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## RESEARCH ARTICLE



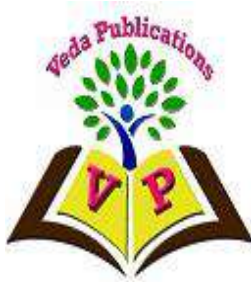
## ON DECODING THE TRAJECTORY OF CONSCIOUSNESS IN BLAKE'S POETRY

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## ABSTRACT

Poetry is defined as spontaneous overflow of feelings recollected in tranquility by one of the remarkable poets of the romantic age William Wordsworth. Human beings are conditioned by emotions and feelings that come out in varied forms like paintings, sculptures, poetries etc. An artist absorbs elements that prevail around him and effuses in art forms. An artist is adept at reading the nuances of socio economic and political impact of the society and shares his/her thoughts through their artistic products. Unless there is a balance maintained between the emotional and intellectual quotient, an art cannot reach the audience. Critics speculate the language and the content of poetry. Language is a channel of expression where the poets try to exploit to reach the audience effectively. William Blake is one of the remarkable poets of the Romantic age and the paper attempts to unveil the submerged consciousness of the poet reflected through his poems. Short poems are pecked for the study to illumine the impact of the contemporary society on the psyche of the poet. Literature mirrors a society and aspiring scholars can certainly accrue knowledge by perusing the literature of the past. The elements of romanticism in Blake's poems are elicited and the poetic devices reflect in his poems are explored. Blake's poems reflect multi layered emotions firmly anchored in ethos and pathos that permeate in the social lives of the people. The elements of romanticism in his poems are discussed.

**Keywords:** *Emotions, Feelings, Poetry, Art, Language.*

**INTRODUCTION**

The Romantic Movement originated in Europe toward the end of the 18<sup>th</sup> century and was more vibrant between 1800 and 1850. The style of romantic poetry is focused on simplicity, instead of inflated and artificial mode of expression adopted by the classical poets. The romantic poetry flows naturally depicting the contemporary environment with simple and direct style which worships the elements of nature and thereby accentuating the significance of human consciousness for a peaceful society. Blake's poetry illumines multiple layers of his consciousness revealing not only his artistic skill but also his moral responsibility of an artist as it is a known fact that a message in an art form reaches the audience/readers effectively.

William Blake was born on November 28<sup>th</sup> in 1757 in London. He developed love and passion for painting at his early stage. His father James Blake was a hosier and his mother was Catherine Wright Blake. On seeing Blake's interest in painting his parent enrolled him in drawing classes and later he emerged as a skilled engraver from Royal Academy. His passion for arts propelled him to seek admission in Royal Academy. He experienced divine vision in early days and his spiritual experience is reflected in his poems.

His artistic instincts facilitate him to effuse his emotions and feelings in his paintings, engravings and poems. He was one of the remarkable romantic poets, who penned his poems replete with the romantic elements of influence of nature, resonance of emotions, feelings, mysticism that blend with social consciousness. Romantic poetry is very much subjective recording the inner feelings of the poets.

Being an engraver by profession, he was a prodigy to replicate the nuances of the contemporary environment in romantic canvas as the art of poetry stems from imagination and passion like the art of design that was engraved reflecting the inner feelings of the producer. His poems were on etched on copper plates by himself with decorative designs but his poems were widely read posthumously and was extolled as one of the genius of the creative movement of late 18<sup>th</sup> and early 19<sup>th</sup> century. His early work *Poetical Sketches* reveals the influence of Shakespeare, Spencer and that of Milton. This work comprises of nineteen lyrical poems. The opening four poems, *To Spring, To Autumn, To Summer, To winter*, vivid representation of four seasons and its impact on the lives of the people. Every season has its own character and influence on the living condition of people. The opening lines of the poem *To Spring* is extracted from the collection *Poetical Sketches*, 1783 personifies the nature,

O THOU with dewy locks, who lookest down  
Through the clear windows of the morning,  
turn  
Thine angel eyes upon our western isle  
Which in full choir hails thy approach, O  
Spring!(lines 1-4)

The serene beauty of the spring vividly depicted here. The freshness of the poem illumines Elizabethan influence nevertheless love for nature and taking cognizance of its influence is a common factor of romanticism. These feelings make the world lively and beautiful. But every beauty has also ugly side to it. The dichotomy of life cannot be ignored. Blake's poems reflect the philosophy of good and evil.



Personification of spring in the poem brings forth the significance of the nature and illumines fresh environment which people have lost due to industrial revolution. Today in this digital world though people seek the company of computers and smart phones, they do retreat to hill stations for relaxation seeking the company of nature. Spring is the season that brings happiness and enjoyment and the poets welcome the season with zeal and enthusiasm. Thomas Gray in his *Ode on Spring* thus welcomes spring,

Lo! where the rosy-bosom'd Hours,  
 Fair Venus' train appear,  
 Disclose the long-expecting flowers,  
 And wake the purple year!  
 The Attic warbler pours her throat,  
 Responsive to the cuckoo's note,  
 The untaught harmony of spring: (lines 1-7)

Gray depicts the approach of the season; where the rosy-bosom'd Hours/ Fair Venus' train appear.... Venus, a Roman goddess represents love, beauty, desire and fertility. The poet calls her fair Venus symbolizes joy and fertility. Blake on the other hand entreats the spring to turn her *angel eyes upon our western isle*...the season spring is adored and loved by the poets. Consciousness of nature encompassed by love and passion is illumined here. The healthy companion of nature is very much necessary today. Poems incite aesthetic sense and make people sensitive and caring towards nature.

Being an artist, Blake is adept at capturing the elements of nature that make the society healthy. Spring seems to predict *tharmas, the peaceful*

*embodiment of sensation, who comes to healour love-sick land that mourns with soft kisses on her bosom.*(Wikipedia, Poetical sketches, para, 16)) The opening four poems of four seasons representing the four seasons had laid foundation to Blake's later lyrical poem *Spring* which was first published in *Songs of innocence* in 1789 and then published in the collection of the *Songs of innocence and Experience* in 1794. The readers could certainly evince difference in the style of presentation between the Lyrical poem *To Spring* which was published in his *Poetic Sketches* and the lyrical poem *Spring* which was first published in the collection of poems, *The Songs of innocence*. The former poem reflects the style of Elizabethan and the latter poem explicitly depict the happiness of innocence and the role of environment that add joy to the children with brief expressions,

Little boy,  
 Full of joy;  
 Little girl,  
 Sweet and small;  
 Cock does crow,  
 So do you;  
 Merry voice,  
 Infant noise;  
 Merrily, merrily to welcome in the year.

*The Songs of innocence* expresses happiness of innocent children and *Songs of Experience* refers to the awareness of the materialistic world that assails the growing years of human lives. The presentation of *Songs of innocence* and *Songs of Experience* illumines the resonance of John



Milton's 'L'Allegro and Il Pensaroso. L'Allegro is a pastoral poem and the title L'Allegro represents the happy man in Italian and Il Pensaroso represents the melancholy man, the following lines from L'Allegro depicts happy atmosphere that prevail in Spring,

But com, thou Goddess fair and free,

In Heav'n ycleap'd Euphrosyne,

And by men, heart-easing Mirth;

Whom lovely Venus at a birth

With two sister Graces more

To Ivy-crowned Bacchus bore:

Or whether (as some Sages sing)

The frolick Wind that breathes the Spring,

(lines 10-17)

.....

*The Songs of Innocence and Experience* projects two perspectives- the former illumines the freedom and innocence of the Childhood and the latter projects the waning of innocence in due course when humans experience difficulties in life. The pastoral settings in the poems represent pure joy and freedom. The philosophy of life that has ebb and flow is lucidly revealed.

The poem *The Echoing Garden* that is presented in *The Songs of Innocence* exemplifies pure, unadulterated happiness of children. Even The very title *The Echoing Green* suggests the motif of the poem. Consciousness of nature is evinced lucidly. The poems *The Echoing Green* and the companion piece *The Garden of Love* was published in the collection of the *Songs of innocence* and the illustrations were done by Blake himself. The poet establishes a happy

environment where the readers could have tacit understanding with the emotions of the poet.

The sun does arise,

And make happy the skies,

The merry bells ring,

To welcome the spring

The sky-lark and thrush

The birds of the bush

Sing louder around,

To the bells' cheerful sound.

While our sports shall be seen

On the Echoing Green. (lines 1-10)

The poem, *The Echoing Green* is representative of not only the grace towards one another, but toward nature as well. There is no mention of religion in the poem, its peaceful and focuses on the beauty of nature and the company of other. (amozzoni, para:2)

The bilateral settings of *L'Allegro* and *Il Pensaroso* and the *Songs of innocence and Experience* vividly reveal the dichotomy of human lives and hence in his lyrical poem he claims,

Joy and woe are woven fine,

And when this we rightly know,

Safely through the world we go. Lines (1-3)

He shares his joyful mystic experience. He strongly condemns evil but he accepts sorrow whole heartedly justifying that joy and sorrow are woven fine.



**Linguistic relativity** is the one of the significant poetic devices of the poets of all times. The relative terms that the season spring brings forth are mirth, frolick, sun rise, merry bells and Venus, Goddess of love and fertility and Bacchus, god of wine and giver of ecstasy. Gray in his poem *Ode on Spring* has referred to Venus to depict the joyful season of the spring. Blake in his poem *Spring* uses the terms of joy and mirth and hails the upcoming spring season. Translation of thought process to verbal expression is one major expertise of the poets. Verbal expressions vividly depict the socio cultural environment of the poetic setting. Influence of Elizabethan poets like Shakespeare, Spencer and Milton can be evinced in the earliest Blake's lyrical poem *To Spring* published in the *Poetical Sketches*. The expressions like THOU dewy locks...../thine angel eyes (lines 1-4) parade the linguistic behavior of the Elizabethan poets. But in his lyrical poem *Spring*, there is a change in style and linguistic behavior of the poet. The expressions as full of joy, alliteration of sweet and small, merry voice and the repetition of merrily, merrily reveal the rhythm and expression of the poem.

Blake's poems blend mysticism and naturalism; mysticism in his poetry is blended with wistful melancholy. His collection of poems in the *The songs of Experience* speculate the society that is cloaked with hypocrisy. Like other romantic poets his reactions to the industrial revolution and urban living is very much pronounced in the following of his poem *The Garden of Love*,

I went to the Garden of Love,  
And saw what I never had seen:  
A Chapel was built in the midst,

Where I used to play on the green.

And the gates of this Chapel were shut,  
And "Thou shalt not" writ over the door,  
So I turn'd to Garden of Love,

That so many sweet flowers bore; (lines 1-8)

**Spiritual consciousness:** *Anyone who has experienced spiritual consciousness has spoken of coming in contact with divine love. God is love, our soul being of the same essence as that of God is love. The ocean of spiritual consciousness is the ocean of love* (Maharaj, para:1)

Love permeates spiritualism and not limited to materialistic world. The poem *The Garden Love* strongly reflects Blake's intense objections to institutionalized approach in the ecclesiastical world. His spirituality affirms on Selfless love that makes the world beautiful. Robert Rix in his article, *In infernal love and faith observes, Blake evidently sees true worship of God to be one person's active grace towards another but finds no use for the passive reception of sacraments as practiced in the liturgy of the New Jerusalem Church.*(Rix, 111). The tenets of religion are one of the medium of spirituality but parochial mind set on religious practices do not lead to spirituality. Blake's love for God strengthens him with spiritual powers and he effuses his love and passion in his poetry. He opines that experience of love takes over innocence and he uses Chapel as a symbol of experience. Hence in his poem *Song*, he expresses how he lost his liberty and his innocence when he is caught in the web of love.

How sweet I roam'd from field to field,  
And tasted all the summer's pride  
'Till I prince of love beheld



.....

He caught me in his silken net,  
And shut me in his golden cage.

.....

And mocks my loss of liberty. (lines 1-16)

He vividly portrays human lives when experience and knowledge outshine innocence and love for worldly desires is a golden cage. His philosophy of life blends with spirituality that engages him in soul searching of true love. The transient nature of life is expressed in this poem. Sublime of love is the motif of the poem that gives spiritual experience.

Blake is ahead of his time. His soul search for real love for God and his subsequent disappointment with the hypocrisy of the ecclesiastical institutions is highlighted in his poems. The institutions which are supposed to give solace and guidance to the people are devoid of love and the poem accentuates the need and importance of love in human lives. Like William Wordsworth his retreat to nature vividly reveals the significance of nature. The spiritual vision he encountered in his early days channelized to register his religious sentiments. He used objects of nature as symbols to drive home his philosophical approach to life. The feeling of Love is implicitly compared to garden that bear sweet flowers. His symbolisms also bear biblical relations.

Blake's poems show the influence of Swedish theologian Emanuel Swedenborg. His poem *The Divine Image* is implicitly Swedenborgian and he claimed that his *design is based the Spiritual Preceptor (1809) on the theologian book True Christian Religion.*(Britannica, para, 3) Yet his poems

reveal his objection to institutionalized religion. Hence he mentions a Chapel that is closed to the garden of love and some critics feel that the innocence of childhood wanes while assailing through growing years unearthing various factors that teaches the crude reality of the world.

Father, father, where are you going

O do not walk so fast.

Speak father, speak to your little boy

Or else I shall be lost,

The night was dark no father was there

The child was wet with dew.

And away the vapour flew.

The helpless child's unsecured feeling in the materialistic world propels him to seek the protection of God is indicated in the poem. Spiritualism certainly gives a solace for the disturbed mind. But the worldly pleasures tempt the human mind. The industrialization and the subsequent urban development in England might have planted apprehension that the people were digressing from spiritualism. Critics on *William Blake's* opine that he projected the society he lived in *the Songs of Innocence and experience*, observes that the mechanical world was making people selfish and self centered was a great concern of the poet. He never missed the opportunity to express his pain in his work. The child's prayer to father to stop for him and to protect him is a distress call that implicitly refers that people may get lost in the materialistic world that robs the innocence and peace of mind. The contemporary environment has a great impact on the psyche of the poets. The poets possess an inbuilt ability to read the positive and





negative aspects of the contemporary life and society. He feels that the world is unsafe for the children and the society is moving fast towards urbanization and industrialization. He expresses his anguish in the poem, *Infant sorrow*,

My mother groan'd, my father wept,  
Into the dangerous world I leapt. (lines 1-2)

The child has to go through the dangerous world where selfish love that makes one despair and life miserable, mighty tiger that lurks behind awaiting for its prey. The vicissitudes of life is effectively portrayed- On one side beautiful nature but on the other side the danger that hides amidst the beauty of nature.

Blake has exploited his poetic skills to reach the readers accentuating love and passion as poems are one of the most significant literary genres that reach the people effectively. The poet's spiritual quest to spread love and goodwill in the society is expressed in his poems. The feeling of love that prevails in the mechanical world is transient and does not signify the pure love. Hence in his poem *The Clod and the Pebble*, he says,

Love seeketh only self to please,  
To bind another to its delight,  
Joys in another's loss of ease,  
And builds a Hell in Heaven's despair. (lines 9-12)

The selfish love that puts other in despair builds a Hell in Heaven's despair. The alliteration of the letter *h* adds musical rhythm to the poem. Blake's realm of nature symbolizes sublimity and spirituality. The Sun, the Moon, the stars all natural phenomena symbolize love and spiritual significance that lay behind the

beautiful nature. He firmly believes, *Where Mercy, Love and Pity dwell/ There God is dwelling too*. Apparently the lines appear to be simple but it speaks the reality of life. *The Clod and the Pebble* symbolizes selfish love and hypocrisy.

His love for animals and portrayal of crude reality is lucidly revealed in the Poem "The Tiger", the poem reveals the universal truth pertaining to the strength and power of the Tiger. He portrays the reality of the world where the weak are affected by the strong. The rhetorical question he puts forth is *Did he who made the lamb made thee?* The facts and reality of life is presented behind the fleeting realities of life.

The weak and the strong live under the canopy of the sky. The weak on the run to protect itself from the strong but in the end the weak succumbs. This is the reality of life. The poem *The Lamb*, biblical reference, Little Lamb who made thee

Dost thou know who made thee  
Gave thee life and bid thee fee. (lines 1-3)

The lamb symbolizes Jesus Christ and the image of the Christ with the lamb arises in the mind of the readers accentuate purity, love and compassion. Love for the something that is weak and needs the protection. The soft woolen skin and the meek voice symbolize tenderness. Blake's poems reflect the contemporary society where love and compassion replaces selfishness and corruption.

Social consciousness: His poem *London* exemplifies his social consciousness when he portrays the degradation of the society,

In every cry of every Man,  
In every Infants cry of fear,





In every voice, in every ban,

The mind-forg'd manacles I hear. (lines 5-8)

The society that diverges from love and compassion do not provide friendly environment for the humans. Urban life style owing to industrial revolution had brought nothing but misery and poverty.

### CONCLUSION

Blake's poems transcend time and place. His poems are well read posthumously. Many a time people do not recognize the greatness of the contemporary poets. Today in this digital world the components of beautiful nature has become just a branch of study and do not incite any interest. The pandemic that emerged in 2020s and the subsequent lock down have tapped social consciousness driving home the fact that nature is omnipotent and mere money and wealth cannot buy happiness and peace. Selfishness and lack of social consciousness have resulted in degradation of moral values. Blake's contemporary society did not take cognizance of reality that he portrayed in his poems. The freshness of his nature depicted in his poems also illumines contrasting image of crude reality of sufferings and pains experienced by the people during his days. He insists on true love that will bring peace and happiness to the society.

Where Mercy, Love and Pity dwell,

There God is dwelling too.

Mercy, Love and Pity are the elements that could make the society healthy.

### REFERENCES

- William Blake. To Spring.  
<https://www.myenglishpages.com/english/reading-tospring-blake.php>. Accessed on 28/5/22

Thomas Gray. Ode to Spring.

<https://www.poetryfoundation.org/poems/44304/ode-on-the-spring>. Accessed on 28/5/22

Poetical Sketches.

[https://en.wikipedia.org/wiki/Poetical\\_Sketches](https://en.wikipedia.org/wiki/Poetical_Sketches)). Accessed on 28/5/22

John Milton. *L'Allegro*–

<https://www.poetryfoundation.org/poems/44731/lallegro>

William Blake. *Joy and Woe are woven fine. Auguries of Innocence* (1863) [kaliyaajit.blogspot.com/2017/08/joy-and-woe-woven-are-fine-poem-by.html](http://kaliyaajit.blogspot.com/2017/08/joy-and-woe-woven-are-fine-poem-by.html). Accessed on 30,5/22.

William Blake. *The Garden of Love*

<https://www.poetryfoundation.org/poems/45950/the-garden-of-love>

Sant Rajinder Singh Ji Maharaj. *How to attain spiritual Consciousness*, accessed 30<sup>th</sup> May 22

<https://www.sos.org/articles/benefits-of-a-spiritual-guide/how-to-attain-spiritual-consciousness>

Robert W Rix. (2006). 'In Infernal Love and Faith': Blake's "The Marriage of The Heaven and Hell" *Literature and Theology*, Vol.20, no.2, p.111,

Keith Sagar. William Blake: Songs of Innocence and Experience. <http://www.keithsagar.co.uk/blake/>

Amozzoni. *The Critique of Moral Law in Blake's Songs of Innocence and experience*. Oct.30, 2018.

<https://britlitsurvey2.wordpress.com/2018/10/30/the-critiqueAmazon-of-moral-law-in-blakes-songs-of-innocence-and-of-experience/>

William Blake (1956) *Song: How sweet I roam'd from field to field*, [www.poetryfoundation.org/poems/52703/the-little-boy-lost](http://www.poetryfoundation.org/poems/52703/the-little-boy-lost).

William Blake. *The Little Boy lost*



[.https://www.poetryfoundation.org/poems/52703/the-little-boy-lost.](https://www.poetryfoundation.org/poems/52703/the-little-boy-lost)

Accessed on 31/5/22.

John Hayward (ed.) (1956). *William Blake Poems*, The Penguin Book of English Verse. London, England. pp. 239-243.

Blake's religion.

[https://www.britannica.com/biography/William-Blake/Blakes-religion.](https://www.britannica.com/biography/William-Blake/Blakes-religion)



## A GLIMPSE ON FEMININE WRITING

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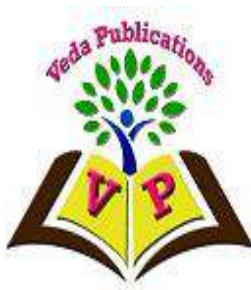
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### ABSTRACT

The paper attempts to explore the nuances and the influence of socio cultural environment on feminine writing. The paper refers to the select literary works unearthing feminine consciousness. The paper also vividly expounds the theory of Masculine and feminine language in Indian and English literature. Women writers are placed in the peripheral position and the feminist critics like Helen Cixous attempts to deconstruct the male centric discourse by motivating women writers to write more of them. Women no more engage in subservient role and the present scenario witness a considerable rise in their status at the professional level. While perusing the history of women literature the theories on feminist writings are discussed. The language flow in women writings is gauged to affirm the power of women in the realm of language and literature amidst social and cultural pressure. Feminine language reflecting the socio cultural situation and the feminist theories that emerged to propel and motivate feminine writings are explored in the paper. Changes are ineluctable that affects the society and the writings of women mirror the culture of the contemporary society. The mind set and language behavior of the people are interrelated that have a major impact on the society. Hence the paper registers the perceptions of male critics on women literature.

**Keywords:** *Language, Communication, Society, Culture, Feminine.*



**CULTURE AND LANGUAGE**

Culture is the term pertaining to shared, common practice among the people in a particular society. The most conventional definition of the word culture refers to the beliefs, rituals, and practices of a social group. The tenets of religions play a vital role in the formation of a culture. World is suffused with myriad of religions. There is always a firm link between language and religion as religions are considered to be the parameters of culture by scholars and thinkers. But the term culture cannot be confined only to the paradigm of religion.

During the past decade, language and communication have evolved extensively owing to digitalization. In the past the hierarchical structure of the society is strongly associated with religious tenets. Hence the hierarchical structure of man/woman implicitly reveals the subordination of women. Women in all religions are expected to be subservient to men despite the proliferation of women empowerment in the society. Great thinkers like Dr. Ambedkar states, *I measure the progress of a community by the degree of progress which women have achieved.* The progress of women is measured along with the progress of a society. Despite religious and literary texts promote patriarchy; feminine writings and feminist literature do progress with vigor affirming the ability of women writers.

Milton's *Paradise Lost* exemplifies literature's share in accentuating hierarchical status of Man/Woman where women are placed in inferior status. Katherine Sanger in her article *Is John Milton a misogynist, a feminist or a Sexist?* has registered different points of view of the critics and among them is Sara Gilbert who sees Milton as a misogynist arguing that Milton's Eve is inferior and inspired by Satan. She also opines that Milton has paved way to the misogynistic tradition.

Anne ferry in her article *Milton's Creation of Eve* refers to Douglas Anderson who questions if the language of hierarchy used in *Paradise Lost* can be assumed that Milton *simply believed in the sexual subordination.*

Anne Ferry defends Milton claiming that *he was unavoidably compelled to work with or without.....we have to think about what was dictated to Milton by their story in Genesis and its interpretations in the New Testament, how he shaped what he shaped could not change.....*

Pearl Buck in her novel *The Good Earth* lucidly reveals the thoughts of the protagonist on his wife that *she is only a woman*; hence he refrains from communicating freely with her. Thoughts precede language. He never converse with his wife much throughout the novel as he considered that women are not equal to men. Throughout the novel *The Good Earth*, Olan, wife of the protagonist Wang Lung communicates in monosyllables or brief sentences but her unconditional support to her husband in his occupation of agriculture and her strong will power she exercises during crisis illumines her strong character. Her communication is restrained but does not diminish her skill which is the pillar of strength to her husband. Olan exemplifies the status of women in the society. She is depicted as plain looking but plays a significant role in the novel. The myth that heroines of novels are depicted as beautiful and delicate is disillusioned in the novel *The Good Earth*. Olan is strong and practical minded who handles trials and tribulations of a farmer's life with strong will power.

**FEMININE WRITINGS OF THE EAST AND THE WEST**

History of feminine communication cannot be dismissed as irrelevant while exploring the nuances of feminine writing. Feminine language is perceived with pauses and gaps replete with emotions in communication. Nevertheless there are references of women orators in Indian history advocating oratory skills in debates which is one of the most powerful platforms of language and communication.

*Gargi Vachaknave* is one of the erudite, ancient philosopher and orator in Vedic Literature during 9<sup>th</sup> to 7<sup>th</sup> Century BCE. She has also been called as *Brahmavadini*, a person with profound knowledge. She is known for her knowledge and skill in her debates and posing challenging questions on the issues of *atman* (soul) to her opponents thereby



bewildering them. She remained celibate throughout her life and had written hymns is *Rigveda*.

Amidst the domination of male counterparts there were women who had faced the challenges and outshone men during Vedic times in India. So the theory of stifled communication of women is indeed questionable while considering the contribution of women in language and literature.

Auvaiyar the name literally means *Respectable Woman* is extolled as a grand old lady of Tamil poetry who has captivated the readers with her half line verses. Her verses are shorter than the *Thirrukural*, verses composed in short couplets. There are references of three Auvaiyars in Tamil literature. But Auvaiyar II who was the contemporary of Kambar and Ottakoothar during the reign of Chola dynasty in tenth century, is well known for her wit and knowledge. Her poetic expertise is more pronounced **when** she confronts Kambar **who** questions the validity of her poetry. There were references over twenty five Vedic poetesses and over twenty five Tamil Sangam poetesses in Tamil literature vouching the knowledge and intelligence of women during Vedic times.

The lines 3.55 – 3.56 in *Manu Smriti* proclaim that *women must be honored and adorned* nevertheless it also states in verses 5.147-5.148 that *a woman must never seek to live independently*. The life of women always depends on the socio cultural and political environment. Hence, there is always impedance in women's progress yet women relentlessly strive to assert their individual skill and competence.

Andal, a remarkable poetess of 7<sup>th</sup> century has penned *Thirupavai* effusing her love for Hindu God Lord Vishnu. She is the only female poetess enlisted among 12 *Alvars* who had spread *Vaishnavam* in South India. *Thiruppavai* is a collection of 30 verses that express Andal's unconditional love and devotion for Lord Krishna. Her poetic proficiency that is embedded in romanticism is lucidly revealed through her verses. *Thiruppavai* is even sung today by the devotees in the Tamil month of *Margazhi*, which falls in the month of December. She appeals to Lord Vishnu to marry her and liberate her from the world ties. Andal *Thiruppavai* exemplifies feminine

consciousness and her freedom she enjoys to choose her path.

Hence, there is a question in every scholar's mind while expounding feministic theories of the west and the east. Indian literature lucidly validates the contribution of women in language and literature even during Vedic times. But patriarchal system of India has impeded the growth of women literature and more feminine writings have moved towards the literary genre of prose that paved way to the emergence of woman novelists.

### CRITICISM ON FEMININE WRITINGS

Helene Cixous in her essay *The Laugh of the Medusa* refers to the French theory of *écriture féminine* that characterizes feminine writing by disruptions in the texts with gaps, silences, puns, rhythms and has been viewed as eccentric, incomprehensible and inconsistent and opines that the women speak the borrowed language to hold their identity, an attempt to be at par with men to affirm their wit and knowledge. The statement of women communication as stifled with pauses and gaps has to be revamped. For example, Emily Dickenson's poems are honest representations of emotional upheavals that women face in the society. Her poems exemplify the theory of *écriture féminine*, an imperfect translation of feminine writings.

Because I could not stop for Death

He gently stopped for me

The Carriage held but just Ourselves

And Immortality.

The above stanza illumines feminine consciousness of the poet where the hierarchy of Reason/passion is subverted and passion permeates the scenario of the poem and this poem exemplify the theory of *écriture féminine* as it has been viewed as unstable, lack consistency. But the honest presentation of feelings and passions has stolen many hearts.

### DECONSTRUCTION AND FEMINISM

Jacques Derrida through his theory of deconstruction rejects the binary concepts and categorization such



as Reason/passion, Man/woman opining that they are arbitrary and inherently unstable. The deconstruction theory subverts *logocentrism*. Male centric discourses are deconstructed and Helen Cixous theory attempts to acquit women writings from restrictions which had been chained with austere religious tenets and derogatory male centric criticisms.

Jacques Marie Emile Lacan, a French psychoanalyst and psychiatrist, registers his controversial theories on feministic language. He affirms that language is masculine and reflects male ideology. Julia Kristeva, a French critic refutes the theory and opines that anything that deviates from the prescribed norm is labeled as *different*, a substandard work. Therefore the pronoun 'I' implicitly refers to male voice affirming male dominance. Women voice is muted and every art and literature is perceived through male's vision. While perusing the texts of the past the language refers only to *Man* and every concept is penned through Man's perceptions.

*The Book of the City of Ladies* is one the most noteworthy book penned by Christine de Pizan who attempts to give a befitting response to the poem *La Roman de la Rose* (The Romance of the Rose), a misogynistic presentation of a famous French poet Jean de Meun in around 1405. Saddened by the depiction of women in the society, Christine endeavors to create a metaphorical city and three personified women of virtues- Reason, Rectitude and Justice are presented to demonstrate the accomplishments of women. Her inclination to validate the virtues of women in the society contradicting the misogynist literary works where women are projected as products is lucidly revealed. The allegorical city is ruled by the virtues of women. The book deals with the female perspective and voices the issues pertaining to women. The motif of the book is to propel women to communicate and engage in intellectual dialogues.

## CONCLUSION

In the past while referring to human the term *Man* is used, for instance, the proverbs like *Man* is superior animal, Practice makes *Man* perfect lucidly reveal the

fact that women were not considered as an individual.

The impact of religion and literature on human psyche is vividly established in the literary texts affirming male supremacy. Milton's *Paradise Lost* incites mixed responses from the critics debating if he is a misogynist and the critics like Anna K Junke subtly agree that *This is not to say that Milton reject patriarchy*.(Anna, 50). Yet, women language and literature manage to develop asserting their independent style. But feminine writing is assumed to confine under the paradigm of domesticity and the language used by the women authors are always viewed under the lens of masculinity. Women who have successful careers are often projected as over bearing and tough. The male psychology is molded by religious and cultural tenets placing him in a higher status. In the social hierarchy man is considered to be superior to women. Men who are seasoned with dominancy over the centuries find difficult to accept women as boss. Even today despite the promotion of women empowerment all over the world, the scholars and thinkers of women studies are dubious if the society has deconstructed the male centric discourse by converging feminine representations to the focus. The news paper daily from India, *The Indian Express* has published the notable quotes of 2020-21 contributed by the famous personalities on 3<sup>rd</sup> Jan.2022. The news paper has published 21 quotes where only one quote of a woman celebrity Ms.Veena George is published. This raises doubts in the readers' mind regarding the contribution of women's voice in the social development. There are two reasons for the poor women representations. Firstly, women celebrities lack social consciousness and secondly, the voice of the women are stifled and not given importance. Whatsoever the contribution of women to the literary field has to be taken cognizance for further promotion of women empowerment.

## REFERENCES

1. *Language and Culture*.  
<https://www.britannica.com/topic/language/Language-and-culture>



2. Pearl Buck. *The Good Earth*, London: John Day Publishers, 1931
3. Gargi Vachaknavi.  
[https://en.wikipedia.org/wiki/Gargi\\_Vachaknavi](https://en.wikipedia.org/wiki/Gargi_Vachaknavi)
4. *Representations of women in Tamil medieval literature*.  
<https://www.istor.org/stable/10.2979/jfemistudreli.35.1.05>
5. *Tamil and Vedas*.  
<https://tamilandvedas.com/2013/08/07/most-intelligent-woman-in-the-ancient-world/>
6. **Remnants of Misogyny in "Paradise Lost"**, Anna K. Juhnke  
Milton Quarterly, Vol. 22, No. 2 (MAY 1988), pp. 50-58 (9 pages) Published By: Wiley  
<https://www.istor.org/stable/24464584>
7. **Is John Milton a Misogynist, a Feminist, or a Sexist?**  
KATHERINE SANGER. APR 6, 2017.  
<https://owlcation.com/humanities/Milton-Misogynist-Feminist-or-Sexist>
8. Anne Ferry. *Milton's Creation of Eve*, Studies in English Literature, 1500-1900 Vol. 28, No. 1, The English Renaissance (Winter, 1988), pp. 113-132 (20 pages), Published By: Rice University  
<https://doi.org/10.2307/450718>  
<https://www.jstor.org/stable/450718>
9. *Manusmriti*. <https://en.wikipedia.org/wiki/Manusmriti>.
10. Women writers.  
[https://en.wikipedia.org/wiki/Women\\_writers](https://en.wikipedia.org/wiki/Women_writers)
11. Christine de Pizan.  
[https://en.wikipedia.org/wiki/Christine\\_de\\_Pizan](https://en.wikipedia.org/wiki/Christine_de_Pizan)
12. *What is Man*.  
<https://www.eng.auburn.edu/~sjreeves/cm/man.html>
13. Emily Dickinson. *Because I could not stop for Death*,  
<https://www.poetryfoundation.org/poems/47652/because-i-could-not-stop-for-death-479>
14. Patricia Waugh. *Literary Theory and Criticism*, An Oxford Guide, Delhi: Oxford University Press, New 2006.
15. Christine de Pizan's *The Book of the City of Ladies* (*La Cité des Dames*) is one of the texts written during the 'Querelle du Roman de la Rose' (the debate over *The Romance of the Rose*).
16. Helene Cixous. *The laugh of Medusa*, translated by Keith Cohen and Paula Cohen, Vol. 1, No. 4 (Summer, 1976), pp. 875-893 Published by: The University of Chicago Press Stable URL:  
<http://www.jstor.org/stable/3173239>
17. *Ecriture feminine* by Nasrullah Mambrol on May 14, 2016  
<https://literariness.org/2016/05/14/ecriture-feminine/>
18. *IDEA EXCHANGE*, illustrations: Suvajit Dey, The Indian Express, 2021 In Quotes, P no.7, Monday, Jan.3, 2022.



**DR. YASHODHARA VARALE**



# Assessment of Turbidity In Pond Water Sample, Juinagar, Navi Mumbai Mumbai.

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## **ABSTRACT**

The pond water samples were taken from different stations of Juinagar, Navi Mumbai and analysed every month for six months. We have studied the Turbidity in pond water sample. The seasonal analysis indicated that Pond water sample content was found higher in summer and winter than their levels in rainy season than the permissible and excessive limits of turbidity as specified by the Ministry of Health, Government of India is 5 and 25 mg /lit. Respectively.

**Key words:** Pond water sample, pollutants, Turbidity.

## **INTRODUCTION**

Turbidity of water is an important parameter for characterising water quality as turbidity allows an estimate of concentration of undissolved substances. The measurement of turbidity is a ratio of intensity of light falling on the matter to intensity of light scattered by undissolved matter or it is a ratio of light transmitted through the water in straight line to intensity of incident light. Nephlo- turbidimeter was used for the measurement of turbidity in the present work.( A K Rana; M.J.Kharodawala; J M Patel; and H R Dabhi 2002) The present of turbidity has significant effect on photosynthetic zone , due to constant transmitting the light . particulate matter i.e. organic or inorganic or excessive growth of biota , is responsible for the change in water quality , rendering it unfit for drinking purpose. (N Manivasagam; 1984)

In the present study, the levels of Turbidity were studied in the pond water sample , Juinagar , Navi Mumbai .The pond water samples were taken in twelve glass bottles by following standard procedure[3-5]. Samples were taken from twelve bottles from various ponds which are located at 1.Sector - 4 , 2. Balaji Mandir, 3 Sector -16, 4. Nirmal Nagar 5. Shivaji Nagar, 6.Sector -28. The samples were collected every month throughout the Six months and analyzed in laboratory for determined the levels of turbidity.

## **MATERIALS AND METHODS**

Turbidity is very important test in the quality control of treatment works. In the pre-treatment process, type of the treatment required and the amount of the coagulant require depends on turbidity. In fact, efficiency of the pre-treatment and filtration units is evaluated from the amount of turbidity removed. The determination of turbidity is interfered by the presence of debris and other rapidly settable matter. True

colour in the sample also reduces the value of turbidity. Some of the light is scattered by the suspended particles. The scattering of light is directly proportional to the turbidity. The turbidity of a sample is therefore, measured from the amount of light scattered by the sample, taking a reference with standard turbidity suspension. The permissible and excessive limits of turbidity as specified by the Ministry of Health, Government of India is 5 and 25 mg /lit. Respectively.

**Standard Turbidity Suspension:**

Prepare 40 NTU solutions by diluting 10 ml of stock solution to 100 ml.

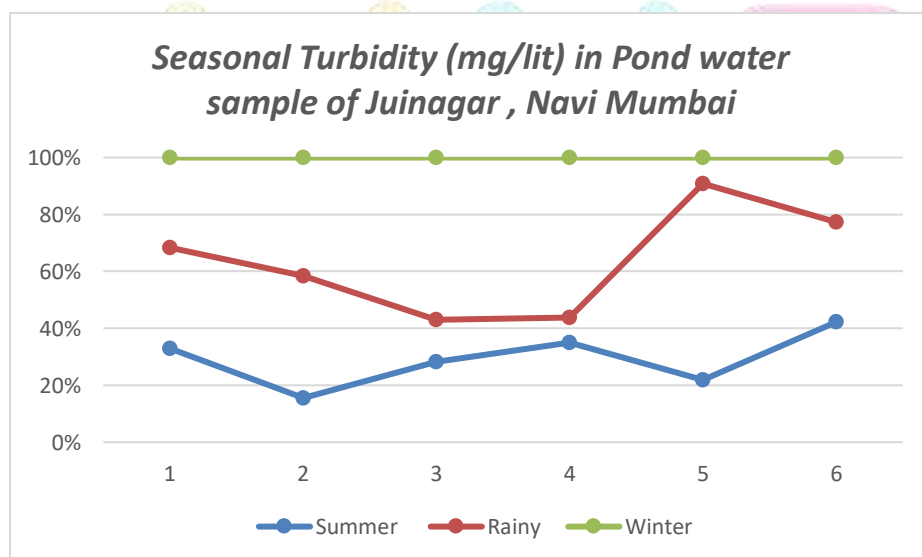
**RESULTS AND DISCUSSION**

In the present study we observed from site statistics that turbidity of water was higher in Balaji Mandir and Shivaji Nagar confluence of discharge of industrial effluents. Site No 2 and 5. (Table No – 1), because of erosion of soil, leaching of agricultural waste and presence of natural undissolved matter.

An average seasonal turbidity of pond water in summer seasons is 32.70, in rainy seasons is 35.30 and in winter seasons 11.50 respectively. (Fig -1)

*Table 1: Turbidity (mg/lit) in Pond water sample of Juinagar, Navi Mumbai*

Stations	Summer	Rainy	Winter
1	5.60	6.04	5.40
2	2.54	7.00	6.80
3	4.22	2.20	8.51
4	12.51	3.10	20.10
5	12.80	40.15	5.35
6	60.21	50.15	32.30



**Fig. 1: Turbidity (mg/lit) in Pond Water Sample (Treated Effluent)**

<b>Average</b>	<b>32.70</b>	<b>35.30</b>	<b>11.50</b>
<b>S.D.</b>	<b>47.23</b>	<b>35.48</b>	<b>7.77</b>

## REFERENCES :

- [1] A K Rana; M.J.Kharodawala; J M Patel; and H R Dabhi, Asian J.Chem., 2002, 14, 1202-09.
- [2] M J Kharodawala; D.M.Suthar; D N Dave; J M Patel; Orient. J. Chem., 2004, 2, 430-435.
- [3] P A Hamilton and D K Helsel Ground Water 1995,33, 21-27.
- [4] E Brown; M W Skovgstd and M J Fishman Methods for Collection and Analysis of water Samples for Dissolved Minerals and Gases,1974,5, 27-32.
- [5] Sharma , D.K. 2005 Seasonal variations in certain physico-chemical characteristic of Rampur reservoir of Guna district (M.P.) . In : Ecology of lakes and reservoirs. Vishwas Balasaheb Sakhare
- [6] A I Vogel ; 1978Text Book of Quantitative,Inorganic Analysis,4th Edn,ELBS, London., .
- [7] Raghunath H.M. : 1988 Ground Water, Wiley Eastern Ltd. New Delhi, India.
- [8] Saxena . M.M., - 1998 Environmental Analysis of water , soil and Air ,Agro Botanica publication , Bikaner .
- [9] AremuM.O., Gav B.L., OpaluwaO.D., AtolaiyeB.O., Madu P.C.and Sangari D.U., Res.J.chem.sci., 2011, 1, 28- 34.
- [10] Matini L., Tathy C. and MoutouJ.M., Res.J.chem.sci., 2012, 2(1), 7-14.
- [11] W. A. Petly John ,Water Quality in a Stressed Environment, Burgess Publishing Co., Minnesota, 4, 48-55,1972
- [11]. Varale Y.S.,- 2018 Intensity of Colour Present in Industrial Water Sample (Treated) of Nipani Town International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Index Copernicus Value (2016): 79.57 | Impact Factor (2015): 6.391 Volume 7 Issue 3 , 724-725
- [12] .Varale Y.S.,- 2012 study of chemical oxygen demand present in the underground water of nipani town, Acta Chim. Pharm. Indica, 2(2), 82-84







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# Electrical Conductivity Present in Tube Well Water Sample of Ghansoli, Navi Mumbai

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**ABSTRACT:** The Tube well water samples were taken from Ghansoli, Navi Mumbai and analysed every month for six months. We were studied the Electrical Conductivity in tube well water sample. Tube well water sample content was found higher than the desirable limit of (18.4 °C to 30.2°C). The seasonal analysis indicated that the Electrical Conductivity were generally higher in summer and winter than their levels in rainy season.

**KEYWORDS:** Tube well water sample, pollutant, Electrical Conductivity.

## I. INTRODUCTION

The ability of substance or water to conduct an electric current is called Conductivity. Specific electrical conductance is conductance by a cubic centimetre of a substance or water at 25 °C or specified temperature. Conductivity of water, therefore gives an idea about the total dissolved ionisable solids in it. Naturally conductance of water increases with an increase in the concentration of dissolved and dissociable substances.

In the present study, the Electrical conductivity were studied in tube well water samples at Ghansoli, Navi Mumbai. The tube well water samples were taken from six tube wells in the glass bottles by following standard procedure. Samples were taken from six tube well water samples, which are located at 1. Plaza Building, 2. Shivam Mall, 3. Nisarg Tower, 4. Sadguru Apartment 5. Tulsi Tower, 6. Platinum Acre, The samples were collected every month for six months and analysed in laboratory and determined the Electrical Conductivity.

## II. MATERIALS AND METHODS

Electrical Conductivity is an ability of a water to conduct an electric current is called electric conductivity. It is generally measured with the help of a conductivity meter, having a conductance cell containing two electrodes of platinum black or carbon. These electrodes are mounted rigidly and placed parallel at a fixed distance conductance. When measured between these electrodes having a surface area of 1cm<sup>2</sup> and placed at a distance of 1cm is called Electrical Conductivity. It is the property of water samples, rather than that of the measuring system. The term specific conductance is also used in place of electric conductivity, but it is an absolute term. The unit of conductivity is Siemens' (s) cm<sup>-1</sup>. The older unit mhos cm<sup>-1</sup> is now rarely used conductivity of most water is generally low and expressed in terms of us cm<sup>-1</sup>. As ionization of solutes in water depends on temperature, conductivity results are reported at 25 °C.

## III. RESULTS AND DISCUSSION

Distilled water has conductivity in the range of 0.5 to 5 micro Siemens'/cm. On the standard, an average seasonal conductivity of tube well water 5 ranged from minimum 120.7 micro Siemens'/cm to maximum 843 micro Siemens'/cm.

On the basis of three seasons, an average electrical conductivity of water is highest during winter season 289.66 micro Siemens'/cm, in rainy season 351.2 micro Siemens'/cm and in summer season was 328.7 was micro Siemens'/cm due to dilution factor and variation in ground water discharges.



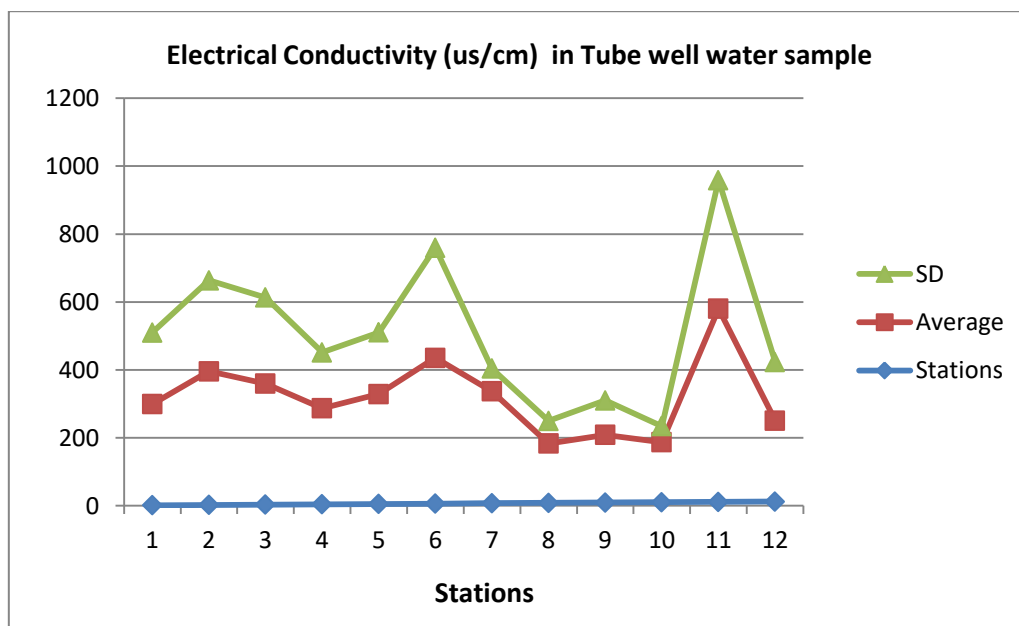
**Table 1: Electrical Conductivity Tube Well water sample of Ghansoli, Navi Mumbai**

Stations	Jul	Aug	Sep	Oct	Nov	Dec
1	216.00	162.40	162.70	166.40	676.70	183.90
2	290.00	180.20	169.80	178.00	182.60	150.40
3	420.30	380.50	496.30	317.50	314.60	220.40
4	348.50	130.50	134.50	130.50	1443.0	480.30
5	340.70	167.30	168.30	167.50	1170.0	674.00
6	410.00	163.50	163.50	163.20	590.70	320.40

**Tab. 2: Electrical Conductivity Tube Well water sample of Ghansoli , Navi Mumbai**

Stations	Average	SD
1	298.05	210.61
2	393.57	267.87
3	356.59	253.66
4	282.88	164.29
5	323.85	181.38
6	429.10	324.47

Station	Summer	Rainy	Winter
1	230.17	235.65	161.21
2	260.15	180.60	162.41
3	390.14	225.40	430.18
4	530.35	220.35	525.35
5	412.85	254.36	250.50
6	170.90	245.68	225.75



**Fig 1: Average Seasonal Electrical Conductivity (us/cm) of Tube Well water sample of Ghansoli , Navi Mumbai**





#### REFERENCES

- [1]. APHA; AWWA; WEF; -Standard Methods for the examination of water and waste water, 21st edition, Washington., DC, 2005
- [ 2]. C. S. Rao , B. S. Rao, A. V. L. N. Sh. H. M. Bharahi, - Determination of Water Quality Index of some Areas in Guntur District Andhra Pradesh, IJAGPT, 1 pp. 79-86, 2010
- [3].De. A.K., -Environmental Chemistry , 5<sup>th</sup> edition , New Age Int. Ltd.Publishers , New Delhi, 2004
- [4]. G.N., Mahtre, S.B.Chapekar., and I.V. Ramni, M.R.Patil and B.C., Halder, - Effect of Industrial pollution. *Env. Pollut.* 21 /A, 67-78, 1983
- [5]. Maiti , S.K., -.Hand Book of Methods in Environmental Studies . 1. Water and WasteWater Analysis 1<sup>st</sup> edition , ABD publisher, Jaipur, 2004
- [6]. S S Balloli; R K Rattan; and M Krishna kumari;- *Journal of the Indian society of soil sciences.*,48(1), 7578, 2000
- [7]. Sharma , D.K.- Seasonal variations in certain physico-chemical characteristic of Rampur reservoir of Guna district (M.P.),2005
- [8]. Pandya et al., *Curr. World Environ.* 8(1), 153-156 (2013).
- [9]. Varale Y.S., - Study of dissolved oxygen present in the underground water of Nipani town, *Current world environment*, 4(2), 421-423, 2009
- [10].Varale Y.S.-Study of chemical oxygen demand present in the underground water of nipani town, *ActaChim. Pharm. Indica* ,2(2),82-84, 2012



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# EFFECT OF CHEMICAL OXYGEN DEMAND (COD) PRESENT IN BOREWELL WATER SAMPLE OF VASHI, NAVI MUMBAI.

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### Abstract:

Vashi is a popular residential locality in Navi Mumbai just along side the Mumbai – Pune Highway. Vashi has and continues to attract the white collar employees due to its affordable rental and property rates, as compared to the rest of Mumbai. Vashi is a well planned locality and comprises residential and commercial properties here. With a burgeoning population and limited potable water resource available, many establishments are turning to borewells for water.

For the study purpose six water samples were taken from six tube-wells from Vashi and analysed every month throughout the year. We have studied levels of chemical oxygen demand (COD) in tube –well water sample. COD content was found higher than the desirable limit of COD (150) mg/L.

**Key words:** Tube-well water, Pollutants, Chemical oxygen demand (COD).

### Introduction:

Water plays an essential role in human life. Fresh water is one of the most important resources crucial for the survival of all the living beings. It is even more important for the human being as they depend upon it for food production, industrial and waste disposal. Human and ecological use of borewell water depends upon ambient water quality. Human alteration of the landscape has an extensive influence on watershed hydrology Gurunathan, 2006[3]. Borewell water plays a vital role in human usage. The consequences of urbanization and industrialization leads to spoiling the ground water is explored in rural especially in those areas where other sources of water like dam and river or a canal is not considerable. During last decade, this is observed that borewell water polluted drastically because of increased human activities. Frequently in many cases of water borne diseases has been seen which a cause of health hazards. An understanding of water chemistry is the fundamental knowledge of the multidimensional aspect of aquatic environmental chemistry which involves the source, composition, reactions and transportation of water. The quality of water is of vital concern for the mankind since it is directly linked with human welfare. It is a matter of history that facial pollution of drinking water caused water-borne diseases.

In the present study, to study the borewell water, collected from different locations in Vashi region, India and the data were compared with WHO standard data.



## Material and Methods:

Trivedi and Goel Suggested, chemical oxygen demand (COD) is the measure of oxygen consumed during oxidation of the oxidisable of the organic matter by a strong oxidising agent potassium dichromate solution and concentrated sulphuric acid in presence of mercuric sulphate to neutralize the effect of chlorides and silver sulphate. The (catalyst) the excess of potassium dichromate is titrated against ferrous ammonium sulphate using ferroin as an indicator. The amount of potassium dichromate is proportional to the oxidisable organic matter present in the sample.

For study purpose six sites around Vashi residential area were selected. Water samples were collected monthly from selected sites during June 2021 to November 2021. Following sites were selected for study purpose. Table No.1- Sampling Sites Samples were collected in clean glass bottles. The bottles were rinsed with the groundwater to be taken for analysis. Collected samples were analyzed using an aliquot of 20 ml water sample was taken in 250ml of COD flask, 10 ml of 0.25 N  $K_2Cr_2O_7$  Solution along with a pinch of silver sulphate and mercuric sulphate were added to it. An aliquot of 30 ml concentrated sulphuric acid was also added to the mixture. This solution was refluxed for 2 hours and then cooled to room temperature. The volume was made to 140 ml. From this, 25 ml aliquot was used for titration, using 2.3 drops of ferroin as an indicator. The solution was titrated against 0.1 N ferrous ammonium sulphate until it turned reddish brown from bluish green. COD Calculation of Chemical Oxygen Demand (COD) mg/lit. of the sample was estimated using the formula = ml of FAS  $\times$  8  $\times$  1000  $\times$  N / ml of sample titrated Where FAS = Ferrous ammonium sulphate, N = Normality of FAS.

## RESULTS AND DISCUSSION

Analysis of water samples collected from tubewell water sample showed that COD values ranged in the average concentration of COD is found higher than the desirable limit of COD (150 mg/L) i.e. 18.12 mg/lit in June at sampling station -2 low COD was found and 140.09 mg/l in September at sampling station -4. high COD was found in tube-well water sample in the present study.

Station 3,5 lower COD level observed during Rainy season as compare to summer season and followed in winter season at various sampling stations and station 1,4 & 2 higher COD level observed during winter season, as compare to summer season and followed in rainy season due to waste material brought in during rainy season which gets deposited along the banks during summer, coupled with low microbial activity. (Table 1 and 2).

Average Chemical Oxygen Demand (COD) is 58.93 mg/lit in June and Average Chemical Oxygen Demand (COD) is 41.24 mg/lit in September. (Fig-1) It's adversely affected on human health, plants and animals.

**Table -1: Chemical Oxygen Demand (COD) (mg/lit) in Tube well Water Sample**

Stations	June	July	August	September	October	November
1	55.70	30.06	52.80	38.04	35.60	38.49
2	18.12	60.80	35.47	37.37	20.48	30.25
3	45.70	28.20	20.35	45.07	20.41	31.37
4	140.17	85.20	87.37	140.09	91.40	30.04
5	81.72	45.47	40.38	47.70	39.40	57.08
6	70.80	43.62	50.70	46.18	40.60	60.09

Table - 1 : Chemical Oxygen Demand (COD) mg/lit in Tube Well Water Sample

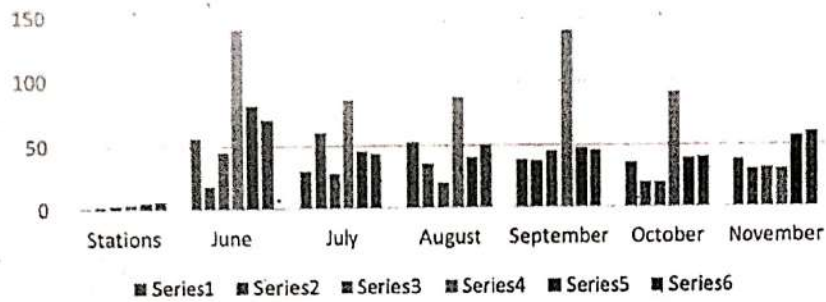


Fig. 1: Chemical Oxygen Demand (COD) (mg/lit) in Tubewell Water Sample

Average	58.93	48.27	42.78	58.74	47.20	41.24
S.D.	36.87	40.78	25.54	33.89	28.79	24.44

Fig - 1 : Chemical Oxygen Demand (COD) mg/lit in Tube Well Water Sample

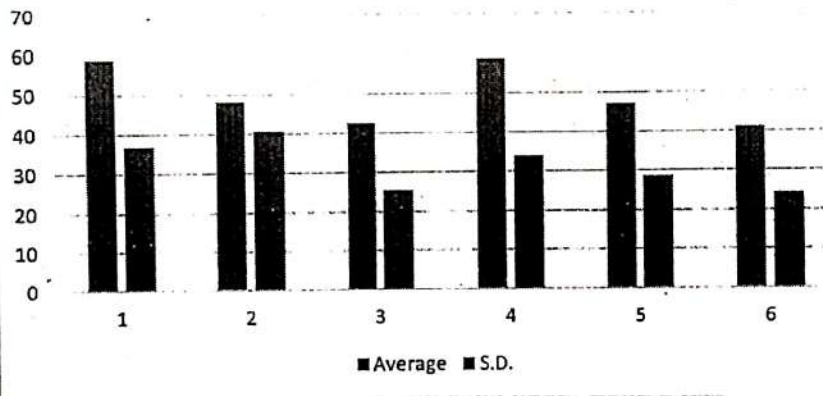
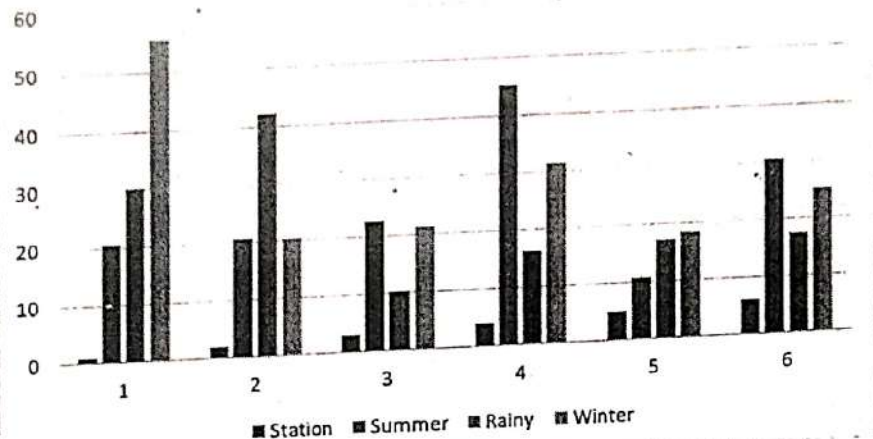


Table 2: Chemical Oxygen Demand (COD) (mg/lit) in Tubewell Water Sample

Station	Summer	Rainy	Winter
1	20.60	30.25	55.70
2	20.70	42.31	20.40
3	22.75	10.21	21.31
4	45.30	16.30	31.50
5	10.70	17.21	18.36
6	30.45	17.41	25.15



### Seasonal Level of Chemical Oxygen Demand (COD) mg/lit in Tube Well Water Sample



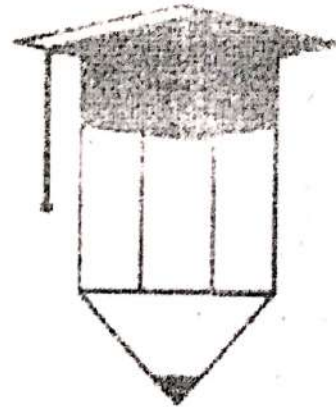
### REFERENCES

1. Akoto O. and Adiyiah, J., 2007 "Chemical analysis of drinking water from some communities in the Brong Ahafo region", *International Journal of Environmental Science and Technology*, 4(2), pp 211-214.
2. Akpoveta O.V., Okoh, B.E., Osakwe, S.A., 2011 "Quality Assessment of borehole water used in the vicinities of Benin, Edo State and Agbor, Delta State of Nigeria", *Current Research in Chemistry*, 3, pp 62-69.
3. APHA, AWWA, WPCF, 2003 "Standard Methods for Examination of Water and Wastewater", 20th Edition, American Public Health Association, Washington, DC, .
4. Medudhula. Thirupathaiiah, Ch.Samatha, ChinthaSammaiah 2012 "Analysis of water quality using physico-chemical parameters in lower manair reservoir of Karimnagar District, Andhra Pradesh" ISSN:0976-4402 *Int. Environ. Sci. Vol.3, No.1.*
5. Saravanakumar and Ranjithkumar : 2011 "Analysis of Water Quality Parameters of Ground Water near Ambattur Industrial Area, Tamil Nadu, India" *Indian Journal of Science and Technology* ISSN:0974-6846 Vol.4, No.5;
6. Devendra Dohare, Shriram Deshpande and Atul Kotiya 2014 "Analysis of Ground Water Quality Parameters: A Review, *Research Journal of Engineering Sciences* ISSN:2278-9472 Vol.3(5) 26-31.
7. Khwaja M. Anwar and Aggarwal Vanita 2014 "Analysis of Groundwater Quality Using Statistical Techniques: A Case Study of Aligarh City (India), *International Journal of Technical Research and Applications* e-ISSN:2320- 8163 Vol.2 issue 5 pp 100-106 .
8. Sarala and Ravi Babu "Assessment of Groundwater Quality Parameters in and around Jawaharnagar,
9. Trivedi and Goyal, 1986, *Chemical and Biological Methods for Water Pollution Studies*, Environmental Publications, Karad, India.
10. Pawari and Gavande 2013 "Assessment of Water Quality Parameters: A Review" *International Journal of Science and Research (IJSR)* ISSN (Online): 2310-7064 Index Copernicus Value -.
11. Bhalme and Nagarnaik 2012 "Analysis of Drinking Water of Different Places" *International Journal of Engineering Research and Application (IGERA)*; (2) 3153-3158, . www.ijserm.humanjournals.com

Jayakkodi and R. Annadurai "Correlation analysis and assessment of ground water quality and

13.R.Jayakkodi and Annadurai 2016 "Evaluation of Sago Effluent Water Treated and Untreated UASB Reactor" Asian Journal of Chemistry, Vol.28, No.6, 1218 - 1220,

14.Shrirang Vrushali and Chatterjee Kaustav "Sewage Treatment and Reuse - A step towards water





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# Effect of Total Hardness Present in Industrial Water Sample of Koparkhairne, Navi Mumbai

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# Effect of Total Hardness Present in Industrial Water Sample of Koparkhairne, Navi Mumbai

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**ABSTRACT:** Koparkhairane is an established locality of Navi Mumbai, surrounded by Ghansoli, Vashi and MIDC Industrial Area. The locality hosts a blend of co-operative housing societies (CHS), multi-storey apartment complexes, commercial office spaces and industrial entities. Some prominent residential projects. For the study purpose six industrial water samples were selected. Industrial water samples collected from selected sites monthly from Jan 2021 to June 2021 and analysed for total hardness parameters. Total Hardness in study area was found between 120 to 150 mg/l. Total hardness at all sampling stations were found below permissible limit.

**KEYWORDS:** Total Hardness, Industrial Zone, Permissible limit, Geology.

## I. INTRODUCTION

Water is the most critical component of this earth, which is necessary for the survival of life. On this planet water is that essential and mandatory part which constitutes about 75% of our world, Earth's crust. It is one of the vital natural ingredients needed for the survival of all kinds of lives present on the surface. Water is affected by different kinds of natural and anthropogenic activities performed by human beings. Due to increase in industrialisation water pollution problem is the major problem arising day by day. In industrial waste water contains harmful chemicals, organic and inorganic products, which are directly or indirectly affecting the natural source of water and agricultural practices very severely. As a result of which the properties of natural water and aquatic animals are affected adversely by getting in contact with these chemicals may include pollutants which may be thrown in to the water body without treatment. Different types of harmful chemicals from the industries cause life in water body to get destroyed by the action of these toxic chemicals with the physiological system of the living beings, including animals as well as plants. One of the most significant origins of water pollution is due to the wastes from the industries and sewage. Through different researches, it proves that the primary cause of all this pollution by addition of harmful material in water bodies mainly because of human activities (Anthropogenic Activities) rather than the natural or geogenic processes. In many developing countries, it is proof that the primary source of degradation of water bodies is the massive rate of growing industries and urbanization well. Due to the presence of these chemicals in water, it became unhealthy for any use. Man is not only using natural resources, but he is also discharging the different types of solid, liquid waste material into the same resources, which day-by-day degrading the quality of this vital resource. Hardness is one of the properties of water, which prevents the lather formation with soap and increases the boiling point of water. Calcium and magnesium cations mainly cause hardness. Koperkhairne area is an industrially developed area having number of industries; therefore, study had undertaken to find out the Total Hardness level in industrial waste water around Koperkhairne area.

## II. MATERIAL AND METHODS

For study purpose six sites around Koperkhairne industrial zone were selected. Water samples were collected monthly from selected sites during Jan 2021 to June 2021. Following sites were selected for study purpose. Table No.1- Sampling Sites. Samples were collected in clean glass bottles. The bottles were rinsed with the groundwater to be taken for analysis. Collected samples were analyzed using EDTA method for Total Hardness. The EDTA method was used to measure the concentration of Calcium and Magnesium ions in water samples to determine their total hardness. This method is based on the principle that EDTA and its sodium salt forms a soluble complex when added in the solution of certain cations.  $M^{2+} + EDTA \rightarrow M-EDTA \text{ Complex}$  A small amount of Eriochrome Black-T indicator is added to an aqueous solution containing calcium and magnesium ions at pH -10.0. As a result, calcium and magnesium ions get complex and the solution becomes wine red. Since EDTA has strong affinity towards calcium and magnesium ions, on



the addition of sufficient amount of the reagent, a new complex of blue colour is formed at the end of titration. 50 ml sample was taken in conical flask. If sample was having higher calcium, a smaller volume was taken and diluted to 50 ml. 1 ml of buffer solution was added if the sample was having higher amount of heavy metals than 1 ml of Na<sub>2</sub>S solution was added 100-200 mg of Eriochrome black-T indicator was added, the solution turned wine red. The contents were titrated against EDTA solution. At the endpoint, the colour changed from wine red to blue.

Calculation Total Hardness as CaCO<sub>3</sub>, mg/l. = ml of EDTA used x 1000 ml of sample

### III. RESULTS AND DISCUSSION

The amount of hardness equivalent to sum total of carbonate and bicarbonate alkalinity is called as bio-carbonate hardness and the amount exceeding this, is called as bio-carbonate hardness (Sawyer and McCarty, 1987). The amount of hardness due to carbonate and bicarbonate is called as temporary hardness and the hardness due to sulphate and chloride is called as permanent hardness. According to Durfor and Beaker (1964), water with total hardness below 60 mg/lit.expressed as calcium carbonate are soft, between 61 to 120 mg/lit. , moderatehard, between 121 to 180 mg/lit hard and more than 181mg/lit are very hard. The concentration of total hardness at sampling stations in industrial water samples S1, S2& S4 are soft,sampling station S3 are moderate hard and the sampling stations at S5 & S6 are very hard (Table -1) due to continuous discharge of industrial effluent at koparkhairne. Total average hardness of industrial water sample at sampling station are soft in the month of April & May ,and hard in the month of March, January , February and June.

**Table -1: Level of Total Hardness (mg/lit) in industrial Water Sample**

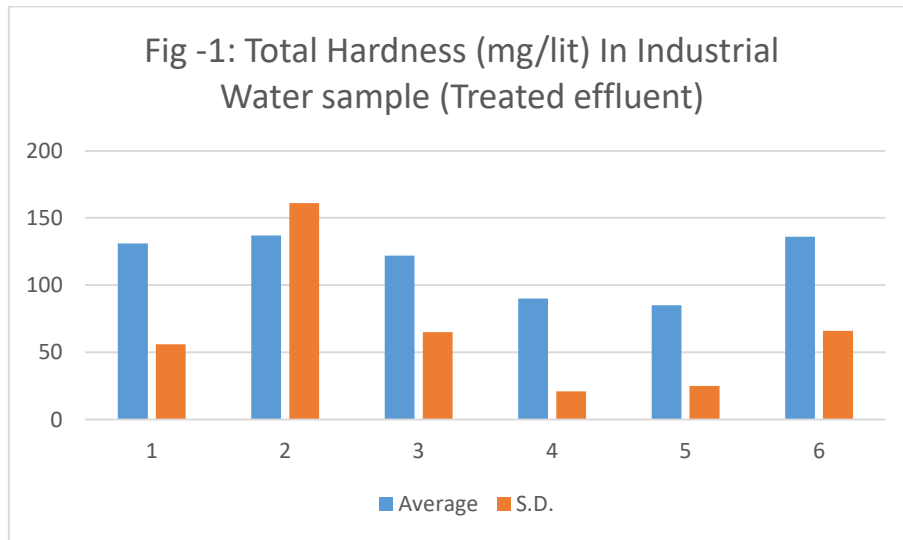
Stations	Jan	Feb	Mar	Apr	May	Jun
1	94	72	81	84	75	110
2	110	103	94	85	67	77
3	141	142	160	95	85	114
4	120	104	120	98	74	172
5	240	136	280	144	150	230
6	184	114	196	96	68	300





**Fig. 1: Total Hardness (mg/lit) in Industrial Water Sample (Treated Effluent)**

<b>Average</b>	131	137	122	90	85	136
<b>S.D.</b>	56	161	65	21	25	66



Station	Summer	Rainy	Winter
1	164.09	150.87	116.50
2	148.16	120.82	212.47
3	240.16	171.80	345.41
4	418.50	204.44	537.87
5	552.86	165.71	554.26
6	335.36	188.70	278.55

<b>Average</b>	22.3	158.19	245.00
<b>S.D.</b>	140.07	25.74	156.89

## REFERENCES:

1. Abdinazarov, X. X., Madumarov, M. J., & Haydarov, S. M. (2019). Zooplankton of Sarikamish Lake (Uzbekistan). *Open Access Library Journal*, 6(3), 1-8.
2. Walli, M. H., Al-Jubouri, Z., Madumarov, M. M., Margaryta, M., & Aldibe, A. A. A. (2022). Genetic and environment diversity to improve wheat (*Triticum* spp.) productivity: A review. *Research on Crops*, 23(2), 295-306.
3. Kuchboev, A. E., Najmidinov, E. K., Mukhamediev, M. A., Karimova, R. R., & Yildiz, K. (2021). Morphological and ecological features of some nematodes of the genus *Rhabdochona* in marinka obtained from Fergana Valley, Uzbekistan. *Journal of Parasitic Diseases*, 45(4), 1084-1089.
4. Kuchboev, M. J. M. A. E., Abdunazarov, H. K., & Olimlonovich, A. O. (2021). Development of the Parasite Nematode *Echinuria Uncinata* (Nematoda: Acuariidae) in the Intermediate Host in Uzbekistan. *Annals of the Romanian Society for Cell Biology*, 25(6), 3118-3124.
5. Мадумаров, М. Ж. (2021). МОРФОЛОГИЧЕСКИЕ И ЭКОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ПАРАЗИТИЧЕСКОЙ НЕМАТОДЫ *ECHINURIA UNCINATA* У ДАФНИЙ. In *Современное состояние водных биоресурсов* (pp. 159-163).
6. Abdinazarov, K. K., Madumarov, M. J., & Khaidarov, S. M. (2020). ZOOPLANKTON OF FISHING FISHERY OF FERGANA REGION. *Scientific Bulletin of Namangan State University*, 2(1), 93-98.
7. Madumarov, M. J., Kuchboev, A. E., Abdunazarov, H. K., & Amirov, O. O. ARTICLE INFO ABSTRACT.
8. Abdunazarov, L. M. (2020). Amaliy ekologiya o'qitishning ilmiy asoslari. *Инновационное развитие науки и образования*, 1(1), 30-33.
9. Abdunazarov, L. M. (2020). Ecological security and the need to ensure it. International scientific and practical conference Cutting Edge-Science, 1(1), 49-51.
10. Абдуназаров, Л. М. (2020). Экологик таълим тарбияда экологик маданият тушунчаси мазмуни ва моҳияти. *Педагогика ва психологияда инновациялар*, 20(1), 1053-1062.
11. Абдуназаров, Л. М. (2019). Миллий таълим тизимида экологик маънавиятли шахсни тарбиялаш. *Тошкент давлат педагогика университети илмий ахборотлари*. 1(18), 24-27.
12. Abdunazarov, L. M. (2019). National Education System of Ecological Education Supply and Implementation It. *International Journal of Research*, 6(4), 141-145.
13. Абдуназаров, Л. М. (2018). Экология методологияси ва унинг миллий хусусиятлари. *ЎЗМУ хабарлари*, 1(4), 26-28.
14. Abdunazarov, L. M. (2018). Issues on Teaching Ecology in National Continuous Education. *Eastern European Scientific Journal Germany*, 3(1), 265-270.
15. Абдуназаров, Л. М. (2016). Касбий таълимда экологик ўқув унинг таъминоти ва амалга жорий этиш. *Кадрлар тайёрлаш тизимида ўрта махсус касб-хунар таълимнинг ўрни ва ахамияти*, 1(1), 31-33.
16. Yusupova, N. V., Ergashev, A. A. (2022). Bo'lajak o'qituvchilarni intergratsion kasbiy faoliyatga tayyorlash mexanizmlari muammo sifatida. *TDPU Ilmiy Axborotnomasi*, 22(8), 273-277.
17. Yusupova, N. V. (2022). Theoretical and methodological bases of interdisciplinary relations of the natural mathematical cycle in preparation of a future teacher in a pedagogical university. *International journal of innovations in engineering research and technology*, 9(11), 306-309.
18. Юсупова, Н. В. (2020). Принципы обучения в межпредметные связи. *Мактабгача таълимда давлат ва нодавлат секторини ривожлантириш*, 1(1), 412-415.
19. Юсупова, Н. В. (2020). Дидактико-психологические основы межпредметных связей предметов естественно-математического цикла в подготовке будущего учителя. *Замонавий узлуксиз таълим сифатини ошириш*, 1(1), 534-537.
20. Yusupova, N. V. (2020). Fanlararo aloqadorlik asosida o'qitishni matematik statistika taxlili. *Fanlarni o'qitishda innovatsion metodikalar*, 1(1), 475-481.
21. Yusupova, N. V. (2020). Pedagogika oliy ta'lim muassasalarida bo'lajak o'qituvchilarni tayyorlashda fanlararo bog'lanishlar muammolari. *Jismoniy madaniyat va boshlang'ich talim samaradorligini oshirish istiqbollari*, 1(1), 402-407.
22. Юсупова, Н. В. (2020). ПРИНЦИПЫ ОБУЧЕНИЯ В МЕЖПРЕДМЕТНЫЕ СВЯЗИ. *Nizomiy nomidagi toshkent davlat pedagogika universiteti*, 1(1), 412-415.
23. Yusupova, N. V. (2020). Bo'lajak o'qituvchilarini tayyorlashda tabiy-matematik sikl fanlari fanlararo bog'lanishlarning didaktik psixologik asoslari. *TDPU Ilmiy Axborotnomasi*, 20(4), 105-110.
24. Yusupova, N. V. (2020). Talabalarning o'rta umumta'lim maktablarda fanlararo bog'lanishlarni amalga oshirish bo'yicha asosiy bilim va malakalari. *TDPU Ilmiy Axborotnomasi*, 20(2), 105-108.
25. Yusupova, N. V. (2020). Tabiiy-matematik sikl fanlari bo'yicha. *TDPU Ilmiy Axborotnomasi*, 20(5), 116-120.
26. Mirzaev, U., Umarkulova, B., & Ganiev, Y. (2021, August). Use of organic fertilizers, prepared from local waste, to improve the properties of meadow sulf soils: <https://doi.org/10.47100/conferences.v1i1.1340>. In *Research Support Center Conferences* (No. 18.06).
27. Isakov, V., & Yusupova, M. (2021, August). CHANGES IN THE PROPERTIES OF SANDY SOILS: <https://doi.org/10.47100/conferences.v1i1.1376>. In *RESEARCH SUPPORT CENTER CONFERENCE* (No. 18.06).
28. Isaqov, V., & Xoshimov, A. (2021, July). CONTAMINATION OF SOILS CONE OF THE RIVER SOKH WITH HEAVY METALS. In *Конференции*.
29. Isakov, V., & Karabaev, H. (2021, July). MEADOW-OASIS SOILS OF THE TRANSPORT CONE AND SOME AGROCHEMICAL PROPERTIES OF THEIR. In *Конференции*.
30. Исаков, В. Ю., & Юсупова, М. А. (2021). ГеНеТИКо-ГеоГраФИчеСКИе оСобенНоСТИ Песчаных Массивов Ферганской Долины. *Научное обозрение. Биологические науки*, (3), 16-20.
31. Исаков, В. Ю., Мирзаев, У. Б., & Юсупова, М. А. (2020). Особенности характеристики почв песчаных массивов Ферганской долины. *Научное обозрение. Биологические науки*, (1), 15-19.
32. Isakov, V. Y., & Yusupova, M. A. (2019). INFLUENCE OF THE ANTHROPOGENIC FACTOR ON THE SAND ARRAYS OF THE FERGHANA VALLEY. *Scientific Bulletin of Namangan State University*, 1(9), 58-66.
33. ТАДЖИБОЕВ, Д. Р., & КУКАНБОЕВ, И. И. (2016). ВЛИЯНИЕ ДОБАВКИ ХРОМА НА СРЕДНТЕМПАТУРНОГО КАТАЛИЗАТОРА. In *Наука молодых-будущее России* (pp. 165-167).
34. Юлдашев, У. М., Тожибоев, Д. Р. У., Йигиталиева, М. А. К., Очилов, Г. М., & Куканбоев, И. И. (2015). ИННОВАЦИОННЫЕ ТЕХНОЛОГИИ ОБУЧЕНИЯ, РЕАЛИЗУЕМЫЕ В ПРАКТИКЕ УЧИТЕЛЕЙ ХИМИИ. In *Молодежь и XXI век-2015* (pp. 50-55).
35. Очилов, Г. М., Куканбоев, И. И., Худойбердиев, Ж. Х., Эшметов, И. Д., & Агзамходжаев, А. А. (2015). ИОННЫЙ ОБМЕН НА АНГРЕНСКОМ УГЛЕ И ЕГО ОСОБЕННОСТИ. In *Молодежь и XXI век-2015* (pp. 34-36).
36. Турсунова, Г. В. К., Исаков, М. Ю., Содиков, М. У., & Куканбоев, И. И. (2015). О РЕЗУЛЬТАТАХ ИССЛЕДОВАНИЯ АЗОТИСТЫХ ОСНОВАНИЙ ФЕРГАНСКОЙ НЕФТИ. In *Молодежь и XXI век-2015* (pp. 48-49).
37. Якубова, Н. Х., Турсунова, Г. В. К., Исаков, М. Ю., & Саидахмедова, Н. Ю. (2015). ВЫДЕЛЕНИЯ И ФРАКЦИОНИРОВАНИЯ АЗОТИСТЫХ ОСНОВАНИЙ. In *Молодежь и XXI век-2015* (pp. 55-57).



# STUDY OF CHLORIDE PRESENT IN THE POND WATER SAMPLE OF SANPADA, NAVI MUMBAI

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## ABSTRACT:

The Pond water samples were collected from, Sanpada, Navi Mumbai and analysed every month throughout the year. So, we have studied levels of chloride in pond water sample from Sanpada, Navi Mumbai. Average concentration of Chloride 21.52 mg/lit in June to average concentration of chloride 30.16 mg/lit in November.

**Key words:** Pond water sample, Pollutants, chlorides.

## INTRODUCTION:

Water pollution is the biggest problem in the World. Due to tremendous increase in the growth of population, Industrialization and urbanisation we are facing the problems of water pollution. Due to interference of human's activities in pond like washing clothes, washing animals, cars etc. adversely affected on pond water and water is polluted. To minimise the concentration of chlorides in pond water samples we selected pond water sample for study purpose. In the present study, the level of chloride were studied in the pond water sample of sanpada, Navi Mumbai. The pond water samples were collected from different six sites for the study purpose. Pond water sample collected in the glass bottles by following standard procedure. Samples were taken from sanpada, Navi Mumbai 1.Vashi lake 2. Nmmc fountain 3. Palm Beach lake 4.chinchpokali Talav 4.Sarsola pond 5.Nerul lake 6. Seawood lake. The samples were collected every month for six months and analysed in laboratory for the levels of chlorides.

## EXPERIMENTAL METHODOLOGY:

For determination of chloride Chloride concentration in the water is determined by several methods viz argenometric or Mohr's method. Mercuric method and potentiometric method. In the present study, argentometric method was considered suitable for the determination of chloride ions. In neutral or alkaline solution, potassium chromate indicates the end point of titration of chloride  $\text{AgNO}_3$  reacts with chloride ions to form very slightly soluble white ppt precipitate of silver chloride. After all the chloride is removed, the indicator changes its colour to reddish brown of silver chromate.  $\text{Ag}^+ + \text{Cl}^- \rightarrow \text{AgCl}$  (white ppt)  $2\text{Ag}^+ + \text{CrO}_4^{2-} \rightarrow \text{Ag}_2\text{CrO}_4$  (Reddish brown PPT) Reagents a) Standard silver nitrate solution – (0.02N). Dissolve

3.4 g of dried AgNO<sub>3</sub> (A.R.) in distilled water to make 1 litre of solution in an amber coloured bottle and kept in dark, away from light.

For the present study pond Water sample from six stations for every month (30ml) was taken in a conical flask and 2ml K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> was added to it. The solution was titrated against 0.02 N AgNO<sub>3</sub>. End point was taken when persistent red ring appeared, concentration of chloride (Cl<sup>-</sup>) ions was determined using the following formula. Chloride mg/lit =  $N \times \text{ml of AgNO}_3 \times 35.5 \times 1000 \text{ ml of sample used}$  Where, N= Normality of AgNO<sub>3</sub>

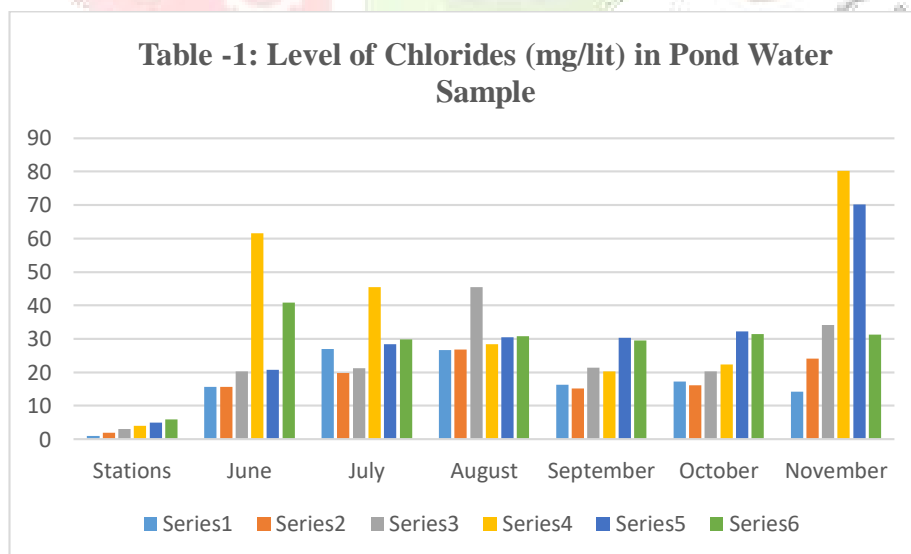
## RESULTS AND DISCUSSION:

In pond water sample concentration of chlorides ranged from minimum 14.20 mg/lit in November (Station - 1, Vashi lake) to maximum 80.20. mg/lit in November (station -4 , Sarsola Pond) (Table No - 1). Average concentration of Chloride 21.52 mg/lit in June to average concentration of chloride 30.16 mg/lit in November.

We studied the Season wise concentration of chlorides minimum 15.54 mg/lit in summer season , 23.73 mg/lit in Rainy season and 14.70 mg/lit in winter season and maximum in summer season 122.35 mg/lit, in Rainy season 38.90 mg/lit and 90.70 mg/lit in Winter season (Table No : 2 , Stations 1,2,1 (Vashi lake, Nmmc fountain, Vashi lake.) and Stations 6, 4, 6) (Seawood lake, Srsola Pond , Seawood lake.). Higher values of chloride observed in summer season in the present study. Thus, high chloride level, polluting surface waters i.e. Originates from an industrial effluent. Human's activities etc.

**Table -1: Level of Chlorides (mg/lit) in Pond Water Sample**

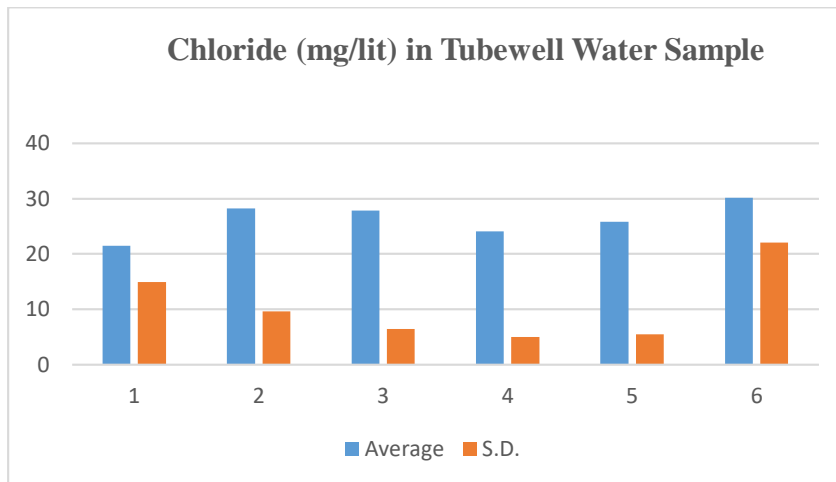
Stations	June	July	August	September	October	November
1	15.60	26.95	26.70	16.34	17.21	14.20
2	15.62	19.85	26.75	15.20	16.21	24.15
3	20.30	21.30	45.44	21.34	20.30	34.08
4	61.50	45.44	28.40	20.35	22.34	80.20
5	20.70	28.41	30.42	30.32	32.31	70.10
6	40.80	29.81	30.85	29.51	31.50	31.24



**Fig. 1: Chloride (mg/lit) in Pond Water Sample**

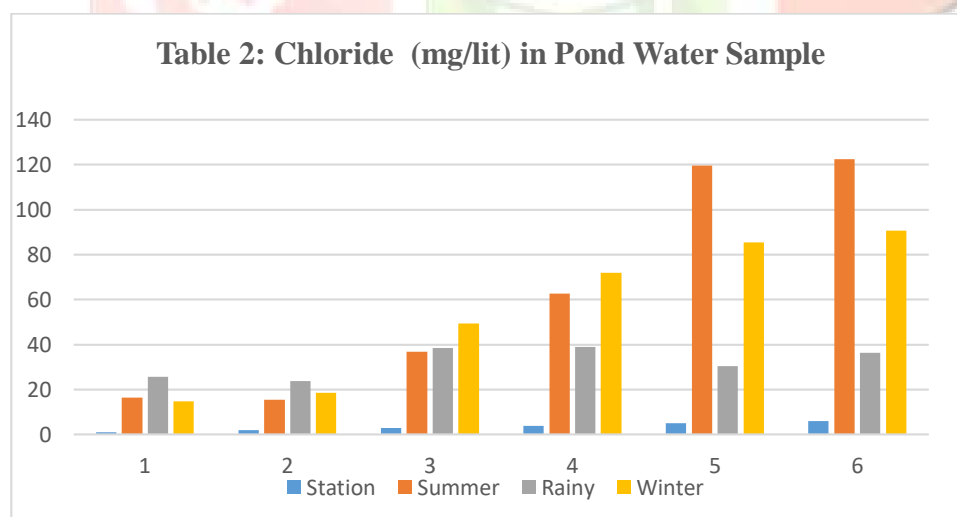


<b>Average</b>	21.52	28.27	27.81	24.08	25.83	30.16
<b>S.D.</b>	14.91	9.61	6.43	4.97	5.54	22.10



**Table 2: Chloride (mg/lit) in Pond Water Sample**

Station	Summer	Rainy	Winter
1	16.50	25.63	14.70
2	15.54	23.73	18.71
3	36.80	38.45	49.37
4	62.71	38.90	72.06
5	119.65	30.45	85.54
6	122.35	36.40	90.70



## REFERENCES

1. APHA (2005) Standard Methods for the Examination of water and wastewater. American Public Health Association, Washington D. C., 1000p.
2. Bureau of Indian Standards :BIS( IS 10500 : 2012)- Water Quality Standards
3. Gupta D. P., Sunita , J. P. Saharanb. (2009). Physiochemical Analysis of Ground Water of Selected Area of Kaithal City (Haryana) India. Researcher, 1(2), pp.1-5. <http://www.sciencepub.net>
4. Khodapanah L.,W.N.A. Sulaiman, N. Khodapanah. (2009).Groundwater Quality Assessment for Different Purposes in Eshtehard District, Tehran, Iran, European Journal of Scientific Research, Vol.36 No.4 , pp.543-553.
5. Kataria H.C., S. Bux. (2009). Hydro chemical Analysis of Groundwater of BHEL industrial area of Bhopal city. Indian Journal of Environmental Protection. 29(8), pp.705-709.
6. Mato R.A.M. (2002). Ground water pollution in urban Dar es Salaam, Tanzania: Assessing vulnerability and Protection Priorities, Eindhoven University of Technology, Netherlands.
7. Napacho Z. A., S.V. Manyele. (2010).Quality assessment of drinking water in Temeke District (part II): Characterization of chemical parameters. African Journal of Environmental Science and Technology. Vol. 4 (11). pp. 775-789.
8. Pitchaiah P.S. (1995). Ground Water, Scientific Publishers, Jodhpur, Rajasthan, India, pp-304.
9. Prakash K.L., R.K. Somashekar.(2006).Groundwater quality- Assessment of Anekal taluk, Bangalore urban district, India, Journal of Environmental Biology. 27 (4), pp. 633-637.
10. Scheidleder, J. G., G. Winkler, U. Stark, C. Koreimann, C. Gmeiner. (1999). Austrian Working Group on Water S. Nixon, J. Casillas, Water Research Centre; P. Gravesen. Groundwater quality and quantity in Europe, Geological Survey of Denmark and Greenland Geological Survey of Denmark and Greenland, pp.6-11.
11. Shrivastava V. S., P. R. Patil. (2002).Tapti river water pollution by industrial wastes: A statistical approach. Nature Environment and Pollution Technology Journal. 1(3) pp. 279-283.
12. Trivedi.R. K. and Goyal P.K., (1986), Chemical and Biological Methods for Water Pollution Studies, Environmental Publications,Karad,India.
13. Van der Aa M. (2003). Classification of mineral water types and comparison with drinking water standards. Environmental Geology.Vol.44, no.5.pp.554-563.

**DR. GANGOTRI NIRBHAVANE**

# Study of Chloride in Water around Ambarnath Town, Maharashtra, India

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## Abstract

Ambarnath town is part of Thane district of Maharashtra. For study purpose six ground water samples around Ambarnath Chikloli-Morivali industrial area were collected during July 2013 to December 2013. Collected Samples were analysed throughout 6 months for Chloride parameter. Obtained results compared with the standards given by WHO & BIS.

Chloride in study area was found between 96.56 mg/l to 129.22 mg/l. In whole study period, Bhimnagar area open well always shown higher value of chloride compared to other sites indicates effect of manmade activities.

**Keywords:** Chloride, Industrial area, manmade activity, parameter, groundwater

## Introduction

Groundwater resources support many town, rural and distant communities around Australia. It is used as a drinking water source; for irrigation in agriculture, industrial development and indirectly, through ecosystem and stream flow maintenance. About 32% of groundwater is extracted for urban industrial use, 51% for irrigation and 17% for stock watering and rural use but this varies by state.[1]

It has been estimated that India, Nepal, Bangladesh, Pakistan and China use over 300 billion m<sup>3</sup> of ground water annually, which is mostly in agriculture. India is the largest user of ground water. Presently about 65 % of the irrigation and about 90 % of the domestic and industrial water requirements are met through private ground water resources. Use of ground water is becoming unsustainable day-by-day. The fall in ground water level and deterioration in quality gives rise to drinking water shortages.[2]

About 50% of all the underground water used in urban areas of developing countries is obtained from wells, springs and bore holes and more than 1000 million populations in Asia and 150 million in Latin America depend on such resources.[3]

Population on earth has been increasing in alarming rate, which demands safe drinking water. Groundwater is a major source of water all over the world. The physical and chemical properties of groundwater make it a reliable source throughout the world. Groundwater plays variety of roles in day-to-day life, which makes it an important resource for human beings.

Water quality depends on the natural physical and chemical status of the water as well as any alterations that may have occurred as a consequence of human activities. Anthropogenic activities cause

serious groundwater contamination; therefore, it is important to analyse the ground water as well as water quality in different parts of the India, before using it for any purpose.[4]

Day by day population around the town is increases, so it’s important to detect the quality of groundwater, therefore Ambarnath town was selected for study purpose.Ambarnath is an industrially developed town from Thane district of Maharashtra. Around industrial area, residential and slum areas are present, therefore an attempt is made to find out the chloride present in the groundwater.

### Material and method

For study purpose six sites around main Ambarnath town were selected. Water samples were collected monthly from selected sites during July 2013 to Dec.2013. Following sites were selected for study purpose.

Table 1- Sampling sites with station no.

Sr.No.	Sampling area	Station no.
1	Kansai Gaon (Ganesh chauk) Open Well	S1
2	Kansai Hand Pump	S2
3	Bhimmnagar Area,Open Well	S3
4	Vadavli area (Service centre) Bore Well	S4
5	Bhendipada area Bore Well	S5
6	Samarth Service Centre Bore Well	S6

Samples were collected in clean glass bottles. The bottles were rinsed with the groundwater to be taken for analysis. Collected samples were analysed for Chloride parameter by using Argentometric method. Chloride ions can be conveniently estimated by titration with silver nitrate in the presence of chromate ions. Silver nitrate forms silver chloride by reacting with the ions present in water. When the chloride in water gets exhausted, silver nitrate then reacts with the CrO<sub>4</sub> - to show a red colour of silver chromate indicating that the titration has been completed.

In 50 ml of sample 2 ml of Potassium Chromate Solution was added. The contents were titrated against 0.02 N AgNO<sub>3</sub> until a persistent red tinge appeared.[5]

Obtained results from different sites compared with the standards given by CPCB for Chloride.

Calculation

$$\text{Chloride (mg/l.)} = \frac{(\text{ml} \times \text{N}) \text{ of AgNo}_3 \times 35.5}{\text{ml of sample}}$$

### Results and Discussion

After analysis obtained results were shown in table no.2.

Table No. 2: Obtained results from July2013 to December 2013

Station No.	July	August	September	October	November	December
S1	120.7	117.86	112.18	109.34	106.5	105.08

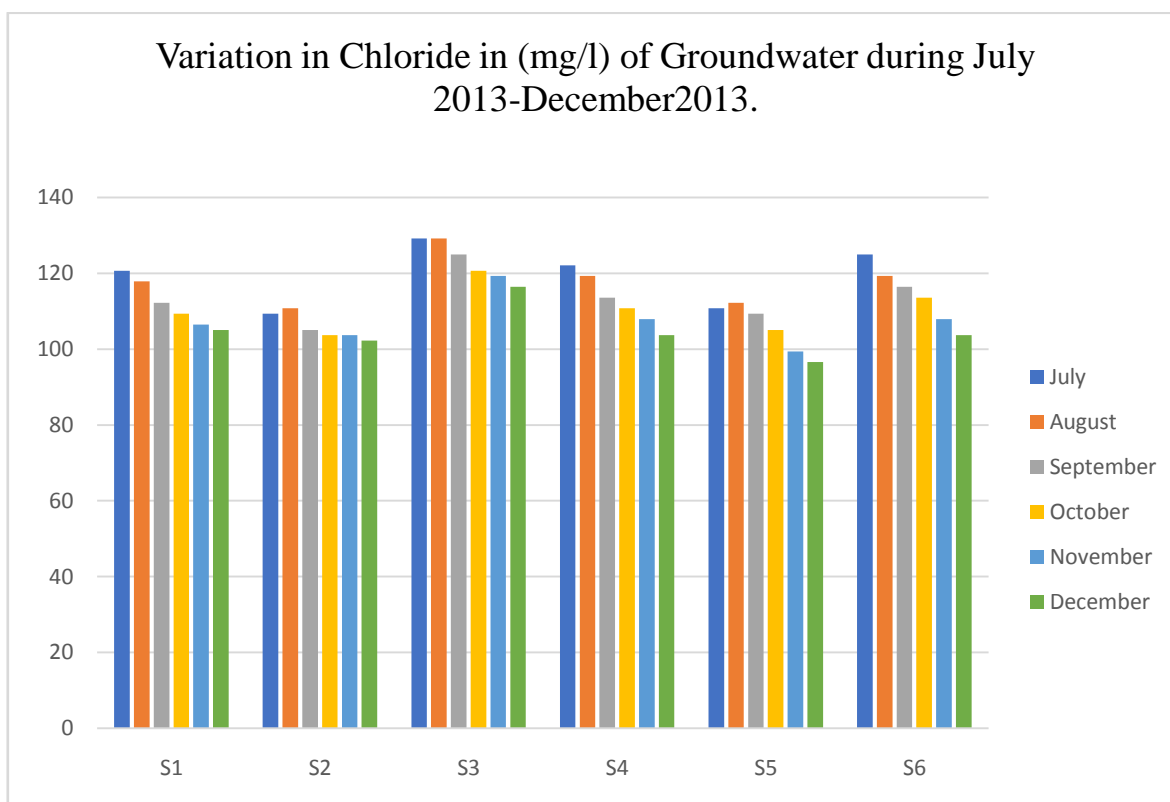


S2	109.34	110.76	105.08	103.66	103.66	102.24
S3	129.22	129.22	124.96	120.7	119.28	116.44
S4	122.12	119.28	113.6	110.76	107.92	103.66
S5	110.76	112.18	109.34	105.08	99.4	96.56
S6	124.96	119.28	116.44	113.6	107.92	103.66

Chloride in Ambarnath ground water varied from 96.56mg/l to 129.22 mg/l. All six sampling sites were found within desirable limits given by BIS and WHO i.e. 250 and 200-300 (Taste Threshold value) respectively; indicates less contamination.

Chloride in surface and ground water coming from both natural and anthropogenic sources such as the use of inorganic fertilizers, septic tank effluents, industrial effluents, animal feed, and landfill. Chloride levels in unpolluted waters are often found below 10 mg/l. [6,7].

At station no.5 (S5-Bhendipada area Bore Well) (Kansai Hand Pump) in the month of December 2013 shown lowest chloride values and station No.S3 shows highest value of chloride in the July and August 2013.



### Conclusion

At all six sampling sites, chloride value observed within desirable limits given by BIS and WHO indicates less effect of anthropogenic activities on groundwater. During study period Station No.S3 i.e. Bhimnagar area open well shown more chloride level compared to other sites. Bhimnagar area open well, has some sources of contamination compared to other sites. As station no.S3 is open well, from one side well is surrounded by slum area where local people are throwing garbage in nearby well area

and from another side it's having railway track; having more chances of contamination from surrounding area compared to bore well and hand pump.

## References

1. Ball J., L. Donnelley, P. Erlanger, R.Evans, A.Kollmorgen, B. Neal, M. Shirley. (2001). Inland Waters. Australia State of the Environment Report 2001 (Theme Report), CSIRO Publishing on behalf of the Department of the Environment and Heritage, Canberra, pp.1-37.
2. MoWR. (2008). Institutional Framework for regulating use of Groundwater in India, Final Report, Ministry of Water Resources, Government of India.
3. Clarke R., A.R. Lawrence, S.S.D. Foster. (1995). Groundwater a threatened resource. UNEP Environment Library, pp15.
4. Nirbhavane G, Khobragade K. Physicochemical Analysis of Groundwater around Ambarnath industrial area, Maharashtra, India. Research Journal of Life sciences, Bioinformatics, Pharmaceutical and Chemical sciences 2016; 2(3): 49-55.
5. Trivedi R.K., P.K.Goel. (1986). Chemical and Biological Methods for Water Pollution Studies, Environmental Publication, Karad.
6. DNHW. (1978). Guidelines for Canadian Drinking Water Quality, Supporting documentation, Ottawa. Department of National Health and Welfare, Canada.
7. Napacho Z. A., S.V. Manyele. (2010). Quality assessment of drinking water in Temeke District (part II): Characterization of chemical parameters. African Journal of Environmental Science and Technology. Vol. 4 (11). pp. 775-789
8. BIS-Bureau of Indian Standards (10500: 2012)
9. WHO. (2002). The guideline for drinking water quality recommendations. World Health Organization, Geneva.

**PROF. D.N. BANSODE**

### 13. A Study of Poverty of Agricultural Labours in Udgir Taluka, Dist. Latur

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#### Abstract

Various studies have found that unorganizedness, unskilled and illiteracy are the main characteristics of agricultural laborers. Being unorganized, they have possessed low bargaining power therefore they have to work on low wages, so their income has become very low. As they are also unskilled and illiterate, they cannot get employment in any occupation other than agriculture. So, they have to face the problem of unemployment. So again, their income level has become very low so they have stucked in a vicious cycle of poverty. In the present paper, the researcher has tried to throw a focus on the state of poverty of agricultural laborers in Udgir taluka in the area of their proportion in the udgir taluka and have they got any benefit from the different schemes of the Government.

**Keywords:** Agricultural Labour, Poverty.

#### Introduction

As per the census 2011, the total population of this taluka is 3,11,066, in which 1,61,568 are males and 1,49,498 are females. Out of the total population 35.9 % population live in Urban area and 64.1 % population live in Rural area. The proportion of literacy rate of urban area is 84.4 % and it is 76.4 % for the Rural area. The total 24,641 people are belonging to the schedule cast and 7,362 people are belongs to the Schedule Tribe out of the total population of this Taluka. The total 89.03 % population is the working population which work for more than 6 months while 10.7 % population work for less than 6 months. An agricultural labours in this taluka are unorganised, unskilled and illiterate which are the main features of this sector of this taluka. Therefore, their bargaining capacity is very low which adversely effects on their wage rate and their income earning capacity and therefore they have structed in poverty cycle. Most of the Agricultural Labours are belongs to the Schedule Cast and Schedule Tribe in this taluka so,

researcher has tried to throw a focus on their poverty condition of the agricultural labours in this taluka.

#### What is Poverty?

Different committees have been formed to define poverty by estimating poverty line. During pre-independence period and post-independence period. Such as Dadabhai Naoroji wrote a book 'Poverty and Un-British Rule in India' (1901), National planning committee (1938) Bombay plan (1944) has estimated poverty line based on per capita income per year for minimum standard of living. And during post-independence period, Working Group (1962),

V.M. Dandekar and N. Rath committee (1971), Task Force- Dr. Y. K. Alagh Committee (1979), Lakdawala Expert Group (1993), Tendulkar Expert Group (2009) and Rangarajan Committee (2014) have been appointed by the India's government to define poverty by estimating poverty line.

'According to the Task Force headed by Dr. Y.K. Alagh the poverty line can be defined as the per capita consumption expenditure level to meet average per capita daily calories requirement of 2400 Kcal per capita per day in rural areas and 2100 Kcal per capita per day in urban areas.'

It means that if an urban individual's per capita consumption expenditure is unable to meet 2400 Kcal per day and rural individual's per capita consumption expenditure is not able to meet 2100 Kcal per day then these individuals are under poverty line. In another if both are unable to get 2400 and 2100 Kcal per day then these urban and rural respectively are below poverty line.

#### Methodology

The researcher has selected Hundred agricultural labours as respondents from the hundred households of agricultural labours of Udgir taluka. The questionnaire has been prepared to collect the information regarding the objectives of the study. The study is basically depend on primary data but to mention some facts regarding the poverty the researcher has used secondary data that is books, journals, and economic surveys etc.

#### Objectives of the Study

1. To find out proportion of Agricultural labours households which are below poverty line.



2. To find out the proportion of the beneficiaries' households of agri. labours of the different schemes of the government.

#### Revive of Literature

1. Dr. S. Henty Pandian & Dr, S Samuel Thamburaj: According to them most of the 42% agricultural labours have completed their primary education and about 72 % agricultural labours are landless in the study area of Tamilnadu.
2. Anjani Kumar, Praduman Kumar, Alakh Sharma: They have stated that in India the proportion of the people below poverty line has declined during 1983 to 2004, There were 44.4 % people under the below poverty line, in which 45.7 % were in Rural area and 40.8% were in Urban area. But it is declined by 35 % in 1913-94 and it was 27.5 % in 2004-05. They have noted that about 45 % agricultural households having marginal land size were below poverty line in 1983 and it has reduced with increase in land size because it is 37 % for the small farm size and it is 31 % for medium size land. The proportion of poverty of agri. Households having marginal size land has declined from 45 % in 1983 to 23 % in 2004-05. As well as this proportion has also declined for the households having small size land that is, it was 37 % in 1983 and reduced by 15 % in 2004-05.
3. S. Mahendra Dev: he has stated that the proportion of agricultural labours households has increased from 20.9 % in 1963-64 to 30.7 % in 1983-84. The proportion of incidence of poverty for agricultural labour households was around 52% which was increased to 56 % in in 1977-78 but it has declined to 46 % in 1983-84.

#### Data Analysis and Interpretation

##### 1. The Proportion of Agricultural Laborers below the Poverty Line in Udgir Taluka with

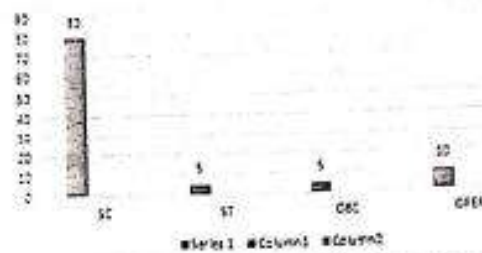
##### Category

Sr.No.	Category	Hohseholds	Total population	Percentage with population
1.	S.C.	80	1582	80.96
2.	S.T.	05	93	4.76
3.	O.B.C.	05	122	6.24
4.	Open	10	157	8.03
5.	Total	100	1954	100

Source: Field survey.

The information received by the respondents who are working as agricultural labours in Udgir taluka most of the 80 Schedule Cast households are below poverty line which consist of 1582 population out of 1954 population. It is followed by open category's agri.labours as total 10 households out of 100 are below poverty line. And there are 05 of each households of Schedule Tribe and Other Backward Class are below poverty line. About 80.96 per cent of S.C. category's people are under below poverty line. It should be noted that, most of Schedule Cast Agri. Families are below poverty line.

Proportion of agri. households below poverty line with category



### 2. The Proportion of beneficiary Families below the Poverty line by Category

Sr. No.	Category	Types of government scheme & beneficiary families	
		Gharkul (one room as home)	Toilet
1.	S.C.	56	59
2.	S.T.	02	02
3.	O.B.C.	03	03
4.	OPEN	---	03
5.	Total	61	66

Source: field survey.

As per the information collected by the respondents about the benefit they got by the government, out of 100 families 61 agricultural labour families have got Gharkul (Home) scheme in which govt. has given constructed home to them, and 66 families have got toilet facility that is govt. has given constructed toilets to them. It is found that most of the 56 agri. Labour's families have got constructed houses and 59 families have got constructed toilets. Only 03 OBC category's families have got Gharkul scheme and only 02 families have got toilets scheme. There is no single family which got Gharkul scheme but 03 families are beneficiaries of

toilet scheme. It should be noted that most of the Schedule cast agricultural labours families are the beneficiaries of both of these govt. schemes.

#### Findings

1. Most of the Schedule cast agricultural labours households are below poverty line.
2. Most of the Schedule cast agricultural labours families are the beneficiaries of both of these govt. schemes.

#### Suggestions

The government needs to make special efforts to reduce the poverty of Scheduled Caste agricultural laborers. Instead of building houses for them, they should try to increase their ability to build their own house. Instead of giving them cheap food grains, the government should try for how they will buy good food grains.

#### References

1. Indian Economy- R. Dutt & Sundharam.
2. Krushi Arthshashtra- Vijay Kavimandan.
3. Krushi Arthshashtra- Shanta Pandit.
4. [www.insightsanindia.com](http://www.insightsanindia.com)
5. Maharashtra Economic Survey. 2020-21.