब्द के द्वारा ओजोन का रंग सुनहरा बताया गया है तथा **'उल्ब'** शब्द का प्रयोग गर्भस्थ शिशु के ऊपर ढ़की हुई झिल्ली के लिए किया गया है। मंत्रों से स्पष्ट है कि ओजोन की परत पृथिवी की रक्षा करती है। इसको हानि पहुँचाना वैसे ही है जैसे की गर्भस्थ शिशु की झिल्ली से छेड़छाड़ करना।

भौमिक तापमान (Globalwarming) जैसी समस्या पर वैदिक साहित्य में चिन्तन किया गया है–

"मधुमान्नो वनस्पर्तिमघुमां अस्तु।
सूर्याः माध्वीर्गावो भवन्तु नः।।" (ऋग्वेद, 1/90/8)

ऋग्वेद में **"सूर्य आत्मा जगतस्तस्थुषश्च"** अर्थात् सूर्य जगत अखिल ब्रह्माण्ड की आत्मा है-ऐसा कहा गया है। सूर्य में प्राण (Oxygen) तथा उदजन (Hydrogen) शक्तियाँ समाहित हैं। **अथर्ववेद** के अनुसार सूर्य समस्त ऊर्जा का स्वामी है। इन मंत्रों से अभिप्राय यह है कि सौर ऊर्जा का प्रयोग कृषि और उद्योग दोनों के लिए हो सकता है। इससे संसाधनों की बचत होगी और पर्यावरण संतुलन भी बना रहेगा।

वैदिक साहित्य में अनेक रूप में विद्यमान प्रकृति आँधी, वर्षा, ग्रह नक्षत्र आदि की प्रार्थना की गई है, जिससे कि ये सब मानव एवं प्रकृति के अनुकूल रहें और पर्यावरण संशोधन में सहायक हों–

"प्र वाता वन्ति पतयन्ति विद्युत उदोषधीर्जिहते पिन्वते स्वः इरा विश्वस्मै भुवनाय जायते यत्पर्जन्यः पृथिवी रेतसावति" (ऋग्वेद, 5/83)

अर्थात् जब पर्जन्य देवता पृथिवी को जल के द्वारा सुरक्षित करते हैं, उसे सम्पन्न बनाने का कार्यक्रम चलाते हैं, तब हवाएं बहने लगती हैं, बिजलियाँ चमकने लगती हैं, पेड़–पौधे वनस्पति अंकुरित होने लगते हैं, आकाश जल बरसाने लगता है तथा भूमि समस्त संसार के लिए अन्न उत्पन्न करती है।

इस मंत्र में ब्रह्माण्ड निर्माण के सभी तत्त्वों–पृथ्वी, अग्नि, जल अग्नि रूपी विद्युत, वायु, आकाश एवं वनस्पतियों का समावेश है।

पर्यावरण को ये सभी संतुलित करते हैं। वर्षा का जल पृथ्वी से अनावश्यक कूड़ा–कचरा प्रवाहित कर उसे स्वच्छ करता है, तो झंझावत रूपी मरूत (आँधी) अपने प्रचंड वेग की वजह से प्रदूषण को उड़ा ले जाकर हमें उपकृत तथा रक्षित करता है–

"शम्मा भवन्तु मरूतो नः स्योनाः।" (अथर्ववेद)

वर्षा की जीवनदायिनी जल से पेड़–पौधे, पर्वत, भू–प्रदेश धुलकर स्वच्छ हो जाते हैं और स्वच्छ वातावरण की वजह से प्राणियों की आयु लम्बी हो जाती है। तभी ऋषियों ने–

"पश्येमः शरदः शतम्...." तथा **"कुर्वन्नेवेह कर्माणि"** आदि मंत्रों में सौ शरदों तक जीवनयापन का संदेश मानव को दिया है।

विकट पर्यावरणीय समस्या के साथ-साथ **'ध्वनि प्रदूषण'** की समस्या से भी ऋषियों का चिन्तन अछूता नहीं रहा है। आज ध्वनि प्रदूषण को मनुष्य के लिए शारीरिक एवं मानसिक दोनों स्तरों पर हानिकारक माना जा रहा है। बधिरता एवं हृदयाघात आदि के कारण के रूप में इसे देखा जा रहा है–**"भद्रं कर्णेभि श्रृणुयाम देवा भद्रं पश्येमाक्षभिर्यजत्राः।"**

आदि मंत्र के द्वारा आँखों से सुन्दर देखने की और कानों को श्रेयस्कर सुनने की कामना की गई है। अगर ध्वनि प्रदूषण को काबू में नहीं किया गया तो समाज में बहरेपन की समस्या विकराल रूप धारण कर सकती है।

वेद के अधिकांश सूक्त पर्यावरणीय संस्कृति के संरक्षण एवं उसके महत्त्व का ही प्रतिपादन करते हैं। प्रकृति के प्रति श्रद्धा एवं भक्ति की भावना में तथा प्राकृतिक संसाधनों के प्रति आस्था में सर्वत्र पर्यावरण संतुलन का महत्त्व अन्तर्निहित है।

वर्तमान समय में अनेकानेक कारणों से समस्त वातावरण प्रदूषित हो रहा है। वातावरण में कार्बनडाइऑक्साइड की मात्रा बढ़ती जा रही है और नये पौधों का रोपण नहीं हो रहा है। जनसंख्या विस्फोट की स्थिति, जीवन दायिनी वनस्पतियों का लुप्त होना, पर्वतों पर बर्फ का पिघलना और जलप्लावन की स्थितियाँ उत्पन्न होना आदि ऐसी परिस्थितियाँ हैं जिस पर यदि गंभीर चिन्तन नहीं किया गया तो आने वाले समय में समस्त मानव जाति का अस्तित्व विलुप्त हो सकता है। सुनामी जैसी आततायी लहरों का आना और तटवर्ती वृक्षों का नष्ट होना पर्यावरण-असंतुलन का परिणाम है। इस परिस्थिति से समस्त मानव समाज को बचाने के लिए आवश्यक है ऋत् का पालन करना। ऋत् सृष्टि का नियम है, जिसके अनुकरण एवं अनुपालन से संसार अपनी स्वाभाविक गति से चलता रहता है। इसी ऋत् का पालन करते हुए सूर्य प्रतिदिन उदित होता है और नदियाँ इस नियम के अधीन ही सतत् प्रवाहित होती रहती हैं। ऋत् सृष्टि का कारण है। जल की उत्पत्ति इसी ऋत् से हुई है। ऋत् का पालन ही धर्म है जो ऋत् के प्रतिनिधि के रूप में मानव जीवन को नियंत्रित, मर्यादित और श्रेयस्कर बनाता है।

प्रकृति के अंगों एवं उपांगों को देव रूप में मानने की परम्परा को समझना एवं उनके वैज्ञानिक तथ्यों को मानना एवं अपनाना मानव मात्र के लिए ही नहीं बल्कि प्रकृति के लिए भी कल्याणप्रद होगा।

उपसंहार

पर्यावरण प्रदूषण को नियंत्रित करने के लिए मानव को आस्था का मार्ग अपनाना चाहिए जो हिंसा रहित एवं **'सत्यं शिवं सुन्दरम्'** की भावना से युक्त है। यह वैदिक शान्ति पाठ पर्यावरण साधना का ही शाश्वत उद्घोष है–

"द्यौः शान्तिरन्तरिक्षं शान्ति पृथिवी–

शान्तिरापः शान्तिरोषधयः शान्तिः।

वनस्पत्यः शान्तिर्विश्वे देवा शान्तिः ब्रह्मशान्तिः सर्वशान्ति शान्तिरेव शान्ति सा मा शान्तिरेधि।।" (यजुर्वेद)

संदर्भ सूची

- तैतरीय उपनिषद्
- शतपथ ब्राह्मण
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- ऋग्वेद, 10/186/3
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- ऋग्वेद, 1/12/31

संदर्भ ग्रंथ सूची

- वैदिक वाङ्मय - डॉ. सूर्यकान्त
- वैदिक साहित्य का इतिहास वाचस्पति - गैरोला
- वैदिक साहित्य और संस्कृति- बलदेव उपाध्याय
- History of Sanskrit Literature of Producive - A.B. Keath
- संस्कृत साहित्य का इतिहास-चौखम्भा प्रकाशन, वाराणसी
- Ancient Indian Muk
- वैदिक एवं वैदिकोत्तर भारतीय संस्कृति चौखम्भा-वासु भारती।
- संस्कृत साहित्य को रूप-रेखा- प्रो० डॉ० व्यास
- वैदिक साहित्य का इतिहास- उमाशंकर शर्मा ऋषि
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- धर्मागम संविद - संस्कृत विद्या धर्म विज्ञान संकाय, काशी हिन्दू विश्वविद्यालय, वाराणसी।
- संस्कृत वाङ्मय में पर्यावरण चेतना, प्रो० विद्याशंकर त्रिपाठी, डॉ० भारतेन्दु द्विवेदी, धर्मेन्दु द्विवेदी।

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बिहार में संगीत शिक्षण : दशा एवं दिशा

Kanchan * Priti Mishra *

सारांश : *शिक्षा शब्द का वास्तविक अर्थ है ज्ञान या विद्या की प्राप्ति एवं चारित्रिक तथा मानसिक शक्तियों का विकास। यह मनुष्य की आंतरिक शक्तियों का स्वाभाविक और क्षमता आधारित विकास है जो मनुष्य को अपने-अपने क्षेत्र में दक्षता प्रदान करता है। भारत में अत्यन्त प्राचीनकाल से ही शिक्षा प्राप्त करने हेतु गुरुकुल परम्परा थी जिसने गुरु-शिष्य के मध्य सौहादपूर्ण संबंध स्थापित करने में महती भूमिका निभाई। संगीत मौखिक एवं प्रदर्शनात्मक कला है। इस दृष्टि से इस विषय में दक्षता पूर्ण शिक्षा ग्रहण करने वाले शिष्यों के लिए गुरु-शिष्य परम्परा का अनुपालन करना अपरिहार्य है। संगीत का सामूहिक शिक्षण 20वीं शताब्दी की देन है। इसके पूर्व संगीत में ज्ञार्नाजन हेतु यह व्यवस्था उपलब्ध नहीं थी। इस व्यवस्था की स्थापना के पूर्व शिष्यों को गुरु के आश्रम में रहकर संगीत सीखना पड़ता था। शिष्य को सुपात्र होने पर ही गुरु की शिष्यता प्राप्त होती थी। एक कुशल गायक बनने हेतु शिष्यों के लिए आज भी यह परम्परा मानक है।*

शब्द कुंजी : आत्मसात्, सुपात्र, जन्मजात, कालान्तर

भूमिका

वेदों को भारतीय संगीत का आदि स्त्रोत माना जाता है। आरम्भिक अवस्था में सामगान के रूप में वैदिक ऋचाओं के सस्वर पाठ से इसका स्वरूप निर्धारित हुआ। कालान्तर में पाठ की अनेकों शाखाएँ विकसित हुई, जिनमें कौथुमीय, राणायनीय तथा जैमिनीय प्रमुख थी। इन सभी की अपनी गुरु-शिष्य परम्परा थी। संगीत में गुरु-शिष्य परम्परा शिवमत, भरतमत, हनुमत इत्यादि में दृष्टिगत है। मध्यकाल में घरानों का विकास भी गुरु-शिष्य परम्परा के आधार पर ही हुआ है।

संस्थागत संगीत शिक्षण व्यवस्था का उद्‌भव और विकास

भारत में प्राचीन एवं मध्ययुग में संगीत शिक्षा के विद्यालयों का प्रबन्ध शासन के सौजन्य से करने का भी उल्लेख प्राप्त होता है। बौद्धकाल में तक्षशिला, नालंदा, विक्रमशिला तथा उदन्तपुरी जैसे विश्वविद्यालयों में गंधर्व का स्वतंत्र निकाय हुआ करता था, जिसमें शिक्षा के लिए विख्यात संगीतज्ञ की नियुक्ति की जाती थी। वात्स्यायन के 'कामसूत्र' में भी संगीत विद्यालयों में संगीत शिक्षा के प्रबन्ध का उल्लेख मिलता है। 'कालिदास' के समय में भी संगीतशालाओं का उल्लेख प्राप्त होता है।

भारतीय इतिहास में गुप्तकाल को सांस्कृतिक विकास एवं उन्नति की दृष्टि से स्वर्णिम काल माना जाता है। मध्यकाल में ग्वालियर के राजा मानसिंह तोमर के द्वारा संगीत के अध्यताओं के लिए संगीतशाला खोलने का उल्लेख प्राप्त होता है। इसी विद्यालय में तानसेन की शिक्षा हुई थी।

मानसिंह तोमर के बाद किसी अन्य राजाओं द्वारा संगीत विद्यालय खोलने का प्रामाणिक दस्तावेज प्राप्त नहीं है। संगीत विद्यालय खोलने का प्रयास 19वीं शताब्दी से आरंभ हुआ। 19वीं शताब्दी के पूर्वार्ध में तानसेन के वंशज बहादुर खाँ द्वारा विष्णुपुर (बंगाल) में विद्यालय प्रारम्भ करने का प्रमाण मिलता है। महाराष्ट्र एवं बंगाल आदि

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कई जगहों पर संगीत विद्यालयों के संचालन का उल्लेख भी प्राप्त होता है। इस कालखण्ड में बड़ौदा के राजा सयाजीराव गायकवाड़ के विद्यालय **'बड़ौदा स्टेट म्यूजिक स्कूल'** में प्रथम प्राचार्य के रूप में मौलाबख्श की नियुक्ति हुई थी। बाद में यह विद्यालय एम० एस० यूनिवर्सिटी बड़ौदा की देखरेख में आ गया।

आधुनिक युग में संगीत विद्यालयों की स्थापना का श्रेय मुख्य रूप से पं0 विष्णु दिगम्बर पलुस्कर एवं पं0 विष्णु नारायण भातखण्डे को जाता है। पंडित पलुस्कर ने 1901 में गांधर्व महाविद्यालय की स्थापना की थी। बाद में समस्त महाविद्यालयों को गांधर्व महाविद्यालय मंडल के अंतर्गत लाया गया।

पंडित भातखण्डे ने सन् 1918 में ग्वालियर में, 1920 में बड़ौदा में तथा 1926 में लखनऊ में संगीत विद्यालयों की स्थापना की। इसी समय **'प्रयाग-संगीत समिति'** की स्थापना हुई।

बनारस हिन्दू विश्वविद्यालय वाराणसी के अंतर्गत संगीत एवं ललित कला संकाय की स्थापना हुई। इसके साथ अन्य विश्वविद्यालयों में भी संगीत विभाग का श्रीगणेश हुआ।

संस्थागत संगीत शिक्षण की उपलब्धियाँ

गुरु-शिष्य परम्परा में संगीत के शिष्य अत्यधिक कठिनाइयों का सामना करने के पश्चात् ज्ञान प्राप्त करते थे, लेकिन संगीत संस्थाओं में शिष्यगण सहज रूप से शिक्षा प्राप्त करने लगे। इन संस्थानों में शिक्षा प्राप्त करने वाले विद्यार्थी अपनी-अपनी रुचि एवं क्षमता के अनुसार संगीत की शिक्षा प्राप्त कर इस विषय के प्रति समाज में जागरूकता एवं आदर भाव उत्पन्न कराने में महत्त्वपूर्ण भूमिका निभाई। संगीत में संस्थागत शिक्षण के प्रचलन से पूर्व संगीतज्ञों को समाज में हीन दृष्टि से देखा जाता था। संगीत का व्यवसाय करने वाले व्यक्ति प्रायः अशिक्षित होते थे। अपने कला के लिए वे प्रशंसा तो प्राप्त करते थे परन्तु समाज में उन्हें सम्मानजनक स्थान प्राप्त नहीं था। संगीत संस्थानों की स्थापना की वजह से समाजिक स्तरीकरण व्यवस्था के तहत समाज में उच्च स्तर प्राप्त वाले परिवारों का रुझान भी संगीत शिक्षा की ओर हुआ। परिणामस्वरुप, इस वर्ग से संबद्ध विद्यार्थियों का संगीत शिक्षा की दिशा में कदम बढ़ाया गया यह इस विषय की महत्त्वपूर्ण उपलब्धि कही जा सकती है।

संस्थागत संगीत शिक्षण की एक महत्त्वपूर्ण उपलब्धि यह है कि इसके अंतर्गत संगीत शिक्षण की वैज्ञानिक पद्धतियों का विकास हुआ जिसके तहत व्यवहारिक शिक्षा के साथ शास्त्र का सामंजस्य स्थापित करने का प्रयास किया जाने लगा। संगीत में संस्थागत शिक्षण के कारण शोधकार्य की प्रवृत्ति बढ़ी जिसके परिणामस्वरुप विषय के वैज्ञानिक पक्ष का भी अध्ययन किया जाने लगा।

बिहार में संस्थागत संगीत शिक्षण

बिहार में उच्चविद्यालय में तथा स्नातक एवं स्नातकोत्तर पाठयक्रम में ललित कला संकाय के अन्तर्गत संगीत एक विषय के रूप में सम्मलित है। इस विषय में शोधार्थी द्वारा किए गये शोधकार्यों के आधार पर पी०एच०डी० (डॉक्टरेट) की उपाधि प्रदान की जाती है। माध्यमिक स्तर के विद्यालयों में संगीत को पाठ्यक्रम में स्थान नहीं दिया गया है, लेकिन अन्य गतिविधियों, यथा-सांस्कृतिक कार्यक्रमों के आयोजन एवं संचालन हेतु कहीं-कहीं संगीत शिक्षकों की उपस्थिति देखी जा सकती है। उपरोक्त स्थिति के अलावे विभिन्न संगीत की संस्थाओं में भी संगीत शिक्षण का कार्य किया जाता है। ये संस्थाएँ **'प्रयाग संगीत समिति इलाहाबाद'** या **'प्रचीनकला केन्द्र चण्डीगढ'** से मान्यता प्राप्त होती हैं।

प्रयाग संगीत समिति इलाहाबाद या प्राचीनकला केन्द्र चण्डीगढ़ से मन्यता प्राप्त संस्थानों में गायन-वादन एवं नृत्य की शिक्षा दी जाती है। ये शिक्षा प्रारंभिक से लेकर उच्च स्तर तक दी जाती है। गायन में ध्रुपद, धमार, ख़्याल, ठुमरी, भजन, ग़ज़ल आदि सभी शैलियों के शिक्षण की व्यवस्था हैं। वादन में सितार, तबला, उपक्रम बाँसुरी आदि के शिक्षण व्यवस्था है। भारत सरकार को प्रसार भारती द्वारा संचालित **'नृत्य कला केन्द्र'** पटना में नृत्य कला में शिक्षण की व्यवस्था है। इस केन्द्र में अपने-अपने क्षेत्र में दक्ष शिक्षकों के द्वारा शिक्षण कार्य को अंजाम दिया जाता है।

इलाहाबाद या चण्डीगढ़ केन्द्र पर परम्परागत गुरु-शिष्य प्रणाली के साथ ही सामूहिक शिक्षण की व्यवस्था है। मुख्यतः इन केन्द्रों पर एक ही गुरु संगीत की सभी विधाओं का शिक्षण देते हैं। इन संस्थानों में छात्रों को प्रति वर्ष परीक्षा के माध्यम से प्रमाण-पत्र देने की व्यवस्था है।

वर्तमान समय में संगीत शिक्षक बहाली की प्रक्रिया आरंभ है। लेकिन शिक्षक किसी एक ही क्षेत्र गायन, वादन या नृत्य से होने के कारण दक्षतापूर्ण शिक्षा प्रदान करने की व्यवस्था सही ढंग से संचालित नहीं हो पा रही है।

आधुनिक संदर्भ में केन्द्रीय एवं राज्य सरकारों द्वारा शिक्षण संस्थान को सभी प्रकार की कलाओं के प्रचार प्रसार का महत्त्वपूर्ण माध्यम माना जा रहा है, इस दृष्टि से संगीत एक ऐसा विषय है जिसमें नृत्य, गायन एवं वादन तीनों ही क्षेत्र में पृथक-पृथक कुशल शिक्षकों की अतिआवश्यकता है। ऐसी स्थिति में महाविद्यालय एवं विश्वविद्यालय सरकार के मानदण्डों पर खरा उतरन और समाज में सभी प्रकार की कलाओं के प्रचार-प्रसार के समुचित विकास में महत्त्वपूर्ण भूमिका निभा सकेगा।

यहाँ सामान्यतया स्नातक में प्रतिष्ठा के साथ सहायक विषय के रूप में पाठ्यक्रम में संगीत विषय को सम्मिलित किया गया है। स्नातकोत्तर संगीत की पढ़ाई पटना विश्वविद्यालय के अंतर्गत मगध महिला महाविद्यालय में, ललित नारायण मिथिला विश्वविद्यालय एवं कामेश्वर सिंह संस्कृत विश्वविद्यालय (दरंभगा) में, तिलकामांझी भागलपुर विश्वविद्यालय (भागलपुर) में, मगध विश्वविद्यालय के जे० डी० वीमेन्स कॉलेज और अरविन्द महिला कॉलेज, एवं बी० आर० ए० बिहार विश्वविद्यालय के एम० डी० डी० एम० कॉलेज में होती है। यहाँ के विश्वविद्यालयों में केवल गायन या तंत्रवाद्य की शिक्षा की व्यवस्था है। तंत्रवाद्य में मुख्यत: सितार की ही शिक्षा दी जाती है। उपरोक्त सभी स्नातकोत्तर संगीत विभाग में एक या दो शिक्षक के सहारे विभाग को चलाया जा रहा है। तबला संगतकार का प्राय: अभाव ही है। किसी-किसी विभाग में दैनिकभोगी कर्मचारी के रूप में तबलावादक को रखकर शिक्षण कार्य का संचालन किया जा रहा है।

वर्तमान समय में इस विषय में शोधकार्य बिहार विश्वविद्यालय, पटना विश्वविद्यालय, मिथिला विश्वविद्यालय, भागलपुर विश्वविद्यालय एवं मगध विश्वविद्यालय में हो रहा है। इन विश्वविद्यालयों में कुछ शोधकार्य स्तरीय भी हुए हैं जिसे विश्वविद्यालय अनुदान आयोग, दिल्ली द्वारा प्रकाशन के लिए अनुदान राशि भी प्राप्ति हुई है।

बिहार में संस्थागत संगीत शिक्षण का मूल्यांकन

संगीत के मान्यता प्राप्त केन्द्रों पर संगीत शिक्षण की व्यवस्था स्तरीय है। यहाँ मुख्य उद्देश्य विद्यार्थी को परीक्षा में अच्छे अंक के साथ उपाधियाँ प्रदान करना है। यही बात उच्च विद्यालयों में भी लागू होती है। समय की मांग को देखते हुए विश्वविद्यालय एवं महाविद्यालयों में विद्यार्थियों को संगीत जैसे महत्त्वपूर्ण विषय में दक्षतापूर्ण व्यवहारिक शिक्षा प्रदान करने के लिए आधुनिक उपकरणों से सुसज्जित स्टूडिओ एवं अनेकानेक प्रकार के आधुनिक वाद्यंत्रों तथा इनकी शिक्षा प्रदान करने हेतु इस क्षेत्र के विषेशज्ञ शिक्षकों की अतिआवश्यकता है। इसी अनुरूप शोधकार्य के क्षेत्र में भी सुधार की ज़रूरत है।

यहाँ के महाविद्यालयों में अभी तक हिन्दुस्तानी संगीत के सभी विधाओं के शिक्षण की व्यवस्था उपलब्ध नहीं है। एक ही शिक्षक गायन के अंतर्गत ध्रुपद, ख़्याल, आदि के साथ सितार-सरोद आदि वाद्य की भी शिक्षा प्रदान करते हैं। ऐसी स्थिति के मद्देनजर वर्तमान व्यवस्था में संगीत शिक्षा को अपेक्षित स्तर पर ले जाने में कई प्रकार की व्यावहारिक कठिनाइयों का सामना करना पड़ रहा है।

उपसंहार

विषय में प्रतिभावान छात्र-छात्राओं के नामांकन से विषय का स्तर ऊपर उठेगा। विभाग में विशेषज्ञ शिक्षकों एवं संगतकारों की नियुक्ति से विद्यार्थी ज्यादा लाभान्वित होंगे। पाठ्यक्रम में संशोधन कर उसे अधिक वैज्ञानिक एवं सरल बनाने की ज़रूरत है। शिक्षकों से अपेक्षा है कि वे अपनी कल्पनाशीलता का उपयोग कर पाठ को और अधिक रुचिकर बनाएं। शिक्षण में गुरु-शिष्य परम्परा के मानदंडों को अपनाने की ज़रूरत है। विभाग से अपेक्षा की जाती है कि जिन विद्यार्थियों में कलाकार बनने की योग्यता है उन्हें अपने मेधा अनुरूप प्रदर्शन के लिए उचित मंच मुहैया कराया जाए। विषय के उतरोत्तर उत्थान हेतु संगीत के अन्य क्षेत्र जैसे—नृत्य, वादन आदि का पृथक पाठ्यक्रम होना चाहिए।

संदर्भ सूची

- स्वामी प्रज्ञानानन्द संगीत आं संस्कृति, उत्तर भाग, पृ०-196
- परांजपे डॉ० शरदचन्द्र, भारतीय संगीत का इतिहास, पृ०-264
- परांजपे डॉ० शरदचन्द्र, भारतीय संगीत का इतिहास, पृ०-488
- चौबे अमरेश चन्द्र, संगीत की संस्थागत, शिक्षण प्रणाली, पृ०-20-21
- चौबे अमरेश चन्द्र, संगीत की संस्थागत, शिक्षण प्रणाली, पृ०-21-22

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मल्हार अंग के रागों का विश्लेषण

Monika * Ankita Kumari *

सारांश : *मल्हार राग एक प्राचीन राग है, जिसका आविष्कार तानसेन द्वारा किया गया है ऐसी मान्यता है। सर्वाधिक लोकप्रिय राग मियाँ-मल्हार काफी थाट जन्य मल्हार अंग का राग है। मल्हार अंग के राग मूलतः काफी थाट जन्य ही माने गए हैं। इसमें कोमल गंधार के अतिरिक्त दोनों निषाद तथा अन्य स्वर बुद्ध लगता है। साधारणतः यह राग वर्षा ऋतु में कभी भी गाया जाता है। शास्त्रीय दृष्टिकोण से इस राग को गायन का समय रात्रि का द्वितीय प्रहर माना गया है। इस राग का विस्तार साध रणतः तीनों सप्तकों में होता है। परन्तु मन्द्र और मध्य सप्तक में इसका सौन्दर्य अधिक निखर कर आता है, क्योंकि यह पूर्वांग प्रधान राग है। मल्हार अंग के रागों में–मियाँ-मल्हार, गौड़-मल्हार, सुर-मल्हार, रामदासी-मल्हार, आदि राग सम्मिलित हैं।*

शब्द कुंजी : मल्हार राज, मियाँ-मल्हार, रागांग

भूमिका

संगीत एक रागात्मक कला है, जिसमें समय–समय पर ठोस नियम भी बनाए गए हैं। लेकिन वर्तमान समय में लोगों की रूचि में काफी बदलाव आया है। प्राचीन ग्राम–मूर्च्छना जातिगायन के पश्चात् जब राग गायन प्रचार में आया, तो रागों की संख्या में भी बढ़ोतरी हुई। अतएव विभिन्न प्रादेशिक रागों के विशेष अध्ययन के लिये उनके वर्गों की रचना की गई, जिसे राग वर्गीकरण की संज्ञा दी गई।

रागांग का अभिप्राय है, वह मुख्य या विशिष्ट राग, जिसके अंगभूत स्वर समूहों के मिश्रण से नवीन रागों की कल्पना की जा सकती है। अर्थात् वे नवीन राग जो किसी राग विशेष के स्वरों से बनाए जाते हैं उन्हें 'मिश्रित राग' कहा जाता है। जैसे–मल्हार अंग के राग।

मल्हार अंग के राग एवं विशेषताएँ

अंग का शब्दार्थ है 'अवयव' या 'भाग'। इसका अर्थ पूर्वांग अथवा उत्तरांग भी हो सकता है अथवा इसका अर्थ भिन्न राग की छाया भी हो सकती है। यहाँ हम मल्हार अंग के रागों की विशेषताओं की चर्चा कर रहे हैं।

'मल्हार' शब्द के विषय में संगीत विद्वानों का मत है कि मल्हार या मल्हार अंग के रागों का गायन–वादन वर्षा ऋतु में किया जाता है। अर्थात् मल्हार वर्षाकालीन राग है। 'मल्हार' शब्द से अभिप्राय है, 'मल' यानी गन्दगी का हरण करने वाला। वर्षा ऋतु में पृथ्वी पर जो कीचड़ से गन्दगी हो जाती है उसे वर्षा का पानी साफ कर देता है। अतएव वर्षाकाल में गाया जाने वाला मल्हार राग मनोविकार को दूर कर मन में प्रसन्नता, हरियाली और उत्साह का सृजन करता है। इसी कारण इसे मल्हार राग से सम्बोधित किया जाता है। पहले मल्हार को मलरूह शब्द से सम्बोधित किया जाता था। धीरे–धीरे यह राग 'मल्हार' के रूप में प्रसिद्ध हुआ।

'मल्हार रागांग' की अनेक प्रकार हैं, यथा–मियाँ-मल्हार, गौड़-मल्हार, सर-मल्हार आदि। इन रागों की विशेषताएँ हैं :

i) मल्हार के विभिन्न प्रकारों में अधिकांशतः वर्षा ऋतु के भिन्न–भिन्न आयामों का वर्णन किया जाता है जैसे–बिजली, मेघ, वर्षा, चातक, पपीहा आदि।

ii) मल्हार अंग के रागो की प्रकृति अधिकांशतः मेघ के समान है लेकिन धीर, वीर, गम्भीर, सौम्य भी है और इसमें आलाप, मींड, कण, गमक आदि का प्रयोग किया जाता है।

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iii) मल्हार राग की स्वर संगतियों का प्रयोग जब अरोह में किया जाता है तो मध्य स्वर के कण के साथ रे, म, रे म, रे प या म रे, म रे, प म रे आदि स्वर संगतियाँ बार–बार प्रयोग की जाती है। इसी प्रकार मध्य स्वर पर न्यास किया जाता है जैसे, म, रे, मरे, म, म, प आदि।

अवरोह में कोमल निषाद के साथ पंचम का प्रयोग होता है, जैसे–नी प नी, म प सा नी नी प आदि तथा मध्य कण के साथ आन्दोलित करता हुआ कोमल गन्धार जैसे मग़मरेसा का प्रयोग होता है।

iv) जिस प्रकार कान्हड़ा अंग के रागों में सारंग दिखाई देता है। उसी प्रकार मल्हार अंग के रागों में भी सारंग और कान्हड़ा अंग भी दिखाई देता है। कुछ विद्वानों के मतानुसार मल्हार कान्हड़ा और सारंग तीनों रागांग आपस में सम्बन्धित है, इसलिए कान्हड़ा अंग में सारंग अंग का प्रयोग होता है, उसी प्रकार मल्हार अंग के रागों में कान्हड़ा और सारंग के स्वरों का प्रयोग होता है।

v) मल्हार राग के सभी प्रकारों में मल्हार रागांग के अंग किसी न किसी रुप में अवश्य दिखना चाहिए, जिससे ज्ञात हो जाए कि अमुम राग मल्हार अंग का राग है। इसके अंग–उपांग वर्ज्य–अवर्ज्य विभिन्न स्वर संगीतों के बीच मल्हार अंग का होना आवश्यक है। आरोह में ऋषभ स्वर पर मध्यम का कण जैसे–म रे म रे अवरोह में कोमल नी और पंचम की स्वर संगीत मल्हार की विशेषताएँ हैं जैसे–नी प।

vi) कुछ मल्हार अंग के रागों में सारंग, कान्हड़ा के स्वर रहते हैं, जैसे–सुर-मल्हार, रामदासी-मल्हार, मियाँ-मल्हार आदि। कुछ मल्हार अंग के राग ऐसे भी हैं जिनमें सारंग, देश और गौड़ रागों की कुछ स्वर संगतियाँ रहती हैं, जैसे गौड़-मल्हार, सुर-मल्हार आदि।

vii) मल्हार अंग के राग अधिकतर काफी थाट से उत्पन्न माने जाते हैं। लेकिन कुछ राग ऐसे भी हैं जिनमें मल्हार राग की विशेषताएँ रहती है किन्तु वे राग ख़माज थाट के हैं जैसे–गौड़-मल्हार।

इस प्रकार मल्हार की विशेषताएँ जिन रागों में पाई जाती हैं वे मल्हार अंग के राग कहलाते हैं। मल्हार अंग के रागों में शुद्ध-मल्हार और मियाँ-मल्हार प्रमुख राग हैं। अधिकांशतः इन्हीं रागों की स्वर संगतियाँ अन्य मल्हार अंग के रागों में रहती हैं। मल्हार अंग के प्रमुख राग हैं– मियाँ-मल्हार, मल्हार, सुर-मल्हार, रामदासी-मल्हार, जयन्त-मल्हार आदि।

राग मियाँ-मल्हार

विद्वानों का कथन है कि इसकी रचना संगीत–सम्राट तानसेन ने की थी परन्तु इस संबंध में कोई ठोस प्रमाण उपलब्ध नहीं है।

सर्वाधिक लोकप्रिय राग मियाँ-मल्हार काफी थाट जन्य मल्हार अंग का राग है। इसमें कोमल गन्धार के अतिरिक्त दोनों निषाद तथा अन्य स्वर शुद्ध लगता है। इस राग का वादी स्वर षडज तथा संवादी स्वर पंचम है। यह एक ऋतुकालीन राग है। वर्षा ऋतु में इस राग को कभी भी गाया–बजाया जाता है। इसके अतिरिक्त इस राग का गायन समय रात्रि का द्वितीय प्रहर माना गया है। इस राग का विस्तार साधारणतः तीनों सप्तकों में होता है, परन्तु मन्द्र और मध्य सप्तक में इसका सौन्दर्य अधिक निखर कर आता है, क्योंकि यह पूर्वांग प्रधान राग है।

इस राग के वादी–संवादी स्वर तथा जाति के संबंध में कुछ मतभेद विद्वानों में पाया जाता है। इस राग में वादी–संवादी के संबंध में विद्वानों में मतान्तर है, कुछ मध्यम–षडज, कुछ पंचम–षडज तथा कुछ षडज–पंचम को वादी–संवादी मानते हैं।

मेरे विचार से प्रस्तुत राग में मध्यम को वादी मानना सही नहीं प्रतीत होता है, क्योंकि यह राग बहार राग के बहुत ही ज्यादा निकट है। यदि वादी स्वर मध्यम रहेगा, तो उसपर न्यास करना भी अनिवार्य है। मियाँ-मल्हार में मध्यम पर न्यास करके और तब उसे बहार से दूर रखना संभव नहीं है। अतः स्पष्ट है कि प्रस्तुत राग में मध्यम का वादी होना न्यास संगत नहीं प्रतीत होता है। इस राग की जाति षाडव–सम्पूर्ण मानकर गाने की प्रथा आजकल अधिक प्रचलित है। इस राग की मुख्य विशेषता यह है कि इसके आलाप में दोनों निषाद का अधिकतर एक के पश्चात् दूसरे का प्रयोग होता है, जिससे राग का सौन्दर्य अत्यधिक बढ़ जाता है, परन्तु निषाद के प्रयोग का यह कृत्य गुरुमुख से सुनकर ही सीखना अधिक श्रेयष्कर है। इस राग का समप्रकृति राग बहार है, क्योंकि कुछ स्तर–संगतियाँ दोनों रागों में समान रुप से प्रयोग की जाती हैं। अन्तर यह है कि मियाँ–मल्हार के गन्धार में आन्दोलन अधिक रहता है किन्तु बहार में ऐसा नहीं होता।

इस राग की लोकप्रियता का अत्यन्त ज्वलन्त प्रमाण है कि साधारण श्रोता भी इसके नाम से भली–भाँति अवगत रहते हैं। इस राग का चलन तथा बंदिश इस प्रकार है :

चलन – रे ध़ ध़ सा <u>नि़</u> ध़ नि़ सा म रे प, म प <u>नि</u> ध नि सां, सां <u>नी</u> प, <u>ग</u> म रे सा ।।

राग गौड़-मल्हार

जैसा कि इसके नाम से ही स्पष्ट होता है कि इसमें राग गौड़ और मल्हार दो रागों का मिश्रण है। इस राग की उत्पत्ति समाज थाट से मानी गई है। इसमें दोनों निषाद स्वर प्रयुक्त होता है। शेष स्वर शुद्ध रुप में रहता

है। इस राग का वादी स्वर मध्यम तथा संवादी स्वर तार षडज है। इसका मुख्य रुप से गायन समय रात्रि का दूसरा प्रहर है। इस राग का अवरोह करते समय धैवत के साथ कोमल निषाद का प्रयोग करते हैं। इसका प्राण स्वर मध्यम को मानते हैं। राग गौड़–मल्हार सम्पूर्ण जाति का राग है। मल्हार एक राग ही नहीं वरन् एक अंग भी है। मल्हार का प्रकार होने के कारण यह वर्षा ऋतु का राग है, इसलिए इस राग की अधिकतर बंदिशों में वर्षा ऋतु से संबंधित विवरण मिलता है। इस राग में रे प की मींड़ युक्त संगति बार–बार दिखाई देती है और ऋषभ स्वर पर ठहराव होता है। मध्यम पर न्यास राग को अधिक मधुर बनाता है। इसके आरोह में निषाद को अल्प रखते हैं :

इसका चलन तथा बंदिश इस प्रकार है :

चलन – रे ग रे म ग रे सा म प ध सां ध प म

राग नट–मल्हार

काफी थाट से उत्पन्न राग नट–मल्हार सम्पूर्ण जाति का राग है, जिसमें दोनों गन्धार एवं दोनों निषाद लगाए जाते हैं। इसका मध्यम वादी और षडज संवादी है तथा गाने का समय वर्षाकाल है। यह राग 'नट' तथा 'मल्हार' के संयोग से यह बना है। इसके पूर्वांग में 'नट' और उत्तरांग में 'मल्हार' है। 'म रे तथा रे प' स्वर–संगतियाँ आनंददायी है। कुछ लोग तीव्र गन्धार का प्रयोग भी करते हैं और तब उसे बिलावल थाट का राग मानते हैं। इसका चलन इस प्रकार से है :

चलन : सा, रे, ग, ग, म, रे, म, रे, सा, नि, सा, रे, सा, नि, सा, रे, ग, म, प, प म ग म रे, रे म रे, नि सा।।

राग मेघ–मल्हार

यह राग भी मल्हार का एक प्रकार है। इसकी उत्पत्ति काफी थाट से होती है। इसमें कोमल निषाद का प्रयोग होता है। इसके आरोह तथा अवरोह में गन्धार तथा धैवत स्वर वर्ज्य है। इसकी जाति औडव–औडव है। इसका वादी स्वर मध्यम तथा संवादी स्वर षडज है। इसका गायन काल रात्रि का द्वितीय प्रहर है। वर्षा ऋतु में प्रत्येक समय में यह राग गाया जाता है। इस राग में ऋषभ तथा पंचम की संगति मधुर होती है। इसका विस्तार मन्द्र, मध्य तथा तार सप्तक में होता है। 'म, रे प' 'मल्हार' राग का यह स्वर विन्यास है जो इसमें प्रमुख रीति से आता है। ऋषभ पर होने वाले आन्दोलन में इस राग को पहचानने में सहायता मिलती है, जो मध्यम का कण लगाते हुए कई बार प्रयुक्त होता है। इस राग का चलन इस प्रकार है :

चलन : रे म, रे सा नी प़ नि़ सा, रे रे, रे म प, रे, सा रे म रे, सा नी प़, म़ प़ नि़ सा, रे सां, नि सां रें, मं रें, सां, नी प, सां नी प, रे रे म रे सा।।

राग जयन्त–मल्हार

यह राग 'जयजयवंती' और मियाँ–'मल्हार' का मिश्रित स्वरुप है। इसमें दोनों गन्धार तथा दोनों निषाद प्रयुक्त होता है। इसके पूर्वांग में 'जयजयवंती' और उतरांग में 'मियाँ–मल्हार' रहता है। इसका वादी स्वर पंचम और संवादी षडज है। इसका गायन–काल मध्य रात्रि अथवा वर्षा ऋतु है। इस राग को काफी थाट के अन्तर्गत माना गया है। इसकी जाति सम्पूर्ण है। इसका चलन इस प्रकार है :

चलन : सा रे सा, नि़ ध नि़ रे, ग म रे प, ग म रे सा, रे ग म रे प, नि ध नि सा, नि ध प, म ग रे ग रे सा।।

मल्हार अंग के रागों में राग गौड़-मल्हार ख़माज थाट से उत्पन्न माना जाता है। बाकी के लगभग राग काफी थाट से उत्पन्न राग माने जाते है।

उपसंहार

'रागांग वर्गीकरण' अर्थात् रागों का वर्गीकरण, यानी की इसके अंग को बाँटना है। इस प्रक्रिया को आधुनिक नहीं समझा जा सकता है। यद्यपि बम्बई वर्तमान में मुम्बई के स्व0 नारायण मोरेश्वर खरे ने स्वर साम्य, स्वरुप–साम्य देखकर 30 रागांग रागों के अन्तर्गत सभी रागों को सम्मिलित किया था।

मल्हार रागांग' की विशेषताओं से अनेक राग–रागों का जन्म हुआ। जैसे–मियाँ–मल्हार, गौड़–मल्हार, सुर–मल्हार आदि। मल्हार राग के सभी प्रकारों में मल्हार रागांग का अंग किसी न किसी रुप में अवश्य दिखाई दिया जाना चाहिए, जिससे ज्ञात हो कि अमुक राग मल्हार अंग का राग है। उसके अंग–उपांग वर्ज्य–अवर्ज्य विभिन्न स्वर संगतियों के बीच मल्हार अंग का होना आवश्यक है। इस प्रकार मल्हार की विशेषताओं वाला राग मल्हार अंग का राग कहलाता है।

संदर्भ सूची

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- शर्मा प्रो0 स्वतन्त्र, अनुभव पब्लिशिंग हाउस, पाश्चात्य स्वरलिपि, पद्धति एवं भारतीय संगीत

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ANTIBACTERIAL EFFECT OF NEEM LEAF

Pooja Choubey * Sakshi Kumari * Neha Kumari * Namita Kumari *

ABSTRACT : *The efficiency of different extracts of neem leaf on seed borne fungi Aspergillus and Rhizopus and chemical characterization of the neem leaf extracts were studied in vitro on the culture medium. The growth of both the fungal species was inhibited significantly and controlled with both alcoholic and water extracts of all ages and of the concentrations used. The alcoholic extracts of neem leaf were most effective in comparison to aqueous extract for retarding the growth of Rhizopus and Aspergillus. Leaf extracts of neem which are cheap and environmentally safe are promising for protecting crop species against the fungal infestation and leading towards improvement of the crop in terms of yield and productivity.*

KEY WORDS : Fungi Aspergillus, Rhizopus, Crop, Yield, Productivity, Metabolites

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INTRODUCTION

The presence and growth of fungi in food and feeds may cause spoilage and result in a reduction in quality and quantity. Fungi produce a variety of secondary metabolites as products of their metabolism; mycotoxins are metabolites that have deleterious effects on other organisms. Ochratoxin A (OTA), a potent mycotoxin produced by certain species of Aspergillus and Rhizopus, originally associated with mouldy legumes, fruits, meat and cereal products, is at present receiving increasing attention for its nephrotoxic effects and its potential carcinogenic activity. Cereal products are the major group of food commodities in which the above toxin is of high impact. Control techniques that are cheap, ecologically sound and environmentally safe to eliminate or reduce the incidence of economically important pathogens are of great importance, so the search for substances meeting these needs is an important research topic.

In recent years much attention has been given to the preservation of grains by natural products so that the growth and mycotoxin production may be effectively retarded. Non-chemical systems based on plant extracts for the treatment of microbial cultures have played an important role in the inhibition of pathogen growth and food quality improvement.

A large number of chemicals have been developed for the control of plant diseases. But due to overgrowing awareness of the hazardous side effects of these chemicals, more and more emphasis is being given to the use of biocontrol agents. As the sources of bio control agent, neem has already emerged at the top of the list of plants with the highest potential.

Azadirachta indica, also known as Neem, Nimtree and Sharma Lilac is a tree of family - Meliaceae. Its botanical name is Azadirachta indica, and is native to Sharma, Pakistan and Bangladesh, growing in tropical and semitropical regions. Neem is very common tree in Sharma. It is a large evergreen dense tree growing some 10 to 15 meters tall with a girth of about 2- 3 meter. The leaves of this are divided into numerous leaflets, each resembling a full- grown leaf. The Neem tree has played an important role in Ayurvedic medicines and agriculture since time immemorial. The earliest documentation of Neem mentioned the fruit, seeds, oil, leaves, roots and bark for their medicinal properties. In the ancient document Charak-Samhita and Susruta-Samhita , the books at the foundation of the Sharma System of natural treatment Ayurveda, the various parts of this tree have many uses so its named in Sanskrit- sarva roga nivarini, meaning the curer of all ailments. Its twigs provide a chewing stick and are widely used in the Sharma sub continent. Earlier studies on Neem have showed that it contains active substances with multiple medicinal properties (Md mohashine Bhuiyan et al., 1997). Azadirachta indica is commonly used for the treatment of Diabetes and show the potential role of anti diabetic activity (Shravan kumar Dholi, et al., 2011).

Azadirachta indica A. Juss (Sharma neem tree), a species of neem trees of Meliaceae family have been selected the subject of botanical bio control research which contains at least 35 biologically active principals of which Nimbin and azadirachtin are the most active insecticidal ingredients and are present predominantly in the seeds, leaves and other parts of the neem tree. In this study the effect of the leaf extracts of various ages of neem leaves along with different extractants on Aspergillus and Rhizopus grown on culture medium in vitrowere studied and subsequent chemical characterization of the need leaf extracts were mediated for its antifungal activity.

MATERIAL AND METHODS

Extraction of Leaf Extracts: Juvenile and mature leaves were collected separately from Azadirachta indica plants growing in our college campus. For antifungal and secondary metabolite studies fresh leaves was collected. Collected fresh leaves of A.indica(Neem) were washed thoroughly in tap water and sterile distilled water, air-dried at 27°C, weighted (l00g) and ground in a sterile mortar. The paste was added to 100ml of sterile distilled water in 250 ml beaker, stirred vigorously and allowed to stand for 1 hour and then filtered through four folds of sterile cheese cloth to obtain water extract. Same procedure is repeated with100ml of Ethyl alcohol to obtain alcoholic extract. Percentage inhibition of fungi growth by the leaf extracts was calculated using the formula:

% FG = Dc-Dr/Dc × 100

Where: %FG = % inhibition of fungi growth

Dc = diameter of control

Dr = diameter of test

In Vitro Tests: Species of Aspergillus and Rhizopus were collected from the Mycology and Plant Pathology Laboratory, Department of Botany. Composition of PDA medium was 200gm potato/ litre, 20gm dextrose/litre, 15gm agar/litre.

Both the fungi were grown in three sets. In one set both the fungi were inoculated on potato dextrose agar medium and incubated at 300 C for 10 days. Second set contains PDA medium and aqueous extract of neem leaf; both the fungi were inoculated and incubated at 300 C for 10 days. Third set contains PDA medium and lcoholic extract of neem leaf; both the fungi were inoculated and incubated at 30ºC for 10 days.

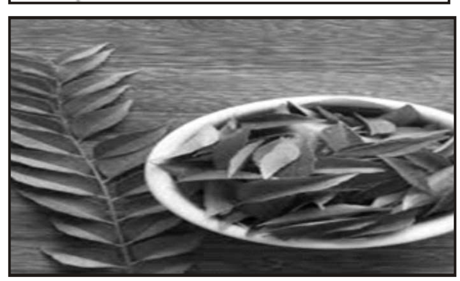
RESULTS AND DISCUSSION

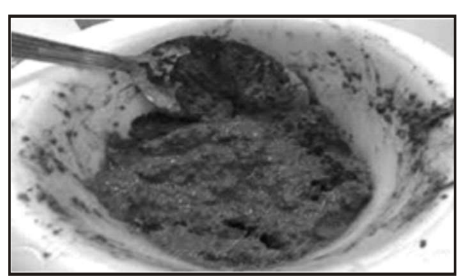
Results of the present investigation shows that the growth of both the saprophytic fungus Rhizopus and Aspergillus was inhibited with the aqueous and alcoholic extract of leaves of Azadirachta indica. From the result it is evident that the inhibition of growth of both the fungus was more pronounced with ethanolic leaf extracts as compared to aqueous leaf extracts. Significant inhibition of growth of Rhizopus and Aspergillus observed in the artificial culture media containing older leaf extracts of Azadirachta indica. Maximum growth of fungus occurred on PDA medium, then on PDA medium containing aqueous neem leaf extracts and minimum growth reported on PDA medium containing ethanolic neem leaf extracts.

The efficiency of different extracts of neem against the growth of Aspergillus and Rhizopus was treated in. The present results of this investigation exhibits the radial growth of Aspergillusand Rhizopuswas inhibited in vitro by water and ethanolic leaf extracts of Azadirachta indica, suggesting the presence of antifungal substances in the plant tissue, which agreed with the results reported by other workers on different pathogens and plants. The alcoholic leaf extract was more effective than the water extracts of neem. The differences in the toxicity of different extracts could be attributed to the presence of the active principles that are extracted by different solvents, which may be influenced by several factors such as age of plant, method of extraction and type of extracting solvent. The greater effectiveness of ethanolic as compared with water extract of the neem leaf may be due to differences in constituent extraction (Shekhawrat and Prasads, 1991). It has been previously reported that the active ingredients of neem constitute mostly of triterpenoides, eg, Nimbin,

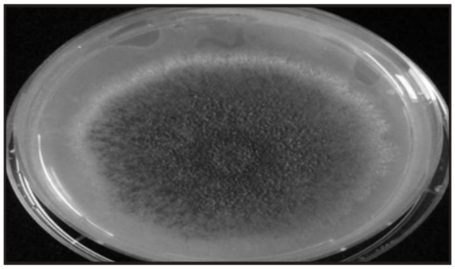
Nimbidine, Azadirachtinetc. (Brahmachari, 2004). Therefore, from the foregoing discussion it may be concluded that Azadirachta indica, a common medicinal plant could be exploited as the source of a potent biocide that have immense fungi toxic effect to several fungal pathogens like Aspergillus and Rhizopus.

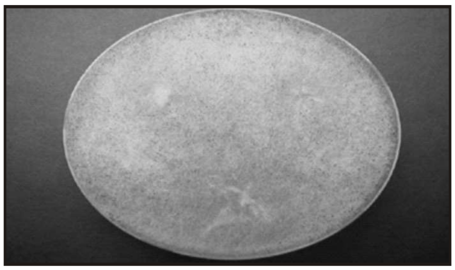
NEEM PLANT AND ITS PARTS





ASPERGILLUS AND RHIZOPUS





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REFERENCES

- Dictionary of Fungi, by PM Kirk, PF Cannon, DW Minter, Publisher CSIRO PUBLISHING
- Economic botany, by Singh, Pandey, Jain, Rastogi publication.Dictionary of medicinal plant, by RG Brown
- Introduction to Fungi, by John Webster, Published by mycological society of America
- The Fungi, by Michael john carlile, Sarah c. Watkinson, G.W. gooday, Publisher Academic press 2001
- Textbook of Fungi, by OP Sharma, Publisher Tata MC Graw- Hill publishing company limited

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STUDY OF MICROFLORA GROWING IN INDOOR POT SOIL

Archana Jha * Kasturi Verma * Pushpanjali Khare *

ABSTRACT : *Nitrogen fixing green Algae make a major contribution to the fertility of soil. It has been suggested that green Algae assist higher plant growth by supplying growth substances. In this project work different groups of algae were found. It enhances the fertility of the soil and these algae contain water holding capacity which prevent the soil from soil erosion.*

KEY WORDS : Nitrogen Fixation, Algae, Soil Erosion

INTRODUCTION

Algae are chlorophyllous, nonvascular thallophytes without true roots, stem and leaves in their thallus. They are microscopic, unicellular to larger multicellular plants. Algae occur in fresh water, hot water streams, sea, on moist land (soil), stems of plants or on stones. Some algae are found on mud, e.g. Chara. Few algae occur on banks of lakes and ponds, e.g. Rivullaria. Some algae complete their life cycle while living at 70 to 80 degree Celsius temperature in hot water stream. Some blue green algae survive at 85 degree Celsius. Some algae are found floating on water, e.g. Diatoms and volvox. Some algae are found floating on bank of pond, e.g. Spirogyra. Some algae are epiphytic i.e. theygrow on other plants.(algae or branches of trees) e.g. Oedogonium.

Algae are autotrophic. They manufacture their own food by photosynthesis on account of the presence of the chlorophyll. Some algae are parasitic, e.g. Cephaleuros which grows in intercellular spaces in the leaves of tea, coffee and magnolia.

The algae are useful for human beings in various ways: as food, in industry (agar agar), in agriculture, nitrogen fixation, medicinal use and above all algae in biological research.

Blue green algae occupy a remarkable place in biotechnological world serving as nitrogen fixers and Biofertilizers.

Algae have drawn much attention as prospective and rich source of biologically active constituents and have been identified as one of the most promising group of organisms capable of producing biological active compounds.

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MATERIALS AND METHODS

In the corridor of botany department of Magadh Mahila College there was several pots available. All the pots contain variety of plants but the pot we selected for our project work was a pot with healthy grown Euphorbia plant with extensive green mat like patches on soil surface of the pot. Whereas on the other pots scanty green patches were observed on the external surface of the pots. Due to presence of extensive growth of algae on the surface of soil, our curiosity drives us towards our project work.

SAMPLING DETAIL

The soil samples were collected from the pot. The upper layer of soil with green patches was collected with the help of scalpel. The sample was kept in three separated conical flasks, two containing tap water and the other containing double distilled water. Then the samples were left for several days (10) and changes were observed.

MEASUREMENT OF PHYSICAL FACTORS OF SOIL SAMPLES

Soil pH : Soil pH was measured with the help of pH meter (systronics).

Soil Temperature : Soil temperature was measured with the help of thermometer.

After thorough testing of Algal growth into culture media BG11, growth and formation of homogenous suspension was observed in BG11 media and hence was selected for culture for routine sub culturing and experimental purpose.

PHYSIOCHEMICAL PROPERTIES OF SOIL

The soil samples were collected from pot during the month of August. Samples were pre treated and brought into laboratory for further soil testing. During the testing of the soil the pH, temperature and NPK content were observed.

CULTURE VESSELS

Glass wares used were of borosil and corning make. Cultures were maintained in culture flask, culture tubes and petri plates. Tubes and flasks were plugged with cotton plug.

STERILIZATION

Culture Media (inorganic nutrients) and cultured vessels were sterilised at 15 lb inch/2 for 15minutes in an autoclave. Solution of inorganic nitrogen sources were autoclaved separately and added to cold sterilized media.

ISOLATION, INCUBATION, MAINTENANCE CLONING ANDPURIFICATION OF ALGAE

Out of seven, five selected green algae were grown in 500 ml flasks containing BG11 medium for 14 days at room temperature (25-28ºc), with constant stirring and aeration. The cultures were harvested and the cells washed with distilled water, culture were maintained by transferring the algae after 15 days in fresh BG11 medium. Cell extracts. Cultures were also examined microscopically under high power and oil immersion lens through phase contrast microscope. Taxonomic identification was done on the basis of taxonomic keys available in the library (Desikachary).

GROWTH MEASUREMENT

Identical condition and growth was measured at regular intervals and the algal were isolated.

OBSERVATIONS

During the present work we observed that the Algal extract which was taken into the three different conical flask depicted different growth altogether. The Algal growth in the flask containing DDW has shown comparatively slow growth rate in comparison to the tap water in first phase of growth observation. Second phase of growth observation was between algal extract growing in BG11 medium and DDW. After 10-15 days of observation the result showed remarkable growth difference in both the phases.

DDW	BG11	TAP WATER
Growth was slow	Extensive Growth	More growth
Because of the deficiency of nutrition	Because of proper nutrition	Sufficient Nutrition

In Petri plates algal colonies were counted. After Isolation among seven, five (5) genuses of algae were identified on the basis of their morphological features which are as follows:

i) Spirogyra sp.

i) Oscillatoria sp.

iii) Cosmarium sp.

iv) Oedogonium sp.

v) Anabaena sp.

PHYSIOCHEMICAL PROPERTIES OF SOIL

The Observed pH of the Pot Soil 7.2, Temperature 28ºc Type of Soil- Clayey Soil.

RESULTS

In the present study, five (5) genera of algae were identified. The list of this genus is as follows:

i) Spirogyra sp.

ii) Oscillatoria sp.

iii) Cosmarium sp.

iv) Oedogonium sp.

v) Anabaena sp.

MORPHOLOGY AND CELL STRUCTURE OF ABOVE ALGAE

i) **Spirogyra:** The filaments were unbranched and consist of cylindrical cells arranged end to end, the chloroplast are spiral and band like. Many pyrenoids were found in each ribbon like chloroplast.

ii) **Oscillatoria:** Unbranched filamentous Alga. Each trichone comprised of numerous cell which are broader than long and are placed end to end in a row. The thallus is entirely without or with barely watery hyaline mucilaginous sheath.

iii) **Cosmarium:** The plant body consist of an elongated, cylindrical cell with attenuated apices. They do not posses any median constrictions. The two semi circular cells remain connected to each other as isthmus.

iv) **Oedogonium :**The filaments are long and unbranched. The terminal cell of the filament is broadly rounded at its apex. The intercalary cells are cylindrical, uniform in thickness and arranged end to end they posses apical caps.

v) **Anabaena :**It is filamentous. The cells are usually spherical or barrel shaped, rarely cylindrical and more over discoid.

DISCUSSION

- The review of literature showed that, the pot soil with its optimum level of light, water, temperature, humidity and nutrient availability, provide the favorable environment for the growth of Algae
- The results obtained in the first part of this work showed that, the conical flask containing DDW had comparatively slow growth rate of Algae than tap water
- Growth was slow Because of the deficiency of nutrition in DDW Extensive Growth was observed in BG11because of proper nutrition and medium growth was observed in tap water due to meager availability of nutrients
- The second part of this work revealed that algal extract were incubated to BG11 medium than showed that significant growth of algae in BG11 medium. After the isolation five genera of algae was identified:

i) Spirogyra
ii) Oscillatoria
iii) Cosmarium
iv) Oedogonium
v) Anabaena

Mostly soil contains trace elements essential for growth, like NPK content, which stand for nitrogen, phosphorus and potassium apart from other micro nutrients. These elements help algae to grow in different ways.

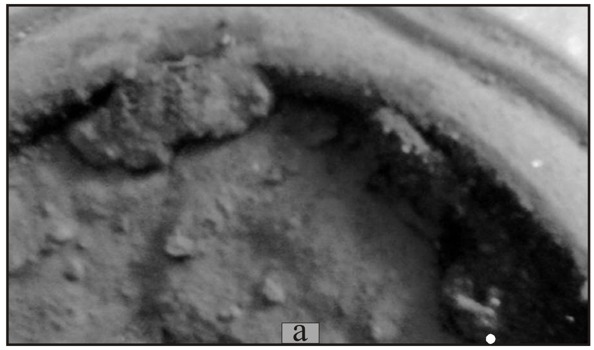
Algae increased fertility of soil because it contain NPK. It has high water holding capacity so that it can prevent Soil erosion. On the top of the soil a layer of algal mat is spreaded and it creates humus in soil and it came out as a good fertilizer for the crop plant.

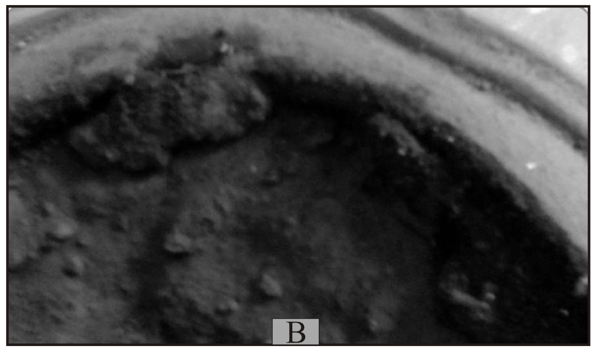
SURVEYED SITE

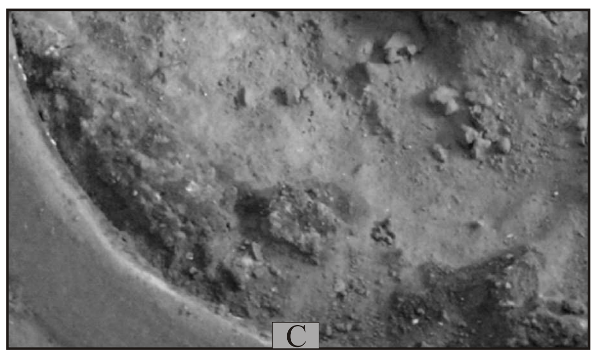
Corridor of the Department of Botany, Magadh Mahila College

Growth of Algae in pot Soil

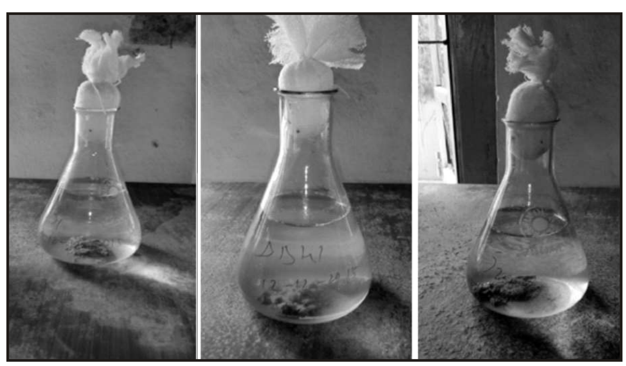
Pot is showing algal patches



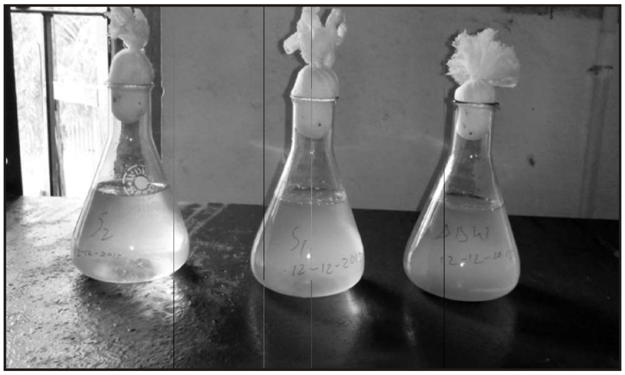




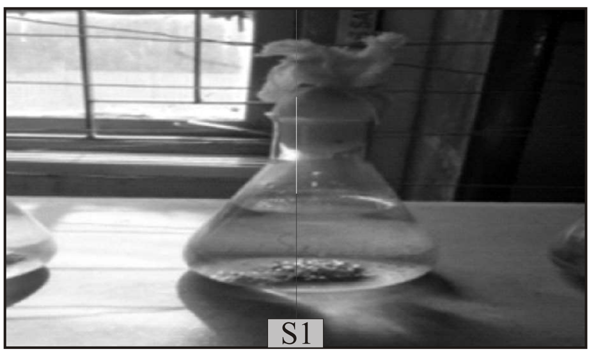
Algae was extracted from the above Pots.

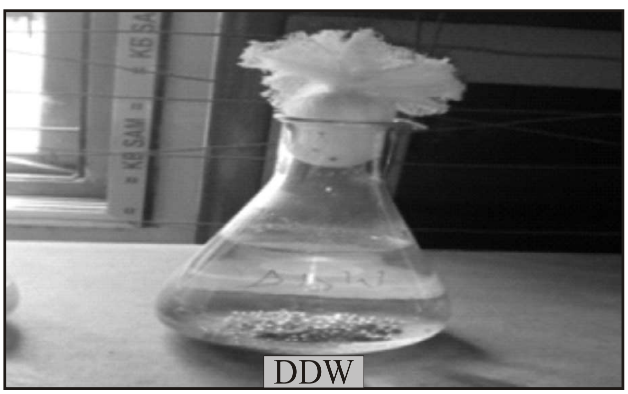


S1DDW S2



The algae was taken and placed into three different conical flask.

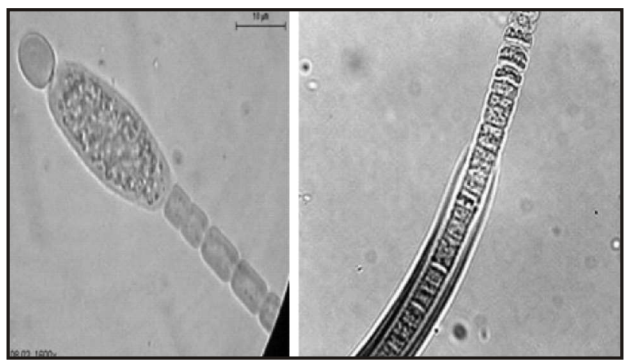




Through the above conical flask the growth of the algae has been shown which has taken approx.14 days.

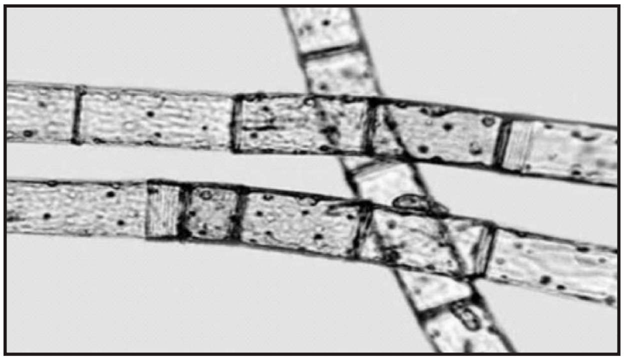
Through the above conical flask the growth of the algae has been shown which has taken approx. 10-15 days.

DIFFERENT FORMS OF ALGAL BLOOMS

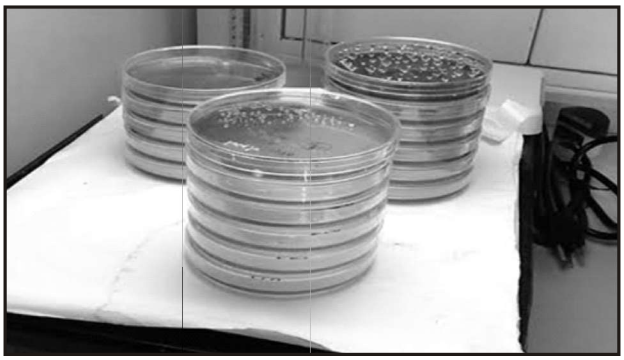


Anabaena Sps.Oscillatoria Sps.

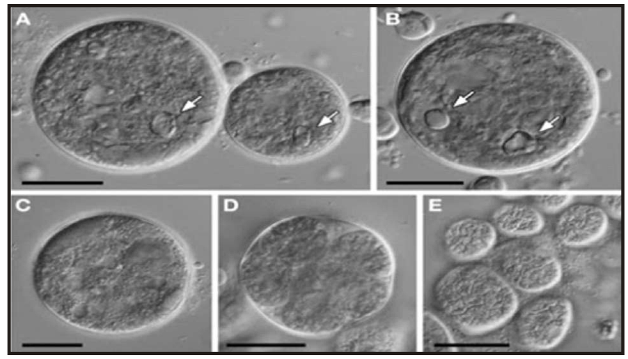
Spirogyra Sps. Cosmarium Sps.



0edogonium sps.



BG11 Medium Containing Algae.



ALGAE GROWTH IN BG11 MEDIUM.

REFERENCES

- A text book of algae by Vasistha
- Arif, M. Gupta., R. & Joshi, M.C (1995) Studies on the use of cynobactria as biofertilizer for vegetable cultivation in hydroponic system
- Bendra A.M Kumar (1975) Cyanophyceae of meerut
- De P.K., Mandal L.N (1956) Fixation of nitrogen by algae in rice soil
- Internet
- Modern Botany by M.P Kaushik

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CHEMISTRY

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COMPARISON OF ASCORBIC ACID IN FRUITS AND VEGETABLES BY IODINE TITRATION METHOD

Dipti * Prity Rani * Ranjana Kumari * Sudipti * Bina Rani *

ABSTRACT : *Ascorbic acid is sugar acid with antioxidant properties. Its appearance is white to yellow crystal. The name is derived from 'a' mean 'no' and 'scorbuticus' means 'scurvy the disease caused by deficiency of vitamin C.*

Ascorbic acid is found in plants, animals, single cell organisms. Fresh fruits and green vegetables are the richest source of it which is more abundant in amla. Lemons, guavas, orange, green chilli etc.From this experiment, we have found that the fruit Amla has the highest amount Ascorbic acid i.e. 9.88g/l and from vegetables side turnip leaves have the highest amount of 1.4g/l of Ascorbic acid.

KEY WORDS : Ascorbic Acid, Antioxidant Properties, Crystal, Deficiency, Organisms, Amla

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INTRODUCTION

Ascorbic acid is a naturally occurring organic compound with antioxidant properties. It is a white solid, but impure samples can appear yellowish. It dissolves well in water to give mildly acidic solutions. Ascorbic acid is one form ("vitamer") of vitamin C. It was originally called L-hexuronic acid, but, when it was found to have vitamin C activity in animals ("vitamin C" being defined as a vitamin activity, not then a specific substance), the suggestion was made to rename L-hexuronic acid. The new name for L-hexuronic acid is derived from a- (meaning "no") and scorbutus (scurvy), the disease caused by a deficiency of vitamin C. Because it is derived from glucose, many animals are able to produce it, but humans require it as part of their nutrition. Other vertebrates lacking the ability to produce ascorbic acid include other primates, guinea pigs, teleost fishes, bats, and some birds, all of which requiring it as a dietary micronutrient (that is, in vitamin form).

MATERIAL AND METHODS

To determine the amount of vitamin c in food is to use a redox titration. The redox titration is better than an acid-base titration. Since there are additional acids in the juice, but few of them interfere with the oxidation of ascorbic acid by iodine.

MATERIALS USED

100ml volumetric flask, 125ml of conical flask, Measuring flask, Burette, Pipette and 250ml volumetric flask

METHOD

i) At first all solutions were prepared.

ii) Juice were extracted from different food samples and filtered with the help of Buchner funnel and then transferred in to 100 ml of volumetric flask.

iii) Then 25 ml of juice sample is taken in to conical flask.

iv) Titrated it with iodine solution to a blue color which exists for at least 20 seconds.

REAGENTS

i) 1% starch indicator solution 0.05g of soluble starch was weighed accurately. It was dissolved in 50ml nearly boiling distilled water and mixed well; it was then allowed to cool before use.

ii) Iodine solution

iii) **Vitamin c standard solution**

iv) 0.250g of ascorbic acid (vitamin c) was weighed accurately dissolved in 100ml of distilled water .it was diluted to 250 ml with distilled water in a volumetric flask.

v) **Standardization**

vi) 25ml of standard ascorbic acid solution was taken in a conical flask and 10 drop of one percent starch solution was added to it. This solution was titrated against the iodide solution to be a blue color that persists after 20 second of stirring the solution

APPARATUS USED

i) Denver instrument for weight measurement

ii) Extraction of juices from Buckner Funnel

RESULTS AND DISCUSSION

Amount of ascorbic acid present in various edible fruits		**Amount of ascorbic acid present in various edible vegetables**	
Fruits	*Amount of Ascorbic Acid (Gram/Litre)*	*Vegetables*	*Amount of Ascorbic Acid (Gram/Litre)*
Amla	9.88 g/l	Turnip Leaves	1.4 g/l
Lemon	6.6 g/l	Coriander Leaves	0.92 g/l
Nimbu (Ghaghra)	6.4 g/l	Cabbage	0.84 g/l
Orange	4.2 g/l	Green Chilli	0.76 g/l
Orange packet juice	2.88 g/l	Radish Leaves	0.68 g/l

- From the above results we know that in taken samples of fruits, amla contains the highest amount of ascorbic acid i.e. 9.88gm/liter
- Lemon juice contains 6.6 gm /liter amount of ascorbic acid
- Nimbu Ghaghra contains 6.4gm/liter amount of ascorbic acid
- Orange juice contains 4.2gm/litre amount of ascorbic acid
- Orange packet juice contains 2.88gm/litre amount of ascorbic acid which is the lowest

- In taken samples of vegetables turnip leaves has the highest amount of ascorbic acid i.e.1.4gm/litre
- Coriander leaves, cabbage and green chilly contain 0.84gm/litre and for analyzing the Ascorbic Acid in the fruit juice and vegetable juice we are taking 5 sample of each

CONCLUSION

The experiment that we performed clearly shows that fruits and vegetables are rich source of ascorbic acid

- For analyzing the Ascorbic Acid in the fruit juice and vegetable juice we have taken 5 samples of each
- After passing through the various experiment for Ascorbic Acid we found that the in fruit Amla has the highest amount of Ascorbic Acid i.e. 9.88g/l
- We also see that from vegetables side Turnip Leaves have the highest amount of Ascorbic Acid i.e. 1.4g/l
- 0.76gm/litre amount of ascorbic acid respectively

REFERENCES

- Abubakar,J.A.Akanya,H.O&Garba,S.A. 1990,A study of ascorbic acid intake of children and aged people
- Achinewhu,S.C. 1983,Ascorbic acid content of some local fruits and vegetables.Qualities planetarium plants foods for human nutrition
- Davidson,S.Passmore,R& Books,J.A. 1972.Human nutrition and dieterics
- Practical manual on agricultural chemistry by A.K.Gupta, M.L.Varshney
- The chemical nature of vitamin C
- The Biochemistry by P.K.Stumpf

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MATHEMATICS

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MATHEMATICAL MODELLING OF THE POPULATION GROWTH OF A SINGLE SPECIES

Tanushri * Priya Kumari * Poonam Kumari *

ABSTRACT : *As population growth is a dynamical process, it is not possible to predict the future population with exact accuracy. However, population growth can be modelled by differential equations, whose solution express population as a function of time.*

In this work, we have discussed two fundamental mathematical models for the population growth : Exponential Growth Model and Logistic Growth Model. As the basic assumption of the Exponential Growth Model that "the net growth rate is constant" is not true in real life situations, therefore the results of this model cannot be applied to real situations. On the other hand, the Logistic Growth Model involves a term "carrying capacity", whose exact value cannot be predicted, therefore, this model also fails to predict the future population.

The question is "Which model should be used to predict the future population?". We have discovered through our analysis that if we replace the assumption of the Exponential Growth Model that "the net growth rate is constant" by the assumption that "the net growth rate is not constant but it varies with time and it can be calculated after a certain intervals of time by the actual observations", then the results of the model can be applied to estimate the future population approximately.

KEYWORDS : Differential Equation, Population Growth, Exponential Growth, Logistic Growth

INTRODUCTION

What is Mathematical Modelling?

Mathematical modelling is a technique of translating real world problems into mathematical problems, solving the mathematical problems and interpreting these solutions in the language of real world. The formulation of a mathematical model consists of the following steps:

i) Collecting the Data
ii) Identifying the relevant factors
iii) To find the relation among the relevant factors & express it by an equation or an identity.

Solving the resulting equation and interpreting the obtained results, we can check whether the model is good or not. If the model is not accurate

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enough, then we try to identify the shortcomings and remove them by forming new mathematical equation.

Why do we use a Differential Equation for Modelling?

Since many of the fundamental laws of the physical and social sciences involve rates of change, and rates of change are represented mathematically by derivatives, therefore differential equations are used for modeling such laws.

Population Density: The density of a population is defined as the number of individuals per unit area or volume.

Growth-Rate: The rate of change of the density of a population is called the growth-rate of the population.

Birth-Rate: The maximum production of new individuals per unit of time is called the birth-rate of a population.

Death-Rate: It is defined as the number of individuals dying per unit of time.

Carrying Capacity: The maximum population size that can be supported or sustained by a given environment is called the carrying capacity or asymptotically stable equilibrium point.

Modelling Population Growth: Growth of a population depends on many factors such as the net birth-rate and death-rate of the population, overcrowding and scarcity of resources etc.

We will first consider population models that change according to the net birth- rate and death-rate of the population, and we will find that this leads to exponential growth or decay of the population. We then introduce an overcrowding term, and find that the population may stabilize at a certain number.This leads to logistic growth or decay of the population.

Single Species Models: The models in which we consider a single species, i.e. only one type of species are called single species models. The single species may either be human or birds, rats or fishes etc.

For modelling the population growth of a single species, we can use a differential equation or a difference equation. For a continuously breeding, single-species population, growth can be described by a simple differential equation.On the other hand, for populations growing in discrete time steps, i.e., when generations do not overlap, the dynamics of growth can be described by a difference equation.

In this project, we consider single species as human and we discuss human population model.As humans are an example of a species that breed continuously, we use differential equations for modelling the human population growth.

OBJECTIVES

- Study of population growth model using differential equations and exponential functions
- To check the validity of the model
- To use the results of the model for estimating future population

HYPOTHESIS

Assumptions Of Exponential Growth Model:

- There are no limits to population growth, i.e., environmental limitations are not taken into consideration
- Net growth rate is constant
- Population is sufficiently large that rounding to integral values has no effect on the outcome of the model

Assumptions Of Logistic Growth Model

- The environment is absolutely limiting
- Net growth rate decreases linearly as population density increases
- Population is sufficiently large that rounding to integral values has no effect on the outcome of the model

Assumptions Of The Proposed Model

- The environment is absolutely limiting
- Net growth rate is not constant but it varies with time according to the environmental situations
- Population is sufficiently large that rounding to integral values has no effect on the outcome of the model

Exponential Growth Model

Exponential growth model results from the simplest possible assumptions, constancy of the per-individual birth and death rates. This model was first proposed by Malthus in 1798.

Formulation Of The Model

Let $x(t)$ be the size of the population at time t which is taken to be a positive integer with $x(0) = x_0$.

Let us assume that all changes in the population result from births and deaths, therefore, there is no immigration or emigration. Let $B(t)$ and $D(t)$ denote respectively, the numbers of births and deaths at time t. Then per capita birth rate b and per capita death rate m are given by

$$b = \frac{1}{x(t)}\frac{dB(t)}{dt} \quad \ldots (1)$$

$$m = \frac{1}{x(t)}\frac{dD(t)}{dt} \quad \ldots (2)$$

Therefore per capita growth rate of the population at any time t is given by

$$\frac{1}{x(t)}\frac{dB(t)}{dt} - \frac{1}{x(t)}\frac{dD(t)}{dt} = b - m$$

or, $$\frac{1}{x(t)}\frac{d}{dt}(B - D) = b - m \quad \ldots (3)$$

or, $$\frac{1}{x(t)}\frac{dx}{dt} = b - m$$

or, $$\frac{1}{x(t)}\frac{dx}{dt} = \alpha(\text{constant}),\text{say}$$

or, $$\frac{dx}{dt} = \alpha x \quad \ldots (4)$$

The difference between the per capita birth and death rates $\alpha \equiv b - m$ is known as the intrinsic growth rate or the net growth rate.

On separating the variables of equation (4) and integrating, we get

$$\int \frac{1}{x} dx = \int \alpha \, dt$$

i.e. $$\log x = \alpha t + C \quad \ldots (5)$$

where C is a constant.

Initially, when $t = 0$, $x = x_0$. Therefore, from equation (5), we have

$$\log x_0 = C$$

Substituting this value of C in equation (5), we get

$$\log x = \alpha t + \log x_0$$

or, $$\log\left(\frac{x}{x_0}\right) = \alpha t$$

or, $$\frac{x}{x_0} = e^{\alpha t}$$

or, $$x(t) = x_0 e^{\alpha t} \quad \ldots (6)$$

Equation (6) gives the population size at any time t.

INTERPRETATION

i) If the net growth rate $\alpha > 0$, population $x(t)$ grows exponentially without any bound as shown in Figure1.

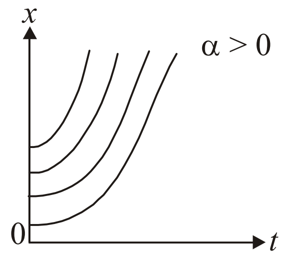


Fig.1

ii) If, $\alpha < 0$, population $x(t)$ decreases exponentially and asymptotically to extinction, i.e., $x(t) \to 0$ as $t \to \infty$, which is shown in Figure 2.

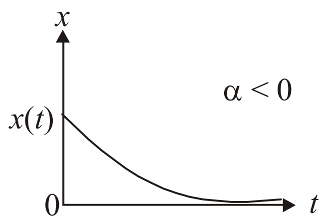


Fig.2

iii) If $\alpha = 0$, population $x(t) = x_0$ remains constant as shown in Figure 3.

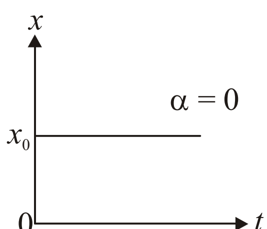


Fig.3

EXAMPLE

The population of the world in 2000 was 6.1 billion, and the estimated net growth rate was 1.4% per year. If the population continues to grow at this rate, when will it reach 122 billion?

Solution : Take $x_0 = 6.1$ billion, $x(t) = 122$ billion & $\alpha = 0.014$. Then, using equation (6), we have

$122 = 6.1\, e^{0.014\, t}$

or, $20 = e^{0.014\, t}$

or, $\ln 20 = \ln e^{0.014\, t}$

or, $\ln 20 = 0.014\, t$

or, $t = \dfrac{\ln}{0.014} \approx 213.98$

Therefore, the population will reach 122 billion in approximately 214 years, i.e., in the year 2000 + 214 = 2214.

LIMITATIONS OF THE MODEL

Exponential growth models assume unlimited growth, which is only valid for small periods of time. The environment will place a constraint on the growth, and therefore a more realistic model is needed to model the population growth.

LOGISTIC GROWTH MODEL

In Exponential Growth Model, we assume that per capita birth rate (b) and per capita death rate (m) are constant, both of which are independent of the population size. But, in most realistic population dynamics, they are likely density dependent, e.g., the birth rate decreases as the population size increases due to unfavorable environment caused by overcrowding, and the death rate increases as the population size increases because of environmental deterioration or shortage of food resources. This density dependent effect should set an upper limit to the population size,so we need to modify the Exponential Growth Model and formulate a new model of such limited population growth with density dependency.

FORMULATION OF THE MODEL

Let $x(t)$ be the number of single species at a time t, which must be a positive integer, $x(t)$ is often taken to be the population density or to be Bio-mass rather than the number of individuals.

The rate of increase of the population is directly proportional to the population at that time. Therefore, we have

$$\frac{dx}{dt} = \lambda x, \qquad \dots (7)$$

where λ is the net growth rate.

If we suppose that λ is positive and $\lambda = \alpha\left(1 - \frac{x}{K}\right)$, then equation (7) becomes

$$\frac{dx}{dt} = x\alpha\left(1 - \frac{x}{K}\right) \qquad \ldots (8)$$

where $\alpha > 0$ and $K > 0$.

Equation (8) is called the Logistic Equation, and it was first introduced by Verhulst in 1838.

Since $\frac{d\lambda}{dx} = -\frac{\alpha}{K} < 0 \; \forall x > 0$ therefore, it follows that the per capita growth rate declines as the density increases.This decrease in λ is brought about by the environmental resistance term (x/K) which is linearly proportional to the density.

On separating the variables of equation (8), we get

$$\frac{Kdx}{x(K-x)} = \alpha\, dt$$

$$\text{or,} \quad \left(\frac{1}{x} + \frac{1}{K-x}\right)dx = \alpha\, dt$$

Now integrating both sides, we have

$$\int\left(\frac{1}{x} + \frac{1}{K-x}\right)dx = \alpha \int dt$$

$$\text{or,} \quad \log x - \log (K - x) = \alpha\, t + C, \qquad \ldots (9)$$

where C is a constant.

If the population size at time $t = 0$ is x_0, then equation (9) gives $C = \log x_0 - \log (K - x_0)$

Substituting this value of C in equation (9), we get

$$\log x - \log (K - x) = \alpha\, t + \log x_0 - \log (K - x_0)$$

$$\text{or,} \quad \log\left(\frac{x}{K-x}\right) = \alpha\, t + \log\left(\frac{x_0}{K-x}\right)$$

$$\text{or,} \quad \log\left(\frac{x(K-x_0)}{x_0(K-x)}\right) = \alpha\, t$$

$$\text{or,} \quad \frac{x(K-x_0)}{x_0(K-x)} = e^{\alpha t}$$

$$\text{or,} \quad x(K - x_0) = x_0\,(K - x)\, e^{\alpha t}$$

$$= K\, x_0\, e^{\alpha t} - x\, x_0 e^{\alpha t}$$

$$\text{or,} \quad x(K - x_0 + x_0\, e^{\alpha t}) = K\, x_0\, e^{\alpha t}$$

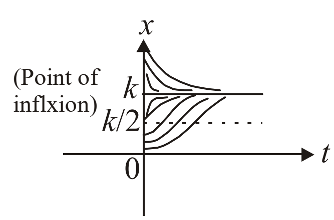
$$\text{or,} \quad x(t) = \frac{Kx_0 e^{\alpha t}}{K - x_0 + x_0 e^{\alpha t}}$$

$$\text{or,} \quad x(t) = \frac{Kx_0}{x_0 + (K - x_0)e^{-\alpha t}} \qquad \ldots (10)$$

Equation (10) represents the size of the population, i.e., the density of the population at time t.

INTERPRETATION

Equation (10) shows that the population size $x(t)$ approaches the limit K as $t \to \infty$ if $x_0 > 0$. The value K is called the carrying capacity of the population because it represents the population size that available resources can continue to support. The value α is called the intrinsic growth rate because it represents the per capita growth rate achieved if the population size were small enough to ensure negligible resources limitations. The logistic model predicts rapid initial growth for $0 < x_0 < K$, then decreases in growth rate as time passes so that the size of the population approaches a limit (Figure 4).



If $x_0 > K$ then $x(t)$ monotonically decreases towards K, the upper curve above the horizontal line $x(t) = K$ depicts this situation. The lower curve, with its characteristic "sigmoid" or ogive shape is usually known as logistic growth curve.

EXAMPLE

The population (in thousands of people) of Pittsburgh from 2000 to 2007 is modelled by

$$x(t) = \frac{2632}{1 + 0.083e^{0.05t}}$$

with $t = 0$ corresponding to the year 2000. Find the population of Pittsburgh in 2005.Also estimate the year in which the population will reach 2.2 million.

Solution :The population of Pittsburgh in 2005 is obtained by substituting $t = 5$ in the given model equation, and therefore, it is equal to

$$\frac{2632}{1 + 0.083e^{0.05(5)}} \approx 2,378,512$$

To estimate the year in which the population will reach 2.2 million, we substitute $x(t) = 2200$ in the given equation. Therefore, we have

$$2200 = \frac{2632}{1 + 0.083e^{0.05t}}$$

or, $1 + 0.083e^{0.05t} = \frac{2632}{2200}$

or, $e^{0.05t} = 2.365827$

or, $0.05t = \ln 2.365827$

or, $0.05t = 0.8611276$

or, $t \approx 17.2226$

Therefore the population will reach 2.2 million in approximately in 2017.

LIMITATIONS OF THE MODEL

i) The Logistic Model is not suitable for a population of small size, because for small value of x, the term $\alpha\, x\left(1 - \frac{x}{K}\right)$ becomes $\alpha\, x$, which reduces the Logistic Model to the Exponential Model.

ii) During the formation of Logistic Equation, it is assumed that the environmental resistance increases linearly with density, which, in general is violated in many growing populations.

iii) In Logistic Model, fluctuation of the populations is not considered, but some populations fluctuate periodically between two values. These values occur when certain populations reach a sufficiently high density, they become susceptible to epidemics. The epidemic brings the down to a lower value where it again begins to increase.

PROPOSED MODEL

According to the Exponential Growth Model, the following formula is used to find out the population size $x(t)$ at any time t if the population size is known initially, i.e., at time $t = 0$:

$$x(t) = x(0)\, e^{\alpha t} \qquad \ldots (11)$$

It is supposed there that the net growth rate α always remains constant. But, in real life situations, the net growth rate does not remain constant always; rather it varies according to the environmental situations. Therefore we may use the following modified version of the Exponential Growth Model to find out the population size at any time t if the population size is known initially.

FORMULATION OF THE MODEL

Let $x(0) = x_0$ denote the population size at time $t = 0$ and let the population size at time t is to be found out.

We divide the time-interval $[0, t]$ into n smaller sub-intervals $[0, t_1], [t_1, t_2], [t_2, t_3] \ldots\ldots [t_{n-1}, t_n = t]$ of durations $\Delta t_1, \Delta t_2, \Delta t_3, \ldots\ldots \Delta t_n$ respectively. We suppose that the net growth rate is constant in each sub-interval and it varies from one sub-interval to another.

Let the net growth rate in the time-intervals $[0, t_1], [t_1, t_2], [t_2, t_3] \ldots\ldots [t_{n-1}, t_n = t]$ be $\alpha_1, \alpha_2, \alpha_3, \ldots\ldots \alpha_n$ and let the population size at times $t_1, t_2, t_3, \ldots\ldots t_n = t$ be $x(t_1), x(t_2), x(t_3), \ldots\ldots x(t) = t$ respectively. Then, using equation (11), we have

$$\left.\begin{aligned} x(t_1) &= x(0)\, e^{\alpha_1 \Delta t_1} \\ x(t_2) &= x(t_1)\, e^{\alpha_1 \Delta t_2} \\ x(t_3) &= x(t_2)\, e^{\alpha_3 \Delta t_3} \\ &\ldots\ldots\ldots\ldots \\ &\ldots\ldots\ldots\ldots \\ &\ldots\ldots\ldots\ldots \\ x(t) &= x(t_{n-1})\, e^{\alpha_n \Delta t_n} \end{aligned}\right\} \quad \ldots (12)$$

If all the time-intervals $[0, t_1], [t_1, t_2], [t_2, t_3] \ldots\ldots [t_{n-1}, t_n = t]$ are of equal duration Δt, then the above equations become

$$\left.\begin{aligned} x(t_1) &= x(0)\, e^{\alpha_1 \Delta t} \\ x(t_2) &= x(t_1)\, e^{\alpha_2 \Delta t} \\ x(t_3) &= x(t_2)\, e^{\alpha_3 \Delta t} \\ &\ldots\ldots\ldots\ldots \\ &\ldots\ldots\ldots\ldots \\ &\ldots\ldots\ldots\ldots \\ x(t) &= x(t_{n-1})\, e^{\alpha_n \Delta t} \end{aligned}\right\} \quad \ldots (13)$$

Formula (12) or (13) may be used to find out the population size at any time t if the population size is known initially and the net growth rate after certain intervals of time during this time period are known.

INTERPRETATION

If the net growth rate is positive in each sub-interval of the given time interval, then the population increases.

If the net growth rate is negative in each sub-interval of the given time interval, then the population decreases.

If the net growth rate is zero in each sub-interval of the given time interval, then the population remains constant.

If the net growth rate is positive in some sub-intervals and negative or zero in the others, then the final population increases or decreases depending on the majority of the sign of the net growth rate.

In real life situations, the net growth rate fluctuates from time to time and from place to place, but it is generally positive in each sub-interval of a given time interval. Therefore human population always goes on increasing.

EXAMPLE

If the population of India in 2001 was 1,028,610,328, then predict the population of India in 2013 using the following population growth rate table, where the growth rate is given in percent:

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Growth rate (%)	1.55	1.51	1.47	1.44	1.40	1.38	1.61	1.58	1.55	1.38	1.34	1.31	1.51

Solution : We divide the time-interval into 12 smaller sub-intervals, each of duration one year.

If the symbols $P_{2001}, P_{2002}, P_{2003}, \ldots\ldots P_{2013}$, denote the population of India in 2001, 2002, 2003, ……, 2013 respectively, then using equation (13) and the given growth rate data, we have

$$P_{2002} = P_{2001} \times e^{0.0151} = 1{,}028{,}610,\ 328 \times e^{0.0151} = 1{,}044{,}260,\ 203$$
$$P_{2003} = P_{2002} \times e^{0.0147} = 1{,}044{,}260,\ 203 \times e^{0.0147} = 1{,}059{,}724,\ 210$$
$$P_{2004} = P_{2003} \times e^{0.0144} = 1{,}059{,}724,\ 210 \times e^{0.0144} = 1{,}075{,}094,\ 640$$
$$P_{2005} = P_{2004} \times e^{0.0140} = 1{,}075{,}094,\ 640 \times e^{0.0140} = 1{,}090{,}251,\ 818$$
$$P_{2006} = P_{2005} \times e^{0.0138} = 1{,}090{,}251,\ 818 \times e^{0.0138} = 1{,}044{,}260,\ 203$$
$$P_{2007} = P_{2006} \times e^{0.0161} = 1{,}044{,}260,\ 203 \times e^{0.0161} = 1{,}122{,}219,\ 808$$
$$P_{2008} = P_{2007} \times e^{0.0158} = 1{,}122{,}219,\ 808 \times e^{0.0158} = 1{,}140{,}091,\ 697$$
$$P_{2009} = P_{2008} \times e^{0.0155} = 1{,}140{,}091,\ 697 \times e^{0.0155} = 1{,}157{,}900,\ 782$$
$$P_{2010} = P_{2009} \times e^{0.0138} = 1{,}157{,}900,\ 782 \times e^{0.0138} = 1{,}173{,}990,\ 577$$
$$P_{2011} = P_{2010} \times e^{0.0134} = 1{,}173{,}990,\ 577 \times e^{0.0134} = 1{,}189{,}827,\ 924$$
$$P_{2012} = P_{2011} \times e^{0.0131} = 1{,}189{,}827,\ 924 \times e^{0.0131} = 1{,}205{,}517,\ 210$$
$$P_{2013} = P_{2012} \times e^{0.0151} = 1{,}205{,}517,\ 210 \times e^{0.0151} = 1{,}223{,}858,\ 649$$

Therefore the population of India in 2013 is expected to be 1,223,858,649.

RESULT

Data for population growth rate after certain intervals of time within a time-period was collected and the population in the beginning of this time-interval was noted down. The proposed method was used to find out the population after this time-interval. The following results were found:

TABLE : 1

POPULATION GROWTH RATE OF INDIA FOR THE PERIOD 2001-2013

Year	Population growth rate (%)	Population
2001	1.55	1,028,610,328
2002	1.51	
2003	1.47	
2004	1.44	
2005	1.40	
2006	1.38	
2007	1.61	
2008	1.58	
2009	1.55	
2010	1.38	
2011	1.34	
2012	1.31	
2013	1.51	?

TABLE: 2

ESTIMATION OF THE POPULATION OF INDIA IN 2013

Year	Population growth rate (%)	Population calculated	Actual population
2001	1.55	-	1,028,610,328
2002	1.51	1,044,260,203	1,045,845,000
2003	1.47	1,059,724,210	1,049,700,000
2004	1.44	1,075,094,640	1,065,071,000
2005	1.40	1,090,251,818	1,080,264,000
2006	1.38	1,104,296,737	1,095,352,000
2007	1.61	1,122,219,808	1,129,866,000
2008	1.58	1,140,091,697	1,147,996,000
2009	1.55	1,157,900,782	1,166,079,000
2010	1.38	1,173,990,577	1,173,108,000
2011	1.34	1,189,827,924	1,210,193,422
2012	1.31	1,205,517,210	1,220,200,000
2013	1.51	1,223,858,649	1,270,272,105

TABLE: 3

POPULATION GROWTH RATE OF THE WORLD FOR THE PERIOD 2001-2013

Year	Population growth rate (%)	Population
2001	1.25	6,200,002,758
2002	1.23	
2003	1.17	
2004	1.14	
2005	1.14	
2006	1.14	
2007	1.17	
2008	1.19	
2009	1.13	
2010	1.13	
2011	1.09	
2012	1.10	
2013	1.10	?

TABLE: 4

ESTIMATION OF THE POPULATION OF THE WORLD IN 2013

Year	Population growth rate (%)	Population calculated	Actual population
2001	1.25	-	6,200,002,758
2002	1.23	6,276,733,720	6,276,721,836
2003	1.17	6,350,602,796	6,353,195,588
2004	1.14	6,423,413,903	6,429,757,631
2005	1.14	6,497,059,805	6,506,649,175
2006	1.14	6,571,550,075	6,583,958,568
2007	1.17	6,648,888,760	6,661,637,460
2008	1.19	6,728,483,183	6,739,610,289
2009	1.13	6,804,946,246	6,817,737,123
2010	1.13	6,882,278,242	6,895,889,018
2011	1.09	6,957,705,406	6,974,036,375
2012	1.10	7,034,662,654	7,021,836,029
2013	1.10	7,112,471,105	7,199,324,780

DISCUSSION

The Exponential growth model proposed by Malthus cannot be used to estimate the future population because it assumes constant growth rate, which is not found in real world. The Logistic growth model involves a term, carrying capacity, whose exact value is difficult to predict. Moreover, during the formation of Logistic equation, it is assumed that the environmental resistance increases linearly with density, which, in general is violated in many growing populations. Therefore, we cannot estimate the future population by Logistic growth model also.

In the model proposed here, it is supposed that the population growth rate does not remain constant but it varies after certain intervals of time depending on the environmental situations. So this model can be used to estimate the future population. But if we compare the results of the proposed method with the actual population, we find that in some cases, the population calculated by the proposed method is very close to the actual population, whereas in the other, there are discrepancies between our results and the actual population.

The discrepancies may be due to the fact that the population growth rate has been taken to vary just after one year in the two examples presented here, i.e., its value has been considered as a constant for one year, whereas in real life situations, it is not so.Population growth rate depends on four factors - birth rate, death rate, immigration and emigration, so it does not remain constant for one year, but it fluctuates from time to time and from place to place. Even within a time-interval of one year, population growth rate may sometimes be very high and sometimes very low. So it is very difficult to calculate its true value for one year, and in real life situations, we may use its average value only.

Obviously, if we reduce the time-interval of one year to six months or smaller than this, then we shall get more accurate results.

CONCLUSION

Modelling population growth is a dynamical process, which goes on changing with time. It depends on four factors - net birth rate, net death rate, immigration and emigration. After finding out the values of these four factors only, we can compute the net growth rate, which is needed to model the population growth. Obviously, unless we know the true values of these four factors, we cannot model population growth appropriately, and any extrapolation which violates these may be dangerous.

As time is the most important factor in modelling the population growth, therefore net growth rate after certain intervals of time must be recorded. And, it is obvious that smaller is the duration of each time-interval, the greater will be the accuracy of the result. Therefore, in modelling the population growth, we should record the net growth rate after smallest possible time - intervals.

An appropriate mathematical model summarizes existing knowledge about a population. It provides a mathematical tool to predict the trajectory of a population. It provides predictive capability. This predictive capability is useful for resolving controversies. But, as mentioned earlier, models should be used only within the breath of the data used to develop them (i.e., no extrapolation).

REFERENCES

- Krishna's Bio-Mathematics: Bhupendra Singh and Neenu Agarwal, Meerut (U.P.), India (2011)
- Mathematical Models in Population Biology ad Epidemiolog : F. Brauer and C. Castillo-Chavez, Springer, New York (2001)
- Mathematical Models in Biology : Edelstein-Keshet,New York, Random House (1988)
- U.S. Census Bureau (2008). Total Midyear Population of theWorld: 1950-2050,available online at: http://www.census.gov/ipc/www/idb/worldpop

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MATHEMATICS IN ROBOTICS

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ABSTRACT : *The study of robotics concerns with the desire to synthesize some aspects of human function by the use of mechanisms, sensors and computers. Obviously, this is a huge undertaking which requires a multitude of ideas from various fields of technology like mechanical engineering, electrical engineering, computer science and electronics.Mathematics plays an important role in understanding the mechanical design of a robot. It supplies tools for describing spatial motions and other attributes of manipulators*

In robotic manipulation, parts and tools are moved around in space by some sort of mechanism. This naturally leads to the need of representing positions and orientations of the parts and tools.

In this work, we have presented methods of describing the position and the orientation of the objects in three dimensional space. For this, we have used an entity called a frame, which is a set of four vectors giving position and the orientation information. To describe the position of a point in space, we have used a position vector, and to specify an orientation, we have used a set of three vectors. Hence, whereas the position of a point is represented by a vector, the orientation of a body is represented by a square matrix of order 3. A homogeneous transformation represented by a square matrix of order 4 has been used to describe a frame.

KEYWORDS: Robotics, Matrices, Homogeneous Transformation

INTRODUCTION

What is Robotics ?

Robotics is an applied science that emerges from the utilization of knowledge in many disciplines together for analyzing and designing the robots. Such fundamental sciences are, for example, mechanical engineering which will be useful for the design and analysis of the mechanisms that can produce the desired motion;electrical engineering which concerns with the electronics and circuits in controlling the robots; computer engineering that addresses the efficient algorithms and program development.

What is a Robot?

A robot is a reprogrammable, multifunctional manipulator designed to move materials, parts, tools,

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or specialized devices throughvariable programmed motion for the performance of a variety of tasks.

Application of Robot in our lives

Robots are used in almost any industry where repetitive tasks are involved, or the task is difficult manually, or dangerous, such as :

- welding, painting, or surface finishing in the aerospace or automotive industries
- electronics and consumer products assembly and inspection
- inspection of parts by robot assisted sensors or in the form of a Coordinate Measurement Machine (CMM)
- underwater and space exploration
- hazardous waste remediation in government labs, nuclear facilities, and medical labs

Robot Kinematics

Kinematics is the science of motion that treats motion without regard to the forces which cause it. Within the science of kinematics, we study position, velocity,acceleration, and all higher order derivatives of the position variables (with respect to time or any other variable(s)). Hence, the study of the kinematics of manipulators refers to all the geometrical and time-based properties of the motion.

- **Links & joints :** Manipulators consist of nearly rigid links, which are connected by joints that allow relative motion of neighboring links. These joints are usually instrumented with position sensors, which allow the relative position of neighboring links to be measured.
- **Manipulators generally have two different kinds of joints :** Revolute joints(R) and Prismatic joints (P). The revolute joint is powered by a servo motor, whereas the prismatic joint is powered by a cylindrical piston like pneumatic system or hydraulic.

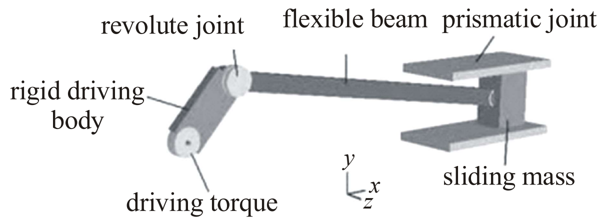

Figure 1 : Revolute and prismatic joints

- **Degree of freedom :**The number of degrees of freedom that a manipulator possesses is the number of independent position variables that would have to be specified in order to locate all parts of the mechanism. For example, a four-bar linkage has only one degree of freedom (even though there are three moving members). In the case of typical industrial robots, because a manipulator is usually an open kinematic chain, and because each joint position is usually defined with a single variable, the number of joints equals the number of degrees of freedom.

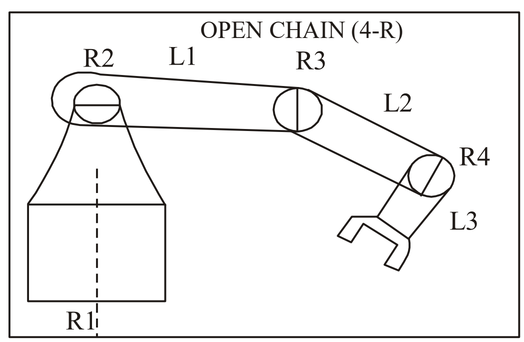

Figure 2 : Four degrees of freedom in open chain

Workspace : The existence or nonexistence of a kinematic solution defines the workspace of a given manipulator. The lack of a solution means that the manipulator cannot attain the desired position and orientation because it lies outside of the manipulator's workspace.

Forward Kinematics : In forward kinematics, the length of each link and the angle of each joint is given, and it is required to calculate the position and orientation of any point in the workspace of the robot.

Inverse Kinematics: In inverse kinematics, the length of each link and the position and orientation of a point in the workspace of the robot is given, and it is required to calculate the angle of each joint.

OBJECTIVES

- Study of spatial description of the parts and tools of the robot
- To find the desired direction of movement of arms of the robot using rotation and transformation matrices
- To help in the advancement of robot technology by using the results obtained

NOTATION AND FORMULATION

i) ${}^{A}P$**:** It denotes the position vector of a point in coordinate system *A*. The components of ${}^{A}P$ have numerical values that indicate distances along the axes of {A}. Each of these distances along an axis can be thought of as the result of projecting the vector onto the corresponding axis.

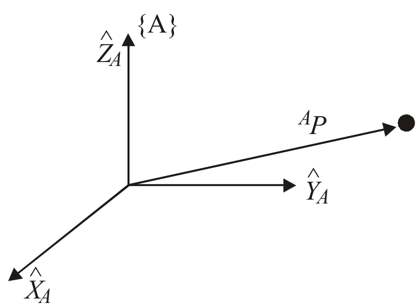

Figure 3 : Vector relative to frame A

Individual elements of a vector are given the subscripts *x*, *y*, and *z*, i.e.,

$$ {}^{A}P = \begin{bmatrix} p_x \\ p_y \\ p_z \end{bmatrix} \quad \ldots (1) $$

ii) ${}^{A}_{B}\boldsymbol{R}$**:** It denotes the orientation of the coordinate system *B* relative to coordinate system A and it is represented by a 3×3 matrix, called the rotation matrix. Three columns of this rotation matrix are the three column vectors giving the principal directions of coordinate system *B* relative to coordinate system *A*. If we denote the unit vectors giving the principal directions of coordinate system *B* as $\hat{X}_B, \hat{Y}_B$ and $\hat{Z}_B$, then

$$ {}^{A}_{B}R = \left[{}^{A}\hat{X}_B \quad {}^{A}\hat{Y}_B \quad {}^{A}\hat{Z}_B \right] $$

$$ = \begin{bmatrix} \hat{X}_B \cdot \hat{X}_A & \hat{Y}_B \cdot \hat{X}_A & \hat{Z}_B \cdot \hat{X}_A \\ \hat{X}_B \cdot \hat{Y}_A & \hat{Y}_B \cdot \hat{Y}_A & \hat{Z}_B \cdot \hat{Y}_A \\ \hat{X}_B \cdot \hat{Z}_A & \hat{Y}_B \cdot \hat{Z}_A & \hat{Z}_B \cdot \hat{Z}_A \end{bmatrix} \quad \ldots (2) $$

Since the dot product of two unit vectors yields the cosine of the angle between them, therefore the components of rotation matrices are often referred to as direction cosines.

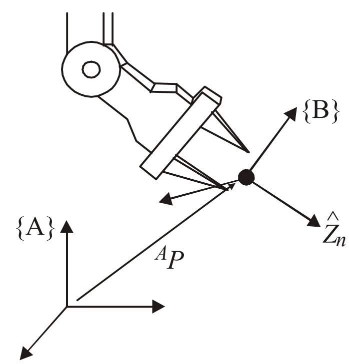

Figure 4 : Locating an object in position and orientation

iii) ${}^{B}_{A}\boldsymbol{R}$**:** It denotes the orientation of the coordinate system *A* relative to coordinate system *B* and it is equal to the transpose of the matrix ${}^{A}_{B}R$, which can easily be verified.

iv) ${}^{A}P_{BORG}$: It is a vector that locates the origin of the coordinate system *B* relative to coordinate system *A*

v) **{B} :** It represents the frame B. As a frame is a coordinate system where, in addition to the orientation, we give a position vector which locates its origin relative to some other frame, therefore we have

$$\{B\} = \left\{ {}^{A}_{B}R, \ {}^{A}P_{BORG} \right\} \qquad \ldots (3)$$

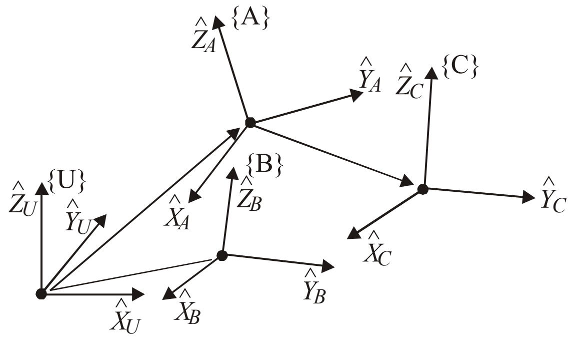

Figure 5 : Example of several frames

vi) **Mappings changing description from one frame to another frame**

Mappings Involving Translated Frames : If frame B differs from frame A only by a translation, which is given by ${}^{A}P_{BORG}$, then both vectors are defined relative to frames of the same orientation. Hence we calculate the description of point P relative to {A}, ${}^{A}P$ by vector addition:

$${}^{A}P = {}^{B}P + {}^{A}P_{BORG} \qquad \ldots (4)$$

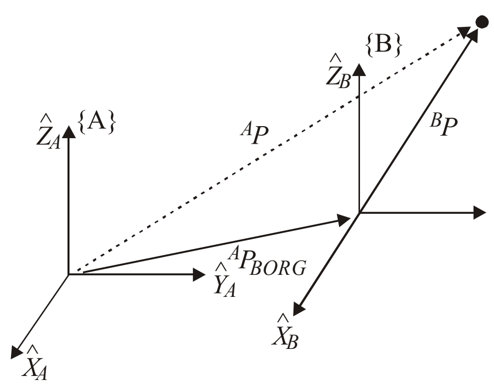

Figure 6 : Translation mapping

● **Mappings involving rotated frames :** If frame B differs from frame A only by a rotation, we calculate the description of point P relative to {A}, ${}^{A}P$ by using the formula

$${}^{A}P = {}^{\boldsymbol{A}}_{\boldsymbol{B}}\boldsymbol{R} \ {}^{B}P \qquad \ldots (5)$$

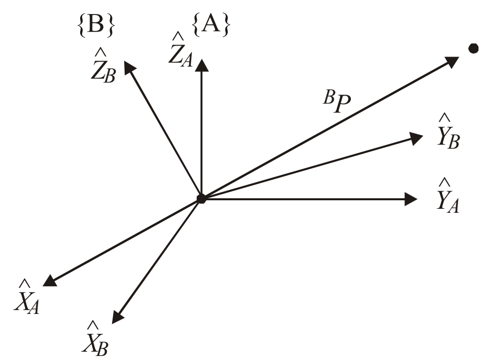

Figure 7 : Rotation mapping

● **Mappings involving general frames :** General transformation mapping of the vector from $\{B\}$ to $\{A\}$ may be formulated as follows :

$${}^{A}P = {}^{\boldsymbol{A}}_{\boldsymbol{B}}\boldsymbol{R} \ {}^{B}P + {}^{A}P_{BORG} \qquad \ldots (6)$$

Rotation and translation may be treated as an integral unit of general mapping ${}^{\boldsymbol{A}}_{\boldsymbol{B}}\boldsymbol{T}$, which packs the above equation as the homogeneous mapping

$${}^{A}P = {}^{\boldsymbol{A}}_{\boldsymbol{B}}\boldsymbol{T} \ {}^{B}P \qquad \ldots (7)$$

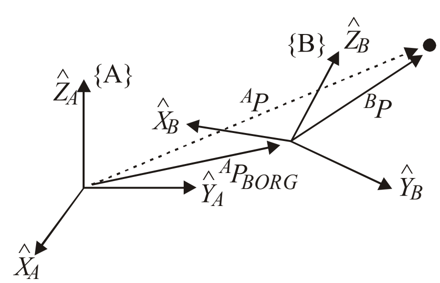

Figure 8 : General transformation of a vector

In order that we may write the mathematics given in (6) in the matrix operator form suggested by (7), we define a 4 × 4 matrix operator and use 4 × 1 position vectors, so that (7) has the structure

$$\begin{bmatrix} {}^{A}P \\ 1 \end{bmatrix} = \left[\begin{array}{c|c} {}^{A}_{B}R & {}^{A}P_{BORG} \\ \hline 0 \quad 0 \quad 0 & 1 \end{array}\right] \begin{bmatrix} {}^{B}P \\ 1 \end{bmatrix} \qquad ...(8)$$

The 4×4 matrix on the right side of (8) is called the homogeneous transformation matrix, and it can be regarded purely as a construction used to cast the rotation and translation of the general transform into a single matrix form.

METHODOLOGY

In this work, we have analyzed the kinematics of the robot, which is essential for controlling the robot manipulator. We have dealt with both forward position and inverse position problems. Several examples have been given to clarify the concepts.

EXAMPLE

Example 1: Simple example with 2R planar manipulator

L_1,L_2 lengths and P coordinate is given.

We need to calculate θ' s and α's (orientation).

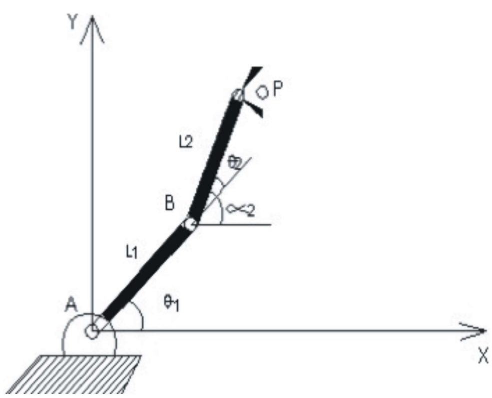

Figure 9: 2R Manipulator

X_B and Y_B are coordinates of B

X_P and Y_P are coordinates of P

Then from figure,

$X_P = L_1\cos\theta_1 + L_2\cos\theta\ (\theta_1 + \theta_2)$ … (i)

$Y_P = L_1\sin\theta_1 + L_2\sin\theta\ (\theta_1 + \theta_2)$ … (ii)

We have to find the orientation angle for

X_B and Y_B : α_1

X_P and Y_P : α_2

$\alpha_1 = \theta_1 + \theta_2$

i) $\Rightarrow (X_P - L_1 \cos\theta_1)^2 = [L_2\cos(\theta_1 + \theta_2)]^2$ … (iii)

ii) $\Rightarrow (X_P - L_1 \sin\theta_1)^2 = [L_2\sin(\theta_1 + \theta_2)]^2$ … (iv)

Adding (iii) and (iv) we get,

$$X_P^2 + Y_P^2 + L_1^2 - 2L_1\left(X_P \cos\theta_1 + Y_P \sin\theta_1\right) = L_2^2$$

$$X_P^2 + Y_P^2 + L_1^2 - L_2^2 = 2L_1\left(X_P \cos\theta_1 + Y_P \sin\theta_1\right)$$

$$\therefore \quad X_P \cos\theta_1 + Y_P \sin\theta_1 = \frac{X_P^2 + Y_P^2 + L_1^2 - L_2^2}{2L_1} \qquad \text{… (v)}$$

v) is an equation of the form

$a \cos\theta + b \sin\theta = c$ … (vi)

Therefore to solve (vi) we divide both sides of vi) by $\sqrt{a^2+b^2}$ we get,

$$\frac{a}{\sqrt{a^2+b^2}}\cos\theta + \frac{b}{\sqrt{a^2+b^2}} = \frac{c}{\sqrt{a^2+b^2}} \qquad \text{… (vii)}$$

Putting $\dfrac{a}{\sqrt{a^2+b^2}} = \cos x$ and

$\dfrac{b}{\sqrt{a^2+b^2}} = \sin x$ in (vii) we get,

$$\cos x \cos\theta + \sin x \sin\theta = \frac{c}{\sqrt{a^2+b^2}}$$

$$\cos\left(x - \theta\right) = \frac{c}{\sqrt{a^2+b^2}}$$

$$x - \theta = \cos^{-1}\frac{c}{\sqrt{a^2+b^2}}$$

$$\theta = x - \cos^{-1}\frac{c}{\sqrt{a^2+b^2}} \qquad \text{… (viii)}$$

where $x = \tan^{-1}\dfrac{b}{a}$

Comparing (v) with (viii) we get the solution of (v) as

$$\therefore \quad \theta_1 = \tan^{-1}\frac{Y_P}{X_P} - \cos^{-1}\left(\frac{X_P^2 + Y_P^2 + L_1^2 - L_2^2}{2L_1\sqrt{X_P^2 + Y_P^2}}\right)$$

Numerical example for 2R planar manipulator

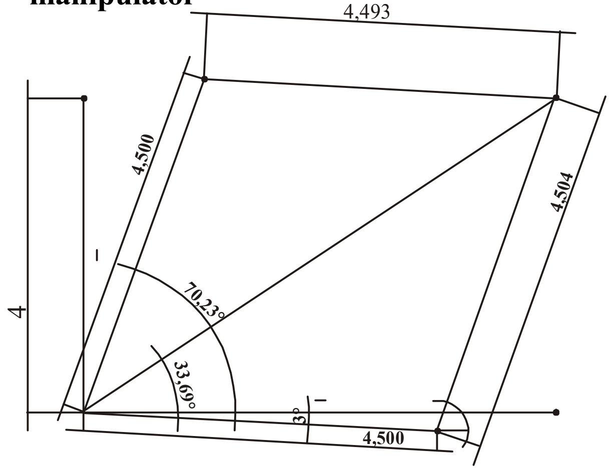

Figure 10: Numerical example for 2R planar manipulator

From figure:10

L_1= 4.5 unit, L_2= 4.5 unit, L_3 = 2 unit, X_P = 4 unit and Y_P = 6 unit.

We know that

$$\theta_1 = \tan^{-1}\frac{Y_P}{X_P} - \cos^{-1}\left(\frac{X_P^2 + Y_P^2 + L_1^2 - L_2^2}{2L_1\sqrt{X_P^2 + Y_P^2}}\right)$$

$$\Rightarrow \theta_1 = \tan^{-1}\frac{4}{6} - \cos^{-1}\left(\frac{4.5^2 + 6^2 + 4^2 - 4.5^2}{2 * 4.5\sqrt{6^2 + 4^2}}\right)$$

$$\Rightarrow \theta_1 = -3°$$

We extend line from the end of first link to the position of Y_P, X_P, then the second link gave the same length as 4.5 unit. On measurement we got the value of θ_2 which is 73.34°.

$$\tan\alpha_1 = \frac{Y_P}{X_P} = \frac{4}{6} \Rightarrow \alpha_1 = \tan^{-1}\frac{4}{6} = 33.69°$$

$$\alpha_2 = \theta_1 + \theta_2 \Rightarrow \alpha_2 = -3° + 73.34° = 70.34°$$

Thus we got the values of θ_1, θ_2, α_1, α_2

Example 2: 3R planar manipulator

L_1, L_2, L_3, X_P, Y_P and α_3 are given.

We have to calculate θ_1, θ_2, θ_3

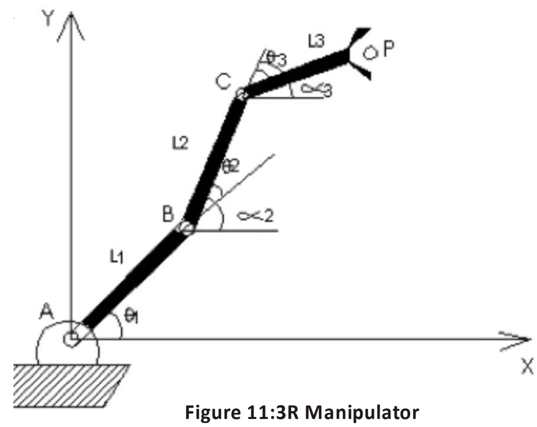

Figure 11:3R Manipulator

From figure 11,

$Y_C = Y_P - L_3 \sin\alpha_3$

$X_C = X_P - L_3 \cos\alpha_3$

$\theta_3 = \alpha_1 - (\theta_1 + \theta_2)$

First we define Y_C, X_C, then we calculate θ_1, θ_2 in the same way like in 2R planar manipulator.

$$\tan\alpha_3 = \frac{Y_C}{X_C}$$

$$\theta_1 = \tan^{-1}\frac{Y_C}{X_C} - \cos^{-1}\left(\frac{L_1^2 + X_C^2 + Y_C^2 - L_2^2}{2L_1\sqrt{X_C^2 + Y_C^2}}\right)$$

Numerical example for 3R planar manipulator

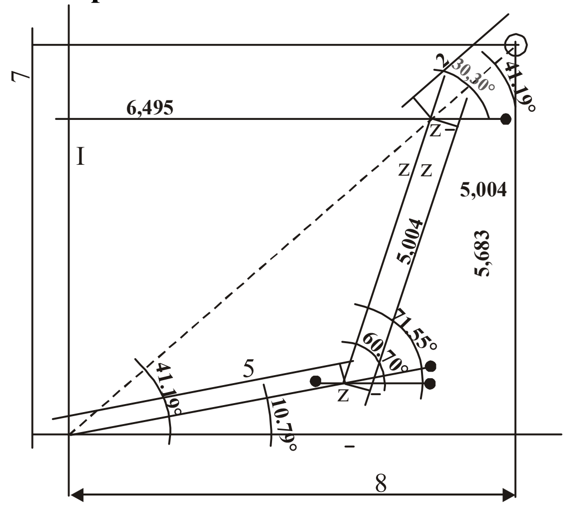

Figure 12: Numerical example for 3R planar manipulator

From figure 12,

$L_1 = 5$ unit, $L_2 = 5$ unit, $L_3 = 2$ unit, $X_P = 8$ unit and $Y_P = 7$ unit.

Now,

$$\tan\alpha_3 = \frac{Y_P}{X_P} = \frac{7}{8}$$

$$\Rightarrow \alpha_3 = \tan^{-1}\frac{7}{8} = 41.19°$$

$$Y_C = Y_P - L_3 \sin\alpha_3$$

$$\Rightarrow Y_C = 7 - 2\sin 41.19° = 5.68 \text{ unit}$$

$$\text{and } X_C = X_P - L_3\cos\alpha_3$$

$$\Rightarrow X_C = 8 - 2\cos 41.19° = 6.49 \text{ unit}$$

$$\theta_1 = \tan^{-1}\left(\frac{Y_C}{X_C}\right) - \cos^{-1}\left(\frac{L_1^2 + X_C^2 + Y_C^2 - L_2^2}{2L_1\sqrt{X_C^2 + Y_C^2}}\right)$$

$$\Rightarrow \theta_1 = \tan^{-1}\left(\frac{5.68}{6.49}\right) - \cos^{-1}\left(\frac{5^2 + 6.49^2 + 5.68^2 - 5^2}{2 * 5\sqrt{6.49^2 + 5.68^2}}\right)$$

$$\Rightarrow \theta_1 = 10.79°$$

We extended the line from the end of first link position of Y_P, X_P then the second link gave the same length as 5 unit. On measurement, the value of θ_2 is 60.70°.

$$\tan\alpha_1 = \frac{Y_P}{X_P} = \frac{5.68}{6.49}$$

$$\Rightarrow \alpha_1 = \tan^{-1}\frac{5.68}{6.49} = 41.19°$$

$$\alpha_2 = \theta_1 + \theta_2$$

$$\Rightarrow \alpha_2 = 10.79° + 60.70° = 71.49°$$

$$\therefore \theta_3 = \alpha_3 - (\theta_1 + \theta_2)$$

$$\theta_3 = 41.19° - 71.49° = -30.30°$$

Thus we got the values of $\theta_1, \theta_2, \theta_3, \alpha_1, \alpha_2$ and α_3

$$\therefore \theta_3 = \alpha_3 - (\theta_1 + \theta_2)$$

$$\theta_3 = 41.19° - 71.49° = -30.30°$$

Thus we got the values of $\theta_1, \theta_2, \theta_3, \alpha_1, \alpha_2$ and α_3

Example 3 : There is frame A and frame B. Frame B rotates with respect to frame A

i) To find rotation of B in A?

ii) To find coordinate of P^A ?

The coordinate of P are(0 3 1) and the coordinate of P_B are (0 1 1)

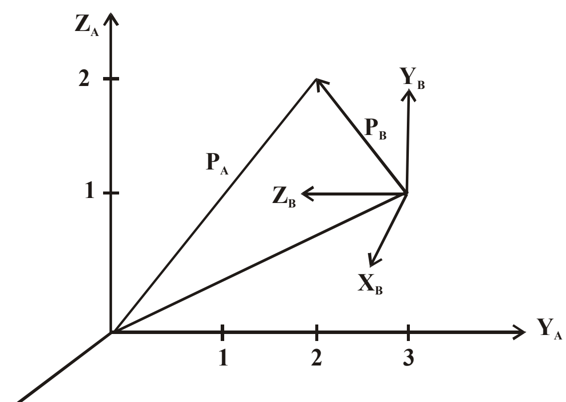

Figure 13 : Frame B rotates relative to Frame A

$${}^A_B R = \begin{bmatrix} X_A X_B & X_A Y_B & X_A Z_B \\ Y_A X_B & Y_A Y_B & Y_A Z_B \\ Z_A X_B & Z_A Y_B & Z_A Z_B \end{bmatrix}$$

$${}^A_B R = \begin{bmatrix} 1\times1 & 1\times0 & 1\times0 \\ 1\times0 & 1\times0 & 1\times-1 \\ 1\times0 & 1\times1 & 1\times0 \end{bmatrix}$$

$${}^A_B R = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & -1 \\ 0 & 1 & 0 \end{bmatrix}$$

For translation we add extra row which represents rotation axis(0 0 0 1), then we make dot product between rotation matrix and the coordinate of P_B (011) which gives the coordinate of P^A.

$$P^A = {}^A_B T = {}^A_B R \times P_B$$

$$P^A = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 3 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 1 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 \\ 2 \\ 2 \\ 1 \end{bmatrix}$$

$P^A = (0\ 2\ 2\ 1)$

Then we drop the last coordinate which represents rotation axis, so we get (0 2 2).

Example 4

In the following example frame B rotates with respect to frame A.

We have three different rotations

i) Rotation around *x* axis which rotates with angle γ

ii) Rotation around *y* axis which rotates with angle β

iii) Rotation around *z* axis which rotates with angle α

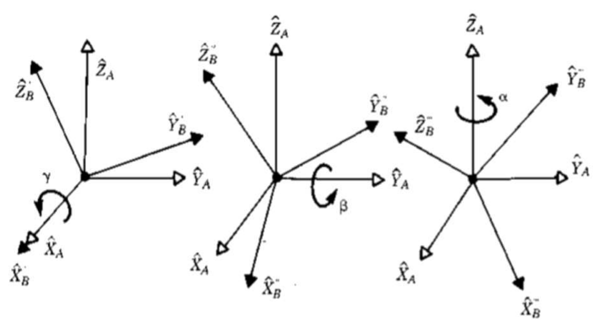

Figure 14 : Rotation axes

$${}^A_B R_{xyz}(\gamma,\beta,\alpha) = R_Z(\alpha) \times R_Y(\beta) \times R_X(\alpha)$$

i.e., ${}^A_B R_{xyz}(\gamma,\beta,\alpha)$

$$= \begin{bmatrix} C_\alpha & -S_\alpha & 0 \\ S_\alpha & C_\alpha & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} C_\beta & 0 & S_\beta \\ 0 & 1 & 0 \\ -S_\beta & 0 & C_\beta \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 \\ 0 & C_\gamma & -S_\gamma \\ 0 & S_\gamma & C_\gamma \end{bmatrix}$$

$C\alpha$ and $S\alpha$ is a shorthand for $\cos\alpha$ and $\sin\alpha$ respectively.

$${}^A_B R_{xyz}(\gamma,\beta,\alpha)$$

$$= \begin{bmatrix} C_\alpha & -S_\alpha & 0 \\ S_\alpha & C_\alpha & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} C_\beta & S_\beta S_\gamma & S_\beta C_\gamma \\ 0 & C_\gamma & -S_\gamma \\ -S_\beta & C_\beta S_\gamma & C_\beta C_\gamma \end{bmatrix}$$

$${}^A_B R_{xyz}(\gamma,\beta,\alpha)$$

$$= \begin{bmatrix} C_\alpha C_\beta & C_\alpha S_\beta S_\gamma - S_\alpha C_\gamma & C_\alpha S_\beta C_\gamma + S_\alpha S_\gamma \\ S_\alpha C_\beta & S_\alpha S_\beta S_\gamma + C_\alpha C_\gamma & S_\alpha S_\beta C_\gamma - C_\alpha S_\gamma \\ -S_\beta & C_\beta S_\gamma & C_\beta C_\gamma \end{bmatrix}$$

Example 5: Frame B rotates around frame A about z-axis by 30°.

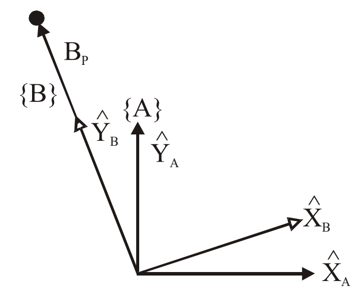

Figure 15 : Frame B rotates around frame A

Here z axis is pointing out of the page ${}^BP(0\ 2\ 0)$

$${}^A_B R = \begin{bmatrix} \cos\alpha & -\sin\alpha & 0 \\ \sin\alpha & \cos\alpha & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$${}^A_B R = \begin{bmatrix} \cos 30° & -\sin 30° & 0 \\ \sin 30° & \cos 30° & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$${}^A_B R = \begin{bmatrix} 0.866 & -0.5 & 0 \\ 0.5 & 0.866 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

Now,

$$^{A}P = {}^{A}_{B}R \times {}^{B}P$$

$$^{A}P = \begin{bmatrix} 0.866 & -0.5 & 0 \\ 0.5 & 0.866 & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 0 \\ 2 \\ 0 \end{bmatrix}$$

$$A_P = \begin{bmatrix} -1 \\ 1.73 \\ 0 \end{bmatrix}$$

Example 6 : Frame B has rotated with relative to frame A about z axis by 30 degrees and translated 10 units in X_A, and 5 units in Y_A. Find ^{A}P where $^{B}P = (3\ 7\ 0)^T$

The definition of frame B is

$$^{A}_{B}T = \begin{bmatrix} \cos 30° & -\sin 30° & 0 & 10 \\ \sin 30° & \cos 30° & 0 & 5 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$^{A}_{B}T = \begin{bmatrix} 0.866 & -0.5 & 0 & 10 \\ 0.5 & 0.866 & 0 & 5 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$^{A}_{B}P = {}^{A}_{B}T\,{}^{B}P$$

$$^{A}P = \begin{bmatrix} 0.866 & -0.5 & 0 & 10 \\ 0.5 & 0.866 & 0 & 5 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 3 \\ 7 \\ 0 \\ 1 \end{bmatrix}$$

$$^{A}P = \begin{bmatrix} 9 \\ 12.5 \\ 0 \end{bmatrix}$$

CONCLUSION

"Mathematics in Robotics"is quite an extensive field, which requires both theoretical study and work experience. Robots are primarily concerned with generating specific motion of the robot joints, simultaneously allowing tooling or sensors to perform certain functions, either when the arm is moving or at specific operational configurations.

In this work, the position and orientation of all the links in 2R manipulators and 3R manipulators has been determined with the help of given lengths of the links, where the position coordinate on the space is defined with respect to the origin frame. We also calculated the transformation when the frame rotates with respect to the base frame. It has been found that for the movement of robot in space frame, mathematics is utilized to achieve pre-programmed work.

REFERENCES

- Websites - Wikipedia, www.google.com
- Books-Introduction for robotics by JOHN J. CRAIG
- Bruno Siciliano, Oussama Khatib, 2008
- Paul E. Sandin, 2003

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MOSQUITO - A PROBLEM WHICH CAN BE OVERCOME BY SOCIAL AWARENESS

Shikha Mehra * Manshi Choudhary * Kumari Shikha * Renu Kumari * Mohita Sardana *

ABSTRACT : *Mosquito- borne disease cause millions of death world wide every year. They are public enemy number one in the fight against global infectious disease. Anopheles mosquitoes are the only species known to carry malaria. Culex carries encephalitis, filariasis and the west nile virus. Mosquitoes not only use the blood for their own nourishment but also as a source of protein for their eggs. In malaria, parasites attach themselves to the gut of a female mosquito and enter a host as she feeds. In other case, such as yellow fever and dengue, a virus enters the mosquito as it feeds on an infected human and transmitted via the mosquito's saliva to a subsequent victim. Mosquito control is important to the community because of the potential threat of the insect to transmit disease. The lack of drains, slab over it, and the non planned structure of the area and the lack of awareness among the people has made the problem bigger. Mosquito free society can be achieved surely by creating awareness among the people, by limiting breeding habitat and by avoiding exposures to the mosquitoes.*

KEYWORDS : Anopheles Mosquitoes, Malaria, Culex, Encephalitis, Parasites, Yellow fever.

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INTRODUCTION

Few animals on the earth evoke the antipathy that mosquitoes do. Their itchy, irritating bites and nearly ubiquitous presence can ruin a backyard barbecue or a hike in the woods. Mosquitoes are carriers or vectors for some of humanity's most deadly illness and they are public enemy number one in the fight against global infectious disease. Mosquito- borne disease cause millions of death world wide every year.

There are more than 3,000 species of mosquitoes, but the members of three bear primary responsibility for the spread of human disease.

Anopheles mosquitoes are the only species known to carry malaria.Culex carry encephalitis, filariasis and the west nile virus. The Aedes carry yellow fever, dengue and encephalitis.

Mosquitoes not only use the blood for their own nourishment but also as a source of protein for their eggs. For food, both males and females eat nectar and other plant sugars.

Mosquitoes transmit the disease in a variety of ways. In case of malaria, parasites attach themselves to the gut of a female mosquito and enter a host as she feeds. In other case, such as yellow fever and dengue, a virus enters the mosquito as it feeds on an infected human and transmitted via the mosquito's saliva to a subsequent victim.

All mosquitoes need water to breed, so eradication and population control efforts usually involve removal or treatment of standing water sources. Insectides are widely used to kill the adult mosquitoes. However, global efforts to stop the spread of mosquitoes are having little effect, and many scientists think global warming will likely increase their number and range.

OBJECTIVES

- To find out the reasons of high mosquito breeding in the given society
- To find out the controlling methods used by the local resident
- To make people aware of the problem and make a mosquito free society

AREA OF RESEARCH

This project was conducted in the Buddha Colony locality, Patna. The area enclosed by three roads 1- Budhha colony road 2-Ashok Rajpath (some part) 3- East Boring Canal road (some part).

Sample : Fifteen samples were selected from Budhha Colony through Random Method of selection that includes houses with different socio-economic and cultural backgrounds.

Survey : A survey was conducted to determine the practices of people in the locality regarding the control of mosquitoes. The selected families were interviewed regarding their life styles, cause of the garbage in the locality, control measures against the mosquitoes, awareness regarding the mosquitoes control.

The answers from their sides were analyzed to arrive at a conclusion.

RESULTS AND DISCUSSION

- Breeding of mosquitoes in drains is due to stagnation of water at various points like septic tank, cement tanks, ponds, marshy lands etc. and also faulty gradient
- Accumulation of silt and garbage invariably blocked the drains
- Underground water has been contaminated owing to the high water table and the absence of a proper liquid waste disposal system in the locality
- Open drainage system in areas and the dumping of garbage in it is very common in practice

CONCLUSION

Mosquitoes harm vast numbers of people world wide by transmitting pathogenic organism that causes disease and death, especially in tropical areas. Mosquito control is important to the community because of the potential threat of the insect to transmit disease. The lack of drains, slab over it, and the non planned structure of the area and the lack of awareness among the people has made the problem bigger.

It is not just a dream to assume for the mosquito free society. It can be achieved surely by creating awareness among the local residents. Their role is very important in controlling the mosquitoes. They should learn how to control and prevent the mosquitoes. It is not only the duty of the government and the local government but also the duty of every citizen and thereby building up a healthy locality.

SUGGESTIONS

Mosquitoes can be controlled by two ways: By limiting the breeding habitat and avoiding exposures to mosquitoes.

By Limiting Breeding Habitat

i) Keep gutters cleaned and unclogged.

ii) Keep swimming pools cleaned and chlorinated.

iii) Drill holes in the bottom of any garbage or recycling containers stored out doors.

iv) Ornamental ponds should be aerated to keep water moving and discourage mosquitoes from laying eggs.

By Avoiding Exposures to the Mosquitoes

i) When outdoors, apply DEET- based insect repellent according to the directions on the label.

ii) Replace outdoor lights with yellow "bug" lights.

iii) Use permithin based products such as Permanone to treat clothing, sun shades and screen houses.

iv) Use of mosquito repellents such as citronella candles and mosquito coils.

REFERENCES

- Plasmodium, Book, Biology of animals, Vol-I, NCBA, Publication, Page 166-178.
- Google Search Engines
- Wikipedia

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MIGRATION OF BIRDS "OPEN BILLED STORK"

Renu Kumari * Shikha Mehra * Neha Mithilesh * Mohita Sardana *

ABSTRACT : *The Asian openbill or Asian openbill stork found mainly in the Indian subcontinent and South east Asia. The Asian openbill stork forages at wetlands, reaching them by flying with wing flapping interspread with gliding. Mainly feeds on large mollusks, especially Pila species and they separate the shell from the body of the snail using tip of the beak. Breeding season for Asian Openbill occurs once each year from June to December and lays two to five eggs per season. Bird migration is the regular seasonal movement, often north and south along a flyway, between breeding and wintering grounds. Asian openbill serve as effective indicators of the ecological health of wetlands. They are also vital components of wetland ecosystems in that they establish significant links in food webs and nutrient cycles. Stork plays an important role in maintaining ecological balance. Its our moral duty to preserve this precious creature.*

KEYWORDS : Asian Openbill Stork, Mollusks, Pila, Food Web, Ecological Balance, Nutrient Cycle.

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INTRODUCTION

The Asian openbill or Asian openbill stork is a large wading bird in the stork family Ciconiidae. This is found mainly in the Indian subcontinent and South east Asia. It is grayish white with glossy black wings and tail and the adults have a gap between the arched upper mandible and recurved lower mandible. The cutting edges of the mandible have a fine brush like structure that is thought to give them a better grip on the shells of snails. The mantle is black and the bill is horn-grey. The short legs are pinkish to grey, reddish prior to breeding. Non breeding birds have a smoke grey back instead of white.

Habit And Habitat : The usual foraging habitats are inland wetlands and are only rarely seen along river banks and tidal flats. Storks are regularly disoriented by the light houses along the south east coast of India on overcast nights between August and September.

Food And Foraging : The Asian openbill stork forages at wetlands, reaching them by flying with wing flapping interspread with gliding. They mainly feeds on large mollusks, especially Pila species and they separate the shell from the body of the snail using tip of the beak. They also feed on snakes, frogs and large insects.

Breeding : The breeding season is after the rains, during July to September in northern India and November to March in southern India and SriLanka. They may skip breeding in drought years.

Bird migration is the regular seasonal movement, often north and south along a flyway, between breeding and wintering grounds.

OBJECTIVES

- To find out their food behavior
- To find out the breeding season
- To find out their migratory pattern
- To make people aware to provide peaceful environment for the migrated birds

AREA OF RESEARCH

This project was conducted in the Danapur Cantonment area situated on the outskirt of Patna, the capital of Bihar. It is famous for being a special place for the migratory birds. The Cantonment is the largest breeding ground of the Storks in the South Asia, as per the Asian Water Bird Census (AWBC) conducted by Wetlands International South Asia. This place provides the calm and safe environment for these migratory birds.

Survey : A survey was conducted under the supervision of Anjali Bhartiya, the wild life researcher at Danapur Cantonment.

Much information about openbill stork was collected from her. Carefully the nesting method and their feeding behavior were watched. The peaceful environment and more than 50-odd low rising trees were preferred by these birds to build their nests. Any human activity and movement of vehicles is restricted there to ensure safety of these migratory birds.

RESULTS AND DISCUSSION

Asian openbills are medium sized stork. They have pale white or grey plumage with black wings and a forked black tail.

- **Habitat :** Tropical; Fresh Water
- **Aquatic Biomes :** Lakes and ponds; brackish water
- **Wetlands :** Marsh
- **Key Reproductive Features :** Iteroparous; gonochoric/dioecious; oviparous
- **Communication Channels :** Visual; tactile; acoustic; chemical
- **Positive impact :** Food; produces fertilizer; controls pest population
- **Negative impact :** Injures humans (carries human disease); causes or carries domestic animal disease

Asian openbill serve as effective indicators of the ecological health of wetlands. They are also vital components of wetland ecosystems in that they establish significant links in food webs and nutrient cycles.

CONCLUSION

Storks are very fascinating and admirable bird which is found in almost all the continents of the world. The only continent where it is not found is Antarctica. Indian stork is one of the 17 different species found through out the world. The natural habitat of stork comprises of Indian fields, savannahs and marshes. Their diet includes snail, fish, frog, insects and dead animals.

Breeding season for Asian Openbill occurs once each year from June to December and lays two to five eggs per season.

Stork plays an important role in maintaining ecological balance. So its our mortal duty to preserve this precious creature.

SUGGESTIONS

Asian openbills serves as an effective indicator of the ecological health of wetlands. They also produce faecal matter that is rich in nitrogen and phosphorous, serving as an effective form of fertilizer for wet land plants. They fed on golden apple snails, a major rice pest in Asia and effectively reduce their population.

- Positive impacts
- Food
- Produces Fertilizer
- Controls Pest Population

The Danapur Cantonment being quite old has well developed trees in large areas which have been protected due the presence of army. This place provides a calm and safe environment for these migratory birds. Some steps should be taken-

- To increase public awareness by offering educational classes and transforming wetland reserves into eco-tourism sites
- Strict laws should be taken which prohibit poaching and fishing in wetland area

REFERENCES

- Danapur Cantonment Area
- From the Locality
- Google Search Engines
- A.D.W. (Animal Diversity Web)
- Wikipedia
- Lloveindia.com
- "The Fauna of British India", Vol.6, 2nd Edition
- Ecology of the Wetland Birds in the Kole Lands of Kerela (KFRI Research Report)
- Asian journal of Conservation of Biology

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FINANCIAL INCLUSION IN ECONOMIC DEVELOPMENT OF BIHAR: A CASE STUDY OF PATNA DISTRICT

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ABSTRACT : *There has been a significant change in the economic condition of India during the past decades. This research is a blend of the change in economic condition of BPL people and impact of financial inclusion- an effective program of union government. The study report also reveals the level of satisfaction at all levels, i.e, the beneficiaries banks and the government. It emphasizes the need of bringing a positive change in the thought process of beneficiaries, banks and government officials so that desired level of success can be achieved.*

KEYWORDS : Consideration, Civilisations, Atmospheric Pollution, Desirable, Sanitation

INTRODUCTION

Financial inclusion is the process of ensuring access to appropriate financial products and services needed by vulnerable groups such as weaker sections and low income groups at an affordable cost in a fair and transparent manner by mainstream institutional players. Thus, financial inclusion is a provision to deliver affordable (no frills account) financial services viz access to payments remittance facilities, savings, loans and insurance services by the formal financial system to those who tend to be excluded. It is a comprehensive financial services through which timely and adequate credit facilities are ensured to the exclusive groups, i.e., weaker sections and low income groups of the society.

OBJECTIVES

The study aims at:

i) To analyze the role of RBI in financial inclusion in Bihar.

ii) To examine the growth of credit facility in rural areas and efforts made for financial literacy programmes in the state.

iii) To examine the impact of PMJDY on the beneficiaries in Patna district.

HYPOTHESIS

i) There is significant impact of financial literacy programmes on the economic condition of the beneficiaries.

ii) There is significant improvement regarding credit facilities in rural areas.

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iii) PMJDY has positively contributed towards socio-economic growth of Bihar in general and Patna district in particular.

iv) There is no significant impact of financial inclusion on the economic condition of the beneficiaries in Patna as well as in Bihar.

METHODOLOGY

The study is empirical study based on survey method. First-hand information have been collected from Mr.K.K.Upadahya general manager MBGB and Mr. Chitij Kumar F.I manager in MBGB as well as Mr. Mishra of Allahabad Bank of MagadhMahila Branch.

OBJECTIVES OF FINANCIAL INCLUSION

An attempt has been made to know the objectives of financial inclusion. The study finds that there are a number of objectives where few objectives have been discussed in the light of this research paper. These are:

i) **Economic Objective :** Financial inclusion goes to improve savings and investment capability of the people which ultimately helps in overall development of the society.For the impartial growth in all segments of the society leading to the diminution in terms of income and savings, the financial inclusion can serve as a rumble for UDC's and developing nations. Purchasing capability of the people is also improved through financial inclusion as found from the study.

ii) **Large Market For Financial System :** Financial inclusion provides a larger financial market where financial requirements of all the sections of the society are easily met. To serve the requirements and needs of the large section of the society there is an instant need for the large market for the financial system. It is going to be possible through financial inclusion.

iii) **Political Objective :** There are certain political objectives which can also be achieved with the wider inclusion of lower strata in the society and efficiched direction can be given to the government programmes. Most of the government schemes and programmes are going to be possible through financial inclusion.

iv) **Social Objectives :** Poverty eradication is considered to be major society objective of this scheme.

v) Mobilisation of savings and sustainable livelihood are found to be possible with the help of financial inclusion in the society. Financial inclusion is the best medicine for insuring happiness to all.

SIGNIFICANCE OF FINANCIAL INCLUSION IN BIHAR AND PATNA DISTRICT

The study denotes that Bihar has been identified as poorest state of India where the population of BPL is greater than other part of the countries. However, the position of Patna is sight better but even in rural areas of this district, the position is more or less the same. In the light of that this scheme of financial inclusion has helped to bring the people at par with inclusive growth to some extent. This study was conducted to aware the people about financial products and banking facilities so that they can take minimum benefit from this facility. The level of literacy is very low in the state, hence, financial inclusion goes to help them in making them literate also. Financial literacy must be ensured for financial inclusion. Financial inclusion goes to promote savings and investment in the state which will certainly bring positive impact on the growth of industrialization in rural areas. Thus, financial inclusion is considered to be significant because of the following reasons:

- To bring the under privileged people at par with the mainstream
- To create financial awareness banks and banking channels among the people and its advantages

- To educate people financially, making them financially literate
- Allows poor household to save and manage their money in a secure manner

FEATURES OF FINANCIAL INCLUSION

The study shows that there are certain features as identified from financial inclusion which have been found as follows:

- No frills accounts- nil or minimum
- Relaxation on KYC norms
- Engaging business correspondents
- Use of technology
- Opening of branches in unbanked rural centres

FINANCIAL INCLUSION IN INDIA

An attempt has been made to highlight the position of financial inclusion in India.The efforts to include the financially excluded segments of the society in India are not new. The concept was first mooted by Reserve Bank of India in 2005. In the year 2011, the government of India gave a serious push to the programme by undertaking the "Swabhimaan" campaign to cover more than 74000 villages with population more than 21000with banking facilities. This campaign was launched on 10th February 2011 by Smt. Sonia Gandhi, chairperson UPA, in Vigyan Bhawan, New Delhi. There are certain initiatives which have been taken by the government of India for financial inclusion.

In the first phase- (1960-1990), Nationalization of Banks, channeling credit to weaker sections of the society have been done.

In the second phase- (1990-2005), Economic Reforms and strengthening the financial institutions as a part of financial sector reforms have been considered.

In the third phase-(2005-onwards), Financial Inclusion came into existence.

- The study finds that in India, about 30% of adults have a bank account; while the rest remain unbanked meaning they do not have an account
- The study further shows that 20% of the unbanked need financial services but barriers such as cost, travel distance and documentation requirements are critical
- It is also found from the study that in developing economies, 35% of small firms report that access to finance is a major obstacle to their operations, compared with 25% of large firms in developing economies and 8% of large firms in developed economies

FINANCIAL INCLUSION IN BIHAR

An endeavor has been made to highlight the actual scenario of financial inclusion in the state of Bihar. The financial inclusion project has been started in Bihar by Dept. of Rural Development as a complimentary project to e-Shakti which provides for opening of bank account of all e-Shakti card holders in which they will be paid their wages and banking facilities would be made available in the village itself by Customer Service Point (CSP) of business correspondent. The Financial Inclusion project was inaugurated on Friday 27thAugust 2010 by Honorable Chief Minister of Bihar, Shri Nitish Kumar at Samwad Bhawan, Patna.

He made first payment to MNREGA beneficiaries through e-Shakti card and hand held device.

MICRO FINANCE IN BIHAR

Micro finance is one of the integral part of financial inclusion. 'Micro Finance' is provision of thrift, credit and other financial services and products of very small accounts to the poor in rural, semi-urban or urban areas for enabling them to raise their income levels and improve living standards. It goes to supplement the purpose of financial inclusion to the greater extent.

Bihar is a poor state with huge deficit in institutional providing credit. Bihar has tremendous potential for growth and development in general and micro finance in particular. However, the growth of micro finance has been adversely affected during the period in Bihar due to certain reasons as identified from the study. The reasons have been highlighted as follows:

Constraints to growth of Micro Finance in Bihar:

i) Regional imbalance

ii) Weak infrastructure

iii) Law and order

iv) Lack of experience and capacity among the NGO's

v) Effect of subsidized SGSY loans

vi) Find constraints for start-ups

Thus, there has been a number of obstacles in the growth of micro finance in Bihar but most important part is that proper environment could not been created as yet.

SELF HELP GROUP

Financial inclusion has been encouraged with the active participation of self-help group during this period. SHG is a development group for the poor and marginalized. It is recognized by the government and does not require any formal registration. The purpose is to build the functional capacity of the poor and the marginalized in the field of employment and income generating activities. People are responsible for their own future by organizing themselves into SHG. Aiming at the Bihar's development, the Central government initiated many programs in the state. Some projects are as follows:

PROJECTS	ESTABLISHED	OBJECTIVES
BMS	1992	● To empower women through education
RMK	1993	● An innovating mechanism for providing Credit to poor women.
IMY	1995-96	● It aimed at organizing women & empower them.
SHSY	1999	● Providing sustainable income
PACS	2002	● Improvement of tribes and backward class
WDC	1991	● Providing literacy among women

JEEVIKA, BIHAR RURAL LIVELIHOOD PROJECT SOCIETY (BRPLS)

The government of Bihar, with the support from World Bank, initiated Bihar Rural Livelihoods Promotion Society (BRPLS) and called Jeevikain 2006. BRPLS aims to improve rural livelihood options and works towards social and economic empowerment of the rural poor and women. The objectives of the project include the development of organizations of the rural poor and producers enable them to access and negotiate better services, credits and assets from public and private sector agencies and financial institutions. The project is targeted to promote 40000SHG's and 40000 SHG federations at village/ clusters / area level over a period of five years. The project is operational in 102 blocks of 6 districts viz. Muzzaffarpur, Nalanda,Khagaria, Gaya, Purnia and Madhubani.

POSITON OF FINANCIAL INCLUSION IN PATNA DISTRICT

The study was conducted to find out the actual position of financial inclusion in Patna district of Bihar during the period of study. The study was conducted by keeping in view the number of bank accounts opened during the period, the benefits derived by opening bank accounts and the level of satisfaction to the beneficiaries regarding services provided by the banking institutions. An attempt has been made to find out the contribution of organized and unorganized sector in providing credit facility during the period.The State Governments plans to cover 1.25 crore households in all the 38 districts under the Bihar Livelihood Project, Jeevika in next 10 years.

The project director of JEEVIKA, Debraj, plans to extend the project from 5 to 38 districts and increases the no. of SHG's from 51500 to 10 lakh in the next 10 years.

Debraj said Jeevika was a success in the socio-economic empowerment programme for the rural poor through self-managed community driver institutions.

Debraj said Jeevika Project helped in breaking the vicious cycle of money lenders in rural Bihar by playing the role of a catalyst in the economic growth of the rural people at the micro level. Community level small enterprises have raised the economic status of the rural people.

DATA INTERPRETATION

i) Number of accounts opened in rural and urban areas in Madhya Bihar Gramin Bank after financial inclusion.

■ Rural areas ■ Urban areas

The above graph depicts that 14,91,317 accounts were opened after financial inclusion out of which 14,09,506 i.e, approx. 94%were opened in rural areas while 81,811 accounts i.e, approx. 6%were opened in urban areas.

ii) Number of accounts opened by weaker section of the society in year 2014-15.

■ SC/ST ■ Minorities ■ Women ■ OBC

The above graph depicts that 29,77,084 accounts were opened by the weaker section of the society out of which 22,01,318 i.e, approx. 74% accounts were opened by the SC/ST, 98,545 i.e, approx. 3%by minorities, 88,611 i.e, approx. 3%by women and 5,88,610 i.e, approx. 20% by OBCs.

iii) Advantages of opening account.

■ Accidental insurance ■ Zero balance ■ Rate of Interest ■ Identity Proof

The above graph depicts the benefits on advantages of opening account to the beneficiaries. 60% accounts were opened due to the accidental insurance provided under PMJDY. 30% accounts were opened under this scheme because there is no need to maintain minimum balance and accounts were opened with zero balance. 5% prefer rate of interest while other 5% regard it as their proof of identity.

iv) Satisfaction to the beneficiaries regarding services provided at the banking institution.

The above graph depicts that 50% of the beneficiaries were satisfied with the banking services while 30% and 20% were partially satisfied and unsatisfied respectively.

v) Contribution of organized and unorganized sector in providing credit.

The above graph depicts that 70% of the credit needs of BPL people is satisfied by the organized sector while 30% by the unorganized sector.

OBSERVATION & FINDINGS OF RESEARCH

There are certain things which were observed during the study. They have been explained in the following points:

i) Financial literacy programmes were organized once per month
ii) 'Kalyani Card' has been introduced to provide loan to the women upto 1 lac within 3 working days with 0.5or 0.25 percent less than the normal rate of interest.
iii) Bank organizes 'Gram Sabha' at panchayat level to create awareness and importance of having a bank account.
iv) There has been a significant decline in the share of unorganized sector for crediting loan.
v) There has been an increase in monthly income of the beneficiaries and most of them have shifted from the income group of Rs 2000-3000/-month to 3000-5000/-month which is a sign of sustainable socio-economic growth in Bihar.

RECOMMENDATIONS

On the basis of the findings of the study, the following suggestions are offered:

i) Whole hearted efforts are required by the government, banks and business correspondents for effective implementation of financial inclusion scheme in Patna.
ii) Effective surveillance is also required at every stage.
iii) Close monitoring by the banks to ensure proper end use of bank's money.
iv) Framing up of good policies, proper implementation and punishment to the violators is needed.
v) Repayment ethics should be created in borrowers.

CONCLUSION

Financial inclusion has a significant contribution in bringing positive changes in the socio-economic condition of the people belonging to the BPL in Patna district. A state like Bihar can work with full potential if its marginalized section receives banking support.

REFERENCES

- Websites
- www.rbi.org.in
- www.mbgb.co.in
- www.allahabadbank.com
- Magazines
- Economy at a glance
- Yojana
- Newspaper
- The Hindu
- The Times of India

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THE INDUS VALLEY CIVILISATION: A BRIEF SURVEY

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ABSTRACT : *History tells us about the past to know the present and plan the future. The study of past civilisations and cultures assumes particular significance because such a study is not confined to the exploits of rulers and dynasties but includes the achievements of people and societies. It also provides an insight into the problems and issues of contemporary times. The choice of the present topic is based on this consideration.*

The Indus sites represent the earliest civilisation that flourished in the sub-continent. It was also the most developed urban civilisation in ancient times. Today, when our cities are fastly becoming 'urban jungles' and atmospheric pollution is choking our breath, it is desirable to look into past experience of town-planning and urban life, and to ponder whether some of its features can help us in improving the quality of urban life today. Some of the essential requirements for the proposed 'smart cities' such as sanitation, basic civic amenities, environmental considerations, proper transport, etc. resemble some features of the Indus cities. Though separated in time by almost four and a half millennia, the basic concerns are virtually identical.

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KEYWORDS: Consideration, Civilisations, Atmospheric Pollution, Desirable, Sanitation

INTRODUCTION

The study of ancient civilisations is generally based on archaeological explorations and excavations, which constitute the primary source of information. The secondary sources include the books that encapsulate the findings of these studies. This project relates to history - not archaeology - and is based on the secondary sources in the form of published material available on the Indus Valley Civilisation. This data has been analysed according to the objectives and needs of the present study. The attempt is to collect the facts from different sources and present a full picture of the Indus Valley Civilisation as an iconic example of urbanisation in early India. It may also be noted that the data relevant to the study is integrated with the main discussion to offer a holistic picture, and has not been mentioned separately.

Early references to the Indus valley civilisation are found in the notes of Charles Masson (1842) and Cunningham's Report (1872-75). Archaeological excavation was taken up by Sir John Marshall and Daya Ram Sahni at Mohenjo Daro and Rakhal Das Banerjee at Harappa, in 1921-22. The work was carried further by Mortimer Wheeler. Excavations in India and Pakistan have continued in the years after independence. The important historians and archaeologists who have worked on the Indus civilisation in recent years include B.B. Lal, Shereen Ratnagar, M.K. Dhavalikar and Vasant Shinde, in India and M.R. Mughal in Pakistan. About 106 sites have been identified of which 96 have been excavated. The Indus civilisation extended over an area of more than 12,000 sq. miles. In terms of territorial extent, it covered the largest area among contemporary civilisations.

The city of Mohenjo Daro has been declared as UNESCO World Heritage Site in 1980. The distinction is well-deserved because Mohenjo Daro was the largest and most developed city of the Indus Civilisation. Possehl maintains that it reflected the 'ideology of the Indus people' and their socio-cultural ethos that was rooted in urbanisation and city life.[1] Attention has also been drawn to the role of environmental planning in the urban settlements in the Indus Valley. Stuart Piggott[2] remarks: "it was an extremely specialised adaptation of large communities of men to town life in circumstances of climate and terrain which were by no means easy".

Some other important sites of the Indus civilisation have been found at Chanhu Daro, Kot Diji, Lothal, Dholavira, Rakhigarhi, Kalibangan and Banvali. At its maximum extent, this civilisation covered the region from Sutkagen Dor (Baluchistan) in the west to Alamgirpur (Uttar Pradesh) in the east and from Shortughai (Afghanistan) in the north to Malwan (Gujarat) in the south.

The Indus sites have been chronologically divided into three different phases:

i) Early Phase : c.3300 to c.2600 BCE

ii) Mature Phase : c.2600 to c.1900 BCE

iii) Later Phase : c.1900 to 1300 BCE

In its mature phase, the Indus civilisation was contemporaneous to the ancient civilisations of Egypt and Sumer (Mesopotamia). It had an indigenous origin and evolved out of the earlier 'Amri' and 'Helmand' cultures. It is generally placed in the Chalcolithic age though Gordon Childe prefers to place it in the Bronze age.[3] Its inhabitants included both the indigenous people and immigrants from the neighbouring Helmand region.

The most impressive characteristic of the Indus / Harappan civilisation was its town-planning. It was marked by a very high degree of uniformity. Mortimer Wheeler[4] writes: "it is clear that the city is no chance growth. It is drilled and regimented by a civic architect whose will is law". All the urban sites in the Indus civilisation show striking resemblance in their planning: i) the division between the 'upper' and 'lower' city, marking out the administrative and residential parts; ii) the grid-pattern in the lay-out of roads and residential quarters; and iii) the almost identical designs of the houses in the major sites, are but a few examples. This leads to two possible conclusions: a) that there was a centralised authority that decided the lay-out of towns in the entire territory inhabited by the Indus people; b) the people of later times, who migrated to distant areas, continued to adhere to the standards laid down in earlier days. To quote Allchin[5],"our overwhelming impression is of a sophisticated and highly complex society whose hall-mark is, nevertheless, cultural uniformity - both throughout the several centuries during which the Harappan civilisation flourished, and over the vast area it occupied". To cite some later examples, Kalibangan, in Rajasthan, has a raised level like a fort, to the west of the town, while the proper city was on a lower level to the east. The fort area is protected by a wall which has two gates. In the protected area, to the south, is a well, bathing place and a hall probably for worship. In the northern side were the houses of the rich. This is almost a replica of Mohenjo Daro and Harappa. Chanhu Daro does not have a citadel or fort, but like

Mohenjo Daro and Harappa it shows evidences of houses of baked bricks and proper drainage system. A great artificial platform, with streets and houses on a regular plan, has been found at Lothal. A brick dockyard has also been discovered there. At Sutkagen Dor, a formidable citadel and a lower fortified settlement have also been found.

The detailed and meticulous planning of the cities is remarkable if we remember that the major Indus cities were quite large in size. The inhabited area of Mohenjo Daro is now estimated at over 200 hectares with a population of 85,000; Harappa had an occupied area of over 150 hectares with a population of 65,000.[7] Today these figures suggest a small or moderate-sized town. But in those times, these were among the 'great' cities of the world.[8] This may be illustrated by a comparison with Chanhu Daro and Lothal which were also important sites but had a smaller area: 4.7 hectares in Chanhu Daro and 4.8 hectares in Lothal. As an intermediary example, we have Dholavira with an area of 60 hectares.

Both at Harappa and Mohenjo Daro, the two main sites, there is a clear division between the space marked out for public buildings and individual residences. The elevated site was meant exclusively for public buildings, "remarkable structures related to civic administration - whether secular or religious or both". These include the Great Bath, the residence of the high-priest, a public hall and possibly a granary, at Mohenjo Daro. This elevated part of the city was invariably on the western side. The roads ran from east to west and north to south dividing the city, on the grid-pattern, into several horizontal divisions.

The roads were so aligned that they provided for natural suction of dust and small particles by the wind. The roads even in the 'lower' city were quite wide, 30ft in the case of the main road at Mohenjo Daro. These were frequented by vehicular traffic in the form of bullock-carts. Interestingly, the sides were rounded off at the crossings of the roads so that the vehicles had no difficulty in negotiating the curves. The roads were properly maintained to facilitate smooth movement of carts. It also appears that the roads were well-lit, since traces of lamp-posts have been found.

The main road broke off into several lanes and streets replicating the same grid-pattern, marking out the different residential blocks. Houses were located along the streets and lanes. Spaces for the houses were clearly marked out. No encroachment or construction was allowed on the roads. The entrances to the houses opened in the side-lanes and not on the main road. This was to ensure smooth flow of traffic. The Indus architecture was simple and utilitarian. The existing remains do not show ornamental or decorative features even in the use of building material, fire-baked bricks were used only where they were required for strength and support; otherwise sun-baked bricks were commonly used.

Proper care was taken to ensure the safety and durability of the houses, both in the 'upper' and 'lower' cities. It has been noted that the houses were constructed over raised brick platforms, generally 10ft high, and higher at times. Thus, the houses were built above the flood-level and proper care was taken to raise the level higher if required. The houses had high windows which provided for lighting and ventilation, without exposing the inner portion to the dust and squalor of the streets. Some of the houses were two-storied with staircases leading up to the roof. The basic plan of the houses had an open courtyard in the centre with rooms on all sides. The main entrance opened into the courtyard. Many of the houses had wells, located close to the entrance, on one side, with an adjoining room for bathing. The houses invariably had toilets or 'privies'. Several historians have drawn attention to the remains of shops, courts and alleys within the streets of the city of Mohenjo Daro, which give it a distinct character of an 'urban centre' with a developed market.

Particular care was taken about civic amenities, including proper arrangement for water-supply. Significantly, this is the first example in urban history of people having access to underground water through the use of wells. Every important house had a separate well for the residents. Besides, there were public-wells on the streets. It has been estimated that Mohenjo Daro had 2000 to 3000 houses and 700 wells.

Another remarkable feature of the Indus cities was the elaborate drainage system. Each house had its waste water running out, sometimes through terracotta pipes fitted together, into a cess-pit which was connected with the drain running alongside the road. The drains on the main road were made of burnt bricks and often covered. These drains contained soak-pits to enable cleaning at regular intervals. The main city-drain ended into an outlet which flowed into the river. Garbage-bins by the side of the roads, which were regularly cleaned, provided for proper disposal of garbage. The details of civic amenities, such as water-supply, drainage, garbage-disposal and street-lighting provide evidence of an efficient civic or municipal authority. The drainage system of Mohenjo Daro is considered unique among the Bronze Age cultures. Piggott observes, "the drains of Mohenjo Daro and Harappa show a concern for sanitation equally unparalleled in the ancient or modern Orient". A.L. Basham also states, "no other ancient civilisation until that of the Romans had so efficient a system of drains".

These uniform features of town-planning over a large area can possibly be explained in terms of a strong centralised control. This necessitated a centralised and efficient system of revenue collection from - and control over - the neighbouring countryside, with the cities serving as centres of administrative power. One opinion suggests the rule of the priestly-class. The discovery of the bust of a male-figure from Mohenjo Daro, identified as the 'priest-king', supports this view. Another opinion suggests the rule of an oligarchy of merchants. The developed trade, commercial links with distant areas, the 'public hall' intended for holding meetings for decision-making, are arguments in support of this view. Irrespective of the nature of the ruling elite, clerical or mercantile, it would be safe to assume that the Indus cities were part of a large territorial 'empire'.

A prosperous trade and agriculture alone could have provided the necessary means to sustain this highly-developed civilisation.The Indus region had fairly good amount of rainfall in those days and the area was covered with thick vegetation. The annual floods provided rich alluvial soil for cultivation. Seeds were sown in the flood-plains in the month of November when the flood water receded, and the harvest was reaped in April, before the onset of the next flood. Significantly, no evidence has been found of canal-irrigation. In the absence of any hoe or plough-share among the excavated remains at Mohenjo Daro and Harappa, it is difficult to say whether ploughs were used or not. If at all it was used, it must have been made of wood. At the later site of Banavali, a terra-cotta ploughshare has been found. Stone sickles might have been used for harvesting the crops. In spite of the rather archaic system of agriculture, the Harappans were able to produce enough grains for their varied requirements. However, the peasants had a difficult life. They had to work hard not only for meeting their own needs but also for generating the surplus required to feed the urban population besides paying taxes that were collected in food-grains.

The mainstay of the Indus economy was flourishing trade and commerce, supported by production of various goods. Commercial relations were maintained at three levels: i) local trade between the countryside and the towns, based on export of grains and raw-materials for the urban craftsmen; ii) trade among the different Indus cities, involving exchange of manufactured items; iii) trade with other regions and countries. These included Central Asia, Mesopotamia, north-eastern Persia, north-eastern Afghanistan, south India, Rajasthan, Gujarat and Baluchistan. No evidence of currency has been found and trade was conducted through the barter system. In return for food grains and finished goods, the Indus people imported raw materials which were required for manufacture.

Trade was conducted both by land and water routes.The Indus people were familiar with boat-making and sea-faring activities since they travelled for trade along the Arabian sea-coast. The presence of the dockyard at Lothal also shows navigational activities. The image of a boat has also been found on the Indus seals.

About two dozen Harappan seals have been found from different sites in Mesopotamia. From the Indus region also,three cylinder seals and a few metal objects of Mesopotamian origin have been found. Literary evidences from Mesopotamia suggest that people from the city of Ur carried on trade with foreign countries. The three most important names mentioned in this connection are Dilmun,generally identified with Bahrain on the Persian Gulf, Megan with Oman on the southern coast of Arabia and Meluha, generally understood to mean India, especially the Indus region.

The Indus people practised various crafts, which provided for the needs of the local inhabitants and also for trade with other regions. The most importantof these was seal-making, which enjoyed the status of an art as well. The Indus seal-intaglios form a class by themselves. They are made of baked clay and different types of soft stones. The exact use of the seal is not known. But their large number suggests that they had a major utility.

Another important activity was bead-making. Beads were made of gold, silver, copper, faience, steatite, semi-precious stones and shells. Such beads have been found in abundance. They are of a superior artistic quality and the long barrel beads of carnelian rank among the finest technical achievements of the Indus people.

The Indus people excelled in pottery-making. They knew the use of the potter's-wheeland all their pottery is wheel-turned. Possibly, it was mass-produced. Pottery was made of clay and most often it was baked. The pottery pieces were generally painted. Another important craft known to them was weaving, both in cotton and wool. A woven cotton-piece has been found at Mohenjo Daro and textile impressions have been found on various objects. Spindle-whorls were used for weaving. Red colour was used for dyeing cotton clothes. Weaving was done by the women who also performed domestic chores including strenuous work like grinding corn.

The Indus people had great expertise in toy-making. The finest example is to be seen in a toy-cart. It had solid wheels and was drawn by a pair of oxen. It seems to be a miniaturised model of the actual bullock-cart used for transport. Another toy has been found which is of a doll with moving limbs. It shows that the Indus people were familiar with the ball and socket joint. Terra-cotta figurines made of clay and baked in fire were quite common. These were used either as toys or objects of worship. Birds and animals, such as dogs, sheep, cattle and monkey are generally represented.

Indus society shows a clear distinction between the rich and the poor. This is apparent not only from the different sizes and types of houses but also from the fact that separate localities or wards were marked out for the different classes of people.

The traders were the most important social group since trade was the principal occupation. Other groups included the craftsmen such as goldsmith, silversmith, coppersmith, bead-makers, carpenters and potters etc. Women seem to have enjoyed a fair degree of freedom in society. But they were burdened with domestic chores, as can be gleaned from the different terra-cotta images.

The Indus people were polytheists and nature-worshippers. The important deities included the 'mother-goddess' and the male deity resembling a yogi. Worship of phallic symbols was common. Nature worship was also prevalent. Significantly, no temples or major idols of the deities have been found at the Indus sites. This shows that religion was a personal affair and there was no public observation of religious rituals. It is not known whether the people believed in life after death. However, the dead were buried as indicated by the cemetery found at Harappa. Alternative funerary practices, such as cremation by fire, is proven by the urns containing ashes which have been found at some sites.

The causes of the decline of the Indus civilisation are not definitely known. An earlier explanation was that foreign invaders - possibly the Aryans - invaded and destroyed the Indus cities. More recent opinion suggests that geomorphic changes such as floods and desertification, besides migrations to new sites caused the decline of the Indus civilisation. The debate on the decline of the Indus civilisation continues, with both sides reiterating their opinion and supporting it with fresh interpretations. A more consensual view is that while the foundations of Indus civilisation were undermined by climatic factors, the extinction came with the foreign - presumably Aryan - invasion.

To conclude, many lessons can be learnt from the Indus cities, especially in the elaborate details of urban planning and settlement. First, the meticulous planning and the careful attention paid to details of lay-out, civic amenities, facilities for sanitation and transport; second, the awareness of environmental factors as a necessary component of these settlements; third, an integrated and balanced economy which provided for the base and support of a remarkable network of 'urban centres'; fourth, its cosmopolitan character. Significantly, this is a feature that we do not find in the later Indian cities until the rise of the imperial capital of Pataliputra under the Mauryas. These are some of the lessons to be learnt from the past; and History is essentially the knowledge of the past to understand the present and plan for the future.

REFERENCES

- G. L.Possehl - The Indus Civilisation, A Contemporary Perspective, New Delhi, 2002, p.55. For a detailed description of the excavated site at Mohenjo Daro, see pp.185-213, and for an immensely enjoyable 'journey' across Mohenjo Daro, see Mortimer Wheeler, Five Thousand Years of Pakistan, London, 1950,pp. 26-30.
- Stuart Piggott - Some Ancient Cities of India,London, 1945, p 17
- V. Gordon Childe - What Happened in History, Penguin Books,1954, p, 132. D. D. Kosambi holds a similar view
- Wheeler, op.cit, p.27
- Bridget and Raymond Allchin - The Rise of Civilisation in India and Pakistan, New Delhi, 1983, p. 171
- D. N. Jha - Ancient India : An Outline History, New Delhi, 1977, p. 25
- Irfan Habib - Indus Valley Civilisation, Delhi, 2002, p. 37

- Ram Sharan Sharma - Ancient India, New Delhi, 1988, p. 36
- Wheeler, op.cit, p. 26
- Ram Sharan Sharma, op.cit, p. 36
- Ibid
- Possehl, op.cit, p.106
- Wheeler, op.cit, p. 27; Childe, op.cit, p.20
- Possehl, op.cit, pp. 105-06
- Piggott, op.cit, p. 13
- A. L. Basham - The Wonder that was India, New York, 1971, p. 17
- Irfan Habib, op.cit, p. 60
- Ibid, p. 24
- Ibid
- Allchin and Allchin, op.cit, p.188
- Ram Sharan Sharma, op.cit, p.42
- Allchin and Allchin, op.cit, p. 177-180
- Wheeler, op.cit, p. 36; D. N. Jha, op.cit, p.9
- Piggott, op.cit, p.17

BIBLIOGRAPHY

- Mortimer Wheeler - Five Thousand Years of Pakistan, London, 1950
- V. Gordon Childe - What Happened in History, Penguin Books, 1954
- Bridget and Raymond Allchin - The Rise of Civilisation in India and Pakistan, New Delhi, 1983
- Stuart Piggott - Some Ancient Cities of India,London, 1945
- G. L. Possehl - The Indus Civilisation, A Contemporary Perspective, New Delhi, 2002
- A. L. Basham - The Wonder that was India, New York, 1971
- R.S. Sharma - Ancient India, New Delhi, 1988
- Irfan Habib - The Indus Civilisation, Delhi, 2002
- D.N. Jha - Ancient India : An Outline History, New Delhi, 1977
- L.P. Sharma - History of Ancient India, New Delhi, 2010

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CAUSES AND CONSEQUENCES OF INCREASING SUICIDAL TENDENCIES AMONG ADOLESCENT STUDENTS IN INDIA WITH SPECIAL REFERENCE TO PATNA UNIVERSITY

Sharmila Kumari * Kriti Sahay * Nishat Anjum * Asha Raj * Pushpalata Kumari *

ABSTRACT : *This research paper attempts to analyse the causes and consequences of increasing suicidal tendencies among adolescent students in India.Suicide is a most sensitive global issue. India now is also facing the worst situation of the rising cases of suicides among the adolescent students. More than one lakh lives are lost every year in the country because of committing suicide.The study will throw light on critical issues of suicide/suicidal attempt affecting the adolescent students, its root causes and factors responsible for it. It will also highlight the solution of this issue.*

The Universe of the study deals with the students of Patna University, Bihar. Both Primary and secondary methods have been used in this project.

KEYWORDS : Suicide, Adolescent, Attitude, Aejected And Demotivated.

INTRODUCTION

Suicide is a most sensitive global issue. India now is also facing the worst situation of the rising cases of suicides among the adolescent students. More than one lakh lives are lost every year in the country because of committing suicide. Over 16,000 school and college students in India committed suicide in the last three years (2007-10), said the Central Health Minister in 2010. The National Crime Records Bureau (NCRB) has also observed that among suicide committers 17.2% belong up to 14 years of age. The reasons behind a teen's suicide or attempted to suicide can be complex. The rate of suicides and suicidal attempts increased tremendously among adolescence during recent past. According to Centre for Disease Control and Prevention (CDC) and the National Centre for Health Statistics Suicide is the third-leading cause of death for adolescent / young age, thus it has surpassed to accidents and homicide. In addition, the number of recorded deaths by suicide is

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apparently an underestimate of reality since a large number of completed suicides go unreported or are labeled as accidents.

OBJECTIVES

- To generate meaningful discussion on such a pertinent issue of contemporary relevance
- To find out if girls and boys, differ in terms of suicidal tendencies
- To analyze how the suicide / suicidal tendencies is affecting the adolescent population
- To underline the factors responsible for committing suicide by adolescent students.
- Deriving critical issues to be addressed to combat such events
- To provide suggestions to policy makers and Human Rights Commisson

HYPOTHESIS

- It is likely that adolescent students will be aware of various causes of suicide/ suicidal attempt
- It is likely that girls and boys college students would significantly differ in their attitude in terms of suicidal tendencies
- It is likely that various factors would be responsible for suicidal tendencies among adolescents
- It is likely that educational policy and institutions are also responsible for suicidal attempt among adolescents
- It is likely that parents and peer pressure are also responsible for suicidal attempt among adolescents

METHODOLOGY

The study is based on information and data collected through :

- Interaction with the students of Patna University
- A study of primary and secondary sources and publications, government reports, magazines, journals, official reports, paper clippings and books
- A study of the policies enforced by the central and state governments, their plans and programmes concerning the issue

CONCEPT OF SUICIDE

Suicide is the act of ending your own life. It is a major public health concern.

In legal term the suicide is a deliberate taking off one's life; in common law, formerly considered a crime.

In cultural term the suicide is"the fruit of illogical action resulting from funnel thinking, which prevents a person from perceiving alternatives to self-destruction". It is "a conscious act of self-induced annihilation, best understood as a multidimensional malaise in a needful individual.

Direct having the intention of causing one's own death, either as an end, or as a means to an end (to avoid ruin or disgrace, or escape condemnation).

Indirect (and not usually called suicide) death is not necessarily desired, but one commits an act which courts death, as in tending someone with SARS knowing that one may succumb to the same illness

In the last two decades the suicide rate has increased. There is a wide variation in the suicide rates into different states of the country. The southernstates of Kerala, Karnataka, Andhra Pradesh and Tamilnadu have a much higher than thenorthern states like Punjab, UP,Bihar, Jammu & Kashmir. The term adolescent is derived from the Latin word 'adolescere', which is 'to grow intomaturity'. So the adolescents are the treasure and promise of the future. Adolescents areconsidered to be in the age of 10-19 years and they account for more than one fifth of theworld's population. In India, they constitute 21.4 percentage of the total population. (NationalYouth Policy'2001) This size of population is increasing and becoming more visible due todecrease in child mortality, improved life expectancy at birth and delay in age at marriage.Thus it is obvious that those adolescents are the most important section of the human being.They possess immense potentials and creativity which may contribute to create an ideal anddeveloped society. Their attitude, perception and actions have a great value in shaping thefuture of a family, society and the country. Hence any loss of such potential man power is a curse to the nation. This is a matter of serious concern that the adolescent in the absence of proper guidance get disheartened, demotivated and dejected for some reasons and their frustrations reach to such anextreme level that often they commit suicide. Hence committing suicide by the adolescent particularly by the school / college students is a great challenge for the sensitive and democraticsociety. The in-depth understanding of the problem is necessary, so that through diagnosing the problem, proper suggestion can be thought of and accordingly steps may be initiated to stop such heineousсts. Taking into consideration the events of suicides committed by the adolescents, it appears that there are various factors such as parental pressure, educational load, peer group pressure, deplorable economic condition etc. adversely affect the soft tender and innocent mind of the growing children / adolescents and they move towards negativity leading to suicidal temperament.

Warning Signs And Risk Factors : Mainly some behavioural changes occur during the phases of suicide. It is as follows :

- Withdrawal from family and peers
- Loss of interest in previously pleasurable activities
- Difficulty in concentrating on school work.
- Neglect of personal appearance
- Obvious changes in personality
- Sadness and hopelessness
- Changes in eating patterns, such as sudden weight loss or gain
- Changes in sleep patterns
- General lethargy or lack of energy
- Symptoms of clinical depression
- Violent actions, rebellion, or running away.
- Drug and alcohol use
- Symptoms that are often related to emotional state (e.g., headaches, fatigue, stomach aches)
- Loss of ability to tolerate praise or rewards

Major Reasons Of Suicide : The increasing temperament of suicide among students can be for various reasons such as :

Education Pattern : The present education system is exerting a lot of pressure on the students. Poor learning environment, high expectations of the parents, lack of resources, stiff competition among the students are some major reasons of developing higher levels of depression, sometimes leading to committing suicide among adolescents. education pattern needs to be made student friendly.

Privatization Of Education : The privatization of education is another reason. Today degrees are being sold for money. The haves dominate over the haves not in getting degrees, awards and appointments. Such a situation is naturally disappoints the haves not making them vulnerable to depression/suicide.

Dowry Induced Competition For Marriage: Dowry system is a major reason of suicide in Indian/ Bihari Society. A bride bringing lots of dowry is always welcome and appreciated. She gets a higher status symbol. On the other hand, those who can't afford are being torture / humiliated by the In-laws.

Costly Education : In the present context costly education system especially in the context of non-government/ private schools also hinder the education of the poor and deprived child which crop-up distress and depression among them. The distress and depression leading to the suicidal tendency.

Discrimination Of The Students : The students facing discrimination in getting job opportunities despite having good results and doing hard labor also aggravate the situation of the adolescents pushing towards such in human actions.These days, the management of academic institutions indulges in high physical pressure on students and this terrible stress becomes unbearable for some students. And at that state of mind the student feels that to get rid of all this is to get rid of his life. Ragging has also become a major cause for suicide.

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Parental Pressure : Sometime the parents are also responsible for the suicide of students. The parents generally wish that their child should go to a school; get good marks; get entry into good engineering colleges; reputed educational technical institution and finally get a good job. There is nothing wrong with that, except the fact that the protagonist of the story never gets a chance to explore his abilities fully. A child right from childhood looks for approval from his parents, then teachers and then bosses for almost all his life. To live up to the constant need to meet expectations, he works harder and harder, almost crushing his own soul internally. When there is a bad result a child does not have the maturity to take the stress and parent's frown. Often this results in child taking extreme steps of harming him/herself.

RECOMMENDATIONS

Main recommendations are as follows:

- As most of the adolescents especially those who often commit suicide because offrustration, depression, helplessness, stress, etc. should be taught for crisis management, having patience and tolerance in odd conditions. Hence it is inevitable that in order to bring in attitudinal change among them for inculcating positive thinking/outlook. Their course curriculum necessarily integrate such value education which instil among them confidence to reflect mature actions in crisis through controlling the anger and managing the crises and dispute if any, fest by them, without any violence and distraction. Thus, NCERT, SCERT, NUPA, UGC, etc. should think sensitively on this issue :

- The education system and the parents need to rethink and reevaluate to curb the events of suicide among adolescent students. In this regard Mahatma Gandhi stated that "Any such country that gives more importance to use raw materials, but neglect the potentiality of human resources can't bring abont maximum development." In this context this may be the message for all the sensitive citizen of the country to save the most powerful and potential man power like adolescents and such state of mind of the student who feels, that to get rid of all this, it is better to commit suicide

- IEC Material should be developed in order to educate adolescents especially adolescent girls making them aware of the physical and emotional changes during adolescence

- As the adolescents rapidly enter into the age of maturity and become both productive and reproductive. Therefore they should also be trained and oriented to form responsible reproductive behavior, responsible parenthood inter-spouse communication and other prominent issues having relevance to improve their quality of life and getting rid of myth and misconceptions, so that they may not indulge in any ill and illicit behavior which ultimately push them to wrong path. It may lead to utter frustration and suicidal temperaments

- The adolescent girls need to be saved from the atrocities like domestic violence, rape and other sexual harassment which force them to utter depression leading them to suicide.

- Both girls and boys should adequately be oriented not to get frustrated with their failure in examinations, any competitions, getting employment, marrying with the spouse of their choice and so on. For this purpose the counseling in school and colleges needs to be organized at certain intervals. Debates and seminar can also be organized to make them sensible and remove negative thinking from their mind and heart

- School and colleges should have routine to provide opportunity to the adolescent students for meditation, concentration yoga and other physical and spiritual exercises for balanced physicaland mental growth of adolescents so that they may not make any hasty decision especially as regards their survival and career. Such acts can built in them the capacity to overcome conflict in adverse conditions.

- Instead of teacher centric education the learning should be learner centeric having sufficient space for participatory education and creativity

- Instead of counting the disabilities, abilities of adolescents need to be traced and counted and accordingly the opportunities should be created for their balance growth. Those who do not take interest in bookish knowledge but possess the versatile genius in creativity, sports, etc.their talent should be channelized in that direction

- The adolescent or even the children should be made aware of the noble virtues of human being either in their family and society or in school. Hence in this connection their courses/curriculum/ text book need to be revised and upgraded

- Socio - economic and psychological study of the multifarious dimensions of the suicide committed by the adolescents need to be studied in depth. Critical issues are to be identified and it should be adequately addressed through their proper prediction and planning of education and guidance for better future of adolescents

- Educational planners and the stake holders should discuss and debate in minimizing the text book load on the adolescent students

- Government and civil society should jointly move towards sensitizing the parents, teachers, community people, police administration and panchayat representatives to take up the issue of both the children and adolescents so that they may feel and protected comfortable and may notopt for committing suicide because of non-redresses of their legitimate rights and un-fulfillment of their minimum basic needs

GETTING TREATMENT

It is very important to seek professional help for the adolescent who may be suicidal. Guidance counsellors at schools or counsellors at crisis centres can help ensure that a distressed teen receives the needed assistance.

As the vast majority of adolescents who commit suicide have depressive symptoms, recognition and evaluation of clinical depression - a treatable medical condition - is essential. Physicians, including psychiatrists, provide both one-on-one counselling and medical treatment for the biochemical causes of depression.

Psychological counselling will help a teen develop effective mechanisms for coping up with problems. It can be beneficial even after adolescence when a person has to face stress during adulthood.

EMERGENCY ASSISTANCE

Telephone counselling and suicide hotline services, available in most cities and regions, can be found in the telephone book. They offer counselling for a crisis situation, and can provide the immediate support an adolescent may need to survive a low point.

Another place to go during a crisis or in a suicidal state is the emergency ward of a hospital. Receiving the aid of trained professionals will help an adolescent deal with the emotional roller coaster that often leads to suicide. Short-term and long-term care can minimize the risk of committing suicide and help people find alternative solutions to cope up with extreme distress.

REFERENCES

- Suicidal behavior in Children and Adolescents Part: Etiology an RiskFactors, Steely Margaret Doey, Tamison, Canadian Journal of Psychiatry, Vol. 52, No. 6 June 2007
- By Their Young Hand: Deliberate Self Harm and Suicidal Ideas in Adolscent, Keith Hawton, 2006
- The Suicidal Adolescent, Moses Laufer,1995
- Early Alcohol Initiation Linked to Teen Suicide, MCNamara Damian, 9 September
- New Approaches to Preventing Suicide, David Duffy, 2004

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बिहार में मत-व्यवहार की समसामयिक प्रवृत्तियाँ : मगध महिला महाविद्यालय की छात्राओं का एक विशेष अध्ययन

Bandana Kumari * Kabita Kumari * Khushabu Kumari * Suman Kumar *

सारांश : *भारत एक लोकतांत्रिक देश है। आजादी के 68 वर्ष के बाद यह विश्व का सबसे बड़ा एवं सफलतम लोकतंत्र के रूप में उभरा है। भारत में पाँच वर्षों के बाद चुनाव एक महापर्व की तरह मनाया जाता है। आज जनता चुनाव का बेसब्री से इंतजार करती है। चुनाव में ही उन्हें अपने मताधिकार का प्रयोग करने का अवसर मिलता है। यदि सत्तारूढ़ राजनीतिक दल की सरकार अच्छा काम करती है, तो जनता उसके पक्ष में पुन: मतदान करती है। यदि सरकार जनविरोधी कार्य अथवा अनुचित कार्य करती है, तो जनता चुनाव में अपना मत उसे प्रदान नहीं करती है। इससे सत्तारूढ़ दल चुनाव हार जाता है और दूसरे राजनीतिक दल को सरकार बनाने का मौका मिलता है।*

शब्द कुंजी : मताधिकार, महापर्व, सार्वभौम

परिचय

मत-व्यवहार को 'मतदान व्यवहार' भी कहा जाता है। मत-व्यवहार का अर्थ यह है कि मतदाता अपने मताधिकार का प्रयोग करते समय किन तत्त्वों से प्रभावित होता है? कौन सा तत्त्व किसी व्यक्ति को मताधिकार का प्रयोग करने के लिए प्रेरित करता है तथा कौन-से तत्त्व निरुत्साहित करता है। किन तत्त्वों से प्रभावित होकर व्यक्ति एक विशेष उम्मीदवार या एक विशेष राजनीतिक दल के पक्ष में अपने मताधिकार का प्रयोग करता है। ये तत्त्व सभी समयों और स्थानों में समान नहीं होते, अतएव विभिन्न समयों पर विभिन्न क्षेत्रों में मतदान व्यवहार एक सा नहीं होता। मतदान व्यवहार का अध्ययन क्षेत्र काफी व्यापक एवं विस्तृत है। इसमें मतदान करने वाले व्यक्तियों के अतिरिक्त उन व्यक्तियों के व्यवहार का भी अध्ययन किया जाता है जो मतदान नहीं करते हैं।

मत-व्यवहार के अध्ययन का मतलब मतदाताओं द्वारा मतदान करने तथा मतदान व्यवहार को प्रभावित करने वाले कारकों के अध्ययन से है। जिस विधि से जनता अपने इस सार्वभौम अधिकार का प्रयोग करती है, उस माध्यम को मतदान कहा जाता है और इस प्रक्रिया को मतदान व्यवहार कहा जाता है। आधुनिक राजनीतिक वैज्ञानिकों एवं राजनीतिक समाजशास्त्रियों के लिए भी मत-व्यवहार हमेशा से शोध का विषय रहा है। मतदान व्यवहार का अध्ययन जितना राजनीति विज्ञान के लिए महत्त्वपूर्ण है, उतना ही अन्य समाजविज्ञानों के लिए भी।

भारत में मत-व्यवहार का अध्ययन एक आधुनिक एवं प्रासंगिक विषय है। मतदान किसी भी लोकतांत्रिक शासन व्यवस्था की आधारशिला है। भारत विविधताओं से भरा देश है, जहाँ प्रत्येक राज्य, समाज, पंचायत, मोहल्ले, गाँव के मतदाताओं का मत-व्यवहार अलग-अलग होता है। यह

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एक अतिसंवेदनशील एवं भावप्रधान राजनीतिक क्रिया है, जिसका निष्पादन राजनीतिक समाज के सदस्यों द्वारा चुनाव के मद्देनजर अपना जनप्रतिनिधि चुनने एवं लोकप्रिय सरकार के गठन के लिए किया जाता है।

मत-व्यवहार का अर्थ

मत-व्यवहार के अध्ययन का मतलब मतदाताओं द्वारा मतदान करने तथा मतदान व्यवहार को प्रभावित करने वाले कारकों के अध्ययन से है। विभिन्न विद्वानों ने मत-व्यवहार की भिन्न-भिन्न परिभाषाएँ दी हैं, जो निम्नांकित है:

डॉ० लवानिया का मत है कि, "मतदान व्यवहार से तात्पर्य मतदाता के चुनाव व्यवहार से है जिसका प्रदर्शन वह चुनाव अभियान या मतदान में करता है।"

डोनाल्ड ई० स्टोक्स के अनुसार, "मतदान व्यक्तिगत प्राथमिकताओं को सामूहिक निर्णयों में समाहरण करने का एक साधन है।"

एन० जी० एस० किनी० के अनुसार, "व्यक्तियों या उपवर्गों का मत व्यवहार सामाजिक परिवर्तन के प्रति अनुक्रिया या उसका परिणाम है। मतदान प्रयोग के द्वारा ये अपनी मूल स्थिति को सुधारने की इच्छा के साथ परिवर्तन को संशोधित करने, गतिमान करने तथा उसके मूल्य एंव दिशा को नियन्त्रित करने का प्रयास करते हैं।"

शुम्पीटर के शब्दों में, "लोकतंत्र उस राजनीतिक व्यवस्था का बोधक है जिसमें नागरिकों को नियतकालिक चुनावों के माध्यम से विभिन्न प्रतियोगी समूहों एवं दलों के बीच से अपने शासकों को चुनने का अधिकार प्राप्त होता है।"

पॉल एच० एपलबी के अनुसार, "मतदान व्यवहार का सरकार से सीधा सम्बंध है।"

कार्ल जे० फ्रेड्रिक के कथनानुसार, "मत-व्यवहार प्रजातांत्रिक शासन को वैधता प्रदान करने की प्रक्रिया में एक समस्या है अर्थात् मतदान करते समय व्यक्ति सरकार को कार्य करने के लिए वैधता प्रदान करता है।"

ग्रेबियल ए० आमण्ड के अनुसार, "मत-व्यवहार राजनीतिक उद्देश्य की ओर निश्चित राजनीतिक अनुज्ञापन है; जैसे-नेतृत्त्व, नीतियाँ तथा मुद्दे इत्यादि। यह एक विशिष्ट प्रकार की 'राजनीतिक संस्कृति'; जैसे-'संक्रमण कालीन' में निहित भूमिका को प्रदर्शित करती है।"

समाज विज्ञान विश्व कोष के अनुसार, "मतदान वैयक्तिक प्राथमिकताओं को सामूहिक निर्णय मे संकलित करने का साधन है। यद्यपि यह एकमात्र साधन नहीं है। व्यक्तिगत प्राथमिकताओं में विभिन्न चुनावों का अध्ययन सम्मिलित होता है। ये मुद्दे हैं-मतदान में कितने विकल्प थे, सामूहिक परिणाम किस नियम से प्रभावित होना चाहिए आदि। चुनाव व्यवहार के संदर्भ में अध्ययन को व्यक्तिगत प्राथमिकताओं के निर्णय एवं उनकी अभिव्यक्ति के रूप में देखा जा सकता है।"

प्रथम आम चुनाव से लेकर अब तक हुए समस्त चुनावों पर नजर डालें तो ज्यादात्तर चुनावों में भारतीय मतदाता दिग्भ्रमित ही रहे हैं। जनता ने अपने मत की अभिव्यक्ति के लिए कई ऐसे आधारों को चुन लिया जो स्वस्थ लोकतांत्रिक व्यवस्था की आवश्यकता के अनुरूप नहीं था। आमजन अपने मत-निर्णय में जाति, धर्म, क्षेत्रीयता, भाषा, धन-बल, बाहुबल, स्थानीयता की अपेक्षा, झूठा प्रचार, व्यक्ति विशेष एवं चमत्कारिक घटना आदि को महत्त्व देते रहे हैं। विगत् चुनावों में यही तत्त्व मतदाताओं पर इतना अधिक हावी रहा है कि मतदाताओं के नजर में विकास कार्य, दल की छवि और उम्मीदवार की व्यक्तिगत योग्यता पूर्णतः उपेक्षित रही है।

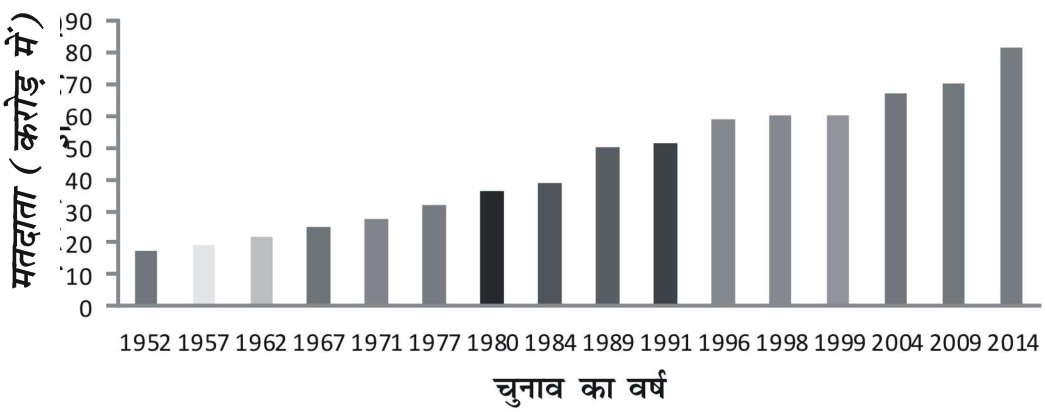
भारत में मत-व्यवहार

भारत के संविधान में नागरिकों को वयस्क सार्वजनिक मताधिकार प्रदान किया गया है। वर्तमान में मतदान की उम्र 18 वर्ष है। हालांकि मूल संविधान में मतदान का उम्र 21 वर्ष निर्धारित किया गया था। लेकिन संविधान के 61वें संशोधन द्वारा वयस्क मताधिकार की उम्र सीमा 21 वर्ष से घटाकर 18 वर्ष कर दी गई, ताकि ज्यादा से ज्यादा युवा मतदाता अपने मताधिकार का प्रयोग कर सकें। यह प्रावधान 28 मार्च, 1989 से प्रभावी हुआ।

मतदाताओं में आई जागरूकता की वजह से देश में आई मतदान का प्रतिशत तो बढ़ा है, लेकिन मतदान प्रतिशत से नतीजे निकालने का अभी तक न कोई ठोस सिद्धांत है और न ही पिछले अनुभव किसी रुझान की पुष्टि करते हैं। कई दशकों से मतदान पर चलने वाली बहस में यही कहा जाता है कि मतदान का प्रतिशत ज्यादा होने का अर्थ है बदलाव और कम होने का अर्थ है पिछली सरकार पर ही मुहर।

भारतीय मतदाता मतदान प्रक्रिया में सहभागिता के समय अनेक कारकों से प्रभावित होते हैं, जैसे-प्रभावशाली नेतृत्व, व्यक्ति पूजा, जातिवाद, आर्थिक कारक, धर्म की भूमिका, क्षेत्रवाद की प्रवृत्ति, राजनीतक मुद्दा, राजनीतिक दलों का घोषणा पत्र, लिंग, प्रत्याशी की जीत की संभवना, चुनाव प्रचार की तकनीक, केन्द्र और राज्यों के चुनाव में अलग-अलग कारक, गुटबंदी, धन और बाहुबल एवं दलीय संगठन से प्रभावित होकर मतदाता चुनाव में अपना मत प्रदान करते हैं। इससे स्पष्ट होता है कि भारत में चुनाव विविध कारकों से प्रभावित होता है।

रेखाचित्र- प्रथम लोकसभा से सोलहवीं लोकसभा तक मतदाताओं की संख्या



स्रोत: भारत के चुनाव आयोग।

साहित्य समीक्षा

मत-व्यवहार का अध्ययन बीसवीं सदी के प्रारम्भ में शुरू हुआ। सर्वप्रथम, फ्रांस में 1913 ई० में द्वारा मतदान-व्यवहार का अध्ययन किया गया।

एन० जी० एस० किनी, एच० एपलबी, डी० ई० स्टोक्स जैसे विदेशी विद्वानों ने मतदान व्यवहार पर आनुभाविक अध्ययन किए। इसके बाद अमेरिका में दो विश्वयुद्धों के बीच के काल में और ब्रिटेन में महायुद्ध के बाद मतदान व्यवहार का भी अध्ययन किया गया। भारत में द्वितीय आम चुनाव के बाद मतदान व्यवहार पर इस प्रकार के अध्ययन को अपनाया गया।

डी० एल० विकलेयम ने अपने अध्ययन 'क्लास कॉनशसनेस एण्ड पॉलिटिकिल चेंज: वोटिंग एण्ड पॉलिटिकिल एटिट्यूड इन दि ब्रिटिश वर्किंग क्लास 1964 टू 1970' जो अमेरिकन सोसियोलोजिकल रिव्यू नामक जर्नल में प्रकाशित हुआ, उपर्युक्त समस्या का प्रस्तुतीकरण ब्रिटेन की राजनीतिक व्यवस्था में श्रमिक वर्ग का अनुदारवाद तथा सम्पन्न श्रमिक के रूप में किया गया है।

अमेरिका के अध्ययनकर्ताओं जैसे-एच० एपलबी, डी० ई० स्टोक्स आदि का यह मानना है कि विकसित व्यवस्था होने की वजह से सामान्य लोगों का जीवन स्तर काफी उन्नत हो चुका है, इसलिए श्रमिक वर्ग के विचारों में काफी प्रगतिशीलता आ चुकी है। यानी कि, विचारधारात्मक विरोध का अन्त हो चुका है। मार्क्स ने इसे वर्ग संबंधी मिथ्या चेतना कहा है तो समाजशास्त्रियों ने इसे सामाजिक स्थिति का भ्रम या स्थिति से अपतादात्म्यता का नाम दिया है। यहाँ विवेचित प्रसंग का मूल उद्देश्य उन कारकों की तलाश है जिसकी वजह से एक मतदाता मतदान करते समय अपने सामाजिक पर्यावरण से प्रभावित होता नहीं दिखाई देता है।

अध्ययन पद्धति

शोध समस्या का चयन

मानवीय पहलुओं के जिन विशिष्टताओं का प्रतिनिधित्व भारत देश करता है, उनका समग्र दर्शन बिहार राज्य में भी होता है। इसलिए भारतीय मतदान व्यवहार की सभी विशिष्टताएँ बिहार में भी प्रतिबिम्बित होती रही है। परन्तु

विगत् दशकों में चुनाव के दरम्यान व्यापक भ्रष्टाचार और अनियमितता के लिए बिहार एक तरह से बदनाम ही रहा है। जातीय धारणा, काला धन का प्रयोग तथा बाहुबल के प्रयोग से लेकर व्यापक चुनावी अनियमितता ही बिहार के चुनावों का परिचय रहा है। इसलिए बिहार राज्य को विचलित मत-व्यवहार का प्रतिनिधिक राज्य कहा जाता है।

शोध-अध्ययन का उद्देश्य

प्रस्तुत शोध-अध्ययन के मुख्य उद्देश्य निम्नलिखित हैं:

i) मगध महिला महाविद्यालय, पटना की छात्राओं की मत-व्यवहार के प्रवृत्ति का अध्ययन करना।

ii) राजनीतिक दलों के चुनावी घोषण पत्र का छात्राओं के मत-व्यवहार पर हुए प्रभाव का पता लगाना।

iii) छात्राओं की सामाजिक और धार्मिक स्थिति का उसके मत-व्यवहार पर पड़ने वाले प्रभाव का पता लगाना।

iv) छात्राओं के मत-व्यवहार पर क्षेत्रिय एवं राष्ट्रीय दलों के पड़ने वाले प्रभावों का पता लगाना।

v) किसी जाति विशेष के प्रत्याशी का छात्राओं के मत-व्यवहार पर पडने वाले प्रभाव का विश्लेषण करना।

शोध-अध्ययन की प्राकल्पनाओं का निर्माण

प्रस्तुत शोध-अध्ययन के लिए निम्नलिखित प्राकल्पनाओं का निर्माण किया गया है:

i) व्यक्ति विशेष प्रत्याशी से मतदाता का मत-व्यवहार प्रभावित होता है।

ii) बिहार के मतदाता जातिगत आधार पर मतदान करते हैं।

iii) राजनीतिक दलों एवं राजनेताओं पर से विश्वास उठ जाने के कारण मतदाता अपने मताधिकार का प्रयोग नहीं करते हैं।

iv) सोशल मीडिया के साधनों से मत-व्यवहार प्रभावित होता है।

शोध-अध्ययन की विधि

प्रस्तुत शोध विषय की प्रकृति अन्वेषणात्मक के साथ-साथ विश्लेषणात्मक है, जिसमें अध्ययन का केन्द्र-बिन्दु मत-व्यवहार में आये परिवर्तन है। इस विशेष अध्ययन के लिए मगध महिला महाविद्यालय, पटना को अध्ययन क्षेत्र के रूप में चुना गया। इसके लिए उद्देश्यपूर्ण एवं सुविधाजनक निदर्शन पद्धति द्वारा छात्राओं का प्रतिदर्श के रूप में चयन किया गया। कुल 50 प्रतिदर्श का चयन इस शोध-अध्ययन के लिए किया गया है।

प्रस्तुत तथ्य-संकलन की विधि में प्राथमिक स्रोतों के साथ-साथ द्वितीयक स्रोतों का भी उपयोग किया गया है। प्राथमिक तथ्यों के संकलन के लिए अनुसूची तैयार की गई, फिर उस अनुसूची को मगध महिला महाविद्यालय, पटना के छात्राओं से साक्षात्कार के आधार पर भरा गया। द्वितीयक तथ्यों के संकलन के लिए जिला चुनाव कार्यालय, पटना एवं राज्य निर्वाचन आयोग, पटना के कार्यालय में उपलब्ध अभिलेखों तथा अन्य प्रासंगिक लिखित सामग्रियों का सहारा लिया गया।

शोध-अध्ययन की उपयोगिता

मत-व्यवहार पर ज्यादातर शोध अँग्रेजी माध्यम में ही किये गए हैं। आधुनिक युग में भारतीय लोकतंत्र के नागरिकों के मत-व्यवहार विषय पर सारगर्भित पुस्तक एवं अध्ययन-सामग्री का अभाव है। इस अभाव को दूर करना अति आवश्यक है। इस शोध-अध्ययन को हिन्दी भाषा में करने का निर्णय लिया गया ताकि भारत के अधिकांश हिन्दी भाषी छात्रों, शोधार्थियों एवं शिक्षकों के लिए अपनी मातृभाषा में, सरल एवं स्पष्ट शब्दों में भारतीय मतदाताओं के मत-व्यवहार को पढ़ने, जानने एवं समझने के लिए अध्ययन-सामग्री आसानी से प्राप्त हो सके। यह शोध अध्ययन भारतीय राजनीति के अध्येताओं को गंभीर पठन सामग्री उपलब्ध कराती है। वैसे आज की बदलती राजनीति में दिलचस्पी रखने वाले लोगों के लिए भी यह शोध अध्ययन काफी उपयोगी एवं प्रासांगिक है। इस तरह का अध्ययन जनता में जागरूकता पैदा करती है क्योंकि बहुत सारे शिक्षित लोग भी चुनाव के बारे में कम जानते हैं, इस वजह से वे चुनावी प्रक्रिया के प्रति उदासीन रहते हैं।

निष्कर्ष एवं सुझाव

मगध महिला महाविद्यालय की छात्राओं से लिए गये साक्षात्कार से प्राप्त किये गये तथ्यों के वर्गीकरण एवं विश्लेषण के पश्चात् कुछ महत्त्वपूर्ण निष्कर्ष प्राप्त किये गये हैं जिन्हें निम्नलिखित प्रकार से प्रस्तुत किया जा रहा है:

- मगध महिला महाविद्यालय की अधिकांश छात्राएं (80%) भारत में होने वाले चुनाव के महत्त्व एवं सार्थकता को समझती है

- मगध महिला महाविद्यालय की अधिकांश (80%) छात्राएं चुनाव में मतदान करती हैं
- 30 प्रतिशत छात्राएं काम से समय नहीं मिलने के कारण मतदान नहीं कर पाती हैं। 50% छात्राएं मतदाता पहचान-पत्र नहीं होने के कारण मतदान नहीं कर पाती हैं
- मगध महिला महाविद्यालय की अधिकांश छात्राओं (80%) का नाम मतदाता सूची में अंकित है
- 40% छात्राएं स्थानीय नेता के आह्वान पर मतदान करती हैं, जबकि 60% छात्राएं राष्ट्रीय नेता के आह्वान पर मतदान करती हैं
- 60% छात्राएं मानती है कि सोशल मीडिया मत व्यवहार को प्रभावित करता है
- 70% छात्राएं राजनीतिक दलों के घोषणा-पत्र से प्रभावित होकर मतदान करती है
- 80% छात्राएं राजनीतिक दलों की नीतियों से, 70% राजनीतिक दल की विचारधारा से तथा 60% राजनीतिक दल के कार्यक्रमों से प्रभावित होकर मतदान करती हैं
- 70% छात्राएं नेता के व्यक्तित्व से प्रभावित होकर मतदान करती है जबकि 30% छात्राएं नेता के व्यक्तित्व से प्रभावित नहीं होती हैं
- 70% छात्राओं का मानना है कि जाति मत व्यवहार को प्रभावित करता है
- 70% छात्राएं विकास, 80% सुशासन, 70% सरकार की उपलब्धियों एवं 50% छात्राएं सरकार की असफलता से प्रभावित होकर मतदान करती हैं। इससे स्पष्ट होता है कि सरकार द्वारा किया जाने वाला विकास कार्य, सुशासन, सरकार की उपलब्धियँ एवं असफलताएं मत-व्यवहार को प्रभावित करता है
- अधिकांश उत्तरदाता (60%) ऐसी मिली जिन्होंने मतदान करने से पूर्व प्रत्याशियों की योग्यताओं को परखने का कार्य किया
- 60% उत्तरदाताओं का मानना है कि वे धर्म विशेष को प्रोत्साहन देने वाले राजनीतिक दलों को चुनाव में मत नहीं देती है
- अधिकांश (70%) उत्तरदाता ऐसी मिली जो युवाओं के हितों का ध्यान रखने वाली राजनीतिक दलों के पक्ष में मतदान करती हैं
- सभी उत्तरदाताओं का कहना था कि मतदान करना हमारा सवैधानिक अधिकार है। 80% उत्तरदाता मतदान करना अपना कर्तव्य समझती हैं
- 60% उत्तरदाताओं ने कहा कि वे ऐसे जाति विशेष उम्मीदवार के पक्ष में मतदान नहीं करती हैं जिनका दल सत्तारूढ़ होते हुए भी जनहित के कार्यों पर ध्यान नहीं देता है
- अधिकांश उत्तरदाताओं (60%) का कहना था कि वे उस राजनीतिक दल अथवा गठबंधन के पक्ष में मतदान करती हैं जिनकी जीत की संभावना अधिक होती है
- 80% उत्तरदाताओं का कहना था कि उन्हें NOTA बटन की जानकारी है
- अधिकांश उत्तरदाता (60%) लोकसभा चुनाव में राष्ट्रीय दल से प्रभावित होकर आम चुनाव में उनके पक्ष में मतदान करती है। इसी प्रकार विधान सभा के चुनाव में 70% उत्तरदाता क्षेत्रीय दलों से प्रभावित होकर विधान सभा के चुनाव में अपना मतदान उनके पक्ष में करती हैं
- 60% उत्तरदाता ऐसी मिली जो जाति विशेष वाली राजनीतिक दल के पक्ष में मतदान करती हैं, जबकि 40% उत्तरदाताओं ने माना कि वे जाति विशेष वाले राजनीतिक दल के पक्ष में मतदान नहीं करती हैं

सुझाव

उपरोक्त निष्कषों के आधार पर निम्नलिखित सुझाव प्राप्त किये गये हैं :

- बिहार के ज्यादात्तर लोग दूसरे राज्यों अथवा शहरों में काम करने के लिए चले जाते हैं। अतः सरकार को एवं चुनाव आयोग को यह प्रयास करना चाहिए कि बिहार में चुनाव विभिन्न त्योहारों की छुट्टी के समय कराये जायें, तो बिहार में मत-प्रतिशत बढ़ सकता है

- मतदान केन्द्रों पर व्यापक सुरक्षा की व्यवस्था करने के साथ-साथ मतदान केन्द्रों पर महिला पुलिस का भी रहना अनिवार्य है
- राजनीतिक दलों को अथवा उम्मीदवारों को अपने पोलिंग एजेंटों को और भी प्रशिक्षित किए जाने की जरूरत है
- महिला मतदाताओं को घर से निकल कर मतदान करने के लिए और अधिक प्रेरित करने की जरूरत है
- चुनाव आयोग को फोटोयुक्त मतदाता पहचान-पत्र एंव मतदाता सूची संबंधी गड़बड़ियों को दूर करने में तत्परता दिखानी चाहिए
- विभिन्न राजनीतिक दलों द्वारा मतदाता को लुभाने के लिए झूठे वादे किए जाते हैं। इससे मतदाता का मत-व्यवहार प्रभावित होता है। लेकिन, मतदाता को काफी जाँच-परख कर ही किसी पार्टी या उम्मीदवार के वादे पर भरोसा करना चाहिए, साथ-ही, अपने मत का प्रयोग करने से पूर्व काफी गहनता से मंथन करना चाहिए
- मतदाता को जाति, धर्म, भाषा, क्षेत्र आदि संकीर्ण भावनाओं से ऊपर उठकर मतदान करना चाहिए
- किसी निर्वाचन क्षेत्र में सबसे ज्यादा वोट 'नोटा' पर पड़े तो उस क्षेत्र का निर्वाचन रद्द कर पुर्नमतदान कराना चाहिए

सन्दर्भ सूची

- अग्रवाल, आर० सी० : पॉलिटिकल थ्योरी: प्रिन्सिपल ऑफ पॉलिटिकल सांइस, चन्द एण्ड काम्पनी लिमिटेड, नई दिल्ली, 1976
- आल्मण्ड एवं पॉवेल : द सिविक कल्चर, प्रिंसटन यूनिवर्सिटी प्रेस, न्यू जर्सी, 1963
- आहलूवालिया, एम० एस० : इकोनोमिक परर्फामेंन्स ऑफ स्टेट्स इन पोस्ट-रिफार्म पिरियड, वाल्यूम-35, 12 मई, 2000
- कश्यप, सुभाष : कोलाइशन गवर्नमेन्ट एण्ड पॉलिटिक्स ऑफ इण्डिया, उत्पल प्रकाशन, नई दिल्ली, पृष्ठ सं० 341, 1997
- कश्यप, सुभाष : नोटा एवं निगेटिव वोटिंग, इण्डिया टूडे, दिसम्बर, 2013
- कौशिक, सुशीला : भारतीय शासन और राजनीति, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली विश्वविद्यालय, नई दिल्ली, 1990
- नाई, नॉरमन एण्ड वर्बा, एस० : पॉलिटिकल पार्टीसिपेशन इन ग्रीनस्टाइन, एफ० आई० एण्ड एन० डब्लू पॉल्सबे: हैण्डबुक ऑफ पॉलिटिकल साइन्स, वाल्यूम न० 4, एडिसन-विसली पब्लिशिंग हाऊसींग कम्पनी, मैस्साच्यूएट्स, 1975
- नारायण, बद्री : भारतीय राजनीति का बदलता व्याकरण, हिन्दुस्तान, पटना, पृष्ठ सं० 26, 19 अक्टूबर 2012
- स्यूसर, बी० : द विहेबियर आइडियोलोजी: ए रिव्यू एण्ड ए रेस्ट्रोस्पेक्ट, जर्नल ऑफ पॉलिटिकल स्टडीज, जनवरी 1979

सरकारी रिपोर्ट

- भारत के चुनाव आयोग, लोकसभा चुनाव के रिपोर्ट (1952 से 2009)
- भारत के चुनाव आयोग, लोकसभा चुनाव-2014 के रिपोर्ट।
- बिहार राज्य निर्वाचन आयोग, लोकसभा चुनाव के रिपोर्ट (1952 से 2009)
- बिहार राज्य निर्वाचन आयोग, लोकसभा चुनाव-2014 के रिपोर्ट।
- बिहार राज्य निर्वाचन आयोग, विधानसभा चुनाव के रिपोर्ट (1952 से 2010)

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RELATIONSHIP BETWEEN TEACHERS' JOB SATISFACTION AND THEIR ATTITUDE TOWARDS TEACHING PROFESSION

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ABSTRACT : *In the present research an attempt is made to study the relationship between teachers' job satisfaction, job preference and their attitude towards teaching as a career.Three hypotheses are formulated-(a)-.Those who will have positive and the negative attitude towards teaching would differ significantly in terms of their job satisfaction.(b)- Those who will have positive attitude towards teaching as a career will differ significantly in their preference of teaching job as a career.(c)- Those who will have negative attitude towards teaching as a career will prefer job other than teaching..The study is conducted on 80 teachers of Patna and Chhapra, by employing incidental sampling technique. The Teachers' job satisfaction Questionnaire, Hindi version of Attitude Towards Teaching as a Career Scale and A Test of Occupational Choice were used. For the analysis of the obtained scores chi-square were computed. The result confirms all the hypotheses .The findings on the whole indicated that attitude towards teaching affects the job preference and job satisfaction of teachers. Teachers who have positive attitude towards teaching as a career are more satisfied with their job and prefer the teaching job compare to those teachers who have negative attitude towards teaching as a career.*

KEYWORDS: Technique, Job Satisfaction, Job Preference, Teaching, Teacher, Attitude

INTRODUCTION

The present study is concerned with the relationship between teachers' job satisfaction ,job preference and their attitude towards teaching as a career. An attitude is an expression of favour or disfavour toward a person, place, thing, or event (the attitude object). Prominent psychologist, Gordon Allport once described attitudes "the most distinctive and indispensable concept in contemporary social psychology.". Attitude can be formed from a person's past and present. Attitude is also measurable and changeable as well as influencing the person's emotion and behaviour. Many measurements and scales are used to examine attitudes. Explicit measures tend to rely on self-reports or easily observed behaviours. Implicit measures are not consciously directed and are

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assumed to be automatic, which may make implicit measures more valid and reliable than explicit measures (such as self-reports).. The Implicit Association Test (IAT) examines the strength between the target concept and an attribute element.

According to Doob (1947), learning can account for most of the attitudes we hold. The study of attitude formation is the study of how people form evaluations of persons, places or things. Theories of classical conditioning, instrumental conditioning and social learning are mainly responsible for formation of attitude. Unlike personality, attitudes are expected to change as a function of experience. The most famous example of such a theory is Dissonance-reduction theory, associated with Leon Festinger, which explains that when the components of an attitude (including belief and behavior) are at odds an individual may adjust one to match the other (for example, adjusting a belief to match a behavior). Other theories include balance theory, originally proposed by Heider (1958), and the self-perception theory, originally proposed by Daryl Bem.

In the field of education teachers can affect how students perceive the course materials, it has been found that teachers who showed enthusiasm towards the course materials and students can affect a positive learning experiences towards the course materials.

Kremmer and Lifmann (1978) attempted to assess the attitudes of university teachers towards teaching, in order to facilitate their participation in workshops designed to improve university teaching .Findings point to significant differences among department , rank and seniority with regard to attitudes toward teaching , teaching concerns and aims.

A university teacher or school teacher is a person who provides education for pupils (children) and students (adults). A teacher's professional duties may extend beyond formal teaching. Outside of the classroom teachers may accompany students on field trips, supervise study halls, help with the organization of school functions, and serve as supervisors for extracurricular activities. In some education systems, teachers may have responsibility for student discipline. On teacher/course evaluations, it was found that teachers who have a positive disposition towards the course content tend to transfer their passion to receptive students.

Singh, S.K. (1974) studied the relationship between observed behaviour and measures of teachers' attitude at Meirut and found that there was a significant relationship between attitude towards teaching and the various components of classrooms. This was a significant finding which revealed that teachers' attitude contributes a lot to his classroom performance. Teachers' professional adjustment and job satisfaction plays an important role in teaching and learning process and if teaching is preferred as the profession it gives the positive effect.

Job satisfaction is the extent to which one feels good about the job. It is in regard to one's feelings or state of mind regarding to the nature of their work. In other words, job satisfaction implies doing a job one enjoys, doing it well, enthusiasm and happiness with one's work. Everyone define job satisfaction as fulfillment of one's expectation. It differs from person to person and institution to institution and even in the context of male and female. In simple term when someone is satisfied with his job that is job satisfaction. Job satisfaction as a pleasurable positive emotion state, resulting from the appraisal of one's job or job experiences. It results from the perception that one's job fulfils or allows the fulfillment of one's important job values, providing and to the degree that these values are congruent with one's needs (Locke, 1976).

A teacher who is well adjusted can work in a righteous way for self actualization and for the better development of teaching profession to face the present challenges .It is said the teacher who preferred to become a teacher would be having better professional adjustment and his level of job satisfaction would be high which will be reflected in his teaching and if the teacher is satisfied them only all round growth and development of the individual and society is possible.

Taylor and Sayer (1983) administered a Likert-type attitude test to 708 middle school teachers at 48 schools in a British metropolitan district to assess their attitudes toward teaching .Female teachers were more satisfied than male teachers; job efficiency was positively correlated with job satisfaction. Gupta and Nisha (1979)found in their study that age, teaching attitude, and experience(but not sex) affect job satisfaction.Elena Briones(2006) studied job satisfaction of secondary school teachers and effect of demographic and psycho-social factors. Path analyses showed that the teachers, job satisfaction was significantly and positively related to personal achievement and perceived support from colleagues.

Teachers are source of the guidance in all the crucial steps in the academic life of the student .College teachers are the most important group of professionals for our nation's future .Therefore,it is astonishing to know that even today many of the college teachers are dissatisfied with their job.Job satisfaction among college teachers is good not only for themselves but society as a whole.It increases productivity and classroom performance in the college.

HYPOTHESES

In view of researches and problem of the present investigation the certain hypotheses were formulated as under . It was hypothesized that

i)-Those who will have positive and the negative attitude towards teaching would differ significantly in terms of their job satisfaction.

ii)-Those who will have positive attitude towards teaching as a career will differ significantly in their preference of teaching job as a career.

iii)-Those who will have negative attitude towards teaching as a career will prefer job other than teaching.

METHODS

Sample : The sample comprised of 80 teachers.No specific sampling technique was used for selecting the subject.The teachers were from different colleges of Patna and Chhapra districts of Bihar.

TOOLS USED

i) Teachers' job -satisfaction Questionnaire:

This questionnaire was developed by Dr. Promod Kumar and D.N. Mutha. ln this questionnaire 27 items were positively worded and 2 negatively worded. Thus the total number of items were 29. All these items were scored either by giving a score of '1'or'0'depending on the direction. The total score varied from 0 to 29, 0 showing lowest job-satisfaction and 29 showing highest job-satisfaction.

ii) Hindi version of Attitude Towards Teaching as a Career Scale

The scale was developed by Merwin and Divesta (1960).The total number of items were 11.Six responses categories are provided for each item : strongly agree, moderately agree, slightly agree, slightly disagree, moderately disagree, and strongly disagree. Subjects were required to answer all the items. Before the attitude scores was computed, the direction of item scores was reversed for unfavourable items so that a response of "strongly agree" was given a value of 6, "moderately agree", a value of 5 and so on. Attitude score was then computed as the sum of the item scores. The theoretical range is from 11 to 66 with lower scores indicating a more favourable attitude towards teaching as a career.

(iii)A test of occupational choice

Due to non-availability of any suitable test of occupational choice a test was developed by researchers. For developing this test first of all a number of occupations were selected by consulting journal of applied psychology, psychological abstracts, books and subject experts.Then these occupations were grouped in eight groups namely

(i) Business (ii) Industry (iii) Government Service (iv) Non-Government Service (v) Defence (vi) Artisan (vii) Independent Service (viii) Profession related with films. After preparation of items the test was given to different judges whether these items measured same dimension for which they were constructed. On the basis of majority endorsement the items were rearranged in test.

RESULT AND DISCUSSION

After the collection of data it was thought proper to examine the nature of the distribution of scores of attitude towards teaching as a career and scores of job satisfaction of teachers. Table-1 presents the summary of computation of central tendency and variability of attitude towards teaching as a career of teachers.

TABLE : 1

Measures of Central Tendency And Variability of Attitude Towards Teaching as a Career Score of Entire Sample

N	Mean	Median	Mode	SD	SE
80	26.937	25.857	23.697	39	4.39

It was clear from table-1 that the mean (M=26.937), the median (Mdn=25.857), and the mode(Mo=23.697)were not the same value, suggesting that the distribution of attitude score might not be normal exactly.

Similarly, mean, median, mode and SD, for job satisfaction score were also computed. Table-2 presents the summary of the computation.

TABLE : 2

Measures of Central Tendency and Variability of Teachers' Job satisfaction Score For Entire Sample

N	Mean	Median	Mode	SD	SE
80	17.375	17.06	16.43	5.40	0.604

It was clear from table 4.2 that the mean (M=17.375), the median (Mdn=17.06), and the mode(Mo=16.43) were not the same value. It meant that the distribution of job satisfaction score might not normally distributed in the sample.

The central tendency for both the variables i.e. attitude towards teaching as a career and teachers' job satisfaction did not indicate exact normal distribution. Therefore, for the verification of the first hypothesis that the highs and the lows on attitude towards teaching differ significantly in terms of their job satisfaction, a chi-square test was done .For calculating chi-square the scores of both attitude towards teaching as a career and teachers' job satisfaction were dichotomized into above and below from their own medians. Table 4.3 presents the summary of the computation.

TABLE : 3

Strength of Association Between Attitude Towards Teaching as a Career On One Hand and Teachers' Job Satisfaction Score On the Other (N=80)

	ATTC Score	Job Satisfaction Score		Chi -square(df=1)	Significance
Attitude Score		Below Median	Above Median	31.02	P<0.001
	Above Median	34	7		
	Below Median	8	31		

An inspection of table-3 showed that the obtained 2(2=31.02, df=1) was statistically significant beyond 0.001 level of confidence, suggesting that there is very strong association between the attitude towards teaching and job satisfaction.

Further, it was hypothesized that those who have positive attitude towards teaching as a career would differ significantly in their preference of teaching job.

It was clear from the job preference check list that there were eight jobs meant for preference. Out of these eight jobs, teaching job comes under both government service (category 3) and independent service (category 7) because they included private tuition and psychotherapy (teaching) as job, they were also included in the category of teaching job. Therefore two categories namely , Government job(category 3) and independent service (category 7) were selected for the verification of the hypothesis II. For the verification of the hypothesis, chi-square was computed. Table 4.4 presents the summary of the computation.

TABLE : 4

Strength of Association Between Attitude Towards Teaching as a Career and Teachers' Job Preference Score (N=80)

Name of Occupations	Group	Preferences								Chi-Square
		1	2	3	4	5	6	7	8	
Government Job(3)	PATTC	36	6	10	3	4	3	1	7	**45.01(df=1)
	NATTC	5	2	0	2	1	0	0	0	
Independent Service (7)	PATTC	1	2	3	1	1	9	7	15	**10.037(df=2)
	NATTC	0	2	4	8	12	5	6	4	

Note: **- Significant at 0.01 level

PATTC-Positive Attitude Towards Teaching Career

NATTC-Negative Attitude Towards Teaching Career

An inspection of table 4.4 showed that chi-square values were obtained for the preference of job on the one hand and attitude towards teaching as a career on the other. 2 for occupation no-3(Government job)and 7(Independent Service) were 45.01(df=1) & 10.037(df=2) respectively and were significant beyond 0.01 level 0f significance, suggesting the acceptance of hypothesis. Government job and independent service included job related to teaching job.

For the verification of the third hypothesis that those who will have negative attitude towards teaching as a career will prefer job other than teaching, a chi-square test was done. Table 5 presents the summary of the computation.

TABLE : 5

Strength of Association Between Teachers' Attitude Towards Teaching as a Career and Job Preference(N=80)

Name of Occupations	Group	Preferences (Frequency)								Chi-Square
		1	2	3	4	5	6	7	8	
Business(1)	PATTC	0	12	8	14	2	1	2	0	*7.085(df=2)
	NATTC	0	3	16	4	3	3	7	5	
Industry(2)	PATTC	4	O	14	8	7	3	1	2	***0.851(df=2)
	NATTC	1	13	5	5	8	2	4	3	
Non-Government Job(4)	PATTC	2	17	6	3	8	2	1	0	***0.77(df=2)
	NATTC	2	16	2	6	3	2	2	8	
Defense Services(5)	PATTC	0	2	0	10	7	4	9	7	***2.24(df=2)
	NATTC	0	3	2	5	7	11	7	6	
Artisan(6)	PATTC	0	2	2	2	4	6	13	10	***3.791(df=2)
	NATTC	2	1	1	3	6	12	11	5	
Profession related with films(8)	PATTC	0	4	2	7	7	7	7	5	***2.718(df=2)
	NATTC	0	2	10	8	2	5	4	10	

Note: *-Significant at 0.05 level, ***-not significant even at 0.05 level.

PATTC-Positive attitude towards teaching career

NATTC-Negative attitude towards teaching career

It was evident from table 4.5 that the chi square values obtained for the preference of job other than teaching on the one hand and attitude towards teaching as a career on the other.The chi-square for occupation no-1(Business), 2(Industry), 4 (Non-Government job), 5(Defense Service), 6(Artisan), 8(Professions related with films) were 7.085(df=2), 0.851(df=2), 0.77(df=2), 2.24 (df=2) , 3.791(df=2), 2.718(df=2) respectively, which were statistically not significant even at 0.05 level of significance. Thus the hypothesis was accepted. It meant that those respondents who had negative attitude towards teaching as a career preferred job other than teaching. It was evident from the result that there was a positive relationship between preference for business and attitude towards teaching as a career, as the chi-square was significant at 0.05 level of confidence. Though such significance is treated as marginally significant. The reason of this significance might be that they were teachers, therefore they gave first preference to teaching career but in practice they used to get meager amount as salary, therefore they gave third & fourth preference to business occupation which included occupation like book store etc. It seems that such preference gave some consolation to them. It was clear from the result that all three hypotheses were confirmed.

CONCLUSION

The findings of the present research have indicated that there is significant relation between teachers' job satisfaction , job preference, and their attitude towards teaching as a career. It was found that those teachers who have positive attitude towards teaching career are more satisfied with their job (hypothesis I) of teaching and preferred teaching as a job (hypothesis II) , but those teachers who have negative attitude towards teaching as a career are not satisfied with their job of teaching (hypothesis I) and prefers job other than teaching (hypothesis III).

Those teachers who had positive attitude towards teaching job were satisfied with their job but those who had negative attitude towards teaching job were not satisfied with their job (hypothesis I).It means attitude towards teaching plays an important role in job satisfaction of teachers .This study is very important because results of this study tell us that teachers who have negative attitude towards teaching are not satisfied with their job and because of this dissatisfaction they do not teach properly and it affects quality of education.

If we want the best education for students , the attitude of teachers must be measured before their appointment as a teacher.

REFERENCES

- Briones &Tabernero(2010), " Job Satisfaction of Secondary School Teachers: Effect of Demographic and Psycho- Social Factors ." Research reported in this article was supported by the Spanish, Ministry of Science and Technology under grant SEJ 2006-07741 , www.redalyc.org
- Gupta, K & Nisha, B .(1979). " A study of job satisfaction among secondary school teachers. ". Asian Journal of P sychology and Education . 1-4, 25-30
- Kremer, Liya & Lifmann, Marget (1978), "Attitude and concerns of university teachers : Basic factors in improving teaching. Journal of personalized Instruction, 2(3), 177-180
- Lal & Shergill .(2012). " A comparative study of job satisfaction and attitude towards education among male and female teachers of degree colleges." International Journal of Marketing, Financial Services & Management Research .vol no. 1, Issn 2277 3622 Online available at indianresearchjournals.com
- Lavingia , K . U. (1974) , " A study of job satisfaction among school teachers " Teacher Education Abstract, Second survey of research in Education (1972-1978).Boroda : Society for educational Reasearch and Development 623, 438
- Mohamed A.(2002), A Qualitative Study Of Job Satisfaction Among Secondary School Head Teachers In The City Of Jeddah, Saudi Arabia, , M.A. in Educational Supervision from Um Alqura University in Saudi Arabia IPhD student at the School of Education and Communication and Languages Sciences. (Ahmed.a-zaidi@ncl.ac.uk, 08-03-14, 08.49 pm)
- Potsayan K. Amrendra (2002), " A study of some antecedents and correlates of teachers towards teaching,Unpublished Ph.D. Thesis
- Sharma, S. N & Singh R. P(1972), "A study of attitudes towards modern approach in teaching." Indian journal of Psychology and Education. 3(1), 29-33
- Taylor, Graham H. & Sayer, Brain .(1983), " Attitude of teachers toward the teaching ", Educational Reasearch , vol. 25 (1), pp.71-74
- Wikipedia, the free encyclopedia (02-11-2014, 4.56 pm)

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A COMPARATIVE STUDY OF MALE AND FEMALE ADOLESCENTS IN TERMS OF MENTAL HEALTH

Khushboo Kumari * Durga Kumari * Khurshid Jahan *

ABSTRACT : *The study aimes to investigate the mental health of male and female adolescents. The sample consisted 100 adolescents (50 males and 50 females) of Patna town. Tool used was "Mental Health Inventory". The result indicate that male and female adolescents differ significantly in terms of mental health and the second finding is that female adolescents have better mental health than male adolescents.*

KEYWORDS: Mental Health, Adolescent, Investigate

INTRODUCTION

The concept of mental health is as old as human beings. Mental health commutates those behaviour, perceptions and feelings that determine a person's overall level of personal effectiveness, success, happiness and excellence of functioning as a person. A mentally healthy person shows homogenous organization of desirable attributes, healthy values and righteous self - concept and a scientific perception of the world as a whole.Mental health presents a humanistic approach towards self and others. It is an important factor that influences an individual's various activities, behavior, happiness and performance

Adolescence is considered as the most important transition period of life. Adolescents face an intense turmoil because of the cognitive, biological and social changes taking place in this period. Many mental health problems emerge in late childhood and early adolescence. It is very essential to study the mental health of senior & secondary students because they are the future teachers, engineers , doctors , politicians etc. Mental health is significant at adolescent as in this time one takes on new responsibilities and roles.There are many factors and conditions which cause mal- adjustment in adolescent students.Poor mental health can have significant effect on the wider health and development of adolescents and is associated with several health and social outcomes such as higher alcohol, tobacco and illicit substances use, adolescent pregnancy, school dropout and delinquent behaviors.

Colarossi and Eccles (2003) have found that support from friends is related to lower depression and higher self esteem in adolescents.

Dhurandhar and Agrawal (2015) examined the mental health of adolescents male and female students of science and arts subjects, They found no significant differences on mental health of male and female adolescents.

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Gupta (2002) conducted a study on mental health of adolescents in relation to self concept. She found a significal difference between mental health of male and female adolescents. Kumar and Gerwal (2014) studied the mental health of school going adolescents and reported no significant difference between male and females in this context.

Veereshwar (1979) studied the mental health and adjustment of college going girls. He found a significant in the area of fawly adjustment between urban an rural girls. In the area of health adjustment there was no significal difference.

PURPOSE

Purpose of the present study was to study that whether there is any difference in the mental health of male and female adolescents.

HYPOTHESIS

There will be significant difference between male and female adolescents on the measure of mental health.

METHOD

Sample : For the present study, incidental sample was used. The study was conducted on 100 urban adolescents. Among selected adolescents 50 were males and 50 were females.

Tools : In this study, "Mental Health Inventory" developed by Dr. Jagdish and A.K. Srivastav was used.

RESULT & DISCUSSION

In this chapter attempts were made to present and discuss the obtained result with a view to see whether the male and female adolescents differ significantly with each other in the term of mental health .

Mean , SD and t-ratio were calculated for analysis of the data.

TABLE : 1

Sex of adolescent	N	M	SD	t-ratio (df-98)	P
Male	50	140.96	14.41	3.50	.01
Female	50	153.4	20.56		

Table 1 clearly shows that the mean mental health score of male adolescents is 140.96 and for female is 153.4 obtained t-ratio is 3.50 which is significant at .01 level of confidence. For being significant on df-98, at .01 level of confidence, t-ratio is greater than this value. So it can be said that the difference of mental health scores of male and female adolescents is significant.

This finding supports the hypothesis of the present study which says that "there will be significant difference between male and female adolescents on the measure of mental health". Obtained result is supported by the study of Gupta (2002). In this study significant difference was found between mental health of male and female adolescents.

From Table 1 it is also clear that the mean score of female adolescents is higher than the mean score of male adolescents. So it can be said that females have better mental health than males.

REFERENCES

- Colarossi, L.G., and Jacquelynne S. Eccles.(2003). " Differential effects of support providers on adolescents' mental health." Social Work Research, 27(1), 19-30
- Dhurandhar, D., & Agrawal, A. A comparative study on Mental Health of students of Science and Art Subject. International Journal of Education and Psychological Research (IJEPR), volume 4, Issue 2, June 2015
- Gupta (2002) , " Mental Health in relation to self-concept of Adolescents ". An unpublished M.ED dissertation, P.V.Chandigarh
- Kumar, N., & Gerwal,K.K. (2014), Mental Health of school going adolescents: A comparative study, Scholarly research for interdisciplinary studies, 11/XV
- Veereshwar, P.(1979) , " A study of mental health & adjustment problems of college going girls Urban & Rural Department of Psychology , Mental University ICSSR Financed, 3rd survey at Research in Education

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SOCIOLOGY

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IMPACT OF EVE TEASING ON YOUTH-A SOCIAL STUDY OF URBAN PATNA

Sweta * Ritika Sharma * Binay Kumar Bimal *

ABSTRACT : *Eve teasing is the most ubiquitous and insidious as it is considered 'normalbehavior' and not as an assault to femalesIt is so common that often wehave become desensitized to this offensive behavior. Violence against womenhas become one of the most visible and articulated social problems around theworld. It is critical to human rights and serious development issue. It is auniversal phenomenon but takes different forms in different socio cultural andreligious context. Eve teasing is one of the most serious forms of violencecommitted against women by men is more or less all over the world*

KEYWORDS: Violence, Auniversal Phenomenon, Normal Behaviour

INTRODUCTION

Our Indian society is patriarchal in nature. Males dominate females. Men are considered the pillars of our society. Women merely follow them. And in returnmen exploit women mentally, physically, sexually, psychologically but still are considered greatest entity of our social system. This exploitation andsubjugation leads to discrimination with females. They are denied rights andopportunities. One very popular and often faced example of this discriminationis eve teasing which is a sexual violence against women. Eve teasing is verycommon and often faced by females. It is not only prevalent in India rather it iscommon to other countries as well. Women is no where safe. Males havealways shown their powers on females the trend is continuing and if notchanged it will continue in future as well. And the victim will be only women.But before proceeding further it is important to understand what the meaningof violence is and what are its types and impact on women.

Violence is the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, which either results in or has a high likelihood of resulting in injury, death, psychological harm, mal development, or deprivationviolence is produced when an individual or group acts unilaterally, imposing its opinion without allowing space for negotiations, when the power of each side is not equal. This imposed action can affect the body, life, future, or plan of the other, whether an individual or group. So violence associate intentionally with committing of act itself,irrespective of the outcome it produces.Self-directed violence includes suicidal behavior an self - harm. Interpersonal viole, Physical Violence, Sexual Violence, Emotional, Violence, Spiritual, Violence, Cultural,Violence, Psychological Violence, Negct

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.Eve teasing is the most ubiquitous and insidious as it is considered 'normalbehavior' and not as an assault to females. It is so common that often wehave become desensitized to this offensive behavior. Violence against womenhas become one of the most visible and articulated social problems around theworld. It is critical to human rights and serious development issue. It is a Universal phenomenon but takes different forms in different socio cultural andreligious context. Eve teasing is one of the most serious forms of violencecommitted against women by men is more or less all over the world.Eve teasing is a euphemism used in India for sexual harassment or molestationof women by men. It ranges in severity from sexually colored remarks to outright groping. The term eve teasing is used to refer to sexual harassment ofwomen in public places such as the streets, publictrans-portation, parks, beaches, and cinema halls. This type of public harassment by a lone man or gangs of men includes verbal assaults such asmaking passes or unwelcome sexual jokes; nonverbal assaults such as showingobscene gestures, winking, whistling, and staring; and physical assaults such as pinching, fondling, and rubbing against women in public places. In addition, in several instances eve-teasing has been followed by more violent assaults suchas rape and murder. Eve teasing is a ridiculous form of enjoyment for men anda physical as well as mental torture for women. This is one of the dailyproblems women in Indian society face. It happens everywhere irrespective of a woman's socio-economic or educational background Simply, eve teasing isthat act by 'Adam' excites and sexually harasses 'Eve'. According to thedescription of Old Testament, 'eve' is Adam's wife and the first woman &mother of the human race. So, teasing a woman/ female is called 'eve teasing'.

LEGAL REDRESS

i) Section 298 (A) and (B) of the Indian Penal Code, which sentences a man found guilty of making a girl or woman the target of obscene gestures, remarks, songs or recitation for a maximum jail tenure of three months.

ii) Section 292 of the IPC clearly spells out that showing pornographic or obscene pictures, books or slips to a woman or girl draws a fine of Rs.2000with two years of rigorous imprisonment for first offenders.

iii) In case of repeated offence, the offender may have a fine of Rs.5000 with five years imprisonment imposed.

iv) Under Section 509 of the IPC, obscene gestures, indecent body languageand acidic comments directed at any woman or girl carries a penalty ofrigorous imprisonment for one year or a fine or both.

v) The 'National Commission for Women' (NCW) has also proposed Eve Teasing (New Legislation) 1988.

Latest Development: The Parliament is currently considering the Protection ofWoman against Sexual Harassment at Workplace Bill, 2010, which is intendedto protect female workers in most workplaces. Honourable Supreme Court isof the opinion that, Provisions of that Bill are not sufficient to curb Eve teasing.Before undertaking suitable legislation to curb Eve teasing, it is necessary totake at least some urgent measures so that it can be curtailed to some extent.

OBJECTIVES

Present study on "impact of eve teasing" of Patna indicates that almost everyfemale in her life has experienced eve teasing. It may have different forms, but they have gone through it Females and males should be aware about legalredress relating to this evil. We need to generate awareness so that womencan be saved from. And we have to be strong and confident to give answers tothe eve teasers. The specific objectives of the study are to:

- To find the root causes and impact of eve teasing
- To find out the place and types and frequency of eve teasing in existence
- To check whether the respondents are aware about the laws regarding eve teasing
- To find out the measures respondents adopt to avoid eve teasing
- To find out the age group of the eve teasers.
- To find out the age group of the girls who are eve teased
- To find whether wearing revealing outfits increase a woman'Vulnerability to eve teasing

METHODOLOGY

Methodology is that special system in which one can adoptone or more processes whose studies are done through minute safety andthese are used to analyze the fact by using scientific facts and data. Scientific method can be verified from time to time. ThroughScientific method, we can achieve things definitely. It is general for all and thisapproach has the quality to predict the future.

TOOLS OF DATA COLLECTION:

Social research is based on various types of information. In order to precede aresearch, facts are drawn from data. These facts are known through twomethods:

Primary Sources

Secondary Sources

PRIMARY SOURCES

Primary sources provide first-hand testimony or direct evidence concerning a topic under investigation. They are created bywitnesses or recorders who experienced the events or conditions beingdocumented. Often these sources are created at the time when theevents or conditions are occurring, but primary sources can also includeautobiographies, memoirs, and oral histories recorded later.In collecting primary data the following methods may be used:

Sampling : sampling is the technique of investigation. Under it,certain units from the whole domain of survey are selected.Sampling is the smallest unit of the larger whole. It includes thebasic characteristics of whole universe.

Schedule : A list of questions with blank spaces for answers inconnection with a statistical investigation is said to be a schedulewhen they are filled in by the enumerators after obtaining theiranswers from the informants

SECONDARY SOURCES

Secondary data is data collected by someone otherthan the user. Common sources of secondary data for social scienceinclude censuses, organizational records and data collected throughqualitative methodologies or qualitative research. Primary data, by contrast, are collected by the investigator conducting the research. Secondary data can be obtained from two different research strands:

Quantitative : Census, housing, social security as well as electoral statistics and other related databases.

Qualitative : Semi-structured and structured interviews focusgroups' transcripts, field notes, observation records and other personal,research-related documents.A clear benefit of using secondary data is that much of the background work needed has been already been carried out, for example: literature reviews, case studies might have been carried out, published texts and statistic could have been already used elsewhere, media promotion and personal contacts have also been utilized.

TABULATION

From our study we constructed our tabulation method on the basis of the following mentioned categories:

i) Total number of respondents
ii) Education qualifications
iii) What do you understand by the term Eve Teasing?
iv) Have you ever faced Eve Teasing?
v) Was eve teasing done?
vi) Which is the place you have experienced eve teasing?
vii) At what time(s) of day you have face eve teasing?
viii) What were you wearing on the occasion when you were eve teased?
ix) How do you retaliate to eve teasing?
x) State the precautions you/your family ask you to take for your safety as a Women?
xi) According to you which age group of girls are prone to eve teasing?
xii) Have you been involved in an act of eve teasing?
xiii) According to you what age group of men is mostly involved in eve teasing?
xiv) Are you aware of the laws regarding eve teasing?
xv). What do you think should be done to stop eve teasing?
xvi) In your opinion what are the major obstacles to stop eve teasing?
xvii) Why do incidents of eve teasing occur in society?
xviii) Why most of the cases of eve teasing are not reported?

RESULTS & ANALYSIS

Total Number of Respondents

Respondents	No. of respondents	percentage
Female	25	50%
Male	25	50%
Total	50	100%

In my research 50 responded were choosen,out of which were female and 25 were males

State the precautions you/your family ask you to take for your safety as a Women?

	No. Of respondents	percentage
Avoid certain public places	4	16%
Avoid going out alone after dark	8	32%
Avoid going out alone	1	4%
Avoid wearing certain clothes 'which may seem provocative	4	16%
Carry items such as peppar spray/safety pins etc	8	32%
Total	25	100%

It is the clear for the table that most of the females avoid going after dark and carry items as precention they take again eve teasing.

According to you what age group of men is mostly involved in eve teasing?

14	No. Of respondent	Percentage
Below 18	5	10%
18-25	25	50%
25-30	4	8%
30-35	6	12%
Above 35	10	20%
Total	50	100%

From the table it is clear that the age group of gags involved in eve teasing is between 18-25 but we cant say only this age group are involved in eve teasing instead people up to the age of 35 also in involved but their number is less.

CONCLUSION

Thus it study shows that eve teasing is rampant and it grabs a girl'schildhood from her while making her learn to avoid victimization irrespectiveof the social class to which she belongs. The incidents of EVE TEASING were highly underreported. The obvious reason for this is that it would attach stigma to them and would be embarrassing forthem to report such incidents.

SUGGESTIONS

Certain measures at the family, societal, legal and personal level are needed tocombat this problem. Socialization and social control at the family and social level should not be gender biased; prohibiting overloading on buses and maintenance of separate seats reserved in buses for women would be very effective measure for protecting them from physical assault; police should perform their duty honestly and special police forces should be employed for such offences which would take on spot action and more importantly would serve the purpose of putting constraints to potential offenders.

REFERENCES

- Prakruthi / Banwasi Eve teasing evils
- Nahar , snigdha Eve - teasing as sexual harassment in india : manifestation of the patriarchal mind
- Barrett grant the official Dictionary of unofficial english , (2006)
- Natarjan ,mangai eve teasing women police in a changing social : back door to equality,(2008)
- Ahuja ,ram, research methods, rawat publications, (2001)
- Dr matthews, bob and ross, liz, research methods: a practical guide for the social science
- Sha, ajay, indian society and diversity

❖❖❖

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ATTITUDE TOWARDS MANUAL SCAVENGERS IN URBAN PATNA
An Effort to Unveil the Invisible World of Manual Scavengers…

Mandabi Saha * Pushpanjali Kumari * Maya Kumari *

ABSTRACT : *India's gangrenous bosom reflected in the caste-based practice of manual scavenging. To say we are proud Indians is to deny the shameful circumstances of our people engaged in the most dehumanizing of professions-collecting human excreta with their hands and we call them Manual Scavengers. May none can understand the pain of this truth. They have been forced to bear this infernal burden for generations and are still bearing it. . Even more ironic is the absence of sensitivity towards this issue within other Dalit communities. Manual scavengers belong to the Dalit community itself, and yet Dalit movements have never advocated the liberation of manual scavengers. Article 17 declared untouchability to be a constitutional offence. Over four decades were to roll by, till, in 1993, Parliament sanctioned a law acknowledging manual scavenging as a continuing scourge that must be abolished. A decade later in 2013, and the law was forced to come back into life. Even today manual scavenging is still prominently alive. It seems as if there has been a conspiracy to ignore the bitterest truth of their existence at every level-religion, caste, bureaucracy, plans, politics. The disgusting practice will continue in one form or the other, as long as the government and society treat certain so-called menial jobs as the preserve of one community. Manual Scavenging continues, for we let it to continue.*

KEYWORDS : Manual Scavenging, Shameful Circumstances, Sensitivity, Communities, Preserve

INTRODUCTION

Dirty, stinky, filthy are some of the work used to describe the work of the manual scavenger in India. Forced to live on the margin of the society their lives are no less than a stigma.

The 63-page report, "Attitude towards Manual Scavengers in India," documents the coercive nature of manual scavenging. Across India, castes that work as "manual scavengers" collect human excrement on a daily basis, and carry it away in baskets for disposal. Indians from communities viewed as "untouchable" are often forced into working as toilet cleaners who scrape feces out of primitive dry latrines by bare hand or collect waste from fields where villagers relieve themselves. Women from this caste usually clean dry toilets in homes, while men do the more physically demanding cleaning of sewers and septic tanks.

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Manual scavengers are usually from the lowest rungs of the Hindu caste system (Indian Muslim communities have similar low-status members who perform this job) and women, the report said. These people often have no other employment option and inherit the job either through birth or by marriage. Lack of alternate opportunities- These manual scavengers are poor, mostly landless and uneducated. They do not know what else to do.

Hiring people for the inhumane practice "manual scavenging" has been illegal in India for years. But it exists, especially in regions of the country where traditional caste hierarchies are rigid and communities' lack indoor plumbing.

The report describes the barriers people face in leaving manual scavenging, including threats of violence and eviction from local residents but also threats, harassment, and unlawful withholding of wages by local officials. The report, "Attitude towards Manual Scavengers in India," said both women and men from the manual scavenging community, even work for the state, through local governments to collect night soil, a euphemism for human excrement.

Manual scavenging is a phenomena that has haunted us from centuries. It is very deeply entrenched in the Indian society. Government's efforts to eliminate it have gained momentum only recently. Resistance from the Orthodox elements- who still are the dominant castes wielding considerable influence in Indian politics and vote bank. Consecutive attempts of Indian government to end caste-based cleaning of excrement have been hindered by discrimination and local complicity. The government needs to get more attentive about putting laws banning manual scavenging into practice and helping the affected caste communities.

OBJECTIVES

Our Objectives or the present study was carried out to meet following specific objectives:

- To find out the socioeconomic attitude toward manual scavengers and the nature of occupational services being offered by them in rural and urban areas
- To assess their mental and physical condition. To find out the impact on health of the manual scavengers
- To locate vastness of different policy involvement and their differential acceptance and the expectation of manual scavengers from the government
- To evaluate the impact of different policy involved particularly acceptance of the scheme of training and rehabilitation of scavengers on the Labour absorption, occupational mobility and improvement in socioeconomic conditions of the manual scavenging group
- To detect the appearing changes in the caste relations, gender differences and inter-generational adjustments among scavengers as a consequence of policy interventions

HYPOTHESES

The inquisitive study was expected to answer following main questions :

- Manual scavenging is a form of today's modern slavery and the socioeconomic attitude towards manual scavenger
- Unprotected manual scavenging leads to deadly diseases
- Barrier in ending manual scavenging
- Whether the traditional practice of lifting night soil by hands/head is still prevalent?
- To what extent the government intervention has contributed in social and occupational mobility of scavengers and their social, economic, education and health status
- Future of the children of manual scavengers are 'baskets and broom' or 'books'
- Desired objectives of the study have been achieved and to what extent

METHODOLOGY

We, for our Research project, have followed the below mentioned following research method to justify our project:

Selection of the topic, Review of literature, Objective of the Research, Construct the Hypotheses, methods and Tools (Primary and Secondary), Tabulation, Analysis & Interpretation, Result align with hypotheses and Conclusion & Suggestions.

The methodology is designed with a combination of qualitative and quantitative research tools.

SAMPLE

As samples we selected 50 people which included people currently or formerly working as manual scavengers, in Patna, Bihar. We visited places like Mesthar Toli, near sanchivalay railway track, Yarpur Domkhana, Jhakari Mahadev.

PRIMARY RESEARCH TOOLS

The techniques used in this study are detailed below:

SCHEDULE

We used Schedule as it was the best possible way to collect facts of the respondent face to face. It acted as standardized tool for observation and interview in order to attain objectivity. Secondly our client (the manual scavengers) were not literate enough to fill the question answers by their own.

OBSERVATION

Observation played a vital role in our study. During our survey we divided ourselves in four small groups. One group was involved in filling schedule along with observing the client. The other group was involved in videography and photography along with observing the surrounding and their life styles. A small group was engaged in observing and communicating with their children and the other group was communicating and observing the family members of the manual scavenging group.

INTERVIEW

Our Interviewing involved asking questions and getting answers from participants in our study. We interviewed our clients in various forms: individual, face-to-face interviews and face-to-face group interviewing.

SECONDARY RESEARCH TOOLS

During our study, beside primary method of data collection, we have also used secondary data sources to supplement our study. In our dissertation work we have used all the possible medium of sources of secondary data from various institutions like Sulabh International, Human Rights Watch, Safai karmachari Andolan, Census 2011, Rashtriya Garima Abhiyan, Parliament Library and Reference, Research, Documentation and Information Service and many more.

TABULATION

From our study we constructed our tabulation method on the basis of the following mentioned categories:

- Age of Respondents
- Sex of Respondents
- Work Place of Respondents
- Traditional practice of lifting night soil by hands/head is still prevalent
- Knowledge of Respondents on impact on their health due to unhygienic work
- Work Satisfaction of Respondents
- Untouchable Behaviour towards Respondents
- Root of Untouchable Behaviour towards Respondents
- On basis of the Behaviour of Society towards Respondents
- Access of Respondents to Public Properties and social gathering after knowing their profession
- Awareness of Respondents to Government Policies and Rights
- Availability Government Identity Proof
- Benefitted by Government Welfare Schemes
- Literacy rate of the Respondent
- Respondent's children going to School
- Main reasons to adopt manual scavenging
- Passing the manual scavenging as a profession to the next generation

RESULTS & ANALYSIS

While doing our research amongst 50 manual scavengers out of which 31 were female and 19 were male. We found out that the majority which is 44% are within the age group of 21 to 30 years. It's a harsh fact that even children below 14 years, who are the future of India are involved in manual scavenging sacrificing their childhood and people like us allow them to do it. It is seen that women are more involved in manual scavenging with percentage of 62% whereas the male scavengers are only 38%.22 out of 31 females clean dry toilets, men and women clean excrement from open defecation sites, gutters, and drains, and men are called upon to do the more physically demanding work of cleaning sewers and septic tanks.78% manual scavengers accepted traditional practice of lifting night soil by hands/head is still prevalent.44% of manual scavengers are unaware of the impact on their health due to unhygienic work but we were astonished to know that 20% of the respondents knew the fact but doesn't have any alternative option for employment. 72% of the respondents are not satisfied with the work they do and 64% accepted the harsh reality of Untouchable Behaviour towards them in the society and the main reason was due to their work. The majority which is 62% were denied access to public properties and social gathering. Most of them were unaware of the Government Policies and Rights and Government Welfare Schemes. The majority of the respondents which is around 54% were illiterates but they proactively want their children to study. The maximum number, which is 50% of the Respondents adopted manual scavenging as due to Hereditary reason. 32% of them said due to illiteracy. Whereas the minority, which was 6% of the Respondents adopted manual scavenging as due to Economic status. The rest 10% of them has a mixed reasons like unemployment, family pressure, and societal pressure. The positive analysis was that the majority of the respondents were determined not to pass the manual scavenging as a profession to the next generation.

INTERPRETATION

With our observation and analysis few facts were revealed. Women who clean dry toilets in rural areas often are not paid cash wages, but instead as a customary practice receive leftover food, grain during harvest, old clothes during festival times, and access to community and private land for grazing livestock and collecting firewood - all at the discretion of the households they serve. In areas where "untouchability" practices are intact, food is dropped into their hands or thrown in front of them. Local authorities are infrequent collusion in the act of discrimination against manual scavengers, it was noticed that government village councils and municipalities engaged in caste-based recruitment to clean open defecation areas. Those who do this work also suffer discrimination in other facets of their lives, including access to education, to community water sources, and to government housing and employment benefits. We found that the police and other authorities fail to act on complaints by manual scavengers who have been threatened with violence, eviction and other offenses. This practice of manual scavenging is considered one of the worst surviving symbols of untouchability because it reinforces the social stigma that these castes are untouchable and therefore continue discrimination and social exclusion. The rights abuses suffered by manual scavengers are mutually strengthening.

According to survey of women from manual scavenging communities it is found that 70% of respondents became involved in manual scavenging after marriage while 30% entered the practice before marriage.

Irony of their life is women refer to manually cleaning toilets as their jagir, which is in Hindi, refers to an estate. In fact, a jagir-"entitling" the owner of the jagir to clean toilets in particular households in the village-has historically been a formal, valuable family asset. Each family typically serves between 10 and 30 households. Inheriting a greater number of households to clean is considered to increase the value of the inheritance. While a jagiris considered a family asset, for the young women made to clean excrement immediately after their marriage, the jagircan be a traumatic inheritance.

Marriage is like quicksand for the women in the manual scavenging families. The first thing a mother-in-law gifts to a newly-wed bride is a portion of her jajmani. This means that she bequeaths a portion of the dry latrines she cleans to her daughter-in-law. The mother-in-law feels very proud in giving a scavenging basket and broom as the first gift to her daughter-in-law, as part of her legacy. It is similar to how, in a normal household, a mother-in-law hands over the responsibility of the house to her daughter-in-law when she arrives. In manual-scavenging families, this oppression has continued from generation to generation, making victims of a whole community-who, in fact, have no idea that caste-based hatred and a patriarchal structure have deliberately pushed them into this quicksand.

Apart from the social desertion and mental trauma that these workers face, they are also exposed to various health issues. Repeatedly handling human feces and sewage without protection can have severe health problems, including constant nausea and headaches, respiratory and skin diseases, anemia, diarrhea, vomiting, jaundice, trachoma, and carbon monoxide poisoning. In addition to TB and women faces frequent miscarriages and sometimes even die during delivery of a child. These conditions are exacerbated by widespread malnutrition and inability to access health services. The most common observation of our survey is that they are marginalized people suffering from many social, economic, political problems because of their illiteracy. They are being exploit by the other community. They are not capable to fulfill their basic needs of life, water problem were the major issue of the places. People have to drink dirty water and therefore suffering from many dangerous diseases like cholera, jaundice, dengue, diarrhea etc. Health issue is also affected by their environment and lack of knowledge. Majority of the group were unaware of the 'Rashtriya Swasthya Bima Yojana' provided by the Government. They didn't have proper sanitation facilities. We found tragic realities in Mesthar Toli where they used railway tracks for their sewage disposal. Many accidents occurred due to it and most of the manual scavengers have lost their family members in it.

Most of the manual scavengers were illiterate. Because of untouchability they are cut off from the main stream of life. They don't know about the government policies and their rights. Being the most underprivileged group of the society they were deprived from the government schemes. It was astonishing that more than 95% of them were not aware of the BPL card and its facilities. Most of them didn't also had the Ration Card and the Aadhar Card. Majority had the Voter Id Card but were not aware of its facilities. The government must look into this problem very seriously and try to solve this issue as soon as possible.

While conversing with the children of the manual scavengers and their parents, a positive opinion was derived. Most of them didn't wanted to pass on the profession to the next generation. They wanted their children to be literate and to move out of this miserable world of manual scavenging. They sadly narrated incidents where they were ill-treated by the society as if they didn't belong to us but we mattered to them. Some of the female manual scavenger said that they do want to get their daughters married to the manual scavenging families. The children were very excited. Some of them commented positively stating that they wanted to become literate like us and help the society to come out of the miserable situation.

According to a 2011 census, there are still around 8 lakhs Indian households with dry latrines that have to be cleaned manually. Another government survey identified more than 7 lakhs manual scavengers. Some activists say the number is much higher, particularly if you include those who do the work for the government. There are currently no comprehensive government surveys that accurately account for the existence of manual scavenging in the country. Accepting the lack of proper surveys, in March 2014, the Supreme Court of India confirmed however that it is "abundantly clear that the practice of manual scavenging continues unabated."

India's Constitution bans caste-based discrimination known as untouchability. The Protection of Civil Rights Act, 1955, prohibits compelling anyone to practice manual scavenging. In 2013, the Indian parliament enacted The Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act (the 2013 Act) outlawing all manual excrement cleaning. The 2013 Act also recognized a constitutional obligation to correct the historical injustice and indignity suffered by these communities by providing alternate livelihood and other assistance.

In March 2014, the Supreme Court of India ruled that manual scavenging violates international human rights law. The court called for effective remedy. The new Indian government elected in May has pledged to address the needs of India's marginalized communities, but has yet to take any new measures to end manual scavenging.

People who have left manual scavenging, even those who had the support of community-based civil society initiatives, report significant barriers to accessing housing, employment, and support from existing government programs. Notably, under the 2013 Act, rehabilitation provisions are left to be implemented under existing central and state government schemes - the same set of programs that have not thus far succeeded in ending manual scavenging.

To ensure that entitlements under the 2013 Act - including financial assistance, scholarships, housing, alternative livelihood support, and other important legal and programmatic assistance - are available to manual scavenging communities, the government should undertake a complete assessment and audit of all relevant schemes currently in place, The government should then work in consultation with communities engaged in manual scavenging and civil society organizations to create a comprehensive program that corresponds with the provisions of the 2013 Act.

MANUAL SCAVENGING AND CONSTITUTION OF INDIA

Article 14 - Right to Equality

Article 17 - Untouchability

Article 21 - Right to Life & Liberty

Article 46 - Promotion of educational and economic interests of Scheduled Castes, Scheduled Tribes and other weaker sections

Article 47 - Duty of the State to raise the level of nutrition and the standard of living and to improve public health

LEGAL AND LAW

1955 Protection of Civil Rights Act, 1955, enacted to abolish untouchability, and social disabilities arising out of untouchability, against Scheduled Castes.

1977 Protection of Civil Rights Act, 1955, revised, making untouchability practices cognizable and non-compoundable offenses, and increasing punishment.

1981 Integrated Low Cost Sanitation Scheme authorizes funds to poor urban households to convert dry latrines to water flush latrines.

1989 Parliament passes the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act.

1992 National Scheme of Liberation of Scavengers and their Dependents launched.

1993 Parliament enacts The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act.

1994 National Commission for Safai Karamcharis constituted under the National Commission for SafaiKaramcharis Act, 1993, to monitor and recommend specific programs.

1997 National Safai Karmacharis Finance and Development Corporation incorporated by central governmentas an apex institution for the socioeconomic uplift of safaikarmacharis and their dependents and to extend concessions and financial assistance to beneficiaries for income generation.

2002 On Independence Day, August 15, 2002 Prime Minister Atal Bihari Vajpayee announces 15-pointprogram to speed up the liberation and rehabilitation of manual scavengers.

2003 Writ Petition filed by Safai Karmacharis Andolan and six other civil society organizationsrequests that the Supreme Court take effective steps to eliminate manual scavenging and theuse of dry latrines.

2004 The Planning Commission develops a national action plan for total eradication of manualscavenging by 2007.

2006 National Human Rights Commission tells representatives of state governments to end manualscavenging within six months.

2007 Self-Employment Scheme for Rehabilitation of Manual Scavengers initiated to provide training,loans, and subsidies for alternate occupations.

2008 Integrated Low Cost Sanitation Scheme reviewed and new guidelines put in place followingimplementation difficulties.

2010 Ministry of Social Justice and Empowerment reports that by the end of 2009, a total of 69,137manual scavengers were provided loans to for alternate occupations under the Self EmploymentScheme for Rehabilitation of Manual Scavengers, 13,700 intended beneficiaries were yet to becovered, and efforts being made to cover remaining beneficiaries by 2010.

All concerned state governments confirm that all eligible and willing manual scavengers have beenrehabilitated in alternative occupations under the Scheme for Rehabilitation of Manual Scavengers.

Based on surveys, GarimaAbhiyan and MailaMuktiGatbandhan estimate that the number ofpeople engaged in manual scavenging across the country is 350,000. This does not include safaikarmacharis employed by the Indian Railways, panchayats, and municipal corporations and madeto manually clean excrement.

2011 National Human Rights Commission releases report, "Know Your Rights: Human Rights andManual Scavenging."

Prime Minister Manmohan Singh reiterates government's determination to completely eradicatemanual scavenging in a very short time.

2012 House Listing and Housing Census 2011 released by Registrar General, shows there are still 2.6million insanitary latrines in the country that are cleaned manually. The Registrar General determinesthere are three kinds of insanitary latrines-those cleaned by people, those connected to opendrains, and dry latrines. Accordingly, the Ministry of Social Justice recommends stronger centrallegislation rather than amendment to the 1993 Act since the 1993 Act only covers dry latrines.

Prohibition of Employment as Manual Scavengers and their Rehabilitation Bill, 2012, introduced inLok Sabha and referred to a parliamentary committee for review.

2013 UN High Commissioner for Human Rights Navi Pillay appeals to the Indian government to pass newlegislation to end manual scavenging.

Parliament passes the Prohibition of Employment as Manual Scavengers Act, 2013.

2014 Supreme Court decision in Safai KarmachariAndolan v. Union of India directs that all peopleworking as manual scavengers be rehabilitated "based on the principles of justice andtransformation" and reiterates that states have a duty to implement the 2013 Act.

Shortly before taking office as prime minister, Narendra Modi says: "My identity is of a Hindutavawadi[one who promotes the Hindu religion], but I say build toilets before you build temples".

PROHIBITION ON MANUAL SCAVENGERS

- No person, local authority or any agency shall construct an insanitary latrines or employ or engage manual scavengers (Section 5). For contravention up to 1 year Imprisonment or with fine up to 50,000 or both (Section 8)

- Not engage a person for hazardous cleaning of a sewer or a septic tank. For contravention up to 2 year Imprisonment or with fine up to 2 Lakh or both (Section 9)
- Complaint within 3 months of the alleged commission of the offence (Section 10)

EFFORT TO END MANUAL SCAVENGING

- Legal / Legislative effort was initiated
- Committees / Commissions formed
- Scheme for Welfare and Rehabilitation were formed and implemented
- The Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act, 2013
- Civil Society Initiatives were taken

OBSTACLES TO END MANUAL SCAVENGING

- Government's Failure to Stop Illegal Hiring of Manual Scavengers by Local Households
- Hindrances in Approaching the Criminal Justice System
- Illegal and Discriminatory Employment of Manual Scavengers by Local Governments
- Caste-Based Discrimination in Local Government Hiring
- Withheld Wages and Eviction Threats from Local Government Officials
- Difficulties with Implementation and Accountability
- Lack of Alternative Employment Opportunities
- Barriers to Housing

SUGGESTION

Proper awareness and sensitization programmes must be conducted to end manual scavenging.

Society and the Government should kill the barriers people face in leaving manual scavenging.

Improving and developing New Rehabilitation Policy which should include social, Political and Economic rehabilitation.

Initiating Network and collaboration with various NGO's, Government and trade Union to address issues of Manual Scavenging commonly.

We analyzed that the most important thing that has to initiate was a well-equipped RIGHT TO INFORMATION CENTER in every locality so that every needy beings should have an access to all the information they require.

CONCLUSION

For ours is a battle not for wealth or power. It is a battle for freedom. It is the battle of reclamation of Human Personality- Dr.BhimRaoAmbedkar

To conclude we have realized from our dissertation that Manual Scavenging continues, for we let it to continue. The study on the attitude toward manual scavengers had a great impact on us.

While making an effort to unveil the invisibleworld of manual scavengers we realized that it is us together who can make a difference and bring a change to the miserable lives of Manual Scavengers.

REFERENCES

- Article: Manual Scavengers and Their Health By: RashtriyaGarimaAbhiyan
- Cleaning Human Waste "Manual Scavenging," Caste, and Discrimination in India. Submitted by Human Rights Watch
- Manual Scavengers: Welfare and Rehabilitation submitted by LOK SABHA SECRETARIAT PARLIAMENT LIBRARY
- Website Address: http://censusindia.gov.in/
- http://safaikarmachariandolan.org/
- http://www.theguardian.com
- http://www.sulabhinternational.org

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