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Uluberia College
Uluberia, Howrah-711315

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A Bi-lingual Academic Journal

2014-15

Vol-9

Uluberia College
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ডঃ মমতা

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ডঃ বাসন্তী

Soma M

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Dr. Bires

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Editorial

Readers of this journal are aware that we usually get this journal published at the beginning of the year. But this year this journal has come out a bit late. This is because our Editorial Board has decided to make our journal a Peer-reviewed one and therefore we approached the Academicians of different renowned institutions to complete this Peer-reviewing process. It is very kind of them that they have sent their review reports of the articles to the editor so that we have been able to get the articles published in their revised form. We hope that our journal will attain a much higher standard than that achieved in the earlier years. However we would look forward to your critical comments and suggestions so that we may make further progress in the days to come.

Readers may note that 2013-2014 was the centenary of the award of Nobel prize to Rabindranath Tagore for his 'Gitanjali'. To commemorate this event, we have devoted some space here for two articles on Tagore's 'Gitanjali'.

TABLE 2

Part- I
(প্রথম ভাগ)

Daily Chronicle, London
13.11.1913

INDIAN POET HONOURED.

NOBEL PRIZE FOR BENGAL "PROPHET."

RABINDRANATH TAGORE'S WORK AND TEACHING.

STOCKHOLM, Nov. 13.

The Nobel prize for Literature for 1913 as been awarded to the Indian poet abindranath Tagore.—Reuter.

The prize, which is one of those founded the late Dr. Nobel in 1901, amounts to arly £8,000.

Winner of the Nobel Prize.

[illegible] of Dr. Nobel's [illegible] the Swedish [illegible]oring the year [illegible] have produced [illegible] most distin- [illegible]o tendency. [illegible]o Mr. Rabin- [illegible], writer and [illegible] the history [illegible] has brought [illegible] East, to us [illegible] mystery, [illegible] India; we [illegible] But Mr.

The pr[illegible] to a Lit[illegible] fall into [illegible] that not a[illegible] young ho[illegible] little enou[illegible] he came to [illegible]ing that [illegible] his reform[illegible] and refor[illegible] known and [illegible] breadth of [illegible]

Not only [illegible] philosophic[illegible] containing [illegible] produced, [illegible] energies to [illegible] Calcutta, h[illegible] about 200 [illegible] open air. [illegible] of teacher[illegible] nationalism [illegible] to his purp[illegible] in English [illegible] profit by th[illegible]

He is a [illegible] believes th[illegible] bound toge[illegible] a high dest[illegible]

Tagore i[illegible] He has th[illegible] flowing, be[illegible] guished ap[illegible] visit to th[illegible] in London's [illegible] Oriental co[illegible]

A BE[illegible]

The poet [illegible] in revelling [illegible] West, but [illegible] have brough[illegible] gali literatu[illegible]

TABLE 2

"Tagore's Gitanjali: A View Across Centenary."

Dr. Aditi Bhattacharya
Department of Philosophy

1

The original Bengali version of **Gitanjali**, written by Tagore, with 157 songs and poems was first published in September 1910. Two years later in 1912 Tagore went to London and there he presented W. Rotenstein the manuscript of the English translation of **Gitanjali** done by him. Rotenstein was bemused by reading the manuscript and he sent three replica of the typed manuscript to W.B. Yeats, Andrew Sisily and Stop Ford Bruke. To celebrate this great work of Tagore a meeting was organized in Trocadero Restaurant of England. The meeting was presided by W.B. Yeats who in his presidential address said: "I know of no man in my time who has done anything in the English language in equal these lyrics..." In the war-stricken Europe Tagore's **Gitanjali** arrived with a new light--the whole Europe discovered in it a new inspiration and meaning to live. The English edition of **Gitanjali** was published in London in November 1912 and as a recognition of the beauty and treasure of **Gitanjali** Tagore was awarded Nobel prize on literature on November 2013 and that catapulted India in the literary map of the world.

W.B. Yeats, in his preface of the English version of **Gitanjali**, wrote "...(the poems) have stirred my blood as nothing has for years....we moved because we have met our own image, as though we had, walked in Rosetti's Willow wood or heard, perhaps for the first time in literature, our own voice as in world" in such a way that it has been translated and is still being translated by the famous poets of all the major languages of the world. Let us pick up some of the treasures from this treasure-house and try to find out whether the poems, which once enchanted the great minds of the world and acted as a balm to the war-stricken shattered hearts of the Europeans, are still relevant for the modern man.

Gitanjali means 'song-offerings'. The simplicity and musical quality of this book captivates our mind. The lyrical beauty of the poems is incomparable

- they are expressions of the awakening of a soul to the beauty of life. I the words of Yeats "Rabindranath Tagore, like Chaucher's forerunner writes music for his words, and one understands at every moment that h is so abundant, so spontaneous, so daring in his passion, so full surprise.....". -------"**I know not how thou singest; My master! /I eve listen in silent amazement./ The light of thy music illumines the world. The life breath of thy music runs from sky to sky./ The holy stream of th music breaks through all stony obstacles and rushes on."(No. 3)** Similarl when he utters these lines: "**Have you not heard his silent steps /H comes, comes, ever comes. /Every moment and every age, every da and every night he comes, comes, ever comes.....In sorrow after sorro it is his steps that press upon my heart, and it is the golden touch of hi feet that make my joy to shine."(No. 45)** --we are carried away by th spontaneity, simplicity and the passionate touch of his lyrics and can fee why the lyrics of **Gitanjali** touched the hearts of the great poets of th world.

But it is not for the musical quality of its lyrics, it is mainly for its message o infinity **Gitanjali** captivates the European hearts. The Infinite or Eternal, a described by the poet, is not any transcendental reality having n connection with the finite mundane world---rather the Infinite finds it expression and meaning in this finite world of ours. Tagore, with the help of the musical lyric and magical power of his poems, tries to assure us tha we are not alone---everything in this world is intertwined with the indwelling spirit of eternity. Everything in this world—the beauty o nature, the variety of life, the fleeting joys and sorrows of man, all want t capture this eternity and try to express it.

In his poems of **Gitanjali** Tagore has painted Nature in its full abundance Almost all seasons of Bengal are present here in their complete lustre and beauty. But by no means has Tagore described the beauty of nature simply for nature's sake----his description becomes meaningful as he, in his poems, has related Nature with all the significant moments of his life. In a stormy night the poet is eagerly waiting for his soul's mate. He describes the journey of his mate across all sorts of odds: "**By what dim shore of the ink-black river, / by what far edge of the frowning forest, / through what mazy depth of gloom art thou/ threading thy course to come to me, my friend?" (No. 23)** .Sometimes when the poet fails to grasp the meaning of

a strange feeling stirring in his heart and his mind is overshadowed with doubts, he sees the reflection of the state of his mind in outside world: **"The sky is overcast with clouds and the rain is ceaseless. / I know not what this is that stirs in me – I know not its meaning." (No. 27)** Again when poet's heart is flooded with light he sees light in every little part of nature: **"...the light strikes,... / the sky opens, the wind runs wild, / laughter passes over the earth. / The butterflies spread their sails on the sea of light. / Lilies and jasmines surge up on the crest of the waves of light. / The light is shattered into gold on every cloud, / ...and it scatters gems in profusion." (No. 57)** Reading these lines we also gather the gems in profusion and feel how rich we are!

"The poems of **Gitanjali** often treat of earthly and divine love in a marvelous ambiguity as one", writes poet Joe Winter in his introduction to a new translation of **Gitanjali**. In Tagore's songs and poems it is really very difficult to find out a line of demarcation between divine and human love and **Gitanjali** is no exception of this. **"Early in the day it was whispered that we should sail in a boat, / only thou and I, / and never any should in the world would know / of this pilgrimage to no country and no end./ In that shore less ocean, at thy silently listening smile / my song would swell in melodies, free as waves, / free from all bondage of the world." (No. 42)** To the poet his journey with his beloved is a pilgrimage towards eternity that would take them in a boundless space outside the bondage of the world. Again we find that in a stormy night the poet is eagerly awaiting for his soul's mate and he describes the journey of his mate across all sorts of odds: **"By what dim shore of the ink-black river, / by what far edge of the frowning forest, / through what mazy depth of gloom art thou / threading thy course to come to me, my friend?"(No.23).**It is only by crossing all sorts of obstacles one can find one's soul's mate—the journey is tough and painful. But the lover is not swayed away from his/ her path because he/she knows that at the end of the journey the smiling face of the beloved is awaiting. In **Gitanjali** we find that the lover's intimate craving for his beloved is always intermingled with a deeper love having a divine touch in it—**" Thou art the sky and thou art the nest as well,/ O thou beautiful, there in the nest/ It is thy love that encloses the soul/ with colours and sounds and odours." (No.67)** And along with the poet we also crave for the beauty of this

deeper love and we can feel why the magic of **Gitanjali** touched and bemused the Western minds and helped them to overcome their crisis of faith shattered by the horrors of the war.

Tagore once said "With my songs I have touched the feet of God,' But this God of him was not the traditional God of religion."Can you squeeze me behind any one religious boundary?" wrote the poet to a friend and follower, Kalidas Nag. Tagore discovered his God in his exploration of the pathways of woods, in his delight in the lonely places of hills, in the endless babbles of the ocean, in the innocent love of the child, in the heart of the ordinary men and in the joy of the union with his beloved. In different fleeting moments of his life he feels the touch of eternity. In one of his poems (NO.43) Tagore says: **"Entering my heart unbidden as one of the common crowd, unknown to me, my king, thou didst press the signet of eternity upon many a fleeting moment."** And this religion of him teaches him that true emancipation lies not in renunciation but in the acceptance of the world with all its joy and sorrow. He says—**"Deliverance is not for me in renunciation. / I feel the embrace of freedom in a thousand bonds of delight...../ No I will never shut the doors of my senses. / The delights of sight and hearing and touch will bear thy light." (No.73).** He feels his God with every drop of his blood, in every joy of his senses and in every aspect of his life's experience because all these are his God's gifts to him. His religion is a life-affirming religion. "He is the first among our saints who has not refused to live, but has spoken out Life itself and that is why we give him our love", truly says a distinguished Bengali doctor to Yeats when they were discussing the poems of **Gitanjali**.

Tagore, born in a Brahmo family, was exposed to the thoughts of Upanisad from his early childhood. Especially, the saintly influence of his father made him feel the vibrations of the Upanisadic spirit of 'Brahma' both in the external world and in the internal fabric of man's inner being—**"The same stream of life that runs through my veins night and day/ runs through the world and dances in rhythmic measures." (No 69)** It is a great saying of Upanisad that from 'Ananda' everything is born and after death everything returns to 'Ananda'. In his **Gitanjali** he wants to capture the secret of this quivering joy or ananda that nourishes and intoxicates the soul—**"Let all the strains of joy mingle in my last song- / of the joy that makes the earth flow over in the riotous excess of the grass,/ .....the joy**

that sits still with its tears on the open red lotus of pain,/ and the joy that throws everything it has upon the dust,/ and knows not a word"--' (No. 58). The Upanisadic thought of unity among diversity also captures the imagination of Tagore---*that is why in the* ***poem no.63 of Gitanjali*** he says: **'When one knows thee, then alien there is none,/then no door is shut./ Oh, grant me my prayer that I may never lose the bliss of the touch of the one in the play of the many."**

In his very first poem of **Gitanjali** Tagore says:**"Thou hast made me endless, such is thy pleasure / this frail vessel thou emptiest again and again, / and fillest it ever with fresh life".** Man is unlimited, boundless creature. Our body poses a 'limit' to us but our soul as a part of the infinite spirit denies this limit. In his famous book **Religion of man** Tagore has shown us again and again how man in his thought, in his imagination, in his love crosses the limit posed upon him by his body. The Poet repeatedly reminds us to be aware of this infinity of our being and all the poems of **Gitanjali** throb with the feeling of this infinity, this endlessness of man's being. The infinite is intertwined with the finite—**"With the tune of thee and me all the air is vibrant, / and all ages pass with the hiding and seeking of thee and me."(no 71).** The same tone is found in **poem no. 72** where he utters: " **He it is, the innermost one,/ who awakens my being with his deep hidden touches./ He it is who puts his enchantment/ Upon these eyes and joyfully plays/ on the chords of my heart in varied cadence of pleasure and pain".** These lines remind us a recent writing of Dr. Braian Weiss, an American Psychiatrist of our time, who in his book **The Kingdom of God is within You** has written: "There are distinct benefits to having one's own transcendent experiences, to begin opening up to the realization of the divine, to the understanding that life is so much more than meets the eye. Our path is an inward one."

2

After exploring different poems of **Gitanjali** I hope we have gathered certain ideas regarding the treasures scattered throughout its pages. Now a very pertinent question comes to our mind: Is **Gitanjali** still relevant for a modern man? Is there any positive and definite message in its pages for us who in our hustle and bustle of modern life have forgotten the expanse of love and beauty? We are becoming selfish, self-centered, too much

materialistic and blind to the beauty that life holds for us. In our rush f material achievement we sometimes discover the blank emptiness ar suddenly an all-enveloping darkness encompasses us. In the moder world the degradation of man has been going on apace, as witnessed b the rapid increase of broken homes, crime, violence, suicide murder et Do we hope to overcome this sort of degradation and emptiness b reading the poems of **Gitanjali**?

It is true that we sometimes become convinced when we hear the assure voice of the poet: **"The morning will surely come, the darkness w vanish, and thy voice pours down in golden streams breaking throug the sky."** But again the sceptic in us raises its voice: Who is this 'thy' a addressed by the poet? Is he God or some supernatural being? A moder man may shrink to accept the existence of such being that will bring ligh breaking through the darkness. But if he can keep aside his scepticism fo some moments and probe into the pages of **Gitanjali** he will find that th 'God' mentioned here should not necessarily be interpreted as som supernatural transcendent being, rather 'He' may be viewed as th indwelling divinity within man. Tagore, as we have seen, in his poems ha repeatedly spoken of the divinity within our being---the infinite possibiliti in us which lies ahead of us, as the great poet and philosopher S Aurobindo in his **Life Divine** has said "Man is a transitional being"—man still in the making.

Here we may refer to the writings of another great philosopher of moder period who declares him an atheist---this philosopher is Jean Paul Sartre the Existentialist philosopher of 20th century. He in his famous boo **Existentialism and Humanism** has written: "....an existentialist will neve take man as an end, since man is still to be determined....Man is all tim outside of himself....it is by pursuing transcendent aims that he himse able to exist. Since man is self-surpassing, he is himself the heart an centre of his transcendence."(page no: 55) Sartre reminds us man is no transcendent in the sense God is but in the sense of self-surpassing. H always seeks beyond himself. In order to clarify this significan characteristic of human beings Sartre has made a distinction betwee human existence and other beings of the world. Sartre has pointed ou that man alone has the capacity to develop as against the other being whose fates are sealed at the moment of their coming into 'being'. Man

characterized by 'nothingness' and that is why he always craves for that which is 'yet-to-be achieved'. Tagore in his poems of **Gitanjali** has spoken of this seeking—this inward search of our being which helps us to go onwards. If we take an outward path and get stuck to our cravings for the material world we will lose the essence of our being because the material world is a limited world which may pose a limit to our development and degrade us. On the other hand, if we can concentrate on the inwardness of our being and takes an inward journey to explore the inmost possibilities in us we may feel convinced that we shall overcome our present crisis and go ahead with a new hope towards a greater light. I conclude with the sayings of Mother of Pondicherry Sri Aurobindo Ashram: ***"Light is eternal/ Life is eternal/ Love is eternal/ We are That."***

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সুফিবাদ ও রবীন্দ্রনাথের গীতাঞ্জলী কাব্য

ডঃ মমতাজ বেগম
বঙ্গভাষা ও সাহিত্য বিভাগ

১৯৫৭ সালে 'রবীন্দ্রনাথের কোন লেখা তাঁকে অভিভূত করেছিল' জিজ্ঞাসার উত্তরে বিষ্ণু দে বলেছিলেন -

"- এ যেন বা জিজ্ঞাসা সূর্যের
কোন্ ক্ষণ ভালো লাগে সারাদিন প্রহরে প্রহরে
কিম্বা কবে কোন দিন ঋতুতে বৎসরে
সূর্যের কি গান ভালো লেগেছিল প্রকাশ্য — উহ্যের
মধ্যাহ্নে উষার স্বচ্ছ বৈকালীতে সন্ধ্যায় করুণ।"

রবীন্দ্র সত্তার প্রকাশ যেমন বৈচিত্রময়, তেমনি বিশ্ববিধানের স্বরূপ অনুসন্ধানের প্রচেষ্টাও তাঁর বিচিত্র। তাঁর সৃষ্টির একটি বিশেষ প্রকাশ 'গীতাঞ্জলী'। গীতাঞ্জলীর জন্যই তিনি নোবেল পুরস্কার পেয়েছিলেন এবং বিশ্বসভায় নিজের স্থান করে নিতে পেরেছিলেন, যদিও এই অর্জনের পথ কুসুমাস্তীর্ন ছিল না। ১৯১৩ সাল নোবেল কমিটির আঠারো জন সদস্যের সামনে উপস্থিত ফ্রান্স, হার্ডি, পিয়ের লোতির মত আঠাশ জন প্রোথিতযশা সাহিত্যিক। ইংল্যান্ডের রয়্যাল সোসাইটি অব লিটারেচারের সাতানব্বই জন সদস্যের অধিকাংশই সুপারিশ করেন টমাস হার্ডির নাম। অন্যদিকে পরাধীন ঔপনিবেশিক দেশের রবীন্দ্রনাথের নাম প্রস্তাব করেন একজন। নানান বাদানুবাদ, অনুকুল প্রতিকূল আলোচনার পর রবীন্দ্রনাথ ঠাকুর গীতাঞ্জলির জন্য নোবেল পুরস্কার পান।

গীতাঞ্জলির ১৫৭টি কবিতা ও গানের মধ্যে কবি ত্রিভুবনেশ্বর, লীলাময় জীবনদেবতাকে অন্বেষণ করেছেন। সংসাররূপ অচলায়তনের নানান দুঃখ মিছিলের মধ্যে দিয়ে নিজেকে প্রকৃত সাধক হিসাবে গড়ে তুলেছেন। সমস্ত অহংবোধ বিসর্জন দিয়ে তাঁর জীবনদেবতার উদ্দেশ্যে তিনি বলেছেন -

"আমার মাথা নত করে দাও হে তোমার
চরণধুলার তলে।

সকল অহংকার হে আমার
ডুবাও চোখের জলে।" (গীতাঞ্জলি - ১)

ভয়, লোভ, কামনা, বাসনা এবং পার্থিব চাওয়া পাওয়ার উর্ধ্বে না উঠতে পারলে জীবনদেবতাকে অন্তরে অনুভব করা সম্ভব নয়। সকল প্রকার আত্মপ্রচারের উর্ধ্বে উঠে আরাধ্য দেবতার কাছে নিজেকে সঁপে দেওয়াই প্রকৃত সাধক বা সুফীর কাজ -

"আমারে না যেন করি প্রচার
আমার আপন কাজে -
তোমারি ইচ্ছা করো হে পূর্ণ
আমার জীবন মাঝে।" (গীতাঞ্জলি - ১)

আত্ম উন্মোচনের মন্ত্র লাভ করার জন্যই কবির এই প্রার্থনা। সীমা থেকে অসীমে, ক্ষুদ্র থেকে বৃহতে, রূপ থেকে অরূপে, চেতনলোক থেকে অতিচেতনের স্তরে উত্তরণ গীতাঞ্জলির কবির লক্ষ্য। সেদিক থেকে তিনি একজন প্রকৃত সুফী সাধকের সাথে তুলনীয়। সুফীসাধকেরা অহংবোধ ত্যাগের কথা বলেছেন, মনুষ্যত্বের জয়গান করেছেন, তাঁদের চিন্তায় ধর্ম সম্প্রদায়ের কোনো ভেদাভেদ নেই। সমগ্র সৃষ্টিতত্ত্বের মধ্যেই বিশ্ববিধাতার স্বরূপ অন্তর্নিহিত রয়েছে তারই অনুসন্ধান করেন সুফী সাধক — তাঁরা মনে করেন পরমাত্মার সঙ্গে সাধকের সম্পর্ক রাগ অনুরাগের। জীবনের গভীর সত্যে উত্তরণের জন্য প্রয়োজন মানবহৃদয়কে শুদ্ধ বা পবিত্র করা, তবেই তো হৃদয়াসনে বসানো যাবে জীবনদেবতাকে। সুফীবাদের এই গভীর দর্শনের কথা কোরান - পুরান - বেদ - বাইবেল সব গ্রন্থেই নানাভাবে প্রকাশ পেয়েছে। রবীন্দ্রনাথের চিন্তায় উপনিষদ ও হাফিজের ভাবনা, লালন ফকিরের চিন্তা গভীর ছাপ ফেলেছিল। 'গীতাঞ্জলি' কাব্যে পরমাত্মা বা জীবনদেবতাকে পাওয়ার সুফীবাদী ভাবনা প্রায় প্রতিটি ছত্রে লক্ষ্য করা যায়।

প্রেম অনন্ত, তার স্বরূপও বিচিত্র। প্রেমের সাধনায় অতৃপ্তিবোধই সাধকের শক্তিকে বাড়ায়। বৈষ্ণব কবি বলেছেন -

"লাখ লাখ যুগ হিয়ে হিয়ে রাঁখলু
তবু হিয়া জুড়ন না গেল।"

রবীন্দ্রনাথ ঠাকুর গীতাঞ্জলিতে বললেন -

"প্রেমের হাতে ধরা দেব
তাই রয়েছি বসে
অনেক দেরি হয়ে গেল
দোষী অনেক দোষে

বিধিবিধান বাঁধন জোরে
ধরতে আসে, যাই সে সরে -
তার লাগি যা শাস্তি নেবার
নেব মনের তোষে
প্রেমের হাতে ধরা দেব
তাই রয়েছি বসে।" (গীতাঞ্জলি - ১৫১)

সাধারণ মানুষ পরমাত্মার প্রেমের কাছে পৌঁছাতে পারে না, যতক্ষণ পর্যন্ত না সে পার্থিব মোহ, লোভ - লালসা - কামনা - বাসনা ত্যাগ করতে পারছে। 'শ্রীচৈতন্যচরিতামৃত' গ্রন্থে কৃষ্ণদাস কবিরাজ, রায় রামানন্দ ও চৈতন্যদেবের কথোপকথনকালে শান্ত, দাস্য, সখ্য, বাৎসল্য, মধুর প্রেমের কথা বলার পরেও শ্রীচৈতন্যদেব বলেছেন -

'এহো বাহ্য আগে কহ আর।'

পরমাত্মার প্রেমকে কোন নির্দিষ্ট সীমা রেখায় ধরা সম্ভব নয়। আমরা জানি দেবতা কেবল শুভ শক্তি, দানব অশুভ শক্তি। মানুষ শুভ অশুভের মিশ্রিত রূপ। যার মধ্যে শুভ শক্তির পরিমান বেশী, তাকে মহামানব বলে থাকি আমরা। অশুভ শক্তির ক্রম অপসারণ করে শুভ শক্তির শীর্ষবিন্দুতে পৌঁছানোর সাধনাই গীতাঞ্জলির মূল কথা। সাধনার স্বরূপ অনেকটা পিরামিডের মতো। দু দিকের ক্রমক্ষয় একটি নির্দিষ্ট বিন্দুতে পৌঁছে দিতে সাহায্য করে। প্রেম সকলের কাঙ্খিত, কিন্তু প্রেমের সাধনা কঠিন। যথার্থ প্রেমের সাধনাই আত্মাকে, মনকে সফেদ বা পবিত্র করে। ঈশ্বর, পরমাত্মা বা জীবনদেবতাকে একমাত্র ধ্যান জ্ঞান জেনে মানুষ ও ঈশ্বরের মাঝের ব্যবধান দূর করার সাধনাই সুফী সাধনা। গীতাঞ্জলিতে এই ব্যবধানের কথা কবি বলেছেন -

" তোমার প্রেম যে বইতে পারি
এমন সাধ্য নাই।
এ সংসারে তোমার আমার
মাঝখানেতে তাই
অনেক ব্যবধান -
দুঃখ সুখের অনেক বেড়া
ধনজনমান।" (গীতাঞ্জলি - ৬৬)

এই ধনজন মানের ব্যবধান ঘুচিয়ে শুধুমাত্র জীবনদেবতার কাছে সমর্পিত হবার জন্য কবির আকুল আবেদন :-

"আমি হেথায় থাকি শুধু

গাইতে তোমার গান,
দিয়ো তোমার জগৎ সভায়
এইটুকু মোর স্থান।" (গীতাঞ্জলি - ৩১)

মানুষ কামনা করে যে ঈশ্বর যেন তার ইচ্ছা পূরণ করেন। কিন্তু মরমিয়া সাধক বা সুফী ইচ্ছা করে আমার মধ্যে দিয়ে ঈশ্বর তাঁর ইচ্ছা পূর্ণ করুন। রবীন্দ্রনাথ ঠাকুর সুফীবাদের বীজটিকে পত্রে, ফুলে - ফলে সুশোভিত করে গীতাঞ্জলিতে রূপ দিয়েছেন। জীবন রহস্যের গভীর বাণীকে ধ্যান ও জ্ঞানের মাধ্যমে এক আধ্যাত্মিক রূপ দিয়েছেন। ঈশ্বর মঙ্গলময়। পৃথিবীর গাছপালা, মানুষ, পশু, সৃষ্টি - লয়ের মধ্যে দিয়ে তাঁর নানান ধরনের প্রকাশ লক্ষ্যনীয়। জগতের সবকিছুই ঈশ্বরের গভীর প্রেমের বন্ধনে আবদ্ধ।

সুফীবাদের আর একটি বড় কথা হল মানবিকতা। যা ধর্ম - বর্ণ - সম্প্রদায়ের অনেক উর্ধ্বে অবস্থিত। গীতাঞ্জলির ১০৬ সংখ্যক কবিতায় কবি সুফীবাদের এই মানবিকতার সুরটিকেই যেন উপস্থাপিত করেছেন -

"হে মোর চিত্ত, পুন্যতীর্থে জাগো রে ধীরে
এই ভারতের মহামানবের সাগরতীরে।
.....
হেথায় আর্য,হেথা অনার্য হেথায় দ্রাবিড় চীন
শকহূনদল পাঠান মোগল এক দেহে হল লীন।"

ভারতবর্ষের মূল বাণী 'বৈচিত্র্যের মধ্যে ঐক্য সাধন,' 'বিবিধের মাঝে মিলন'। ১০৭ সংখ্যক কবিতায় কবি বলেছেন -

"সেথায় থাকে সবার অধম দীনের হতে দীন
সেইখানে যে চরণ তোমার রাজে
সবার পিছে, সবার নীচে
সবহারাদের মাঝে।
অহংকার তো পায় না নাগাল সেথায় তুমি ফের।"

ধনী - দরিদ্র, উচ্চ-নীচ, সাদা- কালোর ভেদাভেদ নয়, মানুষের সব থেকে বড় পরিচয় সে মানুষ। মানুষ মনে মনে যতক্ষণ না পর্যন্ত চরম ভিখারী হতে পারছে ততক্ষণ পর্যন্ত পরমাত্মার বোধ অনুভবের মধ্যে আসা সম্ভব নয়।

সুফীবাদে বলা হয়েছে মানুষ হয়ে মানুষকে অপমান করা সবথেকে বড় অন্যায়। বিপথগামী মানুষকে প্রেম ভালোবাসা দিয়ে তার যথার্থ অধিকার প্রদানের মাধ্যমে

পৃথিবীকে সুন্দর করা সম্ভব। আমরা জানি, 'মঙ্গলমূর্তিই সৌন্দর্যের পূর্ণমূর্তি।' সুফীবাদের প্রধান স্তর সাতটি—

১) শরীয়ত অর্থাৎ বাহ্যিক আচার আচরণজাত কার্যাবলী,

২) তরিকত অর্থাৎ পরমাত্মা বা ঈশ্বরের প্রতি মনোনিবেশ,

৩) মারেফত অর্থাৎ আল্লার বা ঈশ্বরের বিশেষ জ্ঞান লাভ করা,

৪) হকিকত অর্থাৎ সত্যজ্ঞান লাভ করা,

৫) ওয়াসল অর্থাৎ আল্লাহ বা ঈশ্বরের সঙ্গে অনুভবের মিলন,

৬) ফানা অর্থাৎ ঈশ্বরে বিলীন হওয়া,

৭) বাকা অর্থাৎ ঈশ্বরে অবস্থান।

গীতাঞ্জলির মধ্যেও একই পর্যায়ক্রমিক স্তর পরস্পর লক্ষ্য করা যায় -

(ক) "আমি বহু বাসনায় প্রাণপণে চাই
বঞ্চিত করে বাঁচালে মোরে
এ কৃপা কঠোর সঞ্চিত মোর
জীবন ভ'রে।"

বঞ্চিত ব্যাখ্যার মধ্যে দিয়েই কবি অনুভব করেছেন বাসনার উর্দ্ধে উঠে বাহ্যিক আচরণকে সংযত করতে হবে। সুফীবাদের যে বাহ্যিক নিয়ন্ত্রণের নির্দ্দেশ তারই যেন প্রতিফলন ঘটেছে এখানে।

(খ) গীতাঞ্জলিতে ৫নং কবিতায় জীবনদেবতার প্রতি মনোযোগ স্থাপন করে কবি তাঁর কাছে প্রার্থনা করছেন -

"অন্তর মম বিকশিত করো
অন্তরতর হে
নির্মল করো, উজ্জ্বল করো
সুন্দর করো হে।" (সংখ্যা - ৫)

বৃহৎ বা মহতের চিন্তায় আকৃষ্ট হয়ে সংকীর্ণ পরিসর ত্যাগ করার ইচ্ছা এবং অন্তরকে উদারতার আহ্বানে বিকশিত করার কথা প্রকাশ পেয়েছে। নির্মল বা সুন্দর সুফী বা সফেদের মূল বাণী।

কত সুখে দুখে কত প্রেমের গানে
অমৃতের কত রস বরষণ।" (সংখ্যা - ২১)

সুফীবাদের শেষ দুটি পর্যায় 'ফানা' এবং 'বাকা' এই দুটি তেমন স্পষ্ট নয় গীতাঞ্জলিতে। কারণ রবীন্দ্রনাথ ঠাকুর কবি শিল্পী, তিনি গৃহত্যাগী সাধক নন। তাঁর কথাতেই বলা যায়-

- "বৈরাগ্যসাধনে মুক্তি সে আমার নয়
সহস্র বন্ধনমাঝে লভিব মুক্তির স্বাদ।"

উপেন্দ্রনাথ ভট্টাচার্য তাঁর 'রবীন্দ্রকাব্য পরিক্রমা' গ্রন্থে বলেছেন -

"ভগবানের সহিত একেবারে মিশিয়া যাওয়াই রবীন্দ্রনাথ জীবনের চরম সার্থকতা বলিয় মনে করেন নাই। তিনি অন্ততকাল ধরিয়া ভগবানকে নব নব রূপে, নব নব রসে ভোগ করিতে চাহেন।" (পৃঃ - ৫১৪)

পারস্যের কবি জালালুদ্দিন রুমীর কবিতায় দেখা যায় -

"With Thy sweet soul this soul of mine
Hath mixed as water doth with wine
Who can the wine and water part
Or me and Thee when we combine?
Thou art become my greater self
Small bounds no more can me confine."

সুফীবাদের এই লীন হয়ে যাওয়া অথবা আত্মার সঙ্গে মানবমনের একাত্মতা গীতাঞ্জলিতে নেই। রবীন্দ্রনাথ ঈশ্বরের কাছে পৌঁছানোর মানবিক স্তরগুলি দেখিয়েছেন, সেখানে অসীম বা অরূপের ধারণা আছে। কিন্তু তাকে সম্পূর্ণ করে পাওয়া নেই -

"তোমায় খোঁজা শেষ হবে না মোর
যবে আমায় জনম হবে ভোর
চলে যাব নব জীবনলোকে
নূতন দেখা জাগবে আমার চোখে
নবীন হয়ে নূতন সে আলোকে
পরব তব নবমিলন ডোর
তোমায় খোঁজা শেষ হবে না মোর।"

সুফীরা ঈশ্বরে লীন হয়ে গিয়ে পরম শান্তি লাভ করেন। অপরদিকে রবীন্দ্রনাথ অনন্ত, অসীম জীবনদেবতা বা পরমাত্মার অনুসন্ধানেই জীবন পণ করে বসে আছেন। জীবনদেবতার সাথে তাঁর যেন অজীবনের লুকোচুরি খেলা - কখনো তাঁকে হারিয়ে ফেলেন কোন এক অন্তহীন আঁধারে, বেদনার ভরে যায় মন, আবার কখনো তাঁকে ফিরে পান পরম আনন্দঘন মুহূর্তে - নতুন নতুন রূপে তাঁকে আবাহন করেন নিজ অন্তরে -

'তুমি নব নব রূপে এস প্রাণে।'

আজ শতবর্ষের এপার থেকে আমাদের আশা গীতাঞ্জলির গান মানুষের অশুভ ভাবনাকে সরিয়ে দিয়ে শুভবোধের জাগরণ ঘটাক। স্বার্থপরতা, অহংবোধ ত্যাগ করে মানুষ আত্মশুদ্ধির মন্ত্রে নতুন হয়ে উঠুক। আজকের বিশ্বায়নের যুগে, মূল্যবোধের অবক্ষয়ের যুগে 'গীতাঞ্জলি'র সুফীবাদী ভাবনা মানুষকে নতুন করে বেঁচে ওঠার মন্ত্র শেখাক।

সহায়ক গ্রন্থ

১) কোরাণের আলোকে 'ইসলামজগৎ ও সুফীসমাজ' - ডঃ ওসমান গনী - প্রকাশক ঃ মল্লিক ব্রাদার্স, কলকাতা, মার্চ ২০০২।

২) 'শতবর্ষের আলোকে গীতাঞ্জলি'- সম্পাদনা সত্যপ্রসাদ ভট্টাচার্য ঃ প্রকাশক ঃ মিত্রম - কলকাতা, ১৪১৭।

৩) রবীন্দ্রনাথ ঠাকুর 'গীতাঞ্জলি' - বিশ্বভারতী প্রকাশনা।

৪) ওয়াকিল আহমদ - 'উনিশ শতকে বাঙালি মুসলমানের চিন্তা চেতনার ধারা,' বাংলা একাডেমি, ঢাকা।

৫) দেবেশ আচার্য - 'বাংলা সাহিত্যের ইতিহাস' - আধুনিক যুগ, প্রকাশক ঃ পপুলার এন্টারপ্রাইজ, কলকাতা ২০০৭।

৬) 'বৈষ্ণব পদাবলী', খগেন্দ্রনাথ মিত্র ও অন্যান্য সম্পাদিত, কলকাতা বিশ্ববিদ্যালয় প্রকাশিত, ২০০৯।

৭) বাঙালি মুসলমান সমাজ ও বুদ্ধির মুক্তি আন্দোলন ঃ হাবিব রহমান, প্রকাশক ঃ মিত্রম - কলকাতা, ২০০৯।

TABLE 2

Part - II
(দ্বিতীয় ভাগ)

"What is in

রবীন্দ্র নাটক 'বিসর্জন' ঃ প্রসঙ্গ নামকরণ

ডঃ শুভময় ঘোষ
বঙ্গভাষা ও সাহিত্য বিভাগ

॥ ১ ॥

'What is in a name?' বা 'নামে কীই বা এসে যায়' - ব্যবহারিক জগতে বস্তু এমনকি ব্যক্তিনামের ক্ষেত্রেও এ কথার সত্যতা প্রমাণিত হয়। গোলাপকে যে নামেই ডাকি না কেন গোলাপ তেমনই সুন্দর থাকে। আবার সংসারে স্নেহের আতিশয্যে বাপ-মা কানা ছেলের নাম রাখেন পদ্মলোচন। কিংবা দেখা যায় 'সুহাসিনী' নামের মেয়েটির মুখে হয়ত হাসিই নেই কোনো। কিন্তু, সাহিত্যের জগতে নামকরণের আছে এক বিশেষ তাৎপর্য। কেননা, সেখানে নামকরণই হয়ে ওঠে রচনার প্রবেশদ্বার। তাই, তারই মধ্যে দিয়ে লেখক ধরে দিতে চান তাঁর মূল বিবক্ষাটিকে। রবীন্দ্রনাথের অন্যান্য রচনার মতোই তাঁর নাটকের ক্ষেত্রেও এই নামকরণ গুরুত্বপূর্ণ হয়ে ওঠে; কারণ, ঐ বিবক্ষাটির অন্তর্ঘ প্রকাশ সন্ধানের এক ঐশী অসন্তোষে তিনি প্রায়শই মেতে ওঠেন নাম-বদলের খেলায়। এভাবেই 'রাজা ও রাণী' হয়ে ওঠে 'তপতী', 'অচলায়তন' হয়ে ওঠে 'গুরু', 'যক্ষপুরী' থেকে 'নন্দিনী' অতিক্রম করে একদিন রূপ নেয় 'রক্তকরবী'। রীতিসিদ্ধ, পরবর্তী নাটক 'বিসর্জন'-এর নামকরণের সার্থকতা বিচারেও মনে রাখতে হয় এসব কথা।

'সৃষ্টিসুখের উল্লাসে' রবীন্দ্রনাথ কেবল একটি সৃষ্টিকে ক্রমাগত ভেঙে গড়েছেন যেমন, তেমনই কখনও এক সাহিত্য-রূপের বিষয় নিয়েও গড়ে তুলেছেন একটি নতুন সাহিত্য-সংরূপ। এভাবেই 'বৌঠাকুরাণীর হাট' অবলম্বনে তিনি লিখেছেন 'প্রায়শ্চিত্ত' নাটক, 'কথা' কাব্যের 'পূজারিণী' কবিতার বিষয় নিয়ে লিখে তুলেছেন 'নটীর পূজা', আবার 'প্রজাপতির নির্বন্ধ' গদ্যকাহিনী রূপ নিয়েছে 'চিরকুমার সভা'য়। খুব স্বাভাবিকভাবেই নাটকের আঙ্গিক ও স্বভাবধর্মের নিজস্ব দাবিতেই পুরোনো সাহিত্যের নাম বদলে গেছে এখানেও; কখনও বা পুরোনো বিষয় - দেহেও রবীন্দ্রনাথ সঞ্চার করতে চেয়েছেন নতুন প্রাণ, নবতর চেতনা। বক্তব্যের সুর বদলের আলো পড়েছে তাঁর নাম-বদলেও। এক্ষেত্রে, যা বিশেষভাবে মনে রাখা দরকার, তা হলো - ভেঙে গড়ার এই সমূহ আয়োজনে তিনি ক্রমশ স্থিত হতে চেয়েছেন ব্যঞ্জনাধর্মী নামকরণের

বহুমাত্রিকতায়। 'রাজর্ষি' উপন্যাসের নাট্যরূপ 'বিসর্জন'-এর নামকরণের যাথার্থ্যকেও সন্ধান করতে হয় এই বহুমাত্রিক ব্যঞ্জনায়।

॥২॥

ত্রিপুরা রাজ্যের অধিষ্ঠাত্রী দেবী ত্রিপুরেশ্বরীর পূজায় ত্রিপুরারাজ গোবিন্দমাণিক্যের বলিবন্ধের নির্দেশ এবং রাজ-পুরোহিত রঘুপতির সে-নির্দেশের বিরোধিতায় ক্রমশ ঘনিয়ে উঠেছে এ নাটকের দ্বন্দ্বটি। সেদিক থেকেই 'রাজর্ষি' উপন্যাস সম্বন্ধে রবীন্দ্রনাথকে বলতে হয়েছিল - "আসল গল্পটি ছিল প্রেমের অহিংস পূজার সঙ্গে হিংস্র শক্তি পূজার বিরোধ"[১]। বলা বাহুল্য যে, রাজা গোবিন্দমাণিক্যই এখানে 'প্রেমের অহিংস পূজার' প্রতিনিধি, আর রঘুপতি 'হিংস্র শক্তি পূজার'। কিন্তু, লক্ষ করলে দেখা যাবে উপন্যাস ও নাট্যকাহিনীর এই দ্বন্দ্ব প্রেম ও প্রথার বিরোধের ক্ষেত্র থেকে দ্রুত সরে এসেছে প্রেম ও প্রতাপের তীব্র সংঘাতে। রঘুপতি চরিত্রের অতিসক্রিয়তা গড়ে তুলেছে দ্বন্দ্বের যুযুধান দুই পক্ষ। ছলে-বলে-কৌশলে তিনি স্বপক্ষে সামিল করতে পেরেছেন রাণী গুণবতী, রাজভ্রাতা নক্ষত্ররায়, ত্রিপুরার নির্বোধ জনতাকে। আর অন্যপক্ষে ন্যায়ধর্মের সত্য রক্ষায় একক এক শৃঙ্গের মহিমায় দাঁড়িয়ে রয়েছেন গোবিন্দমাণিক্য। যদিও এই ধর্মরক্ষার জীবন্ত প্রেরণাশক্তি তিনি পেয়েছেন ভিখারিণী কিশোরী অপর্ণার কাছ থেকেই। আর পরস্পরবিরোধী এ-দুই মূল্যবোধ, আদর্শের দ্বন্দ্বে ক্রমাগত আত্মদীর্ণ হয়েছে রঘুপতির পালিত পুত্র, রাজপুত রাজবংশোদ্ভূত জয়সিংহ। যদিও নাটকের পরিণতিতে জয়সিংহের মৃত্যুতে সমস্ত দ্বন্দ্বের অবসান ঘটেছে। প্রতাপের পরাজয়ে জয়ী হয়ে উঠেছে প্রেম; দোষী সমস্ত চরিত্রই মনস্তাপে আক্রান্ত হয়ে স্বকৃত অপরাধকে অনুধাবন করেছে। সেইসঙ্গে উৎস থেকে পরিণামে নাট্যঘটনার তীব্র টানে নাটকের প্রধান চরিত্রগুলির সকলকেই ছাড়তে হয়েছে অনেক কিছুই, ভাসতে হয়েছে বিসর্জনের অনিবার্য স্রোতে। প্রধান প্রধান ঐ চরিত্রগুলির ক্ষেত্রে কী ভাবে সত্য হয়ে উঠেছে 'বিসর্জন' অভিধা - এবারে তা দেখে নেওয়া যেতে পারে।

॥৩॥

'বিসর্জন' নাটকে স্থিতপ্রজ্ঞ এক আদর্শ চরিত্রের মহিমায় জেগে আছে মহারাজ গোবিন্দমাণিক্যের চরিত্রটি। রঘুপতির অতি-সক্রিয়তার ঔজ্জ্বল্যের বিপরীতে এই চরিত্রের নিষ্প্রভতার অভিযোগ উঠেছে দেশ-বিদেশের সমালোচকমহলে[২]। কিন্তু, এক্ষেত্রে মনে রাখা দরকার, আদর্শ মানবের নিজস্ব ধারণাতেই রবীন্দ্রনাথ গড়ে তুলেছেন তাঁকে। মানবিক গুণাবলীর যে সমুৎকর্ষ দিয়ে রবীন্দ্রনাথ গোবিন্দমাণিক্যকে

ণের যাথার্থ্যকেও

গোবিন্দমাণিক্যের
রোধিতায় ক্রমশ
উপন্যাস সম্বন্ধে
পূজার সঙ্গে হিংস্র
এখানে 'প্রেমের
লক্ষ করলে দেখা
থেকে দ্রুত সরে
তা গড়ে তুলেছে
করতে পেরেছেন
আর অন্যপক্ষে
গোবিন্দমাণিক্য।
কিশোরী অপর্ণার
ক্রমাগত আত্মদীর্ণ
। যদিও নাটকের
তাপের পরাজয়ে
স্বকৃত অপরাধকে
তীব্র টানে নাটকের
হয়েছে বিসর্জনের
নত্য হয়ে উঠেছে

ন আছে মহারাজ
ন্যার বিপরীতে এই
কমহলে'। কিন্তু,
রবীন্দ্রনাথ গড়ে
গোবিন্দমাণিক্যকে

পড়েছেন - তাতে আঘাতের বদলে প্রত্যাঘাত, কিংবা হিংসার বদলে প্রতিহিংসা, প্রতিশোধের সুলভ প্রতিক্রিয়ার কোনো সম্ভাবনা নেই এ-চরিত্রে। লেখকের অত্যন্ত প্রিয় চরিত্র বলেই উপন্যাসের পরিসরে তাঁকেই বিশেষভাবে আলোকিত করতে চেয়েছিলেন ঔপন্যাসিক, তাঁকে লক্ষে রেখেই করেছিলেন উপন্যাসের নামকরণ। কিন্তু, সাধারণ চরিত্রের পিচ্ছিল প্রতিক্রিয়াশীলতা সংহত জমাট এক চেহারা নিয়েছে গোবিন্দমাণিক্যের সিদ্ধান্ত প্রকাশ ও সে সিদ্ধান্তে অবিচল, একনিষ্ঠ থাকার বলিষ্ঠতায়, পৌরুষে। বহুকাল ধরে রাজবংশানুক্রমে চলে আসা একটি প্রথার বিরুদ্ধে দাঁড়িয়েছে সে একটি আপাত-তুচ্ছ ঘটনাকে উপলক্ষ করে। ত্রিপুরেশ্বরীর পূজায় বলিদানের হাত থেকে 'স্নেহের পুত্তলী' ছাগশিশুটিকে রক্ষা করতে না পারার কারণে অপর্ণার অসহায় আর্তি, বেদনা, উষ্মা ও অভিযোগ কত সহজেই গোবিন্দমাণিক্যকে দাঁড় করিয়ে দিয়েছে ভিন্ন এক চেতনার ভূমিতে। যেখান থেকে তিনি উপলব্ধি করেছেন এই বলি প্রথার নিষ্ঠুরতা, অমানবিকতা, অসারত্ব এবং প্রয়োজনহীনতা। নাটকের শুরুর এই ঘটনা আপাতবিচারে যত তুচ্ছই হোক, ত্রিপুরারাজের কাছে তা অসামান্য তাৎপর্যবাহী। মানবধর্ম ও মনুষ্যত্ব বিকাশের যে পথের অভিযাত্রী সে, সেই পথে চেতনার উত্তরণের পরবর্তী সোপানটিতে তাঁকে পৌঁছে দিয়েছে কিশোরী অপর্ণা। যে প্রেমধর্মের পক্ষে তাঁর [illegible] অবস্থান – অপর্ণাই সেই প্রেমের উদ্দীপনবিভাব। গোবিন্দমাণিক্যের অন্তরে এই জিজ্ঞাসা তুলে দিয়েছে অপর্ণা - "*এত ব্যথা কেন, রক্ত কেন, কে বলিয়া দিবে মোরে*"? এবং তারই পরিপ্রেক্ষিতে চেতনালব্ধ এই বিশ্বাসে এসে পৌঁছেছেন তিনি - "*এতদিন ঘুমে ছিনু, / আজ জাগরণ। বালিকার মূর্তি ধরে / স্বয়ং জননী মোরে বলে গিয়েছেন, অন্যায় সহে না তাহার।*"

কিন্তু, এই মহতী চেতনা যে মুহূর্তে রাজাদেশ হিসাবে ঘোষিত হয়েছে, সে মুহূর্ত থেকেই [illegible] গোবিন্দমাণিক্যকে হারাতে হয়েছে রাজসভা ও রাজপরিবারের আনুকূল্য। তাঁর আদেশ শিরোধার্য করতে না পেরে অস্ত্র-সমর্পণ করে বিদায় নিয়েছে বিশ্বস্ত সেনাপতি [illegible], রঘুপতির ঘৃণ্য ষড়যন্ত্রে রাজভ্রাতা নক্ষত্ররায়ও সামিল হয়েছে রাজহত্যার গুপ্ত [illegible]। যে গুণবতীকে একদিন সহধর্মিণী হিসাবে নিবিড় করে পেয়েছিলেন [illegible], বলিবন্ধের সিদ্ধান্তে তাঁর মাথার ওপর থেকে সরে গেছে [illegible]প্রেমের সেই আশ্রয়চ্ছায়াও। নিতান্ত অনিচ্ছাসত্ত্বেও জীবন ও কর্মের ক্ষেত্র থেকে বিসর্জন দিতে হয়েছে স্বার্থচালিত, অভিমানাহত মহিষীকেও। গৃহযুদ্ধের [illegible] থেকে রাজ্যরক্ষার্থে শেষপর্যন্ত রাজ্যসুখ জলাঞ্জলি দিয়ে স্বেচ্ছা-নির্বাসন বেছে নিয়েছেন তিনি। তবু, কোনো প্রতিকূলতাই তাঁকে তাঁর মূল সিদ্ধান্ত থেকে কিংবা [illegible] ন্যায়ধর্ম থেকে টলাতে পারেনি। কিন্তু, তাঁর এই প্রায় অতিমানবিক

কর্তব্যনিষ্ঠার বিনিময়ে ভিতরে-ভিতরে কতখানি ক্ষত-বিক্ষত হতে হয়েছে তাঁকে, দিতে হয়েছে কত চরমমূল্য – তাও ধরা পড়েছে নাটকে দু-একটি নিভৃত, নির্জন মুহূর্তের আক্ষেপে, অশ্রুসজলতায়। প্রেম-প্রত্যাখ্যাত হয়ে রাণীকে বলেছেন গোবিন্দমাণিক্য - "*নীচ স্বার্থ, /নিষ্ঠুর ক্ষমতাদর্প, অন্ধ অজ্ঞানতা, / চির রক্তপানে স্ফীত হিংস্র বৃদ্ধ প্রথা - / সহস্র শত্রুর সাথে একা যুদ্ধ করি; / শ্রান্তদেহে আসি গৃহে নারীচিত্ত হতে/ অমৃত করিতে পান; / সেথাও কি নাই দয়াসুধা? ....*"[৫]। আবার রাজার পালিত শিশুপুত্র ধ্রুব-হত্যার নৃশংস, ক্রূর চক্রান্তের কারণে যখন ভাইয়ের ক্ষমাভিক্ষাকে উপেক্ষা করেও নক্ষত্র রায়কে রঘুপতির মতোই নির্বাসনদণ্ড দিতে হয়, তখন, রাজা গোবিন্দমাণিক্যের রাজদণ্ডপালনের স্থির অবিচলতার অন্তরালে ভ্রাতৃবিসর্জনের করুণ বেদনায় রক্তাক্ত হতে থাকে ব্যক্তি গোবিন্দমাণিক্য। হারানোর এই বেদনা অব্যর্থ প্রকাশ লাভ করে বিচ্ছেদকালীন এই সংলাপে - "*দিয়ে যাও বিদায়ের আলিঙ্গন। ভাই, এ দণ্ড তোমার শুধু একলার নহে, / এ দণ্ড আমার। আজ হতে রাজগৃহ / সূচিকণ্টকিত হয়ে বিঁধিবে আমায়*"[৬]।

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'বিসর্জন' নাটকে বিসর্জনের এই ভাবনাটি আক্ষরিক এক পরিণতি পেয়েছে জয়সিংহের জীবনে। রঘুপতির অভিভাবকত্বে, মন্দির-গৃহের চতুঃসীমায় তার যে জীবন অতিবাহিত হচ্ছিল, তাতে একাকিত্ব ছিল, কিন্তু কোনো জটিলতা ছিল না। এ জীবনের শুষ্কতা অচরিতার্থতাকে পিছনে ফেলে বৃহত্তর সংসারের 'অসংখ্য বন্ধন-মাঝে মহানন্দময় মুক্তির স্বাদ' নিতে, সমবয়সী অপর্ণা যেমন তাকে বারে বারে ডাক দিয়েছে বাইরে, তেমনই ছাগ হারানো সেই মেয়ের অশ্রু, তীক্ষ্ণ-তীব্র অভিযোগ তার জীবনে জাগিয়ে তুলেছে জটিলতার পদচিহ্ন। গোবিন্দমাণিক্যের কাছে অভিযোগরত ভিখারিণী অপর্ণাকে সে যখন বলেছে - "*হাঁ গা। /কেন তুমি কাঁদিতেছে? আপনি নিয়েছে যারে বিশ্বমাতা, তার তরে ক্রন্দন কি / শোভা পায়?*"[৭] তখনও পিতা ও গুরু রঘুপতির কাছে লব্ধ শিক্ষা তার চেতনাকে আচ্ছন্ন করে রাখে। প্রেমের বন্ধনে প্রাণের যে অসীম মূল্য - তা তখনও স্পষ্ট নয় তার কাছে, কিন্তু, অব্যবহিত পরেই অপর্ণার সংলাপসূত্রে জয়সিংহের মন বহুপ্রচল বলিদান প্রথার যৌক্তিকতার প্রশ্নে মানবিক বোধে সন্দিহান হয়ে ওঠে - "*আজন্ম পূজিনু তোরে, তবু তোর মায়া / বুঝিতে পারি নে! করুণায় কাঁদে প্রাণ মানবের, দয়া নাই বিশ্বজননীর!*"[৮] এ নাটকে সরল, বিশ্বাসী, নিষ্পাপ এই কিশোরটির ব্যক্তিত্ব-বিকাশের এমন একটি পর্যায়ে স্থাপন করেছেন রবীন্দ্রনাথ, যখন গুরুসূত্রে লব্ধ জ্ঞানের প্রতি অকাট্য বিশ্বাস এবং নিজস্ব বোধে উপার্জিত সত্যের ভিন্নতায় চরিত্রটি

মানসদ্বন্দ্ব ক্রমশ স্ফুটতর হচ্ছে। *"দেব, তুমি পিতা মোর, পূর্ণশশী মহারাজ গোবিন্দমাণিক্য"** রঘুপতিকে বলা এই সংলাপেই স্পষ্ট হয়ে গেছে জয়সিংহের বিভাজিত সত্তার টানাপোড়েনটি – রঘুপতি তার স্থিতি, কিন্তু, তার গতি গোবিন্দমাণিক্যের দিকেই। বলি এনে মায়ের পূজার বিঘ্ন নাশের, এমনকি রাজরক্ত এনে 'রক্তপিপাসিনী'র তুষ্টি বিধানের যে দায়িত্ব তুলে নিয়েছিল জয়সিংহ, সে কেবল ঐ প্রথম সত্তাটির প্রতি আনুগত্যেই, কিন্তু তার স্বকীয় দ্বিতীয় সত্তার টান তাকে সরিয়ে নিয়ে যায় রাজহত্যার নিষ্ঠুরতার পথ থেকে, দেবীর অভিপ্রায় সম্পর্কে সন্দেহ তুলে দিয়ে যায় মনে। তাকে একের পর এক ঘটনায় গুরুর প্রতি তার যে বিশ্বাস ও শ্রদ্ধা তা ক্রমেই অপসৃত হচ্ছিল। জয়সিংহ বুঝতে পারছিল যে, দেবীকে উপলক্ষ করে আসলে ব্রাহ্মণগর্বোদ্ধত রঘুপতির *"... ইচ্ছা উপায় খুঁজিছে, /খুঁড়িছে সুরঙ্গপথ চোরের মতন / রসাতলগামী? একি পাপ!"***

নিজের একান্ত বিশ্বাসের, ভালোবাসার শ্রদ্ধার যে - জন – তার এই কদর্য অধঃপতিত রূপ কিশোর মনে এক নিদারুণ আঘাত। তারপর পাপপুণ্য সম্পর্কে রঘুপতির নতুন ব্যাখ্যায় গুরুতুল্য মানুষটি যখন সমস্ত মানবিক মূল্যবোধকে 'রক্তপিপাসিনী'র ইচ্ছা-ইচ্ছার লীলায় ভাসিয়ে দেন এবং শেষপর্যন্ত পাষাণ প্রতিমার অসারত্ব ব্যাখ্যা করেন, তখন, জীবনে সত্য-বিশ্বাস-ভক্তি-আস্তিক্য চেতনার যে সুনিশ্চিত ভূমির উপরে দাঁড়িয়েছিল সে, সমস্তটাই যেন বিসর্জিত হয় - *"এ কী হল হায়! দেবী গুরু যাহা ছিল, / এক হাতে বিসর্জন দিনু - বিশ্বমাঝে / কিছু রহিল না আর!"*[১১]। জয়সিংহের জীবনে এ-ই প্রথম বিসর্জন যা তার মনে নিরাবলম্ব অস্তিত্বের, নেতির এক ভয়ংকর শূন্যতার বোধ এনে দিয়েছে - *"এ জীবন কারে দিলি / জয়সিংহ! সব ফেলে দিলি সত্য শূন্য / দয়াশূন্য ধর্মশূন্য সর্বশূন্য মাঝে!"*** তার ভারক্লান্ত, দুর্বহ প্রাণ জুড়াতে পারত অপর্ণার আহ্বানে সাড়া দিয়ে করে তাদের প্রেমের যুগলযাত্রায়, অপর্ণা হয়ে উঠতে পারত জয়সিংহের এক জীবনের আলম্বনবিভাব; কিন্তু, জয়সিংহ যে জীবনের সেই প্রবল আকাঙ্ক্ষাকেও বিসর্জন দিয়েছে, তার কারণ,তার সামনে ছিল মহোত্তর আর এক কর্তব্যের আহ্বান। ত্রিপুরারাজবংশকে ভ্রাতৃহত্যার কলঙ্ক থেকে মুক্ত করতেই সে নিজেরই প্রাণ দিল অকাতরে, হয়তো বা সেই প্রাণের মূল্যেই শোধ করে গেল পালক পিতার ঋণ। আস্তিক্য চেতনা যে বাইরের কোনো এক ঠুনকো প্রথা, বিশ্বাস নয়; তা যে অন্তরশায়ী এক গূঢ়, গভীর, শুভ মঙ্গলবোধ – জয়সিংহের প্রাণ বিসর্জনে রবীন্দ্রনাথের এই ভাবনাই প্রতিষ্ঠালাভ করেছে।

'বিসর্জন' নাটকের নাম অভিধাটি প্রবল এক অভিঘাতে, দ্যোতনায় সার্থক হয়ে উঠেছে রাজ-পুরোহিত রঘুপতির জীবনে। গোবিন্দমাণিক্যের বলিবন্ধের নির্দেশকে এই অহঙ্কারাচ্ছন্ন, ব্রাহ্মণগর্বেচ্ছিত পুরোহিত বিচার করেছে ক্ষমতাকাঙ্ক্ষীর সংকীর্ণ, অহংসর্বস্ব দৃষ্টিতে। আর তাই তার মনে হয়েছে - "... *বাহুবল রাহুসম / ব্রহ্মতেজ গ্রাসিবারে চায় - সিংহাসন / তোলে শির যজ্ঞবেদী - ' পরে। .... / ..... / দেবতা না যদি থাকে, ব্রাহ্মণ রয়েছে।'*" বস্তুত, এ নাটকের সূচনাতেই রঘুপতিরই নিজস্ব-ভাবনায় ব্রাহ্মণের উচ্চাসন থেকে, অধিকার থেকে, রাজপ্রদর্শিত সম্মান-সমীহ থেকে বিসর্জিত হয়েছে রঘুপতি। তাই সমগ্র নাটক ধরে তার প্রচেষ্টা সেই হৃতগৌরব পুনরুদ্ধারের, অহংকারের চরিতার্থতার। কেবল মাত্র একটি ঘটনা উপলক্ষ্যে মতাদর্শগত সংঘাতে তার এই অহং যে সহসা জ্বলে ওঠেনি, তা বোঝাতেই রবীন্দ্রনাথ নাটকে রেখে দিয়েছেন চরিত্রটির একটি পূর্বসূত্র। নাটকের প্রায় সূচনালগ্নেই মন্দিরে রঘুপতির আগমনবার্তা শুনে ভীত অপর্ণা নিজের পূর্ব অভিজ্ঞতার সূত্রেই বলেছে - "*আমি তবে সরে যাই / অন্তরালে। ব্রাহ্মণের বড় জয় করি।/ কী কঠিন তীব্র দৃষ্টি। কঠিন ললাট / পাষাণসোপান যেন দেবীমন্দিরের।'*" রঘুপতির এই বডি ল্যাঙ্গুয়েজ বা শরীরী ভাষা চিনিয়ে দেয় চরিত্রটির কাঠামোটিকে। সর্বৈব এই অহংকারের অন্তরালে অবশ্য খুবই গোপন, অন্তঃশায়ী ছিল তার স্নেহকাঙাল পিতৃসত্তাটি। তাই ত্রিপুরেশ্বরীর চরণে রাজরক্ত নিবেদনের প্রয়োজনে তার পালিত-পুত্র জয়সিংহই যখন উদ্যোগী হতে চায়, তখন উৎকণ্ঠিত রঘুপতি বলে - "*সত্য করে বলি, বৎস, তবে। তোরে আমি / ভালোবাসি প্রাণের অধিক - পালিয়াছি / শিশুকাল হতে তোরে, মায়ের অধিক / স্নেহে – তোরে আমি নারিব হারাতে।'*" ত্রিপুরারাজ গোবিন্দমাণিক্য যেমন সমস্ত স্নেহ, সম্পর্ক, সম্মান ও প্রতিকূলতার বিনিময়ে নিজের বিশ্বাস ও আদর্শকে জয়যুক্ত করতে চেয়েছেন, রঘুপতির প্রথানিষ্ঠা কিন্তু ততখানি দৃঢ় নয় – পুত্রপ্রতিম জয়সিংহের জীবনের চেয়ে বড় নয় ঐ প্রথার জয়। আসলে গোবিন্দমাণিক্যের চারিত্রিক দৃঢ়তায় চেতনালব্ধ বিশ্বাসের যে জোর আছে, রঘুপতির প্রথা - সমর্থনে সেই বিশ্বাসের জোর কোথায়? প্রকৃত অর্থে এ নাটকে রঘুপতিই নাস্তিক্যবাদী – দেবতার অস্তিত্বে বিশ্বাসহীন। ফলে, ঐ দেবপূজা সম্পর্কিত এক প্রথায় তার বিশ্বাসের জোর আসবে কোথা থেকে? দেবতার অস্তিত্বে বিশ্বাসহীন না হলে সে ধর্ম রক্ষায় অধর্মকে টেনে আনতে পারতো না ক্রমাগত, বিছাত না নির্মম ভ্রাতৃহত্যার ষড়যন্ত্রের কুটিল জাল, নিজের মনোগত অভিলাষকে চালাতে পারত না দৈববাণী বলে, দেববিগ্রহের মুখ ঘুরিয়ে দিয়ে দেশের জনতাকে উৎক্ষিপ্ত করে তুলত না, সামিল হত না শিশু ধ্রুব হত্যার চূড়ান্ত অমানবিক চক্রান্তে। জয়সিংহের কাছে

ভাবে সে এ-জগৎকে হত্যাশালা হিসাবে বর্ণনা করেছে, যেভাবে ব্যাখ্যা করেছে জীবন অসারতা - তাতে একথা কোনোভাবেই অস্পষ্ট থাকে না যে, দেবতাকে ঢাল হিসাবে রেখে এই অহংসর্বস্ব মানুষটি কেবলই নিজেই যশে, গরিমায়, সমীহে, সম্মানে স্ফীত হতে চেয়েছে।

সেই তীব্র বাসনার অন্ধতায় তার চোখে পড়েনা বলিদানের নিষ্ঠুর, অমানবিকতার দিকটি। প্রিয় পোষ্য খুইয়ে মাতৃপ্রতিম অপর্ণার কান্নাও তার ভিতরে জাগিয়ে তুলতে পারে না উদার কোনো প্রেমধর্মের বোধ। নাটকে মাত্র একবার বলিদানের জন্য নিয়ে আসা রাজার পালিত পুত্র শিশু ধ্রুবকে দেখে সেই প্রবল পুরোহিতের মনে জেগে উঠেছিল জয়সিংহের শৈশবের অসহায় মুখচ্ছবি - কিন্তু, অপমানের বৃশ্চিকদংশনজ্বালা আর তীব্র প্রতিশোধস্পৃহা তখনও ফিরাতে পারে নি সেই মূর্ছিত চেতনায় সংবিৎ। বিচিত্র-নাটকে রঘুপতির মতোই এমন স্বার্থান্ধ, রুদ্ধচেতন চরিত্রের উপস্থিতি খুব বিরল না যেখানে শেষমেশ বৃহৎ কোনো বিচ্ছেদের মূল্যে, মৃত্যুর মূল্যে প্রায় তড়িতাহত হয়ে জ্ঞানে পৌঁছাতে হয় নবচেতনায়। 'বিসর্জন' নাটকেও ব্যাক্তিক এক ক্ষয়ের মূল্যে শোচনীয়ভাবে রঘুপতিকে উত্তীর্ণ হতে হয়েছিল অহিংস এক প্রেম চেতনায়। 'প্রাণাধিক ভাই' জয়সিংহের প্রাণ-বিসর্জনে রঘুপতি প্রেমের জগতে প্রাণের অমূল্যতাকে উপলব্ধি করতে পারলেন। নিজের পুঞ্জীভূত অহংকার দিয়ে যে বিগ্রহকে তিনি দুর্জয় করে তুলেছিলেন - তা বস্তুত দেবী নয় পিশাচী। সেই অহংকারের সর্বগ্রাসী পিশাচীর বুভুক্ষা একদিন স্বয়ং অহংকারীর জীবনেও নিষ্ঠুর থাবা বসাতে চায় – প্রিয় প্রাণের বিনিময়ে সেই পরম সত্যে পৌঁছাতে হলো রঘুপতিকে। সেই আঘাতে, ঘননীল বেদনায়, অহংকারের বজ্র প্রাচীর ফাটিয়ে প্রেমের সজলতায় পৌঁছেছেন রঘুপতি - "*ওরে জয়সিংহ, মোর একমাত্র প্রাণ, প্রাণাধিক, জীবন-মন্থন করা ধন! / জয়সিংহ, বৎস মোর, হে গুরুবৎসল! ফিরে আয়, ফিরে আয়, তোরে ছাড়া আর / কিছু নাহি চাহি! অহংকার অভিমান / দেবতা ব্রাহ্মণ সব যাক! তুই আয়!*" রঘুপতির এই নিষ্ফল হাহাকার নাটকে এক বাঞ্ছিত ট্র্যাজিক-সংবেদন জাগিয়ে দেয়। অহং বিসর্জনের স্বাভাবিক ফলশ্রুতিতেই 'লঘু হোক জগতের বক্ষ' বলে এরপর গোমতীর জলে অহংকারের প্রতিমূর্তি দেবী প্রতিমাকেও বিসর্জন দিয়েছেন তিনি।

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'বিসর্জন' নাটকে এই প্রধান তিন পুরুষ-চরিত্রের পাশাপাশি প্রধান দুই নারী – মহিষী গুণবতী ও ভিখারিণী বালিকা অপর্ণার জীবনেও কোনো না কোনো ভাবে বিসর্জনের এই ক্ষতির ব্যঞ্জনা সত্য হয়ে উঠেছে। 'নিঃসন্তানশ্মশানচারিণী', স্নেহকাঙালিণী গুণবতী

দেবতার কাছে মানতপূরণে, সন্তানলাভের দুর্বার স্পৃহায় স্বামী গোবিন্দমাণিক্যকে বিসর্জন দিয়ে রঘুপতির পক্ষ নিয়েছেন। স্বামীর মানবধর্মকে বোঝবার মতো ধৈর্য তার ছিল না; বরং তার অহংগ্রস্ত মন প্রেমে-অভিমানে রাজাকে সিদ্ধান্ত থেকে সরাতে না পেরে নিজেকেই রাণীর সম্মান, সমাদরের ক্ষেত্র থেকে বিসর্জিত মনে করেছে। অন্যদিকে সন্তানতুল্য ছাগশিশুটিকে প্রত্যক্ষতই বিসর্জন দিতে হয়েছে অপর্ণাকে। কিন্তু, তার চেয়েও বড় ক্ষতি তার সখা জয়সিংহের আত্মবিসর্জন। অপর্ণার প্রাণে এ বেদনা এমনই অনির্বচনীয় যে এ প্রসঙ্গে কোনো কথাই উচ্চারিত হয়নি তার মুখে।

এভাবেই বিসর্জনের বিয়োগমূলক দিকটি বহুস্তরে সত্য হয়ে উঠেছে নাটকের পাত্র-পাত্রীদের জীবনে। কিন্তু, শাস্ত্রেই 'বিসর্জন'- এর আছে আরও এক সূক্ষ্ম, গূঢ়তর সত্যতর তাৎপর্য। দেবীর বোধন ও পূজার শেষে যে মৃন্ময়ীকে আমরা জলাঞ্জলি দিই, সে তো মাটি-খড়ের জড় স্তূপ মাত্র, সেই মৃন্ময়ীতে যে চিন্ময়ী রূপ নিয়েছিলেন - বিসর্জনের মুহূর্তে আমরা তাকে তুলে নিই অন্তরে। মনোবেদীতে তখন সেই চিন্ময়ীর নিত্যবোধন। 'বিসর্জন' নাটকেও ক্ষয়ক্ষতি, বিচ্ছেদ, বিয়োগ, ত্যাগের উর্ধ্বে আছে এক অর্জন। নাটকের শেষে দেবীকে হারিয়েও গুণবতী রাজাকে একমাত্র দেবতা বলে যেমন ফিরে পেয়েছেন, তেমনই গোবিন্দমাণিক্যও ফিরে পেয়েছেন রাণীকে। ভ্রাতার নির্বাসন ও নিজের রাজ্যত্যাগের সিদ্ধান্ত সত্ত্বেও শেষপর্যন্ত তার উন্নত প্রেমধর্মের আদর্শই যে জয়যুক্ত হতে চলেছে - এও গোবিন্দমাণিক্যের কাছে কম তৃপ্তিদায়ক নয়। জয়সিংহও নিজের প্রাণবিসর্জন দিয়েছে সত্য, কিন্তু তার বিনিময়ে নিজের অন্তরাত্মার মানবধর্মকে জয়ী করে গেছে সেও। মৃত্যুর মধ্যে তার সংক্ষুব্ধ প্রাণ হয়তো শান্তিও খুঁজে পেয়েছে। দু-দুটি প্রাণের অপচয়ের বেদনার শেষে অপর্ণাও পেয়েছে রঘুপতির পিতৃস্নেহের অভিভাবকত্বের ছায়া। আর পুত্রকে হারিয়ে, নিজের অহংকারকে, মিথ্যাদেবীকে জলাঞ্জলি দিয়ে রঘুপতিও খুঁজে পেয়েছে নিজেকে। নিজের মনুষ্যত্বকে। সংকীর্ণ ভালোবাসা থেকে বৃহত্তর মানবপ্রেমে উঠে দাঁড়িয়েছে সে, প্রেমের মূর্তি অপর্ণার মধ্যে তখন সে প্রত্যক্ষ করতে পেরেছে জীবন্ত দেবতাকে – তাকে অভিষিক্ত করেছে মাতৃসম্বোধনে। নাটকে এই চরিত্রটিকে কেন্দ্র করেই ট্র্যাজিক সংবেদন জাগিয়ে তুলে নাট্যকার দর্শক-পাঠক-মনে গেঁথে দিতে চাইছেন নাটকের মর্মবাণীটিকে এ কথা মনে রাখলে সমস্ত হারানোর শূন্যতাকে ছাপিয়ে বড় হয়ে ওঠে চরিত্রটির চেতনার এই উত্তরণ। এ সম্পর্কে রবীন্দ্রনাথ নিজেই বলেছিলেন - "নাটকের শেষে রঘুপতি প্রতিমা 'বিসর্জন' দিলেন, এই বাইরের ঘটনা ঘটল। কিন্তু এই নাটকে এর চেয়েও মহত্তর আর এক বিসর্জন হয়েছে। জয়সিংহ তার প্রাণ বিসর্জন দিয়ে রঘুপতির মনে চেতনার সঞ্চার করে দিয়েছিল।"[৭] এভাবেই প্রেমের মূল্যে প্রাণের অমূল্যতার এই বোধ প্রতিষ্ঠায়, বহুতর সর্জন-বিসর্জনে সার্থক হয়ে উঠেছে নাটকটির নামকরণ।

উদ্ধৃতি ও সূত্র সংকেত

(১) উদ্ধৃত, ডঃ হীরেন চট্টোপাধ্যায়, 'বিসর্জন ঃ নবনিরীক্ষা', বঙ্গীয় সাহিত্য সংসদ, দ্বিতীয় মুদ্রণ ১৯৯৬, পৃঃ ৪

(২) দ্রষ্টব্য, উজ্জ্বলকুমার মজুমদার, 'বিসর্জন ঃ আন্তর্জাতিক প্রদর্শনীর জন্য প্রথম ভারতীয় ছবি', 'রবীন্দ্রনাথ ঃ সৃষ্টির উজ্জ্বল স্রোতে', প্রথম সংস্করণ, দ্বিতীয় মুদ্রণ ১৪১৭, পৃঃ ২১০

(৩) বিসর্জন, রবীন্দ্র-রচনাবলী, জন্মশতবার্ষিক সংস্করণ, পশ্চিমবঙ্গ সরকার, পঞ্চম খণ্ড, পৃঃ ৩৭৫

(৪) ঐ, পৃঃ ৩৭৬

(৫) ঐ, পৃঃ ৩৮৬

(৬) ঐ, পৃঃ ৪২৩

(৭) ঐ, পৃঃ ৩৭৪

(৮) ঐ, পৃঃ ৩৭৫

(৯) ঐ, পৃঃ ৩৮১

(১০) ঐ, পৃঃ ৩৯৬

(১১) ঐ, পৃঃ ৪০৬-৪০৭

(১২) ঐ, পৃঃ ৪১৭

(১৩) ঐ, পৃঃ ৩৮০

(১৪) ঐ, পৃঃ ৩৮০

(১৫) ঐ, পৃঃ ৩৯৮

(১৬) ঐ, পৃঃ ৪৩০

(১৭) উদ্ধৃত, ডঃ হীরেন চট্টোপাধ্যায়, পূর্বোদ্ধৃত গ্রন্থ, পৃঃ ২৮-২৯

জীবনের নাম রূপকথা

ডঃ বাসন্তী ভট্টাচার্য
বঙ্গভাষা ও সাহিত্য বিভাগ

স্বপ্ন আর সত্যি মিলে তৈরী হয় বাস্তব, বাস্তবের জমিতে স্বপ্নের পূরণ হয়ে ওঠা রং দে কল্পনাকে। রং -এ রেখায় ভরে উঠতে থাকে জীবনের চালচিত্র। আর তখনই জন্ম হয় রূপকথার।

এই জীবনে চাইলেই রূপকথার জন্ম দেওয়া যায় না। বরং রূপকথা জন্ম নেয় জীবনে কোন এক মুহূর্তে। যেমন করে সাঁঝআকাশে একটি দুটি করে জ্বলে ওঠে জোনাকিপোক তেমনই একটি দুটি ইঙ্গিতে রূপ নিতে চায় রূপকথারা। ঘুমিয়ে থাকা চেতনার গা অন্ধকারে তারার বিন্দুর মতই জ্বলে ওঠে রূপকথার সম্ভাবনা। ঠিক এমনি করেই জ নেয় 'সাঁঝবাতির রূপকথারা'। কবিপ্রকৃতির লেখক শ্রী জয় গোস্বামী বলে যান সাঁঝবা নামে একটি মেয়ের জীবনে রূপকথার গড়া - ভাঙার কথা। পেশায় অধ্যাপক, প্রকৃতি চিত্রশিল্পী সৈকত মিত্রর কাছে জীবন চেনা ছকে ধরা দেয় না। স্ত্রী ও মেয়েকে নিয়ে ম বিত্তের যে জীবন সে জীবনে প্রায়োজনিক চাহিদা অনেক কিছুরই থাকে কিন্তু মেয়ে জন্মদিনে বাবা কিনে নিয়ে আসেন ঘরজোড়া পরদা। নরম সবুজ পরদায় লণ্ঠন আ মোমদানের আলোয় ঘর হয়ে ওঠে মায়াময়। যদিও লণ্ঠন আর মোমদানি দুটি শিল্পী কাছে নিছক লণ্ঠন বা মোমদানিই নয়, বরং তাদের নাম আছে—'ইন্দ্রজাল' 'পূজারিণী'। হাওয়ার দুলুনিতে ঘরজোড়া পরদায় ওঠে আলোর ঢেউ আর সেই ঢে থেকে শিল্পীর ক্যানভাসে জেগে উঠতে থাকে মেয়ের মুখ। মেয়ে দাবি জানায় বাবা তে তার মায়ের ছবি ইচ্ছে করলেই আঁকতে পারে, কেন তবে আঁকে না। বাবার গলায় ফু ওঠে শিল্পীর চিরন্তন অসহায়তার কথা। ইচ্ছে করলেই কিছু সৃষ্টি করা যায় না, এমনি শিল্পীও পারে না শিল্পসৃষ্টিকে ইচ্ছাধীন করতে। জানা যায়, স্বশিক্ষিত আঁকিয়ে সৈক মিত্র তথাকথিত প্রতিষ্ঠিত কিছু শিল্পীর উন্নাসিকতা ও ঈর্ষার ফলে নিজের ছবি এগ্‌জিবিশন বন্ধ করে দিয়েছেন। এখন ছবি আঁকেন কেবল নিজের জন্য, আনন্দসৃষ্টি জন্য। এমনকি এও জানা যায়, প্রকৃতিমগ্ন সৈকত জল আর গাছের অনন্ত বৈচিত্র্যই এঁকে গেছেন দীর্ঘদিন। সৈকত মানুষের মুখ প্রথম এঁকেছেন আত্মজাকে দেখে, তাকে অন্ত অনুভব করে। সে অনুভবে আত্মজা কেবলই সন্তান নয়, সে ধরা দেয় আলোর এ অনন্ত উৎস রূপে; সন্ধ্যাবেলায় জন্ম নেয় বলেই সে হয়ে ওঠে সাঁঝবাতি।

সাঁঝবাতি ক্রমশ বড়ো হয়ে উঠতে থাকে। তার জগৎ গড়ে ওঠে বাবা, মা, বাবার বন্ধু নন্দজেঠু ও বাবার একদা ছাত্রী দীপুপিসিকে নিয়ে। এ সব কিছুর উপরে তার জগতে আলো থাকে তার বাবার কথার মধ্য দিয়ে পাওয়া এক অন্যতর জগৎ। সে জগতে কথার চেয়ে বড়ো হয়ে ওঠে অনুভব। সেই অনুভবের জগতে প্রতিদিনের দেখা সামান্য গাছ, সামান্য পুকুর, সামান্য মাঠ–মাঠের ধারে পুরনো চার্চ–চার্চের পাশে কবর খানা–কবরখানার ছাতা মাথায় বসে থাকা লোক –সবকিছু অসামান্য হয়ে ধরা দেয়। সাঁঝবাতি ওরফে টুকুন তার এই অনুভবের জগতে একমাত্র তার বাবাকে পায় সঙ্গী হিসেবে, তার বন্ধুরা তখন ক্লাশনোটস্, পরীক্ষা, প্রাইভেট টিউশন, কোন্ ছেলের সঙ্গে কোন্ মেয়ের সম্বন্ধ তৈরী হল কি হল না এসব নিয়ে কথা বলতেই ব্যস্ত থাকে। টুকুনের কোনো সঙ্গীও জোটে না। সে বড়ো হয় একলা –নিজের অনুভবের জগতে একলা।

এভাবেই একদিন সাঁঝবাতি অনুভব করে বাস্তব জীবনটা রূপকথা দিয়ে গড়া নয়, বরং বাস্তবতার কাঁটা ক্ষতবিক্ষত করে তা। মামার বাড়ি বেড়াতে গিয়ে প্রতিবেশী যুবক মনোজের ব্যবহার সাঁঝবাতিকে কেবল মনে নয় শারীরিকভাবেও অসুস্থ করে ফেলে। লজ্জা, ভয়, বিবমিষার কাঁটা– তার রূপকথার জগৎকে ছিন্নভিন্ন করে।

এমনি করে একলা চলতে চলতে সাঁঝবাতির সত্তায় জন্ম হয় আর এক সত্তার। সেই অন্যতর সত্তা যেন দেখতে পায় সাঁঝবাতি নিজেই হয়ে উঠেছে এক জ্বলন্ত শিখার মোমবাতি। সে দেখতে পায় এক খোলা জানালা–জানালার পাশে টেবিল–টেবিলে বইয়ের স্তূপ, আর এক নবীন যুবককে–যে পাঠরত। টুকুন যেন দেখতে পায় ঐ যুবকের সামনে মোম হয়ে জ্বলতে থাকা সে ক্রমশ গলতে থাকে। তার ভয় হয় তার জ্বলন্ত শিখার আগুনে পুড়ে যাবে যুবকের এগিয়ে আসা ঠোঁট। ভয়ে সে চিৎকার করে ওঠে। অন্ধকারে হারিয়ে যায় দৃশ্য। সাঁঝবাতি বুঝতে পারে এই দেখতে পাওয়াটা তারই কিন্তু তার ইচ্ছাধীন নয়। সে বুঝতে পারে তার বাবার কথাই ঠিক, রূপকথারা গড়ে ওঠে, তাদের গড়ে তোলা যায় না।

সময়ের সাথে চলতে চলতে সাঁঝবাতি এসে পড়ে কলকাতার জীবনে, ভর্তি হয় ইউনিভার্সিটিতে। নন্দজেঠুর ভাইয়ের বাড়িতে থাকবে, সপ্তাহান্তে বাড়ি আসবে। ভাব হয় নন্দজেঠুর ভাইঝি কেয়ার সঙ্গে। কেয়ার সূত্রেই পরিচয় ঘটে রঙ্গনের সাথে। সাঁঝবাতি আবিষ্কার করে রঙ্গনকে সে চেনে–এই সেই পড়ুয়া যুবক–তার অন্তরতর সত্তায় যে এসে সমর্পিত হয় তার কাছে। কেয়ার সঙ্গে সেই যুবকের অন্তরঙ্গ ঘনিষ্ঠতায় সাঁঝবাতির সমস্ত সত্তা ডুবে যায় গল্‌গলে অন্ধকারে। পড়া বুঝে নেবার ফাঁকে একদিন সাঁঝবাতি ভুলে যায় কেয়ার কথা। রঙ্গন–তার অন্তরতর সত্তার সেই পড়ুয়া যুবক আত্মসমর্পিত হতে চায়। সাঁঝবাতির স্বপ্নের রূপকথা সত্যি হয়। সাঁঝবাতিও ভেসে

যেতে চায় তার রূপকথার হাত ধরে। ঘটে ছন্দপতন। হঠাৎই ঘরে ঢোকে রঙ্গ
পুরনো পরিচারক গনেশদা। রঙ্গন বলে ওঠে, কেয়ার সঙ্গেও একদিন দরজা বন্ধ হ
—সেদিনও গনেশদা ঢুকে পড়েছিল এমনি করেই। ভেঙে ছড়িয়ে পড়ে সাঁঝবা
রূপকথারা। বিদ্ধ হৃদয়কে গ্রাস করে অন্ধকার গহ্বর।" সাঁঝবাতি বুঝতে পারে রূপ
গড়ে তোলা যায় কিন্তু ধরে রাখা যায় না এ ভঙ্গুর জীবনে।

শুরু হয় সাঁঝবাতির নীরব অপেক্ষা। রঙ্গন আর কেয়াকে তাদের রূপকথার রাজ্যে
কবে সে ফিরে যেতে পারবে তার বাড়িতে। একদিন পরীক্ষা শেষ হয়। সাঁঝবাতি
ফেরে। তার ভিতরে নিরন্তর অন্ধকার উগরানো কৃষ্ণ গহ্বরটাকে বন্ধ করতে চায় অ
ব্যস্ততা দিয়ে। এখন সে কথা বলে পূজারিণী আর ইন্দ্রজালের সঙ্গে। কিন্তু পূজারি
মত মোমদান হয়ে উঠতে আর সে পারে না। পারে না তার ভিতরে রূপকথা
জাগিয়ে তুলতে। প্রাণান্ত পরিশ্রমে সে যোগাড় করে একটা চাকরি। নতুন কাজ, ন
পরিচয়ের মধ্যেও দেখা দেয় না রূপকথার নতুন কোন ইঙ্গিত। বরং বিস্ময়মি
ব্যথাবোধে ভার হয়ে থাকে তার মন — 'সারাক্ষণ অপর কারও ত্রুটি সন্ধান চল
চলছে একটু আড়াল হলেই অপরের সমালোচনা ও তাই নিয়ে বিশ্রী হাসিতামাশা।
সেই সঙ্গে রয়েছে অন্যের জীবন সম্পর্কে কেবলই খবর সংগ্রহের চেষ্টা। কৌতূহল স
সীমা ছাড়াচ্ছে। নিজেরই সহকর্মী। একই ট্রেনে আসছে, টেবিলে টেবিলে পাশা
বসছে সবাই, একই সঙ্গে টিফিন করতে যাচ্ছে ক্যান্টিনে কিন্তু যেই কেউ আড়াল
সঙ্গে সঙ্গে শুরু হয়ে গেল অন্যের দোষ বার করবার, এমনকী তাকে বিপদে ফেল
চেষ্টা। আমাদের সঙ্গে যারা বসে শুধু তারাই নয়, প্রত্যেকটা ডিপার্টমেন্ট জুড়েই চ
এই রকম একটা অদ্ভুত জিনিসের চর্চা।" সাঁঝবাতি পালাতে চায় এই দমবন্ধ
হিপোক্রিট জগৎ থেকে। একটু আনন্দ পেতে চায় বাবার জন্মদিন পালন করে। ন
পরদা কেনে, নতুন পাঞ্জাবি কেনে। নিমন্ত্রণ করে নন্দজেঠুকে দীপুপিসিকে
কেয়াকেও। পা ভাঙার কারণে নন্দজেঠু ছাড়া সবাই আসে। একসময় কেয়া চলে
নন্দজেঠুকে খাবার দিতে যায় সাঁঝবাতি ও তার মা। ফিরে এসে অন্ধকার বা
পূজারিণী আর ইন্দ্রজালের আলোয় সাঁঝবাতি আবিষ্কার করে তার বাবা হয়ে
ফণিমনসা আর তার কাঁটায় আটকে গেছে দীপুপিসি। সাঁঝবাতি চেষ্টা করে এই
থেকে মাকে বাঁচাতে। কিন্তু তার মা দেখে এবং অসুস্থ হয়ে পড়ে। এরপর মাসছয়ে
মাথায় সাঁঝবাতির জন্মদিনে তার মা মারা যায়। একই সাথে যেন মরে যায় সাঁঝবা
রূপকথারা। যে বাবার কথা শুনে সে এই পৃথিবীর বুকে রূপকথাদের আবি
করেছিল, অনুভব করেছিল সেই বাবার সাথে সম্পর্কের সেতুটাকেই সে নষ্ট করে
কথা বলে না, বাবার মুখের দিকে তাকায় না। আর যে আত্মজাকে দেখে নিসর্গ
সৈকত মিত্র প্রথম মানুষের মুখ আঁকতে পেরেছিল, সেই শিল্পীর তুলি যায় থে

[illegible]কে একলা রেখে সাঁঝবাতি দূরের কলেজে চাকরি নিয়ে চলে যায় আরো একলা [illegible]।

[illegible] করে কেটে যায় পাঁচ বছর। এই সময়টুকুর মধ্যে পূজারিণী আর ইন্দ্রজাল ছাড়া সাঁঝবাতির বাকি অতীত তার সব প্রিয়জন, প্রিয় রূপকথা নিয়ে ডুবে গেছে অসহ্য অন্ধকারে। মাসে মাসে টাকা পাঠানো ছাড়া আর কোন সম্পর্কই সে রাখেনি তার বাবার [illegible], ফেলে আসা অতীতের সঙ্গে। টাকাও সে পাঠায় নন্দজেঠুর কাছে – বাবা জানে না [illegible] কথা। সেই ঘটনার দিনই সে দীপুপিসিকে তাড়িয়ে দিয়েছিল বাবার সাথে সমস্ত সম্পর্ক ছিন্ন করার আদেশ দিয়ে। তার কাছে রূপকথারাও আর এসে দাঁড়ায় না। [illegible]র সত্তার মধ্য দিয়ে যে যুবককে সে দেখত তাকে সে হারিয়েছে; রেললাইন ধরে [illegible] আসা যে মেয়েটিকে সে দেখত – যার পরণে তার শাড়ি, সাঁঝবাতির শরীরে তার [illegible] যার মধ্যে কখনো সে দেখত দীপু পিসিকে, কখনো নিজেকে, কখনো তার বাবার [illegible] ছবি চাইতে আসা এক ছাত্রীর মুখ – সেই একলা চলা মেয়েটিও আর ধরা দিত না [illegible] অনুভবে। সমস্ত রূপকথা বুঝি মুখ ঘুরিয়েছিল তার জীবন থেকে।

একদিন এল দীপুপিসির দীর্ঘ চিঠি। আত্মপক্ষ সমর্থনের নয়, শিল্পীর প্রতি নিজের ভালোবাসার স্বীকারোক্তি। অহঙ্কার, অসহায়তা অথচ অনিবার্যতা ভরা সে চিঠি সাঁঝবাতির জীবনে তুলল আলোড়ন। রাগ, ঈর্ষা, অধিকারবোধ একদিকে সব ভেঙে দিতে চাইল, তারপরেই হৃদয়ের তলদেশ থেকে উঠে আসা কোমলতা করুণ কান্নায় ডেকে দিতে চাইল সব ভাঙন। আর তখনই আলোকবর্তিকা পূজারিণী যেন হৃদয়ের [illegible] বলে উঠল কিছু কথা – দীপুপিসি যাকে ভালোবেসেছে সে সাঁঝবাতির বাবা। [illegible] বুঝি কন্যার অধিকারবোধ ভালোবাসার স্বরূপকে চিনতে বাধা দিয়েছে। অধিকারবোধের পুরনো চেনা সংস্কার দিয়ে ব্যক্তিজীবনের কাজ, আচরণ ও পরিণামের বিচার করলে ভুল তো হবেই। সৈকত মিত্র– সাঁঝবাতির বাবা – দীপুপিসির Sir–তার [illegible]েও তাঁর বড়ো পরিচয় তিনি শিল্পী। সৃষ্টির আগুন তাকে অশান্ত করে। স্রষ্টার অন্তরঙ্গ সেই আগুনকে সৃষ্টির অভিমুখী করতে দীপুপিসি আত্মসমর্পিত হয়। তাই বুঝি দীপুপিসির লজ্জা নেই। ব্যক্তিকে ব্যক্তিক সীমায় না বেঁধে রেখে জীবনের বড় চালচিত্রে তাঁকে দেখেছে দীপুপিসি। ভালোবাসার প্রতিদানের আশা না করেই দীপু ভালোবেসেছে আত্মমগ্ন স্রষ্টাকে। বলা যায় শিল্পীর স্ত্রীর আর দীপুর ভালোবাসা একই গোত্রের। সংসারের সমস্ত ঝক্কি সামলে শিল্পীকে নির্ভার স্বাধীনতা দেওয়া যে ভালোবাসার রূপ, সেই ভালোবাসারই অন্যতর রূপ হল শিল্পীর সৃষ্টিমগ্নতার আগুনে পুড়ে যেতে হবে জেনেও সে আগুনকে নিজের অবিবাহিত জীবনে ধারণ করা। একজন শিল্পীর স্ত্রী – ভালোবাসাকে গ্রহণ করেছে দাম্পত্যের পবিত্র কর্তব্যের আকারে, আর একজন শিল্পীর

অসমবয়সী অবিবাহিত ছাত্রী এমনকি যাকে শিল্পী সেই অর্থে কোনদিন ভালোওবাসেনি, সে শিল্পীর প্রতি ভালোবাসাকে গ্রহণ করেছে অন্তরের তাগিদে। কল্পনায় ভেসে ওঠা ভাবনা রং – তুলিতে ফুটিয়ে তুলতে না পেরে শিল্পীর ভিতরে জ্বলেছে অশান্তির আগুন। সে আগুনের সন্ধান দাম্পত্য জীবনের দৈনন্দিনতায় স্ত্রীর কাছে ধরা দেয় নি। অথচ সে আগুন নিভিয়ে শিল্পীকে সৃষ্টিমুখী করে তুলতে সেই আগুনকে ধারণ করেছে দীপু। শিল্পীকে দিয়েছে বন্ধনহীন মুক্তি। স্ত্রীর আত্মনিবেদন সংসারের সীমায় আর মুগ্ধ ভক্তের আত্মনিবেদন জগৎসংসারের অসীমতায়। কিন্তু সমাজের চোখে একটি সমর্থিত অন্যটি পরকীয়া। একটি উচ্চপ্রশংসিত অন্যটি নিন্দিত ও ধিক্কৃত। এমনকি শিল্পীর আদর্শে যত্নে গড়ে ওঠা তাঁর আত্মজার মনও মেনে নিতে পারেনি শিল্পী - বাবার মানসিক মুক্তির উপায় টুকুকে। সে ত্যাগ করেছে দীপুপিসিকে, ত্যাগ করেছে তার বাবাকে। আর তাই বুঝি নিভে গেছে সাঁঝবাতির সব আলো, হারিয়ে গেছে তার জীবনের রূপকথাদের গড়ে ওঠা।

এরপরেই এসেছে নন্দজেঠুর চিঠি। সাঁঝবাতির কাছে বহন করে এনেছে তার বাবার খবর। চোখের চিকিৎসক পাঠিয়েছেন সাইকিয়াট্রিস্টের কাছে। তিনি বলেছেন দেরি হয়ে গেছে। সাঁঝবাতির মনে পড়েছে শেষ দুবছর তার বাবা কথা বলেন না, আঁকেন না। তার বাবা মনে করেন এ পৃথিবীতে যে বিশ্বাসভাজন নয়, সে শিল্পী হতে পারে না। এমনকি অন্ধ হয়ে যেতেও তাঁর আপত্তি নেই কারণ অন্ধ হলে অন্তত নিজের মেয়ের মুখে ঘেন্নার দাগ দেখতে হবে না। সাঁঝবাতির মধ্যে জেগে ওঠে বাবার কাছে ফিরে যাবার তাগিদ। পূজারিণী ও ইন্দ্রজাল দুই আলোকবর্তিকাকে সঙ্গে নিয়ে সাঁঝবাতি ফিরে চলল তার বাবার কাছে।

বাবাকে আবিষ্কার করল সাঁঝবাতি পুকুরধারে। জলের গভীরে নিমগ্নদৃষ্টি। মেয়ের ডাকে ফিরে তাকালেন কিন্তু চিনতে পারলেন না। দৃষ্টিপাতে যাকে চিনতে পারলেন না তাকে চিনলেন স্পর্শ করে। সাঁঝবাতি বুঝল জলের দিকে তার বাবার গভীর মনোযোগের কারণ সে নিজে। অনেকদিন আগে ঝরে পড়া বৃষ্টির অজস্র ফোঁটায় এঁকেছিলেন মেয়ের মুখ। জলের ফোঁটা জলে মিশে গেছে। কিন্তু জলের নীচে পড়ে রয়েছে তাঁর আদরের মেয়ের মুখ। তিনি তাকিয়ে থাকেন, অপেক্ষা করেন কখন সেই মুখ ভেসে উঠবে। কান্নায় ভিজে যাওয়া মেয়ের মুখকে তিনি পরম মমতায় মুছিয়ে দেন দিঘিরই জল ভেবে।

সাঁঝবাতি চেষ্টা করে বাবাকে আঁকার জগতে ফিরিয়ে আনতে। প্রথমবার ব্যর্থ হয় সে। ক্রমে মেয়ের সান্নিধ্যে শিল্পীকে আবার ফিরিয়ে আনে আঁকার জগতে। বোঝা যায় আঁকার আগুন বাবার মধ্যেই আছে, নিঃশেষ হয়ে যায় নি। যাকে কোনদিন শিল্পী নিজের

[illegible]নার ক্ষেত্রভূমিতে খোঁজেন নি সেই নারীই আজ ফুটে ওঠে তাঁর তুলির টানে। [illegible]নের গভীর থেকে স্বতঃস্ফূর্তভাবে জেগে ওঠে তাঁর স্ত্রী - সাঁঝবাতির মা।" [illegible]র সাধনক্ষেত্র থেকে শিল্পের লীলা ভূমিতে হয় তাঁর নবজন্ম।

[illegible]সাথে ঘটে সাঁঝবাতির নবজাগরণ। এই পৃথিবীকে রূপকথা দিয়েই চেনা যায়, [illegible] যায়, পাওয়া যায় — হিসেব নিকেশের পাওয়া নয়, অনুভবের জগতে পাওয়া। [illegible] যোগাযোগ ঘটে ঘাসের সঙ্গে, জমির সঙ্গে, পৃথিবীর সঙ্গে। বাস্তব পৃথিবীতে [illegible] মুক্তি ঘটে। বালির মরুতে ঝরে বৃষ্টির ঝরণা। সেই মুক্ত দুনিয়ায় আবার গড়ে ওঠে [illegible]কথারা। রূপকথারা তো ভালোবাসা দিয়েই তৈরী। তাই ভালোবাসার সেই [illegible]রা পৃথিবীতে রাগ — অভিমান — অধিকারবোধ কিছুই আর মনকে বেঁধে রাখতে [illegible] না, ডুবিয়ে দিতে পারে না কোন অন্ধকারে। রূপকথারা হারিয়ে গেলেও তাদের [illegible] ফিরিয়ে নিয়ে আসে সর্বস্ব পণকরা একটা জীবনজোড়া নিরুপায় ইচ্ছে। ব্যথায়, [illegible]তে থমকে থেমে থাকা মন আবার চলতে শুরু করে রূপকথার হাত ধরে। খুঁজে [illegible] যায় ঘাসের মধ্যে হারিয়ে যাওয়া ছোটবেলার পুঁতি, উড়ে বেড়ায় আগুনডানা [illegible]" জ্বলে ওঠে সাঁঝবাতি, রূপ নেয় রূপকথারা।

[illegible] সূত্র -

[illegible] সাঁঝবাতির রূপকথারা /জয় গোস্বামী / আনন্দ পা.প্রা.লি/ ২০১১/ পৃ ৯২-৯৩

[illegible] ঐ ঐ ঐ ঐ পৃ ৩৭

[illegible] ঐ ঐ ঐ ঐ পৃ ১০৬

[illegible] ঐ ঐ ঐ ঐ পৃ ১১৩

[illegible] ঐ ঐ ঐ ঐ পৃ ১২৫-১২৬

[illegible] ঐ ঐ ঐ ঐ পৃ ৬১

[illegible] ঐ ঐ ঐ ঐ পৃ ১৪১-১৪৯

[illegible] ঐ ঐ ঐ ঐ পৃ ১৫২

[illegible] ঐ ঐ ঐ ঐ পৃ ১৫৪

[illegible] ঐ ঐ ঐ ঐ পৃ ১৫৪

Mother Nature and Her Children in Mahasweta Dev
The Book of the Hunter

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(Abstract: Mahasweta Devi's novel *The Book of the Hunter* fictionalize
lives of Shabars, the tribal communities who are originally forest-dwe
Hunters are by profession the killers of animals but while reading the n
one is struck by their endearing relationship with nature whom
worship as the 'mother'. This paper intends to explore
interrelationship with a particular focus on Mahasweta Devi's delinea
of customs, myth and nomadic identity of the Shabars in her book.)

The conceptualisation of nature as mother is an age-old phenome
practiced since time immemorial. In her seminal work *The Death of Na*
Carolyn Merchant posits the ancient identity of nature as a nurtu
mother - an image which was central to the organic cosmology - 'Centr
the organic theory was the identification of nature, especially the ea
with a nurturing mother: a kindly beneficent female who provided for
needs of mankind in an ordered, planned universe' (Merchant
According to her this nurturing image of the earth has served as a 'cult
constraint' restricting the actions of human beings. Vandana Shiva in
book Staying *Alive* shows how in India nature is symbolised as
embodiment of feminine principle. 'All the forms of nature and lif
nature are the forms, the children, of the Mother of Nature who is na
itself born of the creative play of her thought'(Shiva,39). While Merch
studies the image of nature from Western perspective, Shiva's
centres on the Indian culture and practices.

Worshipping nature as 'mother' attains a new symbolic implication in
Book of the Hunter- a novel in which Mahasweta Devi (b.1926) expl
the lives of Shabars who describe themselves as the children of the for
She is an eminent writer in Bengali literature whose creative oe
encompasses a wide range of subjects such as history, folklore and
condition of the marginalised people. She was conferred Sah

Academy award in 1979, Padmashree in 1986 and Jnanpith award in 1996 her work – *Chotti Munda Ebang Tar Tir*-has been translated as *The Chotti Munda and His Arrow* by Gayatri Chakroborty Spivak. In an interview with Spivak recorded as 'Telling History', Mahasweta revealed how she felt an urge to document the tribal life since she sensed that this life is gradually vanishing because of 'the cultural invasion' and her fictions intend to record the unwritten . She points out that 'If we have to know about tribals, we have to go back in tradition, in oral tradition, re-read something that is not written, or written in human beings, generation after generation'(Devi, '*Telling History*' ,xiv-v) . Her fiction '*Byadhkhanda*' was first published in Bengali in 1994 and has been translated into English by Mandira and Sagari Sengupta as *The Book of the Hunter*. In the translators' note Wisconsin Madison points out that in *Byadhkhanda* Mahasweta wanted to 'contribute to the reconstruction of Shabar tribal history and identity, and to inform and instruct mainstream Indian society'. In the preface Mahasweta candidly expresses her indebtedness to Mukundaram's epic poem *Abhayamangal* in which the life of the hunting tribes is described. In her own words: 'What I have written here is utterly a work of fiction, a novel. Mukundaram's poem was my source, but while writing about the life of Shabars, I have combined what I know from his book, my own modest familiarity with the subject and my life's quest.'

Set in the sixteenth century Bengal the novel documents the practices of the Lodha Shabars whose lives are inextricably linked with forest .They are the hunting tribes and therefore kill animals for survival. But the forest is more than a mere source of sustenance to them. They worship her as 'Abhayachandi', the mother goddess who protects them and provides everything for their living. The story interweaves the story of Mukundaram representing the Brahmin and Kalya who represents the Shabars community. In his urge to create a great piece of literature, the Brahmin poet Mukundaram leaves Daminya and has settled in the village of Ararha where he meets the Akhetiyas – the hunters- who live in the outskirt of the town. Kalya explains with pride that they are Shabars who are the ' children of the jungle' and who "live in the lap of the jungle," (Devi, 52). He asks Mukunda , "Haven't you seen Chandir Bon from afar?" Mukunda can only answer as "Yes, I have, from a distance....". Kalya informs him of the unwritten law of the forest who is worshipped as Mother Abhaya. According to this law no one but the Shabars are allowed to enter the

forest. 'Our mother has covered herself with the jungle. ... No one but a Shabar is allowed to go there – that's Mother's law. Elephants as big as mountains and huge pythons keep watch over it.' (52). Mukunda asks whether they are not afraid of the forest and Kalya roars with laughter 'Don't you know? Mother assures us against fear! Abhaya , the fearless one, gives you a boon of fearlessness! And to everyone and everything The forest, the animals, the birds, and the Shabars – she gives them all courage and keeps them under her wing. This is a mysterious thing Thakur!' (53).

The conceptualisation of the forest as the mother Goddess securing and protecting them has given the Shabars an identity of their own. Living in the bosom of the forest they do not consider themselves as poor and therefore, remain satisfied with whatever they get from the jungle. The women sell meat, feathers, skins, wood, honey, incense, fruits, kul, roots and bark but they buy nothing except for rice, cloth, salt, pepper and oil. Mukunda comes to know from Kalachand that they mind their own business and are perfectly happy. They do not care for ploughing 'whatever comes out of the jungle they'll eat it scalded or roasted. They won't work on any schedule, they won't farm, and they will retort, why plough when there's a forest?'(76) By selling acacia berries, ritha fruits, amla and ripe hartuki that they gather in the forest, they buy rice and oil with the money. The festivals of the Shabars are also linked with the nature: 'They marry the sal tree to the mohul tree in the month of Phalgun and dancing then they go singing and dancing around the trees all the night long. ... Just like the birds of the forest' (76).

Depended as they are on the forest for their sustenance the Shabars protect her by every means . To them forest is their goddess mother so her sanctity must be maintained. When the traders came looking for one hundred skins of male deer, each skin of which goes for a rupee coin, which buys a *maund* and a half of rice, Kalya drove them away. It was the mating season for the deer and who kills a deer during this period would have Abhaya's curse upon them (95). When Megha Shabar kills pregnant deer knowingly or unknowingly his work is deemed as a sin and he loses his right to become chief through his offence. Danko ,the chief ,says to him , You live in Abhaya's jungle , and she is the creator , nurturer and protector of all living beings on and water. To disobey her law is the greatest of all sins (99) Protecting the sanctity of Mother Nature thus becomes a part of the

existence. The elephant that Kalya chose to kill to get the tusks is an old law and Tejota's father justifies the hunting as heroic one because the elephant is looking for a place to die, his time is drawing near, no fault in hunting him now (135).

Tejota the mother of Kalya and other two sons is the head of the Shabars , and she knows the secret knowledge of the origin of the Shabar community. The novel traces the mythical origin of the Shabars according to which the Goddess had blessed them with pots of riches and made themselves the rulers. The story of Kalketu and Phullora records the conflict with the Brahmins who defied their right to worship the Goddess Mangalchandi who have her holy place in the forest. The Brahmin tried to kill the goddess was cursed and met his doom. The goddess can only be worshipped with blue gandharaj ; but when Kalketu brings it the priest refuses to offer it to the goddess and thus causes the wrath of the goddess. However the devi herself chooses to wear the garland and takes the test of Kalketu. She takes the form of a golden monitor lizard and gets bound by the hunter. Later on she reveals herself and gives Kalketu the boon that he will be the king Megbahan. Mahasweta Devi's fictionalization of the lives of Shabars and their worshipping Earth Goddess reminds us of other cultural practices - In Inca mythologies nature is worshipped as the Mother Goddess, Pachamma, who presides over planting and harvesting. The Nigerian author Chinua Achebe in his novel *Things Fall Apart* (1958) has fictionalized the lives of the Igbo communities who worship the earth Goddess Ani by holding the Feast of the New Ham. She is the source of all fertility and played a greater part in the life of the people than any other deity (Achebe, 26) .

The Shabars are basically nomads - they cannot live without the forest and they have to shift their settlement when the city engulfs the forest. Since they have a total dependence on the forest mother, they do not have any personal attachment to any place: 'We just live wherever Ma puts us at any time.' (73) They are not afraid of the advancement of the town Ararha : If the town of Ararha advances further ,they will take down their houses and pack up and leave. Yet they are very much aware of the fact that there is no escaping time. They know that the more others encroached the more their existence would be threatened: A Shabar home should be a bird's nest. It breaks down, you build it again (125). Indeed they live like birds: satisfied with little things in life, depended on nature for their sustenance, with

little attachment to place where they belong . Mahasweta Devi's n
introduces us to this world where pristine nature and her children susta
relationship which is beyond the limits of the civilized world. As Ga
Chakravorty Spivak has observed : 'Mahasweta's fiction resonates
the possibility of constructing a new type of responsibility for the cul
worker in a world that is already under way'(Devi, *Imaginary Maps.*
The Book of the Hunter offers a new perception in our treatment of na
and defining our relationship with her.

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Tennessee Williams's The Glass Menagerie: A Memory Play With Symbolic Overtones

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Tennessee Williams's most explicit dramatic portrayal of his family occurs in The Glass Menagerie. The play is set in ST. Louis, where the Williams family lived after 1981. Tom Wingfield begins the Glass Menagerie by remembering the 1930s as a "quaint period" His approach prepares the audience for his poignant memory. Tom Wingfield serves the historical context of the drama so much so that he looks back on his family's experience and realized that they belong to a larger drama whose cast includes millions of Americans.

Tom, the narrator of the play, dreams of being a writer and represents Williams. The play opens in the Wingfield family. Amanda lives here with her crippled daughter Laura and her son Tom. Laura is physically and socially crippled. Amanda is a fading personality who lives in the past. The action of the drama begins Amanda persuading Tom to bring a "gentleman Caller" who they expect and hope will marry Laura and provide for her future, even though Laura has never had any callers, and expects none. Laura lives in a world of candlelight and fantasy. Laura, the morbidly shy and delicate, is as fragile as the little glass ornaments and phonograph records that are her escape. Tom brings a man whose name is Jim O' Connor. As Jim and Laura get talking, Laura loses some of her shyness; She is rather charming. Jim, the gentleman caller later informs Laura that he is already engaged. Amanda is stunned and upset. And this accidental chapter caused Laura to retreat more deeply in her fantasy- world of records and her glass collection. Laura has no plan for the rest of her life. She has accepted her isolation as hopeless. Each day she repeats a routine of caring for her menagerie and playing music.

The play ends with Tom, some years in the future, thinking back on his "crippled" and lonely sister Laura whom he can never forget.

A professed "memory play", The Glass Menagerie seems to develop and

derive its continued if wavering force from its partly repress
representation of the quasi- incestuous and doomed love between To
Wing field and his crippled, "exquisitely fragile", ultimately schizophre
sister, Laura. For Williams, life itself, through memory as its agent, shatte
itself and scatters the coloured transparencies of the rainbow, whi
ought to be, but is not, a covenant of hope.

The setting of the drama is interesting in its symbolic and technic
experimentation. Moving from the deep south to St. Louis for his sto
Williams retains the memory of the south, as a haunting presence und
the superimposed Midwestern setting. Since the setting of the Gla
Menagerie is that of a "memory play", Williams could feel free in
staging. Tom, the narrator, through whose consciousness we see the ent
action, tells us at the start, 'The play is memory .....Being a memo
play, it is dimly lighted, it is sentimental, it is not realistic. Once Tom's init
address to the audience establishes the entire playas memory, the acti
begins.

The means which Williams has used to give form to his vision of individu
who fail to communicate with one another are symbolic rather than liter
There is an ironic commentary-on the essentially static surface of t
"memory play". His development of The Glass Menagerie as a "memo
play", organized around Tom's remembrances of things past, ga
Williams the freedom to develop the "new plastic theatre" of which
spoke in the author's production notes to the published versions of t
play.

Memory colours everything in the play with subjective and personal hue
This may explain why he chose a fairly unfamiliar line from a French poe
for two of his projections at the beginning of the play. Willia
incorporated cinematic techniques in-The Glass Menagerie as a means
allow the audience to gain access to Tom's memory, Tom's remembranc
image before he re-creates the dialogue. In his memory the dialog
achieves poetic texture, evoking a touching lyricism.

Memory touches the heart in The Glass Menagerie, but it never breaks
Such is the chief virtue of Williams' sense of distance. In classical trage
the hero also lives in a world of memory, and he often has difficulty copi
with the past. In tragedy that is where the problem always seems to beg
the past. The origin of the suffering of humanity, as portrayed by Oedip
lives in the unremembered past.

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This "memory play", as the author preferred to classify it, effectively uses lighting, music, screens and other devices to reveal how past events can forcefully affect the present. Set in a bleak period of American history, it provides insight into the ways different members of a family cope with forces of change.

We claim the memory because much of it belongs to all who have lived in the twentieth century. Amanda reaches out to us because we recognize in her a sense of tradition that characterizes many reared in distinctive regions. Although her compulsive repetition of stories from her youth may appear foreign to many, by impulse to preserve her single-parent family seems as familiar as the morning newspaper. Laura and Tom have experienced modern life in typical fashion. And who cannot recognize Jim, that "nice, ordinary, young man"?

Since 1945 The Glass Menagerie has been performed constantly and the audience and readers of the play with fresh memories of the Great Depression and World War II, readily grasped the references to social events.

The world in which the characters live, move and breathe is unmistakably that of the United States of the 1930s. In drama such verisimilitude lends the aura of authenticity, and in this regard Williams is paying his respects to Chekhov and the realists. This drama depicting the Wing field family's moment of crisis is analogous to a larger drama being played out on the stage of American history. While the characters are in the popular culture of America during the 1930s, they also embody traditions and trends that help make the analogy work.

The tendency of Americans to ignore the meaning of world events is made vivid by the popular, success-oriented Jim O'Connor who glances occasionally at the sports section while ignoring the newspaper's headlines about Franco's revolution and Hitler's storm troopers. When concludes the play, we realize the cumulative effect of the many references to social conditions and worldwide political unrest. It is that America is a sleeping giant, soon to spring forth from its slumber. Rather its citizens have failed their eyes, complacently opting for the security of self-deception. The Glass Menagerie is more than Williams' private glimpse into the lives of the Wing fields. It is also a memory of America during a critical period of history, the Great Depression. The play is firmly rooted in

the fertile soil of the intellectual and political history of the tw
century. The playwright deliberately incorporates popular cultur
trends, and historical developments appropriate for the circumst
the period. To read the play merely as Tom's subjective memo
family is to overlook a fairly obvious effort by Williams to create a
of a truly contemporary time and place.

With a characteristic touch of irony Tom Wing field begins th
Menagerie by remembering the 1930s as a "quaint period". His a
perhaps prepares the audience for his poignant memory. A
opening monologue makes it clear, however, twentieth century
itself was experiencing a surprising turn of events. He looks bac
family's experience and realizes that they belong to a larger drama
cast includes millions of Americans. Williams incorporates the ch
with their memory other realities of the American nation in the
When he translates that larger memory into the perfect disg
illusion, he creates a masterpiece of the imagination we know as Th
Menagerie. Tennessee Williams becomes a voyager through som
crucial decades of the twentieth century. Tennessee becomes the
the American Society.

John Gassner described Tennessee Williams as the "Drama
frustration" because Williams had captured with rare skill the tru
lives of his characters, caught in a world of their own illusions and
to break out. The means which Williams has used to give form to thi
are symbolic rather than literal.

Williams has often asserted that he is the poet in the theatre. Aga
again he has stressed the inadequacy of the literal significance of w
convey meaning. In The Glass Menagerie this problem is expressed
poignant interview between Tom and his mother. Like his dr
forebear Chekhov, Williams is constantly faced with the yawni
between his characters' feelings and their ability to verbalize. In Wi
work this gap often threatens to become an abyss into which the pla
collapses. His critics have been quick to point out when the playwri
substituted strident symbolism for effective dramatic situation.

The particular excellence of The Glass Menagerie is that Williams wa
to sustain both a credible dramatic situation of the anticipatio
appearance of the gentleman caller at the same time that he deve

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with extraordinary skill the secondary level of allusion which gives to the drama its full symbolic significance. The patterns of allusion, the lightness of poetic texture, transform the pathetic story of the Wing field family into a calamity of immense proportions.

The structure of the play helped Williams to move away from realistic drama and too great a dependence upon only the literal significance of word or action. *His development of The Glass Menagerie* as a "memory play", organized around Tom's remembrances of things past, gave Williams the freedom to develop a quality and metaphor which one critic sees as contrast to William's art. If we move from the play's poet, Tom, to the question of the play's poetry, certainly the play's most clear and most obvious organizing image is the glass menagerie itself, which embodies the fragility of Laura's world, and like Ibsen's, Wild Duck, the menagerie is almost too strident a symbol. But again like Ibsen, Williams does not hang the entire play upon his title symbol; instead he gives to the play as a whole a poetic texture and a wealth of ironic allusion. The pattern of imagery is as important to The Glass Menagerie as it is to Ibsen's Wild Duck, conflict between illusion and reality is shaped in terms of visual imagery, of motion toward and away from light of various kinds.

The religious symbolism pervades the play and there is symbolic characterization of Jim. The peculiar glass figurine grows to prominence only in the last scene- the interview scene between Laura and Jim. Thus far in the play, it had been only an undistinguished part of the glass menagerie, Laura's fragile refuge against the unbearable tension of the outside world. In the course of the interview the small animal comes to be connected with both Laura and Jim. This double association points to its two- fold symbolic meaning.

When Laura designates the unicorn to Jim's attention as the figurine dearest to her, she also points to the horn on its forehead and admits that its singularity may make him feel lonesome and certainly makes him unfit for a life in a world tending to reduce living creatures to "One interfused mass of anomalism". Her warning to Jim "Oh, be careful-if you breathe, it breaks!" may well connote that it is only an imaginary creature, a mythic lie and that breathing, a basic manifestation of real life, might be too much of a test for it as it is, in a different sense, for than the glass collection as a whole, a perfect symbol for Laura since, to the overtones of fragility and

delicate beauty of all the glass figurines, it adds those of uniqueness an as a consequence almost, of freakishness.

But at the same time the breaking of the unicorn marks the capital turni point in Laura's life when the flickering, immature world of glass toys los its attractiveness in her eyes and she feels in her eyes and she fee resigning in her, the desire to disregard her freakishness, to belong to th world of the adults. The event symbolizes a kind of emotional defloratio the girl's irreversible loss of childlike innocence unavoidably mutilatio that Williams sees necessarily accompanying the process of growing up.

What Jim takes with him is the symbol of Laura's short- lived hopes, souvenir of the normal girl he aroused in her for too brief a moment. Th action of the play is not about a group of misfits who fail to adjust to realit Jim is "an emissary from a world of reality" not the world of reality. All th characters in the play live in private illusionary worlds. Williams presenting an action that is making a universal statement about what h sees as the human condition. Amanda lives "vitally in her huma condition" of a past age of gentleman callers; Laura gives in a world of gla animals and old record; Jim lives in an illusory world of hopes of succe and even Tom lives in the world of art. He escapes to the movies and in the world of writing.

Sometimes, Willlams tends to overwhelm us with symbols, apparently fo their own sake, but in The Menagerie the symbols, are employe effectively as organic elements in his poetic concepts. The most discusse is the glass unicorn from Laura's little menagerie. William's use of it revea him at his poetic best and is used dramatically to symbolize a change relationships between two of the characters- Jim and Laura. The use of th symbol is not static but dynamic, embodying and underlining a maj alternation in relationships. And again and again the awfulness of th absurd reality symbolized The Glass Menagerie by the alleys outside th Wing field apartment, the individuals give their lives meaning by usin their imaginations to create fragile glass menagerie worlds-worlds that a "truth in the pleasant disguise of illusion."

The attitude of Williams in the Glass Menagerie is 'poetic' rather 'realistic The details of the script, as scholars often have written, reveal ho Williams as a poet uses the symbols of glass and motion pictures, as well a poetic speech patterns. But there are many other patterns and symbols a

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work in the play. As a great work of the imagination, it probably always will remain forever offering new and interesting reflections for all who bring to bear the mind's best light.

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The Child Marriage Restraint Act And Indian Wome Organized Efforts: Pre-independence Era

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The Age of Consent Act, an act to raise the age of consent for marrie from ten to twelve, was passed on March 19, 1891.[1] in the midst of opposition. It was yet another instance of social legislation of th century, accompanied by the support of the liberal reformer softening the coercive aspects of Hindu patriarchy while ensurin stability of patriarchal family.

Geraldine Forbes thinks that by this time, many of the best educate influential men were involved with nationalist politics and "wo question" was no longer a subject on which educated Indians and rulers could agree.[2] Many of them doubted the efficacy of legal mea even as these changes were enacted. Janaki Nair writes "The age modernization to which both colonialist and nationalist discours claim, did not, indeed could not, include the wider transformati Indian society."[3] Moreover the enforcement of the Act was very d both from the perspective of reporting and verification of crime as that of proving the girl's age when births were still not registered.[4] Th effort to bring about a concrete change in the position of wom significance was indeed limited.[5]

But the concern over child marriage had not completely died down. women's writings as well as the opinion of medical practitioners wh witnesses of premature maternal deaths played an important r keeping it as a live issue in social psyche.[6] Thus women's relative s during the Age of Consent controversy was being broken by a new vo

After the swadeshi period, women's writings reflected incre awareness of implications of early maternity affecting women's he The importance of women's professional training was emph Particularly mentioned were training in midwifery, handicrafts, rearing, medicine and nursing so that they could earn their living in

of necessity, such as widowhood. But in order to facilitate this, child marriage should be eradicated.[8] Thus new dimensions were added to the criticism of child marriage. It was women's participation in the swadeshi movement that had intervened between the two stages in the writings, followed by women's active participation in the suffrage, the Gandhian and revolutionary movements in the 20s and 30s of the 20th century.

Dr. Hari Singh Gour's attempts to raise the age of consent for girls in 1924 and 1927 as well as Sir Alexander Muddiman's introduction of a Bill in September 1, 1925 to amend Section 375 of the Indian Penal Code had not been a success.[9]Government appointed a strong Committee on June 25, 1928 under the chairmanship of Sir Moropant Visvanath Joshi,Home Minister of the Education Council of the Governor General of the Central Provinces, to undertake comprehensive survey of the whole question with a view to take further action. The Committee included only one Indian woman, Mrs Rameshwari Nehru, recommended by the Women's Indian Association (WIA).[10]

The women who were interviewed by the Committee favoured sixteen as the age of both marriage and consent.[11] Some of the prominent Bengali women witnesses were . Rajkumari Das, Principal of Bethune College, Lady Protima Mitter,Jyotirmoyi Ganguly, Leela Nag, Secretary of Deepali Ladies Association of Dacca, Lotika Basu, Secretary of Chittaranjan Seva Sadan,Mrs J.C.Chattrjee and Mohini Chatterjee. Deputations from Patna was led by Sushama Sen and Mrs S.K.P. Sinha, from Benaras by Nistarini Devi and Sashimukhi Bhaduri and from Shillong by Saradamanjari Datt.[12] A consensus was growing among men too, about raising the age of marriage.[13]

Rai Saheb Harbilas Sarda introduced Hindu Child Marriage Bill on February 1, 1927,to restrain the solemnization of child marriages among the Hindus.Sarda was categorical that the Age of Consent Act (1891) could not touch the real problem –child marriage.A week after the publication of the Report of the Age of Consent Committee on August 26, 1929,the Sarda Bill amended by two Select Committees, was debated. Finally the Bill was amended to read fourteen for females and eighteen for males, and was approved.[14] The Sarda Bill was passed as The Child Marriage Restraint Act(Act XIX) on October 1,1929 and came into force on April 1,1930.[15]

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Rai Saheb Harbilas Sarda introduced Hindu Child Marriage Bill on February 1, 1927,to restrain the solemnization of child marriages among the Hindus.Sarda was categorical that the Age of Consent Act (1891) could not touch the real problem –child marriage.A week after the publication of the Report of the Age of Consent Committee on August 26, 1929,the Sarda Bill amended by two Select Committees, was debated. Finally the Bill was amended to read fourteen for females and eighteen for males, and was approved.[14] The Sarda Bill was passed as The Child Marriage Restraint Act(Act XIX) on October 1,1929 and came into force on April 1,1930.[15]

Women enthusiastically discussed the Sarda Bill and recommendations [illegible] the Age of Consent Committee at a ladies' meeting convened by th[illegible] Deepali Association on September 4, 1929 at the Rammohun Library Ha[illegible] It recommended the age of fifteen, both as age of marriage a[illegible] consent.Ladies meetings were held at different parts of Calcutta [illegible] support of the Bill.[16]At the Dacca Hindu Conference, women delegat[illegible] along with the male representatives of different districts,voted for th[illegible] Sarda Bill.[17] Speeches on the baneful results of early marriage and ea[illegible] motherhood were delivered at a meeting attended by three hundre[illegible] ladies,held under the auspices of Deepali Sangha in Dacca's Jaganna[illegible] Hall.An open support was extended to the Bill.[18]

Women's organizations through their united efforts tried to reach t[illegible] less-privileged women in the remote corners of Bengal. Saroj Na[illegible] Memorial Women's Welfare Association became a pioneer in this. [19]Und[illegible] the auspices of the presidentship of Sarala Sen,a ladies' meeting was he[illegible] at Barisal by the Saroj Nalini Women's Welfare Association on Septemb[illegible] 14, 1929.It passed resolution suggesting fourteen as the marriage age [illegible] girls. [20] Higher age for marriage was advocated to enable girls to [illegible] acquainted with nationalist ideology.This was also expected to facilit[illegible] social approval for raising the age of marriage.Mahila Samities [illegible] Mymensingh, Bankura, Noakhali and Chittagong passed resolution[illegible] support of the Bill.[21]

The All India Women's Conference (AIWC) adopted several means to m[illegible] their views known to the Government. The first ladies' deputation led [illegible] the AIWC to the Viceroy Lord Irwin in 1928 was headed by Rani of Mand[illegible] included Mrs. S.R. Das, Saraladevi Choudhurani, Rameshwari Nehru, [illegible] Ambalal Sarabhai,Begum Hamid Ali, Kamaladevi Chattopadhyay, Marga[illegible] Cousins and eleven others.The deputation was considered successfu[illegible] the Viceroy showed sympathetic attitude towards social reforms, affec[illegible] women.[22]Recommendations were placed that the minimum age [illegible] marriage of girls be fixed at sixteen and boys that of twenty one. Ra[illegible] the age of consent alone would be futile without raising the ag[illegible] marriage.The deputation members cited instances of disast[illegible] consequences of early consummation.[23] Even Sushama Sen along [illegible] Kamaladevi Chattopadhyay, Srirangamma and others met the member[illegible] the Age of Consent Committee to press their views and counter [illegible]

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ments raised by the opponents of the Bill based on religious and popular sentiment.[24]

The AIWC not only mobilized public support for the smooth passage of the Bill but throughout the year 1929-1930, formed small committees to watch and prevent child marriages. The measures they adopted were persuasion and pressure, propaganda through press and platform, magic lantern lectures, popular songs and holding protest meetings.[25] It is significant that in their support for the Bill ,the members of the women's organizations cautiously presented women's emancipation as extension of their role in joint families as mothers and housekeepers. The activities of the AIWC was in tune with nationalist politics.[26] In a public meeting convened at Ahmedabad on September 19, 1929 by the AIWC,a resolution was passed in support of the Sarda Bill.Here Sarojini Naidu voiced her opinion forcefully that social regeneration was the foundation of political emancipation of India.[27].She was a relentless critic of social evils, affecting women. In the passing of the Child Marriage Restraint Act, Sarojini's active support and effort played an important role.[28]

A pioneering women's rights crusader and a leader of the crafts movement in India, Kamaladevi Chattopadhyaya, who later became the President of the AIWC, demonstrated how inextricably the women's question was united with social and political question;the national struggle for freedom was essential for women's emancipation without destroying social equilibrium. She spent most of early 1928 in Delhi lobbying for Hari Singh Gour's Age of Consent Bill and Harbilas Sarda's Child Marriage Restraint Bill. She, assisted by Dr. Jayakar met all the important leaders, including Motilal Nehru, requesting affirmative vote for the Bills.[28a]

The women's organizations promoted the legislation at every stage and worked after the passage to make it a meaningful act. The National Council of Women in India (NCWI) praised it as the first campaign in the battle against social evils but not a victory.[29]TheWIA immediately congratulated Sir Harbilas Sarda and viewed it as a major achievement.[30]The AIWC welcomed the most positively, calling the Sarda Act a great achievement and a personal triumph.[31] It was a consensus issue and made it easy for women from different regions to work together. A number of Bengali women including Sarojini Naidu, Sarala Ray,Abala Bose, Leela Nag, Saraladevi

Choudhurani were active members of the AIWC.It was in dealing with Sarda Act that Bengali women first made their presence felt as a pres group to be reckoned with in matters of legislation.[32] Such an ac participation, championing the Act established the fact that women no longer willing to remain as perennial victims of ideologies and s customs. They articulated a self-conscious demand for women's spa decision-making process- "They (women) alone have the right to whether they want the Bill or not and men should have no voice in pas it."[33]

The growing public opinion that this Act was beneficial for the grow women's education as it would allow girls to remain unmarried till a f age.[34] Rabindra Nath Tagore extended his support to this Act and acce the importance of legislation.[35] Mahatma Gandhi expressed his op against child marriage.[36] He suggested sixteen as the minimum ag marriage, claiming that an older age for marriage would protect girls premature old age and giving birth to weak children.[37]

In fact women's wholehearted support was one of the important fa behind this successful enactment of the Sarda Bill. This voice wa ambiguous as it was during the Age of Consent controversy of 1890-18 Though the custom was not totally eradicated,[38] the tone was set change in social psyche.

Resistance continued in some quarters. There was a great rush to ge children of tender age married before the Act came into force. Mar were performed in French-controlled Chandernagore or in Pondiche escape the onslaught of British law.[40] Barbara Ramusack thinks th Indian nationalists supported the Sarda Act, but once the Act was p by the Central Legislature and was hailed as a great victory fo women's movement, most nationalist politicians expressed no inte enforcing it.The Indian nationalists generally argued for political re first,increasingly the winning of independence and then for reforms.Since the age of marriage was a sensitive matter, there was reluctance to devote major resources to it.This emphasis on politica first set an unfortunate precedent which assigned a lower prio women's rights and status.[45]

The leaders of the women's movement gained valuable organizatio

lobbying experience which was to serve them in good stead when the political climate became more favourable to social reform after independence was won. Although the economic and political conditions of the twenties and thirties of the preceding century made it impossible to galvanize the kind of mass support necessary to achieve fundamental changes in the position of women, it was in this formative period that the leaders of the women's movement in independent India forged a distinctive feminist ideology with the potential to attract popular support and acquired tactical experience necessary to carry on more successful political struggles for women's rights in the years to come."

Each society within a time space has its own ambivalence and contradictions, ignoring such reality is a sheer impossibility. These women's organizations had to restrict their activities within the ambit of patriarchal structures and anti-colonial movements. Challenges they encountered revealed the reigning public mood and untold sufferings of the millions.Their determined and untiring efforts became an established fact behind the passing of this Act. Perhaps it was not a total success in the long run. But the legacy they left became a source of inspiration for the future women's movement in India.

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মন্দির টেরাকোটায় সমাজ জীবন ঃ প্রসঙ্গ হাওড়া জেলা (ষোল শতকের শেষ থেকে উনিশ শতক)

ডালিয়া হাজরা
ইতিহাস বিভাগ

বাংলার গৌরবময় অতীত ও তার বর্ণময় সাংস্কৃতিক ঐতিহ্যের ধারক বাংলার
মন্দিরগুলি। আমাদের বাংলায় শিল্পসংস্কৃতির অতুল সম্ভার ছিল। চৈতন্যোত্তর
অর্থাৎ খ্রীষ্টীয় ষোল শতকের শেষ দিক থেকে উনিশ শতকের মধ্যে যে অসংখ্য
সারা বাংলায় নির্মিত হয়েছিল তার বেশ কিছু লুপ্ত হয়ে গেলেও এখনও যা
আছে সেগুলির সংখ্যাও কম নয়। আমাদের হাওড়া জেলার অনেক গ্রামে
অসাধারণ মন্দির স্থাপত্যের অনেক নিদর্শন রয়েছে।

চৈতন্য পরবর্তী যুগে পশ্চিমবাংলায় যেসব অজস্র মন্দির নির্মিত হয়েছিল তার
ভিন্ন ভিন্ন হলেও সেগুলির অনেকাংশের গাত্রালংকারে ব্যবহৃত হয়েছে পোড়া
ফলকের উপর উৎকীর্ণ নানা ধরনের ভাস্কর্য সজ্জা। পোড়ামাটির এই ফলক
ইংরাজিতে সাধারণভাবে 'টেরাকোটা' বলা হয়। এ শব্দটি ইতালিয় ভাষা থেকে
হলেও ইংরাজিতে এর অর্থ পোড়ানো মাটি। নানা শৈলীর মন্দির নির্মাণের পর
দেওয়ালে বিশেষত সামনের দেওয়ালে 'টেরাকোটা' ফলক (মূর্তি ও নকশা)
মন্দিরের অলংকরণ বা শোভাবৃদ্ধির জন্য করা হত। চৈতন্যোত্তর কালে হাওড়া
যে মন্দিরগুলি নির্মিত হয়েছিল তার মধ্যে বেশ কিছু মন্দিরে এই 'টেরাকোটা'
ব্যবহার লক্ষ্য করা যায়। এই জেলায় মন্দির গাত্রে রামায়ণ মহাভারতের
পৌরাণিক দেবদেবীর লীলা অবলম্বনে অসংখ্য 'টেরাকোটা' ফলক বা প্রস্তর
দেখা মেলে। আবার অন্যদিকে 'টেরাকোটা' ফলকের মাধ্যমে সমাজ জীবনের
দিকও তুলে ধরা হয়েছে। মন্দির শিল্পীরা টেরাকোটা ফলকের মাধ্যমে
হাওড়ার জনসাধারণের সামাজিক জীবনের প্রতিচ্ছবি কিভাবে ফুটিয়ে তুলেছে
প্রবন্ধে তা তুলে ধরাই আমার উদ্দেশ্য।

এই জেলার মন্দির গাত্রে একদিকে যেমন নানা ধর্ম সম্প্রদায়ের মানুষের জীবন
চিত্র ফুটে উঠেছে আবার অন্যদিকে তেমনি বাস্তব জীবনের বহুমুখী চিত্রও খুঁজে
যায়। এই জেলায় নানান মন্দিরে উৎকীর্ণ 'টেরাকোটা' ভাস্কর্যে দেখা যায় শৈব
যোগী মহন্তের জীবনযাত্রা। ইউরোপীয় ফিরিঙ্গি সমাজের সমকালীন নানা

জেলায় বিভিন্ন মন্দিরে উৎকীর্ণ হয়েছে শিকার দৃশ্যের বহু ফলক। এই সব শিক
দৃশ্যের অধিকাংশ ক্ষেত্রে ফিরিঙ্গিদের দেখানো হয়েছে বর্শা ও বন্দুকধারী রূপে। এইস
শিকারীরা কখনও বা অশ্বারোহী বা হস্তি আরোহী রূপে চিত্রিত এবং এই সব শিকারীদে
সঙ্গে রয়েছে অন্যান্য পদাতিক শিকারী ও সহযোগী। আবার কোথাও বা সঙ্গে কা
নাকড়া ও শিঙ্গা প্রভৃতি বাদ্য যন্ত্রসহ এক মিছিলের দৃশ্য। আসন্ডার (থানা
উদয়নারায়নপুর) মন্দিরে এই ধরণের দৃশ্য ফলক দেখা যায়। শিকারীরা বর্শা দিয়ে ব
বা হরিণ শিকাররত এই ধরনের এক উৎকৃষ্ট ফলক দেখা যায় অমরাগুড়ির (থান
জয়পুর) দধিমাধবের মন্দিরে। শিকার দৃশ্যের আরও যে সব ফলক দেখা যায়, তার ম
উল্লেখযোগ্য মন্দিরগুলি হল, ঝিখিরার (থানা ঃ জয়পুর) শ্যামসুন্দর ও দামো
মন্দির,মহিষামুড়ির (থানা ঃ আমতা) ভুবনেশ্বরী দেবীর মন্দির, রাউতাড়ার (থান
জয়পুর) সীতারাম মন্দির এবং সীতাপুর গ্রামের (থানা ঃ উদয়নারায়নপুর) শ্রী
মন্দির। বন্দুকধারী ফিরিঙ্গিদের দেখা যায় আসন্ডা (থানা ঃ উদয়নারায়নপুর) গ্রা
শ্রীধর মন্দিরে এবং খালনা গ্রামের (থানা ঃ জয়পুর) দামোদর মন্দিরে। এ থেকে বে
যায় সেই সময় এই সমস্ত গ্রামাঞ্চলে অবসর বিনোদনের জন্য সাহেব ও ফিরিঙ্গি
আসতো শিকার করতে। আবার ঝিখিরা গ্রামের (থানা ঃ জয়পুর) ও রাউতারা (থান
জয়পুর) গ্রামের সীতারাম মন্দিরে। সাহেব ও ফিরিঙ্গিদের ফরসি নলের সাহা
ধূমপানের দৃশ্য টেরাকোটার ফলকে উৎকীর্ণ হয়েছে। অন্যদিকে গোযান, পালকি
সুখাসনে ভ্রমণরত এমন বহু ফিরিঙ্গি সাহেবের দেখা মেলে, যারা বহু ক্ষেত্রে গড়গড়
নল হাতে তাকিয়ায় অর্ধশয়ান হয়ে আছেন। এই ধরনের দৃশ্য খোদিত হয়ে
মহিষামুড়ির (থানা ঃ আমতা) ভুবনেশ্বরী মন্দিরে, আমড়াগড়ির (থানা ঃ জয়পু
দধিমাধব মন্দিরে, রাউতাড়ার (থানা ঃ জয়পুর) গজলক্ষী মন্দিরে, ঝিখিরার (থান
জয়পুর) দামোদর মন্দিরেএবং আসন্ডার (থানা ঃ উদয়নারানপুর) শ্রীধর মন্দি
দেওয়ালে। এ থেকে প্রমাণ হয় সেই যুগের গ্রাম্য সমাজজীবনে ইওরোপীয়ানদের য
প্রভাব ছিল।

রাউতাড়ার (থানা ঃ জয়পুর) সীতারাম মন্দিরে চিত্রায়িত হয়েছে পাত্রমিত্র পরিবৃত
ভূস্বামীর নৌকা ভ্রমণের এক দৃশ্য। সে সময়ের সামাজিক নানা ঘটনা থেকে আহ
বিদ্রুপাত্মক কিছু কিছু দৃশ্যও উৎকীর্ণ হয়েছে। যেমন, হাওড়া জেলার সীতাপুর গ্রা
(থানা ঃ উদয়নারায়নপুর) এক মন্দির ফলকে দেখা যায়, জনৈক বাবু মশা
পদসেবারত এক নারী। হয়ত বা সে সময়ের সামাজিক মূল্যবোধের আঙ্গিকে
মশায়ের অর্ধাঙ্গিনী হিসাবে, নয়ত বা দাসীবৃত্তির জীবন ধারাকে উপলক্ষ করে কে
এক পরিচারিকা হিসাবে তাঁর সামাজিক অবস্থানকে তুলে ধরা হয়েছে মন্দির
ব্যবহৃত ফলকে।

এই সব শিকার
রূপে। এইসব
সব শিকারীদের
বা সঙ্গে কাড়া
নন্তার (থানা
া বর্শা দিয়ে বাঘ
াগুড়ির (থানা
যায়, তার মধ্যে
র ও দামোদর
তাড়ার (থানা
য়নপুর) শ্রীধর
য়নপুর) গ্রামের
এ থেকে বোঝা
হব ও ফিরিঙ্গি
রাউতারা (থানা
নলের সাহায্যে
াযান, পালকি ব
ক্ষেত্রে গড়গড়া
খোদিত হয়েছে
(থানা ঃ জয়পুর
ঝিখিরার (থানা
) শ্রীধর মন্দিরে
াপীয়ানদের মধ্যে

ত্রমিত্র পরিবৃত ধনী
না থেকে আহরি
র সীতাপুর গ্রামে
নক বাবু মশায়ে
াধের আঙ্গিকে ব
পলক্ষ করে কোদে
হয়েছে মন্দিরগাত্রে

বেশি সংখ্যক না হলেও পোড়ামাটির ভাস্কর্যে সাধারণ মানুষের জীবন যাত্রার ও সেই সঙ্গে অবসর বিনোদনের বেশকিছু আলেখ্য দেখা যায় নানা স্থানের মন্দির গাত্রে। সে কালের বাঙালির জীবনযাপনের সাথে ঘনিষ্ঠভাবে যুক্ত কৃষিকার্য বা হলকর্ষণ বিষয়ক কোনো দৃশ্য টেরাকোটা ফলকে লক্ষ্য করা না গেলেও কোদাল চালনাকারী এক শ্রমজীবীকে দেখা যায় হাওড়া জেলার কল্যাণপুর গ্রামের (থানা ঃ বাগনান) দামোদর মন্দির গাত্রে। এছাড়া সেকালের সাধারণ মানুষের জীবন ও জীবিকার চিত্র হিসাবে চিত্রিত হয়েছে ধোপা ও ধোপানিদের কাপড়কাচার দৃশ্য। এই মন্দিরে কারিগর ও শিল্পী জাতিবৃত্তিতে নিযুক্ত অন্যান্য শ্রমজীবীদের উদাহরণও স্থান পেয়েছে। এই মন্দিরের অলংকরণ সজ্জায় দেখা যায় এক কর্মকারের মূর্তি, যিনি এক জ্বলন্ত চুল্লির সামনে এক হাতে হাপর ও অন্য হাতে সাঁড়াশি নিয়ে বসে রয়েছেন। তাঁতি চরকা কাটছে একটি দৃশ্য এখানে স্থান পেয়েছে। মনিকারা গ্রামের (থানা ঃ আমতা) নরমাধব শিব মন্দিরে দেখা যায়, বাঁক বহনকারী জনৈক শ্রমজীবীর মূর্তি। সেকালের খেলাধূলা ও আমোদ প্রমোদের বেশ কিছু দৃশ্যও দেখা যায় পোড়ামাটির ফলকে। মল্লযুদ্ধ দৃশ্যের ফলক দেখা যায়, আসন্ডা গ্রামের(থানা ঃ উদয়নারায়নপুর) শ্রীধর মন্দির ও খালনা (থানা ঃ জয়পুর) গ্রামের দামোদর জীউ এবং ঝিখিরার (থানা ঃ জয়পুর) দামোদর মন্দিরে।

গ্রামাঞ্চলবাসিনী নারীদের দৈনন্দিন জীবন সম্পর্কেও টেরাকোটা ফলকে বহু দৃশ্য চিত্রিত করা হয়েছে। কাঁকালে রাখা গাগরিসহ কুলবধুর মূর্তি খোদিত হয়েছে খালনা গ্রামের (থানা ঃ জয়পুর) দামোদর মন্দিরে। আবার সন্তান ক্রোড়ে জননীর দৃশ্য ফলক দেখা যায় খালনার (থানা ঃ জয়পুর) ঘটেশ্বর শিব মন্দিরে। অবকাশ বিনোদন হিসাবে গৃহপালিত পশু পাখি চর্চায় যে নিজেদের ব্যাপৃত রাখতেন তার নিদর্শনও দেখা যায়। ফলকে গাছের ডাল নুইয়ে পাতা খাওয়ানোয় ব্যস্ত নারীর মূর্তি ফলক দেখা যায় বাদুড়ক্ষেত্র গ্রামের (থানা ঃ জগৎবল্লভপুর) বুড়ো শিবের এবং কল্যাণপুর গ্রামের (থানা ঃ বাগনান) দামোদর মন্দিরে। কৃষিপ্রধান গ্রামবাংলার ধানভানার একমাত্র উপায় ছিল ঢেঁকি। তাই ধানভানার কাজে নিযুক্ত গ্রাম্য 'কোটা - ভানারি' মহিলাদের ভূমিকাকে মন্দির শিল্পীরা রূপায়িত করেছেন ঢেঁকিতে ধান ভানার দৃশ্য খোদাই করে। হাওড়া জেলার কল্যাণপুর গ্রামের (থানা ঃ বাগনান) দামোদর মন্দিরে এমন একটি 'টেরাকোটা' ফলক এর এক উৎকৃষ্ট নির্দশন।

মন্দির দেওয়ালে নিবদ্ধ ফলক সজ্জায় বাঙালীর গীতবাদ্য চর্চার নানাবিধ দ্রব্য সামগ্রীও উপস্থাপিত হয়েছে। ঢোল, করতাল ও শিঙ্গাবাদকের মূর্তি দেখা যায় শ্রীপুরের (থানা ঃ উদয়নারায়নপুর) শিবমন্দিরে এবং ভান্ডারগাছার গজলক্ষী

মন্দিরেও এক শিঙ্গাবাদককে দেখা যায়। তবলা বাদিকার মূর্তি দেখা যায় মাড়া
গ্রামের (থানা ঃ জগৎবল্লভপুর) দামোদর জীউ এর রাসমঞ্চে। কুমারপুর গ্রামের (
জগৎবল্লভপুর) রাসমঞ্চে দেখা যায় বেহালা, বাঁশি, খঞ্জরি, ঘন্টা, ঝাঁঝ বাদিকাদে
ফলক। এই সব ফলকগুলি থেকে বোঝা যায় সে সময় নারীরাও বাদনকাজে
থাকতেন। কল্যাণপুর গ্রামের (থানা ঃ বাগনান) কালীমন্দির প্রাঙ্গণের রাসমঞ্চেও
সুন্দর বেহালা বাদিকার মূর্তি নিবদ্ধ হয়েছে। মৃদঙ্গ বাদকের মূর্তি দেখা যায় সী
গ্রামের (থানা ঃ উদয়নারায়নপুর) শ্রীধরনাথের রাসমঞ্চে। এছাড়া কাড়া, নাক
শিঙ্গা বাদকদের দেখা পাওয়া যায় শিকার যাত্রার এক মিছিলে এবং এর উৎকৃষ্ট উ
হল আমরাগড়ির (থানা ঃ জয়পুর) দধিমাধবের মন্দির।

হাওড়া জেলার মন্দিরগুলির স্থাপনকর্মে বিশেষ গুরুত্বপূর্ণ হয়ে উঠেছে মন্দিরের
লিপি। মন্দিরে নিবদ্ধ এইসব প্রতিষ্টা লিপি পর্যবেক্ষণ করলে দেখা যায়, সে
অধিকাংশই পোড়ামাটির ফলকে অথবা পঙ্খ পলেস্তরায় উৎকীর্ণ। প্রাচীন বহু
দেখা যায় , কালো পাথরের উপর খোদাই করে এই উৎসর্গ লিপি তৈরী করা হ
মধ্যযুগে যে সমাজকাঠামো প্রচলিত ছিল, তাকে অবলম্বন করেই মধ্যযুগে
স্থাপনকর্ম চালু ছিল। এইসব মন্দিরগুলি গ্রামেই প্রতিষ্ঠিত হয়েছিল, এবং এদের
কর্তা (প্রতিষ্ঠিতা পরিবার) এবং নির্মাণ শিল্পী বা স্থপতিকুল সকলেই ছিলেন
জীবনধারায় অভ্যস্ত। মন্দিরের প্রতিষ্ঠালিপি, দেবোত্তর সম্পত্তির অ
পারিবারিক দলিলপত্র, পারিবারিক ও স্থানীয় ইতিহাস, স্থানীয় ঐতিহ্য প্র
পর্যালোচনা করলে দেখা যায় ভূস্বামী, করগ্রাহী, কৃষিজীবী, ব্যবসায়ী, উ
ব্রাহ্মণ-পণ্ডিত, চিকিৎসক, চাকুরীজীবী, প্রভৃতি বিভিন্ন গোষ্ঠীর লোকজন মন্দির
করেছেন। জাতিবিচারের প্রশ্নে, ব্রাহ্মণ থেকে অজল-চল শূদ্র এমনকী অন্ত্য
সকলেই এই বিরাট কর্মকাণ্ডে সাগ্রহে অংশ নিয়েছেন। এই মন্দিরগুলো বৃত্তি
নির্বিশেষে গ্রামীন জনসাধারণের সংস্কৃতি সাধনার প্রত্যক্ষ প্রমাণ; তাদের রুচি,
কর্মের সাক্ষ্য হচ্ছে মন্দিরগুলো। বাংলার সর্বত্রই আপামর জনসাধারণের
উদ্যোগ, কর্মের রূপায়ন ঘটেছে গ্রামীন পরিবেশে - তার একটি ফসল হল ম
মন্দির এবং তার শিল্পীতরূপ।

যেটা লক্ষ্য করার বিষয় সেটা হল এই যে এই জেলার মন্দিরগুলিতে দেবতার
মানুষের জীবনধারা দুটির পাশাপাশি সহাবস্থান। সামাজিক জীবন চিত্রগুলির
সাধারণত প্রায় সব টেরাকোটা মন্দিরের নীচের ভিত্তি প্রস্থে, কখনও বা থামে
সন্নিবেশিত হয়েছে। প্যানেলের মধ্যে দিয়ে সমাজ জীবনের এক একটি ঘটনাকে
ভাবে তুলে ধরার প্রয়াস লক্ষ্য করা যায়, যেমন শিকার দৃশ্য। এগুলিতে

সমকালীন সমাজের চিত্র প্রতিফলিত হয়নি, এতে চিরন্তন মানবজীবনের এক স্পর্শকাতর চিত্র ও পাওয়া যায়। মন্দির টেরাকোটায় তাই বিষয়বস্তু ও তার চরিত্রে এক নতুন মাত্রা যুক্ত হয়েছে দেখা যায়। মধ্যযুগের এই টেরাকোটা শিল্পকে অনেকে লোক শিল্প রূপে আখ্যায়িত করেছেন। মূর্তিগুলির অঙ্গ বিন্যাস, মুখের ভাব, পোষাক-আসাক, চলার গতি, দেহসৌষ্ঠব সবই সাধারণ লোকজীবনের প্রতিচ্ছবি। এর মধ্যে যত্নপূর্বক পরিশীলন বা শাস্ত্রীয় নিয়মের ধরাবাঁধা সীমাবদ্ধতা নেই। সবশেষে বলা যায় মন্দির শিল্পীরা দেবদেবী ছাড়াও সেকালের আপামর জনসাধারণের সামাজিক, অর্থনৈতিক ও বৃত্তিগত জীবনের যে চিত্রগুলি টেরাকোটা ফলকের মাধ্যমে তুলে ধরেছিলেন, তা শেষ মধ্যযুগের হাওড়ার সামাজিক ইতিহাসের এক মূল্যবান দলিল বলেই গণ্য হতে পারে। এ থেকে যে বিষয়টা খুব স্পষ্ট হয়ে ওঠে সেটা হল যে এই যুগে মানুষের ধর্মীয় জীবন এবং সমাজজীবন খুব গভীরভাবে যুক্ত ছিল এবং এরা পরস্পরকে পরিপুষ্ট করতো।

গ্রন্থপঞ্জী

১) তারাপদ সাঁতরা - হাওড়া জেলার পুরাকীর্তি (১৯৭৬)

২) প্রণব রায় - বাংলার মন্দির স্থাপত্য ও ভাস্কর্য (১৯৯৯)

৩) তারাপদ সাঁতরা - পশ্চিম বাংলার ধর্মীয় স্থাপত্য ঃ মন্দির ও মসজিদ (১৯৯৮)

৪) শিবেন্দু মান্না - হাওড়া ইতিহাস - ঐতিহ্য (২০১১)

৫) তারাপদ সাঁতরা - বাংলার পোড়ামাটির ভাস্কর্য ঃ সমাজ আলেখ্য (প্রবন্ধ) লোকশ্রুতি প্রবন্ধ সংকলন (১৯৯৯)

৬) অমিয় কুমার বন্দ্যোপাধ্যায় - বাঁকুড়া জেলার পুরাকীর্তি (১৯৭১)

৭) তপন কুমার সেন - হাওড়া জেলার মন্দির পূজা উৎসব মেলা (২০০৯)

৮) David Mc Cutchion - Late Mediaeval Temples of Bengal (1972).

Understanding The Basic Structure Of Society As The Primary Subject Of Justice

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Department of Philosophy

Abstract : The words just and unjust can be applied to different kinds o things- laws, institutions, social systems, particular actions, judgment imputations, attitudes and dispositions of persons, persons themselve That is why, while constructing a theory of justice, it becomes our maj task to mention the primary subject of justice. John Rawls has taken th basic structure of society as the primary and first subject of justice of h theory of justice, namely 'Justice as Fairness'. Here in this paper I addre these issues – why the basic structure is regarded as the primary subject justice, why it is reasonable to seek special principles to regulate it and th importance of preserving background justice in the whole issue.

To Rawls, the primary subject of justice is the basic structure of society. 7,Sub Chapter :The Subject of Justice, Chapter I:Justice as Fairness, *TJ*).It a design of the way in which major social institutions perform, that is – Distribute fundamental rights and duties and 2. Determine the division advantages that emerge from social cooperation.

Here lies a pertinent question. What does Rawls mean by 'major soc institutions'? An answer has been given by Rawls by citing examples. him, major social instituions are the political constitution, the princip economic and social arrangements, the legal protection of freedom thought, the legal protection of liberty of conscience, competiti markets, private property in the means of production, the monogamo family and so on. They function as a scheme and determine people's righ and duties.

Justice as fairness is a political conception of justice because its focus political (in the form of basic structure).The principles of justice regula this structure. They do not apply directly to institutions and associatio which exist within society. Firms, labor unions, churches, universitie family- all of these are bound by constraints. These constraints emer

from the principles of justice but they arise indirectly from just background institutions within which associations and groups exist. The conduct of their members is restricted by just background institutions.

Rawls explains the above very clearly by giving examples. Churches can unchurch heretics (a heretic is a person who holds religious beliefs in conflict with the dogma of the Roman Catholic church) but they can't burn them – this constraint is to secure liberty of conscience. Universities can't discriminate in certain ways – this constraint is to establish fair equality of opportunity. Family law should be formed in such a way that all the duties related to children such as bearing, conjuring, educating those does not fall only on women or more heavily on women as it will neglect their right to have fair equality of opportunity.

Rawls himself draws a line of his inquiry. There is no reason to assume that principles that are reasonable and just for the basic structure are also reasonable and just for institutions, associations and social practices. Different institutions, associations have different aims and purposes. That is why each of them is governed by distinct principles. The principles of justice as fairness impose limits on them within the basic structure.

Rawls mentions three levels of justice, moving from inside outward – 1.local justice (principles that apply directly to institutions and associations), 2.domestic justice (principles that apply directly to the basic structure of society), 3.global justice (principles that apply directly to the international law).The starting point of justice as fairness is domestic justice – the justice of the basic structure. Rawls hits this point repeatedly that principles applying to the basic structure limit the principles of local justice but they do not determine them.

Rawls mentions some characteristics of the basic structure and those are not enough to provide a sharp definition of it and that is why we can't tell specifically what social arrangements belong to it. This initial rough idea of the basic structure will become more exact as we pursue our enquiry regarding variety of particular questions related to it.

Rawls himself admits that though the basic structure is regarded as the primary subject in *TJ* but the reasons for choosing so are not sufficiently explained there. his lack has been made up in *JF* and *PL*.

First Kind of Reason' (Page 52,Section 15,Part II: Principles of Justice, *JF*)

Rawls has stated this point by mentioning Locke's ideal historical pro
view. According to Locke in the state of nature one has complete liber
lead his life free from the interference of others. It does not mean tha
a state where one can do anything one pleases. There is no civil auth
in the state of nature. But it is not a state without morality. People
bound by the law of nature which is the basis of all morality and give
God. But in the state of nature there is no civil power to which men
appeal and as the law of nature allows them to save their own lives,
may kill those who would hurt them by stealing or by trying to make
slave. As there is no civil authority, once war begins it is likely to cont
This is one of the reasons that men have to reject the state of natu
contracting together to form civil government. So, there are ce
principles that specify rights and duties of persons, their rights to acc
property and their rights to transfer it too. So, Locke is starting with a
initial state where everyone's possessions are justly held. More
everyone respects everyone's rights, duties, the principles for acqu
and transferring property. This is why, in Lockean view, the succes
states are also just.

Locke's view applies to the transactions between individuals
associations in the state of nature but it is not rigorous enough to en
that fair background conditions are maintained. His view is unab
prevent accumulation of considerable amount of wealth and prope
few hands. Such accumulations undermine fair equality of opportu
Free and fair agreements take place within individuals and associa
These agreements are governed by various principles such as the la
contract. But these principles do not alone suffice to preserve backg
justice. Unless the basic structure is regulated over time, earlie
distributions do not guarantee the justice of later distributions. It i
duty of the institutions within the basic structure to secure
background conditions. Unless the basic structure is appropr
regulated and adjusted over time, a social process that was initially jus
no longer be regarded so, no matter however free and fair its parti
transactions are, such as, distribution resulting from voluntary m
transactions is not fair unless the antecedent distribution of income
wealth and the structure of the system of markets are fair.

Rawls is of the opinion that there are similarities as well as dis-simila
between Locke's ideal historical process view and justice as fairness w

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is an example of ideal social process view. Both theories use the concept pure procedural justice but the way in which they use this concept mar the difference between them. The transactions of individuals ar associations are the first priority of the historical process view, where justice as fairness does not consider this as its first priority, rather it tries t frame transactions and agreements of individuals and associations withi a just basic structure.

There are two kinds of principles and there is a division of labor betwee them. First kind of principle regulates the basic structure over time an preserves background justice. Second kind of principle applies to th transactions between individuals and associations. *Such an institutiona division of labor is not found in the priority list of the ideal historica process view.*

Uncountable transactions are happening in daily life. Positions o particular individuals are also changing day by day. It is too tough to keep track of both these factors. Taking the basic structure of society as the primary subject of justice releases us from doing so because ' the principles of justice specify the form of background justice apart from al particular historical conditions .' (P. 54, JF)

'Second Kind of Reason' (Page 55, Section 16, Part II: Principles of Justice, JF)

So far we have seen that certain background conditions are necessary to entitle the transactions between individuals as fair. These conditions characterize the objective situation of individuals. But what about the subjective factors? One's interests, characters are not fixed. A theory of justice can't ignore how the aims and wants of people are formed.

Citizens are born into a society. They lead their whole life there. They enter into a society only by birth and leave it only by death. More specifically, they lead their whole life under social institutions of the basic structure of the society. These institutions have profound and pervasive influence on citizens' life-prospects. But there are inequalities in citizens' life prospects due to three kinds of contingencies –

a. their social class of origin : the class into which they are born and develop before the age of reason

b. their native endowments (as opposed to their realized endowments);

and their opportunities to develop these endowments as affected by the social class of origin;

c. their good or ill fortune, or good or bad luck, over the course of life(how they are affected by illness and accident; and, say, by periods of involuntary unemployment and regional economic decline) .' (P.55,*JF*)

Everyone admits that society plays a very important in determining two factors - what we are and what we want to be. We shape our ambitions hopes according to our social position. Not only that, what opportunities we can realistically expect that is also dependent on our social position. Thus the social structure limits our aspirations in different ways. It not only shapes our existing desires and passions but that of the future also.

Rawls is of the opinion that the talents and abilities of individuals are not fixed natural gifts. Genetic components are there. But talents, abilities can't flourish apart from social conditions. Undoubtedly natural capacities are there. But development of natural capacities are always a selection – a small selection ..... from the possibilities that might have been attained.' (Page 270,PL, Section 5).Thus an ability, no matter however potential it is, is affected by various elements, such as social attitudes of encouragement and support, training of the institutions concerned. This leads us to admit that our goals, aspirations for ourselves, moreover that our realized abilities and talents reflect our personal history, opportunities and social position.

Now, from the preceding discussion we can say that the basic structure permits certain social and economic inequalities in the life-prospects of citizens. These inequalities are inevitable. But if we ignore these inequalities that means we are not taking the idea of society (that it is a fair system of co-operation between free and equal citizens) seriously. It is a major task of the theory of justice to recognize these inequalities first and then to regulate them because 'even if these inequalities are not in some cases very great, their effect may be great enough so that over time they have significant cumulative consequences.' (Page 271, PL, Section 5).These inequalities in the basic structure are entitled as the most fundamental ones in the contract doctrine formulated by Kant. We have to find out suitable principles to govern them and the requisite institutions need to be established. Once we are successful in doing so, we can much more easily solve the problem of how to regulate other inequalities.

To sum up the discussion, we have to keep in mind four points briefly–

Firstly, mere observation of the conduct of individuals and associations are not enough to assess that the agreements reached are just or fair. This assessment depends on the features of the basic structure – whether the agreements are able to maintain background justice.

Secondly, it is possible that at one time fair background conditions may exist. But gradually it has become weak though nobody is acting unfairly (here particular conducts are judged by the rules that apply to the transactions that take place within local situation).Now, suppose everyone believes that – 1.they act fairly and 2.they honour those norms which govern the agreements. These two beliefs, no matter however justified they are, are not sufficient enough to preserve background justice. We think that law, government etc. are necessary as we have tendency to act unfairly. But background justice may become weak gradually in spite of the fact that individuals act fairly as total result of independent and separate transactions is away from background justice. That is why we need special institutions to preserve background justice and special conception of justice is needed to determine how these special institutions are to be set up.

The preceding point leads us to the third factor. There is no such rule that is applicable to the individuals and at the same time can prevent the erosion of background justice because the rules that govern agreements and individual transactions are not too complex. These rules are practical and public instructions. So they can't be too complex to grasp rather those rules are something that individuals can follow with ease.

Fourthly, the basic structure through the legal system executes a set of rules – the law of contract, rules related to fraud and duress etc. These rules regulate the transactions and agreements between individuals and associations. These rules are formed so that individuals and associations can act freely and pursue their ends effectively without excessive constraints.

To conclude, we are looking for an institutional division of labor between the basic structure and the rules that apply directly to individuals and associations. If such division of labor can be established it would make easier for individuals and associations to act freely to pursue their ends

more effectively within the framework of the basic structure.

Works by Rawls used in this paper with abbreviations :

JF : Justice as Fairness : A Restatement

PL : Political Liberalism

TJ : A Theory of Justice

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Arsenic Poisoning of Drinking Water in Bengal and its Removal Techniques

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Introduction

The poisonous trace element arsenic (As) is found in the earth's crust at an average concentration of ~5 μg/g (ppm). Although its relative abundance in the earth's crust is about 54th, arsenic can become concentrated in some parts of the world because of natural mineralization. Arsenic is a component of 245 minerals, associated most frequently with other metals such as copper, gold, lead, and zinc in sulfidic ores.[1,2] Chronic exposure to arsenic from groundwater has been recognized to cause the largest environmental health disaster in the world, putting more than 100 million people at risk of cancer and other arsenic-related diseases.[3,4] Epidemiological studies of populations exposed to high levels of arsenic due to ingestion from water, from West Bengal, India,[5,6] and Bangladesh,[7,8] have repeatedly shown strong associations between the exposure to high concentrations of arsenic and the prevalence of several cancers,[9] most severely bladder, lung, and skin cancers. Inorganic arsenate ($HAsO_4^{2-}$), which is a molecular analogue of phosphate (HPO_4^{2-}), can compete for phosphate anion transporters and replace phosphate in some biochemical reactions.[10] For example; generation of adenosine-5′-triphosphate (ATP) during oxidative phosphorylation can be inhibited by the replacement of phosphate with arsenate.

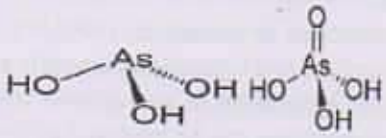
Entrance of Arsenic into the Environment

When disturbed by natural processes, such as weathering, biological activity, and volcanic eruption, arsenic may be released into the environment. Anthropogenic activities, such as combustion of fossil fuels, mining[11] ore smelting, agricultural, industrial activities[12] and well drilling, also mobilize and introduce arsenic into the environment. When deposits of ores [Arsenopyrite (FeAsS); Orpiment (As_2S_3); Realgar (As_4S_4); Lollingite

($FeAs_2$); Tennantite ($Cu_{12}As_4S_{13}$)] become exposed to the atmosphere usually due to mining, the mineral will slowly oxidize, converting the arsenic into oxides that are more soluble in water. Poultry and swine farms make heavy use of the organoarsenic compound roxarsone as an antibiotic in feed.[13] The use of metallic arsenic is for strengthening alloys of copper and especially lead (for example, in car batteries). Arsenic is a common n-type dopant in semiconductor electronic devices, and the optoelectronic compound gallium arsenide is the most common semiconductor in use after doped silicon. Arsenic and its compounds, especially the trioxide, are used in the production of pesticides, treated wood products, herbicides and insecticides. Copper acetoarsenite was used as a green pigment known under many names, including 'Paris Green' and 'Emerald Green.

Most prevalent toxic forms of inorganic Arsenic found in drinking water

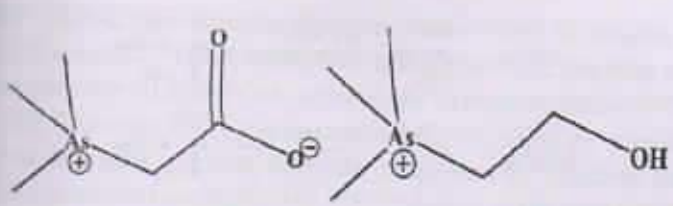
Arsenite, the reduced, trivalent form [As(III)], normally is found in ground water (assuming anaerobic conditions); and arsenate, the oxidized pentavalent form [As(V)], is found in surface water (assuming aerobic conditions). This rule, however, does not always hold true for ground water. Some ground waters have been found to have only As(III), other with only As(V), and still others with the combination of both As(III) and As(V)[14]. Arsenate exists in four forms in aqueous solution, depending on pH: H_3AsO_4, $H_2AsO_4^-$, $HAsO_4^{2-}$, and AsO_4^{3-}. Similarly, arsenite exits in five forms: $H_4AsO_3^+$, H_3AsO_3, $H_2AsO_3^-$, $HAsO_3^{2-}$ and AsO_3^{3-}.



Arsenite (III) Arsenate (V)

Excretion of Arsenic

The metallic form of arsenic (0 valency) is not absorbed by the stomach and intestines and does not exert adverse effects. Arsenobetaine is an organoarsenic compound that is the main source of arsenic found in fish. Also common is arsenocholine, which has CH_2OH in place of CO_2H)[15]. Arsenobetanine quickly passes out of the body through urine without being metabolized to other compounds.



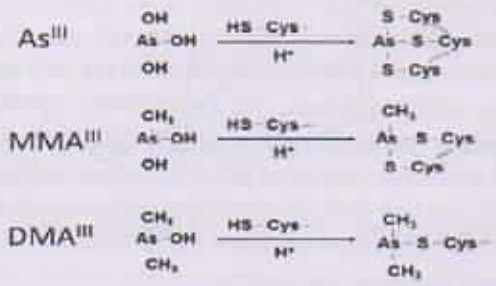
Arsenobetaine Arsenocholine

Inorganic arsenic and its compounds, upon entering the food chain, are progressively metabolised (detoxified) through a process of biomethylation[16] The biomethylation involves specific reductases[17] and methyltransferases[18] that is, reduction of pentavalent to trivalent arsenic followed by addition of a methyl group (CH_3). In mammals, methylation occurs *in the liver by arsenic (+3 oxidation state) methyltransferase. This* enzyme catalyzes transfer of the

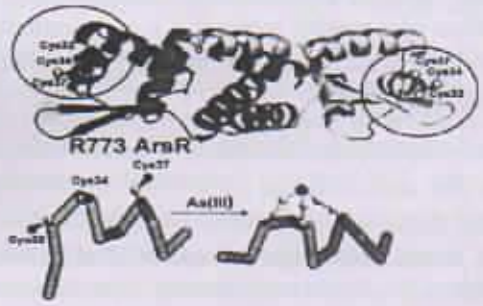
methyl group of S-adenosylmethionine (SAM) to trivalent arsenic. The products being the $(CH_3)As(OH)_2$ (monomethylarsonous acid) and $(CH_3)_2AsOH$ (dimethylarsinous acid), which have the oxidation state As(III). Exposure to toxic doses begins when the liver's methylation capacity is exceeded or inhibited. Studies in experimental animals and humans show that both inorganic arsenic and methylated metabolites cross the placenta to the fetus, however, there is evidence that methylation is increased during pregnancy and that it could be highly protective for the developing organism. In humans, the major route of excretion of most arsenic compounds is via the urine. The main metabolites excreted in the urine of humans exposed to inorganic arsenic are mono- and dimethylated arsenic acids, together with some unmetabolized inorganic arsenic.

Why Arsenic is toxic?

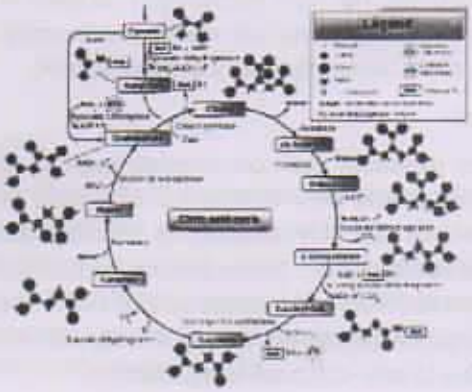
Arsenic compounds (primarily As^{3+} compounds such as arsenite and methylarsonous acid) exhibit their toxicity by disrupting enzymes with active-site cysteine-thiol (Cys-SH) residues by forming strong As-SCys bonds and alter the conformation of the protein, resulting in loss of its function, and interaction with other proteins and DNA[19]. As(III) is more toxic than As(V), has much greater combining affinity with the thiol (–SH) part of the protein due to soft–soft acid–base reaction.



Binding of inorganic arsenite (iAs^{III}), monomethylarsonous acid (MMA^{III}), and dimethylarsinous acid (DMA^{III}) to cysteines in a protein



Binding of iAs^{III} to the Escherichia coli protein (R773) results in conformational change of the protein. iAs^{III} binds to Cys32, Cys34, and Cys37 of the protein

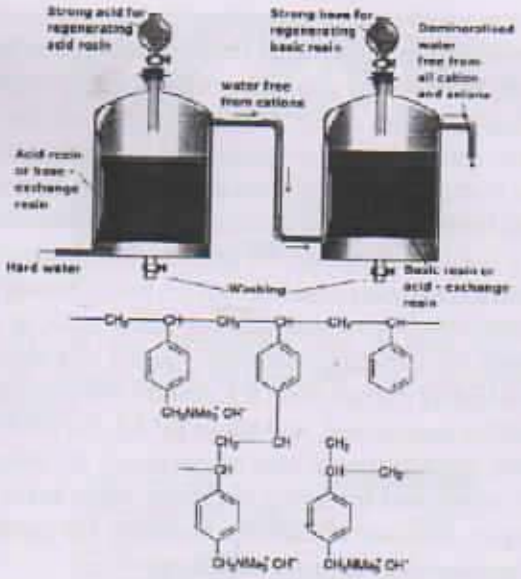


Arsenite inhibits the Pyruvate Dehydrogenase (PDH) by binding to the lipoic acid moiety.[20,21] Lipoic acid is the co-factor of PDH. The PDH complex oxidizes pyruvate to acetyl-CoA, a precursor to intermediates of the citric acid cycle. The citric acid cycle degrades the intermediates, providing the mitochondria with reducing equivalents needed for electron transport and the subsequent production of ATP. Inhibition of the PDH complex can block the citric acid cycle and ultimately decrease the production of ATP, resulting in cell damage and death.

Arsenic Removal Techniques

Activated alumina filters[22,23]: Activated alumina (AA) (Al_2O_3) columns connected to shallow tube wells in India and Bangladesh remove both As(III) and As(V) from groundwater. As(V) is much more easily adsorbed than As(III). AA is more effective in removing As(V) than Arsenic (III). AA has very high internal surface area, in the range of 200-300 m^2/g and highly porous. This high surface area gives the material a very large number of sites where adsorption can occur. Adsorption sites on the AA surface become filled, the column must be regenerated. Activated alumina can be regenerated by flushing with a solution of 4% sodium hydroxide, which displaces arsenic from the alumina surface, followed by flushing with acid, to re-establish a positive charge on the grain surfaces. Arsenate removal capacity is best in the narrow range from pH 5.5 to 6.0, where the alumina surfaces are protonated. Activated alumina has a point of zero charge (PZC), below which the surface is positively charged, and above which the surface bears a negative charge, at pH 8.2. Arsenic removal capacity drops sharply as the PZC is approached, and above pH 8.5. For neutral and basic waters, therefore, pH adjustment may be necessary for effective arsenic removal. As(III) compound is neutral in charge, while As(V) species are negatively charged. Removal efficiencies for As(III) are usually less than those of As(V) because of As(V)'s negative charge.

Reverse Osmosis: A semi permeable membrane with fresh water on one side and a concentrated aqueous solution on the other side. If normal osmosis takes place, the fresh water will cross the membrane to dilute the concentrated solution. In reverse osmosis, applying an external pressure on the side with the concentrated solution to force the water molecules across the membrane to the fresh water side. The membrane has microscopic pores that are specially sized to allow water molecules through, while trapping larger inorganic molecules like lead, iron, chromium and arsenic. RO performance is affected by the presence of turbidity, iron, manganese, silica compounds and other constituents. RO requires extensive pretreatment for particle and dissolved constituents removal.



Coagulation-filtration, surface sorption, membrane filtration, ion exchange, etc. had been tested to reduce arsenic level below the tolerance value; and the surface sorption has been found to be an alternative cost effective option for the thirdworld countries like India and Bangladesh. In this context, the recent increasing use of nanostructured materials for arsenic removal studies is noteworthy.[25] Literature showed the maximum use of iron(III) oxide in this field.[26]

Anion exchange[24]: Anion exchange is a process wherein an anion in the solid phase is exchanged for an anion in the source water. To accomplish this exchange, the source water is passed through the anion exchange bed in either a downflow or upflow mode. Anion exchange involves the use of a synthetic resin in the chloride form for arsenic removal. With time, the efficiency of the resin is reduced as exchange sites are depleted. The resin can be regenerated using a HCl solution. Anion exchange resins can effectively remove arsenate ($H_2AsO_4^-$) from solution. Arsenite (H_3AsO_3), being uncharged, is not removed. Therefore, unless arsenic is present exclusively as arsenate, an oxidation step will be necessary for arsenic removal. Most arsenic removal technologies are most effective at removing the pentavalent form of arsenic (arsenate), since the trivalent form (arsenite) is non-charged below pH 9.2. Arsenite can be directly oxidized by a number of other chemicals, including gaseous chlorine, hypochlorite, ozone, permanganate, hydrogen peroxide, and Fenton's reagent (H_2O_2/Fe^{2+}). Some solids such as manganese oxides can also oxidize arsenic. Ultraviolet radiation can catalyze the oxidization of arsenite in the presence of other oxidants, such as oxygen.

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Environmental Pollution- A Brief review

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21st century is the age of automation which requires quick, easy and safety control and development technology of physical quantities. It needs more sophisticated and delicate digital instrumentations. To increase the efficiency and capability of the instruments in measurement and detection technology, to reduce the cost, shape, size, weight, etc. It is necessary to introduce the sensor units at the input ports of domestic, industrial and scientific instruments in development.

Man is running, as fast as Tolstoy's man, continuously at day and night, providing contribution in development and hence is not giving proper attention to the damage that is being done by him to the environment. The net visible result is the destruction and degradation of the quality of the environment, which causes tremendous pollution. Environmental pollution has posed serious problems viz., physical, chemical, biological, social and economical.

Environmental pollution is defined as 'The condition that exists when the atmosphere contains the concentration of pollution those produce objectionable effects'. The environment may be defined as "the imperceptible relationship and interaction between the nature and the human digestive system, disorders of reproductive system, blindness, forgetfulness, headaches, hypertensions etc.

The applications of gas sensing technology range from environmental analysis and food processing to the pharmaceutical industry and medicine. Gas sensors offer great potential for the detection of different microbial species. Some chemical products are specific to fungal and bacterial species and are commonly used as a useful diagnosis tool. Loss of original flavour in foods originate mostly from bacterial and fungal metabolism and several studies have been carried out on the detection of the volatile chemicals produced from the microorganisms mentioned. The

isolated species include gram-negative, gram-positive bacteria and several fungi. The risk of fungal contamination is also related to several mycotoxigenic species that produce mycotoxins very harmful to human and animal health. Therefore, early detection of the microorganisms offers many advantages for quality control in the foodstuffs industry. Similarly, specific volatile compounds have been identified and related to the growth of several microorganisms in biological samples and these results promise to be useful for medical diagnostics.

So, there is a strong need to monitor such gases and to be controlled for safety survival of living beings. It leads to the research and development of a wide range of sensors using simple and cost effective materials and technologies.

AIR POLLUTANTS

Air pollutants are classified as:

Inorganic gases: This class includes the oxides of carbon, sulfur, nitrogen and other gases viz. H_2S, NH_3, Cl_2, HF, etc.

Organic gases: This class includes the hydrocarbons viz. CH_4, C_2H_6, C_3H_8, C_4H_{10}, C_5H_{12}, C_6H_6, formaldehyde, vapours of acetone, alcohols, organic acids etc. Vapours of petrol, diesel, LPG and LNG are the gases containing volatile organic compounds.

Particulate matters: This class includes dust, smoke, ash, carbon, lead, sprays, insecticides, pesticides, oils, greases, paints etc. On the basis of direct or indirect release of gases, there are mainly two types of pollutants; they are primary and secondary pollutants.

Primary pollutants: The pollutants which are directly released from sources are known to be primary pollutants e.g. H_2S, NH_3, CO_2, SO_2, NO, vapours of petrol, diesel kerosene, LPG, LNG, dust particles etc.

Secondary pollutants: The pollutants which are formed in atmosphere by chemical interactions among primary pollutants are known as secondary pollutants e.g. NO_2, SO_3, O_3, Ketones, H_2SO_4 etc. Like human activities, few natural activities are also responsible for emitting particulate matters and polluting gases.

Health Hazards due to different emitted gases: Different gases cause various health hazards. On the basis of nature and kind of gases, few health hazards are discussed below:

Hydrogen sulfide (H_2S): The biogenic decomposition of sulfur containing organic matter occurs both on the land and in the sea. The major sulfur compounds generated in biogenic decomposition is hydrogen sulfide (H_2S). H_2S is one of the major pollutants, hazardous and toxic in nature which is also released from industries and laboratories. The primary standard of sulfur oxides promulgated to protect human health is few ppm. However, sulfur oxides alone produce no acute response in human up to 1.0 ppm. But if sulfur oxides condense on smoke or particulates, it can be inhaled quite deeply into the respiratory track causing infection to respiratory track. This makes breathing difficult, and strains the victim's heart. Higher concentrations of gases containing sulfur lead to bronchitis and lung cancer. These gases containing sulfur destroy plant cells and interfere with chlorophyll synthesis. Leaf blotching and reduction in crop yield occur even at the concentration less than 1 ppm. The exposure of gases containing sulfur can also affect the non living things viz. Stone leprosy, increase the rate of corrosion of metals and retardation of drying of paints, etc.

Ammonia (NH_3): Ammonia is utilized extensively in many chemical industries, fertilizer plants, refrigeration systems, etc. A leak in the system can result in health hazards. Ammonia is harmful in toxic in nature. The exposure of ammonia causes chronic lung disease, irritation and even burning the respiratory track etc.

Chlorine (Cl_2): Chlorine is a yellowish-green gas having pungent smell which is explosively utilized in industrial applications such as to bleach pulp, to disinfect sewage and drinking water etc. As it has wide range of applications, its toxicity can affect the health of human in contact. Chlorine has excellent bleaching ability, but once it is discharged in aquatic systems, it interacts with other industrial effluents to produce a host of chlorinated organics such as dioxin. Dioxin persists in the environment for prolonged periods and has a tendency to bioaccumulate in the food chains, which elicits toxic effects to humans, such as skin infections, psychological disorders and even liver damage.

Ethanol (C_2H_5OH): Pure ethanol is called as the absolute alcohol. Ethanol is used for beverages, scientific and industrial purposes. Ethanol is a hypnotic (sleep producer) low boiling liquid. It depressed activity in the upper brain even though it gives the illusion of being a stimulant. Ethanol is

also toxic like methanol. Abuse of ethanol is a major drug problem in most countries. Ethanol can be made by fermentation of sugars and it is the alcohol of all alcoholic beverages. The synthesis of ethanol in the form of wine by the fermentation of sugars of fruit juices was probably the first accomplishment in the field of organic synthesis. Sugars from a wide variety of sources can be used in the preparation of alcoholic beverages. Fermentation is usually carried out by adding yeast to a mixture of sugars and water. Yeast contains enzymes that promote a long series of reactions and ultimately convert a simple sugar ($C_6H_{12}O_6$) to ethanol and CO_2.

Fermentation alone does not produce beverages with ethanol content greater than 12-15% because the enzymes of the yeast are deactivated at higher concentrations.

Carbon dioxide (CO_2): The atmospheric concentration of CO_2 at present is about 356 ppm. The greenhouse contribution of CO_2 is 50 %. If the present emission trend of CO_2 continues, a global warming of 3.5 to 4.5°C is likely to occur. It has been estimated that, the sea level may rise 0.5 to 1.5 m in the next 50 to 100 years. An increase in average global temperature is likely to increase the incidence of infectious diseases, viz. malaria, chikungunia, schistosomiasis, sleeping sickness, dengue, yellow fever etc.

Carbon monoxide (CO): Hemoglobin has more affinity for CO than for oxygen. Hence, less oxygen is taken up by hemoglobin, if CO is inhaled during breathing. When CO is inhaled during breathing, it combines with hemoglobin (Hb) in the blood stream to form more stable complex known as carboxy-hemoglobin CO-Hb.

$$HbO_2 + CO \quad CO\text{-}Hb + O_2.$$

This reduces the ability of Hb to carry the oxygen to the body tissues. Prolonged exposure to low levels of CO causes the reduction of ability of a person to see small objects at a distance, the reduction in night vision, hearing ability, mental performance and time discrimination ability. It also causes headache, dizziness, and lassitude and discomfort. Higher levels of CO would result in an increased haematocrit that is percent volume of Red Blood Cells. Thus cigarette smokers have been found to have an increase in haematocrit within minutes of smoking. Smokers having 10-20 % carboxy-hemoglobin level begin to have artery blockages at a very young age.

Liquefied Natural Gas (LNG) and Liquefied Petroleum Gas (LPG):

Liquefied Natural Gas (LNG) and Liquefied Petroleum Gas (LPG) are highly inflammable gases. They are explosively utilized in industrial and domestic fields as fuels. They are collectively called cooking gases. Cooking gas consists chiefly of butane (55-vol %), a colorless and odorless gas. It is usually mixed with compounds of sulfur (methyl mercaptan and ethyl mercaptan) having foul smell, so that its leakage can be noticed easily. These gases are potentially hazardous because explosion accidents might be caused when they leak out by mistake.

Hydrogen (H_2): Energy is the driving force of all activities in the nature. Nothing moves, changes, grows or decays without consumption of energy. It flows downhill from high-potential to low-potential and high-temperature source to low temperature. For most organisms, the energy required is derived from food. Unlike other organisms, human not only require food energy but also energy to drive machines, to produce heat, to generate electricity, to transport, etc.

The energy is obtained from fossil fuels, solar and nuclear resources. Fossil fuels, coal and petroleum have limited age as their consumption is tremendous. These are non-renewable resources. They cause explosive pollution. The extraction of energy from solar radiation causes minimal damage to environment; but not developed well till today and unaffordable to middle class society for domestic use. Nuclear energy has the serious problems with handling and waste disposal.

It is, therefore, necessary to turn our attention towards the development of fuel economy based on hydrogen. Hydrogen is not the primary source of energy. It is an energy carrier. On combustion, it produces only water. Hence, the advantage of hydrogen is its virtually pollution-free combustion. It is therefore, destined to become the fuel of the future. Cracking of hydrocarbons, cracking, electrolysis and thermo chemical decomposition of water produce the hydrogen. Hydrogn as an energy carrier has widespread applications. It is explosively utilized in industrial fields as fuels. It is a colorless and odorless gas. Its leakage cannot be noticed easily. This gas is potentially hazardous because of explosion possibility.

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Ionic Liquids as Precursors to Liquid Crystals

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An **ionic liquid** (IL) is a salt in the liquid state whose melting point is below some arbitrary temperature, such as 100 °C (212 °F). These substances are variously **called liquid electrolytes, ionic melts, ionic fluids, fused salts, liquid salts, or ionic glasses.** Any salt that melts without decomposing or vaporizing usually yields an ionic liquid. Conversely, when an ionic liquid is cooled, it often forms an ionic solid—which may be either crystalline or glassy.

The ionic bond is usually stronger than the van der Waals forces between the molecules of ionic liquids. For that reason, common salts tend to melt at higher temperatures than other solid molecules. Some salts are liquid at or below room temperature. Examples include compounds based on the 1-ethyl-3-methylimidazolium (EMIM) cation and include: EMIM:Cl, EMIM dicyanamide, $(C_2H_5)(CH_3)C_3H_3N^{+2}\cdot N(CN)^{-2}$, that melts at −21 °C and 1-butyl-3,5-dimethylpyridinium bromide which becomes a glass below −24 °C. Low-temperature ionic liquids can be compared to ionic solutions, liquids that contain both ions and neutral molecules, and in particular to the so-called deep eutectic solvents, mixtures of ionic and non-ionic solid substances which have much lower melting points than the pure compounds.

Ionic liquids are often moderate to poor conductors of electricity, non-ionizing (e.g. non-polar), highly viscous and frequently exhibit low vapour pressure. Their other properties are diverse: many have low combustibility, excellent thermal stability, wide liquid regions, and favorable solvating properties for a range of polar and non-polar compounds. Many classes of chemical reactions, such as Diels-Alder reactions and Friedel-Crafts reactions, can be performed using ionic liquids as solvents. Recent work has shown that ionic liquids can serve as solvents for biocatalysis. The miscibility of ionic liquids with water or

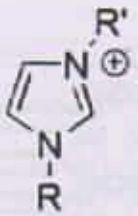
organic solvents varies with side chain lengths on the cation and wi choice of anion. They can be functionalized to act as acids, bases o ligands, and have been used as precursor salts in the preparation of stabl carbenes..

Liquid crystals which are considered as the "fourth state of matter"hav properties that are intermediate between that of the crystalline solid stat and that of the liquid state. Liquid crystals flow like a liquid, but they ar anisotropic compounds. The refractive index, the electric permittivity, th magnetic susceptibility and the mechanical properties of a liquid cryst depend on the direction in which these quantities are measured. Typic liquid crystals have either a rod like or disc like shape, although ma exceptions are present . **Ionic liquid crystals** are a class of liquid-crystalli compounds that contain anions and cations. The ionic character mea that some of the properties of the ionic liquid crystals differ significant from that of conventional liquid crystals. Typical for ionic liquid crystals the ion conductivity. The ionic interactions tend to stabilize lamell mesophases, but ionic liquid crystals also display uncommon mesophase such as the nematic columnar mesophases. The main driving force t explore ionic liquids is the fact that these compounds have a very lo vapour pressure, so that they can be used to replace volatile organ solvents in organic reactions. Because the properties of ionic liqui (miscibility with water and other solvents, dissolving ability, polar viscosity, density, ...) can be tuned by an appropriate choice of the anio and the cation, ionic liquids are often considered as designer solvent These ionic liquids can also be used to immobilize transition met catalysts in the liquid phase of biphasic catalytic reactions. Oth applications include their use as solvents for extraction processes and a an electrolyte for batteries, fuel cells, and dye-sensitized solar cells.

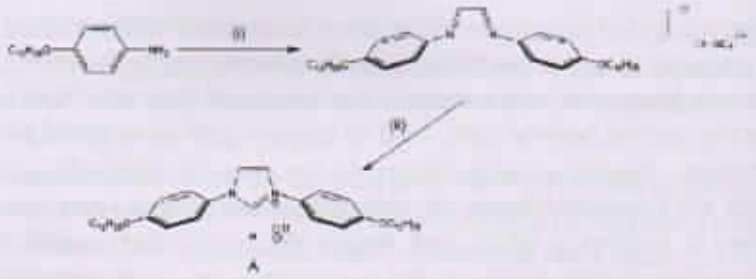
Recent study showed the convergence of the two distinct fields of ion liquid and liquid crystal chemistry which leads to a vast new range o materials for research and industry. Interest in this has been driven in larg part by the views that ionic liquids have potential, especially as gree solvents for organic reactions and that liquid crystals are systems, whic provide self-organised orientational ordering at the nanometric level. Th association of order and mobility opens the door to investigations, f example, of reactions in ordered solvents in the hope of obtaining bett

selectivity and of improved performance in electronic devices based on the transport of ions or electrons. Recently, solvents based on imidazolium salt have been used with success in dye-sensitised solar cells and light emitting electrochemical cells, and to prepare gold nano particules or nanorods. Despite growing interest in the properties of ionic liquids, which are frequently based on imidazolium compounds, very little is known of systems in which such liquids also form liquid crystals. The introduction of alkyl chains on aryl substituents can cause imidazolium precursors of N-heterocyclic carbenes (NHCs) to exhibit liquid crystal properties. N-heterocyclic carbenes as ligands in coordination chemistry have recently received growing interest because of their electronic properties comparable to phosphine ligands. In contrast, imidazolium precursors of NHCs have received less attention but these cationic molecules are potentially useful in the search of liquid crystals.

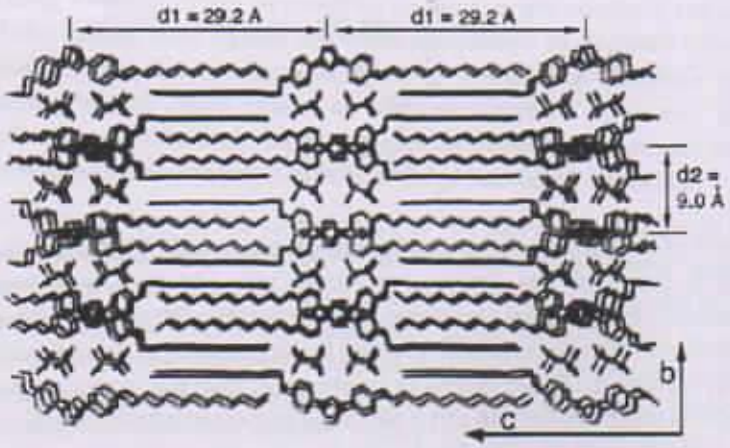
Salts of imidazole where the imidazole ring is in the cation are known as imidazolium salts (for example, imidazolium chloride). These salts are formed from the protonation or substitution at nitrogen of imidazole. The solubility of different species in imidazolium ionic liquids depends mainly on polarity and hydrogen bonding ability.



In one of the suitable examples an imidazolium salt A (as shown below) having potential of liquid crystallinity was obtained in a two-step procedure from aniline derivative. Condensation with glyoxal followed by treatment with chloromethyl pivalate in the presence of one equivalent of silver triflate (tri fluoro methane sulphonate) gave the corresponding salt A in 60% yield. The triflate salt is air stable and could be purified by column chromatography on silica. Single crystals of A suitable for X-ray diffraction were obtained by slow diffusion of hexane into a CH2Cl2 solution.



The solid state array is formed by interdigitation of the extended but slightly curved, approximatively 29 A ° long molecules. The most interesting feature of this array is its lamellar structure (as shown below), in which the layers are separated by d1 = 29.2 A °. Another repeating distance, d2 = 9.0 A ° ,is due to the packing of the imidazolium entities. The rigid rings as well as the anions are fully segregated from the flexible chains. Clearly, the observed arrangements favour liquid crystalline properties .The mesomorphic behaviour and phase transition temperatures were characterised by polarising optical microscopy(POM), differential scanning calorimetry (DSC) and powder X-ray diffractometry (XRD). The DSC thermograms of the compound also supports the liquid crystal phase.



(a) ORTEP drawing of imidazolium compound A (50% thermal ellipsolids). (b) Packing of molecules A in the crystal ,a segregation between the rigid part and the alkyls tails is observed. The alkyl tails connect the layers by their interdigitation.

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Detection And Remediation of Heavy Metals – Alternative Pathways

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Pollution generating effects due to human activities have increased manifold in the past 2-3 decades. Although we are aware of many essential metals like zinc, copper, manganese, nickel, chromium, cobalt, selenium - they are toxic at higher concentrations because they cause oxidative stress by formation of free radicals. Secondly, they replace essential metals in pigments or enzymes disrupting their functions. The most common heavy metal contaminants are As, Cd, Cr, Cu, Hg, Pb and Ni. Needless to say, the environment which is constituted of air, water, soil and biota, is being alarmingly threatened by accumulation of pollutants. This is mainly due to human activities such as mining, electroplating, energy and fuel production, fertilizer, sewage and pesticide application. Environmental biotechnology is defined as the "multidisciplinary integration of sciences and engineering in order to utilize the huge biochemical potential of micro-organism plants and parts thereof, for restoration and preservation of the environment and for the sustainable use of resources".

Although biomonitoring is a vast topic having many facets to discuss, this article focuses on the utilization of plants in the biomonitoring of heavy metals. Also, the recent development of biosensors which has further modified the concept of biomarking will be remarked. Finally, remediation processes by plants for decontamination of heavy metals from soil *vis-à-vis* physicochemical techniques will be explored.

Detection of Heavy Metals

Nature has its own method to keep track of the environmental depositions. Bryophytes and lichens have long been recognized as sensitive indicators of environmental conditions. Therefore, they serve as good biomonitors. Ideal biomonitors should be chosen after giving due consideration to its:

- Distribution – which should be wide spread and cosmopolitan
- Ecological characteristics- with respect to fidelity, specificity and sensitivity
- Representativeness – should be able to indicate responses of other taxa
- Practicability – easy sampling
- Societal importance as in agriculture or environment
- Sentinel effect

The last point emphasizes that these bioindicators must not be impaired by the contaminant. Again, they must accumulate and concentrate to measurable levels above that of the surroundings [1].

The relevant information in biomonitoring (for both plants and animals) is commonly deduced from either changes in the behaviour of the monitor organism (impact on species composition and/or richness, physiological and/or ecological performance, morphology) or from the concentrations of specific substances in the monitor tissues. With proper selection of organisms, environmental biomonitoring has several advantages like the permanent and common occurrence of the organism in the field, even in remote areas, the ease of sampling and the absence of any necessary expensive technical equipment.

Mosses and lichens accumulate heavy metals and other compounds very efficiently because of their large specific surface and slow growth. Moreover, they do not have epidermis and cuticle, so metal ions can easily penetrate the cell wall. Another favorable point in this respect is that mosses and lichens have not developed a root system or water conductive tissue, so they take nutrients exclusively from the atmosphere and not from any other sources [2]. As such they serve mostly as passive biomonitors to provide an indication of the pollutant impact at the ecosystem level. On the other hand, field crops and vegetables can serve as an immediate step to detect effects on food and fodder quality and safety. Bioaccumulators are not only used to measure deposits of heavy metals but also radionuclides, polycyclic aromatic hydrocarbons, dioxins and all kinds of aerosols which can also be accumulated efficiently. As far as contaminants of food and fodder crops are concerned, they are a crucial

step to evaluate the potential transfer to consumers.

Sampling records should be maintained in detailed form to achieve accuracy. This is important for regular sampling in long-term studies. Large volume of samples covering the entire geographical area of interest must be collected. The standard procedures followed post sampling is washing with triple distilled water, air-drying and finally digesting with nitric acid preferably in microwave digester. Certified Reference Materials (CRM) is used for control experiments. Elemental analysis in biomonitoring surveys can be carried out either by nuclear techniques like Instrumental Neutron Activation Analysis (INAA), PIXE, XRF or by non-nuclear techniques like AAS, ICPMS, ICPAES, Mass Spectrometry. The former is not influenced by matrix impurities or that introduced through reagents and solvents. As for the latter, utmost care should be taken against elemental loss arising from incomplete digestion of the sample and impurities

The idea of biomonitoring goes back to the 19th century when Nylander (1866) used the abundance of lichens as a measure for air pollution effects [3]. For the purpose of surveying ambient air quality, biological indicators were used the first time in 1958 in the basin of Los Angeles, US; however, the low cost of this method in comparison to the chemical-analytical methods was the decisive factor. It was Schonbeck et al. (1970) who pointed out for the first time, that biological indicators gain effects-related information which cannot be assessed by means of chemical analytical methods of air pollution monitoring systems[4]. The most compelling reason for using biomarkers is that they can give information on the biological effects of pollutants rather than a mere quantification of their environmental levels. Biomarkers may provide insight into the potential mechanisms of contaminant effects. By screening multiple biomarker responses, important information can be obtained about organism toxicant exposure and stress. A pollutant stress situation normally triggers a cascade of biological responses, each of which may, in theory, serve as a biomarker [5]. Above a certain threshold (in pollutant dose or exposure time) the pollutant-responsive biomarker signals deviate from the normal range in an unstressed situation.

However the flip side of lichen biomonitoring data is that it is often complicated by climate, natural disturbance of habitats and land-use history.

As a result many of the biotic effects are still poorly understood, particularly in the terrestrial environment: although many changes in vegetation are now generally attributed to atmospheric deposition, dose-effect relationships are usually poorly known [6, 7].

In recent times, biosensors have emerged as another promising technology in the analyst's armory, especially for applications requiring continuous monitoring. The recognition element which can be enzymes, antibodies receptors proteins, nucleic acids, cells or tissue sections coupled to a transducer. Specific interactions between the analyte and the recognition element produce a physico-chemical change, which is detected and measured by the transducer. The amount of signal generated is proportional to the concentration of the analyte allowing for both qualitative and quantitative measurements. Enzyme inhibition approaches tend to cater to a large number of environmental pollutants, usually of a particular chemical class such as pesticides and heavy metals. The most well developed class of transducers are potentiometric, amperometric, conductometric, optical, acoustic or piezoelectric. Heavy metals can be measured using the inhibition of enzyme urease, coupled to an ammonia selective electrode [8]. Glucose oxidase, alcohol oxidase, butyril oxidase and urease have been immobilized on transducer surfaces and used as bioactive elements for detection of Ag^{+}, Hg^{+2} and Pb^{2+} [9]. Immobilization techniques include adsorption, entrapment, covalent binding and cross-linking [10, 11]. Immobilization of enzymes on silicon supports has attracted attention in biosensor chip technology [12].

Remediation of Heavy Metals from soil

Soil remediation processes can be chemical, physical or biological and are primarily of two kinds i) ex- situ or ii) in-situ. The former involves excavation, detoxification and/or detoxification of the contaminant after removal of the soil. As a result this is extremely costly and may also be a threat to the ecological balance of the soil. The latter is an on- site management where hazards associated with oil transportation can be avoided. Calcium carbonate, lime or phosphate increases the pH of the soil thereby decreasing the solubility of heavy metals like Cd, Cu, Ni, and Zn. However, in such a case the metal contamination remains in the soil and is only temporarily offset.

Bioremediation uses materials of microbial and plant origin which indeed

has been recognized as an alternative method of environmental cleanup processes. Since more eco-friendly, non-polluting green chemistry routes are preferred this indeed has great relevance to present predicaments. Interestingly, all the four steps of separation, destruction/degradation and containment by physicochemical techniques are actually followed in the use of plants as they have the inherent ability to absorb and translocate essential and non-essential elements and organic chemicals from the soil through roots. The generic term 'Phytoremediation' consists of the Greek prefix photo (plant) attached to the Latin root remedium (to correct or remove an evil). The concept has actually been implemented for the past 300 years. Perhaps it gained popularity because of its environmentally non-destructive, aesthetically pleasing qualities and of course low cost. Some plants have strongly expressed metal sequestration mechanism and sometimes greater internal requirements for specific metals. The potential of certain species of plants called " hyperaccumulators ' t o accumulate high concentrations of metals in the above ground parts has been recognized for potential exploitation in phytoremediation. At least 45 familes have been found to hyperaccumulate. The ability of the hyperaccumulators in mobilizing metals from less-soluble soil fractions have been exploited in phytoremediation. (13)

Plant roots normally have large surfaces and extend to a large radius. Some of the metal accumulating plants release metal chelating compounds into the rhizosphere. These include organic acids such as citric, malic and oxalic acid, which will chelate the metal and decrease the rhizosphere pH thus enabling easy uptake of metals. Root surfaces also have high affinity chemical receptors. Metal transporters help in the transport of metals such as Zn and Fe from root symplast into the xylem apoplast. In case of Alyssium species, histidine is known to chelate Nickel and help in translocation of other heavy metals. Metal transporters and metal binding proteins play a major role in sequestration . Metallothioneins [MTs] help in binding of metals such as Ag, Cd, Co, Cu, Hg and Ni. Phytochelatins are a group of metal binding proteins in plants, which may complex the metals and help in storage in vacuoles.

Elemental pollutants are immutable by any biological process and can be contained, while organic pollutants can be degraded and also their m ineralization can be achieved. Bioremediation of radio nuclides, heavy metals and organic waste has been a major recent activity [14-15].

Recently several indigenous plants have been tested for remediation of metals, radio nuclides and organic pollutants. Phytoremediation is an umbrella term, which include the following subsets

Process	Mechanism
Phytoextraction	Use of high biomass metal accumulating plants to remove and concentrate metals/organic pollutants in harvestable plant parts such as shoots, which are harvested using conventional agricultural methods.
Rhizofiltration	Use of plant roots to adsorb/absorb pollutants – mainly heavy metals from water and aqueous waste streams.
Phytodegradation	The use of plants and associated microorganisms to degrade organic pollutants.
Phytostabilisation	The use of plants to reduce the bioavailability of pollutants in the environment by stabilizing them in soils.
Phytovolatilization	The use of plants to volatilize volatile metals through foliage (e.g. mercury, selenium).

Three major points to be noted for effective remediation by plants are:

- Deep root structure for better reach and extraction
- Fast rate of growth
- Easy translocation to shoot

Trees differ in their ability to translocate heavy metals from root to the shoot. Wood and bark are effective sinks as these are metabolically less active [16]. Currently, the accepted concentration of metals in shoots of hyper accumulators is 0.1% for nickel, cobalt, copper, lead and cadmium. Some of the plants belonging to Brassicaceae such as Alyssium species, Thlaspi species and Brassica juncea; Violaceae such a s Viola calaminaria, Leguminosae such a s Astragalus racemosus are known to take up high concentrations of heavy metals [17]. Plants belonging to henopodiaceae, such as beet (Beta vulgaris) quinoa [Chenopodium quinoa], Russian Thistle [Salsola kali] and Amaranthaceae such as Red root pigweed [Amaranthus

retroflexus] are known to take up ^{137}Cs, while Atriplex genus are high ^{90}Sr accumulators. Indian mustard [Brassica juncea] and sunflower [Helianthus annuus] are found to be good accumulators of uranium and lead.

Uptake and transport vary depending on the metals and plant species used. Salix (Willow), Betula (Birch), Populus (Poplar) have been used for purposes of phytoremediation. Fast growth and large biomass are the deciding factors for selection of such species for phytoremediation. Turner and Dickinson (1993) found, in sycamore trees grown in contaminated soil, most of the Pb not retained in the roots was translocated to the stem, while most of the Zn not retained in the roots was translocated to the leaves. McGregor et al. (1996) analysed tissue of sycamore, birch and willow trees which had naturally established on sites contaminated by waste from an explosives factory and a chromium processing works. Cr, Pb and Cu were found to have accumulated mainly in the tree roots; Zn concentrations were highest in bark. Numerous studies have shown accumulation to occur in actively growing tissues such as shoots and young leaves: Drew et al. (1987) grew poplar clones in sludge-amended soil and found Zn and Cd concentrations to be the highest in foliage [18, 19, 20]. It is obvious, therefore, that the partitioning of heavy metals in different parts of the trees are achievable.

Conclusion

Detrimental effects of heavy metals have long been established. Pollution of the environment by heavy metals is a cause for concern and therefore requires extensive investigations and remediation processes should be evolved thereafter. As our consciousness towards more ecologically oriented methodologies increases, alternative routes to detection and clean up processes becomes relevant. Measurement of pollutants or its effect in lower plants is a novel approach to keep track of any kind of environmental degradation. This, therefore, is a receptor or effect oriented approach. Plant biomonitoring can serve as a baseline for further studies of the air quality and health risk.

Phytoremediation is a cost effective plant based approach, which utilizes the ability of plants to concentrate metals as well as radio nuclides and degrade/mineralize organic pollutants from the environment. A better understanding of the physiological and molecular basis of metal uptake and accumulation by hyper accumulator plants will result in

improvement in phytoremediation strategies for cleaning up the environment. Lack of requirement for high disposal sites, avoidance of excavation, high public acceptance and its potential versatility to treat a diverse range of hazardous materials work in tandem to give preference to phytoremediation techniques over other chemical and physical technologies. Another cause for this is that the latter technologies are also environmentally disruptive. Limitations in phytoremediation process are that it is time consuming. There is also a possibility of contaminants being released back into the environment due to litter fall. Enhancement in solubility of some contaminants may lead to pollutant migration. Development of transgenic plants tailored for phytoremediation will result in enhanced environmental cleanup, thus supporting biodiversity and preservation of vital ecosystems.

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Bio Fuels : An Alternative Energy in Future!

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Abstract

The increasingly high demand and the limited supply of the fossil fuels will make severe energy crisis in the near future. So it is urgent to find out the alternative sources of energy. The production of energy from biomass is a topic of current interest, as it could be used as renewable sources of energy. In this review article, the most widely used biofuel such as ethanol and biodiesel are discussed. Various liquid biofuels are also compared with their fossil fuel counterpart.

Introduction:

Fossil fuel is the source of energy that brought mankind into the twenty-first century. Since these fuels take millions of years to form, they are in limited supply and their increasingly high demand will make it run dry sooner or later. In addition to this, the huge environmental impacts of fossil fuels are all well known. So it's time for the society to look for the alternative to the fossil fuel !

Biofuel is a hydrocarbon produced from organic matter (living or once living material) in a short period of time (days, weeks or even months) ! The biofuel is also defined as the fuel whose energy is obtained through a biological carbon fixation process, in which the carbon dioxide is converted into a number of different compounds, like proteins, fats and alcohols etc. found in a living organism.

The composition of biomass is carbon, hydrogen and oxygen. Nitrogen and small quantities of other atoms, including alkali, alkaline earth and heavy metals can also be found. Biomass is the building block or 'feedstock' for many other fuels. Biofuel comes from biomass (organic matter like corn, algae, stalks of sugar cane etc.) which can be produced year after year through sustainable farming practices. Hence biomass and biofuel are

renewable energy sources which could be used largely as the transportation fuel that significantly reduces the emission of green house gases.

Types of Biofuel :

Biofuels derived from biomass can be in the form of solid, liquid and gas as well. Wood, charcoal, bagasse etc. are the solid biofuels. While wood and charcoals are widely used as fuel for domestic purposes such as cooking in the rural areas of most developing countries, waste bagasse, the fibrous material produced from sugar cane processing, is extensively used for steam and electrical power generation in raw sugar mills. Methane gas, a gaseous biofuel is produced from the anaerobic fermentation of animal wastes, wastewater treatment sludge and municipal wastes in landfills. Ethanol and biodiesel are the two most common types of liquid biofuels used now to fulfil the needs of the transportation fuel [1, 2].

Ethanol : Ethanol is the ethyl alcohol, which can be produced from different feedstocks such as sugar cane, sugar beet, barley, potatoes, sweet potatoes, sunflower, corn, wheat, switchgrass, cassava, straw, cotton, molasses, sorghum, bagasse, miscanthus etc.

Glucose and other sugars in the crops are converted into ethanol and carbon dioxide by the method of microbial (Yeast) fermentation as given below [3].

$$C_6H_{12}O_6 \rightarrow 2\ C_2H_5OH + 2\ CO_2 + \text{heat}$$

Some crops require some enzymes to convert starch into sugar before it get's farmented. Although today, ethanol is made from starches and sugars, research is going on to develop a technology that allow ethanol production from cellulose and hemicellulose as well [4]. Some other process for the production of ethanol is the gasification. Here biomass is converted into synthesis gas, or "syngas" at high temperature and a low-oxygen environment. This "syngas" which is a mixture of hydrogen and carbon monoxide can be chemically converted into ethanol and other fuels. Ethanol is blended with gasoline to reduce CO and other smog-causing gases. In Brazil, gasoline contains at least 95% ethanol whereas in other countries, ethanol usually makes up between 10% and 15% of gasoline.

Biodiesel :

The molecules in biodiesel are primarily **Fatty Acid Methyl Esters (FAME), or mono-alkyl esters** derived from vegetable (plant) oils or animal fats and other biomass-derived oils. Plant oil is chemically converted to mono-alkyl esters through the process called transesterification. The chemical reaction takes place by using several catalyst : such as acid-catalyst, base catalyst, enzyme catalyst etc. However base catalyst is widely used due to it's short reaction time. Plant oils, animal fats or recycled cooking greases contain triglyceride oil. During the process of transesterification, an alcohol (such as methanol) reacts with this triglyceride oils to form fatty acid alkyl esters (biodiesel) and glycerine. The reaction requires heat and a strong base catalyst such as NaOH and KOH.

Different types of oil used to produce biodiesel are given below.

- Virgin oil feedstock – rapeseed and soybean oils, mustard, jojoba, sunflower, palm oil, coconut, jatropha etc. Jatropha curcas, a poisonous shrub like tree that produces seeds which is considered to be a viable source of biodiesel feedstock oil. Jatropha seeds yield 30-40% crude non-edible oil and typically produces 0.75-2 tons biodiesel/hectare [1]. Lot of research is going on to increase the oil yield of jatropha through advancements in genetics, soil science, and horticultural practices.
- Used Vegetable Oil or Waste Vegetable Oil.
- Animal fats, chicken fat, and the by-products of the production of Omega 3 fatty acid from fish oil.
- Algae which can be grown in the waste water (like sewage) without disturbing the land used for food production. Microscopic algae or microalgae use the Sun's energy to combine carbon- dioxide with water to create biomass more efficiently and rapidly than terestrial plants. When photosynthesizing, certain species can produce and store inside the cell large amount of carbohydrates and up to 50% by weight of oil as triglycerides. The conversion of algae oil into biodiesel is a similar process as for plant oils based on esterification of the triglycerides after extraction. As the cost of producing algae oil is relatively high at present, so it has not yet been undertaken on a commercial scale. However production of liquid transportation fuel

from these microalgae is a topic of current research at NREL [4].

- Oil from halophytes which can be grown using saltwater in coastal areas where conventional crops cannot be grown. It is seen that the yields from these halophytes are the same as that of soybeans and other oilseeds grown using freshwater irrigation.
- Sewage Sludge - The sewage-to-bio fuel field is attracting interest from many major companies which claims that, renewable sewage biodiesel can become competitive with petroleum diesel on price.

Various liquid biofuels are compared with their fossil fuel counterparts in the table given below.

Biofuel	Fossil Fuel	Differences
Ethanol	Gasoline/Ethane	Ethanol has less energy per mass than gasoline. It is seen that 1.5 gallons of ethanol produces the energy of one gallon of gasoline. Ethanol burns cleaner than gasoline producing less carbon monoxide. However, ethanol produces more ozone than gasoline and contributes substantially to smog. Engines must be modified to run on ethanol.
Biodiesel	Diesel	Biodiesel has only slightly less energy than regular diesel. It is more corrosive to engine parts than standard diesel, which means engines have to be designed to take biodiesel. It is safe, biodegradable, and produces less air pollutants than petroleum-based diesel. Biodiesel can be used in its pure form (B100) or blended with petroleum diesel. Common blends include B2 (2% biodiesel), B5, and B20.

Biofuel	Fossil Fuel	Differences
Methanol	Methane	Methanol has about one third to one half as much energy as methane. Methanol is a liquid and easy to transport whereas methane is a gas that must be compressed for transportation.
Biobutanol	Gasoline/Butane	Biobutanol has slightly less energy than gasoline, but can run in any car that uses gasoline without the need for modification to engine components.

Conclusion :

For the production of biofuels, some of the agricultural products that specially grown are switchgrass, soybeans and corn in United States. Brazil produces sugar cane, Europe produces sugar beet and wheat, China produces cassava and sorghum, while South-East Asia produces miscanthus and palm oil, India produces jatropha.

Biofuels represent an immense growth area around the world and have an important role to play in displacing the types of fuels the world has used in the past. The U.S. military, for instance, plans to replace 50% of its fossil-based jet fuel with biofuel alternatives by 2016 [5].

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The Promise of Inclusive Education

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Perceptions of Inclusion

Inclusion is an **educational approach** and philosophy that provides all students with community membership and greater opportunities for academic and social achievement. Inclusion is about making sure that each and every student feels welcome and that their unique needs and learning styles are attended to and valued.

Education for All (EFA), which represents an international commitment to ensure that every child and adult receives basic education, is based both on a human rights perspective that education is central to individual well-being and national development. However, EFA has not, to date, given sufficient attention to some marginalized groups of children, in particular those with **'special educational needs'** or **disabilities**.

UNESCO defines **inclusive education** as *'a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education. It involves changes and modifications in content, approaches, structures and strategies, with a common vision which covers all children of the appropriate age range and a conviction that it is the responsibility of the state to educate all children.'* Inclusive education is not a marginal issue, but is central to the achievement of high-quality education for all learners and the development of more inclusive societies. It requires that all children, including children with disabilities, not only have access to schooling within their own community, but that they are provided with appropriate learning opportunities to achieve their full potential.

Inclusive schools put the values of **pluralism, tolerance, and equality** into action; they ask teachers to provide appropriate individualized supports

and services to all students without the stigmatization that comes with separation. ***Research shows that most students learn and perform better when exposed to the richness of the general education curriculum, as long as the appropriate strategies and accommodations are in place.***

At no time does inclusion require the classroom curriculum, or the academic expectations, to be watered down. On the contrary, inclusion enhances learning for students, both with and without special needs. Students learn, and use their learning differently; the goal is to provide *all* students with the instruction they need to succeed as learners and achieve high standards, alongside their friends and neighbours. Inclusion is an effort to make sure that diverse learners – those with disabilities, different languages and cultures, different homes and family lives, different interests and ways of learning – are exposed to teaching strategies that reach them as individual learners. Teachers in inclusive classrooms vary their styles to enhance learning for *all* students

Proponents of mainstreaming hold that students with special needs be placed in the general education setting solely when they can meet traditional academic expectations with minimal assistance. Yet, simply placing students with special needs in the regular classroom is not enough to impact learning. **Teachers in inclusive schools are asked to vary their teaching styles to meet the diverse learning styles of a diverse population of students.** Only then can the individual needs of all our students be met. Schools of the future need to ensure that each student receives the individual attention, accommodation and support that will result in meaningful learning.

The emerging education literature indicates that the **F.E.A.R.** model that highlights four pillars of proactive inclusive practices can replace the fear associated with diverse classrooms:

Focus: prompt student attention to the learning task through teacher preplanning

Engage: increase student motivation and social development through building a sense of belonging and contribution

Arrange: organize and administer the learning environment to accommodate all learners

Reflect: evaluate outcomes for planned lessons and activities, problem solve and adjust

The U.S. Inclusion Movement

In the United States at least one in every ten school going children are identified with some type of disability. Through the passage of a wide range of legislations including Education for All Handicapped Children Act (EAHCA) of 1975, Americans with Disabilities Act (ADA) of 1990, No Child Left Behind (NCLB) of 2001, Individuals with Disabilities Education Act (IDEA) 2004, and a long tradition of research and practices, the United States is said to be successful in providing a free and appropriate public education to all students regardless of their disability status. Although the term "inclusion" is not mentioned in federal legislation, the intent of law has become a reality. The U.S. inclusion movement considers the education and instruction of all students with disabilities to be a fundamental right. This movement has made both the general and special education teachers responsible and accountable to instruct these students with their peer groups. The collaboration between the general and special educators ensures that students with disabilities will receive the appropriate support and services to adequately achieve academic, social, and life skills. Moreover, many students who do not have disabilities but need additional support to succeed are being educated in general education classrooms. Consequently, almost all school-going children in the United States are being educated in their neighborhood schools in the general education classroom settings.

The nature of a student's disability determines the services required in order to educate them. These services and interventions are not same at each educational level. Different approaches and intervention strategies are implemented at the elementary and secondary levels. At the elementary level, students with mild-to-moderate disabilities are mostly placed in general education classroom settings for most of the school day. Some students are placed in special classes for part of the school day. Only a few are placed in separate special classes with an alternative curriculum for most of the school day. They are helped to achieve adequate academic and social skills. At the secondary level, these students are given special support toward becoming successful with developing friendships, peer relationships, and knowledge about sexuality. Students with a significant

level of disability are the most challenging group to educate within the public school system. At the elementary level, most of them are included in general education classrooms for most or part of the school day. Many, though, are placed in separate schools or in special classes for most of the school day. A few of them are served in residential schools or hospital settings with modified curriculum and systematic instruction. In addition to these strategies, at the secondary level, these groups of students are given special instruction in content areas in order to promote their participation in future schooling or job possibilities.

The Indian Endeavours for Inclusion

In India, **the National Policy on Education, 1986** and the **Programme of Action (1992)** stressed the need for integrating children with special needs with other groups. The objective to be achieved as stated in the NPE, 1986 is "to integrate the physically and mentally handicapped with general community as equal partners, to prepare them for normal growth and to enable them to face life with courage and confidence."

The concept of **Integrated education** in India has emerged during the mid 1950s. It is based on the medical model of disability and it emphasizes placement of children with disabilities in mainstream schools. The major thrust is on attendance. **Project Integrated Education for the Disabled** (PIED) was another experiment on Inclusive Education in India. Due to the combined efforts of the Ministry of Human Resources Development and UNICEF, the PIED came into existence in 1987. After its launching there was a shift in strategy, from a school based approach to a **Composite Area Approach**. In this approach, a cluster, instead of the individual school approach is emphasized. A cluster, usually a block of population is taken as the project area. All the schools in the area are expected to enroll children with disabilities. Training programmes were also given to the teachers.

Towards the Inclusive Approach

In late 90s the philosophy of **inclusive education was added in District Primary Education Programme.** Moreover, DPEP also addressed core issues related to curriculum such as what factors limit the access of certain children to curriculum; what modifications are necessary to ensure fuller curriculum access. Thus, with its child-centered pedagogy, DPEP set a stage where children with special needs could be provided learning

opportunities tailored to their needs. By 1998, many DPEP states had conducted surveys, assessment camps and evolved strategies to provide resource support to those children with special needs who were enrolled in DPEP schools. The IED guidelines in DPEP intend clearly that "DPEP will fund interventions for IED of primary school going children with integrable and mild to moderate disabilities".

DPEP estimates clearly showed that there were a large number of disabled children in the relevant age group. Gradually realization dawned that UPE could not be achieved unless children with special needs were also brought under the ambit of primary education. This led to more concrete planning and stratification of providing resource support and remedial assistance to children with special needs. As the programme progressed, many models of service delivery evolved with the sole aim of providing supportive learning environment to children with special needs. The thrust was on imparting quality education to all disabled children.

Rehabilitation Council of India Act, 1992 passed by the Parliament, makes it mandatory for every special teacher to be registered by the council and lays down that every child with disability had the right to be taught by a qualified teacher. In fact it provided punishment for those teachers who engaged in teaching children with special needs without a license.

The Persons with Disabilities (Equal Opportunities, Protections of Rights and Full Participation) Act, 1995 stresses the need to provide free of cost education to all children in an appropriate environment till they are 18 years old and further emphasize their right to measures like:

a) transport facilities to the students with disabilities or alternative financial incentives to parents or guardians to enable their students with disabilities to attend schools;

b) the removal of architectural barriers from schools, colleges or other institutions imparting vocational and professional training;

c) the supply of books, uniforms and other materials to students with disabilities attending school;

d) the grant of scholarship to students with disabilities;

e) setting up of appropriate forum for the redress of grievances of parents regarding the placement of their students with disabilities;

f) suitable modification in the examination system to eliminate purely mathematical questions for the benefit of blind students and students with low vision;

g) restructuring of curriculum for the benefit of students with disabilities;

h) restructuring the curriculum for benefit of students with hearing impairment to facilitate them to take only one language as part of their curriculum.

The **National Trust Act (National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disability), 1999** also came in to existence. This landmark legislation seeks to protect and promote the rights of persons who within the disability sector, have been even more marginalized than others. It was first of its kind in the category of persons addressed. It recognized the range of independence in skills, daily living and financial management. It is the prime decision making body for persons with disabilities and aims to provide total care to persons with mental retardation and cerebral palsy and also manage the properties bequeathed to the trust.

The Salamanca Statement and Framework for Action on Special Needs Education (1994) emerged as a result of deliberations held by more than 300 participants representing 92 governments and 25 international organizations. For furthering the objectives of Education for all, it considered the fundamental policy-shifts required to promote inclusive education. It emphasizes that schools should accommodate all children regardless of their physical, intellectual, social, emotional, linguistic or other conditions. The Statement affirms: "those *with special educational needs must have access to regular schools which should accommodate them within child centered pedagogy capable of meeting these needs".*

India was a signatory in the Salamanca Statement. In this perspective the Human Resource Development minister on the 21st March 2005 assured in the Rajya Sabha that MHRD had formulated a comprehensive action plan for the Inclusive Education of Children and Youth with Disabilities.

A **policy of inclusion** *needs to be implemented in all schools and throughout Indian education system as per the* **National Curriculum Framework, 2005.** The participation of all children needs to be ensured in all spheres of their life in and outside the school. Schools need to become

centers that prepare children for life and ensure that all children, especially the differently- abled children from marginalized sections, and children in difficult circumstances get the maximum benefit of this critical area of education.

The ideal of common schooling advocated by the Kothari Commission four decades ago continues to be valid as it reflects the values enshrined in our Constitution. Schools will succeed in inculcating these values only if they create an ethos in which every child feels happy and relaxed. This ideal is even more relevant now because education has become a fundamental right, which implies that millions of first-generation learners are being enrolled in schools. To retain them, the system — including its private sector — must recognize that there are many children that no single norm of capacity, personality or aspiration can serve in the emerging scenario. School administrators and teachers should also realize that when boys and girls from different socio-economic and cultural backgrounds and different levels of ability study together, the classroom ethos is enriched and becomes more inspiring.

Inclusion in India : The Current Status

Based on analysis of the state of special and inclusive education and the documentation of inclusive model practices, the following key observations can be made–

1. Central and state governments have taken a number of initiatives to improve the enrolment, retention and achievement of children with disabilities. There is a need to establish interlinks and collaborations among various organizations to prevent overlapping, duplication and contradictions in programme implementation.
2. Most services for children with disabilities are concentrated in big cities or close to district headquarters. The majority of children with disabilities who live in rural areas do not benefit from these services.
3. There is an absence of consistent data on the magnitude and educational status of children with disabilities, and the disparities between regions and types of disability. This makes it difficult to understand the nature of the problem, and to make realistic interventions.

4. Special schools and integrated educational practices for children with disabilities have developed over the years. Inclusive educational has gained momentum over the last decade.

5. Community involvement and partnerships between government agencies and NGOs have been instrumental in promoting inclusive education.

6. Many schools have a large number of children in each classroom and few teachers. As a consequence of this, many teachers are reluctant to work with children with disabilities. They consider it an additional workload.

7. Training for sensitization towards disability and inclusion issues, and how to converge efforts for effective implementation of programmes, are important concerns.

8. Different disabilities require different supports. The number of skilled and trained personnel for supporting inclusive practices is not adequate to meet the needs of different types of disability.

9. The curriculum lacks the required flexibility to cater to the needs of children with disabilities. There are limited developmentally appropriate teaching–learning materials for children both with and without disabilities. The teaching–learning process addresses the individual learning needs of children in a limited way.

10. Families do not have enough information about their child's particular disability, its effects and its impact on their child's capacity. This often leads to a sense of hopelessness. Early identification and intervention initiatives sensitize parents and community members about the education of children with disabilities.

Suggestions for the Indian Inclusive Settings

Bearing in mind the Indian scenario, the following recommendations need to be considered in order to move towards education of children with disabilities in inclusive settings –

1. The attitude that 'inclusive education is not an alternative but an inevitability, if the dream of providing basic education to all children is to ever become a reality' needs to be cultivated among all concerned professionals, grassroots workers, teachers and community members, especially in rural and remote areas.

2. Links and bridges need to be built between special schools and inclusive education practices. Linkages also need to be established between community-based rehabilitation programmes and inclusive education.

3. Public policies, supportive legislation and budgetary allocations should not be based on incidence, but on prevalence of special education needs, and take into consideration the backlog created as a result of decades of neglect.

4. The existing dual ministry responsibilities should be changed. Education of children with disabilities should be the responsibility of the Department of Education. The Ministry of Welfare should confine itself to support activities only.

5. Inclusion without 'adequate' preparation of general schools will not yield satisfactory results. It is essential that issues related to infrastructural facilities, curriculum modification and educational materials should be addressed.

6. Regular evaluation should be based on performance indicators specified in the implementation programme, and accountability for effective implementation at all levels should be ensured.

7. There should be emphasis on bottom-up, school-based interventions as part of regular education programmes following inclusive strategies. The programme should be based on stakeholder participation, community mobilization, and mobilization of NGO, private and government resources.

8. The training of general teachers at pre-service and in-service levels should address the issue of education of children with disabilities, so that teachers are better equipped to work in an inclusive environment. Some of the issues in training that need to be addressed include the methodology to be adopted for identifying children with disabilities; classroom management; use of appropriate teaching methodologies; skills for adapting the curriculum; development of teaching–learning materials that are multi-sensory in nature; evaluation of learning; etc. The time has come to scale up successful experiments on teacher training such as the Multi-site Action Research Project and the Indian adaptation of the UNESCO Teacher Education Resource Pack, since

these experiences are lying dormant.

9. Orientation training of policy-makers and education department officials, both at the state and block level, is essential. In addition, there is a need to develop on-site support systems for teachers. Grassroots workers, parents, special school teachers, para-teachers and other individuals can be shown how to provide the required support.

10. The existing handful of teacher trainers cannot reach the vast number of teachers working with children with disabilities in rural/remote areas. There is a need to explore alternatives such as training para-teachers, investing in pilot studies to develop tele-rehabilitation programmes, and exploring strategies for distance education.

11. The preparation of children—in the form of early childhood intervention before enrolment—is required. This would ensure that they do not drop out, are retained in schools, and compete equally with other children.

12. In order to strengthen inclusive practices, networking between existing practitioners (i.e., IEDC, DPEP, SSA, etc.) would be useful. Simultaneous implementation, and consistent monitoring, reinforcement and coordination between government departments and NGOs at national and state levels will promote inclusive practices.

Inclusive Education in Teacher Education

Many academics in the field of inclusive education point to teacher education and school leadership as essential for the implementation of inclusive education in the classroom, yet the standard of teacher training courses across India varies hugely. They usually approach the inclusion of children with disabilities from a deficit perspective. In the general teacher education diplomas and degrees available nationwide, there is an optional 'special needs' paper to train and 'prepare' teachers to identify and diagnose disability. However, it is not an integral part of the training, and it does not train teachers to deal with diversity or challenge negative attitudes. However there has been a significant change, as Inclusive Education is taught as a Compulsory paper in Teacher Education in many Universities currently.

There is evidence to suggest that many teachers do not feel equipped to teach children with disabilities. Many government programmes have included a teacher training component in an attempt to mediate institutional change. However, a 'special needs' focus and a lack of training for management, combined with didactic training methodology do little to alter the classroom status quo, especially when responsibility is shifted onto a specialist resource teacher rather than methods altered to suit all students.

The poor quality educational provision in many schools is reflected in the fact that many government job reservations for adults with disabilities remain unfilled. It is more likely to be directly related to the fact that so few children with disabilities get to, or stay in, school, that there is a lack of qualified, let alone confident, candidates. However, school and pedagogical quality appear to be the keys to an end to marginalization for children with disabilities, unlocking the doorway to freedom and empowerment.

Inclusion : Myth or Reality

In India, Persons with Disability Act in 1995, made it imperative for educational institutes to take steps towards inclusive education, laying great emphasis on the equality and rightful treatment of people with disabilities. Statistics (from a September, 2012 report) note that 9/10th of such children in India still find themselves excluded, although it has been nearly two decades since. The root cause of the problem is multifarious.

Deficient specialized teachers in mainstream schools, the initial expenditure associated, lack of compulsory implementation and quota for the disabled in schools along with the lack of decisive action and administration by the government, the question looms large whether inclusive education in India is still a myth. With the Ministry of Human Resource Development proclaiming *"Education is the true alchemy that can bring India its next golden age"* and their unambiguous motto *"All for knowledge, and knowledge for all"*, it is for everybody concerned to decisively take significant strides towards inclusion and inclusive education to completely realize the true human resource potential of our country.

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A Dive Into The Depths of Victoria Pond (Uluberia College Premises)

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Introduction:

Uluberia is a Sub-divisional town and age-old Municipality in the district of Howrah, West Bengal. Uluberia city of country India lies on the geographical coordinates of 22° 28' 18" N, 88° 6' 48" E. Uluberia College is a premier teaching institute of Howrah. There is a pond at the centre of the college which, apart from adding to the beauty of the college also harbours an interesting array of flora and fauna. Because the area is densely populated the pond water is used for a variety of different works. Anthropogenic disturbances and the resultant negative effect on freshwater ecosystem is a worldwide problem and poses threat upon availability of these resources in days to come. Because a large number of people uses the pond water it becomes important to know how the structure and function of the ecosystem is being affected due to human interference.

Plankton Abundance In Victoria Pond:

In an attempt to standardize techniques to accumulate and clarify observations, first of all efforts are made. Water from Victoria pond was collected at different times of the day. This pond is used for various purposes. Early in the morning (from 7:30-9:00 AM) some local inhabitant comes to bathe in the pond. They wash their clothes and sometimes kitchen utensils are washed too. At this time detergent and soap mixes with the pond water. It is observed therefore that the planktons are present in least number at this time. Before commencement of College hours a water sample from the pond would therefore show least planktons. Collection of water sample between 11:00 AM -12:30 AM will display the actual plankton picture. After this time planktons tend to move vertically downwards. This is due to rising heat. After 5:00pm plankton abundance is resumed.

As per standard procedures for collection of planktons plankton net is used to strain out planktons. Counting is done using a Sedgwick rafter. Abundance of zooplankton of the original sample is estimated as individuals/m^3 using the equation $n=axCx1000x10^6/NxL$

Where, n=total number of planktons individual/m^3, a=total number of planktons in 1ml, C=volume of concentrate expressed in ml, 1000= number of grids in the counting chamber, N=number of grids are employed, L=volume of water filtered expressed in litre. February –March and June-July are the months when maximum plankton abundance is noted. The minimum is observed in April and August. It is found that plankton abundance is not yet resumed even till late November this year. The reasons need to be predicted.

Pom and Dom:

In still, open water of the lake dead organisms and other organic material i.e. particulate organic matter (POM) drift towards the bottom. On its way, POM is constantly ingested, digested and mineralized until much of the organic matter settles on the bottom in the form of humic compounds. Much of the humus arrives to the bottom in considerably large packages to be further fragmented and digested by bottom dwelling detritivores i.e. snails and other mollusks.

Major sources of the DOM are the free floating macroalgae, phytoplankton and zooplankton inhabiting the open water.

Water Quality Monitoring:

Since man has been polluting both surface and subsurface waters at an alarming rate a qualitative assessment becomes necessary.

Colour: Water is colourless. But the water of Victoria pond is greenish due to presence of phytoplanktons. In other words the water is rich in plant nutrients. This often poses no harm but the presence of colour makes the water undesirable for many uses.

Taste and Odour: These parameters mainly depend upon human senses and vary from person to person. In spite of the fact that the water is used for so many purposes –the taste and odour is not yet undesirable. In fact taste and odour is generally described in comparison to taste and odour of some known material and "dilution technique" to quantify taste and odour is an old technique.

Temperature: Temperature poses effect on the metabolic rates of the inhabitants of water. Though seasonal and diurnal variation rarely cause any problem yet higher temperatures increases the solubility of a number of salts and solids and reduces the solubility of gases. Though water temperature varied from season to season temperature at April–May was found to be 32°C and around26°C in December.

pH: pH of water from Victoria pond remains around 9.5 throughout the year. This indicates the water carries a greater load of dissolved substances.

Suspended Matters and Dissolved Solids: Colloidal particles and suspended matters causes turbidity of water. A fairly good idea of dissolved solids can be obtained by the observation on electrical conductivity as dissolved salts raise conductivity of water.

Hardness: Temporary and permanent hardness is generally caused due to carbonates, bicarbonates and chlorides and sulfates respectively. Though total hardness is calculated by titration, measurement of Ca++ and Mg++ of the pond water would provide a clearer picture. Estimation of hardness using ammonium buffer and erichrome black t solution showed the hardness of pond water to be 392.6 ppm. This indicates the water is quite hard.

Acidity, Alkalinityand Concentration Of Various Salts: The concentration of various ions and radicals in a water sample provides useful information about the quality of water. The determination of the concentration of these ions or radicals involves advanced analytical methods depending upon their chemical, optical, spectral or nuclear properties for which sophisticated laboratory equipments are required. An appreciation of acidity and alkalinity can be made, however in the laboratory with standard titration methods .Concentration of Na+, K+, Ca+ Mg++ provides useful information about electrical conductivity, hardness, alkalinity and salinity while concentration of nitrates ,phosphates and chlorides helps in predicting the nutrient or trophic status of the water. Some of these ions are useful plant nutrients and are results of decomposition and mineralization of organic matter. Titrational procedures using phenolphthalein and methyl orange indicator in August showed total alkalinity of the pond water to be 10.47ppm. Apart from these BOD and COD measures can offer a more complete estimate of the organic matter

content and mineralization of the organic matter by the microbial component of the system.

Trophic Structure and Trophic Dynamics:

Trophic status refers to the organic content of natural waters and the rate at which that organic matter is metabolized. Oligotrophic waters have low levels of nutrients and low biological productivity and turnover; eutrophic waters have high nutrient levels, high biological productivity and high rates of turnover. The trophic status of lakes is strongly influenced by the underlying rock strata. Trophic status increases when the total input of nutrients exceeds the amount of organic matter that is sedimented, or metabolised and respired as carbon-di-oxide. The trophic structure of Victoria pond needs to be vividly worked upon and a model for the trophic dynamics can be framed then.

Problems Emerging From Improper Use of The Pond:

Health of a pond depends upon the plankton communities residing in the pond. Planktons are big oxygen producers in pond waters. Productivity of green plants in a pond determines the fertility of the pond . Measurement of primary productivity let us know the rate at which plants use the sun energy to produce carbohydrates. In Victoria pond phytoplanktons are greater in number than zooplanktons. A scrutiny of an ml of pond water under the microscope reveals this. The gross primary productivity and the net primary productivity of the pond water were calculated using the equations:

GPP = (LB-DB/incubation time) x (0.375/PQ) x1000 mg/ cm3/hr

NPP = (LB-IB/incubation time) x (0.375/PQ) x1000 mg/ cm3/hr

Here LB= light bottle

IB=Initial bottle

DB=Dark bottle

GPP was found to be 659.38 mg/ cm3/hr and NPP was found to be 104.16 mg/ cm3/hr. This great difference between the GPP and NPP clearly beckons the large number of phytoplanktons in the pond. Greater number of phytoplankton indicates high turbidity and hence the depth upto which phytoplanktons can survive.GPP is equivalent to the energy fixed in photosynthesis. Indiscriminate use of the pond water would adversely affect the plankton diversity.

Floating wastes of the pond particularly used thermocol plates, portions of Durga and Saraswati idols etc adversely affect the serenity of the college atmosphere and decrease its recreational acceptance. At certain times Chironomus, a known benthic inhabitant takes refuge in the suspended plant parts and other suspended objects leaving the soil. The mucous covering of the egg mass of Chironomus, collected from floating thermocol plates show microorganisms which can be Vibrio *cholerie* or *Aeronomus* sp. Though studies indicate that adult chironomids do not transmit diseases and act as very good fish-feed other studies point to the possibility that they might transmit typhoid. The genetic, ecological and behavioural interaction of the microorganisms to chironomids might have adverse impacts on public health and fishery.

Hardness (as$CaCO_3$) of the pond water as measured in our laboratory is 392.6 ppm. According to Bureau of Indian Standards IS10500-1991 water above 300ppm is considered to be very hard. Alkalinity is 10.47mg/l. Alkalinity adversely affects water treatment efficiency. Hardness may cause encrustations in water supply structures. pH remains around 9.5 throughout the year. Again according to Bureau of Indian StandardsIS10500-1991 water beyond the limit of 6.5-8.5 affects the mucous membrane and water supply system. Some other parameters are vividly being worked upon.

Steps That Can Be Taken To Reduce Pollution: Awareness among common people is required firstly. A respect for the Institution that caress and nurtures young ones from local inhabitants as well as different districts of the state and metamorphose them to complete man would solve the problem to a great extent. Washing of kitchen utensils and clothes with soap and detergents in the pond water poses deleterious consequences. This is evident from the two nearby ponds of the locality. A similar fate is never acceptable for Victoria pond. Wastes from construction works, however small, should not be dumped in the pond. Immersion of idols and throwing of used plates etc should be restricted as far as possible. Timely testing of the pond water can allow prevention of an irreparable loss.

Concluding Remark:

A tendency among us is to throw away what we dislike into the water. Our "dislike" is then out of sight and out of mind. But, such mindless actions often pose harm to the water-body and its inhabitants by augmenting

eutrophication. Victoria pond not only adds to the beauty of the College but also is a magnum opus of the almighty which is evident from the rich biodiversity it harbours. In all respect, therefore, it should be taken care of.

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Edible Insects: Future of Human Food

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It is widely accepted that by 2050 the world will host 9 billion people. To accomodate this number, current food production will need to almost double. Land is scarce and expanding the area devoted to farming is rarely a viable or sustainable option. Oceans are overfished and climate change and related water shortages could have profound implications for food production. To meet the food and nutrition challenges of today – there are nearly 1 billion chronically hungry people worldwide – and tomorrow, what we eat and how we produce it needs to be re-evaluated. Inefficiencies need to be rectified and food waste reduced. We need to find new ways of growing food. Insects as an alternative sustainable food source have been mentioned on several occasions. However for many people of the world insects are not an alternative, but are rather a staple and a normal nutritional commodity, often not even cheap.

What is Entomophagy?

Entomophagy is sometimes defined broadly to include the practice of eating arthropods that are not insects, such as arachnids (tarantulas mainly) and myriapods (centipedes mainly). The term is not used for the consumption of other arthropods, specifically crustaceans like crabs, lobsters and shrimp. Insects are eaten by many animals, but the term is generally used to refer to human consumption of insects; animals that eat insects are known as insectivores.

History of entomophagy:

Insects have served as a food source for people for tens of thousands of years, all over the planet.

The history of entomophagy is well documented by Bodenheimer (1951). In the Middle East, as far back as the eighth century BCE, servants were thought to have carried locusts arranged on sticks to royal banquets in the

palace of Asurbanipal (Ninivé). The first reference to entomophagy in Europe was in Greece, where eating cicadas was considered a delicacy. Aristotle (384–322 BCE) wrote in his *Historia Animalium*: "The larva of the cicada on attaining full size in the ground becomes a nymph; then it tastes best, before the husk is broken [i.e. before the last moult]". He also mentioned that, of the adults, females taste best after copulation because they are full of eggs.

Today insect eating is rare in the developed world, but insects remain a popular food in many developing regions of Central and South America, Africa, and Asia. People from Thailand, Vietnam, Cambodia, China, Africa, Mexico, Columbia and New Guinea to name just a few, are regions where the inhabitants eat insects for nutritional value as well as for taste.

Some of the more popular insect and arachnids eaten around the world are: crickets, grasshoppers, ants, a variety of species of caterpillar, also referred to as worms, such as the mopani worm, silkworm and waxworm, and last but not least scorpions and tarantulas.

There are an estimated 1,462 species of recorded edible insects including arachnids. And in all likelihood, there are hundreds if not thousands more that simply haven't been sampled or perhaps not even discovered yet.

Entomophagy in India:

Indian tribals (Muria tribes in Madhya Pradesh, Negrito tribes of the Andaman Island, various tribes in Manipur, the Khasi of Meghalaya etc.) use insects in a variety of ways. Species containing valuable protein, easily digestible fats, and considerable amounts of vitamins & minerals are consumed; others serve as raw material for folk remedies.

In a significant study, Meyer- Rochow and Changkija (1997) identified at least 42 species of insects used as food by Ao-Nagas in Nagaland. Their list included 11species of Orthoptera, 9species each of Coleoptera and Lepidoptera, 8species of Hemiptera and the rest distributed in Mantodea and Odonata.

Some methods to prepare edible insect in India:

Pentatomid bugs and honeybees are being consumed both raw and roasted. Short-horned grasshoppers (Acrididae) are fried in oil after having their wings removed and are then simply eaten with salt. The

insects, however, may also be stuffed in a bamboo pipe, smoked dry for 3-4 days, mixed with chili and salt and then added to rice meals. Crickets and mole crickets (Gryllidae and Gryllotalpidae) are collected mostly during summer nights between the months of May and July. Freshly collected specimens are put inside a bamboo pipe and smoked dry for nearly one week. Completely dried material is then crushed into a powder and mixed with chili peppers, salt and bamboo shoots to form a special type of chutney. This chutney is taken with rice or with a local drink known as Apung and is regarded as most delicious by all members of the tribe irrespective of age and sex.

Major groups of edible insects:

Globally, the most common insects consumed are beetles (**Coleoptera**), beside this, other groups of edible insects are

- **Lepidoptera**-caterpillar
- **Hymenoptera**-bee, wasp
- **Orthoptera**-locust,cricket,grasshopper
- **Hemiptera**-true bugs, cicadas, leafhoppers, plant hoppers, scale insects
- **Isoptera**-termites
- **Odonata**-dragonfly
- **Diptera**-flies

Lepidoptera are consumed almost entirely as caterpillars and Hymenoptera are consumed mostly in their larval or pupal stages. Both adults and larvae of the Coleoptera order are eaten, while the Orthoptera, Homoptera, Isoptera and Hemiptera orders are mostly eaten in the mature stages.

Advantages:

Nutritive value of Insects:-

Insects have been well-recognized worldwide as nutritious food, since insects provide –

- Proteins (amino acids such as methionine, cysteine, lysine, and threonine),

- Carbohydrate
- Fats
- Some minerals (calcium,iron,zinc,phosphorous)
- Some essential vitamins –vitamin A, B complex, C (Capinera, 2004; Johnson, 2010; Xiaoming et al., 2010).

For example, caterpillars contain proteins to the extent of 50– 60g/100g dry weight, the palm weevil grubs contain 23–36g, Orthoptera contain 41–91g, ants contain 7–25g and termites contain 35–65g/100g (Bukkens, 1997; Ramos-Elorduy, 2005). This quantity is more than in ground beef (27.4g) or boiled cod fish (28.5g) (Banjo et al., 2006a; Okaraonye and Ikewuchi, 2008).

Maximum contents of amino acids in silkworms' pupae followed by the bamboo caterpillar *Omphisa fuscidentalis* Hmps. (Lepidoptera: Crambidae) and the house cricket have been reported (Yhoung-aree, 2010). Caterpillars, grubs of palm weevils (*Rhynchophorus* spp. (Coleoptera: Curculionidae)) and termites are rich in fat (Bukkens, 1997).

Maximum contents of calcium of 61.3, 72.4 and 76mg/100g dry weight have been recorded, respectively, in dung beetle *(Oryctes* sp. (Coleoptera: Scarabaeidae)) grubs (Banjo et al., 2006a), palm weevil grubs (Onzikou et al., 2010) and adult house crickets (Vogel, 2010).

Maximum contents of iron of 27–29 and 35.5mg/100g dry weight have been found in termites and caterpillars, respectively (Banjo et al., 2006a).

Similarly, maximum contents of phosphorus of 226–238mg/100g are present in grasshoppers and the giant water bug *Lethocerus indicus* Lepeletier & Seville (Hemiptera: Belostomatidae; Feng et al., 2000).

A high content of magnesium (7.54–8.21mg/100g) has been found in grasshoppers and weevils (Banjo et al., 2006a).

Eggs, larvae and pupae of honeybees have a high amount of vitamins A, B2 and C to the extent of 12.44micro g/100g, 3.24mg/100g and 10.25mg/100g, respectively (Bukkens, 1997).

Calories obtainable from insects run as high as 776.9kcal/100g of insects, often exceeding those from soybean, maize and beef (Ramos-Elorduy, 2005).

In a recent study in Kenya, wheat buns enriched (5% mix) with the termite *Macrotermes subhyalinus* Rambur (Isoptera: Termitidae) were better than ordinary breads for some attributes (e.g. size, colour, texture, aroma) and consumers' preference. Further, Kinyuru et al. (2009) found higher contents of riboflavin (0.17 versus 0.26mg), niacin (0.90 versus 1.11mg), folic acid (0.30 versus 0.33mg), calcium (10 versus 10.83mg), iron (1.20 versus 1.80mg) and zinc (2.78 versus 3.23mg) than in ordinary bread. The oil extracted from *R. phoenicis* grubs contains a high level of unsaturated components and exhibits good physiological properties due to which it is used as edible oil (Okaraonye and Ikewuchi, 2008; Onzikou et al., 2010). In the case of silkworm caterpillars, eating them can be sufficient for daily requirements of copper, zinc, iron, thiamin and riboflavin, and the deficiency of riboflavin can be fulfilled by eating those insects containing this amino acid (Gordon, 1998). Protein production from insects is also ecologically sustainable and consumes fewer resources than animal protein (Gordon, 1998).

Therapeutic food

Director of pediatric nutrition at the University of Alabama at Birmingham Frank Franklin has argued that since low calories and low protein are the main causes of death for approximately 5 million children annually, insect protein formulated into a ready-to-use therapeutic food similar to Nutriset's Plumpy'Nut could have potential as a relatively inexpensive solution to malnutrition.(Parry, Wayne (22 February 2012)). In 2009, Dr. Vercruysse from Ghent University in Belgium has proposed that insect protein can be used to generate hydrolysates, exerting both ACE inhibitory and antioxidant activity, which might be incorporated as multifunctional ingredient into functional foods. Additionally, edible insects can provide a good source of unsaturated fats, thereby helping to reduce coronary disease. (Ramos-Elorduy, Julieta; Menzel, Peter (1998).

Pest control

Some researchers have proposed entomophagy as a solution to pest control. In parts of Mexico, Sphenarium purpurascens is controlled by its capture and use as food. Such strategies allow decreased use of pesticide.

Environmental benefits

Insects promoted as food emit considerably fewer greenhouse gases

(GHGs) than most livestock (methane, for instance, is produced by only a few insect groups, such as termites and cockroaches).

Insect rearing is not necessarily a land-based activity and does not require land clearing to expand production.

The ammonia emissions associated with insect rearing are also far lower than those linked to conventional livestock, such as pigs. Insects can feed on bio-waste, such as food and human waste, compost and animal slurry, and can transform this into high-quality protein that can be used for animal feed.

Livelihoods benefits-

Insect rearing can be low-tech or very sophisticated, depending on the level of investment.

The mass production of insects has great potential to provide animals proteins for human consumption indirectly as livestock feed.

Insect harvesting is a low-capital investment option that offers entry even to the poorest sections of society, such as women and the landless.

Disadvantages:

Spoilage

The researchers found that "spore forming bacteria are a potential spoilage and safety risk" for both cooked and uncooked insect protein. While more study is needed before integration into the food supply, current data suggest that while edible insects must be processed with care, simple methods are available to prevent spoilage. (Klunder, H.C.; Wolkers-Rooijackers, J.; Korpela, J.M.; Nout, M.J.R. (2012).

Toxicity

But pesticide use can make insects unsuitable for human consumption. Herbicides can accumulate in insects through bioaccumulation. For example when locust outbreaks are treated by spraying, people can no longer eat them. This may pose a problem since edible plants have been consumed by the locusts themselves. (Capinera, John L. (2004).

Cultural taboo:

The anthropologist Marvin Harris has also suggested that the eating of

insects is taboo in cultures that have other protein sources that require less work to obtain, such as poultry or cattle, though there are cultures which feature both animal husbandry and entomophagy. Examples can be found in Botswana, South Africa and Zimbabwe where strong cattle-raising traditions co-exist with entomophagy of insects like the mopane worm.

Policy Instruments:

In 2008, the FAO organized a conference to "discuss the potential for developing insects in the Asia and Pacific region.

In 2011, the European Commission issued a request for reports on the current use of insects as food, with the promise that reports from each European Union member state would serve to inform legislative proposals for the new process for novel foods. (Byrne, Jane (16 November 2011).

Conclusion:

Recent developments in research show edible insects to be a promising alternative for the conventional production of meat, either for direct human consumption or for indirect use as feedstock. Nevertheless, a tremendous amount of work still needs to be done by a wide range of stakeholders over many years to fully realize the potential that insects offer for food and feed security.

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Problems And Prospects of E-marketing In India

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Abstract

E-marketing means using digital technologies to help sell your goods or services. These technologies are a valuable complement to traditional marketing methods whatever the size of your company or your business model. The basics of marketing remain the same – creating a strategy to deliver the right messages to the right people. What has changed is the number of options you have. Though businesses will continue to make use of traditional marketing methods, such as advertising, direct mail and PR, e-marketing adds a whole new element to the marketing mix. Many businesses are producing great results with e-marketing and its flexible and cost-effective nature makes it particularly suitable for small businesses. This paper discusses the problem of impact of electronic environment on marketing process. In the first part, utilization of various tools and techniques is presented and analyzed. Second part of the paper is focused on challenges emerging in the new reality. Next part briefly discusses opportunities arising for marketers with electronic environment development. Finally conclusions are provided. Here the researchers have analyzed to find out the opportunities and challenges of E-marketing.

Introduction

E -Marketing is also known as Internet marketing & it is a component of electronic commerce. E-Marketing can include information management, public relations, customer service, and sales. Electronic commerce and E-Marketing have become popular as Internet access is becoming more widely available and used. Well over one third of consumers who have internet access in their homes report using the Internet to make purchases. The development of e-marketing has been one of the most important and influential trends in the field of business, marketing and information Technology offer the past decade. It has revolutionized the

manner in which certain businesses market their products and the advent of social media offers the potential to revolutionize the manner in which businesses and consumers interact in the future. This essay will evaluate the challenges and opportunities of e-marketing upon businesses. This paper will define the importance of e-marketing, examine how e-marketing helps businesses to reach their customers, highlight some of the most important advantages and disadvantages of e-marketing, challenges and opportunities of e-marketing The conclusion will argue that the impact of e-marketing upon businesses has been largely positive and that despite a number of potential problems e-marketing offers exciting new opportunities for business growth and development.

E-Marketing Definition

E-marketing means using digital technologies to help sell your goods or services. These technologies are a valuable complement to traditional marketing methods whatever the size of your company or your business model. The basics of marketing remain the same – creating a strategy to deliver the right messages to the right people. What has changed is the number of options you have. Though businesses will continue to make use of traditional marketing methods, such as advertising, direct mail and PR, e-marketing adds a whole new element to the marketing mix. Many businesses are producing great results with e-marketing and its flexible and cost-effective nature makes it particularly suitable for small businesses.

Objectives of E-Marketing

E-marketing objectives define what you want to achieve through your e-marketing campaign. They set the reasons why your business wants to go online and allow you to estimate and monitor the progress of your online marketing activities. They also provide an incentive to focus on critical areas and formulate strategies to help achieve intended objectives. Different businesses may develop different e-marketing objectives depending on their individual circumstances. A useful framework for developing effective e-marketing objectives is the five S's framework, which includes:

1. Sell – using the internet to sell products and services
2. Serve – using the internet to serve customers

3. Speak – using the internet to communicate with customers (both existing and potential)
4. Save – using the internet to save/ reduce cost
5. Sizzle – using the internet to build brand identity When setting your e-marketing objectives,

you need to make sure that they are:

- *Specific* – specify what is to be achieved
- *Measureable* – expressed in measurable terms such as key performance indicators, outcomes, numbers, percentage, dollars, etc.
- *Action-oriented* – state which actions need to be taken and who will take them
- *Realistic* – achievable with the resources available
- *Time Specific* – establish specified time frames.

Examples of some typical e-marketing objectives could be:

- To achieve 20% online sales within the first year of launching online marketing campaigns.
- To increase online sales for all products by 15% in 2011.
- To grow email coverage to 50% of the current customer base by the end of next year.
- To reduce the annual cost of direct marketing by 20% through e-mail marketing.
- To improve brand awareness, brand favourability and purchase intent by surveying 300 online customers each month.

Importance of E-Marketing

E-marketing gives businesses of any size access to the mass market at an affordable price and, unlike TV or print advertising, it allows truly personalized marketing. Specific benefits of e-marketing include:

- **Global reach** – a website can reach anyone in the world who has internet access. This allows you to find new markets and compete globally for only a small investment.

- **Lower cost** – a properly planned and effectively targeted e-marketing campaign can reach the right customers at a much lower cost than traditional marketing methods.
- **Track able, measurable results** – marketing by email or banner advertising makes it easier to establish how effective your campaign has been. You can obtain detailed information about customers' responses to your advertising.
- **24-hour marketing** – with a website your customers can find out about your products even if your office is closed.
- **Personalization** – if your customer database is linked to your website, then whenever someone visits the site, you can greet them with targeted offers. The more they buy from you, the more you can refine your customer profile and market effectively to them.
- **One-to-one marketing** – e-marketing lets you reach people who want to know about your products and services instantly. For example, many people take mobile phones and PDAs wherever they go. Combine this with the personalized aspect of e-marketing, and you can create very powerful, targeted campaigns.
- **More interesting campaigns** – e-marketing lets you create interactive campaigns using music, graphics and videos. You could send your customers a game or a quiz – whatever you think will interest them.
- **Better conversion rate** – if you have a website, then your customers are only ever a few clicks away from completing a purchase. Unlike other media which require people to get up and make a phone call, post a letter or go to a shop, e-marketing is seamless. Together, all of these aspects of e-marketing have the potential to add up to more sales.

Advantages of E-Marketing

1. One of the most important advantages is the fast availability of the information. The clients/users can easily get information, by navigating the internet, about the products that they wish to purchase, and besides that, they can check the information at anytime of the day.
2. It allows the companies to save money, an aspect that is really taken into account by the companies since the online marketing campaigns don't require a large amount of investment.

3. The previous mentioned aspect, gives less importance to the differences between large and small companies in some way, thus increasing the competition and giving that way advantages to the customers.

4. Presence on the Internet can help the expansion of the company from a local market to national and international markets at the same time, offering almost infinite expanding possibilities.

5. On the internet everything can be measured, thus it's easier for the companies to know almost

instantly if their campaign is working or not, what company or user is interested in their products, from what cities or countries are they, etc.

Disadvantages of E-Marketing

1. Slow internet connections can cause difficulties. If the companies build too complex or too large websites, it will take too long for users to check them or download them and they will get bored eventually.

2. The e-commerce doesn't allow the user "to touch" the merchandise before purchasing it. Because of this, some salesmen are starting to guarantee the possibility of returning the product. In Germany, where a law that regulates e-commerce and guarantees the customers the total refund of the money exists since 2000, the electronic commerce is very popular.

3. Other factor is the payment: many users still don't trust in the electronic methods of paying and give up buying online because of this.

4. One of the major disadvantages may be the lack of trust of the users because of the constant virtual promotions that appear to be frauds. This is an aspect that deteriorates the image and reputation of quality and honest companies.

5. Other disadvantage is the cash on delivery system, since it doesn't guarantee the 100% purchase of the product. This is also the case of thousands of users that dedicate themselves to daily mock big companies by ordering on the internet using false identities.

Unique Challenges of E- Marketing And The Ways To Overcome Them:

Since the boom of the Internet in the late 1990s, Web-based companies

have been starting up everyday. What is more, new opportunities for growth emerge daily, expanding the reach and capabilities of the cyberspace.

However, for all its benefits and advantages, e-marketing faces some problems that are unique to the industry. That is, Web-based enterprises have a special set of challenges that traditional brick-and-mortar businesses do not have. In this article, we have taken a look at those and their possible solutions.

1. Marketing integration

Most major sales efforts employ multiple channels, both online and offline, e.g. email advertising, outbound call handling, social networking, and so on. The problem with these is that they are often handled as different parts of the work when they are supposed to serve a concrete and measurable goal as part of an integrated campaign. Coordinating all marketing efforts should therefore be a priority. That means e-marketing should be done alongside the traditional campaign and should not be tacked at the end of the business plan.

2. Security and privacy

Most people do not completely trust Web companies and, thus, are careful about offering

information about themselves on the cyberspace. This is especially true when companies that collect data are exposed to spammers and scammers. To address this, it is imperative for e-businesses to adopt a sound policy and implement a fool-proof security measure. Encryption systems, in particular, are a tool that online companies should seriously consider investing in.

3. Impersonal service

Businesses operating online often use electronic methods of providing customer service, such

as emailing and posting info on the website to answer possible user questions. This may be perceived by customers as just too impersonal or uncaring. To address this problem, merchants must develop efficient checkout procedures for selling goods via the Web. They may also consider hiring call handling services, so that customers can talk to real people

when they have inquiries or problems that need instant answer.

4. Improving brand awareness

This is particularly a big challenge for companies that primarily use the internet to sell their

products and services. This is because unlike traditional advertising (such as television, radio,

billboard, and print) in which the campaign's message can be reinforced and repeatedly introduced to consumers at the marketers' will, online adverts can be shut off by users—they are more averse to it, too. Web companies are therefore challenged to be more innovative in their advertising strategies. A combination of good copywriting, solid search engine optimization, and drawing consistent traffic is something that should be mastered. Doing business online is indeed a challenging Endeavour. That is why all possible pitfalls should be determined and addressed beforehand to ensure a smooth sailing ride. If you need help in starting up a Web based company, never think twice to enlist the services of Protechmedia.

Opportunities of E-Marketing

There are many more opportunities of internet marketing that helps the online business more efficient.

- ASOS provides all the products which they think that customers like to buy by doing this they satisfy their customers. When their customers shop with them their growth opportunity is high which is good for the business also if all the products are being offered online people do not have to go elsewhere which benefits the customers as well.

  More benefits- customers can use the Internet at a time to suit them, but they are also able to compare brands, prices and buy goods and services without having to face a single sales person!

- **Improve credibility-** through Internet marketing customers can easily feedback to ASOS and have their say. Because ASOS is mostly aimed at teenagers and most of the teenagers nowadays use msn and face book and asos interact their customers through this it is quicker and easier for young people to send information and comments to asos.

- **Availability** - On ASOS website all the products are listed in order which helps customers choose the products faster where as in shops they would have to go around looking for products. Also on the websites like ASOS customers have more choices and variety of brands which is less likely to be found in general stores.
- **Better prices-** online businesses are usually cheaper than physical stores they offer variety of products at lower prices this benefits the customers because they can get the same product offered in the shops at lower price. Another advantage of internet business to customers is that they can look at the prices offered on the web and compare with other slimier businesses.
- **Cheaper-online** business is cheaper therefore it saves money to businesses like ASOS. They do not have to spend huge amount of money to rent or buy physical stores. Also online businesses can use web to advertise their business which costs less and could be recognized by millions of people.
- **24/7 Presence-** internet businesses allow people to shop at any time of the day this makes the businesses like ASOS more effective because everything about their business is fixed for example like physical stores internet businesses do not have particular opening and closing times. The business runs smoothly without any worries.
- **Offer Convenience** -businesses like ASOS have organized their website in such a way that people can find the product really easily this is the reason why online businesses are more efficient because unlike physical stores they do not have to go around with customers to find a particular product. On their website they have put all their products in categories which help customers find the products fast and easy. It helps the business because once their website is properly organized they do not have to do anything else which saves them time and energy.
- **Growth Opportunity-** Online businesses provide all the products to its customers that can be purchased from physical stores. As it is easier to shop online than visiting the stores most people prefers shopping online which helps businesses like ASOS as their growth opportunity goes up and their profits begin to rise. This makes their business more effective as they compete with other similar businesses for the same product or price.

- **Improve creditability**- through e-mails ASOS receive many comments from their customers about their products which helps the business become more effective as they can use their customer information to make the business better and to provide the products which their customers are more interested in. in this way ASOS customers would be happy and will buy their products and the business will also be successful.

Conclusion:

In conclusion, this essay has clearly shown that e-marketing impacts upon businesses in a number of important ways. When used effectively, e-marketing campaigns and strategies have the potential to reach customers in a speedy and low-cost manner and can provide promotion for a wide range of products and services. E-marketing also offers businesses the opportunity to garner data about their consumer base to an extent that has hitherto been very difficult to achieve via traditional marketing methods. The development of e-marketing and social media advertising has led to examples of businesses in recent years that appear to little more than categories and filter information relating to products and services on the Internet, taking a small cut from any transaction that may occur as a result. However, despite the global reach, speed and the extent of information that can be gained from e-marketing there are a number of important disadvantages to this type of marketing that businesses must bear in mind. The technology driven approach of e-marketing leaves certain businesses vulnerable and overly-dependent upon technology. It also empowers dissatisfied consumers to a far greater extent than ever before and can lead to bad reviews that have the potential to greatly destabilize certain e-marketing campaigns and operations. However, despite

these problems it is reasonable to conclude that e-marketing is on the whole a positive development for businesses and that despite certain dangers its impact upon businesses has been largely positive.

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Impact of per capita Income and Educational Expenditure on Student Enrolment in Higher Education: An Empirical Study

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Abstract

In this paper we examine gross enrolment ratio (GER) which is used as an index of higher education and mention some of its drawbacks. Enrollment in higher education is affected by several factors. There are factors which push this demand; notably being (a) Increased school enrolment and (b) Reduction in dropout rate after 12th grade It is seen that there is a high positive correlation between the gross enrollment ratio (GER) and Net Domestic Product(NDP). Thus, the GER could be increased through an increase of net domestic product.

The aim of this paper is to develop a model for higher education of India by identifying a number of important variables that are likely to determine the demand for higher education both in case of conventional system and in open and distance learning (ODL) system. The current demand measured in terms of enrolment in higher education is expressed as a liner function of some explanatory variables The extent of multicollinearity is also studied. In this connection, we use two important measures namly (a) Theil's measures and (b) Variance inflation factor developed by Klein. We also use Farrar-Glauber Test for detecting the location and pattern of multicollinearity.

Two wellknown methods for selection of explanatory variables in regression, such as the forward inclusion and backward elimination method relating to choice of explanatory variables, are also considered. The cross-section data have been used for estimation purposes.

Key words: Regression model; Multicollinearity; Student enrolment; Per-capital Income; Student Expenditure

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I. Introduction

More than forty years ago, Nobel laureate Amartya Sen analyzed the crisis in Indian education in his Lal Bahadur Shastri Memorial Lectures on the 10th and 11th of March 1970 at Hyderabad. Rather than attributing the crisis in Indian education to the administrative neglect or to thoughtless action, he pointed out that the grave failures in policy making in the field of education require the *analysis of the characteristics of the economic and social forces operating in India, and response of public policy to these forces* (Sen, 1970). He emphasized that due to the Government's tendency to formulate educational policies based on public pressure, often wrong policies are pursued. Unfortunately, even today, the education policies (*if any*) - particularly on higher education, seek to achieve arbitrarily set goals that are either elusive or pursued halfheartedly.

Blaug (1972) examined the relationship between the education and earnings. The result shows

that there is a positive association between education and income. Nalla Gounders (1967) estimates show that the level of earnings is determined by the level of education. The empirical result shows that the rate of return of investment in education has a significant impact on employment.

Our present paper is an attempt to locate the factors affecting demand for higher education in India comprising conventional system as well as open and distance learning (ODL) system. The main objective is to identify a set of explanatory variables explaining enrolment in Higher Education in Indian states.

Data Source

Our data source is secondary mainly based on NSSO 64th round "Education in India (2007-08) Participation and Expenditure", RBI Bulletin, and Ministry of Human Resource (MHRD) data. We take 2007-08 as our reference period Data covers 29 states in India, nature of the data being cross-section.

The Background of the Study

The 11th Five Year Plan set the objective of 15% GER by the end of the plan period against the world average of 23%. A few comments about the notion of gross enrolment ratio (GER) may be made here. GER is widely used to express the general level of participation by an age-specific group

of learners in a given level of education. It indicates the capacity of the system to enroll students of a particular age-group. The gross enrolment ratio for higher education, expressed as percentage, is given by

$$GER = ((X+Y)/Z) \times 100\% \qquad (1)$$

where X = Total enrolment at the post higher secondary level with ages of the learners falling in the group 18-23 years,

Y = Total enrolment at the posthigher secondary level with ages of the learners greater than 23 years (the case of over-age learners),

Z = Total population in the 18-23 age group.

In the definition (1), it is assumed that the age-group for higher education is typically 18-23 years while the quantity Y captures the scenario encountered in the ODL system where age is no hindrance to go for higher education. One defect of GER as given in (1) is that it can exceed 100% because the sum X + Y may theoretically exceed the quantity Z. Moreover, there is a problem of compatibility as the coverage of X and Z is different.

In contrast to the formula (1) above, the net enrolment ratio (NER), expressed as percentage, may likewise be defined as

$$NER = (X/Z) \times 100\% \ , \qquad (2)$$

Which, however, does not exceed 100%. To ensure statistical regularity, we take enrolment per 1000 in higher education as dependent variable(Y) and enrolment per 1000 in higher secondary level as explanatory variable(X_1). In our paper we have also shown gross attendance ratio(GAR) and net attendance ratio(NAR).

The open and distance learning (ODL) is now an established fact in the field of higher education. The country has presently a network of 14 open universities of which only one central university and the remaining 13 state open universities. The enrolment of students in the ODL system is nearly 37, 36,559 which is 30 percent of total enrolment in higher education. The remaining 70 percent is covered by 532 conventional universities and other higher educational institution.(Aich, 2012) Demand for higher education is affected by the several factors like student enrolment in higher secondary level, per-capita income of the country, number of higher educational institutions and also student expenditure,

population growth, literacy rate, employment generation or job opportunity, good governance etc. We approximately suggest enrolment in post higher secondary level as an index of demand for higher education.

Estimation of demand for higher education and as well as forecasting of the future demand is necessary mainly for two purposes-1) To get prepared with requisite infrastructure to meet the demand, and 2) To formulate policy for the future and also to prepare the budget.

II. Impact of Per-capita expenditure and Income on Student Enrolment in Higher Education

We have used linear as well as double log form so far as regression equation is concerned. Log linear relation gives us lower value of R^2 indicating that linear relation is better fit. The advantage of log linear form is that every regression coefficient represents the elasticity of dependent variable with respect to explanatory variable

Here we use a demand function expressed by regression equation form-

$$Y_i = b_0 + b_1X + b_2 Z_i + b_3I_i + b_4 C_i + U_i$$

$$(i=1, 2, 3, \text{-------}29)$$

Here Certain observations and made on enrolment in higher education (Y_i) which is taken as dependent variable, and higher secondary enrolment (Xi), per-capita state domestic product (I_i), per student expenditure (Zi), number of colleges (Ci) which are taken as explanatory variables. I and Z are monetary factors and previous enrollment (X) is quantitative factors behind demand for higher education. We fit a linear regression to these observations and test the overall goodness of fit (with R^2) as well as the statistical reliability of the estimates $\hat{b}_0$, $\hat{b}1$, $\hat{b}_2$, $\hat{b}_3$, $\hat{b}_4$. Good Governance is a qualitative variable which can be tackled by a Dummy using (0,1) combination.

The fitted regression equation is found to be

$$Y_i = -12.103 + 0.24X_i + 0.001Z_i + 0.001I_i + 0.010Ci$$

SE(^bj)	(9.495)	(0.071)	(0.002)	(0.000)	(0.001)	
t-value	(-1.275)	(3.276)	(0.653)	(5.192)	(4.403)	with

R^2=0.811

and $Log(Y_i) = -2.703 + 0.338LogX_i + 0.274LogZ_i + 0.548LogI + 0.111LogC$ with R^2=0.685

Percentage of variation in dependent variable is explained by the independent variable chosen by us to the extent of 81 percent. The t-value of Z coefficient in regression equation is un-usually low which suggest omission of Z. When we consider log linear relation which gives us lower value of R^2 indicating that linear relation is better fit.

If we consider gross attendance ratio (GAR) we have linear estimation given by

$$Y_i = 0.432 + 0.131X + 0.00002Z + 0.000I + 0.002C$$

SE(^bj)	(2.944)	(0.041)	(0.000)	(0.001)	(0.001)
t-value	(0.147)	(3.242)	(0.075)	(2.377)	(2.551)

with $R^2=0.566$

and $Log(Y_i) = -1.666 + 0.397LogX + 0.076LogZ + 0.356LogI + 0.084LogC$ with $R^2=0.572$

If we consider net attendance ratio (NAR) we have linear demand function given by

$$Y_i = 2.757 + 0.232X + 0.000Z + 0.00003I + 0.00C$$

SE(^bj)	(2.219)	(0.057)	(0.000)	(0.000)	(0.001)
t-value	(1.242)	(4.089)	(0.578)	(0.605)	(0.274)

with $R^2=0.602$

and $Log(Y_i) = -1.012 + 0.310X_i + 0.142LogZ + .220LogI + 0.037LogC$ with $R^2=0.488$

Here t-values of Z, I and C coefficient in regression equation are un-usually low, which are also not significant. In case of attendance, behavioral factors are more relevant as compared to traditional factors.

Measure of Elasticity

In the literature on income elasticity of demand, nonavailability of data suggests expenditure as proxy of income. The logic behind such formulation is that income determines expenditure which finally determines enrolment. Intuitively, dlogY/dlogE<1 and expenditure elasticity is an overestimate.

$$\frac{dlogY}{dlogI} = \frac{dlogY}{dlogZ} \cdot \frac{dlogZ}{dlogI}$$

Value of The first term on the left hand side is 0.739 and first term of the right hand side is 0.661, The last term of the right hand side is 0.2oo which means income elasticity is overestimated compared expenditure elasticity. But our empirical findings contradict our intuitive guess.

When we consider enrollment in higher education in value terms then V=ZY,

$$\log V = \log Z + \log Y$$

or,
$$\frac{d\log V}{d\log I} = \frac{d\log Z}{d\log I} + \frac{d\log Y}{d\log I}$$

Therefore value elasticity can be decomposed into two parts-quantity elasticity and quality elasticity and the result is empirically verified as follows-

$$\log V = 1.432 + 0.939 \log I (e = 0.939)$$

$\log Z = 2.984 + 0.200 \log I (e_1 = 0.200)$ and $\log Y = -1.552 + 0.739 \log I$ $(e_2 = 0.739)$.

Therefore $e = e_1 + e_2$ which correlates our theoretical result.

III. Problems of Multicollinearity

The term multicollinearity is used to denote the presence of linear relationships(or near linear relationships) among explanatory variables. It may arise when some or all of explanatory variables in a regression are highly correlated with one another. If the explanatory variables are perfectly linearly correlated the model in matrix form can be written as $Y = X\beta + \epsilon$, where OLS estimate $\hat{\beta} = (X'X)^{-1}X'Y$ and $(X'X)^{-1} = adj(X'X)/|X'X|$ But, $|X'X| = 0$ and OLS estimate is indeterminate.

Measure of Multicollinearity

Theil's measure of multicollinearity: Theil (1971, p.179) considers a multicollinearity measure which is

$$m = R^2 - \Sigma (R^2 - R^2_{-j}) \qquad (3)$$

where R^2 is the square of the multiple correlation coefficient and R^2_{-j} is the same excluding the jth explanatory variable. The quantity $(R^2 - R^2_{-j}) \geq 0$ is termed the " incremental contribution " of the jth regressor by Theil. If

all the explanatory variables are mutually uncorrelated, then m will be zero because the incremental contributions all add up to R^2. In other cases, m can be negative as well as highly positive.

As reported by Mehta, Swamy and Iyengar (1993), the Theil's measure is preferable to other measures used in the statistics literature to diagnose multicollinearity. They have also obtained the exact distribution of m which can be used to test the significance of any observed value of m from data.

Value of m=0.364, which indicates presence of near exact multicollinearity and impact is not severe.

Variance Inflation Function(VIF)=1/(1-R_i^2), where R_i^2 is squared multiple correlation coefficient between X_i and the other explanatory variable. It can also be interpretated as the ratio of actual variance of β_i^ to what the variance of β_i^ would have been if X_i were to be uncorrelated with the remaining X's. In case of four explanatory variable, Variance Inflation Functions are VIF(X)=1.297, VIF(Z)=1.074,VIF(C)=1.02, VIF(I)= 1.4577 . Income is mainly responsible for the increasing the variance of regression coefficient or in other words income is mainly responsible for failure of ordinary least square estimate. As it loses its efficiency property.

Test of Multicollinearity

Farrar-Glauber Test for Multicollinearity: It is really a set of three tests, that is the authors use three statistics for testing for multicollinearity. The first test is a chi-Square test for the detection of the existence and the severity of multicollinearity in a function including several explanatory variables. The second test is an F test for locating which variables are multicollinear. The third test is a t test for finding out the pattern of multicollinearity, that is for determining which variables are responsible for the appearance of multicollinear variables. We use second and third parts for our analysis.

1. *F- test for the location of multicollinearity*

$$F^*=\{R^2/(k-1)\}/\{(1-R^2)/(n-k)\}$$

Where R^2 is square of multiple correlation coefficients (square of correlation between actual dependent variable and estimated value from the entire explanatory variable), n= size of the sample, k= number of explanatory variables.

Here total number of observations n=29 and explanatory variable k=4, Therefore $F^*=35.30$ Since theoretically $F_{0.05}$ value with $V_1=4$ and $V_2=25$ degrees of freedom is 2.78 (i.e, $F^*_{0.05}>F_{0.05}$) we reject the null hypothesis, accepting the alternative that there is a significant relation between enrolment in higher education and the explanatory variables. Here null hypothesis is H_0=There is no multicolinearity and alternative hypothesis is H_1=There is multicollinearity.

2. *T-test for pattern of multicollinearity*

$$t^*=((r_{x_i x_j.x_1.x_2....x_k})\sqrt{(n-k)})/\sqrt{(1-r^2_{x_i x_j.x_1.x_2....x_k})}$$

If t*>t we accept that the partial correlation coefficient between the variables X_i and X_j are responsible for the multicollinearity in function.

From the following table we conclude that only X and I contribute multicollinearity.

Table-2 Partial correlation value and significant level

Partial Correlation	Value	t*-value	Compared with t* and table valuer
r XI.ZC	0.515	3.504	t*>t
r XI.IC	0.044	0.220	t*>t
rXC.IZ	0.098	0.495	t*>t
rIZ.XC	0.194	1.008	t*>t
rIC.XZ	-0.108	-0.546	t*>t
rZC.XI	0.069	0.347	t*>t

It is obtained from the above table only X I contribute multicollinearity, which is also statistically significant.

IV. Selection of Regressors

Generally in empirical work the statistical model underlines that data is assumed to be known at the outset and the problem is merely to obtain good estimates of the parameters in the model In reality, however the choice of a model is almost always made after some preliminary data analysis. Hence for an econometrician model selection is a primary problem, then comes chronologically the problem of selection of regressors. Suppose we have a multiple repressors' frame work with k explanatory variable, x_1 x_2 x_3 --------,x_k But we face the problem of elimination of some repressors'. Hence stepwise regression is suggested,

which may be either backward and forward. In the first case we start with all the explanatory variables and gradually eliminate variables with t - ratios less than one. Since in only one case t ratio is less than one, we rank t-values greater than one and eliminate accordingly.

In the second case we started with a single variable which had highest correlation with Y then pick at each state the variable with highest partial correlation coefficient. However, the backward selection procedure can help us in formulating droping variable method which is a solution for multicollinearity.

Table-3 Values of R^2 for different choices of the explanatory variables using Forward Inclusion and Backward Elimination

Forward Inclusion		Backward Elimination	
Function	R^2	Function	R^2
Y=f(I)	0.538	Y=f(X,Z,I,C)	0.811
Y=f(I,C)	0.721	Y=f(X,I,C)	0.808
Y=f(I,C,X)	0.808	Y=f(I,C)	0.721
Y=f(I,C,X,Z)	0.811	Y=f(I)	0.538

V. Conclusion:

The best fit demand function is Y=f(X,I,C) ,this is also perfect in case of ODL system because income(I) is also major contributor to enrolment in higher education. In the Open system large number of students are engaged in different types of job and also earn income and they want to continuing education. So as per-capita state income increases it is likely that job opportunity of the state also increases and private income of the people, especially that of young generation increases. On economic ground income is the main motivating factor but statistically it introduces some problems. We can also enquire whether other infrastructural development (media use, video conference, online admission etc.) are more effective in shaping up open and distance learning system.

Further scope of the study:

1. If we develop simultaneous equation frame work, then the main equation described above can be identified as demand function or supply function using the rank and order condition.