



# Retrieval of suspended sediment concentration of the Chilika Lake, India using Landsat-8 OLI satellite data

Sujit Kumar Jally<sup>1</sup> · Akhila Kumar Mishra<sup>1</sup> · Sachikanta Balabantaray<sup>2</sup>

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## Abstract

To monitor sediment variations in the Chilika Lake, the Landsat-8 OLI data was used to calibrate suspended sediment concentration (SSC) model. The relationship between remote sensing reflectance of OLI bands and in-situ measured SSC were used to develop new site-specific algorithms. Four different models were calibrated in this study for retrieval of SSC using in-situ observation and remote sensing reflectance of OLI data. The multiband linear regression model provided better result ( $R^2=0.6$ ) as compared to the single-band regression model ( $R^2=0.45$ , polynomial;  $R^2=0.38$ , exponential and  $R^2=0.39$ , linear). The Landsat-8 OLI image shows spatiotemporal variations of SSC during pre and post-monsoon season (2013–15) in the lake. It is observed that the SSC variation is predominantly influenced by three factors: monsoon effect, wind-induced re-suspension of bottom sediments and influx of river water into the lake. It is also observed that due to the impact of severe tropical cyclone Phailin, there was a rapid increase of SSC in the lake.

**Keywords** Landsat-8 OLI · Cyclone Phailin · Precipitation · Remote sensing reflectance · Suspended sediment concentration

## Introduction

In the last few decades with increasing human populations in coastal urban areas, there is a growing need to monitor water quality in adjacent watersheds consisting of aquatic ecosystems like lakes, lagoons and estuaries. Nowadays, globally coastal lakes are threatened by both natural and anthropogenic induced changes. It goes without saying that the presence of high concentrations of sediment or phytoplankton in these waterbodies is negatively affecting their biological and physical processes. Assessment of sediment influx in coastal environments is crucial to understanding of the sediment influx processes that sustain water quality and geomorphic balance in aquatic ecosystems (Guzman and Santaella 2009). Suspended sediment concentration (SSC) plays a significant role in managing water quality and influences the primary production of both pelagic and benthic photosynthetic

organisms, influx of heavy metals, organic pollutants and anthropogenic materials (Brando et al. 2006). High amount of SSC directly influences the water column and benthic processes i.e. phytoplankton productivity (May et al. 2003), productivity of submerged aquatic vegetation (Dennison et al. 1993), nutrient dynamics (Mayer et al. 1998) and transport of pollutants (Martin and Windom 1991). Seasonal variation of sediment in estuarine and coastal water is mainly influenced by the river discharge, tidal currents and wind-induced resuspensions of bottom sediments (Krivtsov et al. 2009; Shen et al. 2010). Therefore, regularly monitoring of SSC is essential for the protection of aquatic eco-systems, erosion control in catchment upstream areas to reduce SSC in coastal lake and estuarine environment (Mishra and Mishra 2010).

Recent, technological advancement in remote sensing satellite data has been widely used for turbidity and SSC measurement and it provides synoptic view with frequent and long-term observation. Different spectral band combinations have been proposed to study SSC indicators on coastal, estuarine, lagoon, lake and reservoir environments. Modern developments in satellite imagery, processing and data accessibility have provided much emphasis on using remote sensing approach in determining SSC, especially in highly turbid water lakes. Therefore, remote sensing applications

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## Evaluation of Anti-Diabetic Nature of some Boswellic Acid Derivatives by Molecular Docking Method

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### Abstract

Diabetes mellitus is a metabolic disorder and the rising trend in the globe has created great concern in recent times. Since the synthetic drugs used to treat diabetes causes a large number of side effects, so the discovery of a novel plant-based drug molecule is necessary. The gum resin of *Boswellia serrata* contains a large number of molecule used to treat many numbers of diseases including the diabetes mellitus. The present work is an *in silico* approach to identify the boswellic acid derivative that can be suitably used for diabetes treatment. The ligand boswellic acid derivatives for the present study were obtained from searching the PubChem database followed by filtration and energy minimization of the molecules were performed. The receptor molecular structure of human alpha-amylase and alpha-glucosidase were retrieved from the Protein Data bank (PDB). Molecular docking was performed by using the Autodock Vina tool. The alpha boswellic acid (PubChem ID 637234) shows the highest affinity towards the selected two enzymes. Then the amino acid binding residues, as well as the pharmacokinetic properties of these derivatives, were predicted and analyzed. After overall analysis, the alpha boswellic acid showed an excellent pharmacokinetic profile, except for solubility. Hence it was predicted to be the best inhibitor among the selected boswellic acid derivatives and can be used to treat diabetes mellitus.

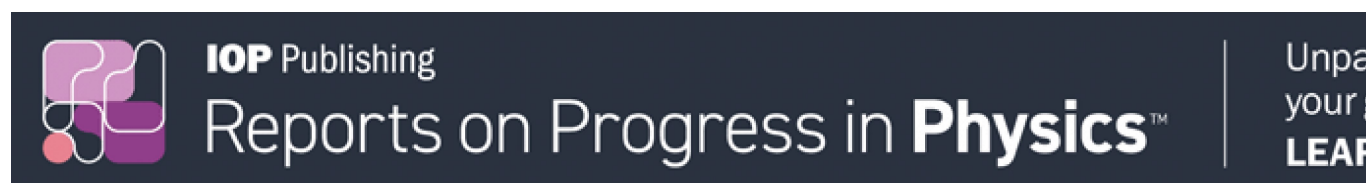
**Keywords:** Boswellic acid, molecular docking, diabetes mellitus, pharmacokinetic property, alpha-amylase, alpha-glucosidase.

### Introduction:

Diabetes mellitus is a common metabolic disorder in human and creates hyperglycaemia in the body due to the defect in the secretion insulin hormone from the pancreatic gland. If the patient is left untreated in the early stage it may lead to the cause of other diseases well as multiple organ failure. There is a global concern about the rapid increase in the numbers of diabetes in recent times. As per the recent report given by World health organization (WHO), recently the number of diabetes patient is about 177 million of the global population the number is more likely to be increased by coming 10 years (1-2-3).

One of the basic mechanism is used to reduce the blood carbohydrate of the body is to enhance carbohydrate absorption after taking of food. The only monosaccharide, such as glucose and fructose, are only transported from the intestinal lumen into the bloodstream after digestion of complex carbohydrates such as oligosaccharides and polysaccharides. This complex polysaccharide is digested to monosaccharide is assisted by two main enteric enzymes, such as alpha-amylase and alpha-glucosidase. The current therapeutic strategies that are practised are synthetic drugs and other





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# Growth Of ZnO Nanostructured Thin Films By Non Conventional Sol-Gel Method And The Effect Of Annealing Temperature On Its Properties

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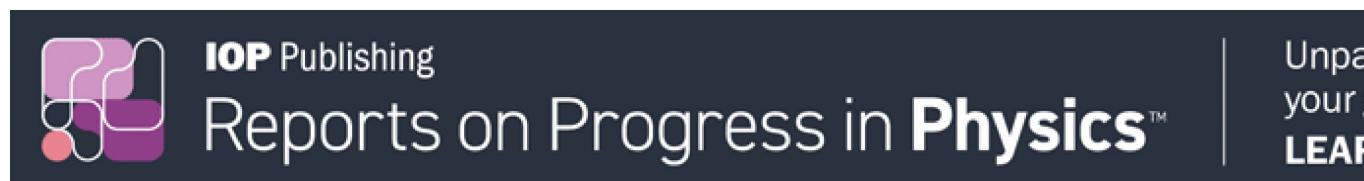
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## Abstract



## PAPER • OPEN ACCESS

# Study of adsorption of methylene blue in aqueous solution onto activated carbon prepared using low cost domestic oven based heating system

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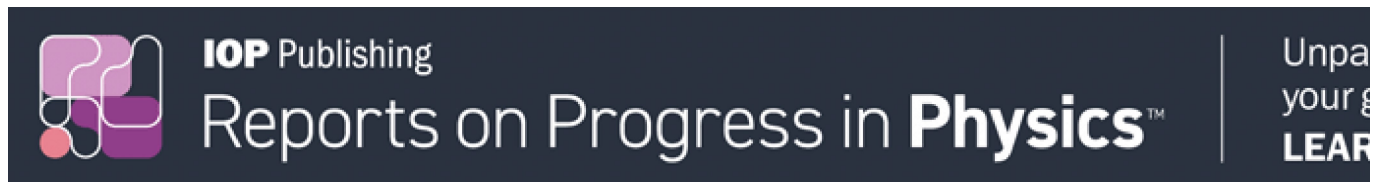
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## Abstract

In this work activated carbon was prepared from teak wood charcoal using very low-cost oven based heating system. Firstly, charcoals were grinded with a domestic grinder and then activated with 25%  $\text{CaCl}_2$  solution and then heated with 250C for different times. And then experiment was carried out through  $2.5 \times 10^{-5}$  methylene blue aqueous solution by taking activated Charcoal into



## PAPER • OPEN ACCESS

# High speed laser induced periodic structure generation using femtosecond laser on surface of titanium

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## Abstract

In this work femtosecond laser wavelength of 800nm, 1KHZ repetition rate and pulse length 100fs irradiation surface texturing has been used. The laser surface texturing is distinguished itself than other conventional processing due to its simplicity controllability and reproducible in creating various structures and wide range of applications. A labview compact zaber xy stage is used for this purpose and investigated the high scanning speed (20mm/s,10mm/s) surface structures on Titanium plate. The velocity of sample position used as function to generate modified surface

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# Generation of microstructures and extreme sub-wavelength laser-induced periodic structures on the Si surface using $\text{N}_2$ nanosecond pulsed laser for the reduction of reflectance

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## Abstract

A detailed study is done on the growth of microstructures and sub-wavelength laser-induced periodic surface structures (LIPSSs) on silicon (Si) surface using nitrogen ( $\text{N}_2$ ) nanosecond (ns) laser processing in air. The period of LIPSS is found to be as small as 37 nm which is close to  $\lambda/9$  times the irradiated laser wavelength (337 nm). In the optimised condition the sums total of reflectance (specular reflectance + diffuse reflectance) was found to be as low as 10% for a broad wavelength range. The reflectance behaviour has been correlated with the morphology of the generated microstructures.



# Stability of GFRP composites with varied fractions of reinforcement exposed to ageing processes outdoors

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and AP Chakraverty<sup>3</sup> 

## Abstract

The effects of outdoor ageing on various compositions of glass fibre reinforced plastic (GFRP) composites were studied. Changes in the interlaminar shear strength (ILSS) of hand-laid samples with 50–60 wt.% of fibre were determined by three-point bending and glass transition temperature ( $T_g$ ) measurements. SEM analysis was carried out for exploring the mode of failure. The moisture ingress rate and extent were concentration-dependent at first, but became increasingly dependent on the fibre-matrix interfacial area. The ILSS initially fluctuated and then showed a decreasing trend with time, especially for the higher fibre concentrations. ILSS variations were zigzag initially and showed a lowering trend after the initial periods. Rate of lowering of ILSS was the highest for samples with the highest fraction reinforcement. Weight fraction reinforcement didn't have any significant effect on the  $T_g$  variations. SEM fractograph revealed excessive fracture and fragmentation for the composite samples with the highest weight percentage reinforcement.

## Keywords

GFRP composite, outdoors ageing, ILSS,  $T_g$ , weight percent reinforcement

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## Introduction

Mechanical properties of a composite material, such as its strength, stiffness and toughness, are assessed in terms of the fibre weight fraction.<sup>1–3</sup> The fibre weight fraction is found to have significant effects on the failure mode and different mechanical properties of the FRP composite material.<sup>4,5</sup> In contrast to a metal, where failure is estimated in terms of propagation of a single crack, the different failure modes in FRP composites manifest themselves through multiple microcracks emanating from the defects and voids in the matrix that accumulate and combine (merging into one another), to form macrocracks. These damages in the FRP composites are strongly localized initially, causing marked instability and lead to the breakage of fibres. The material finally fails when these localized damages i.e. the locally failed regions are interconnected through the generation of a common failure path. The above demonstrates, lower extents of voids and discontinuities in the FRP composites, can contribute towards development of better crack resistance of the GFRP composite and can augment its mechanical characteristics.

The outdoors weathering process is certain to affect the characteristics of GFRP composites to a higher extent owing to the frequent alterations of humidity and temperature that make the ageing conditions more stringent. However, the role of moisture in influencing the characteristics of GFRP composite is actually contradicting. On the one hand, moisture picked up by the composite induces swelling of the matrix<sup>2</sup> due to the force exerted on the macro molecules of the polymer matrix. This may lead to fibre-matrix debonding.<sup>6</sup> Thus, swelling results in weakening the fibre-matrix adhesion and is

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instrumental in generating microcracks in the matrix. On the other hand, moisture induced swelling is believed to reduce the residual compressive stresses brought in at the fibre-matrix interface during curing.<sup>7</sup> As a result, the fibre-matrix mechanical interlocking stresses<sup>8</sup> are also reduced reflecting an enhanced ability of the composites to stand any external load. These contradicting roles of moisture, especially when encountered in frequently varying amounts in the outdoors under ever fluctuating thermal conditions, invites further investigations.

Thermal degradation of thermosetting polymers, like the epoxy resin, is encountered when the GFRP composite is subjected to thermal variations. The degradation/instability manifests itself in terms of molecular deteriorations and limits the service temperature of the composites often resulting in severe mechanical property loss. The thermal degradation as a consequence of temperature variations, become more severe in the presence of oxygen contained in air, outdoors. Chemicals in the polymer react with the oxygen in the air causing matrix oxidation. This leads to thermo-oxidative degradation which is nothing but the disintegration of macro molecules in the polymer matrix by the action of oxygen on the substrate. The matrix gets physically abraded being exposed simultaneously to the effects of sunlight, air, humidity and thermal variations outdoors. It is reported,<sup>9-11</sup> oxidation of the matrix even causes loss of volume of the epoxy matrix bringing in matrix shrinkages.

Outdoors weathering of GFRP composites comprises exposing it to the severities of frequently altering humidity and temperature conditions which are equivalent to exposure to a cyclic variation of temperature and humidity. This can be compared with fatigue phenomenon where in the material experiences cyclic stresses that may result in steady decrease in the stiffness and the rigidity of the material eventually causing its early degradation even at lower levels of the frequent alterations of agents of deterioration. Swain et al.<sup>12</sup> report that the outdoors exposure of the GFRP composites may cause catastrophic failures in the material and demonstrate progressive brittle cracking in the treated samples.

Response of GFRP composite to stringent conditions of ageing processes witnessed outdoors, as a consequence of the frequently altering RH and Temperature conditions, in addition to its exposure to sunlight and oxygen in the air, which cause photo-oxidative degradation of the material, has not been much explored. Also the effect of these severe ageing conditions on the response of the material with varied wt % of reinforcement has not been reported adequately. This constitutes a subject of interest for carrying out substantive research. The present research explores both these aspects.

## Experimental

### *Materials deployed*

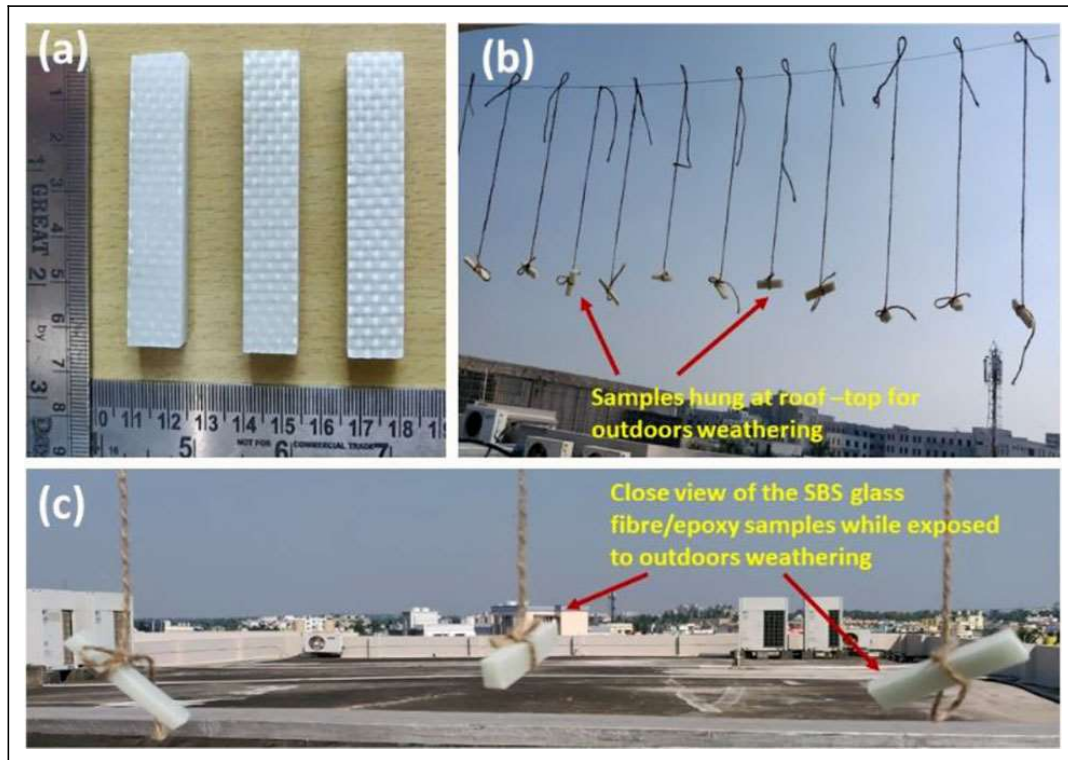
The composite test specimens were fabricated using the following:

- a. Epoxy resin (used as the matrix phase)  
Specification – LAPOX-L12
- b. Diamine Hardener (used for curing agent for polymerization of the epoxy resin)  
Specification – LAPOX-K6
- c. Glass fibre (used as the reinforcement phase)  
Specification – Woven E-glass fibre, fibre being treated with silane-coupling sizing system.

The as-received E-glass fibre from the market is already coated with silane-coupling agent by the supplier. Ureido silane with 2% solution in ethanol, was applied to woven Glass fibre mats of E-type. It was kept for 16 hours at room temperature. The silane treated glass fibres were cleaned by ethanol and dried in a hot air oven set at 120°C.

### *Fabrication of test specimen*

18-ply composite plates were fabricated with 50, 55 and 60 weight percent reinforcement adopting hand-lay-up method.<sup>13</sup> Mixture of epoxy resin and diamine hardener (in the ratio 10:1) was applied on woven glass fibre mats uniformly. Each glass fibre layer is rolled perfectly to remove the air trapped with the aid of a hand roller. Eighteen layers of woven glass fibre mats are laid down in the same manner and are stacked and applied with mixture of epoxy resin with hardener regularly to ensure 18-ply layered composite. Then the laminate was sandwiched between two thermoplastic films coated with mould releasing sprayer and load was applied on the thermoplastic film to ensure the escape of any air from the prepared sample. The laminated structure was cured at room temperature for 24 hours. After curing, the laminate was demoulded. Taking into consideration the loss of the matrix material, specifically for the higher fraction of reinforcement, that seriously affect the fibre-matrix adhesion, rectangular wooden moulds are employed for containing the matrix polymer during fabrication. Test specimens were machined out from these room temperature cured composite plates in accordance with ASTM-D-2344-84 (2013). The short beam shear (SBS) specimens are shown in Figure 1a.



**Figure 1.** (a) Short beam shear specimens of glass fibre/epoxy composite. (b) Samples hung in the open for exposure to outdoors ageing. (c) Close view of the SBS specimens while exposed to outdoors weathering.

### Procedures adopted for characterization

**Resin burn-out test.** To carry out the resin burn-out test the composite sample, completely devoid of moisture, was weighed and its height length and width were measured to obtain its volume. Complete expulsion of moisture from the sample was ensured by alternate heating (90°C) and weighing till a constant weight was obtained. The sample was then put in a muffle furnace at 600°C for 2 hours for burning out of the resin leaving behind the fibres. The fibres were weighed and from the difference of weight before and after resin burn-out, the weight of the resin was estimated. The volume of the resin was calculated taking its density to be 1.1 g/cm<sup>3</sup> (data from the Supplier: Atul Polymer division Ltd). Also from the weight of the fibres its volume was calculated taking its density to be 2.5 g/cm<sup>3</sup> (data from the supplier: Atul Polymer division Ltd). The percentage voids was calculated as a percentage of the volume of the original sample using the formula

$$\% \text{ voids} = \frac{\{V_c - (V_r + V_f)\}}{V_c} \times 100 \quad (1)$$

where,  $V_c$  is volume of composite sample,  $V_r$  is volume of resin,  $V_f$  is volume of fibres.

Three samples each from each of the categories of the sample (50, 55 and 60 weight percent of reinforcement) were considered to determine void percentage.

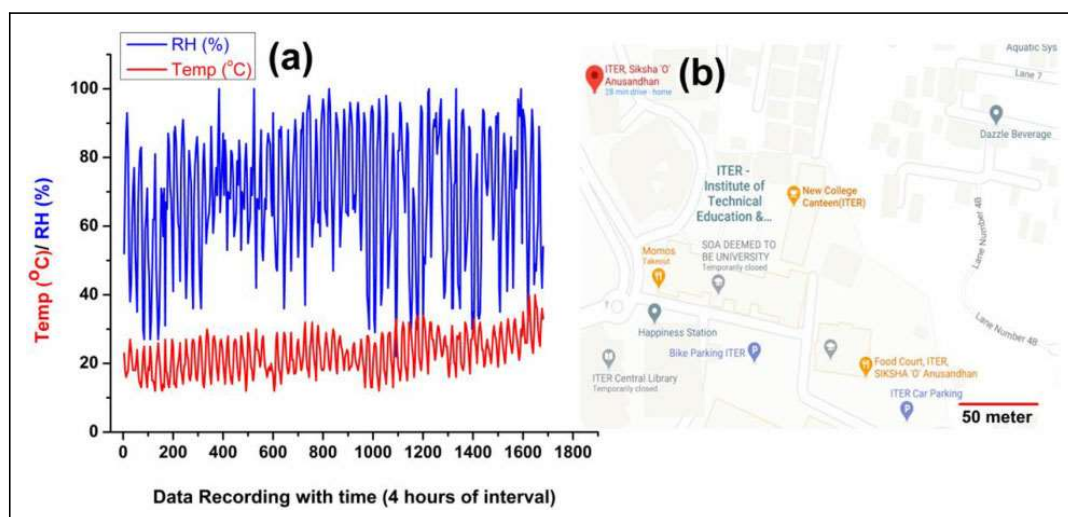
**Outdoors ageing and determination of moisture gain.** The samples were heated in an electric oven at 70°C for 2 hours, weighed cooled, heated again and weighed till a fixed weight was obtained. These samples were hung in the open (Figure 1b and Figure 1c) for the sake of outdoors weathering. These samples were withdrawn in groups of 4 each, after every 12 days of outdoors weathering, in 5 batches. The last batch was therefore exposed for the maximum period of 60 days (2 months). This was repeated for the samples with 50, 55 and 60 weight percent reinforcement, respectively.

The exposed samples were weighed and the moisture intake was estimated from the difference of weight of the exposed sample and respective fixed weights obtained earlier.

$$M(t) = \frac{(w_t - w_o)}{w_o} \times 100 \quad (2)$$

where  $M(t)$  is the percentage moisture intake,  $w_t$  is the final weight of the samples after outdoors exposure,  $w_o$  is the initial fixed weight of the samples before outdoors exposure.

The average percentage moisture intake for all the four samples in the group was reported as the moisture intake for the batch.



**Figure 2.** (a) RH (%) and temperature variations as recorded from the weather report, (b) geographic location pertaining to the outdoors ageing.

**Table 1.** Percentage voids in the respective composite samples.

Sample number	Weight % reinforcement	Weight of the sample (g)	Sample volume (cm <sup>3</sup> )	Mass of fibre (g)	Volume of fibre (cm <sup>3</sup> )	Mass of resin (g)	Volume of resin (cm <sup>3</sup> )	Volume of voids (cm <sup>3</sup> )	% voids
1	50	9.26	6.53	4.7	1.88	4.56	4.145	0.501	8.33
2	55	8.92	6.15	4.71	1.884	4.21	3.827	0.442	7.74
3	60	8.45	5.67	4.68	1.872	3.77	3.427	0.370	6.99

**Three-point bend test and determination of ILSS.** The ILSS values of the samples were calculated from the breaking stress as obtained from the three-point bend test carried out in INSTRON-1195, using the following reference formula.<sup>14</sup>

$$ILSS = 0.75 \times \frac{P_b}{b \cdot t} \quad (3)$$

where,  $P_b$  is the load at rupture (kN),  $b$  is the breadth (mm) and  $t$  is the thickness (mm) of the sample. The average of ILSS of the four samples was recorded as the ILSS for the batch.

**$T_g$  determinations.** For determining the glass transition temperature ( $T_g$ ) the samples pertaining to the three categories with 50 wt%, 55 wt% and 60 wt% reinforcement, treated for 36 days and 60 days in the outdoors were considered as representative samples. The glass transition temperature ( $T_g$ ) of these samples were determined through low temperature differential scanning calorimetry (DSC) in the Mettler-Toledo 821 machine with intra cooler using star software. DSC measurement of the representative samples are carried out with the heating range of 30–150°C and heating rate 10°C/min. The samples for low temperature DSC were drawn from the broken test pieces after the three-point bend test. The first change in DSC thermogram was considered as  $T_g$ .

**SEM fractographs.** SEM fractographs of fractured specimens, exposed to the outdoors ageing processes for the maximum duration (60 days), were obtained using JEOL, JSM-6480 LV and presented in Figure 9.

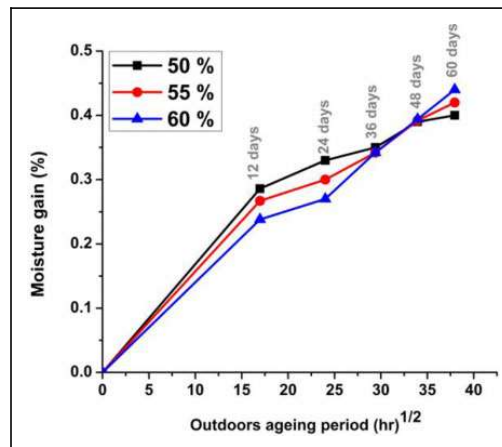
**Relative humidity (RH) and temperature variations.** The variations of RH and Temperature in the locality as obtained from the relevant weather chart are presented in Figure 2. The data pertaining to both RH and Temperature are obtained from the weather report of the locality on a regular basis.

## Results and discussions

### Void fractions

The present investigation makes it a point to characterize and quantify the void contents in the GFRP composite samples with varied fractions of reinforcement. The average percentage of void (as calculated through resin burn-out test) for the glass fibre/epoxy composite with respective percentage of reinforcement was presented in Table 1. Resin burn-out test was conducted to estimate the voids fraction in all the three categories of samples.





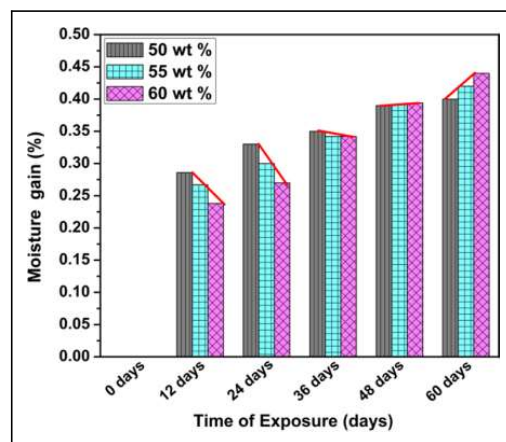
**Figure 3.** Moisture uptake trend for different composite samples exposed to outdoors ageing.

Void fraction in the composite samples decreased with an increase in the weight fraction reinforcement. Voids are vacant places in the composite not filled with either the polymer matrix or the fibre reinforcement. These are the most significant manufacturing defects in FRP composite. Obviously, as the percentage reinforcement increases, the vacant places not filled by the matrix or the fibre are decreased, lowering the void fraction. However, the composites in the instant case are made by simple hand-lay-up method. It is specifically important in this case, while making composites with high weight fraction reinforcement (low fractions of matrix epoxy), to be extra careful to ensure appropriate interfacial bonding between the abundant fibres and the limited volume of the matrix phase for complete wetting of the fibres by the matrix.

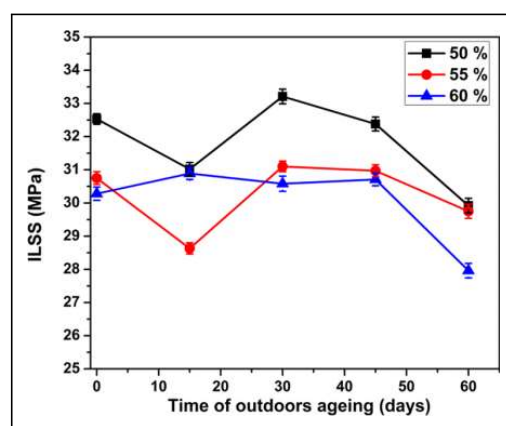
### Moisture uptake

Moisture uptake trends of the composite samples exposed to outdoors ageing are presented in Figure 3. The observed moisture uptake rate during the initial periods, is an inverse function of the weight percent reinforcement and a direct function of the void fraction. The sample with 50 weight percent reinforcement, with the highest proportions of voids and the highest share of the matrix polymer by the reinforcement fibre, exhibits the highest rate of moisture uptake initially. From the above, it is evident that moisture primarily enters the polymer matrix. The figure (Figure 3) also reveals, moisture ingress rate is the highest during the initial periods of outdoors exposure in all the three categories of samples (50, 55 and 60 weight percent reinforcements). This establishes the concentration-gradient-driven-moisture uptake during the initial periods of exposure<sup>15</sup> when the other factors responsible for moisture ingress are not very prominent.

Ray<sup>16</sup> working with carbon fibre and epoxy resin matrix composites in a temperature range of 60°C to 70°C and relative humidity of 95 percent reported that for FRP composites higher the temperature higher is the moisture uptake rate. In the present investigations, however, though the temperature outdoors seldom exceeded 37°C and despite being 100 percent in one or two instances, the RH values encountered remained much below 95 percent, the contribution of frequent alterations of temperature and RH values concerning moisture uptake by the material cannot be denied. Indeed, alternate wetting and drying of the composite material which can be closely approximated to the frequently altering R.H. and temperature levels outdoors, can be considered to have accelerated the ageing process. Added to the above, the differences in the thermal coefficients of expansion of the constituents of the composites and the frequently varied extents of contraction and expansion experienced could be instrumental in generating a thermal mismatch between the epoxy resin and glass fibre. Misfit stresses are developed initiating plastic deformations. Stiffness of the material is reduced and permeability for further moisture uptake through the interface is enhanced. The absorbed moisture causes plasticization<sup>6</sup> and swelling of the matrix.<sup>17</sup> The interfaces is degraded and weakened. Several associated physico-chemical processes,<sup>18,19</sup> which have not been fully understood take place and micro cracks and microvoids are formed on the interface. The formation of these micro cracks and microvoids encourage further enhancement of both, the rate and the extent of moisture uptake. Thus, as time passes and more and more moisture enter the composite body, the fibre-matrix interface is more and more deteriorated assisting further inroads of moisture in to the material-body along the interface. At this instance, the interfacial area governs moisture uptake and it becomes imminent, the composite samples with the highest extents of interfacial area, obviously the one with the highest fraction of reinforcement (60 weight percent) absorbs moisture to the greatest extent at an enhanced rate. This trend is exhibited in Figure 3. It is clearly seen that the initial trend of moisture absorption is reversed after the lapse of certain initial period. The results are also presented in Figure 4 in the form of a bar diagram that clearly exhibits the gradual reversal of the moisture absorption trend with passage of time.



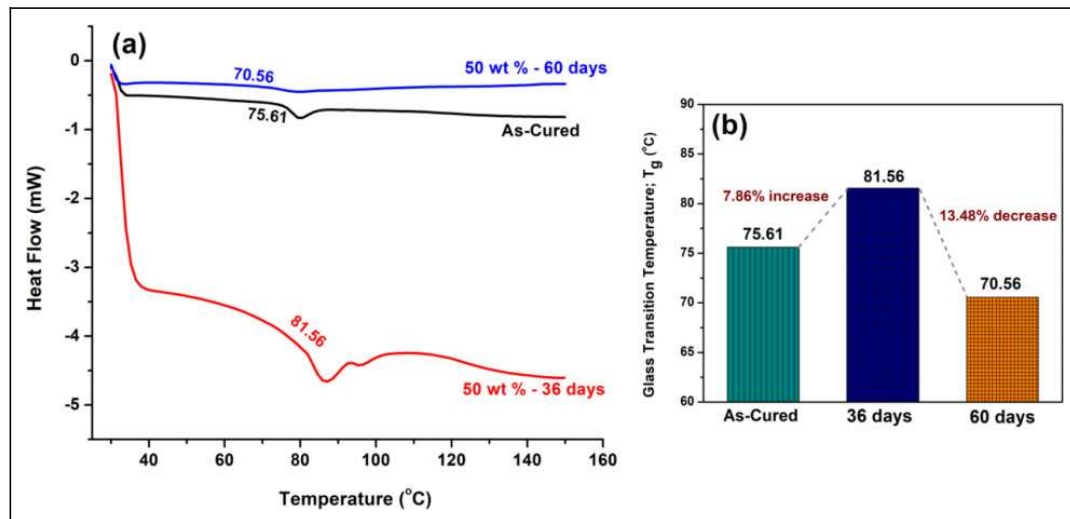
**Figure 4.** Reversal of moisture absorption trend.



**Figure 5.** ILSS variations trend for different composite samples exposed to outdoors ageing.

### ILSS variation

ILSS provides data concerning stability of the material under adverse service conditions. As seen from Figure 5, there exists an inverse relationship between the ILSS and weight percent reinforcement for the as-cured samples. This trend is in contrast to the general belief that an increase in the proportion of the load bearing reinforcement increases the strength of the composite material. The trend can be attributed to the lower extents of interfacial area and higher share of the bonding matrix polymer by the fibres for the samples with low weight percent reinforcement. The response of the composite samples exposed to the outdoors, however, does not show any regular pattern pertaining to the variations in the ILSS during the initial periods of ageing. The overall trend of ILSS variation during the initial periods of exposure assumes a zigzag pattern, sometimes exhibiting an upward trend and yet some other time, a downward trend during this initial period. The upward trend of the ILSS could be an outcome of the release of the shrinkage stresses developed during curing of the composite samples by the hygroscopic-swelling stress caused as a consequence of moisture uptake. It may be noted, voids even when in small proportions, adversely affect the ILSS, a matrix-dominated property. The swelling stresses and plasticization responsible for the ultimate failure of the material by lowering of the ILSS, even in the case of voids larger in comparison to the cross sectional area, don't initiate failure from within the voids but does so from below and above the voids. This could be on account of a combined effect of reduction of effective load bearing cross sectional area due to the presence of the voids which could act as stress concentrators.<sup>20</sup> However, the void that initiated failure experiences a compressive stress as a consequence of stresses generated outside of it. The net effect is a reduced rate of ILSS decrease, somewhat arresting the sliding. The downward trend during the initial periods of ageing, on the other hand, can be construed to be a cumulative influence of many factors effective simultaneously. The main factor in this respect is the weakening of the interface, thus, lowering the ILSS by the ingressed moisture. However, because of the varied amounts of moisture uptake by the composite samples with varied extents of reinforcement fibres (50, 55 and 60 weight percent) resulting in different void fraction in respective composite samples, the rate of lowering of ILSS is also seen to be different for these samples. The zigzag pattern of variation of ILSS may also be attributed to the fact that the voids exist at different locations in the material and can be considered to be local phenomena. These are responsible for the local deterioration of



**Figure 6.** (a) DSC thermograms of the glass fibre/epoxy composite with 50 wt % of reinforcement, (b)  $T_g$  variation trend (50 wt %).

the matrix and the interface. This local degradation results in a complex behaviour of the material causing different extents of drop of ILSS in different locations. During the initial periods of ageing when sufficient time is not made available for a resultant average response, the above mentioned phenomenon manifests itself through a zigzag pattern of ILSS variation.

A prolonged exposure of the material to outdoors ageing, however, causes a faster rate of lowering of ILSS. The hygroscopic-swelling stresses are now in excess of the curing stresses which are nullified during the earlier periods of ageing. These stresses give rise to inelastic deformations of the matrix generating microcracks and microvoids. Since the fibre-matrix interface in the FRP composites, function as the path way for water uptake<sup>21</sup> the resultant microcracks and voids are mainly located between the plies, initiating the unwanted delamination, debonding and ultimate lowering of the ILSS. Further, these voids along the interface, a very critical location in FRP composite, are in general larger than those in other locations (say, the matrix). These larger voids in the critical locations bring in greater lowering of the ILSS.<sup>22</sup> Thus, the sample with the highest weight percent reinforcement, with the highest extents of interfacial area (60 weight percent reinforcement), exhibits the highest rate of ILSS decline (Figure 5). Now the ILSS failure assumes a clear pattern of augmented rate of descending trend with the lapse of time, the rate of decline being a direct function of the weight fraction reinforcement. In addition to the above, it may be appreciated, the frequent thermal and relative humidity variations outdoors and the exposure of the material to sunlight and oxygen in the air, do present a very adverse service condition. As reported by Swain et al.<sup>12</sup> such adverse conditions bring in earlier modes of failure adding to the already existing faster rates of deterioration of the mechanical property of the material that include its ILSS.

### Glass transition temperature ( $T_g$ ) variations

The glass transition temperature ( $T_g$ ) for some selected glass fibre/epoxy composite samples with different weight fractions of reinforcements and with varied periods of outdoors ageing are presented in Figure 6a through Figure 8a. The inserted plot as bar diagram (Figure 6b through Figure 8b) in corresponding DSC thermograms also exhibits the  $T_g$  of the samples as affected by the period of exposure to outdoors ageing.

It is evident in the respective categories with different weight fraction reinforcements, the  $T_g$  increases initially and then decreases with respect to the  $T_g$  of the as-cured samples. The initial  $T_g$  increase may be attributed to the formation of strong hydrogen bonds between the absorbed water molecules and the hydrophilic groups of the epoxy network.<sup>2</sup> Here, water with double hydrogen bonds act as a physical crosslink, these hydrogen double bonds being responsible for an increase in  $T_g$  values. During the initial periods, therefore, it can be inferred, the process of hydrolysis dominates plasticization. On the other hand, the lowering of the  $T_g$  with increasing periods of ageing can be attributed to the longer exposure of the material to the moistened atmosphere outdoors under fluctuating conditions of RH and temperature. The absorbed moisture leads to a physical ageing process of the matrix by plasticization. The water molecules occupy the positions in the large polymer chain. Increase in intermolecular distance can decrease the intermolecular cohesive force resulting in an increase in the molecular mobility in the polymer and set in an early glassy-rubbery transition. Also, by the action of the hydrostatic swelling stresses, as a consequence of moisture ingress, there is an increase in the internal voids/ free volumes in the polymer (matrix) structure that accounts for lowering of the  $T_g$ . It is also observed the weight percent reinforcement doesn't have any significant influence on the exclusively polymer related  $T_g$  for the GFRP samples exposed to outdoors ageing for any given length of time as also for the as-cured samples.

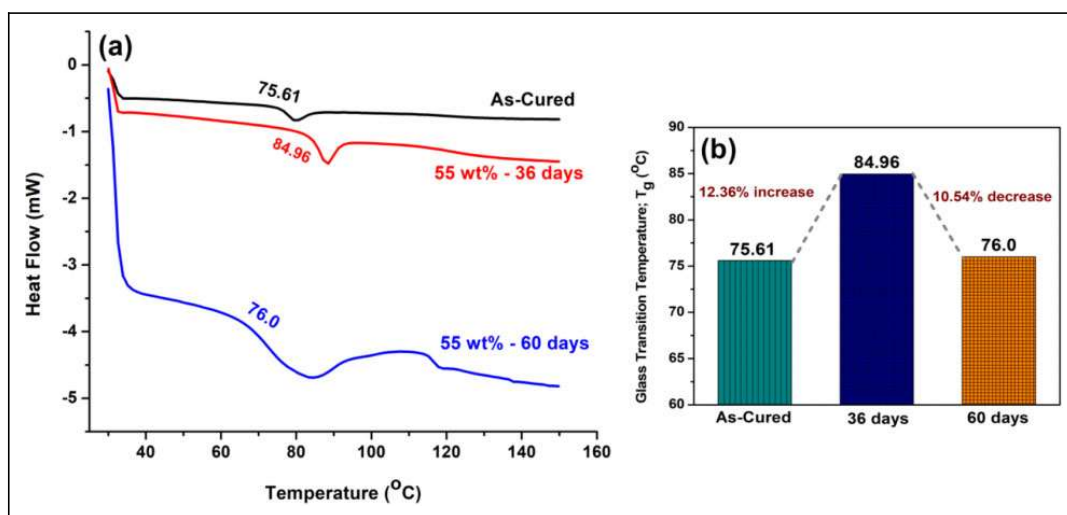


Figure 7. (a) DSC thermograms of the glass fibre/epoxy composite with 55 wt % of reinforcement, (b)  $T_g$  variation trend (55 wt %).

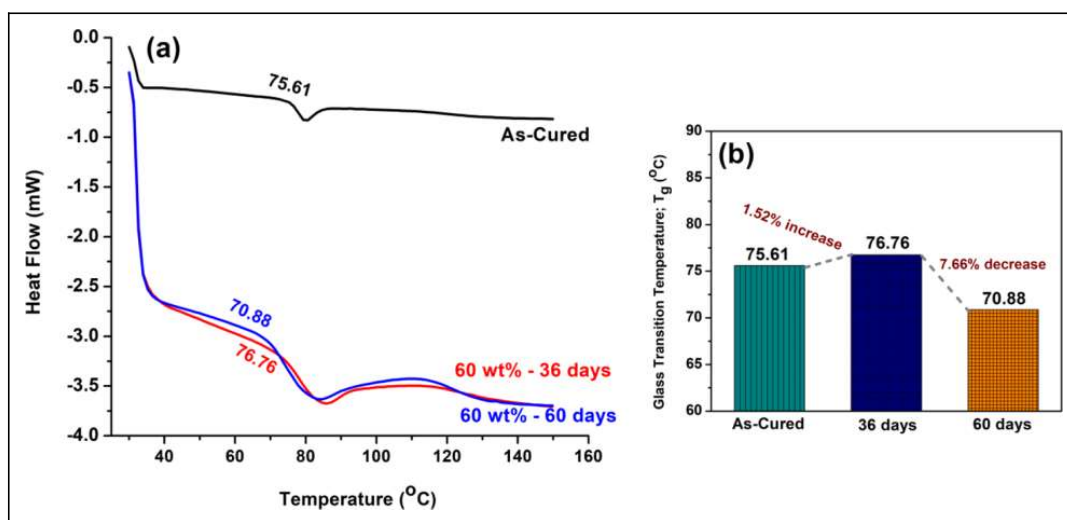
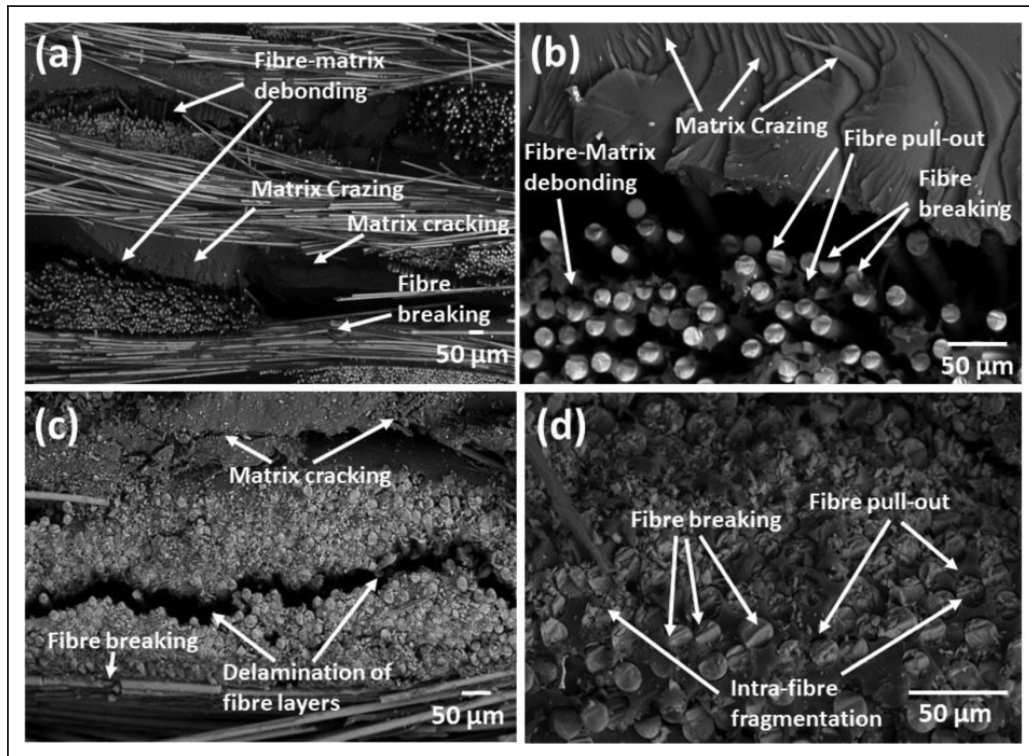


Figure 8. (a) DSC thermograms of the glass fibre/epoxy composite with 60 wt % of reinforcement, (b)  $T_g$  variation trend (60 wt %).

### SEM fractographs

SEM fractographs of samples exposed to outdoors ageing for the maximum length of time (60 days), after the 3 point bend test are presented in Figure 9a through Figure 9d. The fractographs reveal matrix crazing, cracking, fibre pull-out, fibre breakage, etc. to be the chief modes of failure of composite materials. Frequent alterations of temperature and R.H. values outdoors, seemingly gives rise to a condition of stress reversal in this particular case of outdoors ageing. Hardening of the matrix and ineffective stress transfer from the matrix to the fibre resulting in stress accumulation in the interfaces could be the serious consequence of the stress reversal that manifest itself in matrix crazing, cracking including fibre pull-out. Below 60 wt % fibres the share of matrix polymer for reinforcement fibre will increase. Under these conditions, depending on the actual wt % fibre, the tendency of the matrix to envelope the fibre reinforcement would be augmented with greater possibilities of adequate fibre-matrix bond formations. However, for these composites with a lower wt % fibre, void fraction in the composite material may tend to increase creating greater possibilities of degradations on account of delaminations and fibre-matrix debonding. These opposing tendencies considered together beside the average response of the composite to degrading ageing factors. Outdoors weathering of the composites with 50 wt % and 55 wt % reinforcement can plasticize and cause swelling of the epoxy matrix. During loading, matrix may fail with pre-cracking phenomenon owing to crazing or cracking directly with clear-cut indication of fibre pull-out and fibre-matrix debonding due to the presence of higher extents of voids. Sometimes, fibres get damaged due to stress accumulation with clear indications of fibre breakage. Thus, composites below 60 wt% reinforcement exhibit prominent failure modes with fibre breakage and segmentation. Any applied load generates a triaxial stress condition ahead of the microcracks/microvoids formed on account of the swelling stresses caused due to moisture ingress, aided by the misfit stresses caused as a





**Figure 9.** SEM fractographs of glass fibre/epoxy composite after 60 days of outdoors weathering (a) 50 wt %, (b) 55 wt %, (c) 60 wt %, (d) 60 wt % showing excess fibre fragmentation and fibre breaking.

consequence of mismatch between the coefficients of expansions of the matrix and that of fibre and the stress reversals brought in by the frequent alterations of temperature and RH values. The triaxial stress assists crack propagation along the fibre-matrix interface, weakens the interface and gives rise to delamination which is more predominant in composite with 60 weight percent reinforcement having an increased moisture ingress with lapse of time (Figure 9c). Under these severe stress conditions the fibres get excessively fragmented (Figure 9d) in the 60 wt% fibre containing composite with the fibres having the lowest share of polymer matrix. The lower quantities of polymer matrix fail to prevent transmission of any fibre to fibre brittle fracture, and the adjacent broken fibres form clusters of critical sizes due to inadequate interfacial bonding. To be more specific, the inadequate interfacial bonding does not allow the matrix to prevent transmission of brittle fractures from fibre to fibre which is allowed to form cluster of critical sizes. These clusters in specific pockets in the composite exhibits excessive fibre fracture and fibre fragmentation which could be catastrophic, bringing in failures of the material without any prior warning. Thus, more sophisticated methods of composite making like resin transfer moulding, autoclave forming, etc. which ensures minimum loss of matrix phase during composite forming, may have to be adopted while fabricating composites with high fractions of reinforcement, keeping the end use in mind.

## Conclusions

The systematic investigations pertaining to exposure of GFRP composites with varied fractions of reinforcements, to the severities of outdoors ageing processes, as detailed earlier, reveal the following:

- (i) The moisture uptake trend is strongly dictated by the weight fraction reinforcement, being the highest, initially, for the samples with the lowest fraction reinforcement. With the lapse of time, however, the trend is reversed as the interfaces are weakened and degraded.
- (ii) ILSS variations don't exhibit any specific pattern of response during the initial periods of ageing. However, the ILSS drop is distinctly noticed after the lapse of certain initial period, the rate of decline being the highest for the sample with the highest weight fraction of reinforcement with the highest interfacial area.
- (iii) The exclusively matrix related  $T_g$  alterations are not significantly affected by the weight fraction reinforcement even with lapse of time.
- (iv) Increased weight percentages of reinforcement, instead of being an answer to the problem related to the retention of structural stability of the GFRP composites, could be actually instrumental in initiating catastrophic failures of the material resulting from excessive breakage and fragmentation of the fibres under outdoors ageing conditions.


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# Failure modes in GFRP composites assessed with the aid of SEM fractographs

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## Abstract

Hand-laid, 18 layered, E-Glass/Epoxy resin (GFRP) composite specimens were exposed to distilled water immersion at 65 °C (hydrothermal conditioning), a moist ambience with 95% relative humidity at 60 °C (hygrothermal conditioning) and sea water immersion (at room temperature) for different lengths of time. The treated samples were then exposed to both up and down thermal shocks. The specimens were also exposed to gamma irradiations pertaining to both high and low intensity gamma doses. Three-point Bend test of the samples so treated, was carried out in a universal testing machine and the failure modes as revealed from the SEM fractographs of the fractured specimens surfaces subjected to SEM analysis were recorded and analyzed. The samples conditioned differently for different lengths of time exhibited different extents of structural damages and adopted different modes for the ultimate failure. Any one or any combination of failure modes such as matrix-cracking, fibre pull-out, fibre–matrix de-bonding etc. indicating the interfacial failure were seen to be the chief mode of failure/disintegration of the GFRP composite specimens.

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## Introduction



## Astroparticle Physics

Volume 130, July 2021, 102582

Corrigendum

# Corrigendum to "Parity in Planck full-mission CMB temperature maps" [Astroparticle Physics, Vol. 125 (2021), 102493]

Srikanta Panda <sup>a</sup>, Pavan K. Aluri <sup>b</sup>, Pramoda Kumar Samal <sup>a c</sup>  , Pranati K. Rath <sup>d</sup>

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Refers to

[Parity in Planck full-mission CMB temperature maps](#)

Astroparticle Physics, Volume 125, February 2021, Pages 102493

Srikanta Panda, Pavan K. Aluri, Pramoda Kumar Samal, Pranati K. Rath

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Few inadvertent errors occurred while typesetting the article, specifically in sections "Conclusions" and "Acknowledgements", as listed below:

1. The last paragraph of the section "Conclusions" in the published version is not part of the section, and appears there due to typesetting mistake.
2. The complete "Acknowledgements" should read:

"Some of the results in the current work were derived using the publicly available HEALPix package [Ref. 20]. We also acknowledge the use of CAMB, a freely available Boltzmann solver for CMB anisotropies. Part of the results presented here are based on observations obtained with Planck, an ESA science mission with instruments and contributions directly funded by ESA Member States, NASA, and Canada. This work also made use of iSAP software [Ref. 21]. SP acknowledges DST-INPIRE for financial support under the research



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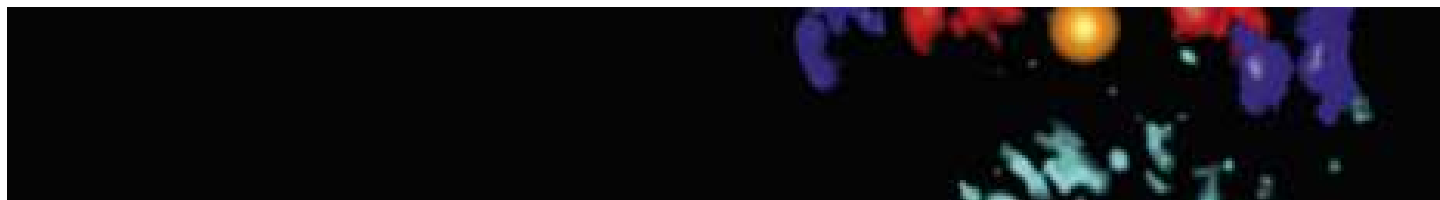
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Regular Article

## A study on the tensile force and shear strain of trilayer graphene

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## **Socio-environmental Sustainability and Economic Performance of Banks: An Empirical Analysis**

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Dr Priyabrata Panda, *Assistant Professor, Gangadhar Meher University, Amruta Vihar, Sambalpur, Odisha*

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### **Abstract**

*Sustainable banking can be seen as a promotional opportunity to leverage the profits of the firms. The present study is an attempt to understand the perspective of the employees working in the banking industry, education industry, and senior employees in several other industries in India. This research expects to throw light on the perceived role of banks' investments in environmentally sustainable practices and improved social relations to achieve a sustainable financial outcome for the shareholders and the banks as a whole. The empirical findings show a positive and significant impact of the variables on the financial outcomes of the banks. All the four variables SOC1, SOC2, ENV1, and ENV2 had a positive association with the economic variables ECO1 and ECO2.*

**Keywords:** social sustainability, environmental sustainability, economic performance, canonical correlation

**JEL Classification:** G20, G21, M14, Q20

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### **I. Introduction**

Sustainable banking is the present-day obligation of financial institutions to invest in the environment and socially conscious projects, to provide products and services that will improve social welfare, and; to ensure equitable and long-term wealth for the stakeholders (Mohammad and Wasiuzzaman, 2021). Responsible financing is expected to improve the environment and reduce the social gap. This can be achieved through improving product value, balancing the work-life quality of employees, and expanding the economic prospects of the organizations. Collaborations with NGOs can help the banks have a great effect in successfully implementing their socio-environmental initiatives and creating value in the process. (Lodsgard and Aagaard, 2017) But we should remember that banks are commercial institutions and thus, CSR activities are sometimes seen as a burden on the profitability and shareholders' wealth (Simpson and Kohers, 2002). On the contrary, recent studies have shown that banks also avail significant benefits by adopting CSR. The work done by banks for rural development, environmental, and other socio-communal issues helps them to increase their public presence (Williams and Badugu, 2016). Given the awareness level and the perceived concern among customers about CSR, the initiatives will help the banks to build a level of trust, favourable response from them, and thus brand loyalty (Pratihari and Uzma, 2017; Paluri and Mehra, 2018). Sontaitė-Petkeviciene (2015) wrote a review paper emphasizing various reasons that induce the CSR practices by corporate. He enumerated that CSR actions help them retain existing customers and expand the customer base by highlighting responsible behavior on economic, ethical, and philanthropic grounds. Thus, sustainable banking can be seen as a promotional opportunity to leverage the profits of the firms. Upon synthesis of the prior literature, it was found that the investigation of the employees' intent to participate in sustainable banking is few and far between. Moreover, most studies on sustainable banking are based in developed countries. A huge gap can be seen in the existing literature from the perspective of Indian consumers, employees, and policy-makers.

The present study is an attempt to understand the perspective of the employees working in the banking industry, education industry, and senior employees in several other industries in India. This research expects to throw light on the perceived role of banks' investments in environmentally sustainable practices and improved social relations to achieve a sustainable financial outcome for the shareholders and the banks as a whole. The sections of the manuscript consist of the reviewed literature and development of hypotheses in Section 2 followed by empirical analysis in Section 3. The policy implications have been enumerated in Section 4. Section 5 concludes the paper and the last section consists of the scope for future research.



## Customers' perception towards cashless transaction in post demonetization period: A case study of Sambalpur district

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### Abstract

Cashless transaction is a part of cashless economy. The main motto of cashless transaction in India is to minimize the usage of physical currency notes circulation in the economy and promotes towards formal economy with the help of increasing the usage of cards payments and digital means. In India largest proportion of transactions are done in cash so that many problems create not only in our economy but also in the society such as increase black money, corruptions, terrorist funding, fake currency notes circulation in the economy and illegal activities etc. The major benefits of digital transactions are to save environment, save time, save life, reduce corruption, black money & terrorist funding etc. To achieve global benchmark and compete with others develop nation, digital economy is one of the vital factors. Demonetization is one of the medium to increase cashless transactions in India because to create a suitable environment in a country towards digital economy. This study will help to analyze those people who accepting cashless transactions during demonetization period, they have been continuing the usage of cashless transactions or not till now and after post demonetization how much percentage new users use cashless transaction and analyze what is the present status of digital economy in India. The data will be collect for this study from primary source such as use of questionnaire. The methodology adopted for the study such as descriptive as well as analytical in nature e.g. paired t test & chi-square test.

**Keywords:** cashless transaction, digital economy, demonetization, digital means, card payment

### Introduction

The word 'Demonetization' is basically the combination of two words wherein 'de' refers to banning of currency notes while 'monetization' connotes increase of cash flow in the economy. In a broader sense, demonetization means termination of legal tender of currency notes in the economy of a country.

India has witnessed such a major reform in 1946 and 1978 prior to the recent one declared on 8th November, 2016 by the Government of India. The reasons for the note-ban were primarily to prevent black money, corruption and terrorism funding. Besides, other dimensions like encouragement of digitization, enhancement in the number of cashless transactions in the country, prevention of fake note circulation and introduction of Direct Benefit Transfer (DBT) schemes were some other motives that highlighted the declaration of demonetization.

In the contemporary era, the public is marching towards a cashless economy with an intention to minimize the usage of physical currency and promote digitization by using card payments/internet transfer instead of liquid cash.

Over the years, excessive cash circulation in the country has lead to rise in black money or money laundering, corruption, duplicacy of currency-notes, funding to terrorist organizations and many other such illegal activities. Now the new scheme of demonetization is believed to reap better benefits.

It is less time- consuming, instant, swift, error-free, cost-effective and eco-friendly.

On a whole, demonetization will pave a way for digitization that would help us in achieving a global benchmark amongst other countries of the world.

### Significance of the Study

Western Odisha consists of 10 districts. Sambalpur is one of the developed districts in Odisha. Sambalpur is the hub of education & healthcare facilities, industry, tourism, income etc. people of western Odisha. It is situated on the bank of the river Mahanadi. Hirakud Dam has been built across the river Mahanadi Sambalpur, Odisha. This dam is one of the longest man made earth dam in world. The Hirakud multipurpose project Dam plays a very important role in the life & well-being of the people of Odisha in the term of irrigation facilities, electricity generation, pisciculture, promotion of tourism & above all flood control. Odisha's economy is primarily agrarian in character. More than 60 percent of the working population depends on agriculture for their livelihood. To prevent the people from being looted or exploited by the middlemen & also for the transfer of the benefit in terms of subsidies & other welfare schemes directly to the beneficiaries, the role of cashless transaction is very important. In order to enable the benefits of several government- sponsored welfare schemes reach to the deserving and eligible beneficiaries and to prevent the diversion & pilferation of such funds, the role of cashless transaction is very important. Against these backdrops, the proposed study aims at making an in depth study on the Customers' perception towards Cashless transactions in post demonetization period. For the development of the state economy, the contribution of Sambalpur district is more important.

### Review of Literature

Gupta (2016) studied the growth of payment banks during the termination of legal tender of money. The emphasis of



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## INFLUENCE OF BRAND LOYALTY AND BRAND EQUITY THROUGH SOCIAL MEDIA MARKETING ON BUYING INTENTION TOWARDS ELECTRONIC HOME APPLIANCES

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### ABSTRACT

To grab the consumer base, marketers are devising strategies to integrate their advertising and marketing campaigns across multiple channels. Among these channels of marketing, social media continues to be the most preferred marketing tool. The objective of this paper is to study the impact of social media on consumer buying decisions, considering brand equity and brand loyalty in relation to electronic home appliances. In the present study, 497 respondents are collected through self-structured questionnaires. A model has been developed and tested using structural equation modeling. Thus, the study makes a significant contribution that will be helpful for marketers to improve the quality of their products and attain maximum consumer satisfaction. It is found that brand equity and brand loyalty have both direct and indirect impact through social media marketing on consumer buying intentions.

**Keywords:** *Social media marketing, buying intention, brand loyalty*

### INTRODUCTION

Today, marketers adopt a technological platform to attract consumers and to create an impact on their purchasing behaviour with a view to increase market value in the competitive world. Among all these platforms, social media has a high influence on purchasing behaviour (Kumar et al., 2020). The emerging demand of consumers compelled the industries to change their marketing strategies applying social media. Social media provides a communication channel where people can interact with each other and share their own consumption perspectives, product preferences, opinions, and experiences that affects their purchase decision (Aji et al., 2020). Moreover, social media helps in building relationships with customers and forming a positive image of the brands in the consumers' eyes. It's true for every non-traditional tool of marketing communications; social media is eagerly explored, dug up, and utilized by the companies. Thus, the industry needs to frame effective marketing strategies, using Social Media to rebuild in a positive way (Salem and Salem, 2019).





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प्रधान-संपादक

डॉ० सुनील कुमार मानस

संपादक

डॉ० योगेश कुमार तिवारी

प्रबंध-संपादक

श्री सुधीर कुमार तिवारी

# Recently Discovered Early Historical sites of Keonjhar District, Odisha

Dr. Paramatap Pradhan \*

Keonjhar district is located in the north eastern part of the Odisha, surrounded by Paschim Singhbhum district of Jharkhand in the north, Mayurbhanj, Balasore And Bhadrak districts in the east, Sundargarh And Angul in the west And Dhenkanal And Jajpur districts in the south.<sup>1</sup> It experiences three distinct seasons: Summer, Monsoon And winter. Typical summer months Are from February to June, with maximum temperatures ranging from 35 °C to 45 °C. May is the warmest month in Keonjhar; Although summer doesn't end until May <sup>2</sup>. The city often receives heavy thundershowers in May (and humidity level remains high). It is situated in the strike line of coastal And hilly regions. It is surrounded by beautiful scenery of green hills. River Baitarani <sup>3</sup> which is A sacred river of Odisha, Also known As *Budha Ganga*, And is considered one of the oldest rivers in India runs through this district. During the ruling of Keshari dynasty in Odisha many temples of Shiva were constructed Along the banks of this river which made this district famous in the field of tourism. So many temples of Lord Shiva can be found from this district such As Jhadeswara temple, Balunkeswara Temple, Uttareswara temple, Kushaleswara Temple, Kundeswara temples And others. Kushaleswara Temple was built by Jajati Keshari.

In this research paper I want to present before you About my field exploration in this region. Mainly I would like to take your Attention on early historical sites which Are explored by me And this will encourage other researchers those who Are working on early history of Odisha As well As on Buddhism And Jainism in this region. Because I have reported so many Buddhist And Jain Sculptures from my exploration. The detailed information of explored sites discussed below;

**Bancho** (21° 10' 34''N – 86° 11' 30''E):- This site is situated on left bank of the river Baitarani And 8 KM far Away from the Anandapur block. From this Area I have collected so many potsherds of red ware And black ware. Among the potsherds shapes Are like vase, spouts And handi etc (drawing of the potsherds given below in Fig-3). From the excavation of Kankia like this type of potsherds reported <sup>4</sup>. From this site so many sculptures of different god And goddess of Buddhism (Fig-1&2) And Jainism reported, which Are worshiped by the villagers.



Fig-1&2: Buddhist God Avalokiteswar from Bancho

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The Editor is not responsible for the opinion and facts expressed by the contributors.

**Front cover** : ● Sadakshari-Lokeshvara (Avalokiteshvara) Bronze, Sirpur, c. 7th-8th A.D.

**Back cover** : ● Rock Paintings of Khamamada (Bhudumati) shelter in Korba District, Chhattisgarh  
● Rock Paintings of Barahajhariya shelter in Korba District, Chhattisgarh

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19.	छत्तीसगढ़ के प्राचीन मन्दिरों में अंकित शाक्त प्रतिमाओं में नाट्यशास्त्रीय मुद्राओं का अंकन डॉ. शुभि भंडारी	120-125
20.	छत्तीसगढ़ में अगहन वृहस्पति पर भूमिचित्रण अंकुश कुमार देवांगन	126-130
21.	ओड़गी क्षेत्र का पुरातात्विक स्थल : बालमगढ़ पहाड़ अजय कुमार चतुर्वेदी	131-135
22.	जोंक नदी घाटी में जल-व्यापार विजय कुमार शर्मा	136-138
23.	कबीरदास जिले में प्राप्त स्मार्त-लिंग डॉ. रितेश कुमार साहू	139-140
24.	अजय शास्त्रीय सीमाओं से प्रभावित बस्तर की प्रतिमायें (पुरातात्विक दृष्टि से) अजय कुमार चतुर्वेदी एवं मोहन कुमार साहू	141-145
25.	ऐतिहासिक और पौराणिक संदर्भ में नगरी-सिंहावा आदित्य प्रताप सिंह	146-151

### अंग्रेजी खण्ड English Section

26.	Rare Rock-cut Sculptures of Water carriers on <i>Vihangika</i> from Kalanjara Dr. S.K. Sullerey	152-155
27.	Kings, Religion, Charity & Sustainable Development in Medieval South India Dr. S. Chandni Bi	156-169
28.	Religious Life in Central India during C. 6 <sup>th</sup> -7 <sup>th</sup> A.D. under the Minor Dynasties: The Process of Syncretisation & Assimilation of Popular Divinities into Brahmanical Fold Dr. Amitabh Kumar	170-176
29.	Kushana Archaeological Sites in Kashmir Region: A Probe Dr. Arjun Singh	177-181
30.	Agnisukta ( <i>Rv</i> , I.1): A Critical Study on the basis of Traditional Commentaries Dr. Manasi Sahoo	182-185
31.	Re-appraisal of Odishan <i>Śilpa-śāstras</i> : Queries in the Ethos of Odia Identity and Ascertain to the <i>Kalinganā</i> School of Art Dr. Santosh Kumar Mallik	186-192
32.	Archaeological Study of Painted Rock-shelter of Siroli-Dongari, Raigarh District, Chhattisgarh Prof. Dinesh Nandini Parihar and Md. Zakir Khan	193-196
33.	Brick Structures from Eastern Vidarbha during 5 <sup>th</sup> to 8 <sup>th</sup> Century C.E. K.S. Chandra	197-206
34.	Early Punch-marked Coins from Chhattisgarh: An Analytical Study Sandip Pan	207-213
	Notes and News	214-232
	Book-reviews	233-238
	Obituary	239-240

## Re-appraisal of Odishan Silpa-Sastras : Queries in the Ethos of Odia Identity and Ascertain to the Kalingana School of Art

Dr. Santosh Kumar Mallik\*

### Abstract

The Odisha temple purposes to be a symbolic model of the cosmos in building a temple the architect tended to bring down the Cosmic Powers, who being the guiding entities. Have the task to help the evolution of humanity. Hence one can guess that the figures, the engravings, the erotic sculptures that decorate the Indian temple, had an intermediate function in-as-much they were sensible form a super sensible Eros, whatever may be in the context of temple of Odisha or in pan-Indian context these are trustworthy on the unambiguous in sequence or knowledge box or we can contextualize these are 'sources' or 'texts', that 'texts' are mostly interrelated with the temple construction activities, architectural features, sculptural fragrances, stylistic development and iconographical inquisitiveness. These Odishan own texts are mostly indigenous in nature. In this present context of this essay mainly reveals and going to discussion of the Odia *Śilpa-śāstras* (Canon of Architecture) and identify of the Odia identity.

**Key words :** Odisha, Temple, Art, Architecture, Sculpture, Iconography, *Śilpa-śāstras*, Icons, Erotic, *Nayika*, Secular, Sac-Religious.

The context of temples of Odisha or in pan-Indian context these are trustworthy on the unambiguous in sequence or knowledge box or we can contextualize these are 'sources' or 'texts', that 'texts' are mostly interrelated with the temple construction activities, architectural features, sculptural fragrances, stylistic development, and iconographical inquisitiveness. These Odishan own texts are mostly indigenous in nature. In this present context of this essay mainly reveals and going to discussion of the Odia *Śilpa-śāstras* (Canon of Architecture) and identify of the Odia identity.

Sources are vital for any kind of research. It consists of reach visual resource, temples, inscriptions and manuscripts paintings as an important primary source and along with other sources. The extent remain of the temples throughout Odisha from 6th CAD to 14th CAD, are main sources of information. The temples in Odisha between 6th CAD and 14th CAD have

been categorized into three: the early phase (6th-9th CAD), the mature phase (10th-12th CAD), and the climax phase (12th-14th CAD). Some prominent temples belong to early phase are Paraśurāmeśvara, Śiśireśvara, and Vaitāla Temple. The temples like Mukteśvara, Rājārāṇī, and Lingarāja are belonging to the mature phase. In the climax phase, the temples like Jagannātha temple of Puri, Chāṭeśvara temple of Cuttack, and Jaleśvara temple of Khurda are note-worthy.

As far written sources are concerned, manuscripts form important rich resources for the present study. The religious text like *Ekāmra Purāṇa*, *Ekāmra Chandrika*, *Svarṇnādrī Mahodhya*, *Kapila Samhitā*, *Śiva Purāṇa* though beginning to later period, but are useful in throwing light on the concerned period, Yuan Chwang's itinerary *Sie-Yue-Ki* is another vital account for the socio-religious situation of Odisha and particularly the region ruled by famous dynasties with a diverse territorial

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## Characterization of hybrid metal matrix aluminum with boron carbide and graphite

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### Abstract

The importance of reinforced particle with aluminium metal matrix is to study and predict in the enhancement of mechanical properties like tensile and tribological property. Metal matrix composites (MMCs) constitute an important class of design and weight-efficient structural materials that are encouraging every sphere of engineering applications. There has been an increasing interest in composites containing low density and low cost reinforcements. With the increasing demand of light-weight materials in the emerging industrial applications, fabrication of aluminum-boron carbide with graphite composites is required. In this context aluminum - boron carbide with graphite composites were fabricated by stir casting with different particulate composition of B<sub>4</sub>C (5%, 10%). Microstructure analysis was done with scanning electron microscope. With the increase the amount of the boron carbide, the density of the composites decreased whereas the hardness is increased. The ultimate compressive strength of the composites was increased with increase in the weight percentage of the boron carbide in the composites.

**Key words:** Aluminum alloy, Boron carbide, graphite, stir casting, SEM, Mechanical properties.

### Introduction

Metal Matrix Composites (MMCs) have emerged as an important class of materials and are increasingly utilized in various engineering applications, such as aerospace, marine, automobile and turbine compressor engineering, which require materials offering a combination of light weight with considerably accelerated mechanical and physical properties such as strength, toughness, stiffness and resistance to high temperature. Aluminum is the most frequently use matrix material due to its low density. Because of its extreme hardness and temperature resistant properties, B<sub>4</sub>C, graphite are often used as reinforcement

**S. Rama Rao.et.al (1)** absorbed that the production of aluminium with boron carbide reinforcement material will improves the some mechanical properties like hardness, tensile strength.....etc. and the density is reduced. According to **Rohit Kumar et.al (2)**, the yield strength and tensile strength of the composites decrease with increasing the volume fraction of the B<sub>4</sub>C particles, while the hardness of the composites increases with increasing the volume fraction of the B<sub>4</sub>C particles so that impact strength increases with increase in volume fraction of reinforcement at a certain limit (upto10 %) after starts decreasing. **G.G. Sozhamannan et.al (3)** observed that production of Aluminium composite reinforced

## IOT based mobile application developed for water and power monitoring in residential building

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### Abstract

The earth is known as "Blue Planet" as 71 % of the Earth's surface is covered with water. However, earth has an abundance of water, but unfortunately; only, a small percentage (0.3%) of water is eligible for use by humans. The other 99.7 % is in the oceans, soils, icecaps, and floating in the atmosphere. Most of the water used by humans comes from rivers. Water is the most valuable natural resource essential for living. Its basic human need in all economic operations like generation of power, agriculture, industries, and mining are all critical economic areas. Water supplies are under severe strain. With the population increase, the requirement for water from competing economic sectors is increased. Similarly, even electricity is very essential commodity of our lives and its generated using the water, which has gained equal importance as water as we need electricity to run various technologies in our day-to-day life, so the conservation of water plays a vital role in the development of the society and therefore every citizen is responsible for the conservation of these resources.

Therefore, information technology methods and internet communication technologies (ICT) play in water resources managing to limit the excessive waste of fresh water and to control and monitor water pollution. In this paper, a mobile app is built using the internet of things (IoT) as a communication technology that controls the preservation of the available amount of water and not wastes it by homeowners.

**Keywords:** water management, water conservation, IoT, microcontroller, sensors.

### I.INTRODUCTION

Water management along with the power management the most important thing in human lives like use of water, food production, treatment of wastewater, cleaning, irrigation, energy balance. Water supply management has always been a source of many challenges. There are 32 billion cubic meters of treated water being lost each year from urban supplies systems in the developing world [10]. Intelligent monitoring is defined using different computational methods that provide the customers with relevant





Keshab Chandra  
Ratha

## Interpreting Citizenship Amendment Act: Its Content and Context

Authors	Keshab Chandra Rath
Publication date	2021/12
Journal	Indian Journal of Public Administration
Volume	67
Issue	4
Pages	559-572
Publisher	SAGE Publications
Description	India is endowed with a proud history of inclusive government and religious tolerance. Indian citizenship has always been firmly rooted in the country's constitution, which lays priority on equality, regardless of gender, caste, religion, class, community or language. Attaching citizenship rights to religious affiliation runs counter to the letter and spirit of India's Constitution and constitutional morality. The major thrust of the present article is to project government's stance on the Citizenship Amendment Act, 2019, constitutional provisions in relation to the Act, thematic arguments of critics and constitutional experts on the matter, multifarious challenges ahead in respect of its implementation, by establishing the fact that any measure taken must remain in conformity with international norms and values and necessity of amending the law to do away with the arbitrary selection of countries and religious groups so that the current ...

Total citations **Cited by 7**



Scholar articles [Interpreting Citizenship Amendment Act: Its Content and Context](#)  
[KC Rath, Indian Journal of Public Administration, 2021](#)

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# **PUBLIC ADMINISTRATION REVIEW**

## **July-December 2021**

**Department of Public Administration**  
**Utkal University, Vani Vihar, Bhubaneswar**

# EMPOWERING TRANSGENDER COMMUNITY IN POST-INDEPENDENT ODISHA: A POLICY PERSPECTIVE

*Subhasandhya Sahoo & Gyanaranjan Swain*

---

## **Abstract**

*The globalized world has been marked with high development in every aspect; still, some sections remain in invisible form. In the developmental and egalitarian society, the question is always raised whether every section in the community get respectful life or not? Transgenders are one of the discriminated sections which are continuously struggling for their existence. There is a need to realize their inherent capability and provide the scope to develop their skill. The government has taken various progressive policies but has failed to change the outlook and attitude towards transgender people. So, as long as social identity and recognition are not practised in reality in their life, the legal recognition and welfare policies become meaningless. These efforts of Odisha government towards the progressive policies for ensuring a dignified life to them is not less significant. In this paper, the researcher has focused on the indicators that are required in the process of empowering transgender people in Odisha, welfare policies taken by Odisha government in the post-independent era, tried to put Iris Marion young's social justice framework and Amartya Sen's capability approach to understand the empowerment of transgender people, and adopted an opportunity and scope-based model instead of only focusing on the right based approach. This paper also critically analyses the efforts taken by the Odisha government for the welfare of transgender people, the problem behind the existence of welfare policies, and the other initiatives required to empower the transgender people in Odisha. In this paper, the researcher intends to achieve a fair, equal and prosperous society by providing equal voice and participation opportunities. So, inclusive policies and programs can ensure dignity, liberty, equality and freedom for transgender people.*

**Keywords:** *Transgender Community, public policy, opportunity and scope, empowerment, social justice*

## **Understanding the Identity of Transgender Community:**

The existence of transgender identity is not a recent origin; rather, it has existed from an early period. The evidence behind the existence of transgender identity is found in



**Governance and Management of Religious Tourism:**

**A Case Study of Vaishno Devi (Katra, J&K)**

**Prof. Gyanaranajn Swain**

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**Prof. Asima Sahu**

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**Dr. Tapan Bihari**

*Centre for Political Studies, JNU, New Delhi*

**Abstract**

Tourism sector is one of the important tools for economic development as well as it strengthens bonds of fraternity among people. Due to covid19 Foreign Tourists Arrivals during last 2/3 year gradually decreased but still domestic tourism and tourism sector have significant impact on Indian Economy. There are various tourist destinations but among them few are very important from tourist point of view. In this paper researcher took Vaishno Devi as case study for discussing management of Shrine Board Activity. Vaishno Devi Shrine Board is one of the most important places due to various aspects such as spiritual important, economic impact, livelihood of many people. The growing tourism industry has significant impact on every sphere of a state and Shrine Board also provide various kind of service to better serve tourists in response to growing tourist inflow but time to time incident put a question mark on security management of shrine board. This paper aims to address this security management issue in details. Security and Governance system is the most important factor for any tourist place and in this paper researcher discuss about tourists perception regarding shrine board management and some common issues.

**Keyword:** Management, Governance Vaishno Devi Shrine Board, Satisfaction, Security

**Introduction:**

Spirituality and Religion are the most important motivated factor for Tour & Travel and it also plays a crucial role to generate employment as well as it served as a source of revenue generation. As per Ministry of Tourism Annual Report data tourism sector contributed approx 5% in GDP and it also provided 12.95% which was constituted 88.72 Million jobs in India (Ministry of Tourism, 2021) .

In India tourism is mainly religious tourism, people mostly prefer temple and religious

sites while choosing their tourist destination. First survey of National Council of Applied Economic Research in 2003 regarding ranking of pilgrimage sites, top 5 destination are Hindu Pilgrimage Site such as Tirupati Tirumala, Puri Jagannath Temple, Vaishno Devi Shrine Board, Haridwar and Mathura(Shinde, 2015). In this paper Researcher focus on the Governance system of Shri Mata Vaishno Devi Shrine Board. Shri Mata Vaishno Devi Temple of Katra, Jammu & Kashmir is a most popular destination among in India. Since establishment of Shri Mata Vaishno Devi

# LIBERAL STUDIES

*Vol. 6, Issue 2 / July-December 2021*



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## **Pandit Deendayal Energy University (PDEU)**

PDEU has been promoted by partnership of Government, industry and energy to create a world class University in energy education and research with special focus on the oil and gas sector. The university has further expanded its programs to address the need for trained human resource in the domains of engineering, management and humanities. It intends to broaden the opportunities for students and professionals to develop core subject knowledge which are duly complemented by leadership training interventions, thereby helping the students to make a mark in the global arena.

This objective is being further addressed through a number of specialized and well-planned undergraduate, post-graduate and doctoral programs as well as intensive research projects. PDEU has been established by Gujarat Energy Resource Management Institute (GERMI) as a private university through the State Act enacted on 4 April 2007.

## **School of Liberal Studies (SLS)**

PDEU has launched School of Liberal Studies which currently offers degree programs in UG, PG and Ph.D. that equips a student to develop an array of intellectual skills, a variety of methodologies and ways of understanding our changing world, and a broad base of varied knowledge. In turn, such a Liberal Education establishes an invaluable foundation for more specialized study in one's major or in one of the professions, and for a life-long affinity for learning and continuing intellectual development.

The course imparts classical education in various fields like art, literature, languages, music, dramatics, philosophy, politics, history, law, mathematics, science, business, commerce, communication and general studies. It emphasizes on the need to seek knowledge for promoting intellectual growth, creative expression and rational thought.



# Contents

---

## Experts Speak

### INDIA'S ENERGY SECURITY IN A CARBON CONSTRAINED WORLD

**Manoj Kumar**

*India in the Forefront of International Climate Leadership* ..... 129

**Manish Vaid**

*India Needs to Articulate a Time-Bound Strategy* ..... 139

**Prachi Lokhande**

*Nuclear Energy could be the Answer to India's Energy Woes* ..... 151

## Articles

**Debidatta Aurobinda Mahapatra**

*Moral Realism: An Engagement with Gandhi* ..... 161

**Gyanaranjan Swain, Baijayanti Naik**

*'Bhoodan Movement' in Odisha and Nabakrushna Choudhury* ..... 181

**Manish, Sumedh Pardhe**

*The Rise of Taliban 2.0: Implications for the Region* ..... 193

**Monica Verma, Divya Anand**

*The Political-Economy of Sino-Pakistan Cooperation under CPEC:  
Development Game Changer or Advantage Military?* ..... 205

## Book Reviews

**Sharmistha Hazra**

*India's China Challenge: A Journey Through China's Rise and What It Means for  
India*, by Ananth Krishnan, 2020. .... 225

**Nisarg Jani**

*The Long Game: China's Grand Strategy to Displace American Order*, by Rushi  
Doshi, 2021. .... 229

**Gyanaranjan Swain\***

**Baijayanti Naik\*\***

## ***‘Bhoodan Movement’ in Odisha and Nabakrushna Choudhury***

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### **Abstract**

*‘Bhoodan Movement’, initiated by Acharya Vinoba Bhave in 1951, had influenced so many mass leaders, youth, politicians and common people who considered peaceful and voluntary land donation as a means to eradicate land inequality issues of landless poor people. Nabakrushna Choudhury, the then Chief Minister of Odisha, was one among them who had strong commitment for land reform. He was the one and only Chief Minister of in India who resigned from his post to actively participate in the movement. He had made legislative measures to facilitate the movement when he was in power. His resignation had major impacts on the Bhoodan Movement of Odisha. Subsequently he also disassociated with the movement. Here an attempt is made to analyze and critically evaluate the role of Nabakrushna Choudhury in Bhoodan Movement in Odisha.*

**Keywords:** *Bhoodan movement, Nabakrushna Choudhury, Vinoba Bhave, agrarian reform, Odisha*

### **Introduction**

‘Bhoodan Movement’ or land gift movement was an attempt to provide lands to the landless by adopting the Gandhian methods of non-violence and peace. Acharya Vinoba Bhave, an ardent follower of Mahatma Gandhi was the chief architect of this movement which is also known as the Bloodless Revolution. As this movement was the brainchild of Acharya Vinoba, he is also called as the father of Bhoodan Movement. Odisha was one among the Indian provinces where the land gift movement had its effect to a great extent. During the initial years of Bhoodan Movement Nabakrushna Choudhury was the Chief Minister

---

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\*\* **Baijayanti Naik** is a PhD Scholar, Department of Political Science, Gangadhar Meher University, Sambalpur, Odisha, India.

## 12. COVID-19 Pandemic and Issues of Migrant Labourers in India

**Dr. Sanjukta Padhi**

Assistant Professor, School of Psychology, Gangadhar Meher University, Amruta Vihar, Odisha, Sambalpur.

---

### **Abstract**

The depression induced by COVID-19 might be long, deep, and pervasive when viewed through a migration lens. Lockdowns, travel bans, and social distancing have brought global economic activities to a near standstill. Host countries face additional challenges in many sectors, like health and agriculture that depend upon the supply of migrant workers. Migrants face the danger of contagion and also the possible loss of employment, wages, and insurance coverage. Considering that migrants tend to be concentrated in urban economic centers (cities), and are vulnerable to infection by the corona virus, there is a requirement to include migrants in efforts to fight the corona virus. Migrant remittances provide an economic lifeline to poor households in many countries; a reduction in remittance flows could increase poverty and reduce households' access to much-needed health services. The crisis could exacerbate xenophobic, discriminatory treatment of migrants, which involves greater vigilance against such practices.. The magnitude of internal migration is about two-and-a-half times that of international migration. Lockdowns, loss of employment, and social distancing prompted a chaotic and painful process of mass return for internal migrants in India and it gives birth to many personal and social issues.

**Keywords:** - pervasive, lockdowns, standstill, contagion, prognosis, remittances, containment, epidemic.

### **Introduction**

Migrants are less familiar in their new environment during which they temporarily live. They're susceptible to various social, psychological and emotional trauma in such situations, emanating from fear of neglect by the local community and concerns about wellbeing and safety of their families waiting in their native places. Migrants are forced to leave their native places in search of better opportunities and earnings, sometime leaving behind their families. In many



## DETERMINING THE ASSOCIATION AMONG SOCIAL SUPPORT, STRESS AND MENTAL HEALTH OF WOMEN ATHLETES IN ODISHA

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### Abstract

The relationship among social support, stress and mental health of women athletes in Kaling Institute of Social Sciences (KISS), Odisha were measured in this study. The sample comprises of 120 women student athletes of different age groups. Subjects were randomly selected after obtaining their informed consent to participate in this study. The Multidimensional Scale of Social Support, Perceived Stress Scale and Mental Health Continuum Short Form (MHC-SF) were used to collect data from the participants. The social support and Perceived stress were associated with the mental health of women athletes. Positive significant relationships were found between the social support and mental health of women athletes and a negative significant relationship was found between stress and mental health of women athletes. The study concluded that the women athletes' perceived stress and social support significantly influence to their mental health.

Keyword: Social Support, Stress, Mental Health, Women Athletes

# Understanding Peoples' Sentiment During Different Phases of COVID-19 Lockdown in India: A Text Mining Approach

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## ABSTRACT

During a global pandemic like COVID-19, the success of governmental policies depends on the people's sentiments and extended cooperation towards these policies. Therefore, this study explores the prevalent discourse in social media about different aspects of the COVID-19 pandemic and the policies to manage and control it. Data from Twitter collected between 25 March 2020 and 1 July 2020 was used for topic modelling and sentiment analysis. Natural language processing-based text mining techniques were used for analysis. This study first identified different frequent COVID-19-related topics and then analyzed how the sentiments towards these topics differ across different phases of lockdown. Further, insights into how different topics were perceived by gender and age group are also discussed in this study. Finally, this study also analyzed how daily casualty due to COVID-19 influenced the public sentiments and number of daily tweets. The study provides a robust NLP-based text mining framework to predict the people's sentiment during COVID-19 lockdown in India. The insights presented in this study can help the authorities mitigate the COVID-19 pandemic effectively and help different agencies in the face of similar pandemics in the future.

## KEYWORDS

COVID-19, India, Sentiment Analysis, Text Mining, Topic Modelling

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(A Double Blind Refereed &amp; Reviewed International Journal)

DOI: **10.5958/2278-4853.2020.00212.8****REVIEWING THE BENEFITS OF YOGA AS AN APPROACH OF  
INDIGENOUS PSYCHOLOGY DURING THE COVID-19 PANDEMIC****Rupashree Goswami\***\*Dept. of Psychology M University,  
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**ABSTRACT**

*Indigenous Psychology always studies people in natural surroundings. It gives importance to understand and study the behaviour according to the culture of native people. It examines the psychological phenomena in real and cultural circumstances. Indigenous psychology is very important for all cultural and racial groups. There is a close relationship between yoga and Indigenous psychology. Yoga is the most important branch of Indian psychology. Yoga is the union of physical, mental and spiritual aspects. The spread of Covid-19 focuses on building immunity. Yoga enhances the immunity power and quality of life. During the Covid-19 crisis, the people have a lot of spare time for themselves and yoga. So, they should do yoga in a regular basis to beat Covid-19. This paper will review how yoga (some important asanas and pranayams) would help to improve the body's immune system. Since no medicines and vaccines have discovered for Covid till today, the yoga can be beneficial to beat Corona Virus Disease- 19.*



## EFFECT OF DEPRESSION LEVELS ON NEUROPSYCHOLOGICAL FUNCTIONS OF STROKE PATIENTS

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**Abstract-** The study is investigating the neuropsychological deficits in such patients to quantify the incidence of cognitive impairment, cerebrovascular risk factors, previous strokes, neurological conditions, and neuroimaging patterns as well as behavioral and psychological aspects. Current study is exploring the interconnection and causal relationship between the depression and neuropsychological functions of the stroke patients. This study has been approved by the Human ethics committee of hosted institution. The study has adopted experimental clinical research the subject is 75 stroke patients from 20 to 70 year old. While hospitalized, all the patients underwent a daily clinical examination and detected etiopathogenetic causes of stroke. After a 1 - 6 month period after stroke onset, all the patients completed NIMHANS Neuropsychological Battery by Shobini L. Rao, et.al. For the assessments of depression aspects we have used the tool Beck Depression Inventory (Beck, 1966). Results found that there is no significance difference between Neuropsychological functions and levels of depression of stroke patients.

**Keywords:** Neuropsychological functions, Depression, stroke patients and Adults

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### INTRODUCTION

Stroke is defined as "a syndrome of rapidly developing symptoms and signs of focal, and at times global, loss of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than that of vascular origin" (World Health Organization, 1988). The most beneficial factor of neuropsychological assessment is that it provides an accurate diagnosis of the disorder for the patient when it is unclear to the psychologist what exactly he/she has. This allows for accurate treatment later on in the process because treatment is driven by the exact symptoms of the disorder and how a specific patient may react to different treatments. The assessment allows the psychologist and patient to understand the severity of the deficit and to allow better decision-making by both parties. It is also helpful in understanding deteriorating diseases because the patient can be assessed multiple times to see how the disorder is progressing. Neuropsychological functions are attention and concentration; motor speed; executive functions such as planning ability, category fluency, phonemic fluency, working memory, set shifting and response inhibition, verbal learning and memory; visual learning and

memory; expressive and receptive speech; visuo-constructive ability; and focal signs.

World Health Organization defined "Depression is a common mental disorder, characterized by persistent sadness and a loss of interest in activities that you normally enjoy, accompanied by an inability to carry out daily activities, for at least two weeks". Depressive disorders often follow a stroke. The reported prevalence vary widely from less than 25% to more than 60% depending on the selection of patients, the time elapsed since the stroke, and different diagnostic criteria. Numerous studies, recently summarized, (House, 1987; Starkstein SE, et.al., 1989) have given conflicting information not only on prevalence but also on pathogenesis and course of the depressive disorders after stroke. The disorder has been explained as an understandable response of patients to their losses (Binder 1984). From a neurobiological viewpoint, the importance of lesion location has been emphasized (Robinson RG, et.al, 1981; Robinson RG, et.al, 1982; House A, 1990). The contributions of physical impairment and psychosocial factors to depression after stroke are less well known and probably change overtime. Robinson RG, et.al, 1982; Parikh RM, 1987).

NIMHANS neuropsychological battery and psychological tests used. SPSS was employed for statistical analyses.

### METHOD

**Research design:** This study is adopted cross sectional research design. Method of sampling was purposive sampling. Scoring was done as per manuals of the



## समाज के विविध आयामों की झूँकी : एक सत्ची-झूठी गाथा

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हिंदी साहित्य जगत में अलका सत्ची का महत्वपूर्ण स्थान है। कृष्ण मोहरी, रामेश्वर शर्मा, राजेंद्र पाण्डे, उषा त्रिवेदी, कमलेश्वर, निर्मल वर्मा आदि अपने समयकालीन हस्तधर्मों में अलका जी ने अपनी एक विशिष्ट पहचान बनाई है। उन्होंने जब भी अपनी कलम चलाई तब-तब विषयों को चुना। अलका सत्ची के अब तक सत्र उपन्यास और दो कहानी-संग्रह प्रकाशित हो चुके हैं। अलका सत्ची को प्रथम उपन्यास 'कलिकटा-बाघ-बाईघम' के लिए साहित्य अकादमी पुरस्कार, श्रीकरीत वर्मा पुरस्कार से सम्मानित किया गया है।

एक अलग तरह की कथा लेकर अलका सत्ची का उपन्यास 'एक सत्ची झूठी गाथा' हमारे सामने आता है। यह उपन्यास आधुनिक दुनिया से घटके, बौद्ध संस्था, धर्मशास्त्र, धर्म-प्राप्ति के संबंध, समाज की व्यवस्था से लोगों को कड़क करता है। उपन्यास की रचना का एक लेखिका है। ई-मेल के माध्यम से प्रेषित सन्देश के साथ जुड़ बैठती है। ई-मेल के माध्यम से लोगों के बीच बलवर्धित आने लगती है। पूरा उपन्यास गाथा और प्रेषित के ई-मेल के बीच हुए संवादों को लेकर लिखा गया है। उपन्यास की रचना गाथा आधुनिक दुनिया से बने रोमांच प्रेषित साधना से मिलने वाली जाती है। लेखिका इस उपन्यास के माध्यम से यह कहना चाहती है कि आधुनिक दुनिया के माध्यम से बने रहित साधनाओं की तरह सौंदर्य होते हैं। इस दुनिया पर शीघ्र विश्वास नहीं किया जा सकता है। जो इस दुनिया पर विश्वास कर लेता है। वह गाथा की भीति आधुनिक दुनिया के विश्व की प्रतीति ही करता रहता है। 'ऐसा कभी आज तक उसके साथ नहीं हुआ। तमाम छोटे-बड़े कार्यों और अपनी जानी-पहचानी दुनिया छोड़कर जिसके पास आए, वह लेने तक न आए। ऊपर से अपना कौन भी बंद रखे। आज जब सत्ची-प्राप्ति वाले का योग तक कभी बंद नहीं मिलता, एक पढ़ा-लिखा तमाम अपने पोर को बंद न रखे। ऐसा कैसे हो सकता है? जिसने का बंद एक पोर पर इसा भरोसा करके चलना आज ही बन गई है।'

आज के दौर में मनुष्य स्वयं को आधुनिकता की ओर ले जा रहा है। दूसरों के साथ कंधे-से-कंधा मिलाकर चलने का प्रयास करता है। मनुष्य अपने अधःपतन के संकेतों से दूर हटकर संतान मीथिया से बने संकेतों को अपना रहा है। संतान मीथिया-पेसबुक, जस्टिस, ईमेल, टेलीग्राम, ट्विटर, ईमेल के माध्यम से अधिष्ठित अनजाने लोगों से दोस्ती बढ़ा रहा है। मनुष्य यह नहीं सोचता कि वह दोस्ती किसी भी साधना के इमान के साथ हो सकती है। वह एक ऐसा माध्यम है जहाँ कोई भी व्यक्ति अपने नाम, उम्र और पते को छुपकर किसी भी व्यक्ति को बुलाए कर सकता है। गाथा के माध्यम से लेखिका साधना जगत से परिचित कराती है। गाथा की भीति कोई भी व्यक्ति इस धोखे का शिकार हो सकता है। ई-मेल के माध्यम से बात करके गाथा जब प्रेषित से मिलने जाती है वहाँ उसे धोखा मिलता है। तब गाथा संकेत लगती है। 'कितना अधम है कंप्यूटर-लैपटॉप के पीछे अपना नाम, उम्र, अपना पूरा कपड़ों अलका कुछ और बन जाता।'

## अलका सरावगी कृत शोध कादम्बरी उपन्यास में महानगरीयबोध

□ मृगि सारिका जेठ

### शोध सारांश

अलका सरावगी कृत 'शोध कादम्बरी' उपन्यास की कथा महानगरीय स्वरूप के विभिन्न आयामों की ऐसी कथा है, जो एक स्तर जीव गरी स्त्री गुप्ता जर्ग स्त्री की के माध्यम से समाज में हो रहे परिवर्तनों को प्रस्तुत करता है। औद्योगीकरण, पूँजीवादी व्यवस्था, उपभोक्तावादी संस्कृति आदि के कारण हमारे जीवन फैली में परिवर्तन हुआ है। यह उपन्यास महानगरीय परिवेश के विभिन्न समस्या-अकेलेपन, आत्महत्या की प्रवृत्ति, झाले-मुख मानवीय मूल्य, पति-पत्नी के सम्बन्धों में तनाव आदि से लोगों को रू-ब-रू कराता है।  
**Keywords:** महानगरीय बोध, अकेलेपन, आत्महत्या की प्रवृत्ति

महानगर की विशाल जनसंख्या में व्यक्ति को अत्यधिक बेहतर उपलब्धित दिखाई देता है। कहीं का वास्तविक परिदृश उन्हें अकेलेपन का अहसास कराता है। इस अकेलेपन के विषय में डॉ. प्रेमाकर कहते हैं- "सामाजिक असन्तुष्ट तथा एकलवास शब्दों से युक्त अस्तित्व रखता है। व्यक्ति के माध्य जो अलनक्षीपन और असाधन है, वही अकेलापन है। व्यक्ति का समाज, परिवार, समुदाय तथा बीड़ से अलग रहना ही अकेलापन है। व्यक्ति-व्यक्ति के माध्य की पहचान खो जाना ही अलनक्षीपन का लक्षण है। अलनक्षीपन से ही अकेलेपन की अनुभूति होती है। अकेलापन मनोविकार है जो कि सामाजिक शिक्षा से उत्पन्न होता है।" इस उपन्यास का पात्र स्त्री की जिन्दगी को अकेलेपन का चिह्न होती है। ग्यारह वर्ष की उम्र में कानपुर के माय-मायों के घर से स्त्री को चला आता है उसके लता-पिता उसके माय-मायों है। तब वह 'आईडेंटिटी प्रवृत्ति' की चिह्न होती है। स्त्री की अपने को बेचिखे और नातिन कादम्बरी के होते हुए भी जीवन में अकेली हो जाती है। स्त्री अपने बारे में कहती है, "स्त्री गुप्ता से ज्यादा अकेलेपन को किलने इतने लम्बे राग-साध में जाना है-दुनिया और अपने होने की सम्झ के साध-साध उपज हो अकेलापन।" यही अकेलेपन की कथा को सुझता, गहराई एवं सफलता के साथ प्रस्तुत किया गया है। राशुराल में अथमन्त्रित और अकेलेपन के कारण स्त्री की मानसिक तनाव होती है। डॉ. डेविस द्वारा दिये गये रंग-धिरंग, आकारहीन, बेहोशीन, रंगवाले कार्ड को देखते हुए स्त्री की कहती है- "मुझे इस कार्ड में एक चपक लिए हुए आदमी दिखाता है, जो किसी को कभी भी मार

सकता है।" अचानक स्त्री रोने लगी थी। सुबक-सुबक कर- "डॉक्टर, डॉक्टर, मेरे जीवन में कुछ बहुत बुरा होनेवाला है। मुझे मालूम है। रोज रात को मुझे ऐसा साध दिखाता है। इसलिए मैं कलकत्ते में रात को एकदम पथर हो जाती थी।"

समुद्र के जीवन में तनाव, कल का दबाव और महाराष्ट्र का भावना बढ़ रही है। व्यक्ति अपने जीवन में उत्पन्न हो रहे विभिन्न समस्याओं से लड़ना नहीं चाहता है। जिदगी की भाग दोड़ ने व्यक्ति को अकेलेपन की गति में डूबेल दिया है। इस अकेलेपन के लिए व्यक्ति महानगर में आत्महत्या की प्रवृत्ति को अपनाते लगता है। उपन्यास का पात्र स्त्री की विवाह के बाद सौतेली माय, नन्द केवली द्वारा प्रताड़ित होने के बाद मन्ने रोग की शिकार होती है। अकेले असन्तुष्ट में मनोचिकित्सक डॉ. डेविस स्त्री की का विभिन्न कहते हैं। स्टेटमेंट में मुद्र फ्रेंडल लोसाइटी के सचिव का राशुराल द्वारा निकाले गये 'अगर आपके मन में कभी भूले-भटक आत्महत्या का खयाल आता है, तो हमसे संपर्क करें। हमारी कोशिश होगी कि प्रभुका से हम आपको नया जीवन दे सकें।" विज्ञापन को देखकर स्त्री की अपने अकेलेपन से फल जीवन में मन में आ रहे आत्महत्या की प्रवृत्ति को दूर करने के लिए राशुराल से मिलती है। डॉ. बहावायें युद्ध अवस्था में अकेलेपन से तब अक्षर आत्महत्या कर लेते हैं। जगा जैन की बीरा जीवित की बिना किसी कारण से अपने जीवन की कीज को समाप्त कर देते हैं।

महानगरी में उच्च वर्ग के व्यक्ति को गुल सुविधाएं उपलब्ध है। महानगर में अधिकांश लोग निम्न स्तर का जीवन

# TOXIC EFFECTS OF TINPLATE CORROSION AND MITIGATION MEASURES IN CANNED FOODS

SHUBHRA PAREEK, DEEPTI JAIN, and DEBASIS BEHERA

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### ABSTRACT

Tin metal is widely used in packed canned foods and beverages packaging, largely due to less toxicity, corrosion resistivity, lubricity, lacquer ability, formability, solderability, and weldability. The integrity of tinplate (tin-iron alloy) comprises a coating of tin over both faces of carbon steel using various electrolytic processes. Moreover, for solid foods and beverages, 250 mg/kg for tin and 150 mg/kg for iron are recommended as maximum limits. Both the elements are toxic above these permissible concentrations. The excess doses of tin can induce serious digestive disturbances, gastrointestinal upsets, cancer in bones and tissues. The factors affecting corrosion failure and mitigation techniques for the prevention of corrosion in tin plate cans are discussed in this chapter.

### 9.1 INTRODUCTION

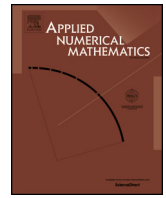
Transportation of processed food is an important consideration the shelf-life of foods. Moreover, excessive demand for agriculture production, food commodities has fueled the establishment of packaging industry throughout the globe. Tin (Sn) is a very ductile metal with a white color. It cannot be dissolved in water due to its low solubility [6]. Along with its use for food safety, tin also finds its application in bronze, brass, and pewter and shows anti-corrosive properties [20, 24, 41].

Non Commercial Use



Debasis Behera





# Mixed Fourier Legendre spectral Galerkin methods for two-dimensional Fredholm integral equations of the second kind

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## ABSTRACT

In this article, the mixed Fourier Legendre spectral Galerkin (MFLSG) methods are considered to solve the two-dimensional Fredholm integral equations (FIEs) on the Banach spaces with smooth kernel. The same methods are also considered to find the eigenvalues of the eigenvalue problems (EVPS) associated with the two-dimensional FIEs. Making use of these methods, we establish the error between the approximated solution as well as iterated approximate solution versus exact solution for two-dimensional FIEs in both  $L^2$  and  $L^\infty$  norms. We also establish the error between approximated eigen-values, eigen-vectors and iterated eigen-vectors and exact eigen-elements by MFLSG methods in  $L^2$  and  $L^\infty$  norms. The numerical illustrations are introduced for the error of these methods.

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## 1. Introduction

Denote  $\mathcal{J}_1 = [0, 2\pi]$ ,  $\mathcal{J}_2 = [-1, 1]$  and  $\Omega = \mathcal{J}_1 \times \mathcal{J}_2 \subset \mathbb{R}^2$ . The space  $\mathbb{X} = L^2(\Omega)$  is defined by

$$L^2(\Omega) = \{u | u : \Omega \rightarrow \mathbb{R} \text{ and } \|u\|_{L^2(\Omega)} < \infty\}$$

equipped with the inner product

$$\langle u, v \rangle_{L^2(\Omega)} = \int_{\mathcal{J}_1} \int_{\mathcal{J}_2} u(x, y) \overline{v(x, y)} dy dx.$$

and norm

$$\|u\|_{L^2(\Omega)} = \left( \int_{\mathcal{J}_1} \int_{\mathcal{J}_2} |u(x, y)|^2 dy dx \right)^{\frac{1}{2}}.$$

Consider the following integral operator  $\mathcal{T}$  defined on  $\mathbb{X}$  by

$$\mathcal{T}w(t, s) = \int_{\mathcal{J}_1} \int_{\mathcal{J}_2} \tau(t, s, x, y) w(x, y) dy dx, \quad (t, s) \in \Omega, \quad (1.1)$$

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# Chebyshev Spectral Projection Methods for Two-Dimensional Fredholm Integral Equations of Second Kind

Bijaya Laxmi Panigrahi<sup>1</sup> · Jitendra Kumar Malik<sup>2</sup>

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## Abstract

In this paper, we approximate the two-dimensional linear Fredholm integral equations (FIEs) with smooth kernels using Chebyshev spectral Galerkin and collocation methods. The existence and convergence analysis for the problem have been discussed. The errors between approximated solutions with exact solution have been evaluated in  $L^2_\omega$  norm applying both these methods. We also solve the associated eigenvalue problems (EVPs) by using above methods and obtain the errors between approximated eigenelements with the exact eigenelements in  $L^2_\omega$  and  $L^\infty_\omega$  norms. Numerical examples are presented to illustrate the theoretical results.

**Keywords** Eigenvalues · Eigenvectors · Fredholm integral equations · Compact integral operator · Chebyshev polynomials

## Introduction

Denote  $\Omega = [-1, 1] \times [-1, 1] \subset \mathbb{R}^2$ . Let  $\omega$  be a non negative, continuous and integrable real valued function on  $\Omega$ . Then the weighted space  $\mathbb{X} = L^2_\omega(\Omega)$  is defined by

$$L^2_\omega(\Omega) = \{u|u : \Omega \rightarrow \mathbb{R} \text{ and } \|u\|_{L^2_\omega} < \infty\}$$

equipped with the norm

$$\|u\|_{L^2_\omega} = \left( \int_\Omega |u(x, y)|^2 w(x, y) dx dy \right)^{\frac{1}{2}},$$

where  $w(x, y) = w_1(x)w_2(y)$  is the weight function on  $\Omega$  and  $w_1(x)$ ,  $w_2(y)$  are weight functions of variable  $x$  and  $y$  on  $[-1, 1]$ , respectively.

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# Modified Decomposition Method Based on Natural Transform for Solving Nonlinear Differential Equations Using Newton–Raphson Scheme

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## Abstract

In this article, we adopt the modified decomposition method (MDM) to find definite results of three different types of first order nonlinear ordinary differential equations that involves algebraic and transcendental functions and one second order ODE together with initial conditions. The MDM involves techniques of the natural transform method and also the algorithm of Adomian's decomposition method in which Adomian's polynomial is modified by involving Newton–Raphson scheme. We determine the series solutions by using MDM for each problem that converges to the exact solutions.

**Keywords** Natural transform · Newton–Raphson scheme · Adomian's polynomial · Riccati equation · Nonlinear differential equation

**Mathematics Subject Classification** 34A12 · 44A15 · 44A20 · 44A30 · 49M27

## Introduction

Differential equations are significantly used in many branches of science and engineering. Their applications we can find in fluid dynamics, fluid mechanics, physics [19], life science [20,21], economics [29] and biotechnology and many more areas. Since last decade, nonlinear differential equations draw attentions of researchers [6,7,22,26] towards their analytical and numerical solutions. There are many models that involves nonlinear differential equations used to explain real world problems [4,12,14,16,17,24].

In years 2011 and 2012, Belgacem and Silambarasan [8,9], applied the N-transform method to find solutions of the Maxwell's equation, Bessel's equation and many more linear

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## निपातनसिद्ध-यत्-प्रत्ययान्तपदविमर्शः

(अष्टाध्यायीमाधारीकृत्य)

ड. सुनेली देव, सहायिका आचार्या, संस्कृतविभागः

गङ्गाधरमेहेरविश्वविद्यालयः, सम्बलपुरम्

१.०

महर्षिः पाणिनिः लक्ष्यैकचक्षुष्कवैयाकरणाचार्य आसीत् । लोकं दृष्ट्वा तेन सूत्रात्मकशैल्या अष्टाध्यायी नाम व्याकरणग्रन्थः विरचितः । प्रकृतिप्रत्ययशैल्या<sup>१</sup> तेन साधुशब्दानामनुशासनं कृतम् । परन्तु महर्षिः पाणिनिः यदा प्रकृतिप्रत्ययमाध्यमेन येषां शब्दानां साधुत्वं प्रदर्शयितुं समर्थः नाभवत्, तदा सः साक्षात् तत्तत्साधुशब्दान् गृहीत्वा सूत्रं निर्मितवान् । एतादृशानि सूत्राणि निपातनसूत्राणीति<sup>२</sup> कथ्यन्ते ।

कृदतिङ् (पा. ३.१.९३) इति सूत्रेण महर्षिः पाणिनिः सूचितवान् यत् धात्वधिकारे<sup>३</sup> उक्तः धातोः तिङ्-प्रत्ययभिन्नः यः प्रत्ययः प्रयुक्तः भवति, सः प्रत्ययः कृत्यप्रत्ययः भवति । कृत्यप्रत्ययाः कृत्यप्रत्ययान्तर्गताः भवन्ति ।<sup>४</sup> कृत्याः (पा. ३.१.९५) इति अधिकारसूत्राधीने यानि यानि सूत्राणि सन्ति, तैः सूत्रैः उपदिष्टाः सप्त तव्य-तव्यत्-अनीयर्-केलिमर्-यत्-क्यप्-ण्यत्प्रत्ययाः कृत्यप्रत्ययाः भवन्ति । कृत्यप्रत्ययाः भाववाच्ये कर्मवाच्ये च प्रयुक्ताः भवन्ति ।<sup>५</sup> भाववाच्ये यथा- मया शयितव्यम् । भाववाचकस्य कृत्यप्रत्ययान्तपदस्य प्रयोगः नपुंसकलिङ्गे भवति । कर्मवाच्ये यथा- बालकेन विद्यालयः गन्तव्यः । कृत्यप्रत्ययाः प्रेष-अतिसर्ग-प्राप्तकालेषु अर्थेषु अपि प्रयुज्यन्ते ।<sup>६</sup> प्रेषार्थे यथा- त्वया विद्यालयः गन्तव्यः । त्वं विद्यालयं गच्छेत्यर्थः । अतिसर्गार्थे यथा- त्वया विद्यालयः गन्तव्यः । यदि तव इच्छा अस्ति, तर्हि त्वं विद्यालयं गच्छेत्यर्थः । प्राप्तकालार्थे यथा- त्वया विद्यालयः गन्तव्यः । अधुना त्वया विद्यालयगमनार्थं समयः उपस्थितः इत्यर्थः । अपि च अर्हे कर्त्तरि वाच्ये धातोः कृत्यप्रत्ययाः भवन्ति ।<sup>७</sup> यथा- त्वया कन्या वोढव्या । कन्योद्धरणे त्वं योग्यः इत्यर्थः । आवश्यकार्थे आधर्मण्यार्थे च धातोः

१ अचो यत् (पा. ३.१.९७)

२ अजयं सङ्गतम् (पा. ३.१.१०५)

३ धातोः (पा. ३.१.९१)

४ कृत्याः (पा. ३.१.९५)

५ तयोरेव कृत्यत्तत्त्वार्थाः (पा. ३.४.७०)

६ प्रेषातिसर्गप्राप्तकालेषु कृत्याश्च (पा. ३.१.१६३)

७ अर्हे कृत्यत्तत्त्वार्थाः (पा. ३.१.१६९)



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## पञ्चतन्त्रसूक्तिषु विश्वभ्रातृत्वबोधः

डॉ.सुनेली देई

सहायिका आचार्या, संस्कृतविभागः,  
गङ्गाधरमेहेरविश्वविद्यालयः सम्बलपुरम्।

### १ पञ्चतन्त्रकर्तुः परिचयः--

पण्डितविष्णुशर्मणा विरचितं पञ्चतन्त्रं कथासाहित्यस्यामूल्यं रत्नम् अस्ति। तस्य जन्मस्थानमुत्कलप्रदेश इति पृथ्वीमहाराजस्य ताण्डिवाडाशिलालेखतः<sup>१</sup> ज्ञायते। अस्माच्छिलालेखाज् ज्ञायते यद्विष्णुशर्मा श्रुति-स्मृति-वेद-वेदाङ्गोपनिषद्-न्याय-दर्शन-योगादिषु शास्त्रेषु प्रवीण आसीत्। असौ हि दाक्षिणात्यस्य राज्ञः पृथ्वीमहाराजस्य पृष्ठपोषकतां लब्धवान्। अयं पृथ्वीमहाराजः पञ्चतन्त्रस्य कथामुखे वर्णितः राजा अमरशक्तिरित्यनुमीयते।<sup>२</sup> एतच्छिलालेखप्रमाणमाधारीकृत्य विष्णुशर्मा उत्कलीय इति स्वीक्रियते। विष्णुशर्मण आनुमानिकसमयः ख्रैस्तीयपञ्चमशतकम्।<sup>३</sup> सः ब्राह्मणकुलेऽजायत। तस्य पूर्ववंशधराः सर्वे वेदवेदान्तादिषु प्रगाढाः पण्डिता आसन्।<sup>४</sup>

### २ पञ्चतन्त्रस्य विषयवस्तु वैशिष्ट्यञ्च--

पञ्चतन्त्रस्य कथामुखानुसारं पण्डितः विष्णुशर्मा दाक्षिणात्यस्य महिलारोप्यनगर्याः अमरशक्तिः नाम राज्ञः मूर्खपुत्रत्रयं पण्डितं

१ See Contribution of Orissa to Sanskrit Literature, page-3

२ तत्रैव, page-4      ३ तत्रैव, page-2      ४ तत्रैव, page-4





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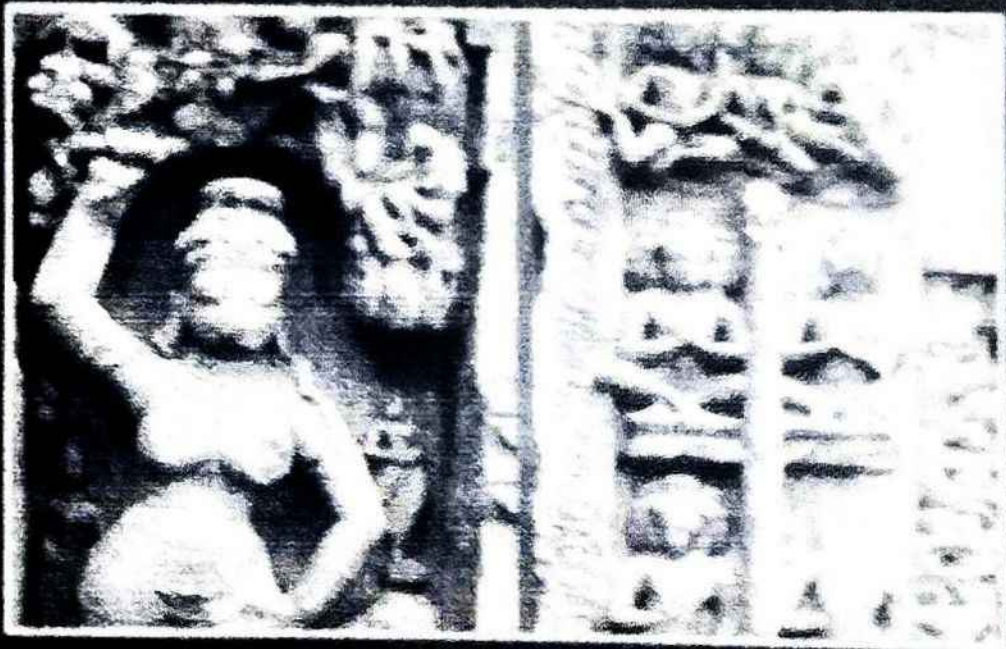
# कला-वैभव

## KALA - VAIBHAV

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प्रधान संपादक

डॉ. मंगलानंद झा

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## महाकाव्ये रूपकालङ्कार

टी. प्रमोद कुमार शर्मा

इह त्वत्तु संस्कृतसाहित्ये जगति ये ये महाकाव्यरूपाणि परिदृश्यन्ते तेषु महाकाव्येषु भट्टिकृतानि अन्यतमम् । महाकाव्येषु भारतेरन्तरं साहित्यमर्मज्ञस्य महाकाव्यकारणस्य भट्टिमहाकाव्येषु स्थानं कीदृशं दृश्यम् न पश्यति । यत् तत् साधनमहाकाव्याभिदं यथा महाकाव्यमापकृतत्वात् शिशुपालकथं महाकाव्यं माघमहाकाव्यमिति प्रमेयम् । महाकाव्ये भट्टिकृतत्वात् भट्टिमहाकाव्यमिति प्रसिद्धिः अत्रापि । सस्कृतालङ्कारिकामु नामहस्य स्थानम् नुवृत्तम् परन्तु भट्टिभाग्येषु कालनिरूपणस्य तर्काया एतत् शङ्का जायते यत् एतयोर्मध्ये कस्य पूर्वं इति । यद्यप्यत्र हीत तस्य अलङ्कार शास्त्रस्य परम्परा पुस्तके वदति यत् नामहात् पूर्वं भट्टिकृतं प्रायशः सर्वेषां अलङ्काराणां प्रथमं अङ्कः । अस्मात् ज्ञायते भट्टिकृतं नामहात् पूर्वं इति । अस्मिन् लघुशोधे प्रवन्द्य भट्टिकृतानां दीर्घालङ्काराणां वर्णना भवति तत् यथा अत्र उपस्थाप्यते ।

यस्य अलङ्कारस्य अर्थविशेषं चमत्कारं प्रकटयति अर्थात् यत्र अर्थस्य प्राधान्यं भवति तत् चमत्कारम् भवति । दशमसर्गेऽस्मिन् ये रूपकालङ्कारास्तु वर्तन्ते ते अत्र उल्लिखिताः ।

### रूपकालङ्कारः

अलङ्कारस्य प्रवक्ता नामहस्य तथा जयमङ्गला रूपकालङ्कारस्य लक्षणं एवमेव ददाति । यथा -

लक्षणं - उपमानेन तुल्यत्वमुपमेयस्य रूप्यते ।

गुणानां समतां दृष्ट्वा रूपकं नाम तद्विदुः ।।

उपमानोपमेयोरु यत् अभेद वर्णनं भवति तत् रूपकालङ्कारस्य उच्यते गुणानां समतां दृष्ट्वा रूपकं लक्षणं उपमेयस्य यत् अभेदरु निरूपितरु क्रियते तथा उपमेयस्य उपरि उपमानस्य आरोपः तयोः अभेदः रूपकालङ्कारस्य इति उच्यते । अपि च तद्रूपकमभेदो यः उपमानोपमेयोरु । अथात् उपमानोपमेयोरु यत् अभेदः भवति तत् रूपकालङ्कारस्य उच्यते । साहित्यदर्पणेऽपि लिखितं यथा-

रूपकं रूपितारोपो विषये निरपह्नवे

तत्परम्परितं साङ्गं निरङ्गमिति च त्रिधा ।

अर्थात् निषेधरहितो उपमेये यत्र उपमानस्य अगेदारोपः तत्र रूपकम् । उपमानेन उपमेयस्य उपरि उपमानस्य आरोपः अलङ्कारस्य प्रामुख्यम् । इदं रूपकं गूलतरु त्रिधा ।

१ साङ्गरूपकम्

२ निरङ्गरूपकम्

३ परम्परितरूपकम्

यत्र उपमानस्य सर्वाणि अङ्गानि उपमेयस्य सर्वाणां अङ्गानाम् उपरि आरोपितानि भवति तत् साङ्गरूपकम् इति ।

यत्र उपमेयस्य उपरि उपमानस्य आरोपः भवति परन्तु तस्य अङ्गस्य आरोपः न भवति तत् निरङ्गरूपकम् इति ।

यत्र एकस्य आरोपस्य अपरस्य आरोपस्य हेतुरु - यति तत् परम्परितरूपकमिति उच्यते ।

परन्तु कुवलयामन्दानुसारं रूपकं द्विविधम् । पूर्य च प्रत्येकं त्रिविधम् । यथा -





अर्धवार्षिकी सन्दर्भिता संस्कृतशोधपत्रिका  
(Bi-annual Refereed Sanskrit Research Journal)  
विश्वविद्यालयानुदानायोगस्य (UGC) यत्नसूच्याम् (Carelist) अन्तर्भुक्ता

संस्कृतप्रसारपरिषद्  
आरा (विहारः)



नवविंशं वर्षम् - द्वितीयोऽङ्कः  
सितम्बर 2021

## योगधर्मशास्त्रसम्बन्धः-एकम् अध्ययनम्

डॉ. सुश्री सस्मिता पति:

### शोधसारः

भारतीयदर्शनसाहित्ये योगदर्शनस्य स्थानं विश्वप्रसिद्धम्। न केवलं दर्शनशास्त्रेषु अपितु वेदोपनिषत्पुराणस्मृत्यादिष्वपि योगतत्त्वानां समुल्लेखः प्राप्यते। योगेनैव मानवस्य चित्तं निर्मलं शुद्धं स्थिरञ्च भवितुमर्हति। एवं योगसाधनेन योगी चित्तवृत्तिमपहाय पारमार्थिकसुखं मोक्षं चानुभवति। ब्रह्मरहस्योन्मोचनकारिणां कृते पातञ्जलयोगदर्शनं बहुमूल्य-निधिस्वरूपम्। नास्ति योगसमं बलमिति सर्वथा प्रमाणितम्।

स्मृतिग्रन्थः भारतीयशास्त्रपरम्परायां प्रमुखस्थानमावहति। स्मृतिः श्रुतिमूला तथा धर्मो-पदेशप्रधाना। तथा चोच्यते-श्रुतिस्तु वेदो विज्ञेयो धर्मशास्त्रं तु वै स्मृतिः। स्मृतेः श्रुतिमूलत्वात् मन्वादिस्मृतीनां प्रामाण्यं स्थापितं भवति। यदि च श्रुतिस्मृत्योः एकस्मिन्नर्थे विरोधः प्रतीयते, तत्र श्रौतः अर्थ एव साधीयान् इति निर्णीतः। धर्मशास्त्रपरेषु स्मृतिसूत्रग्रन्थेषु धर्मस्य सुविशदं व्याख्यानं समुपलभ्यते।

योगशास्त्रं धर्मशास्त्रं च परिपूरकमेव। यत्र योगशास्त्रेषु धर्म-मोक्ष-अष्टाङ्गयोगादिविषये नियमाः उपायाश्च वर्णिताः, तत्र धर्मशास्त्रेषु एतेषां महदुपयोगितानां फलप्राप्त्यादीनां च वर्णनमस्ति।

अस्मिन् शोधप्रबन्धे योगधर्मशास्त्रयोः स्वरूपम्, महत्त्वम्, भेदाः, एतयोः मानव-जीवने प्रभावः इत्यादिविषयाः पर्यालोचिताः। साम्प्रतिकसमाजे धर्मशास्त्रविधिषु योगशास्त्रस्य प्रभावः शास्त्रोदाहरणैः प्रमाणितः।

(कूटशब्दाः-योगः, धर्मः, आचारः, आचार्यसेवा, ब्रह्मचर्यम्।)

उपोद्घातः-भारतीयसंस्कृतसाहित्येषु योग-धर्मशास्त्रयोः स्थानं महत्त्वपूर्णम्। यत्र योगः समाजे आध्यात्मिकचेतनायाः परिवर्धकः, तत्र धर्मशास्त्रं मानवसमाजस्य मार्गनिर्देशकः।



# SUSTAINABLE LIVELIHOOD PATTERN OF MBDCs (MARGINALISED BAMBOO DEPENDENT COMMUNITIES) IN ODISHA: AN EMPIRICAL STUDY OF BETRA COMMUNITIES OF ODISHA

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## ABSTRACT

The present article has target on the socio-economic aspect of Marginalised Bamboo Dependent Communities (MBDs) i.e. Betras of the western Odisha. It has reflected the production pattern of bamboo products done by Betras of Western Odisha by taking primary data from three villages having 30 households of Sambalpur District. Using two way MANOVA in SPSS the present study have analysed the impact of various independent variable on the two dependent variables. For maintaining the sustainability of MBDs in this region the study also run BINOMIAL LOGISTIC REGRESSION model by considering the two dummy variables like YES or NO.

Key Words:-Betra, MBDCs, Box Test, Manova, Binomial Logistic Regression, Pearson multiple correlation, Levene's test, Roy's Largest Root

## INTRODUCTION

World over bamboo forms an important resource for livelihood of rural communities. India has maximum area under bamboo and the second richest country in terms of bamboo genetic diversity. The country produces nearly 4.5 million ton of bamboo annually, which is mainly consumed for pulp, housing, rural uses, fuel and packing purposes. In Central Himalaya using bamboo is an age-old practice as a source of livelihood<sup>1</sup>.

Considering the State of Odisha it has always treated bamboo at par with timber and has accordingly devised policies which are primarily revenue-oriented. What we need urgently is a long-term policy for bamboo management where all the stakeholders are taken into confidence and the communities' interest are to be given paramount importance. This long-term approach should open up the hitherto present but unexplored as well as newer vistas of bamboo utilization. This will be possible only after markets are sought and developed for the alternative use than traditional along with appropriate bamboo management policy where people dependent on it are very much a part of all the aspects. There is a great market awaiting this beautiful, highly sustainable engineering material. But the number of architects, designers, manufactures, entrepreneurs, government and policy makers taking this material seriously are still very low in spite of its high market demand. On the other hand, we have a large number of bamboo dependent BPL communities across the state of Odisha.



## The Recovery Management System of NPAs - A Case Study of Commercial Banks in India

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### Abstract

The best indicator for the health of the banking industry in a country is its level of Non-performing assets (NPAs). The problem of non-performing assets has shaken the entire Indian banking sector. High NPAs are one of the major concerns for banks in India. The solution of NPAs and its recovery lies only with proper credit assessment and recovery management mechanism. When an asset becomes NPAs the recovery wings states its operations. There are many recovery channels through which the banks recover NPAs. Performance of various recovery channels of NPAs in Indian banking system is not found to be satisfactory. The Paper analyse the recovery mechanism of NPAs with its three important wings i.e. recovery through Lok Adalat, Debt Recovery Tribunals (DRTs) and Securitisation and Reconstruction of Financial Assets and Enforcement of Securities Interest Act (SARFASEI Act) and its impact on NPA. The study is purely based on Secondary data collected from RBI Report on Trend and Progress of Banking in India, various research articles and journals. SPSS 10 is used to analyse the data. Further the study finds that there is significant difference among the number of cases referred to the three recovery mechanisms and significant difference in respect of percentage of amount recovered through various recovery channels. The study further finds that overall recovery mechanism in banking industry is very poor.

**Key words:** Recovery, NPAs, Lok Adalat, DRT, SARFASEI



# THE INCOME EFFECT OF IRRATIONAL BEHAVIOUR: A PSYCHO-ECONOMIC ANALYSIS

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## ABSTRACT

*The standard economic theorization is based on the neo-classical rationality postulate. But irrational activities and superstitious practices impact a wide range of decisions and choices in our day today life. Dissection of irrational behaviour of an individual is not so simple to comprehend but not impossible too. The emergence of the Behavioural Economics paradigm has recognized the psycho-economic importance and the socio-cultural effects of irrational beliefs and superstitions-driven activities on the lives of the common people. This paper highlights how the rationality assumption has become irrelevant in the light of irrationality-based superstitious practices and preference heterogeneity. Choice failure is caused by such realistic irrationalities further leading to capability deprivations. In the present study 100 participants have been sampled from both rural and urban vicinity of Bargarh district of Odisha to examine the linkages between monthly income and irrational behaviour represented through households' spending on various superstitious activities and practices. Through the use of descriptive and inferential statistics it has been proved that irrational behavioural patterns have an income effect and income does have an effect on the way economic agents behave in the real world situations.*

**Key Words:** Rationality Postulate, Irrational Behaviour, Income Effect, Capability Deprivations





# A GOAL PROGRAMMING APPROACH TO THE STUDY OF OPTIMAL CAPITAL STRUCTURE IN THE CONTEXT OF INDIAN CORPORATE FIRMS

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## ABSTRACT

*The capital structure controversy debate is still to die down even after five decades of its birth from the seminal work by Modigliani and Miller in 1958. The irrelevance theorem was proved wrong by many later day theorists/empiricists but many postulated it otherwise. The existence of an optimal capital structure in the corporate sector has been debated extensively and non-conclusively too. The present study has been conducted to check the possible existence of an optimal capital structure in the Indian corporate sector. Besides other descriptive statistical techniques, the linear goal programming technique has been used to study whether the optimality objective is achieved by the thirty companies selected from private, public and IT sectors. The goal programming results show the non-existence of something called an optimal capital structure and instead corporate firms are inclined towards achieving multiple objectives/goals at a time and hence not optimizing rather satisfying level of achievement at multiple ends is the goal in the present globalised era of fierce competitions.*

**Keywords:** Corporate Finance, Goal Programming, Satisfying Behavior, Multi-objective goal setting

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<http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=11&IType=3>



# A BEHAVIOURAL STUDY ON THE PROSPECT THEORY ANALYSIS OF WORKERS IN THE ONLINE FOOD MARKET; A CASE STUDY ON THE SAMBALPUR DISTRICT OF ODISHA WITH A SPECIAL REFERENCE TO ZOMATO VALET BOYS

Madan Meher\*, Nikita Pradhan† & Muralidhar Majhi‡

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## Abstract

*The present study has focuses on the key aspect of labourer behaviour from the prospect theory and the framing effect point of view. By collecting primary data of the Zomato valets or Zomato delivery boys in the studied area, the present article has clearly defined the various reasons for leaving the previous jobs of the respondents as well as the different lucrative aspects of Zomato which pull the labourers from the other unorganised sectors of the city. The Daniel Kahneman and Amos Tversky prospect theory model has been applied in this study. Both the value function graph and mathematical model of the prospect theory model has satisfied the objectives of the study which is to compare the socio-economic conditions of the respondents between the previous and present job as well as to analyse the major aspects of Zomato to make the company attractive for the workers. To describe the framing effect, the present study has also consider the consumer rating platform of Zomato and its importance in attracting the workers from various unorganised sectors of the studied area.*

**Keywords:**prospect theory, framing effect, valet boys, consumer rating

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# ACADEMIC PAPER

# Ricardian equivalence, Feldstein–Horioka puzzle and twin deficit hypothesis in Indian context: An empirical study

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The paper investigates the twin deficit hypothesis in case of India. Furthermore, this paper examines the Ricardian equivalence hypothesis and the Feldstein–Horioka puzzle to complement the twin deficit hypothesis. To substantiate objectives, annual time series data for the period 1970 to 2012 have been used. Time series econometrics techniques such as vector autoregressive model and auto regressive distributive lag model have been employed wherever necessary. The empirical findings suggest the rejection of twin deficit hypothesis and Feldstein–Horioka puzzle. However, it validates the Ricardian equivalence hypothesis i.e the fiscal deficit does not affect the current account deficit. Fiscal deficit retaining strategy may not be all in controlling current account deficit, than taking wholesome strategy that includes export promotion.

## KEYWORDS

Twin deficit, fiscal deficit, current account deficit, vector error correction, Ricardian equivalence

## JEL CLASSIFICATION

E62; F32; C30

## 1 | INTRODUCTION

The dynamics of current account play very important role in maintaining balance of payment in an economy and they have serious implications for macroeconomic indicators. The maintenance of current account balance is a major concern for every economy. Many of the developing countries including India depict the current account deficit (CAD) in their balance of payment. Deficit in fiscal front also interacts with CAD. In literature, the analysis of interaction between the budget deficit (BD) and the CAD is referred as twin-deficit hypothesis (TDH). As the deterioration of CAD has implications for growth as well as for the several other economic indicators, it is assumed important to analyse CAD and its potential interacting factors. The studies in literature in Indian context mainly observed the association of CAD and BD. However, analysis of Feldstein–Horioka puzzle (FHP) and Ricardian equivalence hypothesis (REH) is crucial in analysing the implication of TDH.

The verification of TDH is relevant in India because of the following reasons. First, the CAD may hamper economic growth of India.

Second, CAD may induce the exchange rate to depreciate and ultimately, the bargaining power of the country in the international platform will diminish. Third, CAD and fiscal deficit (FD) data in India for last 40 years or so exhibit a declining pattern of movement barring exceptions for few years. Possibly a long run causal relation between FD and CAD may exist which needs to be explored. Fourth, in recent past, current account in India has witnessed a sharp deterioration mainly after global financial situation of 2007–2008. CAD in 2007–08 was just above the 1 % of the gross domestic product (GDP). But after the financial crisis within just 5 years, the CAD has crossed 5 % of the GDP, which is double the limit considered as threshold by the Reserve Bank of India (RBI). However, CAD came down to below 4 % of GDP in 2013–2014 (Dhar and Rao, 2014). Even though, the first half of 2015 has witnessed a decline due to fall in the international oil price. But this favourable environment is not permanent and it is subject to change. Similar situation has been witnessed again during COVID pandemic considering the fall of imports. But this will change when trends of our exports will reverse due to low growth of global economy. Finally, the behaviour of CAD after 2007–2008 financial crises had



# Recovery Management Process of Indian Commercial Banks - A Special Reference to Non-Performing Assets

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## Abstract

The best indicator of the measure of the health of the banking industry in a country is its volume of Non-Performing Assets (NPAs). The increasing number of NPAs in commercial banks is a major concern in India. The best solution to reduce the volume of NPAs depends on good management of recovery mechanisms. The present context of research focuses on the recovery mechanism of NPAs with three important legal measures. Most of the cases are being negotiated and monitored through Lok Adalats in order to reduce the burden of those assets which cease to generate revenue. In addition to this, there is Debt Recovery Tribunals mechanism (DRTs), which focuses on diminishing the balance of NPAs. However, the third measure includes Securitisation and Reconstruction of Financial Assets and Enforcement of Securities Interest Act (SARFAESI Act), which allows banks to curb NPAs. The entire study is based on secondary data and SPSS is used to analyze the data. The study revealed that there is a statistically significant difference between the number of cases referred to the recovery mechanisms and the amount recovered through various recovery channels.

**Keywords:** NPAs, Recovery Mechanism, DRT, Lok Adalats, SARFAESI Act

## Introduction

The Indian banking industry plays a major role in the growth and development of the country's economy.

A good percentage of the shares in the banking sector contributes to the GDP of India. But the volume of NPAs is increasing day by day. So, the financial performance of the banking industry is hampered because of the large volume of non-performing assets (NPAs), as it indicates the profitability and income growth of the banks. The high percentage of NPAs is due to the target-oriented approach by banks, ineffective supervision, improper management of loan accounts, wilful defaulters, unwanted disbursement of loans, and finally, improper recovery mechanisms. According to the Reserve Bank of India (RBI), term loans on which interest or instalment of principal remain unpaid or overdue for more than 90 days from the end of a particular quarter is called a non-performing asset. NPAs create an unfavorable impact on liquidity, profitability, and solvency of banks. But the recovery of bad loans from borrowers, and the management of NPAs, bringing them to a sizeable level, are a challenge for the banks. Thus, the increasing volume of NPAs has an adverse effect not only on the banks, but also the economy as a whole.

An asset that fails to generate income for the banks is called a non-performing asset. The banks should develop proper credit appraisal processes rather than trying to recover an asset after it becomes an NPA. Private sector banks are more financially viable than public sector banks. At present, the RBI has enacted and enforced several recovery mechanisms. Hence, to reduce the volume of NPAs, bad loans are to be recovered in time and managed properly. The three major instruments of the recovery channel are discussed further.

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# COVID-19 in India: A Critical Assessment of Pandemic Modelling and Forecasting Gross Domestic Product Using ARMA

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Orissa Economics Association



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**Nikita Pradhan**  
**Muralidhar Majhi**

## Abstract

The present paper throws light on some of the critical issues regarding the novel corona virus pandemic as well as the economic impact on the country. In the first segment of this article, a modified SEIR (suspected, exposed, infected, and recovered) pandemic modelling has been done to identify the chain of the virus. It clearly shows how some people are being trapped in the infected region and others are getting cured. This present study has considered many parameters for the SEIR pandemic modelling with the help of differential equations. In the second segment of the present study, gross domestic product (GDP) at current price forecasting has been carried out using the auto regressive moving average (ARMA) method and expert modelling method in SPSS, IBM. The data for the GDP has been taken from the IMF outlook database from 2001 to 2021. On the basis of secondary data, forecast for the GDP at current price has been carried out from 2022 to 2026 on a quarterly basis. The main motive behind the study is to compare the trends in GDP at current price in pre-COVID and post-COVID scenarios. It has been clearly observed from the present

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# Productivity, Employment and Wages in Organized Manufacturing : A Comparative Study of Telangana, Andhra Pradesh and India

G.Alivelu\* & Priyadarshi Joshi\*\*

*The paper intends to make a comparative study of productivity, employment and wages in the organized manufacturing of Telangana, Andhra Pradesh and India. Using the ASI data, the TFP growth is found to be higher in Telangana while in India and in Andhra Pradesh, it is negative in the post reform period. The capital-using bias is found in both the states while the inefficient use of capital can be traced to the divergence in the trend of labour productivity and capital intensity. The share of labour in the gross surplus has been declining and also there is no positive sign of increase in employment at the same rate. Thus, the manufacturing growth has been more or less jobless and the quality of employment generated is substandard.*

Keywords : Employment, Labour Productivity, Total Factor Productivity, Wage.

## Introduction

Studies in productivity and growth have a long tradition starting from Adam Smith to the recent developments using econometric tools. In India, the very research topic gained popularity during late eighties and nineties. Studies used the growth accounting and production function approach to understand the sources of growth. It was found that Total Factor Productivity (TFP) growth in the manufacturing sector accelerated in the post-reform period while some studies contradicted the conclusion using different methodology. The region specific

characteristics, availability of the inputs, state specific legislations in India put weights for the region specific study of productivity growth. Telangana and Andhra Pradesh being the newly formed states after the bifurcation of united Andhra Pradesh in 2014, it is very important to know the state of manufacturing sector for new policy formulation. This paper estimates the

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## TRADE, PRODUCTIVITY AND EMPLOYMENT NEXUS: AN EXAMINATION IN POST- REFORMS INDIA

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### ABSTRACT

In the backdrop of India's jobless economic growth since the macroeconomic reforms of the 1990's, this study goes into the inter-relations among growth of productivity, employment and trade. Most of the studies on productivity in Indian manufacturing indicate a surge in the post reforms period though the individual manufacturing groups achieve varying growth. In the recent period, TFP growth in the sector is attributed to technology-based intermediate imports. Changing patterns of trade, especially export composition, have contributed to low employment generation. Growth in productivity and lack of growth in employment are thus explained by changing composition of trade. This paper starts by defining alternative measures of labor productivity growth, namely 'industry' labor productivity and 'system' labor productivity drawing on World Input-Output Database (WIOD). KLEMS database for India is also used for employment data. The time period for the study is from 1995 to 2014. Trend growth rates are estimated for alternative productivity measures, employment and output. The growth estimates show rapid productivity growth while the rates vary according to the labor intensity in production. It is found that productivity growth, particularly in labor intensive sectors, has been slow. India's share in world trade has been low and rising slowly. Additionally, the share in world trade of leather and textiles is very small. The composition of trade in India is biased towards the manufacturing sector as a whole while the labor-intensive sectors are neglected. Another emerging pattern of India's trade is escalating import of intermediate inputs. To establish the nexus between trade and productivity growth, a vertical specialization index has been estimated by using Hummel's formulation. The estimated result from panel regression with fixed effects establishes positive nexus between vertical specialization and productivity growth. It is argued that India needs to circumvent jobless growth by a balanced approach to job creation and productivity growth. A conscious policy of vertical specialization in products that draw on the country's vast reserve of un-skilled and semi-skilled labor can go a long way in this direction.

**JEL Classifications:** J24, F10, F15, J20

**Keywords:** Labor coefficient, Import coefficient, Vertical specialization, Employment growth

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### INTRODUCTION

A steady decline in the share of agriculture in India's GDP without a compensating growth of industry, and the consequent slow transfer of labor from agriculture to non-farm activities (much of the growth in non-farm employment has been of 'informal'



# EVALUATION OF INTEGRATED CHILD DEVELOPMENT SERVICES PROGRAMME AMONG TRIBAL WOMEN BENEFICIARIES IN ODISHA - A COMPARATIVE STUDY OF RURAL & URBAN BLOCKS OF SAMBALPUR DISTRICT

Gita Devi Gupta<sup>1</sup>  
Muralidhar Majhi<sup>2</sup>

## Abstract

"This paper presents the outcome of a study conducted from July 2019 to February 2020 on 300 tribal women beneficiaries covering one rural block, (Bamra) and one urban block (Dhankauda) of Sambalpur district using purposive and stratified random sampling method. The study attempts to compare the utilization of ICDS services between rural and urban ethnic groups of tribal women beneficiaries. Here the comparative variables are educational qualification, age at marriage and conception time after marriage, regular check up, attendance of women in Anganwadi center, preferred place of delivery, immunization, supplementary nutritional food, Iron- folic acid and calcium tablets, hemoglobin level, body index mass, NHed services to view the significant utilization of services provided by ICDS. Instead of having the facilities provided by the government to them, they are not utilizing it because of their ignorance, illiteracy and unawareness. Moreover, it has a negative impact on the health of the tribal women beneficiaries which is depicted by maternal death. This could have been avoided by regular visit to the Anganwadi centre and going to hospital for delivery. The study highlights that there is relatively less utilization of services of ICDS by rural tribal women as compared to their urban counterparts."

**Keywords :** Mann-Whitney & Wilcoxon Test, Two Sample "t" Test, Krejcie & Morgan (1970), ICDS, Tribal Women

## Introduction

Tribals in India are widely different from each other geographically, culturally and in terms of their levels of social as well as economic development, and their problems vary from area to area within their own groups (Muniyandi and Singh 2012). The tribal areas of India are traditionally isolated, underdeveloped and are increasingly affected by development processes (Ahmed 1985). Tribal health issue is one important phase of tribal development which has been neglected and underutilized for years.



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## Impact of Fiscal Deficit on Macroeconomic Variables in India

Suraj Badaik, Prasant Kumar Panda

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ABSTRACT

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ARTICLE METRICS

The study empirically verifies the impact of fiscal deficit (FD) on macroeconomic variables like growth of Gross Domestic Product, inflation and private capital formation. The annual time series data for the period 1970 to 2018 have been taken. Long run relationship between variables has been verified by using the Johansen Co-integration techniques and autoregressive distributed lag (ARDL) bound test. Based on the existence of co-integrating relationship, VECM and VAR model have been used. From the empirical analysis it is observed that there is long-run equilibrium relationship between FD, inflation and growth of GDP. However, long-run co-efficients of fiscal deficit to GDP ratio are not statistically significant. In the short run, FD adversely affects growth of GDP, positively influences inflation rate and it does not crowd out private investment. Consolidation of government finances through efficient revenue mobilisation and limiting non-developmental spending will help keep FD under target and check the adverse effects of FD on the macroeconomic indicators.

Keywords

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# A Theoretical Approach to the Study of Optimal Public Goods and Olson Conjecture

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## Abstract

The free-riders' problem associated with the Olson conjecture increases with the size of the group, is based on non-zero conjectural variation explained through the public goods model involving Non-Nash behavior pattern. A hybrid solution between Kantian behavior and Nashian behavior is emerged when we look at the elasticity of the conjectured response with respect to the relative importance of the individual's contribution. When the number of contributors in the community for the provision of public goods increases infinitely, the path that emerges through hybridization converges to that of the Nash type. This convergence holds for all elasticity of conjectured response, which is greater than or equal to one. The larger is the elasticity of conjectured response, the faster will be the rate of convergence and thus free-riding.

**Keywords:** Olson conjecture, Nash behaviour, Non-Nash behaviour, Hybrid solution, Elasticity of conjectured response, Pareto Points. **JEL Classification Code:** H41, D82

## I. INTRODUCTION

A public good is not public just because its supply is made as a part of the public policy process or just because the government of the day finances it for public uses. What defines a public good is not the source i.e. public or private from which it has been financed, but how many people it provides the benefit with. Public goods are associated with collective benefits and involvement of large numbers of users. Due to its very character of non-rivalness and non-excludability, public goods exhibit joint consumption. The nature of the public good gives scope to individuals not to reveal their true preferences for it and free-ride. When the individuals are identical in tastes and in terms of their endowments, the work of Olson (1965) about collective action reveals that the deficiency of the equilibrium level of provision of public goods from its optimal level is influenced monotonically with respect to the group-size. This particular study is

based on the objective of how to capture the 'Olson conjecture' concerning free-riding increasing with group size through a theoretical analysis.

The plan of the proceeding of this paper is as follows. Section II introduces Nash Equilibrium for individual contributions while the third section carries an analysis of Non-Nash behaviour as regards the public goods. Conclusion follows in section IV.

## II. NASH EQUILIBRIUM:

Let individual  $i$  has income to allocate between personal private goods consumption and a contribution to a public good from which  $n$  other people benefit. Given the public good's relative price, the budget constraint of the individual is

$$Y_i = x_i + P \frac{g_i}{G} \dots\dots\dots(i)$$

The availability of total supply of public good is-



# Calvino against Anthropocentrism: Italo Calvino's Anti-anthropocentric Imagination in *The Cosmicomics*

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## Abstract

Prominent Italian writer Italo Calvino's celebrated work *The Cosmicomics* is a fictional illustration of the notion of anthropomorphism that the writer has admittedly used as a narrative device in the mentioned work. Calvino has made the theoretical illustrations of the above-mentioned notion in his illustrious critical treatise *The Literature Machine*. His attack against 'anthropocentrism' or a human-centered worldview is evident in this work and what he promotes instead is rather an anthropomorphic worldview where the longstanding conceptual boundary between the 'human' and the 'non-human' disappears and the non-human entities of the world are attributed with human qualities. In this theoretical pretext, the present article intends to examine how Calvino in this mentioned work creates a 'boundary-less' world where the human becomes the non-human and vice-versa in a scenario where the traditional human subject is thoroughly de-centered.

**Keywords:** Anthropocentrism, Anthropomorphism, Postmodernity.

## Introduction

Italo Calvino is one of the most important writers of postmodernity. His omnibus collection of science fiction stories *The Cosmicomics* seems to be an exemplary exposition of what Mark McGurl would call "the post-human comedy" (533)—a catchphrase which truly epitomizes the anti-humanist spirit of postmodernism. A compendium of such post-human fables, Calvino's *The Cosmicomics* exemplifies the limits of anthropocentrism in terms of its ability to comprehend, explain and conceptualize the world where the 'human,' in Calvino's parlance, is no more than an infinitesimally small element of Nature, and nothing else. Anthropocentrism's narcissistic assertion of human exclusivity in a universe whose biotic community includes both the 'human' and the 'non-human,' is mocked and dismantled by Calvino's inception and celebration of the notion of 'anthropomorphism' in the said novel.

Perhaps, it hardly needs mentioning that in an anthropocentric worldview, the 'human' is attributed with an exclusive identity that distinguishes it from the 'non-human' which is presumably bereft of definitive human features. Calvino, as it looks, is radically opposed to such a *weltanschauung* for in many of his novels he attributes the inanimate objects with 'humanness': it is doubtless a purposeful narrative ploy on the writer's part to establish fictionalized illustrations of his own celebrated idea of anti-anthropocentrism.

What Calvino promotes instead is, as has been mentioned earlier, anthropomorphism—a concept that he systematically demonstrates in his theoretical treatise *The Literature Machine*. Anthropomorphism (which etymologically means attribution of human qualities to non-human objects and hence, contests the notion of the exclusively 'human') is the radical opposite of anthropocentrism, a thoroughgoing human-centered worldview that Calvino has unequivocally challenged and interrogated in many of his writings—both fictional and critical. The writer is emphatically guided, as per his own admissions, by "a positive delirium of anthropomorphism" (Calvino, *The Literature Machine* 34)—a notion that demurs, subverts and dismantles the hubris of 'anthropocentrism.' It does so by attributing human qualities to 'non-human' objects and thereby displacing the 'human' from its self-assumed authorial position in the universal scheme of things. For as per Calvino's own pronouncements, an anthropomorphic vision of the world would be "a way of putting the laziest,

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most obvious, and most vainglorious image of man to the test: by multiplying his eyes and his nose in every direction until he no longer knows who he is" (*Machine* 34).

An omnibus collection of his science-fiction stories, his *The Cosmicomics* is chock-a-block with characters showcasing anti-human traits while contrarily, the non-human entities of Nature are attributed with human attributes and qualities. The present article, while being an exclusive illustrator of the above theme in the said book, intends to highlight Calvino's creation of a 'boundary-less,' 'non-hierarchical' world where the cloistered conceptual domains of the 'human' and the 'non-human' merge and interpenetrate in a way that the idea of human exclusivity remains no more tenable.

The Chapter "The Distance of the Moon" proves to be a thorough explication of the above theme. Through what looks like an amusing love triangle involving Qfwfq's deaf cousin, MrsVhdVhd and the moon, Calvino introduces his anthropomorphic agenda by endowing the 'non-human' moon with human attributes. MrsVhdVhd who is in love with Qfwfq's deaf cousin discovers that the latter loves only the moon, not her for which she willfully merges with this non-human object, the moon: "Because she had finally realized that my cousin loved only the Moon, and the only thing she wanted now was to become the Moon, to be assimilated into the object of that *extrahuman* (emphasis added) love" (Calvino, *The Cosmicomics* 16). Finally, Qfwfq would tell us that MrsVhdVhd has become the Moon:

She was the colour of the Moon . . . I could distinguish the shape of her bosom, her arms, her thighs, just as I remember them now, just as now, when the Moon has become that flat, remote circle, I still look for her as soon as the first silver appears in the sky, and the more it waxes, the more clearly I imagine I can see her, her or something of her, but only her, in a hundred, a thousand different vistas, . . . (Calvino, *Cosmicomics* 18-9).

As is evident from the above quote, the Moon is anthropomorphized in the form of MrsVhdVhd through the latter's willful transfiguration into the former; it is a fascinating example of an attempt, on Calvino's part, to effectuate an anthropomorphic extension of 'humanness' onto a 'non-human' object, such that the 'non-human' becomes 'human' and the conceptual demarcation between the two is thoroughly dismantled. It is part of the writer's specified agenda to rob the 'human' of his exclusive 'humanness' and to make him/her extensively mixable with the non-human world such that the longstanding anthropocentric hubris of human exclusivity over the former is ridiculed and thwarted. MrsVhdVhd's self-willed transformation into the moon-figure is also a thoroughgoing nullification of the idea that the 'human' possess an identity that is stable, definite, centered and unalterable.

Calvino carries forward his anthropomorphic mission through the human/Nature merger in the Chapter "Without Colours" where Qfwfq's beloved Ayl,

bereft of a clearly perceivable identity, makes occasional flickering appearances through Nature, the anthropomorphized sand dune in particular. In the colourless world where everything is grey, Ayl's first appearance is through the dune, with markings of a female shape (Ayl's) on it:

I went into the sandy wasteland: . . . the crests of the dunes seemed the outlines of reclining bodies. There you could almost make out the form of an arm folded over a tender breast, with the palm open under a resting cheek; further on, a young foot with a slender big toe seemed to emerge. . . . I realized that, before my eyes, I didn't have a sandy ridge but the object of my pursuit. (Calvino, *Cosmicomics* 51).

Ayl's indistinguishable merger with the sand dune not only indicates towards the anthropomorphic transfiguration of the sand dune into a human shape, but also at her repudiation of a stable, corporeal and unchangeable human identity. Later on, she is also found to be merging with the rising volcanic fire in a scenario where her body parts (like her hair) mingle with the former: "We ran along the crest of the volcanoes. In the noon greyness Ayl's flying hair and the tongues of flame that rose from the craters were mingled in a wan, identical fluttering of wings" (Calvino, *Cosmicomics* 52). Such recurrent instances of the human/Nature merger are again thoroughgoing reiterations, on the writer's part, of his proclaimed agenda of erasing all demarcations that exist, perhaps at least at a conceptual level, between the 'human' and the 'non-human' worlds respectively.

The chapter offers more clues to the readers to experience Ayl's continual escapade from attaining a visible human form in a scenario where even Qfwfq struggles to perceive her presence in his vicinity through an exclusive and identifiable human form. She continues to baffle him by appearing momentarily only in flickers and then disappearing into the world without colours as Qfwfq describes: "Ayl might be the colourless shadow swinging from a branch of the colourless forest . . . . A hundred times I thought I glimpsed her and hundred times I thought I lost her again" (Calvino, *Cosmicomics* 54).

In this scenario, Ayl's relentless escapade into a world 'without colours' can possibly be understood as her self-willed renunciation of a coloured human identity that is apparently distinguishable from the so-far colourless visual field of the Earth. In an ultimate act of repudiation of the world of colours and concomitantly, of a human form visually separable from the terra firma, Ayl slips into the colourless, subterranean inner world as Qfwfq describes: "As I had been projected outwards, into the open, Ayl had remained beyond the rock wall, closed in the bowels of the Earth" (Calvino, *Cosmicomics* 59).

Like the two tales analyzed above, the tale "Solar Storm" takes Calvino's anti-human agenda to another level through the corporeal assimilation of Qfwfq's wife Rah into the aerial electromagnetic field (which is now anthropomorphized through Rah's bodily merger into it) created by the solar storm. Qfwfq says:



It was then that I saw her. . . . hanging in the air like a flag unfurling for miles and miles around, her hair flying in the wind, and her whole body flowing like her hair . . . , her loins sickle-shaped like a crescent moon, her breasts like a cloud covering the ship's quarterdeck, and the spirals of her drapery mingling with the smoke from the funnel and with the sky above. (Calvino, *Cosmicomics* 351-2)

This extract, through its interesting delineations of a transmogrified aerial view of Rah visible only to Qfwfq, exemplifies the former's thoroughgoing corporeal integration into the world of the wind, the cloud, the sky and the smoke. And fascinatingly, in response to Qfwfq's inquisitiveness regarding the rationale behind her self-willed concealment in the aerial world, Rah says: "I wanted to see if there was another way of being" (Calvino, *Cosmicomics* 352). It must be noted from the further conversations between the two that like Rah, Qfwfq has also continually defied a definitive human form that could ever have been attributed to him and both of them were all the time "outside all dimensions and forms" (Calvino 353).

#### **Aim of the Paper**

An omnibus collection of his science-fiction stories, his *The Cosmicomics* is chock-a-block with characters showcasing anti-human traits while contrarily, the non-human entities of Nature are attributed with human attributes and qualities. The present article, while being an exclusive illustrator of the above theme in the said book, intends to highlight Calvino's creation of a 'boundary-less,' 'non-hierarchical' world where the cloistered conceptual domains of the 'human' and the 'non-human' merge and interpenetrate in a way that the idea of human exclusivity remains no more tenable.

#### **Literature Review**

Considering the prominence of Calvino as a writer, it is not surprising that there has been multiple critical interventions to his writings by different critics at different points in time. Mark McGurl, in his study "The Posthuman Comedy," discusses how Italo Calvino's writings transcend the limiting confines of what is strictly called the 'human' and how he paves the way for the conceptualization of a post-human world that is fundamentally anti-anthropocentric in nature. Serenella Iovino's article "Ecocriticism, Cultural Evolutionism, and Ecologies of Mind: Notes on Calvino's *Cosmicomics*" vividly discusses Italo Calvino's overt and covert anti-anthropocentric agenda in many of his writings. Kerstin Pilz in her book *Mapping Complexity: Literature and Science in the Works of Italo Calvino* elaborates on Calvino's purposive use of anthropomorphism in many of his

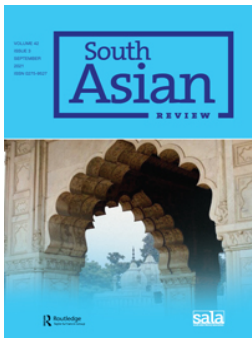
novels to contest and subvert a human-centered worldview that has dominated the realm of epistemology for long.

#### **Conclusion**

Finally, it must be reiterated that Calvino's narrative strategy in *The Cosmicomics* is, as Serenella Iovino puts, "at once anthropomorphic and anti-anthropocentric" (117). His anti-anthropocentric agenda, actualized through his promotion of anthropomorphism, puts us in the threshold of a world that disqualifies all boundaries, particularly that between the 'human' and the 'non-human' Nature. It echoes French postmodernist thinkers Gilles Deleuze and Felix Guattari's conjoint declarations in their collaborative project *Anti-Oedipus* that: ". . . man and nature are not like two opposite terms confronting each other . . . rather, they are one and the same essential reality . . ." (4-5). Through his "anthropomorphic mapping of the universe" (Pilz 29), Calvino discards the anthropocentric principles of a human-centered world and instead, comprehends the 'human' as an entity that is thoroughly de-centered, fragmented and dispersed into the non-human world. Such purposeful 'de-centering' of the human subject and its merger with the world of Nature effectuated by Calvino in this book is a succinct negation of the conceptual separation between man and Nature, which according to many environmentalists, is the root cause behind the progressively increasing human exploitation of Nature. So, the mentioned work of Calvino has far-reaching environmental implications, through presently it is beyond the limited scope of this article.

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# Chaste Bodies, Chaste Canon: Nationalist Discourse and the Female Performing Body in Munshi Premchand's *Sevasadan*

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# Chaste Bodies, Chaste Canon: Nationalist Discourse and the Female Performing Body in Munshi Premchand's *Sevasadan*

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## ABSTRACT

Through a close reading of Munshi Premchand's 1917 novel *Sevasadan*, the essay attempts to examine how constructions of the female performing body in early 20th century Indian fiction were shaped by the discourses of womanly chastity, domesticity and piety. The essay proposes to discuss how the Hindi literary tradition, that came of age in the early decades of the 20th century, and whose evolution paralleled the genesis of a newly constituted national, autonomous cultural order, accommodated the female performing body within its narrative framework. As the yardstick of "normative" womanhood embodied in the figure of the chaste Hindu wife crucially informed the constructions of femininity around this time, women performers like the *tawaifs* came to be derided in public debates and popular imagination as embodiments of moral decline. The central dilemma of the nationalist literary imagination, as reflected in the novel's narrative design, is to resolve the many ambiguities that emerge from the delineation of the non-monogamous, unconventional sexual practices of the courtesan in the chaste idiom of Hindi. The resolution of this tension is worked out through certain narrative templates whereby the courtesan experiences a series of "shifts" – topographical, ideological, and cultural – which position her outside the envisioned "respectable" national order followed by her reconfiguration in a rhetoric of domesticity and piety that enables her assimilation into the nation-space as well as into the national literary canon. Through an interdisciplinary approach which looks at the intersections between gender, sexuality, nation and performance in the Indian colonial context, the essay intends to establish how the claims for a chaste literary canon were premised upon the erasure of the courtesan's sexual burden and her embodiment of the standards of womanly chastity.

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## KEYWORDS

Munshi Premchand; Hindi fiction; courtesans; Anti-nautch; nationalist discourse; Hindu wife

In formerly colonized cultures, performance has emerged as a problematic terrain incorporating/resisting the many fractures engendered by colonial cultural domination. It has evolved as a critical category demanding analysis from the perspectives of

gender, sexuality, religion, and nation formation. In such cultures, the reincarnation of performance traditions as “national” art forms is fraught with contradictions. The radical makeover from a pre-colonial form of artistic self-expression to the sanitized, systematic, codified repertoire in postcolonial times is testimony to the moralizing influence of nationalist discourses. Performance as a cultural category is deeply embedded in nationalist discourses and the ethos they represent. It acquires immense significance in the articulation of antiquity and cultural solidarity in societies newly seeking self-definition and political autonomy. Performance traditions have often internalized/interrogated the sexual mores engendered by these discourses. In colonial India, such discourses of cultural exclusivity have often been centered on the figure of the woman performer, who has been elevated to great heights as a carrier of tradition and propagator of national values. The appropriation of performance as a marker of national culture is also fraught with a certain degree of complexity, as the sexuality of the performer raises serious doubts about her fitment to the status of a cultural icon. The pressing ideological need to harness the political value of performance in the context of nation formation entails a fundamental redefinition of the performer’s sexuality, who is either recast as “chaste” and “monogamous” or transformed into a desexualized entity through a mechanism of sanitization.

This essay, through its focus on Munshi Premchand’s *Sevasadan* (1917) and the Hindi literary tradition, attempts an intensive study of a cultural phenomenon and its literary resonances. The study treats literary texts and performance as parallel cultural developments that are mutually inclusive, and intends to establish that an interdisciplinary approach like this is imperative to an understanding of the many strands of nationalist discourses. The paper has twin aims: it intends to examine how the sexuality of the Indian courtesan became a crucial marker in the struggle for political autonomy and critique the ways in which the literary imagination appropriated it as part of its ideological imperative to construct a “national” literary canon of Hindi.

## I

Two fundamental premises on which the gendered imaginings of the autonomous “Indian” nation were consolidated in the early decades of the 20th century were the notions that the newly imagined, autonomous, “Indian” nation is best represented in the figure of the Indian woman, and that the “unconditional chastity” of the Hindu wife is an important marker of cultural superiority over the colonizer (Chatterjee 1993; Sarkar 2001). The latter, which is a defining myth of Indian nationalist discourse, led to the epitomization of the figure of the chaste and monogamous Hindu wife in poems, songs, novels, short stories, and periodical writing of the time. This model of “ideal” femininity was often intended to counter the constructions of victimized Indian womanhood in the writings of the Evangelical missionaries. In their writings, the missionaries perceived the essentialized “Indian woman” as embodying a certain “decline” of an otherwise unbroken, haloed past. This figure, as was asserted, could only be redeemed by the positive change initiated by missionary activities. Texts like Marcus B. Fuller’s *Wrongs of Indian Womanhood* (1900) and Amy Wilson Carmicheal’s *Lotus Buds* (1909) engage in an explicit condemnation of supposedly obscure socio-cultural

practices like dedication of girls to temples as *devadasis*, prevalence of the practice of public performances by nautch-girls,<sup>1</sup> seclusion of women in the *zenana* and widow immolation in the form of *sati*. Writings such as these participated in the denunciation of all forms of transgressive female sexuality, thereby attempting to define sexual deviance in relation to the models informed by their Victorian moral orientation. Communities of women performers like the *devadasis*<sup>2</sup> and *tawaifs*<sup>3</sup> easily became the target of such attack, resulting in the vociferous “Anti-Nautch” campaign (Neville 2009). An organized diatribe against all forms of public performances by women from the communities of *devadasis* and *tawaifs*, the campaign originated in the last decade of the 19th century with the evangelical missionaries taking the lead, who were later joined by administrators, *Memsahibs* and First wave feminists. The prime contention of the “Anti-Nautch” campaigners was that all public performances by women be banned because they were inherently immoral and resulted in the violation of social propriety through objectionable content and its lascivious depiction. Such anxieties led to an overlap between the cultural and sexual identities of woman performers, and Indian performance traditions being described in terms of decadence.

Inspired by the example of missionary Puritanism in relation to the “nautch” question, a number of Indian intellectuals and ardent social activists strongly condemned these practices, and pestered the government with repeated requests for the introduction of severe measures for the treatment of such practices as criminal offense. “Social Purity” organizations in the model of Great Britain were established in different regions of northern India to strengthen Anti-nautch sentiment. In this connection, Vikram Sampath (2010) argues

The anti-nautch movement launched against the devadasis of the South quickly spread to the North, where the tawaifs became the targets. ‘Social Purity’ organizations like the ones seen in Britain and the mid-eighteenth century were established in Northern India to rid society of the pernicious influence of the tawaif. The ‘Punjab Purity Association’ (Lahore) and the ‘Social Service League’ (Bombay) and a host of others took it upon themselves to work for this hallowed goal... Having no options for an alternate profession, most of them resorted to prostitution. (2010, 186)

Prominent social reformers and nationalists like Kandukuri Viresalingam, Keshub Chandra Sen and M.K. Gandhi, amongst others raised their voices against the performance practices of the *devadasis* and courtesans, which they understood to be uncontrolled expressions of obscenity and sexual availability. As early as 1894, Keshub Chandra Sen wrote:

Apparently a sweet damsel, a charming figure. But beneath that beautiful exterior dwells – what? Infernal ferocity. Hell is in her eyes. In her breast is a vast ocean of poison. Round her comely waist dwell the furies of hell. Her hands are brandishing unseen daggers ever ready to strike unwary or wilful victims that fall her way. Her blandishments are India’s ruin. Alas! Her smile is India’s death. (as quoted in Wald 2009, 20)

In a series of speeches addressed to the “fallen women” of India, M.K. Gandhi explicitly condemns their profession and foregrounds their blatant incongruence to the project of nation-building. His speeches invariably juxtapose the unconventional sexual practices of the courtesans with the controlled and controllable chastity of the Hindu



wife, whose glory lies in her unflinching adherence to the ideals of monogamy. Gandhi homogenizes the *devadasis*, courtesans, and common prostitutes in his speeches, and uses the appellation “fallen sisters” or “unfortunate sisters” as euphemisms for their disreputable status. He recommends the austere life and selfless service of *sannyasinis* to these women, who, he believes, may not want to marry.

Marriage is now out of the question for you. So, no matter how you have lived in the past, if henceforth you lived pure lives the world will forget your sins. Further, you may keep yourselves aloof from the affairs of people with homes and families, that is, can become *sannyasinis*. (Gandhi 1988a, 86)

Gandhi’s eloquent abhorrence of such women involved in the activities of the Congress is voiced in the following speech, where he disapproves of the courtesans of Barisal to impart musical training as part of the agenda of the Congress. Gandhi’s severe condemnation of the cultural practices of the courtesans finds an outlet in the following comments, where music and dance are perceived as euphemisms for the sex trade:

To say the least, this is putting the cart before the horse. These sisters are advised to do humanitarian work before reforming themselves. The idea of giving higher musical training will be accounted as extremely funny if it was not tragic in its consequence. For let it be understood these women know how to dance and sing. And they may join all organizations which have satyagraha and non-violence as their creed all the time they are, by their trade, doing violence to truth and non-violence. (Gandhi 1988b, 126)

Gandhi’s attitude to women performers and their status in the newly emerging national order was highly ambiguous. His exclusion of the *tawaifs* from the Congress and the sense of moral indignation he expresses at their participation raise important questions on the professed magnanimity of the philanthropic enterprise of nation building.

The general abhorrence for women performers in the public sphere got streamlined with the emergence of print as a predominantly urban form of literary expression in the late 19th and early 20th centuries. The introduction of print engendered novel notions of social respectability backed by the formation of collective consensus on vital questions of national concern. In her scholarly study of women’s periodical writing in late colonial India, Shobhna Nijhawan (2012) argues that this body of writing contributed significantly to the redefinition of domesticity and gender roles for women. Women’s periodicals like *Stri Darpan* (1909–28), *Grihalakshmi* (1909–29), *Arya Mahila* (1917–40s), and *Chand* (1922–40s), were actively engaged in promoting a certain notion of reformed womanhood which was a combination of an essentialized “Indianness” and emergent modernity. Most of these admonitory texts emphasized the need for the reconstitution of domesticity to meet the demands of the nationalist framework. The writers of such articles underwent ceaseless efforts to extend the domestic space to encompass the nation-in-the-making, thereby giving a new dimension to the *dharma* of the Hindu housewife. In a piece entitled “The Model Girl”<sup>4</sup> Srimati Kailash Rani Vatal makes a passionate plea to the women of India to aid in the regeneration of *Bharatvars*, while at the same time reminding them of their “fallen” sisters, who are waiting to be elevated from the depths of ignominy. The socially inferior

status of the courtesans and the need to reform them through the initiatives of their respectable counterparts was asserted.

Show the light to the women and sisters who have lost their path in the dark night. Human beings at large should benefit from your unequalled devotion – stand up on the path of duty and lift up the fallen sisters, because to create new civilization, new ingredients and new materials need to be put together, which you alone cannot accomplish without the support of others. (as quoted in Nijhawani 2012, 275)

## II

Munshi Premchand's critically acclaimed Hindi novel *Sevasadan* (1917) reenacts many of the debates surrounding the female performing body and its reconfiguration within the newly imagined national cultural order. Premchand wrote the novel at a time when deliberate intellectual efforts were made to trace an alternative genealogy for Hindi language and literature as part of a larger gesture to appropriate them as emblems of national heritage. Francesca Orsini traces the emergence of an exclusive Hindi public sphere to this period (Orsini 2009). Organizations like the Nagari Pracharini Sabha of Benaras (1893), and journals like *Nagari Pracharini Patrika* (1896) and *Saraswati* (1990) advocated the use of the *Khari Boli* style of Hindi. Bharatendu Harishchandra, one of the early exponents of this variety of Hindi, wrote most of his plays using this style (Dalmia 2010). Hindi, whose pre-colonial, pre-Muslim, Sanskritic roots were painstakingly asserted, came to be purged of the eroticism and sensuality ascribed to Urdu literary practices and courtly culture. The Hindi literary tradition, whose evolution was made to parallel the changing fate of the Hindu nation, stood on a footing of respectability and chastity. The efforts at the production of a supposedly "sanitized" literary canon was dovetailed to the emergence of print and the evolution of periodicals, where a case was made for the envisioned autonomy and linguistic self-sufficiency of Hindi.

*Sevasadan* offers an insightful study of the strategies by which a newly constituted linguistic/literary tradition, one which thrived on the preservation and publicization of the "chastity" of the Hindu wife, accommodated the courtesan in its narrative framework. *Sevasadan* has a rather complicated publication history, which indicates how literary writing of the time was implicated in the politics of language and canon-formation. Premchand's literary endeavors resist his labeling as a writer belonging to just one out of the two literary traditions of Hindi and Urdu, as his speeches "*Rashtrabhasha Hindi aur uski Samsyayein*" ("The National Language Hindi and its Problems"), "*Kaumi Bhasha ke Vishay mein kuch Vichar*" ("Some Reflections on a National Language") and "*Hindi-Urdu ki Ekta*" ("The Unity of Hindi and Urdu") of 1934 suggest (Premchand 1954b, 1954c, 1954d). However, there was a decisive paradigm shift with the publication of *Sevasadan*, a novel originally written in Urdu under the title *Bazaar-e-Husn* in 1917. The Urdu original had to wait till 1924 to be published, whereas the novel in its translated and recast form appeared in Hindi in 1919. The Hindi trans-creation shot into instant fame in the literary circles of North India, thus attaining the status of a classic. The Urdu original is little known today, it is the Hindi version that Premchand is credited for. In his insightful essay "Premchand and

Language: On Translation, Cultural Nationalism, and Irony” Snehal Singhavi (2012) suggests that the novel marks a crucial juncture in the overlapping literary histories of Urdu and Hindi. By placing Premchand’s self-translation of *Bazaar-e-Husn* from Urdu to Hindi in the center, Shingavi attempts to understand the author’s cultural nationalism as deeply embedded in translation. Interestingly, the journey of the novel from *Bazaar-e-Husn* (*The Marketplace of Beauty*) to *Sevasadan* (*The House of Service*) marks an ideological shift from the sensuality and sexual availability indicated in the Urdu title to the sublimation and self-annihilation of Hindi. M. Asaduddin notes the emphasis on “pleasure and passion” in the Urdu title and “instruction and correction” reflected in the Hindi version (2016, 4). Shingavi traces the genealogy of the Urdu original to works in the *dastaan* tradition and to Mirza Ruswa’s well-known *Umrao Jan Ada* of 1899, even as the Hindi version embodied his radical departure from them:

It is in this specific sense that the combined legacies of *Umrao Jan Ada*, the *dastan*, and the *ghazal* all haunt Premchand’s novelistic representation of the *Kotha*; all hang over his fictional courtesans as precisely the representational norms against which Premchand is resisting and writing in Hindi. (2016, 151)

As Premchand self-translated the novel from Urdu to Hindi, he was acutely aware of the changing dynamics of the literary sphere of the times, which was moving away from the eroticism of its Brajbhasha and Urdu precedents. In his well-known inaugural address to the Progressive Writers’ Association in 1936, Premchand mounts a trenchant critique of the prominence given to *sringara* as the dominant emotion in literature. In his opinion, a literature that is immersed in *sringara* does not qualify to be a befitting agent of change, and reflects the degenerated literary tastes of a people (1954a, 3). This mode of minimization of the erotic, that Valerie Ritter calls an “anti-*sringara* rhetoric,” emerged in the 1880s and continued to influence the depiction of the female subject in Hindi literature down to the mid-twentieth century, was predicated upon a negation of the strain of eroticism that dominated Braj poetry for centuries (2010, 109). The evolution of *Khari boli* Hindi, an idiom that was close to speech-style Hindi in the 20th century further widened the gap between a standard “literary” medium and its erotic genealogy. This mode of literary writing was considered fit for the consumption of women readers as well as concomitant with the moral health of an emerging nation. Poetry in *Khari boli* “emerged, in a speech-style register that symbolized the future and national aspirations as against an erotic, Braj, medieval past” (2010, 111–12). The construction of the protagonist along this newly evolved ethos is effectively worked out in *Sevasadan*, where Suman appears to be more restrained than in *Bazaar-e-Husn*, where she is portrayed as coquettish and flirtatious. The Hindi version also makes prominent comments on the sorry state of Hindi literature, condemning its imitative dependence on Bengali. The didactic tone and moral urgency of the Hindi version is unambiguously reflected in passages where the narrator comments on the degeneracy of the Hindu *jati*. In her insightful essay “The Widow, the Wife, and the Courtesan” Krupa Shandilya (2016) studies *Sevasadan* as a social reform novel that traces Suman’s transformation into a Gandhian nationalist subject through her “abjuration of sexual desire” (2016, 283–84). However, my argument is that Suman’s transformation in the novel cannot be examined deeply without looking at the anxieties around the figure of the performing woman that emerged with the pervasive influence



of the Anti-Nautch movement and the revival of performing arts in the 20th century and their implications upon Hindi fiction. The Anti-Nautch campaign offers a more appropriate context for discussing the novel's response to reformist discourses and the change in register in the portrayal of the protagonist.

The depiction of the "loss of virtue" in Hindi had become a highly contentious terrain at around the time when *Sevasadan* was written. The central dilemma of the nationalist literary imagination, as reflected in the novel, is to resolve the many ambiguities that emerge from the delineation of "fallen" womanhood in a language that is newly aspiring for national status. The anxiety to reconcile two divergent entities – the eroticism of the courtesan's way of life and the chastity of Hindi – is dramatized in *Sevasadan*, whose dynamics undergo a radical redefinition for the incorporation of an uncontainable sexuality. To a psyche that recognized forms of female sexuality which were reducible to language and had a rich genealogy of literary precedents, the sexuality of the courtesans appeared to elude available linguistic categorization. Such writings were often confronted with the problem of inventing containable terms for the courtesan's sexuality to be embedded in language. The unconventional sexual practices of the courtesan, above all, had to be represented by the use of available vocabulary. The standard term used for courtesans in Hindi as well as the Hindi version of *Sevasadan* is "vaishya" which connotes their non-conjugal, transgressive sexuality, one that does not fit into the framework of normativity (Premchand 2017). The term, however, glosses over the minute shades of difference between their cultural and sexual functions as erudite entertainers and sexual service providers. Bhagwati Charan Verma's 1934 novel *Chitrlekha* presents a peculiar case of a dancing-girl who resists being categorized as a "vaishya" (Verma 2006). In her study of colonial Lucknow, Veena Talwar Oldenberg asserts that the courtesans of the period embodied a world that was hierarchical in fashion. The courtesans of an establishment mainly fell in to three categories – the *tawaif*, *thakahi*, and the *randi* – the *tawaifs* were primarily paid for their musical services, they entertained their clientele with music and dance, trained wealthy men in the conversational etiquettes of the elite, and had long-term patrons for partners. They were a class apart from the *thakahis* and *randis* who offered sexual services readily on demand and were paid accordingly (1990, 264). Amritlal Nagar's memoir *Yeh Kothewaliyan* (1961) also makes numerous references to the hierarchized world of the courtesans, where the *deredar tawaifs*, who were trained in the arts of music, dance, and polite conversation were at the topmost position among North Indian courtesans (2008, 45). Premchand's *Sevasadan*, however, treats the cultural and sexual functions as exchangeable partly because of the paucity of available vocabulary in Hindi for such women and partly because the novel is concerned with an Anti-Nautch reformist rhetoric that engages in the condemnation of the courtesans, where their sexual and cultural roles overlap. The constructions of the courtesan in the nationalist imaginary often led to such obvious slippage from one role to another, thereby homogenizing the plurality of their professional status.

*Sevasadan* critically engages with the reformist discourse that developed around the courtesans in the early decades of the 20th century. The movement for the eviction of courtesans from the city of Benaras, their relocation in the outskirts, and a redefinition of their sexual roles are the central thematic concerns of the novel. There is a

considerable degree of anxiety about the concomitant restructuring of the city along the lines of the newly evolved puritan ethos. Caught in one of its transitional phases, the urban space shares a metonymic relationship with the nation-in-the-making. Suman, the protagonist, is a married woman who is discontented with her life and her husband who is not financially well-off. Moved by her kindness, she develops intimacy with Subhadra, wife of Padamsingh Sharma, an influential man in Benaras elite circles. The *Holi* celebrations at Padamsingh's place spell out Suman's nemesis, for after this episode Suman is kicked out of the house by her husband Gajadhar Pande. Suman finds refuge in Padamsingh's place, but the fear of scandal makes him drive her away. She ends up at the brothel run by Bholibai, a renowned courtesan of Dalmandi. She is enchanted by the courtesan's extravagant lifestyle and derives short-lived pleasure from her status, but chooses to opt out of her disreputable profession under the influence of reformists like Babu Vitthaldas. In their bid to engage in philanthropic endeavors, the nationalist elite of Benaras arrange for her stay at an ashram meant for the widows, but social scorn drives her out of this place as well. Later in the narrative, Suman finds shelter at her sister's place, but fails to elevate herself in her eyes. She is finally placed in Sevasadan, the orphanage constructed by the municipal corporation for the rehabilitation of the daughters of former courtesans.

The notion of "relocation" or "shift" forms the very core of the thematic concerns of *Sevasadan*. The novel offers a highly nuanced understanding of the cultural shifts and ideological reorientations within which the lives and cultural practices of the courtesans of Banaras were implicated. These shifts are central to the narrative; it is through them that the strategic transformation of Suman and her reintegration into the moral framework of the Hindi literary consciousness is worked out. The displacement that is the central focus of the narrative is as much ideological and cultural as it is topographical. The notion of delineation of boundaries is at the very heart of the debates on the status of the courtesans in the novel. At the literal level, this form of shift might be taken to mean the specification of the limits of a geographical entity like the city, whose restructuring leads to the relegation of the courtesans to the margins of the identified, "respectable" urban space. At a metaphorical level, it might indicate the demarcation of new moral boundaries that perceived the courtesans as unchaste at a time when the nation was being imagined and reconstituted in gendered terms. Further, the shift in the topographies of the courtesan almost always entailed a cultural shift, whereby her performance practices were re-contextualized, leading to a radical transformation of repertoire. *Sevasadan* offers an interesting engagement with each form of shift indicated above.

The Hindu publicists' campaign against the prostitutes (and not so much against the institution of prostitution itself) involved two kinds of displacement. At one level, the prostitute was displaced from the moral ethics of the times, condemned as the cause of all evil. At another, she was displaced from the municipal city and confined to a zone of the 'other'. She was displaced in the new urban geography, a public space of civic polity, which sought to enshrine exclusive values of cleanliness and civilization. (Gupta 2001, 113)

Nationalist construction of the public woman in general and the courtesans in particular establishes an inextricable link between the unconventional sexuality of the

courtesan and the colonial urban space. In such constructions, the city is an extension of the sexually accessible body of the woman performer, a site for vice and perversion. Ghulam Abbas's (2003) Urdu short story "Anandi" written sometime in the 1940s is an ironic treatment of the re-structuring of the urban space inspired by nationalist euphoria, which relegates the courtesans to the margins of respectable society and to the outskirts of the city. This nexus between the urban and sexualized consciousness is central to Premchand's *Sevasadan*, where the realignment of the limits of the urban space is predicated upon a fundamental understanding of the sexuality of the courtesan. The self-proclaimed, seemingly selfless nationalist reformers in the novel propagate ideals of a "clean" social order, and raise furor about the "loss" of masculinity of the youth of the nation under the influence of the dubiousness of courtesans. There is a multitude of terms in the novel to designate this potentially dangerous sexuality of the courtesan. Terms of disdain reflecting the sense of moral recoil for the institution abound in several chapters of the novel. "*Kulata*" (slut), "*dushcharitra*" (characterless), "*dushprem*" (forbidden/notorious love), "*kupravritti*" (evil disposition), "*kusangati*" (evil company), "*patan*" (fallenness), "*kuvasana*" (forbidden desires), all appear in a succession in the early sections of the novel as indicators of a newly emerging reformist consciousness and its repulsiveness for an obscure, immoral cultural practice (Premchand 2017). It is interesting to see how a number of such terms, while obviously drawing attention to the loss of virtue of the courtesan, also describe her pernicious influence upon the "innocent" youth, on who lay the responsibility of nation-building. The loss of manhood attributed to liaisons with courtesans became a site of moral reform in the early 20th century, when men like Gandhi advocated the need for *brahmacharya* or abstinence from sexual desire as a precondition to counter colonial dominance. Premchand's *Sadan* is a classic case of the rural young boy, as yet inexperienced in the manners and mores of the city, venturing on a journey to the urban domain. He is allured by the superfluosity of urban lifestyle, runs after courtesans, and ruins himself.

### III

*Sevasadan* forges a critical and creative intervention into the revivalist nationalist discourse on the performing arts that gained ground in the early decades of the 20th century. Traditions of performing arts in India were radically renovated around this time, as they came to be appropriated as markers of the rich cultural legacy of the newly imagined nation. There was a widespread awareness about the projected degeneracy of music and dance traditions, attributed chiefly to its hereditary practitioners, the *tawaifs* and the *devadasis*. Self-styled, upper-class custodians of art recognized the need to "revive" the performing arts in a bid to make them available as symbols for the assertion of cultural refinement over the colonizer. The movement for revival in Indian classical dance, which gained momentum in the 1920s and 30s was energized by the efforts of prominent innovators like Rukmini Devi Arundale, E. Krishna Iyer, Vallathol, Rabindranath Tagore and Madame Menaka. Inspired by the newly emerging Orientalist discourse on Indian performing arts, they set out to modernize different regional performance traditions. Rukmini Devi was instrumental in giving a new form



to *Sadir*, which was practiced by the *devadasis* of Tamilnadu. She re-named it as “*Bharatanatyam*,” and projected it as an ancient dance form with its roots in a Sanskritic past. Madame Menaka constructed *Kathak* as a respectable art form by purging it of its associations with the *tawaifs* of Lucknow, Benaras and Kolkata. Each of these forms came to be defined as “classical,” and numerous efforts were made to textualize and codify these dance practices. In her perceptive analysis of the social history of *Kathak*, Margaret Walker problematizes the relationship between the loosely structured dance practices of the erudite *tawaifs* and the self-conscious canonization of 20th century *Kathak* by *Brahmin* patriarchy (2014). The transformation of *Kathak* into a predominantly *Brahmin* form of cultural practice, she argues, traces its genealogies to a distant vedic, rather than the immediate Mughal, past (15). The revival of performing arts in India represents a complex phenomenon with exclusionist tendencies, as summed up by Matthew Harp Allen (1997) in the context of *Bharatanatyam*:

The term ‘revival’ is a drastically reductive linguistic summary of a complex process- a deliberate selection from among many possibilities- which cries out to be examined from more than one point of view. While the ‘revival’ of South Indian dance certainly involved a re-vivification or bringing back to life, it was equally a re-population (one social community appropriating a practice from another), a re-construction (altering and replacing elements of repertoire and choreography), a re-naming (from nautch and other terms to Bharatanatyam), a re-situation (from temple, court, and salon to the public stage), and a re-restoration (splicing together of selected ‘strips’ of performative behaviour in a manner that simultaneously creates a new practice and invents a historical one. (Allen 63–4)

*Sevasadan* obliquely comments on a transitional phase in the social history of performance, which parallels the relocation of the courtesans in the novel. In the early chapters of the novel, the *Brahmin* patriarchal set-up of Benaras endorses the practice of visiting brothels and inviting courtesans for performances on festive occasions. Bholibai’s performance during the *Ramnavami* celebrations is indicative of this culturally sanctioned practice:

It was the month of Chait. For Ramnavami, Suman went with her friends to the main temple to watch the Janmotsav celebrations. The temple had been ornately decorated. The electric lights made it as bright as a day. And it was very crowded; the courtyard of the temple was completely packed. But over the din of the crowd, one could hear an extraordinary melody coming from inside. Suman peeked in through a window and saw Bholi, singing. In the audience, she saw men of high repute ... They now appeared to be in the throes of some divine intoxication induced by Bholi. Through her performance, Bholi glanced around the room seductively, stopping on a face or exchanging glances with one of the men. (2005, 22–23)

With the onset of social reform movements in the late nineteenth century and the re-ordering of existing gender roles, the courtesan is relegated to the periphery, as also the musical forms she excelled in. Performative genres like the *thumri*<sup>5</sup> and the *ghazal*<sup>6</sup> are perceived as unabashed expressions of sensuality. In the novel, Babu Vitthaladas is concerned with the uprooting of not just the courtesans but their musical practices as well: “First, the courtesans must be removed from public places, and second, the custom of singing and dancing by courtesans must be stopped” (99). In the later episodes of the novel, music and dance performances by courtesans are looked down upon with

disapproval, while music itself is eulogized as national heritage. In one of the episodes, Kumwar Aniruddh Singh voices his contempt for the licentiousness and immorality of *ghazals* and *quawalis*, which are then linked to the cultural degeneration of Mughal rule: “Who knows how this awful custom started? Perhaps it started during the reign of sensual Muslim *badshahs*” (98).

Sadhu Gajanand’s fiery response to the dissatisfaction of the guests over the lack of dance performances by courtesans at Sadan’s wedding is symptomatic of the changing sensibilities of the elite. His speech is steeped in the rhetoric of social reform and dance revival:

Fools! There is no dance here, no courtesans ... The songs of Krishna are so wonderful, but no one listens to them, no one has ears any more. Everyone wants to see whores dance instead ... The entire world is a school of dance and people dance their own dances in it ... Come let me show you Shankar’s *tandav nritya*. Your lust will not be satisfied with this dance! Ha! Ignorant statues! Ha! Slaves of pleasure! Aren’t you ashamed just to say the word “dance”? (2005, 145–6)

The dance of the courtesans carries erotic implications and is essentially antithetical to the songs of Krishna that inspire divinity (146). The speech has a dramatic effect on the rioters and as a corrective to their forbidden longing for the dance of the courtesans, some of them start singing devotional hymns. In another poignant episode from the novel, a love-thirsty Sadan is spotted walking toward the former brothel of Suman in Dalmandi, expecting to satisfy his carnal hungers. On reaching the doorstep, he is shocked to realize that the brothel has now been transformed into a school of music where an elderly maestro offers musical lessons to the disciples, all men. This is where he hears the following song, urging the “sleeping *Aryan* race” to plunge into action.

Merciful Mother, accept Bharat as your own.

Console us, O Mother, for separated from you, we are full of anxiety.

Call me beloved child and laugh and embrace me.

Merciful Mother, accept Bharat as your own.

Awaken again, dear Mother! The pride of the sleeping *Aryan* race.

Break the chain and throw off the fetters of our slavery.

Merciful Mother, accept Bharat as your own. (2005, 254–55)

The episode is suggestive of the shift of authority from traditional performers to self-professed experts who are “very knowledgeable about music” (254). The change in the performance contexts of music, to which the passage calls attention, can be understood in relation to the institutionalization of music by Vishnu Narayan Bhatkhande and Vishnu Digambar Paluskar in colonial north India. Janaki Bakhle (2006) observes in her book *Two Men and Music: Nationalism in the Making of an Indian Classical Tradition* that these innovators revived and refashioned *Hindusthani* music as “classical” by providing a textual base to the existing musical practices and institutionalizing them. Paluskar, in particular, attempted to classicize, cleanse, and sacralize

music by making it available to women through his immensely popular Gandharva Mahavidyalayas. Bakhle argues that this could only have been possible by the minimization of the courtesans' possibilities to perform (11). Particular notions of female respectability were central to the project of revival and reform, because of which the courtesans' opportunities to perform were minimized and the "chaste," "monogamous," "respectable" Hindu wife was constructed as the legitimate propagator of these art forms.

The song from *Sevasadan* quoted above also traces racial lineage to a glorious Aryan ancestry. This nationalist tendency, prompted by Orientalist reconstructions of a "golden" age located in the Vedic past, instilled a sense of self-esteem among the subjugated population, and elevated them to the status of cultural equals with the colonizers. The figure of the enslaved nation-mother, famously iconized in Bankim Chandra Chattopadhyay's *Anandamath* (2005), to which the above episode from *Sevasadan* invites reference, legitimizes a certain notion of womanhood that was premised on the sublimation of libidinal desire. This mother-figure, in which the newly imagined nation was embodied, is in absolute contrast to the figure of the courtesan symbolizing a sensual way of life. The evocation of the nation-mother is one means by which the supposedly "tainted" Hindu race can envision its salvation.

#### IV

The ideological thrust on the restoration of the "lost" chastity of the Hindu wife is manifested in Suman's rescue from her fallen state. The onus of upholding the dignity of the Hindu race in its equally fallen and vanquished state rests upon Suman and her unflinching adherence to her virtue. Suman's chastity shares a metonymic relationship with the moral order endorsed by the Hindi literary tradition, an aspirant for national status. In the novel, Suman is rebuked for her decision to reside at Dalmandi with other courtesans: "Do you care at all about your honor and chastity?" she is asked (2005, 20). Later, Suman vows to protect her chastity even while she is in a brothel and exposed to the many dangers of the male gaze: "Even though it is difficult while living in a brothel, I have vowed to protect my chastity. I will sing. I will dance. But I will never let my body be polluted" (2005, 72). This "unconditional chastity" of the Hindu wife, as Tanika Sarkar argues in her book *Hindu Wife, Hindu Nation*, acquired immense significance at a time of anti-colonial resistance. To the national imaginary it represented a possible condition for the autonomous Hindu nation. It was around this crucial cultural marker that nationalist claims to cultural superiority were forged:

The absolute and unconditional chastity of the Hindu wife ... becomes at once a sign of difference and of superiority, a Hindu claim to power. The politics of women's monogamy then is the condition for the possible Hindu nation: the one is often explicitly made to stand for the other ... Woman's chastity, then, has a real and stated, not merely symbolic, political value. (2001, 41)

If the restored virtue of the body of the Hindu woman shared an ideological equivalence with the envisioned revitalization of the Aryan race, the constructed autonomy of the domestic sphere epitomized the possible nation-space. The domestic sphere, whose cultural and moral exclusivity was personified in the figure of the Hindu wife, was



projected as an autonomous space that could effectively resist the influence of colonial domination and thus preserve the sanctity of ancient Indian traditions. As Partha Chatterjee asserts in his theorization of nationalist discourses, nationalism can be understood as being constituted of two domains – the “outer” domain of the man, subservient to colonial institutions and values, and the “inner” or the domestic domain, the prerogative of the woman (1993, 127). Representation of the lifestyles and the cultural practices of the courtesans posed a special problem for the reformist psyche of the nationalist elite because this lifestyle and their non-monogamous sexuality could not be contained in the idiom of domesticity that they invented for the representation of women. This idiom thrived on the valorization of monogamy and conjugality; the chaste housewife of the domestic sphere was the ideal it established. As Shobhna Nijhawan argues in her book *Women and Girls in the Hindi Public Sphere*, periodical writings of the early 20th century led to the emergence of a “critical public discourse on domesticity” (2012, 141) which offered a standard vocabulary for the delineation of all women. The unconventional sexuality of the courtesan came to be judged vis-a-vis this standard of domesticity, so that a new vocabulary could be invented for containing it within language. In most of the literary writings of the time, the supposedly “sinful” courtesan yearns for the security of the domestic. In Acharya Chaturseena’s Hindi short-story “*Vaishya ki Beti*” (The Courtesan’s Daughter, 2016) for instance, Kamini, the daughter of a courtesan, unyieldingly resists her forced induction in to the profession and pines for conjugal love. The story ends with the glorification of chaste womanhood and a condemnation of the courtesans. This mechanism of transformation of the courtesan is also worked out in Sharat Chandra’s *Devdas* (2002), where Devdas’s uncompromising contempt for the courtesan Chandramukhi creates stirrings of moral transformation in her. In the later episodes of the novel she decides to refashion herself as a pious woman. This is when Devdas addresses her as “*bou*,” meaning wife, at once elevating her to the standard of respectability that is largely denied her in the early chapters of the novel.

*Sevasadan* was written at a time when new roles for women as selfless mothers were being created in the public sphere. This new redefinition of womanhood required women to be ever-ready to sacrifice themselves on the altar of national service and the uplift of the needy. Such views were explicitly endorsed by women nationalists like Sarojini Naidu, who aimed to integrate women in to the project of anti-colonial resistance. In a speech delivered in Bombay in 1916, Sarojini Naidu expounds the need for women’s participation in the national movement for independence in the capacity of selfless mothers.

The real test of nationhood is the woman. If the woman has taken her proper place in the society, then the central problem is solved. ... In India, this problem can be solved by bringing upon the woman the sense of responsibility and impressing upon her the divinity and conscientiousness of her power and work of motherhood ... it should be brought to the mind of Indian women that she is not a toy, nor a chattel, nor an instrument of pleasure or amusement, but the inspirer of spirit. (1971, 59)

Such perspectives, extolling the symbolic value of motherhood gain currency in *Sevasadan*, where Suman is consistently advised to devote her life for the service of the needy. Sadhu Gajanand, who is Suman’s husband Gajadhar in the guise of a *sannyasi*,

prescribes selfless service as the only antidote for Suman's fallen-ness. She internalizes this view and willingly steps out of the erotically charged space of the *kotha* or the courtesan's establishment to the widow's home where she plays the mother to helpless women. Later in the novel, following her continued rejection in her sister's house, she finds a permanent engagement as a motherly figure in *Sevasadan*, the orphanage where daughters of former courtesans are rehabilitated and trained for a life of respectability. In her reincarnation as a mother who readily offers herself for service, Suman is relieved of the libidinal burden. By performing these acts of motherly self-effacement and self-annihilation, the courtesan in *Sevasadan* nullifies the erotic import of her past and recreates herself along the lines of acceptable gender roles.

Her avid interest in the verses of the 16th century Hindi mystic poet Meerabai and her reading of religious texts, sermons, and biographical accounts of educated women that appeared in periodicals purge her of sexual desire. She emulates enlightened Aryan women and mythological figures like Damayanti, Sita, and Savitri, whom she considers to be the epitome of womanly virtues. The national imaginary relied heavily on these models of the upper-caste, Aryan women of a distant vedic past to combat contestations of cultural inferiority in the degenerated present, as Uma Chakravarti establishes in her essay "Whatever Happened to the Vedic Dasi: Orientalism, Nationalism, and a Script for the Past" (1989, 39). Suman's transformation into a pious woman through her emulation of the vedic model of virtuous, enlightened femininity is a classic instance of the ways in which the national imaginary managed aberrant female sexuality.

Through the change of register from the erotic/sensual to the domestic/pious in *Sevasadan*, the transformed courtesan is contained in language, and symbolically, in the newly imagined nation-space. The courtesan's willingness to internalize normative structures and standards of piety (Shandilya 2017) peculiar to the domestic practices of the time leads to her symbolic assimilation in to the chaste literary canon of Hindi. The performance of piety is a narrative strategy by which the courtesan and her sexuality get inscribed in a language and literary tradition which were struggling for respectability. In Hindi's struggle to free itself from the eroticism of Braj and sensuality of Urdu, it evolved a chaste idiom for itself, which was nowhere more palpably apparent than in the representations of courtesans, who, by virtue of their status as public women, defy the very idea of chastity. The anxiety to reconcile two divergent entities – the eroticism of the courtesan's way of life and the chastity of Hindi – is reflected in *Sevasadan*, whose dynamics undergo a radical redefinition for the incorporation of uncontainable sexuality. The language, therefore, is still untainted by the presence of the courtesan and its chastity is restored through the transformation of the courtesan.

## Notes

1. Used mostly by British administrators, missionaries, and Indian social reformers in the 18th and 19th centuries, the term "nautch" is an English distortion of the Hindustani word "*naach*" meaning dance. See Neville (2009).
2. The *devadasis* were a community of temple ritual performers "dedicated" to the temples at an early age so as to facilitate their training in the arts of dance and music.

3. “*Tawaifs*” or “*baijis*” embodied a more secular form of cultural practices, which included *ghazals*, *thumris*, *dadra*, composition of poetry sung to the accompaniment of hand gestures, song and accompanying dance performances in Urdu, Persian, and so on. See, Neville (2009) and Sampath (2010) for an understanding of the origins and evolution of this institution.
4. I follow Shobhna Nijhawan’s English translation of the Hindi original.
5. Poetic renditions in Brajhasha that were popular with the *tawaifs*. *Thumris* celebrated the love-making of Radha and Krishna and were usually accompanied by hand gestures explicating the several layers of meaning in the text.
6. A musical genre of Persian origin, also popular with the *tawaifs*.

## Disclosure Statement

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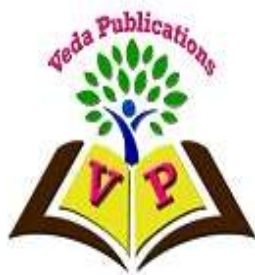
## AGAINST ANTHROPOCENTRISM: JOSEPH CONRAD'S COMPLEX ECOCRITICAL DISCOURSE

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### ABSTRACT



Conrad's fiction, despite being subject to manifold critical interventions in the past, still offers itself for further analysis by the recently developed theoretical paradigm of Ecocriticism. Ecocriticism, for its thoroughgoing exploration of the causative history of the 'otherization,' 'domination,' and 'exploitation' of Nature, finds The Enlightenment majorly responsible for such anthropocentric devaluation of Nature. Conrad's delineation of the man-Nature dialectics however seems to present a sustained critique of the Nature-derogating principles of The Enlightenment through its initial exposition and subsequent demolition of anthropocentrism. Such a reversal method takes us to a conclusion that Conrad does not promote the idea of man being the master of Nature, rather, establishes, in concurrence with what ecocritics would intend to ascertain in the end, that man is nothing but an infinitesimally small element in the vast biotic life of Nature.

**Keywords:** *Ecocriticism, Anthropocentrism, The Enlightenment, Dualism.*

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Joseph Conrad's literary oeuvre has been read, re-read, examined and re-examined from almost all the critical and theoretical frameworks available at hand, such as: postcolonial studies, feminist studies, gender studies, psychoanalytic studies, narratological studies and many more. Despite the incredibly humongous outpouring of critical interventions on his writing over the years, the relatively lately flourished theory of ecocriticism readily demands for a re-reading of his works to yield a composite understanding of the intricate man-Nature dialectics complexly interwoven in his oeuvre. Revealingly, this reading promises to unveil Conrad's precocious and futuristic engagement with a systematic ecocritical discourse that evolved many years after his death—a discourse that runs as the foundational core of his overall narrative structure. Needless to say, Ecocriticism poses a staunch and defiant critique to anthropocentrism—an exclusively human-centered worldview which, though discursively embedded in the bedrocks of classical Western philosophy and religion, has its culmination point in the self-aggrandizing, scientific and progressive principles of *The Enlightenment*.

The fundamental premise of ecocriticism, while aiming at the exploration of the causative history of Nature's stark and enforced passivity in the modern man's anthropocentric cultural terrain, holds that Nature has become conspicuously silent in the human-centered Western discursive formations decreed by Enlightenment pioneers, especially Bacon and Descartes. "For half a millennium," says Christopher Manes, "Man has been the centre of conversation in the West. This fictional character has occluded the natural world, leaving it voiceless and subjectless" (26). It hardly needs mentioning that Bacon, an illustrious Enlightenment-pioneer and the celebrated and ideological father of Science, evaluates Nature purely in terms of its instrumental value while disregarding its ontological facticity and conceptualizing it purely in terms of utilitarian values and in terms of its exclusive usability for mankind. Descartes, on the other hand, looks condescendingly at Nature defining it as a mere drab and insensate body devoid of the qualities of mind or spirit; it is a philosophical ramification of his infamous mind/body

dualism or its corresponding man/Nature dualism<sup>1</sup> that declares man as the lone possessor of mind or spirit and discredits Nature as dead matter bereft of the formers. On the whole, these two major pioneers of Enlightenment anthropocentrism contribute, in their own significant but notorious ways, towards the utter derogation of Nature, either as a mere instrument of human telos, or as mere mindless matter or body meant for exclusive human possession and use.

In this scenario, a close look at Conrad's Nature-narrative would reveal its deep and sustaining engagement with these typical anthropocentric tenets of Western philosophy, particularly that of The Enlightenment. However, he has more to offer. An intense perusal of his narrative would reveal that Conrad, though outwardly showcases the Nature-dominating principles of The Enlightenment, counteractively, does the reverse by effectuating the mocking reversal of man's claims to mastery over Nature. A close look at his narrative—which I prefer to call Conrad's double-helix Nature-narrative—would reveal how these two mutually contradictory and counteractive narrative strands are interestingly intertwined in his Nature-narrative such that one narrative that is purposely constructed is also subsequently dismantled. In so doing, the novelist seemingly takes an ironic dig at the anti-Nature philosophical principles of The Enlightenment thereby in a way, shaking the bedrocks of Western anthropocentrism—manifest predominantly through the celebration of the human sovereignty over Nature. Such a dismantling act, of course, crucially goes in concurrence with the edifying anti-anthropocentric principles of Ecocriticism that attribute the human being with a humble and subdued position in Nature's vast and intricate biotic life, not a masterful one.

In this context, this article endeavours to disentangle these two perpetually intertwined narrative threads in Conrad's double-stranded man-Nature discourse that initially seemingly construes Enlightenment anthropocentrism on the surface only to be punctured and dismantled, later on, through dissident, anti-anthropocentric underpinnings. The article, in its endeavour to do so, will have a blended





structure—like Conrad's twisted narrative itself—where it will first show the construction of the human ego over Nature and then, the following demolition act by the author.

### HEART OF DARKNESS

Conrad's magnum opus *Heart of Darkness*, for its succinct elicitation of the man/Nature dialectics, becomes the first important text for the above analysis. The novel, albeit its unremitting engagement with the issues of racial discrimination (as charged by Achebe), also presents itself as a graphic documentary of man's frontal encounter with African Nature which—as the colonizer sees it—is no more than a dumb and deaf, dispirited, non-human 'other.' Marlow's immediate and spontaneous reactions at the sight of the colossal forest is worth mentioning:

"The smell of mud, of primeval mud, by Jove! was in my nostrils, the high stillness of primeval forest was before my eyes. . . . All this was great, expectant, mute. . . . Could we handle that dumb thing, or would it handle us? I felt how big, how confoundedly big, was that thing that couldn't talk, and perhaps was deaf as well" (Conrad, *Heart* 30).

The passage, in its succinct evocation of the image of Nature as a mute, spiritless and unresponsive 'other,' makes us realize the presence of an age-old, antediluvian conceptual disconnection between man and Nature—a disconnection that crucially determines the anthropocentric foundation of Western humanism. In addition, as an oafish vindication of the Baconian principles of attacking and vanquishing Nature, we learn that this 'other,' i.e. Nature, also stands ready, as Marlow had informed us beforehand, to be invaded by the colonizers. He narrates: "And outside, the silent wilderness [was] waiting patiently for the passing away of this *fantastic invasion* (emphasis added)" (Conrad, *Heart* 26). It goes without saying that it is a crude and blatant assertion of the Baconian spirit of domination of Nature through a military march into

its pristine and ensconced territory by man. Bacon, in a notorious protestation of anthropocentric despotism over Nature, sanctions similar human military march into the former's territory by advising man to "unite forces against the Nature of the Things, to storm and occupy her castles and strongholds, and extend the bounds of the human empire" (qtd. in Mathews 32).

Intriguingly however, the text, after such purposeful construals of a thoroughgoing, egomaniac image of man, leads us to a reversive scenario—with the unfolding of the other strand of Conrad's double-helix Nature narrative as mentioned previously—where the intended human domination of Nature is foiled with scathing ridicule and cynicism. The enlightening conviction of Kurtz in his dying moments substantiates such a dramatic turnaround:

You should have heard him say, 'My ivory.' Oh yes, I heard him. 'My Intended, my ivory, my station, my river, my—' everything belonged to him. It made me hold my breath in expectation of hearing the wilderness burst into a prodigious peal of laughter that would shake the fixed stars in their places. Everything belonged to him—but that was a trifle. The thing was to know what he belonged to, how many powers of darkness claimed him for their own. (Conrad, *Heart* 58)

The passage, while brilliantly contrasting Kurtz's self-acclaimed possession of Nature with his counter-possession by the same, not only demystifies his futile claims to mastery over Nature, but also, makes a scathing caricature of this so-called genius that arouses in us mixed feelings of pity and ridicule for him. In addition, one could also notice that it is a counteracting rebuttal of the Baconian principles of domination and possession of Nature. Nature's backlash at the pointless human endeavour to master it—convincingly demonstrated through Kurtz's momentous defeat and surrender—is, one could say, a hard setback to the Enlightenment-



pioneered human autonomy and omnipotence over Nature. As Ian Watt observes, Kurtz's defeat "enacts one of the ideological lessons of *Heart of Darkness*: that nothing is more dangerous than man's delusions of autonomy and omnipotence" (44).

In another notable instance of Conrad's anti-anthropocentric agenda, we find a compellingly demonstrative picture of man's miniaturization before the all-encompassing visual field of Nature. Marlow, while journeying across River Congo, flanked on both sides by the enormous masses of trees, describes his feelings of being very small and very lost in the following lines:

Trees, trees, millions of trees, massive, immense, running up high; and at their foot, hugging the bank against the stream, crept the little begrimed steamboat like a sluggish beetle crawling on the floor of a lofty portico. It made you feel very small, very lost, and yet it was not altogether depressing, that feeling" (Conrad, *Heart* 40-41).

Particularly, the last sentence of the quote seems to indicate towards a sort of candid acknowledgement, on the part of the colonizer, (as the feeling of being very small and very lost are not depressing for him), of man's essential and ineluctable puniness before colossal Nature's vast and empyrean ecosphere. It very well coincides with Eco-philosopher Michael Tobias's remark, in the introduction of his book *Deep Ecology*, about mankind's negligible positioning in Nature's empyrean biosphere in which humanity is a mere infinitesimally small part or fragment. Tobias' description of the diminutiveness of mankind before Nature's vastness is fascinating: "From the biosphere's perspective, the whole point of Homo sapiens is their armpits, aswarm with 24.1 billion bacteria" (vii).

So, Conrad's abrupt evocations of these confessional moods on the part of his protagonists and characters undoubtedly carry the insignia of his anti-anthropocentric narrative denouements. Marlow's unquestioning acceptance of man's

puniness before Nature's all-pervading vastness directly contrasts the Conradian characters' otherwise generally haughty, condescending, and discontented engagement with the same. Through these rare moments of self-defeating declarations on the part of his characters, he looks like enforcing his intended theme of the implicit critique of anthropocentricity.

### LORD JIM

Conrad's other notable work *Lord Jim* provides us with more fitting evidences of similar narrative flip-flops in his treatment of the man-Nature conflict. Right from the outset, we encounter a fabricated and vainglorious image of Jim that generates an impression of him as being "as unflinching as a hero in a book" (11) and we learn through many textual evidences and anecdotes that Jim boastfully considers himself as someone who is not only unbeatable by the forces of Nature, but also someone who is its master. However, we learn through a series of subsequent dramatic turn-arounds of events and episodes that Jim finds himself a hapless captive of Nature rather than being its self-styled master. A revelatory passage describing his shifting dynamics with Nature in the island of Patusan would help us unwind the two narrative threads intertwined in Conrad's double-helix man-Nature dialectics:

He looked with an owner's eye at the peace of the evening, at the river, at the houses, at the everlasting life of the forests, at the life of the old mankind, at the secrets of the land, at the pride of his own heart: but it was they that possessed him and made him their own to the innermost thought, to the slightest stir of blood, to his last breath. (Conrad, *Jim* 188-189)

A close look at the above passage would reveal how Jim's self-excoriated mastery over Nature (at which he looks with an "owner's eye (emphasis added)") is immediately and comprehensively dismantled by his complete counter-possession by the former (as seen in the last portion of the quote).



Jim's thoroughgoing captivation by Nature makes his self-assumed and differentiated subjectivity break, crumble and dissipate into Nature's all-pervasive enormity. Such collation of the paradoxical figurations of Jim, first, the self-styled master and then, a captivated slave, clearly goes in concurrence with the typical Conradian strategic ploy—as has been reiteratively claimed beforehand—to first expose and then demolish Western anthropocentrism, thoroughgoingly.

At another critical juncture in the text, Jim's captivation by Nature is all the more visible when the narrator informs that he is possessed not only by his beloved Jewel, but also by the entire biotic community of Nature accompanying her: "The land, the people, the forest were her accomplices, guarding him with vigilant accord, with an air of seclusion, of mastery, of invincible possession. There was no appeal as it were; he was imprisoned within the very freedom of his power . . ." (214). This exemplary nullification and reversal of Jim's self-acclaimed command and ascendancy over Nature truly echoes the voice of the pioneer of "land ethic," Aldo Leopold: ". . . that we are plain members and citizens of the land-community, not the rulers of the earth" (240).

This ongoing deconstruction of the Western man's anthropocentric ego is perhaps most effectively demonstrated by the evocation of the image of "fall" of man by Stein who, while reflecting on man's inexorable inclusion in Nature, construes: "A man that is born falls into a dream like a man who falls into the sea. If he tries to climb out into the air as inexperienced people endeavour to do, he drowns . . ." (Conrad, *Jim* 163). Stein's metaphor of "fall" of everyman into the unfathomable depths of the sea seems to be Conrad's suitable literary artifact to underscore the futility of Jim's (and the Western man's for that matter) desperate yearning to transcend the totalising dimensions of Nature and also, to expose the illusory nature of his soaring self-belief. It is significant to note that Conrad, in his personal life as a sea-voyager, sees Nature as a manifestation of eternity and is well aware of man's littleness before its compelling and all-encompassing immensity, as he confesses: "In my early days,

starting out on a voyage was like being launched into Eternity" (Gose, Jr 139). The 'fall' that Stein stresses so emphatically on is of course suggestive not only of man's inability to transcend and transgress the all-pervasive enormity of Nature, but also the latter's all-inclusiveness in which humanity is a mere fragmentary part.

### NOSTROMO

Conrad's another famous masterpiece *Nostromo* characteristically wavers between similar narrative undulations of the exposition of anthropocentrism and its subsequent dismantlement. The novel initially explicates how Nature (the Sulaco Valley in particular)—through its instrumental and utilitarian estimation by the colonial man—is conceived as a mere object exposed to the capitalistic western man's possession and exploitation. This can be marked from the cool and dispassionate mechanistic attitude of Sir John and the Engineer-in-chief who had come to survey the Sulaco Valley for forthcoming capitalistic enterprises. It is worth noticing that initially Sir John and the engineer-in-chief are exceedingly overwhelmed by the Sulaco Valley's exquisite scenic beauty; yet, that spontaneous joy proves to be momentary and is immediately eclipsed by "all the indifference of a man of affairs to Nature" (Conrad, *Nostromo* 39). Moreover, as a mark of the typical 'commoditizing everything' tendency of capitalism, the narrator conceives of the land of Costaguana to be no more than a "bottomless pit" exposed to European investments and foreign intrusions. He boasts: "Now, what is Costaguana? It is the bottomless pit of 10 percent loans and other fool investments. European capital had been flung into it with both hands for years" (Conrad, *Nostromo* 76-77). It is, of course, redolent of the idiosyncratic human way of seeing Nature as an object meant for human exploitation in a way, as the Enlightenment philosopher Descartes would assert, that men "render . . . [themselves] as the lords and possessors of nature" (78).

The derogation of Nature perhaps finds its abominable low through its conceptualization as a mute entity meant for forcible disclosure by the European capitalistic ventures. The narrator





describes: "[The coloniser] with each day's journey, seemed to come nearer to the soul of the land in the tremendous disclosure of this interior . . . , a great land of plain and mountain . . . , suffering and mute, waiting for the future in a pathetic immobility of patience" (Conrad, *Nostromo* 88).

Curiously though, things take a startling overturn when after such premeditated rendering of the egocentric image of man over Nature, Conrad leads us towards a scenario, at a later part of the text, where such anthropocentric prefabrications are indeed sabotaged by an anti-anthropocentric counter-narrative employed by him. The artifact of this prototypical Conradian dismantling act is Dr. Monygham, the medical officer of the San Tome mine. Propelled by an edifying "misanthropic mistrust of mankind" (Conrad, *Nostromo* 432), he is visibly frank and candid in wholeheartedly admitting man's nullity in Nature's empyrean ecosphere. Though *Nostromo* is some kind of a hero for him and he holds his intrepid character in high esteem, he is aware of the tininess and defenselessness of man before Nature— a conviction that springs from the realisation of his own inability to confront the same. The narrator describes:

In this Dr. Monygham was sincere. He esteemed highly the intrepidity of that man [*Nostromo*], whom he valued but little, being disillusioned as to mankind in general, because of the particular instance in which his own manhood had failed. Having had to encounter single-handed during his period of eclipse many physical dangers, he was well aware of the most dangerous element common to them all: of the crushing, paralysing sense of human littleness, which is what really defeats a man struggling with natural forces, alone far from the eyes of his fellows. (Conrad, *Nostromo* 433)

The passage is another clear instance of the typical Conradian narrative turn around through

which he exposes the "crushing and paralyzing sense of human littleness" before the indomitable forces of Nature. Apart from Dr. Monygham, Martin Decoud also has similar experiences. In a self-defeating tone that negates anthropocentric despotism over Nature, the narrator describes how it takes possession of the self, mind and spirit of men. In his words:

It [Nature] takes possession of the mind, . . . Decoud caught himself entertaining a doubt of his own individuality. It had merged into the world of cloud and water, of natural forces and forms of nature. In our activity alone do we find the sustaining illusion of an independent existence as against the whole scheme of things of which we form a helpless part. (Conrad, *Nostromo* 497).

Decoud's self-defeating confessions are ironic reversals of The Enlightenment principle of the man-Nature dualism—or, its corresponding, Cartesian mind/body dualism stated earlier—where man claims to possess the qualities of mind while Nature, bereft of such qualities, is conceived as a mere body or insubstantial matter. But here, Nature's act of possession of Decoud's mind alters the scenario while concurrently negating a seclusive and distinctive identity that the enlightened modern man has assumed for himself for his lone possession of the Cartesian mind or spirit. It seems that Conrad enforces onto his probably hesitant characters a merger with the "more-than-human-world<sup>2</sup>" (Heise 61) of Nature at all levels—both physical and psychic.

Moreover, the master-slave dichotomy between man and Nature further receives a serious jolt through Martin Decoud's self-imagined reduction into the status of a slave before Nature. His final submission to Nature after a futile struggle with the same is finely noted by the narrator as: "He sat down on the soft earth, unresisting, as if he had been chained to the treasure, his drawn-up legs clasped in his hands with an air of hopeless submission like a slave set on ground" (Conrad, *Nostromo* 495). It



needs mentioning here that Conrad in his letter to his friend R. B. Cunninghame Graham, while explaining a similar universal context of man's perpetual submission before Nature, describes man as a self-conscious slave of Nature, not its master. He writes: "What makes mankind tragic is not that they are the victims of nature, it is that they are conscious of it. To be part of the animal kingdom under the conditions of this earth is very well—but as soon as you know of your slavery the pain, the anger, the strife—the tragedy begins" (70). A wholehearted admission of such magnitude, on the part of Conrad, can be taken to be an implicit, unconscious negation on his part of the Baconian metaphor of man's mastery over Nature.

### AN OUTCAST OF THE ISLANDS

Conrad's early Malayan tale *An Outcast of the Islands*, like many other texts discussed beforehand, effectuates the initial exposition and subsequent nullification of anthropocentrism through the intermittent rise and fall of the protagonist Willems' ego and fortune. This is done through his exclusion from the latter's biotic sphere—an expulsion that works as a just nemesis for the conceited modern man. Considering himself to be "an extraordinary character in an ordinary world" (Carroll 52), the novel's protagonist Willems always harbours in him a masterful attitude towards the Malayan Nature. Like a typical enlightened modern man who thought he could conquer Nature through the knowledge and understanding of its operation, Willems is "ferociously conceited" and believes "in his genius and his knowledge of the world" (Conrad, *Outcast* 21) and is believed to be able to, as Captain Lingard puts it, disturb "the harmony of the universe" (Conrad, *Outcast* 147) as and when he wishes.

Interestingly however, his self-proclaimed ascendancy over Nature and its elements turns into utter defeat and despair as the narrator fittingly notes that "it was only himself that seemed to be left outside the scheme of creation" (Conrad, *Outcast* 58)—an altered scenario where the self-styled master of the universe becomes a destitute outcast.

Additionally, the narrator's scathing portrayal of Willems as a mere "grain of dust," in the course of his fight with the unconquerable forces of Nature, adds to the archetypal Conradian subversion of anthropocentrism. The narrator describes:

And under the . . . branches  
outspread wide above his head, . .  
. . . he tossed like a grain of dust in a  
whirlwind—sinking and rising—  
round and round— . . . All  
through the languid stillness of  
that night he fought with the  
impalpable; he fought with the  
shadows, with the darkness, with  
the silence. He fought without a  
sound, striking futile blows,  
dashing from side to side;  
obstinate, hopeless, and always  
beaten back; like a man bewitched  
within the invisible sweep of a  
magic circle. (Conrad, *Outcast* 115)

This quote from the text, in a nutshell, is the saga of the defeated modern man before the unassailable forces of Nature. Its tone and spirit ironically reveal a startling subversion of the Enlightenment principles by flaunting the deplorable plight of the modern man caught inescapably in Nature's invisible circle. A passage cited below would substantiate the foiling of the Baconian principles of the human domination over Nature through Willems' incarceration in the former's metaphysical prison house:

He saw the horrible from among  
the big trees, in the network of  
creepers in the fantastic outlines of  
leaves, that seemed to be so many  
enormous hands with big, broad  
palms, with stiff fingers outspread  
to lay hold of him . . . to take him,  
to enlace him, to strangle him, to  
hold him till he died; hands that  
would hold him dead, that would  
never let go, that would cling to his  
body forever till it is perished—  
disappeared in their frantic and



tenacious grasp" (Conrad, *Outcast* 222-3).

The metaphysical incarceration of Willems by Nature can be taken to be the symbolic nullification of the Baconian myth of man's enslavement of Nature through the latter's capture and vanquishment by the former. The passage, thus while abrogating the Baconian anthropocentric military metaphor of the conquest of Nature, brings under scanner, under attack and under reversion the prevailing anthropocentric principles of certain strands of Western philosophy. What is foregrounded here is a certain sense of defeat, surrender, loss of footing, and dispossession on the part of the Western man—a scenario that echoes the voice of Aldo Leopold in his famous "Land Ethic" where he proclaims: "In human history, we have learned (I hope) that conqueror role is eventually self-defeating" (257). Willems' fall can be said to be what William Rueckert, in his essay "Literature and Ecology: An Experiment in Ecocriticism," would call a tragic flaw of the enlightened and conceited modern man. He says: "In ecology, man's tragic flaw is his anthropocentric (as opposed to biocentric) vision, and his compulsion to conquer, humanize, domesticate, violate, and exploit every natural thing" (113).

## CONCLUSION

In the end, it can be ascertained that Conrad, in his colonial novels, performs both an exposition and critique of Western anthropocentrism. John G. Peters in his book *Conrad and Impressionism* critically acknowledges the novelist's rejection of anthropocentrism, which, of course, unquestionably forms the very foundation and crux of Western humanism. Peters convincingly remarks: ". . . western civilization in particular comes under Conrad's scrutiny, and since the popular view of western civilization at the time conceived it to be based upon an absolute foundation [of anthropocentrism], Conrad's epistemology strikes directly at the foundation" (5). Thus, Conrad finally achieves what Dominic Head would call "the deprivileging [of] the human subject" and concomitantly, the disillusionment of the human

being's self-proclaimed ascendancy over Nature. In addition, he inculcates an anti-Enlightenment and anti-anthropocentric world-view thereby vindicating his stated claim of Nature's autonomy and omnipotence along with man's puniness before the former's all-pervasive enormity. This paper, it is believed, helps us unravel certain unrealized dimensions of Conrad's writing where he achieves the double purpose of both exposing and deconstructing the ego of man against Nature. Moreover, his writing seems to exude an implicit moral teaching that suggests for a paradigm shift in man's flawed perception of Nature so that he sees the same not as an "other," rather as something to which he belongs.

## Notes:

1-Australian ecofeminist Val Plumwood is of the opinion that Descartes' famous mind/body dualism actually leads to the generation of several other associative dualisms like man/Nature, culture/Nature etc. through what she calls "linking postulates" (45). Such dualisms are logically connected to each other in a way such that man becomes equivalent to mind or culture whereas Nature becomes the representative of body.

2-See Heise, Ursula. *Sense of Place and Sense of Planet: The Environmental Imagination of the Global*. Oxford: Oxford University Press, 2008. Here Heise argues that some environmentalist thinkers prefer the phrase "more-than-human world" to the more conventional phrase like "nonhuman environment" to effectively de-emphasize the boundary between the human and non-human parts of the life-world. The term has become immensely popular after the publication of David Abram's *Spell of the Sensuous* that is broadly based on the Merleau-Ponty's phenomenological analysis of man's relation with Nature.

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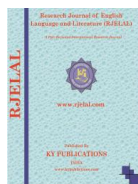
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## DETERMINING GENDER: THE PROBLEMATIC OF QUEER MASCULINITY IN DORIS LESSING'S *THE GOLDEN NOTEBOOK*

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### Abstract

The paper attempts to study Doris Lessing's *The Golden Notebook* in association with the homophobic representations in the novel. The book deals with a number of themes which range from humanism, communism, female psychology, motherhood, to the responsibility of a writer as a social reformer. The book is widely known for its minute and delicate treatment of diverse female psyches and experiences. The article will focus on how the novel portrays, the attitude of a 'free women,' who holds a dignified position in her society as a respectable middle class female writer with her humanist involvements and yet fails to comprehend the position of the group of people whose sexual orientation diverts from that of her own. There are many instances in the novel where the general panic associated with homosexuality is portrayed as being justified. In sum, the paper showcases the conflict existing between acceptance and rejection of homophobia and how, due to this conflict, the comprehension of queer masculinity becomes more complicated and problematized.

*The Golden Notebook* was published in 1962. The novel brought many insightful responses as soon as it was published but due to the misinterpretation of critics, Lessing called it a "failure" (Florence Howe, 429). Commenting on the intention behind her writing of *The Golden Notebook*, Lessing says, "My major aim was to shape a book which would make its own comment, a wordless statement: to talk through the way it was shaped" (Introduction, xvii). Margaret Drabble says, "Here was a writer who said the unsayable, thought the unthinkable, and fearlessly put it down there, in all its raw emotional and intellectual chaos. She managed to make sense of her material, but at enormous risk." (The Guardian). Commenting on Lessing's frank expressions Drabble says: "No wonder Lessing's work was described as ball-

breaking and "castrating", a word she often invokes. Experienced women had not written openly like this in the history of literature. It must have been terrifying. The pact of polite silence had been broken for ever" (The Guardian). Diana Athill says, "Although Lessing writes with feeling about the uncertainties and frailties of her women characters, there is a slightly pompous solemnity- almost didacticism- in the atmosphere that prevails in *The Golden Notebook*..." (The Guardian)

The study of the novel in association with its historical context brings to the surface many insightful interpretations. 1960s and 1970s are the periods when "the GLBT and feminist movements gained momentum and challenged dominant perceptions of gender and sexuality". (Renzetti 338). But it was only after 1980s that "news media finally

began to cover the GLBT stories that should reach the level of national attention" (Renzetti 338). The subject of homophobia has been a major concern of these transgender people who have been "targeted by heterosexism because of the common thread of nonheterosexual identity they share[d]" (Adams, 198).

Homophobia is the irrational fear and hatred of homosexuality. Without sufficient knowledge of sexology, ordinary people tend to rely upon their commonsensical belief of a normal sexual behaviour, in other words the behaviour aligned with the heteronormative values and norms which are highly influenced by the conventional attitude towards human sexuality. Any person with an upbringing in a conservative society characterised by an acceptance of commonly held values against homosexuality, will easily inherit the widely spread homophobia. Commenting on the injustice caused by homophobic fears, Lori B. Girshick says, "Homophobia and Heterosexism are hurtful in that they lock people into rigid gender roles and expectations. People are unable to be their authentic selves and contribute their full potential to society. Homophobia silences and stigmatises people including gay, lesbian, bisexual and transgender people and nonconforming heterosexuals, because they are different" (Renzetti 338). *The Golden Notebook* was set in the post second world war society with the wake of the cold war and the suppression of the Hungarian uprising against Communist rule. It speaks about war, Stalinism Communism, Identity, Feminism as well as sexuality.

This paper attempts at examining the homophobic representations in Lessing's *The Golden Notebook* which focuses on the portrayal of homosexual individuals in the novel, a subject that has gained relatively fewer attention in relation to the novel, so far. This article attempts to show how *The Golden Notebook* perpetuates homophobic stereotypes with its suggestive indication towards subversive readings of sexuality but eventually moves to direct the reader to accept the fact that sexuality is "fundamentally provisional, tenuous, mobile, igniting in unpredictable contexts with often unsettling effects" (Elizabeth Grosz 208).

The novel is a story about a female writer who suffers from a writer's block. The book simply records her attempts and successful break away from this block, which is unconditionally linked with her sense of identity as a woman. The protagonist Anna Wulf, in order to escape the writer's block, divides her writing into four diverse coloured notebooks: black, red, blue and yellow. In these four notebooks Anna writes about her experiences which are in turn divided into four different parts. Along with these four notebooks there is a short novella known as "Free women" which is further divided into five sections and installed fragmentarily between the notebooks. So, the four notebooks along with the novella are comprised together to form the complete novel, *The Golden Notebook*. There are many instances in the novel where the general panic associated with homosexuality is portrayed as justified. Throughout the novel, Anna is shown as a heterosexual woman who is unable to comprehend the position of the group of people whose sexual orientation diverts from that of her own. Despite being sympathetic to the condition of these transgender people, Anna finds herself shaken by their behaviours and lifestyle. Throughout the novel she is portrayed as a heterosexual woman who is torn between her humanistic ideals and homophobic fears. Eventually as a writer, she communicates the conflict with her written records which form *The Golden Notebook*. An insightful observation on the homophobic representations in the fictions is made by Nancy St. Clair in her article "Outside Looking In: Representations of Gay and Lesbian Experiences in the Young Adult Novel". After reading approximately fifty young adult fictions containing homosexual themes Clair says,

"What I found in these books is that the representation of homosexual experience falls into one of three broad categories. In the first category are books that depict homosexuality as a "tragic flaw" (Jenkins, p. 89) and that promote a variety of negative stereotypes. Homosexuals are predatory, for example, in Janice Kesselman's *Flick*, immoral in Judith St. George's *Call Me Margo*, doomed to lives of isolation in Isabelle Holland's *The Man Without a Face*, and prone to violence in



Larry Hulse's *Just the Right Amount of Wrong*. Adolescent characters who do engage in homosexual behaviour in these books are often assured that their behaviour is not an orientation, but simply "youthful experimentation" (Jenkins, p.86) caused by their membership in dysfunctional families, as in Jonathan Donovan's *I'll Get There, It Better Be Worth the Trip*".

The above passage is quite significant for several reasons. It shows the sets of values that are smoothly communicated through the texts to the readers subsequently influencing their notions regarding homosexuality. Interestingly enough the above mentioned negative stereotypes are also portrayed in *The Golden Notebook*. Anna's belief of homosexuality being just an experiment or phase becomes apparent in the following words while she describes her friends in South Africa in the following manner, "Willi had had the most conventional upper-middle-class upbringing imaginable. Berlin in the late twenties and thirties; ...a little conventional homosexuality at the age of thirteen, being seduced by the maid when he was fourteen..."(59). Commenting on Paul, Jimmy and Ted she says, "At Oxford these three had been homosexuals. When I write the word down and look at it, I realise its power to disturb" (60). Here, "the power to disturb" arises from the negative stereotypical understandings, associated with homosexuality. (60) Anna defends her friends by further explaining that

"When I remember the three, how they were, their characters, there is no shock, or moment of disturbance. But at the word homosexual, written-well, I have to combat dislike and disquiet. Extraordinary. I qualify the word by saying that already, only eighteen months later, they were making jokes about 'our homosexual phase', and jibing at themselves for doing something simply because it had been fashionable"(60).

Talking about Jimmy, Anna says that "Unlike the others he was truly homosexual" but she adds "...though he wished he wasn't. He was in love with Paul whom he despised and who was irritated by him" (63) Here Jimmy's sexuality is portrayed in a

fashion that hints at the notion that Jimmy's love for Paul was not due to the fact that he was attracted to him for his character traits as a human, rather it was due to the gender identity that Paul had which attracted Jimmy. So the "Free woman", Anna who has been found a number of times in the middle of advocating for the existence of true love between herself and her lover, fails to accept Jimmy's sexuality by not believing that his feelings for Paul were genuine.

Anna also thinks of lesbianism as pathological. Reflecting on her friendship with Molly, Anna fears others' interpretation of what the relation of two free women living together in a flat might appear to others. Anna's concern for the "lesbian aspect of this friendship" (154) is quite apparent in the following words: "... in the silence of this discomfort, there is the thought, which follows naturally from the 'it is odd in itself, isn't it?'- is it possible they thought us Lesbians?"(332). As the closest friend Anna always confided in Julia who in turn, empathized with her particularly when their discussions were related to their relationships with men. But the bond of sisterhood collapses as soon as Anna brings negative stereotypes of homophobia and applies them to her friendship. Her irrationality is absolute when she feels reluctant to confide in Julia by saying that "to indulge in these conversations with Julia, thinking that two women, friends on a basis of criticism of men, are Lesbian, psychologically if not physically" (334). In the end Anna even feels suffocated by being around Molly in the same flat and decides to leave her. Later on when Anna buys a new flat she also hated the idea of sharing her flat with only women in it as she says, "Two business girls came around...then I realised I didn't want girls. Janet and myself, and then two girls, a flat full of women, I didn't want it" (393).

Furthermore, there are instances where we find that certain familiar homophobic stereotypes of homosexuals as deviant seducers, jealousy stricken freaks are portrayed in the novel. The narrative draws on a number of homophobic stereotypes in its portrayal of characters like Ronnie and Ivor, the two homosexual tenants. Ronnie was "a dark graceful young man with carefully-waved glossy hair, and a white flashing smile, carefully prepared" (285). It is

mentioned that, "Anna disliked him, but, realising she disliked the type rather than the person, controlled the feeling"(285) but could not escape from having conflicting thoughts. The appearance of Ronnie was quite disturbing for Anna. In one of the scenes Anna describes his appearance which proves how much conscious she was of the presence of this man, only because his sexuality and sense of dressing deviated from convention and norm. Anna says,

"Ronnie stood anxiously peering into the mirror over the shelf where she kept her cosmetics. He was patting lotion on to his cheeks with her cottonwool, and trying to smooth out the lines on his forehead...He was wearing an expensive silk dressing-gown in a soft hazy purple, with a reddish cravat tucked into it. He wore expensive red leather Moorish sleepers, thronged with gold. He looked as if he should be in some harem, and not in this flat in the wastes of London's student-land" (296).

The appearance of Ronnie in the feminine night gown contributes as a disturbing presence in Anna's flat. It indicates back to the conflation of sexuality and assumptions about proper gendered behaviour. Here is a man who deviates from traditional expectations of masculinity by wearing a flashy and feminine night gown, something that further indicates his deviation from the heteronormative expectation of dress code and appearance. Anna's aversion and horror at the sight of Ronnie are resulted by her blind acceptance of negative stereotypes regarding homosexuality. Later on, her reaction to Ivor and Ronnie's relationship also shows the prejudiced thinking she harbours underneath the cloak of a free woman. The conversation that follows the above scene with Ronnie provides a vivid description of the unease that Anna feels in Ronnie's presence. A very common possible conversation between a heterosexual woman and a homosexual man shows the discomfiture that remains dormant but an essential part of their interaction. The interaction commences as follows:

"Now he stood with his head on one side, patting the waves of black, faintly greying hair with a manicured hand, 'I did try a rinse,' he remarked, but the grey shows though.'

'Distinguished, really,' said Anna. She had now understood: terrified that she might throw him out, he was appealing to her as one girl to another. She tried to tell herself she was amused. The truth was she was disgusted, and ashamed that she was.

But my dear Anna,' he lisped winningly, looking distinguished is all very well, if one is-if I can put it that way-on the employing side.'

'But Ronnie,' Anna said, succumbing despite her disgust, and playing the role she was expected to play, you look very charming, in spite of the odd grey hair. I'm sure dozens of people must find you devastating.'

'Not as many as before,' he said. 'Alas, I must confess it. Of course I do pretty well, in spite of ups and downs, but I do have to take pretty good care of myself.'

'Perhaps you should find a permanent rich protector very soon.'

'Oh my dear,' he exclaimed, with a little writhing movement of the hips that was quite unconscious, 'you can't imagine that I haven't tried?'

'I didn't realise that the market was so badly over-supplied,' said Anna, speaking out of her disgust, and already ashamed of doing so before the words were out. Good Lord! she thought, to be born a Ronnie! to be born like that- I complain about the difficulties of being my kind of woman, but Good Lord!- I might have been born a Ronnie" (296-297).

Furthermore, after this encounter with Ronnie, Anna felt the need "to assure herself of the possibility of normality...I feel as if the atmosphere of this flat were being poisoned, as if a spirit of perverse and ugly spite were everywhere" (287). Another disturbing concept in the novel, based on the negative and homophobic stereotypes arises with the representation of homosexuals as not being

"normal" or real men. (286) Anna says that "the defence of the homosexual, was nothing more than the polite over-gallantry of a 'real' man, the 'normal' man who intends to set bounds to his relationship with a woman, consciously or not. Usually unconsciously" (286). Anna's prejudiced beliefs contribute to further her concerns for the healthy upbringing of her child. The concept of homosexuals, not being men in the real sense is further mentioned by Anna in relation to her parenting. As a single and divorced mother, Anna says, "Janet needs a man in her life, she misses a father. Ivor's very kind to her. And yet because...he's not a man- what do I mean when I say he's not a man.? Richard's a man; Michael's a man. And yet Ivor isn't?" (285). Anna says that Ivor and Ronnie "were disturbing her peace of mind" and yet as a socialist and humanist she could not ask them to leave "because they were homosexuals, and they, like a coloured student, would find it hard to get a room" (295). She hated feeling "responsible" for them and says, "... as if one doesn't have enough trouble with 'normal' men". For Anna, Ivor and Ronnie and their sexuality was not "normal"(295). They were disturbing her, just by being around and were harmful for her daughter as Anna feared that Janet will grow up surrounded by "men who are little boys and homosexuals and the half-homosexuals..."(295). Gasping, Anna says: "By God, there are a few real men left, and I'm going to see she gets one of them. I'm going to see she grows up to recognise a real man when she meets one"(295-296). As a parent Anna thinks that the refusal to adhere to heteronormative gender and sexual codes of behaviour could be a destructive force in her daughter's life.

Another powerful and yet very general stereotypical fear from homosexuality is indicated in the representation of homosexuals as "sexual predators" (Sharpe 269). Anna seems to be accepting certain familiar homophobic stereotypes like the homosexuals being a child molester or the assumption that homosexuality is "dangerous to children"(Wilton 191). Commenting on such fear, Fred Fejes says that the "homosexual threat to children" is apparent in the homophobic statement that "[h]omosexuals don't reproduce, they recruit" (137). Although Anna has a daughter and Ivor is a gay

which means the child is not expected to be harmed physically by Ivor who was like a "big friendly dog" (286) to the kid, Anna fears the damage could be done mentally. The negative stereotypical notions associated with homosexuality contribute to the condemnation and censure of homosexuals. The indication of Ivor's homosexuality being harmful for the healthy mental growth of Janet is automatically held on the baseless grounds by a worrying mother. Furthermore, the concerned mother had up until now prided herself for being a very open-minded and rational humanist and yet the excessive parental concern combined with homophobia contributes to further pathologize Ivor's sexuality. Anna believed that the gay man's incapability to become a woman causes him to be jealous of women and she concludes this notion by saying that eventually "the obsessions of jealousy being part homosexuality" (425), turns into bitterness and causes them to misbehave. In one of the scenes, Ivor was engaged in telling a story to Janet. Anna claims that "...there was a new quality in Ivor's voice: mockery. The mockery was aimed at the world of girls's school, at the feminine worlds, not at the absurdity of the story"(286). Anna further observes, "...the child's face showed a delighted but half-uneasy grin. She sensed the mockery being directed at her, a female"(286). It should be made clear that Ivor's mockery could have been directed at Anna, the landlady who partially believed in the negative stereotypes related to homosexuality but Anna's assumption that Janet sensed Ivor's mockery as directed at her and her gender identity, appears to be quite irrational and forced. The shock on Janet's part could just be the result of the fact that the child sensed the tension between her mother and Ivor, the tension between a prejudiced heterosexual woman and a homosexual man. As a mother Anna laments, "...my poor child...you are going to grow up in a society full of Ivors and Ronnies, full of frightened men who measure out emotions like weighed groceries..." (396). Anna's interpretation of the child's unease appears to be manipulated to support her arguments against homosexuality because the very "mockery" in Ivor's voice that Anna talks about stops as soon as she "was well removed



from the scene, Ivor's voice had lost its element of parody and gone back to normal" (286).

Having examined the homophobic stereotypes showcased in the novel, it is also important to note that Lessing did not create a woman who was completely a slave of prejudiced beliefs against homosexuals. Whether Lessing supported the negative connotations of such stereotypes or not still remains ambiguous to the reader but at least in *The Golden Notebook* it can be logically concluded that the text itself moves from fixity and rigid stereotypes to an open acceptance of uncertainty, chaos and fragmentation which eventually can be viewed as affirmative and contributing enough for the acceptance of the diverse sexuality. There was another side of Anna's personality which empathised with the situations of Ivor and Ronnie. Anna's humanist beliefs were dominant enough to correct her again and again against the prejudiced thinking as she ponders over her hatred towards Ivor and Ronnie by saying that "...it's nonsense. The truth is, everything I'm thinking at the moment is wrong. I can feel it is..." (287). It eventually directs towards a liberated acceptance of the free flow of sexuality that is accompanied by the liberation of Anna's female selfhood, towards the end of the novel. According to Elizabeth Grosz, the "threat homosexuality poses to heterosexuality is its own contingency, and openendedness, its own tenuous hold over the multiplicity of sexual impulses and possibilities characterizing all human sexuality" (207-208). When Anna overcomes her writer's block after her constant affiliation with Saul Green's split personalities, she eventually sees multiple selves within her that contribute to her understanding of the true nature of female sexuality. She starts imagining herself in Saul's positions. In one of the occasions, after knowing about Saul's affair with another woman, Anna reflects, "I wondered if I wanted to make love with that woman he was with now" (425). In her ceaseless search for an authentic identity, Anna comes to a point where she manages to completely dissociate herself from her body and raises her imagination to the ultimate level where she frees herself from all the prejudiced beliefs and limitations. Although very briefly but the novel does provide an account of Anna's new found and

corrected understanding of homosexuality in the following words, where Anna says,

"This feeling of being alien to my own body caused my head to swim, until I anchored myself, clutching out for something, to the thought that what I was experiencing was not my thought at all. I was experiencing, imaginatively, for the first time, the emotions of a homosexual. For the first time the homosexual literature of disgust made sense to me. I realised how much homosexual feeling there is floating loose everywhere, and in people who would never recognise the word as theirs" (440).

By accepting the lesbian desires Anna escapes the constrained feeling that comes with conformity to heteronormative values while her sexuality is marked by a considerable liberation. Anna's acceptance of her own dormant homosexuality towards the end of the novel supports the undeniably transiency of sexuality which contributes to the rejection of previously underlined homophobic stereotypes through textual engagement with *The Golden Notebook*. Eventually it appears that Lessing portrays such homophobic stereotypes only to showcase their unpredictability and discordances while after opening up many conventional and baseless ideas she not only critiques but also ridicules them. Anna's acceptance of the transitoriness of sexuality and ease of such acceptance towards the end further contributes to the understanding of female identity.

Tracy J. Davis in "Homophobia and media representations of Gay, Lesbian, Bisexual and Transgender People" comments that "Historically GLBT people have been made invisible, marginalised, demonised or portrayed as unrealistic stereotypes by the media" (Renzetti 338). The homophobic representations which follow the fixated notions of gender and sexuality are often disguised in the form of heterosexist feminism which can be both ideologically and culturally damaging for society. A text like *The Golden Notebook* holds much to say about homosexuality, female sexuality, homophobia as well as the lack of concern on the

part of the contemporary “free women”, for the subject position of transgender people.

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## RECORDING GENEALOGY - NOTE ON A LOST PROFESSION

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**Abstract:** Genealogist's work is an interesting profession usually practiced by the Brahmins in India. He keeps record of the origin of the family, family history, distribution of family members, migration, clan name, marriage, property inheritance through the genealogical charts. The genealogical data are used by the respective families who consult genealogists for relevant records. The present study deals with one genealogist (1920-1999) and his specialized organization (1926-1964) in Kolkata, which was engaged in genealogical work. The genealogical record is a treasure of information which is also important for tracing the family history of Bengali intellectuals and their past society in undivided Bengal. The study result shows that one can have valuable information on individual as well as on particular family and society. It is now an almost dead tradition due to many reasons. But there is a lot of scope to study these genealogical records in social science in general and anthropology in particular.

**Keywords:** Genealogist, Record, Bengali Society, History, Genealogical Chart.

### INTRODUCTION

According to *Macmillan Dictionary of Anthropology* the term genealogy means 'A record or account of relationships of descent. Genealogies are important in lineage or descent-based kinship systems, since they provide the basis for membership in kin groups.....' (Seymour-Smith 1986:130). Man has been interested in his ancestry and has often involved elements of mythology, oral tradition, and fiction. Genealogical records are used for practical purposes like the determination of the inheritance of property, social status, eligibility for title rights and so on. However, it gives a picture of the individual family, clan, marriage, surnames, migration history, socio-economic background. In early days *Raja, Maharaja, zaminder*, many royal educated and wealthy higher caste families in India engaged *Ghatak* for collection of information and maintenance of the records for generations as per their convenience. The Kayastha and Brahmin of Mithila area in North Bihar used to follow unique traditional system of compiling and preserving the genealogical records called *Panji-pravandha*, which were considered for maintaining the rule of marriage. The genealogist in Mithila is called *Panjikar* and in Gujrat he is called *Charan/Bhatt*. However, there are some genealogists in all the great temples in India to maintain the records of the *tirthayatri* or pilgrims/devotees as a part of their organizational system. Such records were not only preserved over generations but also updated from time to time with the information of the descending generations. These people are practicing it as a kind of *jajmani* system for their livelihood by maintaining the genealogical records of the pilgrims. This traditional knowledge of

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## ORIENTING INDIA'S RURAL YOUTH TOWARDS AGRICULTURE THROUGH MULTIPURPOSE AGRICULTURAL INTERPRETATION-CUM-TECHNICAL SUPPORT CENTRES

Bibhu K. Mohanty

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**Abstract:** The paper highlights the need to reorient the youth towards precision agriculture, climate smart agriculture etc. available for changing the farming environment for a sustainable and better quality of life. To solve many of the genuine demands of the farmers especially, issues such as climate change, natural calamities, overuse of pesticides, better management of weather and soil data etc., creation of Multipurpose Agricultural Interpretation cum Technical Support Centre like KVK by systematic coordination between Central and state machinery is essential. It intends to trigger a debate on how and why we should attract the rural youth towards smart agriculture mostly based on information available on the internet and the author's essentially interpretive observations based on field work (especially through Focussed Group Discussion) and consistent exposure in villages of coastal districts of Odisha in the last 15 years. Thus it can usher a new era on modern hi-tech agriculture after the Green Revolution.

**Keywords:** Interpretation Centre, Krishi Vigyan Kendra, Information Technology, Cultural Environment, Hi-Tech Farmer

### INTRODUCTION

After independence, India introduced community development blocks in selected areas to explore the feasibility of all round development of rural India and to expand the developmental activities across the nation slowly and steadily. Today, agriculture is a big challenge for various reasons. India with highest number of youths can create a human resource hub for the entire world. With proper training they could be hi-tech farmers as we are in an era of IT revolution. As they are the assets of our nation, we need to sensitize them on various issues. India with highest number of youths in the world has both advantages and disadvantages. If proper orientation is given to them, they would become our assets otherwise they are a burden to the nation. The new generation i.e. the youth in the rural areas are not inclined towards agricultural activities and thus a peculiar situation has come up in rural India, with agriculture and farming operations being managed by the elderly and women. This scenario poses a major challenge to Indian agriculture.

The youth tend to migrate to urban areas as casual labourers, factory workers or work in the infrastructure industry. In the past migrations were happening only during the lean seasons. The peculiarity of the contemporary situation is that the youth prefer to migrate for year-long job as they choose to stay away from agricultural activities. The youths appear to be getting socially isolated from the

treatment of food as a part of daily livelihood, while understanding and arguing for the importance of dietetics as an integral part of the political world of modernity. It concludes that the broader contours of Gandhian philosophy and its introduction in Indian society through nationalist politics are uniformly appended with the formulation of his experimentation, not only with his philosophical and political goals but also with his daily practices dietetics constitute an essential part. Throughout, there is an attempt to present the symbolic and discursive construction of dietetics and experimentations to negotiate the individual's character.

**Keywords** dietetics, experiments, Gandhi, Ahimsa, vegetarian

[Back to Table Of Contents](#)

## Food Culture in the Socio-Religious life of the people in coastal Odisha: With special reference to Pitha

Bibhu.K. Mohanti

**Abstract** The article focuses on pitha (a traditional cake) culture in the context of socio-religious practices in Odisha, India. It makes an attempt to show the way pitha are offered to Lord Jagannath and how it is also enjoyed as a household food by the people during festivities at the household or at community level. An attempt is made to emphasize on the traditional socio-religious practices related to pitha that still continue with availabilities of ingredients in the local niche. The Sree Jagannath temple of Puri being one of the four Dhams of Vaishnavite culture is also known as Bhojana Kshetra or Anna Kshetra for the gods. The presiding deity is also the epicenter for all socio-religious activities of the region and beyond. It is also an attempt to show how the populace of the region celebrates different festivities and gives due respect to nature and supernatural forces, thereby facilitating in creation of a conducive environment for co-existence.

**Keywords** Socio-religious practices in Odisha, Festivities at the household or at community level, traditions, vaishnavite culture

[Back to Table Of Contents](#)

## Has the Flag Ship Programme of India Met Its Vision in Reality? : A Qualitative Study on Open Air Defecation among women in Rural India\*

S. Kalyani and Nikita Ruth D'cruz

## Preparedness of the Libraries to Address the Recent Pandemic: A Case Study on 100 Top Academic Institutes of India

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### ABSTRACT

In an academic set up the 'library' plays a pivotal role. It stores, analyses, interpret and disseminate information among the users to fulfil their information needs. It has been observed that recent technological advancement has revolutionised library services to a great extent. Now libraries are providing both physical as well as web-enabled library services to their users. In this context, library websites act as a major gateway in providing web-enabled library services. The sudden outbreak of the COVID-19 pandemic has disrupted the physical mode of library services. However, to support the ongoing teaching and learning process, libraries need to continue their services despite the lockdown. Therefore, the present study seeks to find out whether academic libraries are ready and adequately equipped to perform basic services during this critical juncture. The present study was directed towards exploring the readiness among the academic libraries by assessing their websites based on selected evaluation criteria. Hence, in this study top, 100 NIRF ranked institutes websites were examined by adopting 30-point evaluation criteria. These criteria were selected from the extant literature. These criteria were grouped into 04 categories i.e., basic website information, resource discovery, availability of resources and reference services. The readiness index of each library was calculated based on the availability and non-availability of the said criteria. The findings of the study reveal that 64 per cent of the libraries have failed to secure their score of 50 per cent on predefined criteria. It was also found that the preparedness index is independent of NIRF ranking. Overall findings of the study make it clear that academic libraries need to improve and up to date their web-based services to play a proactive role in the present and post-pandemic situation.

**Keywords:** Academic library; Library websites; Library services; COVID -19 pandemic; Preparedness index

### 1. INTRODUCTION

In India 'Lockdown' was declared during the last week of March 2020, consequently, all educational institutions and libraries were closed. The outbreak of the COVID-19 pandemic has changed every aspect of human life to great extent. It changed the common teaching-learning pattern and practices. UNESCO<sup>1</sup>, 2020 report reveals that most of the academic activities like teaching, learning, conducting examinations, doing research works, providing library services, were interrupted which severely affected 320 million students of the country. Therefore, higher educational institutions were started organising e-learning platform for their students. In support of e-learning, libraries also needed to continue offering different innovative web-based services. Hinchliffe & Wolff-Eisenberg<sup>2</sup> mentioned that to overcome this situation libraries also accelerate web-based services to promote e-learning. The survey report of the ALA<sup>3</sup> mentioned that libraries are now to continue to expand the

like online article request service, online renewals, issuing virtual library cards, e-mailing barcodes numbers for smooth accessibility, borrowing e-books, online delivery, etc. among users. IFLA<sup>4</sup> also identified different remotely accessible library services such as the provision of free e-books, freely available different resources, Open Access (OA) materials on COVID-19, virtual exhibitions, media and information literacy, Ask-a-Librarian, online article request service, consultation service through video conference which were accessible through a single-window interface. Massachusetts Library System<sup>5</sup> sought to promote their services on the internet during the pandemic, where weightage was given in bridging the digital divide, ensuring access to e-books, databases, e-resources, offering virtual programs, promoting self-care, and staying connected with users' community through social media group. But it seems that Indian academic libraries were not completely prepared to face the situation.

However the conventional set up of academic libraries



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AGRICULTURAL FINANCING FOR SUSTAINABLE AGRICULTURAL DEVELOPMENT IN  
INDIA: A PERCEPTIONAL STUDY ON KALAHANDI DISTRICT

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**ABSTRACT**

As per an outstanding saying, the Indian worker is conceived owing debtors lives underwater and bites the dust in the red. The mass lack of education of Indian individuals when all is said in done and rustic individuals, specifically, aggravated the issues of agrarian credit with around 70 to 80 percent of the farmers being an absence of education. Accordingly, the farmers were not in a situation to pass judgment on the wellspring of credit, which supplies the equivalent at the rate, which is lower than the one gathered by the private cash banks. Awareness is a way of sustainable development. This study illuminates different issues and difficulties that are currently facing by the farmers of this country and some specific possible solutions that are derived & recorded from the perceptions of the respected country farmers. This paper throws light on the availability agricultural financing problems in the country and possible solutions thereof, which will lead to sustainable agricultural development in the country.

**Keywords:** Agricultural development, Agricultural finance, Sustainable development, Farmers club.

**1. INTRODUCTION**

Agribusiness remains the pillar of the Indian economy. It is the significant wellspring of vocation for 80 percent of the rustic populace and supports 72 percent of the workforce (Sudha Narayanan, 2015). In any case, the Western part of Odisha comprises of 10 areas, where Kalahandi region is one of them with a greatest agrarian land region. The vast majority of the farmers in Kalahandi region are completely reliant on agribusiness for their business. Be that as it may, they are enduring a great deal on horticultural financing and next to each other it is hampering in the rural creation exercises. Broadening of ranch creation exercises with animal cultivation, fisheries and agriculture would build the pay of the peripheral and little farmers and landless horticultural workers on top of the goal of development with social equity. The financial advancement of a creating nation like India depends much on the improvement of horticulture (Sidhu and Sucha Singh, 2006). Be that as it may, the improvement of horticulture relies upon the innovation which, thusly, relies upon the gigantic utilization of capital (Edward Njuguna et al., 2015). Generally, capital has gotten one of the essential factors in deciding the sorts, amount and nature of farming generation of a nation. Credit fills a valuable need just when utilized carefully for creation reason. Credit might be effectively contrasted with a sharp-edged blade, appropriate usage of it for the most part created higher profitability and along these lines greater thriving, and while its misutilization determines the borrowers of the additional salary they could have earned by utilizing it for the generation purposes just as retards the progression of credit (Sudha Narayanan, 2015).

However, proficient cash loan specialists were the main wellspring of credit to agribusiness till 1935. Therefore, the farmers were intensely troubled with obligations and huge numbers of them propagated obligations (Parvathamma, 2016). An incredible elective organization can for the sake of institutional offices for furnishing credit to the cultivating network with sensible pace of intrigue. Homestead account has become a significant contribution because of the appearance of capital serious horticultural advancements (Anwarulhoda, 2015). Farmers expect funding to improve the productivities of different

## An Impact Assessment of Psychological Contract on Job Satisfaction, Commitment and turnover intention in Steel Industries in India

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**Abstract**—HRD practices change the capabilities of employees at all levels in an organization and in this way assume a significant role in driving advancement and development. Individuals' capabilities and how those capabilities are utilized within the organization due to advancements in the systems and processes of HR management involving HRD helps to leverage the many-fold benefits. In that trio of extraordinary capacities, HRD centers focus on learning and improvement at the individual, group, and organizational levels that happens when employees have the knowledge, competencies, skills, and attitude for getting the hang of, facing attentive challenges, sharing information, and thinking imaginatively, and when organizations offer help by managing it through effective KM. Ishak et al. (2010) propose KM is fundamental for building up the human asset. It is additionally recommended that HRD is fundamental for developing the knowledge that flows through the KM framework. Hence, the purpose of this study is to investigate the pathways leading from HRD to OP through KM as a mediator and presenting a comprehensive framework for steel companies of India to strategize effective HRD practices for better and effective KM for enhanced Perf organization-wide. The main objective of this topic is to measure the effect of HRD Practice, Knowledge Management on the real organizational performance in the steel Industries in India. In this study, we have used SEM for the measure of the mediating effect of knowledge Management on HRD Practices for organizational performance.

**Keywords:** Mediating Effect, SEM, KM & Organizational Performance

### 1. INTRODUCTION

Almost every organization in the digital era is striving hard in a vibrant and exceedingly competitive market. Today, in this era of globalization it is increasingly argued that the organizations would best be able to meet the challenges if they can acquire and utilize valuable, scarce and inimitable resources (Barney, 1991). Human resources being one of the integral factors of production can fall into this category, and may be proved indispensable if deployed effectively through appropriate human resource development climate and culture. The theoretical work in strategic business management has given rise to the prominence of human resources in generating sustained competitive advantage. The resource-based view of the firm says that they can develop sustained competitive advantage only by value in a way that is rare and difficult for competitors to imitate and since the other sources like natural resources, technology, economies of scale etc. are increasingly becoming easy to imitate; human resource may be taken as the most important source of sustained competitive advantage. That is why in recent times the interest of strategic management in examining the role of human resources as value added has evolved to broaden the focus of human resource management research as a strategic approach (Baird and Meshoulam, 1988). Management of human resources as a strategy to bring sustained competitive advantage makes evident the importance of human resource development climate and culture for organizational performance, such as employee turnover, productivity financial performance.

Psychological contract has emerged as a vital concept for improving organizational performance through better use of knowledge and for minimizing the loss of valuable knowledge when employees leave. Human Resource Development (HRD) Climate is often seen as a key enabler of KM. In recognition of the central role of knowledge in organization performance, the field of knowledge management (KM) emerged as a focus on improved understanding of the processes and their links to organizational performance in modern organizations. Simultaneously, the field of HRD emerged with a focus on improved understanding of the processes of learning and development (L&D) in organizations and their links to performance. KM and HRD seem to intertwine naturally in their approaches to organizational effectiveness.

HRD processes change the competencies of employees at all levels in an organization and thereby play major roles in driving innovation and economic growth. People competencies and the way those

## Knowledge Management Practices in Steel Industries of India: A Comparative Analysis of Public and Private Steel Industries

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**Abstract:** The purpose of this paper is to study the knowledge management practices of steel industries in India. The Indian economy is considered a mixed economy. Indian steel industry having the participation from both private and public sector enterprises is one of the fastest-growing industries in terms of steel production and is also increasingly looking towards export as driving the growth of the industry. Under this study both public and private steel industries are taken into consideration. The study was based on secondary data. This research brings a research report on the impact of Knowledge Management Practices (KMP) in the Indian steel industries. The analysis was made by taking the previous year's data regarding various matters relating to KMP and its pros and cons in the performance of the Indian steel industries. The comparison was done between these two i.e., both public and private steel companies of the country.

**Keywords:** Knowledge Management Practices (KMP), Public Steel Companies, Private Steel Companies.

### 1. Introduction

With the development of economies driven by industrialization toward the start of the 20th century, nations with sound steel enterprises profited by a first-mover advantage. India got free in the center of this century and hoped to get self-subordinate under its recently embraced model of this mixed economy. To accomplish this objective, the three significant fragments i.e., primary (raw-materials), secondary (assembling & manufacturing) and tertiary (services) areas must be grown at the same time. As raw material and intermediate product, steel was the common link among all the above three segments. Now-a-days the usage of steel is high as compared to other kinds of products.

In this current world, the steel business contributes marginally over 2% to the GDP of the country. This



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## **An Extant Review of Literature on Hrd Practices, Knowledge Management and Organizational Performance**

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**Abstract:** Managing business strategically has given rise to the importance of HR as the essential source of competitive advantage. The theory of resource justifies that sustained competitive advantage can only be achieved by valuing the human capital as it is difficult for others to imitate as compared to other resources like raw materials, technology, process, etc. are easy to imitate; hence, HR may be taken as the most important source of sustained competitive advantage. Therefore, the use of strategic management in examining the role of HR as capital has forced to expand the focus of HRM research as a strategic approach (Baird and Meshoulm, 1988). Management of HR in a strategic manner to achieve sustained competitive advantage makes HRM climate and culture apparent for OP, such as increased satisfaction, commitment, employee and customer retention. KM has come out as a critical concept for improving OP through improved use of knowledge and for minimizing the loss of valuable knowledge when employees leave. HRD Climate is frequently observed as a key empowering influence of KM. In acknowledgment of the importance of knowledge in OP, the field of KM developed as an emphasis on improved comprehension of the procedures and their connections to OP in current organizations. At the same time, the field of HRD rose with attention to improved comprehension of the procedures of learning and advancement (L&D) in organizations and their connections to Perf. KM and HRD appear to entwine normally in their ways to deal with OP. HRD practices change the capabilities of employees at all levels in an organization and in this way assume a significant role in driving advancement and development. Individuals' capabilities and how those capabilities are utilized within the organization due to advancements in the systems and processes of HR management involving HRD helps to leverage the many-fold benefits. In that trio of

## Brand Loyalty & Customer Satisfaction Regarding Online Marketing: A Study on Flipkart

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### Abstract

Shopping from online platforms or through e-commerce websites may be the new normal for the society but due to huge competition with emerging e-commerce platforms in the market, it has been difficult for the e-commerce platforms to uplift brand loyalty and satisfy every aspect of customers. The study proposed to find the factors affecting the brand loyalty as well as satisfy the customers. Stratified random sampling is used to collect primary data from 107 responses from Flipkart customers by using self structured questionnaire. Factor analysis is used to extract the behavioral need factors affecting both brand loyalty and customer satisfaction and regression analysis are used to find the effect of these factors on brand loyalty and consumer satisfaction. The study found that integrated services, special consumer pricing and services, convenience and quality, website performance & protection and product mix availability are the factors that influences significantly to the brand loyalty and consumer satisfaction. Consumers' satisfaction factors must be properly addressed to develop brand loyalty and repetitive purchase scenario.

Key words: Brand loyalty, consumer satisfaction, online marketing, e-commerce.

JEL Classification: M30, M31, M37, M39

### 1 Introduction

Human beings have proven to be the species which work hard to meet its need. Throughout history, humans have conducted various types of exchanges to meet their day to day needs. Starting from the barter system to physical market place, it has shown its evolving nature. But the 21<sup>st</sup> century brought another dimension this exchange of goods from market places to the market spaces. The internet has become a tremendous space for marketing and selling of products. Technological advancement allowed the creation of virtual communities, by which individuals can make transactions of similar settings. Typically, the members of virtual communities aren't acquainted with each other as they are connected only through information technologies. Previously, Virtual communities were commonly used for the purpose of exchanging information, discussion, and entertainment among others. But now, it is also been used to trade goods and services. The trading of goods and services conducted through the exchange of electronic data over Internet is known as Electronic Commerce (EC). The day to day advancement of technology has increased the efficiency of modern trading activities. However, the trust plays an important role in EC.

The modern life style has brought a huge momentum to the electronic commerce due to its convenience in purchase. On the other hand the huge potential of electronic commerce brought

*Shibani Sharma*



## Marketability of Luxury Fashion Brand In Tier – II Cities – A Study in South Odisha Region

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### Abstract

The growing modern society in India attracts a lot of fashion brands across the world with an intention to spread their businesses in it. But unlike other countries, India and Indian has their own regime, while making purchase decision regarding luxury fashion brand, which needed to be studied before entering the business in India. The study intended to find the effect of the factors that influences the purchasing attitude of the consumers towards the luxury fashion products on the purchase intention and to suggest ways for developing marketability of the luxurious fashion product. Causative research design was used to derive the inferences. A total of 164 responses were collected through self structured questionnaire by using stratified random sampling technique. Factors analysis is used to find the auto correlation and to reduce the dimension of the variables affecting the purchase attitude. Regression is used to find the effect of the factors of purchase attitude on the purchase intention of the luxurious product. The study found that the major factors that influence the purchasing attitude of consumers towards the luxury fashion products are Brand Awareness and Brand Equity of the brands and its products, Ego and Esteem Need of the consumers, Perceptual Differences among the products of the brand and its products, Price Effectiveness of products, Social Media Influence on the consumers, Promotional Schemes of the brand and its products and Superior Quality of the products. Among all the factors ego and esteem need, perceptual difference superior quality, social media influence and brand awareness and brand equity has a significant major impact on the purchase intention. So, marketing promotions must be done through social media platform, which can bring perceptual differences among the mind of the consumer, which will intensified and provoke them to purchase.

Key words: Luxury fashion brand, social media marketing, social commerce, differential perception, product promotion.

JEL Classification: M37, M31.

### 1. Introduction:

Human always try to satisfy their need by working more and more towards the achievement of desired compensation. They tend to decide the areas on which they intent to spend their hard-earned money. The preference of the human has also changed over last decade. Human do not limit themselves in the verge of needs only but they try to shift their need to luxurious product. During the initial periods, luxury or prestigious brands and its products were considered as a special right to possess that is the people are entitled to own the luxury goods. The word



## Determinant for the Development of Tourism Industry in the Post Pandemic Period: A study of Southern Odisha

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**Abstract:** The pandemic has effectively restricted mankind in the houses and created a great deal of fear for the physicality of social interaction. This trepidation has affected the mindset of the tourist and eventually affected the tourism industry as well as the livelihood of a great mass of people depending upon the tourism industry for their survival. The tourism industry can flourish again in a sustainable manner, only if the attitude of the travelers and their needs are properly addressed. The study proposed to identify the preferential needs of the travelers in the post-pandemic period and to find out its impact on the travelling attitudes towards tourist destinations. The study followed a causative research design. Stratified random sampling is used to collect 116 numbers of samples from the four districts of southern Odisha i.e. Koraput, Kalahandi, Malkanigiri and Rayagada. Factor analysis is used to extract the preferences of travelers. Multiple linear regression is used to find the impact of these preferential factors on the travelling attitude of the tourists. The study found 7 factors that influence the travelers to travel. They are amusement facilities, social media marketing, adequate information and communication facilities, banking and internet facilities, sanitation and vaccination, grievance handling facilities and lodging and dining facilities. These factors affect the attitude of travelers towards travelling to tourist places significantly. Sanitized and hygiene environment must be provided with better guidance and communication facilities along with hygienic food, lodging, internet and banking facilities. So, tourism departments, as well as the local people residing in the nearby tourist area, must take effective measures to attract the tourist to their respective locations. The sustainability of the tourism industry will lead to the sustainability of many livelihoods in the rural tourist areas.

**Keywords:** Tourism promotion, social media marketing, travelers' attitude, brand awareness

**JEL Codes:** M37, M31.L83.

### 1. INTRODUCTION

Humanity has seen many changes in different decades, which absolutely changed the way, they ever lived. Life has never been the same, after those incidents happening in one's life. The

*Shibani Sharma*

## An Analysis of Family Medical History with Chronic Health Condition and Death among Elderly Population in Odisha

Nirupama Sahoo<sup>a b</sup> and Doleswar Bhoi<sup>b</sup>

### Abstract

The study describes the family medical history, chronic diseases, and deaths of the particularly elderly population of Odisha. The different indicators used in this study are diseases i.e. hypertension, diabetes, heart disease, stroke, cancer with respect to age, residence, and gender of the old aged population. The chronic diseases and deaths of the old aged population are also studied corresponding to different age groups, gender, and residence of the elderly aged population. The Chi-square test is used in this study of medical family history and chronic disease and death. The paper founds, that the death of the old aged population of different age groups is independent of their residence, age, and gender.

**Keywords:** Family Medical History, Chronic Health Condition, Death, Elderly Population

### Background of the paper

Family members have more in common than just similar appearances. You might be able to tell that you have your father's curly hair or your mother's button nose. But it's not so obvious that your great-grandmother carries a higher risk of breast and ovarian cancer. That is why it is critical to learn about and understand your family's health/medical history. A person's family medical history is a record of health information about him or her and his or her immediate relatives. A complete record contains information about the respondent's three generations, which include children, brothers and sisters, parents, aunts and uncles, nieces and nephews, grandparents, and cousins. Many health-influencing elements are shared by families, including genes, environment, and lifestyle. These indicators, when considered together, can provide information regarding common medical issues in the family. People with a family medical history are more likely to get common conditions such as heart disease, high blood pressure, stroke, certain malignancies, and diabetes. A combination of genetic factors, environmental situations, and lifestyle choices influence these complicated illnesses. Family history can also provide information on the likelihood of developing rare illnesses caused by gene mutations, such as cystic fibrosis and sickle cell anemia (LASI, 2020)

Chronic diseases, particularly degenerative non-communicable diseases (NCDs) such as cardiovascular disease, cancer, and diabetes mellitus, cause more deaths globally than all other

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## Women Empowerment through Self- Help Group Members of Kendrapara District in Odisha- A Case Study

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### ABSTRACT

Women empowerment has been the center of debate in India for last 15 years and so on. The common point of discussion is to enquire the change in status of women both socially and economically through the flagship programme of Self-help group (SHG) model of financial inclusion across the country. Apart from this it also aims to observe the change in attitudes of women which in one word called the socio-psychological behavior. To reveal the above, the study was made through assets of structured questionnaires with targeted respondents of 170 spread over 12 SHG groups covering 2 Blocks of Kendrapara district of Odisha. The data collected was analyzed statistical tools using SPSS. The study has concentrated on the socio-economic improvement strategies and women empowerment through SHG in Kendrapara district of Odisha.

**Keywords--** Financial inclusion, Flag-ship programme, Socio-economic improvement, Socio-psychological behavior, Women empowerment

not mean about economic progress of the nation rather it also entails about the social justice, gender equity, and overall social harmony in the society. In Indian context to the self-help group (SHG) model of financial inclusion there-by empowering the women, community is proven theory of arriving at social equity by abolishing gender discrimination. The model talks about the way by which the talent of the under privileged women in rural areas can be showcased

### Women Empowerment

The general phenomenon in today's world is economic development. All the countries are falling behind this. But it has been observed that where participation of people from all strata of the society has been exercised the pace of economic progress is tends to be high. In this context, the inhabitants of the society have enjoyed the pace of development what the society or the country has enjoyed. This is called real progress of the country where an optimal alignment of macroeconomic outcomes and micro economic outcomes is made possible. But the question arises how peoples will participate in this journey, how peoples will showcase their talent and skills. Unless, they get the requisite scope and recognition showcasing of talent and skills is difficult. Therefore, to provide recognition and scope we need to empower the under privileged especially the women.

Empowering women means ensuring the extended commands over their lives, bodies, and social status. The word inequalities were practiced since the evolution of power dynamics, the chain of class status, occupational hazards and some socio-cultural norms and traditions.

### INTRODUCTION

Women are inevitable part of every improved economy. There are many an instance of economic contribution from the women community for the development economy as a whole. Therefore, no one can think of economic progress of his country without the participation of women. To materialize this, the system has to ensure an equal right and greater autonomy to women community. Empowering women does



# Study on Economic Growth and Social Empowerment among the SHGs of KBK Districts of Odisha: A Statistical Review.

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**Abstract-** Women Self-help Groups are changing the economic scenario through the standardization effort in the rural area. The credit and saving program and the microfinance assistance from the banking sector has opened opportunities to engage in income generating activities like improved farming, livestock development, sewing, goat rearing, poultry farming and many more different activities. These income generating activities has bought economic independence of the women members of SHGs. The purpose of present paper is to carry out a detailed, extensive and exhaustive research to study whether the SHG movement in KBK districts of Odisha has impact on economic growth as well as social empowerment of the women through their savings. Also to realize the relationship between women joining in SHG and the education level of their families. Also it intends to focus on categorical data and the category which has more dominating power for SHG movement in KBK region.

**Keywords-** economic growth, well-being, WSHG, social empowerment, corona pandemic

## INTRODUCTION

India is regarded as one of the fast growing economy of the world. At the beginning of 21<sup>st</sup> century, the annual average growth rate of GDP has remained steady between 6% to 7%. During the period 2014 to 2018 India was the fastest growing economy and surpassed China. However, in India the fruit of this development is unequally distributed among the populace. There are still a large number of population who live in poverty and impoverishment where as the top 1% of the country holds the 73% of the wealth. According to the United Nations report of Millennium developmental goals program 270 million people of India which comes around 21.9% of Indian population lived below poverty line in 2011-12. Since Independence, eradication of poverty is the toughest challenge faced by the economist and the law makers and with a significant population living in poverty the state of India needs a strong commitment from the government, political class and the common populace. Most of the poverty alleviation programmes in India are designed through community development Programmes and the activities of Self Help Groups are one of them.

SHGs are first promoted by NABARD in 1992 although the origin of SHGs in India can be traced back to Self-Employed Women's Association (SEWA) in 1970. With the permission of RBI, in 1993 NABARD started SHG-Bank linkage programme all over India. In 1999 the GoI started the Swarna Jayanti Gram Swarajgar Yojana to promote self-employment and in 2011 it became the world's largest Poverty alleviation program named as National Rural Livelihood mission. Odisha was the first state to launch National Rural Livelihood mission in 18 April 2011. Odisha Livelihood Mission constituted as an autonomous society under department of Panchayati Raj is given with the task of implementing the NRLM and NRLP in Odisha. The state government in 2001 has also set up a separate directorate called "Mission Shakti" within the ministry of women, child development dedicated to work for the Women Self Help Groups. Currently the state has 600,000 self-help groups comprising seven million female members in Odisha. The SHG members with its credit and saving program and microfinance program has empowered themselves economically.



# The glucose level linkages with breast cancer markers

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## Abstract:

The glucose level linkages with breast cancer (BC) biomarkers are focused in the article adopting probabilistic modeling with a real data set surveyed from 64 BC women and 52 normal women along with 10 interested study factors. It is derived that mean glucose levels are over for BC women ( $P=0.02224$ ) than normal. Mean glucose levels are inversely linked with insulin ( $P<0.00001$ ), interaction effects of leptin and adiponectin (leptin\*adiponectin) ( $P=0.08834$ ), homeostasis model assessment score insulin resistance (HOMA-IR) and leptin (HOMA-IR\*leptin) ( $P<0.00001$ ), while they are directly linked with HOMA-IR ( $P<0.00001$ ) and leptin ( $P<0.00001$ ). The variance of glucose levels is inversely linked with leptin ( $P=0.00022$ ), insulin ( $P=0.01365$ ), monocyte chemoattractant protein-1 (MCP-1) ( $P=0.01153$ ), insulin\*HOMA-IR ( $P=0.00022$ ), age\*resistin ( $P=0.03974$ ), age\*HOMA-IR ( $P=0.03102$ ), while it is directly linked with HOMA-IR ( $P<0.00001$ ), resistin ( $P=0.02182$ ) and age ( $P=0.00133$ ). Glucose levels are higher for BC women, and they increase along with the increased levels of HOMA-IR, leptin, and the decreased levels of insulin, HOMA-IR\*leptin, leptin\*adiponectin.

**Keywords:** adiponectin; breast cancer markers; glucose; leptin; MCP-1; resistin; non-constant variance

## Introduction

Worldwide, diabetes mellitus (DM) and cancer are normal diseases with an outrageous impression on human health. Epidemiologic studies present that DM individuals are always at higher risk of cancer [1-4]. Several research reports have illustrated that there is a direct link between obesity and cruelty of BC [5-7]. A current report has established the linking between BC markers and body mass index (BMI) [7]. Linking between the BC prognosis and metabolic syndrome has been recorded in [8-11]. It is noted that metabolic syndrome is acquainted as a summation of at least three of the following metabolic risks such as obesity, high serum triglycerides, elevated serum glucose, higher blood pressure, lower high-density lipoprotein cholesterol [8, 10]. The principal mechanisms of the linking between obesity, BC progression and metabolic syndrome have yet to be completely demonstrated, and the previous epidemiological studies remain contradicting [12-16]. A mechanism proposes that it is for higher oestrogen levels that are adjusted from cholesterol [17]. Glucose metabolisms, insulin, resistin, lipid and leptin are postulated as probable intermediate mechanisms that are responsible for developing links between BC markers and obesity [9, 11, 13, 18-20]. A positive linking between triglycerides and BC markers has been noted in [16]. Also, high insulin and leptin levels are linked with reduced levels of high-density lipoprotein that is supposed to increase risk of BC [19, 20].

Cancer research articles are mainly based on preliminary statistics such as usual multiple regression [8, 11, 16], Cox model analysis [4], logistic

regression, Kaplan Meier analysis [20], which are inappropriate for physiological heteroscedastic data analysis. Very few earlier research articles have focused the interaction effects as the component of the linking between glucose levels and BC markers. Recently, some BC marker probabilistic models for resistin, MCP-1, leptin and adiponectin have shown many complicated linkages with glucose levels [21-24]. The current report derives all the findings herein based on the probabilistic models of glucose levels with the BC markers along with the rest factors. The report is arranged as follows. The next section presents materials & methods, and the subsequent sections present results & discussions, and conclusions.

## Materials and Methods

### Materials

**Study units & design:** 154 Portuguese females currently diagnosed with BC were approved from the University Hospital Centre of Coimbra (CHUC), Gynaecology Department, between 2009 and 2013. The subjects were grouped into four classes depending on their BMI and the BC status. The 4 classes are: (1) BC normal & BMI levels  $<25 \text{ kg/m}^2$ ,  $n = 29$ ; (2) BC normal & BMI levels  $>25 \text{ kg/m}^2$ ,  $n = 48$ ; (3) BC present with BMI levels  $<25 \text{ kg/m}^2$ ,  $n = 30$ ; and (4) BC present with BMI levels  $>25 \text{ kg/m}^2$ ,  $n = 47$ . The BC normal, BMI control and obesity study women were taken from the Medicine Department of the same hospital. These





## The Effects of Glucose on Gestational Diabetes Women

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### Abstract

The current paper studies the effects of glucose on different biochemical parameters of pregnant women. It is identified herein that mean glucose levels are negatively connected with skin thickness (ST) ( $P=0.0016$ ), while they are positively connected with the joint interaction effect of blood pressure (BP) and ST (i.e. BP\*ST) ( $P=0.0388$ ), but they are insignificant with BP ( $P=0.2228$ ). Mean glucose levels are positively connected with insulin ( $P<0.0001$ ), body mass index (BMI) ( $P=0.0020$ ) and age ( $P<0.0001$ ), while they are negatively connected with the joint interaction effects Insulin\*BMI ( $P=0.0085$ ) and Insulin\*Age ( $P=0.0004$ ). Mean glucose levels are higher for pregnant diabetes women ( $P<0.0001$ ) than non-diabetic. Variance of glucose levels is negatively connected with the interaction effect of ST\*Insulin ( $P=0.0040$ ), while it is insignificant of both ST ( $P=0.1237$ ) and Insulin ( $P=0.2168$ ). Variance of glucose levels is positively linked with age ( $P=0.0013$ ), while it is partially positively connected with BMI ( $P=0.0989$ ), and it is insignificant of diabetes pedigree function (DPF) ( $P=0.1480$ ). This report shows a very complicated functional relationship of glucose with the biochemical parameters. Pregnant women should care for her glucose levels along with her BMI, insulin levels and ST.

**Keywords:** Glucose; Type-I diabetes; Type-II diabetes

**Abbreviations:** BMI: Body Mass Index; DPF: Diabetes Pedigree Function; GD: Gestational Diabetes; JGLMs: Joint Generalized Linear Models; NCV: Non-Constant Variance; ST: Skin Thickness; ML: Maximum likelihood.

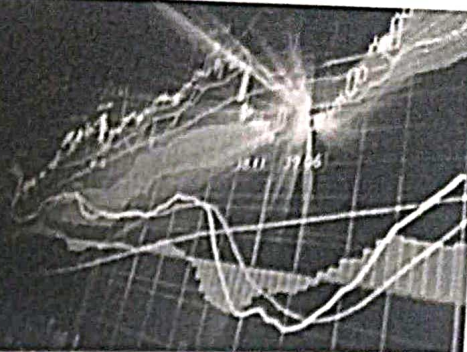
### Introduction

The mismanagement or condition that the human body cannot properly use the insulin is known as diabetes. When the human body cannot keep insulin levels properly, diabetes is one such mismanagement that damages all other body components [1-3]. In practice, three types of diabetes such

as Type-I, Type-II and gestational, which are observed in the real field. In practice, Type-I diabetes is observed in early life when the pancreas yields a small amount of insulin, or it does not yield insulin, due to some unusualness. This is acquainted as juvenile, or insulin-dependent diabetes [4-6]. The medical treatment does not recover Type-I diabetes, and it attempts to administer blood sugar levels with insulin, diet and lifestyle to obstruct complexity. For pregnant women, it is frequently audited that they have higher glucose levels during pregnancy, which is known as gestational diabetes. Afterwards, gestational diabetes can be reduced to Type-II diabetes with high probability [7-10].



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## On a method of estimating variance of the product estimator

**RK Sahoo, Ajit Kumar Sabat, RK Nayak and LN Sahoo**

### Abstract

In this paper, we explore a new estimation technique for estimating variance of the conventional product estimator under simple random sampling assuming that the population mean and population variance of the auxiliary variable are known prior to sampling. Accordingly, we formulate some new variance estimators under classical as well as predictive approach. We test capabilities of our estimators empirically by means of a simulation study in respect of bias, efficiency, coverage rate based on 95% confidence interval and stability.

**Keywords:** Auxiliary variable, bias, confidence interval, efficiency, prediction approach, product estimator, stability

### Introduction

Consider a finite population  $U = \{1, 2, \dots, i, \dots, N\}$ . Let  $y$  and  $x$  denote the study variable and an auxiliary variable taking values  $y_i$  and  $x_i$  respectively on the  $i$ th unit ( $i = 1, 2, \dots, N$ ). Let  $\bar{Y} = \sum_{i=1}^N y_i / N$ ,  $\bar{X} = \sum_{i=1}^N x_i / N$  be the population means and  $S_y^2 = \sum_{i=1}^N (y_i - \bar{Y})^2 / (N - 1)$ ,  $S_x^2 = \sum_{i=1}^N (x_i - \bar{X})^2 / (N - 1)$  be the population variances of  $y$  and  $x$ , and  $S_{yx} = \sum_{i=1}^N (y_i - \bar{Y})(x_i - \bar{X}) / (N - 1)$  be the population covariance between  $y$  and  $x$ . Consider a sample  $s$  of  $n$  units drawn from  $U$  according to simple random sampling without replacement (SRSWOR) for the purpose of estimating the unknown mean  $\bar{Y}$ . Define  $\bar{y} = \sum_{i=1}^n y_i / n$  and  $\bar{x} = \sum_{i=1}^n x_i / n$  as the sample means,  $s_y^2 = \sum_{i=1}^n (y_i - \bar{y})^2 / (n - 1)$  and  $s_x^2 = \sum_{i=1}^n (x_i - \bar{x})^2 / (n - 1)$  as the sample variances, and  $s_{yx} = \sum_{i=1}^n (y_i - \bar{y})(x_i - \bar{x}) / (n - 1)$  as the sample covariance.

In sample surveys the product method of estimation has received considerable attention when there is a negatively high correlation between  $y$  and  $x$ . In this context, the traditional or conventional product estimator of  $\bar{Y}$  that utilizes known value of  $\bar{X}$  is defined by

$$t_p = \frac{\bar{y}\bar{x}}{\bar{X}},$$

which yields a considerable efficiency gain over the direct estimator  $\bar{y}$  when  $\beta_{yx} \leq -\frac{1}{2}R$ , where  $\beta_{yx} = S_{yx}/S_x^2$  is the regression coefficient of  $y$  on  $x$  and  $R = \bar{Y}/\bar{X}$ . An approximate expression of the variance/mean square error of the said estimator is provided by

$$V(t_p) = \frac{N-n}{Nn} (S_y^2 + 2RS_{yx} + R^2S_x^2). \quad (1) \text{ [cf., Cochran (1973), p.186].}$$

As  $V(t_p)$  is a function of some unknown population parameters, remains as an unknown quantity for all practical purposes. Therefore, in large scale sample surveys, estimation of  $V(t_p)$  needs attention not only to access the efficiency of  $t_p$  from the survey data but also to construct confidence interval for the estimable mean  $\bar{Y}$ . Like ratio estimator, a consistent estimator of  $V(t_p)$  can be obtained when the unknown parameters are replaced by their respective sample counterparts. But, as we are concerned with product method of estimation, we have to consider the case  $\beta_{yx} \leq -\frac{1}{2}R$  for which  $\hat{R} = \bar{y}/\bar{x}$  is more efficient than  $r = \bar{y}/\bar{x}$

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## Sequence of Exponential Ratio-type and Exponential Product-type estimators in Post-Stratification with their Efficiency

N. Sahoo & S. Dash

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### Abstract

Following Panda, K.B. and Sahoo, N. [7] & [8] and Sahoo, N. and Dash, S. [9], we have advanced a sequence of exponential ratio-type and exponential product-type estimators in post-stratification. The proposed estimators of order  $k$ , are found to be more efficient than the usual ratio-type estimator and exponential ratio-type estimator in post-stratification and usual product-type estimator and exponential product-type estimator in post-stratification, respectively, under some practical condition. With a view to establishing the supremacy of the proposed estimators over the existing estimators, numerical illustrations in respect to real population have been considered.

**Keywords:** Post-Stratified Sampling, bias, mean square error, Predictive estimation.

### I. INTRODUCTION

Stratification is a routinely techniques used in sample survey. Stratified sampling speculate the knowledge that the strata size and sampling frame for each stratum are known. But in many situations, it happens that the overall population size and also the percentage of unit that falls in the strata are known but the sampling frame for the stratum are may not be available or it quit time-consumable for preparing. In such situations we cannot supposed to use stratified random sampling. So, to overcome from this kind of problem we use post stratification technique where the sample size of 'n' is drawn by simple random sampling these sample is stratified in different





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## Relative study of Routing Protocols in Diverse Topologies of Wireless Sensor Network

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### Abstract

Without the network model, node can't communicate with each other. When a node sends data to any another node in that network either data flows directly or indirectly through number of different hops. Different layers are associated with the model having their objective and responsibility. In wireless sensor network (WSN), the nodes are communicated with their goals from time to time following the structure of the network, number of protocols working on different layers of the model. Here, our focus on the topology and routing protocols behaviour in WSN. Analysis on the act of routing protocol like DSDV, AOMDV, AODV and DSR over the different topologies like chain, grid and parking lot. And also considering the performance of responsive and unresponsive flow of the network. The results are analyzed depending upon the simulation metrics like throughput, delay, jitter, PDR (packet delivery ratio), packet drop. Simulations are done using NS2 and the graphs are plotted by using gnuplot.

**Keywords:** Chain, Grid, Parking- lot, AODV, AOMDV, DSDV, DSR, NS2, gnuplot

### 1. Introduction

The term computer network elaborates the communication or shares the resource between the nodes either in wired or wireless medium. For communication, all the nodes follow the rules and regulation of the network model. The performance of the network depends upon the topology and protocols which are used in different layers of the model [1]. Normally, the network follows either OSI/ISO or TCP/IP model. Communication occurred within the network after establishing the path. Establish, transmit and receive are the measure steps for the node communication. For communication, network needs the hardware device like computer, server, router, switch, repeater etc as well as the software for different protocols. In wireless sensor network, the nodes are communicated either in a static or dynamic

environment. Static topology means the nodes are fixed according to their co-ordinates in the terrain area. But, in case of dynamic, the nodes are changed their coordinates from time to time. Here, for our analysis, we take the static topology like chain, grid, and parking-lot. Routing protocol of the network layer also takes another measure role for the performance of the network. The objective of routing protocol is storing the packets and forwards the packets to the destination. But behind that lot of algorithm works for optimization, easy to find route, less energy consumption etc. Similarly, the application layer of network model takes another important role i.e. provides the service. Service is categorized into 2 types. One is responsive and another is unresponsive. In case of responsive, the acknowledgement came from receiver to sender after successful transmission. It is normally used important messages like



## Study of Minimum Cost Spanning Tree in Graph Isomorphism using Efficient Algorithm

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**Abstract:** A graph  $G$  is considered to be the most flexible and complex structure based network representation. In today's real-world situation, different problems can be conveniently represent in terms of different types of graphs by the help of the components of the graph  $G$ , i.e. some nodes called as vertices and some connecting paths called edges. A tree is a sub-graph of any graph  $G$  which satisfies some condition or properties, and based on those properties, we may consider that sub-graph  $G$  to come under which types of tree. A spanning forest tree is also a sub-graph of the graph  $G$  which should not contains any circuit and contains all the vertices of the graph  $G$ . Minimum Spanning Forest or Minimum Spanning Tree is a tree which has the lowest total cost among all the spanning trees generated from the graph  $G$ . This paper objective is to find minimum cost spanning forest/tree using different efficient algorithms based on graph isomorphism.

**Keywords:** Complexity, Graph Isomorphism, MCST, TSP, Weighted Graph.

### 1. INTRODUCTION :

A Graph (simple graph)  $G$  is simple a set of some number of vertices and some number of edges.

Mathematically, we have  $G = \{V, E\}$ ,

where  $V = \{\text{set of vertices } v_1, v_2, v_3, \dots, \text{some } v_i, \dots, v_n\}$  and  $E = \{\text{set of edges } e_1, e_2, e_3, \dots, \text{some } e_i, \dots, e_n\}$  [1][2][3].

A tree is a sub-graph of the graph  $G$  which must satisfy the following two properties-

1. All the vertices are connected, and
2. There should not Contains any circuit or self loop.

A Spanning Tree is a tree which cover all the vertices or nodes of the graph  $G$ .

A Minimum Cost Spanning Tree (MCST) or Minimum Weight Spanning Forest is the one from all the generated spanning trees of the graph  $G$ , which have the lowest path cost to visit all the vertex in the graph  $G$ . A graph  $G$  can have multiple sub-graph and also have multiple spanning trees but we can take the Minimum Cost Spanning Tree which has the lowest visiting cost in the graph  $G$ , to cover all the vertices of the graph  $G$  [4][5].

### 2. BASIC DEFINITIONS AND APPLICATIONS :

#### 2.1 Spanning Tree

A tree  $T$  is a spanning tree if and only if it is a part of the graph  $G$ , i.e. a sub-graph of the graph  $G$  and also satisfies the properties of a tree, which cover all the nodes of the graph  $G$ .

## **EHOCA: Enhanced Healthcare Aware Optimized Congestion Avoidance Protocol for Wireless Sensor Network Applications**

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### **Abstract**

Wireless Sensor Network in health care applications is an emerging technology to constantly monitor the ailing patients. Congestion is a major challenge in Wireless Sensor Network which in turn causes long delay, loss of packets, energy consumption etc. This paper has proposed Enhanced-HOCA using the concept of novel RED AQM (Active Queue Management) at data transmission of HOCA algorithm. EHOCA is compared with HOCA and REEP in case of network lifetime, packet loss and bandwidth. The Simulation result shows that it outperforms both HOCA and REEP. The efficiency of EHOCA was evaluated using OPNET simulator.

**Keywords:** Congestion Control, Wireless Sensor Networks, AQM, Healthcare

### **1. Introduction**

A wireless sensor network (WSN) is a collection of sensor nodes which are deployed in a given area of interest. The concept of wireless sensor network is based on a simple equation: Sensing+ CPU+ Radio= Thousands of potential applications [1]. Rapid advances in the areas of sensor design, information technologies, and wireless networks have led the way for the proliferation of wireless sensor networks [2]. It is used in every field like education, hospital, agriculture, military etc. In healthcare applications, a real-time system is needed to monitor the patient's activities by placing sensors directly on the patient's body [3]. Due to the response time of sensor, packet length of information, buffer overflow, queue length etc. detecting congestion is very much essential. Congestion also needs to be controlled for prolong system lifetime, to improve fairness, for high energy efficiency and improve quality of service (QoS) [4]. Network performance also degrades due to the congestion in terms of packet loss, wastage of energy, and delay in queue [5]. While

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##### Abstract:

This article presents the potential of Internet-of-Things (IoT) in the area of greenhouse farming and leading to the smart agriculture. The different parameters, such as humidity, water nutrients solution level, pH and electrical conductivity (EC) value, temperature, UV light intensity, CO2 level, mist, and amount of insecticides or pesticides, are monitored through various sensors so that significant knowledge can be captured and early fault detection and diagnosis can be done. A decision support system (DSS) acts as the central operating system that governs and coordinates all the activities. Furthermore, this work also accounts for the different challenges of greenhouse rose farming and highlights a new IoT-based solution, which is smart and sustainable. The model presented in this work is well adapted to the changing environment, thereby redefining the terms of sustainability.

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## CHOICE BASED CREDIT SYSTEM

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## ABSTRACT

There is general agreement that there is an urgent need for the transformation of education so as to make it socially relevant and purposeful. University Grants Commission (UGC) has already initiated several steps to bring equity, efficiency and academic excellence in National Higher Education System. The important ones include innovation and improvement in course- curricula, introduction of paradigm shift in learning and teaching pedagogy, examination and education system. University Grant Commission (UGC) has made it mandatory to be implemented choice based credit system (CBCS) in all the undergraduate (UG) and postgraduate (PG) courses under the XI plan of Higher Education. Gangadhar Meher University has also implemented CBCS in all UG and PG courses. GM University has confirmed compulsory that CBCS to be implemented across all departments. Undoubtedly, it would cast positive effect on the higher education system.

## KEYWORDS:

## 1. INTRODUCTION

There is general agreement that there is an urgent need for the transformation of education so as to make it socially relevant and purposeful. (Report of National Review Committee, 1978). University Grants Commission (UGC) has already initiated several steps to bring equity, efficiency and academic excellence in National Higher Education System. The important ones include innovation and improvement in course- curricula, introduction of paradigm shift in learning and teaching pedagogy, examination and education system. Majority of Indian higher education institutions have been following marks or percentage based evaluation system, which obstructs the flexibility for the students to study the subjects/courses of their choice and their mobility to different institutions. There is need to allow the flexibility in education system, so that students depending upon their interests and aims can choose interdisciplinary, intra-disciplinary and skill-based courses. This can only be possible when choice based credit system (CBCS), an internationally acknowledged system, is adopted. The choice based credit system not only offers opportunities and avenues to learn core subjects but also exploring additional avenues of learning beyond the core subjects for holistic development of an individual. The CBCS will undoubtedly facilitate us benchmark our courses with best international academic practices. University Grant Commission (UGC) has made it mandatory to be implemented choice based credit system (CBCS) in all the undergraduate (UG) and postgraduate (PG) courses under the XI plan of Higher Education. (Kelkar & Ravishankar, 2014) revealed in their study that many universities/autonomous institutions have already implemented the same. Mumbai University made it compulsory in 2011. By 2013, the entire UG and PG programmes became credit-based. The main objectives of introducing such programmes by UGC are: Need for reforms in higher education; enhanced learning opportunities; ability to match learners' scholastic needs and aspirations; interuniversity transferability of learners; improvement in quality of education and excellence; greater flexibility to complete the course; standardization and comparability of educational programmes across the country (Hasan and Parvez, 2015). Gangadhar Meher University has also implemented CBCS in all UG and PG courses.

## 2. Advantages of CBCS

- It can be seen as a major shift from the teacher centre to learner centre education.
- Learners can offer as many credit as they can cope up the pressure of the examination.
- It permits learners to choose soft courses of different

interdisciplinary and intra disciplinary subjects with the core subjects.

- It is also helpful to the learners to choose courses and papers as per their choice and interest.
- It promotes mobility of learners from one institution to another one.
- It would take education system as par the global standard.
- It also helps to the learners to pursue their courses at different times.
- It helps learners to realize their potentials through the flexibility in offering courses.
- It has broadened the base of education system.
- All round development of learners or multi facets personality of learners can be promoted. Through it.
- It is also helpful in employment, as knowledge of different soft courses may be helpful for that.
- Stress and anxiety of learners can be reduced through it.
- Work efficiency can be enhanced.
- Development of professional skills can be possible.
- Helpful in ensuring the uniformity in education system in terms of evaluation and assessment.
- It puts emphasis on seminar presentation, assignment, discussion, project etc. based teaching.
- It stressed on exercising maximum use of ICT in class room teaching.
- It gives importance to the internal assessment too.
- Slow learners can get advantage from it, as it has the flexibility in choosing credits at one time.
- Equality among the learners can be ensured through it, as it has the grading system.
- Globally acclaimed education system can be maintained through it, as it has the provision of offering different courses at the same time.
- Learners could pace their learning or course as per their habit and ability.
- It is also helpful in building favourable learning environment, as everyone is supposed to take part in learning process as per their ability and competency.
- Cooperation and healthy work temperament can be ensured and developed among the learners.
- Habits of work commitment of learners can be strengthened (Hasan and Parvez, 2015).

## 3. Outline of Choice Based Credit System:

1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
2. **Elective Course:** Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/

**Writing Problems of Secondary School Students in English Language**

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**1.1 Introduction**

Language is a very important means of communication. It is very difficult to think of a society without language. It sharpens people's thoughts and guides and controls their entire activity. It is a carrier of civilization and culture (Bolinger, 1968). It reflects the cultural aspects of human society. It is evident that English through a foreign language has always occupied a unique position in India especially in the education system. In 1952, the Government of India appointed Secondary Education commission for re-organizing the structure of secondary Education, it supported the study of English and expressed: "It should be recognized that even in regard to many of the diversified courses in instruction as matters stand at present, a knowledge of English will be extremely useful for understanding the subject matter and for further study of the subject". The report of the Education Commission in India (1964-1966) recommended teaching of English after the primary level.

English is accepted as a universal language across the world. Its popularity is increasing drastically almost in all sectors. We have given an official status to this language. People speak this language, to unify themselves in this diverse world. The language that appears to marginalize and in a different cases, tends to threaten the place of living that normally is no part of the purview of a foreign language. Overall, the aim of teaching English, as a second language is to encourage the learners to sharpen the skills of communication, for both academic and professional purposes and to make communication easy for them.

# A META-ANALYSIS ON THE EFFECTIVENESS OF METACOGNITIVE STRATEGIES AND INTERVENTIONS IN TEACHING AND LEARNING PROCESS

By

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**ABSTRACT**

The present study aims at collecting and analyzing related researches on the effectiveness of metacognitive interventions in teaching-learning. The Flavell's metacognition model was taken as the theoretical framework of the study which includes knowledge of cognition in one hand and regulation of cognition in others. The review work was done in two phases, first the summary review is done to find out the metacognitive interventions used by the researchers in conducting field experiments. The summary review indicated brainstorming, self-assessment, concept mapping, and think aloud as metacognitive interventions used in different experimental studies. Secondly, related literature on the above-cited metacognitive interventions were collected and three studies for each metacognitive intervention were taken finally for meta-analysis with the help of Cohen *d* effect size. The results of meta-analysis revealed that the effect size for brainstorming was 0.733, 0.885, and 0.508 which reflected large effect and for concept mapping strategy 1.04, 0.97 and 2.38 which represented large effect size. On the other hand, one study for think-aloud strategy indicated 1.12 effect size which is having a large effect, and the remaining two studies indicated 0.443 and 0.24 which revealed a medium effect size. Finally, one of the effect sizes of self-assessment revealed a large effect, i.e. 1.2 and the rest two revealed medium effect i.e. 0.375 and 0.238. The study recommended promoting and encouraging brainstorming, concept mapping, think aloud and self-assessment in the teaching-learning process as the positive effect while large size effect was found in this process.

**Keywords:** Metacognition, Metacognitive Interventions, Brainstorming, Concept Mapping, Self-assessment and Think-aloud.

**INTRODUCTION**

In this rapidly changing environment of human beings, the parents and educators as a whole recognize the significance of developing the inherited qualities of their children to make them self-sufficient, independent and creative learners, consequently, they will be enabled to meet their diversified demands and goals for their all-round

development. The purpose of the schooling of children is to educate them to the best of their abilities in a congenial environment, whereas the teachers deal with them by studying their psychological constructs, and the responsibilities of the teacher become the facilitation of positive growth (Rooyen, 1997). In this 21<sup>st</sup> century, the focus is on the harmonious progressive development of the child through a child-centered approach, where the learners are given the utmost freedom in the teaching-learning process. The behaviouristic approach of teaching is now replaced with a constructivist approach, where the learners get the freedom to construct their knowledge through their



This paper has objectives related to SDGs







## TEACHER EFFECTIVENESS AND EMOTIONAL INTELLIGENCE OF GOVERNMENT SECONDARY SCHOOL TEACHERS

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### Abstract

*The revitalization and strengthening of the education system depends on teachers. They play crucial role for the developments of educational standards in the country. This demands teachers to be more effective in the classroom and be optimistic with high Emotional intelligence to influence the students. In the present study, the investigator analyzed the level of Teacher Effectiveness, and Emotional Intelligence of government secondary school teachers, and to find out the relationship among both the variables. The data were collected from 60 Secondary School Teachers of Balasore district using Teacher Effectiveness Scale by Pramod Kumar and D.N. Mutha (1974), Modified version of Emotional Intelligence Scale by Krishnappa V.K. (2008) and self made personal data sheet. The collected data were analyzed by using Mean, SD, t- test and Pearson's Product Moment Correlation and the findings revealed that (i) Government Secondary School Teachers of different academic stream do not differ both in Teacher Effectiveness and Emotional Intelligence. (ii) There is no significance of difference between Male and Female government Secondary School Teachers both in Teacher Effectiveness and Emotional Intelligence. (iii) There is no relationship between Teacher Effectiveness and Emotional Intelligence.*



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## INTRODUCTION

Undoubtedly, quality of education is the direct consequence and outcome of the quality of teachers and teacher education system. The Education Commission (1964-66) has pointed out that the quality, competence and character of teacher as the most significant factors, are influencing the quality of education and are contributing to the national development. Teacher is an educational leader and decision maker, who directly affects and



## THE STATUS OF THE IMPLEMENTATION OF RIGHT TO EDUCATION (RTE) ACT

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### Abstract

*In the 86th amendment 2002, education became a fundamental right under article 21A and Right to Education Act enacted on 4<sup>th</sup> Aug 2009 and came into force on 1 Apr 2010. The present study aimed to explore the status of implementation of Right to Education Act in one of the districts of Odisha. 15 numbers of elementary and primary schools of Khordha district of Odisha were selected as sample schools from which 15 Headmasters and 15 Teachers selected as sample for data collection. For the purpose of collecting data two self made tools were used. First one was a Questionnaire for teachers and headmasters and the second one was a Checklist. Descriptive survey method was adopted for the study. Various dimensions of the RTE act were explored through this study. Major findings of the study showed that the majority of the Headmasters and Teachers have taken their training programme on RTE Act. Very few headmasters went through a long term training programme whereas most of the teachers and headmasters received short term training programmes. Working hours were maintained strictly by the teachers and headmasters. Each school has SMC or SMDC. Corporal punishment was abolished. The major problems of implementation of RTE Act were inadequate teaching staff, lack of infrastructural facilities, lack of proper educational planning and lack of financial resources etc.*

**Keywords:** Right to Education Act (RTE Act), Implementation



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## Introduction


The Crucial role of Universal Elementary Education for strengthening the social fabric of democracy, through provision of equal opportunities to all, has been accepted since the very inception of our republic. The directive principles of state policy, enumerated in our constitution vide **Article 45** lay down that, "the state shall endeavour to provide within ten years from the commencement of the constitution, free and compulsory education to all children up to 14 years of age."

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# A Deconstructive Analysis of Derrida's Philosophy

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## Abstract

This paper is designed to reveal some of the philosophical ideas of Algerian-born philosopher Jacques Derrida. Jacques Derrida, a leading figure of Post-structuralism and Postmodernism is best known as the founding father of 'Deconstruction' but many of his philosophical ideas such as, logocentrism, différance, phonocentrism, aporia, anti-representationalism, etc. still remain rarely focused. Therefore, in this paper the researcher has tried to explore various philosophical ideas of Derrida before the readers to get acquainted with Derrida's contribution to the world of knowledge. This research work has done with the help of both primary sources i.e., original writings of Derrida and secondary sources including the texts written by others. Here, all of Derrida's ideas are explicitly described and justified by an inductive method. Finally, a concluding remark on deconstruction has been made by comparing Derrida's idea of "Différance" with Nagarjuna's concept of "Emptiness" which left the Indian roots of deconstruction.

**Keywords:** Deconstruction, Logocentrism, Phonocentrism, Aporia, Anti-representationalism

## The Background

The most prolific, erudite and an 'intellectual terrorist' (Searle, 1987) Jacques Derrida was born on July 15, 1930 in El Biar, Algiers, the capital of Algeria. He was born into a Sephardic Jewish family where he experienced an environment of discrimination from his childhood. As a result, when Derrida began his childhood studies, he faced discrimination and humiliation of being a Jewish. In fact, he was withdrawn and expelled rightly from two schools and the reasons were, First, the first school he wanted to attend had 7% reservation of seats for the Jewish community and this time the reservation of percentage had already been exceeded in numbers. Second, he was expelled from another school because of anti-Sephardic rule and was being a minority Jew, he was unable to continue his studies. Then he dropped out of a school for a year and joined a football team and participated in different football matches. The injustice and unfairness that he experienced in his childhood would lead him to become a world-famous philosopher and to establish an important position in the galaxy of philosophical discourses.

It was in 1966 a colloquium held at Johns Hopkins University, USA and Jacques Derrida was invited for the first time to deliver a paper on structuralism. In that Colloquium, Derrida was presented a paper called "Structure, Sign, and Play in the Discourse of the Human Science", then the entire intelligentsia





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## Evolution of philosophy from Greek to postmodern: A debate

**Sanjaya Sahu, Dr. Harihar Sarangi and Dr. Partha Sarathi Mallik**

**DOI:** <https://doi.org/10.22271/allresearch.2021.v7.i7a.8722>

### Abstract

This paper highlights a brief overview on the genesis of philosophy begins with Ancient Greece and continues until the present-day world of Postmodernism. The overall aim of this paper is to briefly unfold some profound interpretation that may help the readers to understand the evolution of philosophy and its changing meaning from time to time. A method of induction and deduction has been used all-over the paper to implicitly reflect all the philosophical doctrines and tenets of various philosophical traditions. The primary and secondary sources in the form of books have been used to frame this paper in a logical manner. Broadly speaking, this paper has started with Heraclitus concept of 'Flux' and ended with Lyotard conception of 'Metanarratives'. This paper may help the readers, teachers, researchers in particular and people in general to understand the nature and evolutionary perspective of philosophy at a glance.

**Keywords:** evolution, philosophy, modern, postmodern, metanarrative

### Introduction

The study of philosophy has always been taken an important place among all disciplines, because it is imperative to know the genesis/foundation of every subject. Directly or indirectly all subjects are linked with philosophy. Starting from the literal or derivational meaning of philosophy people have unanimously accepted that philosophy means "Love for wisdom", but no one try to understand how this theoretical definition can be realized practically. Here, we are not claiming the same but trying to convey that other meaning of philosophy may possible such as, "Love for learning; love for knowledge; love for simplicity; love for clarity; love for multiplicity and many more. The main focus here is to see and understand philosophy from a changing and diverse perspective. The entire paper has been presented in a simple way to shed light on different perspectives of philosophers belonging to different ages. It may help the readers to deconstruct the gist and guiding tenets of all philosophical tradition starting from Greek to Postmodern philosophy.

### Objective of the Paper

To explore the evolutionary perspective of philosophy.

### Theoretical Framework of the Study

All the arguments and analysis of this paper was made by studying number of books relating to Greek, Roman, Medieval, Islamic, Renaissance, Modern, Analytic, and Postmodern philosophy.

### Rationale of the Study

Rethinking of nature, formation, standard and value of knowledge is a matter of question in this phenomenal world. Due to the development of science, social progress, and technological upliftment the nature and usefulness of knowledge and value is continuously shifted from the historical Greek philosophy to renaissance and later on modern to postmodern. Here, the researcher has not found any such literature that sheds light on the evolution of philosophy.

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## **Impact of Interpretation Construction (ICON) Model on problem solving and decision-making abilities**

*Brundabana Meher<sup>1</sup> Dr. Partha Sarathi Mallik<sup>2</sup> Saroj Sahu<sup>3</sup> Dipanjali Sahu<sup>4</sup>*

### **Abstract**

The objective of the present study was to find out the impact of interpretation construction model on developing problem solving and decision making abilities among secondary school students through teaching of political science subject. For this, the *non-equivalent control group quasi-experimental research design* was used over a sample of 72 students; 36 each in experimental and control group. The students of experimental group were taught through interpretation construction model whereas the students of control group were taught through Herbartian method of teaching for eight weeks. The findings revealed that though both the instructional designs have significant impact on developing problem solving and decision-making abilities of secondary school students in political science subject but the impact of interpretation construction model is relatively more than Herbartian method. With respect to relative changes in these abilities, it was found out that increase in problem solving ability was more than decision-making ability by both the designs. The present study will help various stakeholders such as secondary school students, teachers, teacher educators, teacher training institutions, parents, administrators and policy makers for improving quality education of the country in particular and world in general.

**Key Words:** *Constructivist learning strategy, Experimental research, Higher order cognitive abilities, Learner centric approach, Traditional method of teaching*

### **Introduction**

Development of problem solving and decision making abilities among the students is time relevant educational goal realised by the institutions. In connection to development of these abilities within curricular frameworks, multiple pathways or strategies have been claimed by the researchers (Senan, 2013). Traditionally, teachers were using Behaviorism guided instructional strategy like Herbartian method for developing these abilities. At present, researchers have claimed about effectiveness of constructivist guided instructional designs like interpretation construction (ICON) model (Zulkarnaen, 2018; Sahu, 2013; Tsai, 2001). Though effectiveness of ICON model have been claimed and substantiated by empirical

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# Anti-Metaphysical Readings of *Tractatus Logico-Philosophicus*

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**Abstract.** This paper discusses certain anti-metaphysical readings of *Tractatus Logico-Philosophicus*. The metaphysical and anti-metaphysical readings can be divided on the interpretations of textual fidelity. The anti-metaphysical readings can be differentiated in taking into account two different understandings with regard to Wittgenstein's pronouncement of *nonsense* in *Tractatus*. One is the logical positivists' understanding of nonsense and the other is the resolute reading of the text that emerged as an opposite to the orthodox or standard reading. The aim of discussing these anti-metaphysical readings is to highlight whether a metaphysical reading is possible.

**Keywords:** Wittgenstein, nonsense, metaphysics, silence, anti-metaphysical reading

## Antimetafizinis *Tractatus Logico-Philosophicus* perskaitymas

**Santrauka.** Straipsnyje nagrinėjamas antimetafizinis *Tractatus Logico-Philosophicus* perskaitymas. Metafizinį



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संपादक

डॉ० योगेश कुमार तिवारी

प्रबंध-संपादक

श्री सुधीर कुमार तिवारी

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मुद्रण :- जय ग्रफिक्स एण्ड कान्सल्टिंग

## Happiness : An Analytical Study of Aristotle and John Rawls

Dr. Subhankari Patil\*

The primary objective of this paper is to provide broader idea about the concept of happiness and its importance in human life. Everyone wishes to live a happy and contemplative life, which necessitates effort, focus, and hard work. It is completely reliant on human actions, as humans are the most capable creatures on the planet. In the conventional sense, a good life entails a happy and prosperous existence. Money, prestige, and position are the temporal components that can be used to make life more enjoyable, but the reliability of these qualities, as well as the enjoyment gained through these means, is limited. As a result, we must concentrate on those aspects of life that might make it meaningful and worthwhile. For a better understanding, I am consulting two political philosophy legends: Aristotle, the ancient Greek philosopher, and John Rawls, the liberal political philosopher. Both Aristotle and Rawls firmly believe in the route of justice as a means of preserving peace and happiness. This study not only underlines the importance of preserving men's dignity but also argues for the need of community in creating a prosperous existence in general. Finally, an attempt is made to justify the necessity of community, as advocated by Aristotle and MacIntyre, in achieving happiness through tradition and social practices.

**Aristotle's Perspective on a fulfilling Existence :-** Aristotle is without a doubt the first political philosopher to understand the rational aspects of human life. The very first sentence of Aristotle's *Nicomachean Ethics* begins with a positive remark that, "Every art and every investigation, and similarly every action and pursuit, is thought to aim at some good; for this reason, the good has been rightly declared to be that at which all things aim."<sup>1</sup> A person can examine the true nature of human life with this teleological viewpoint. The ultimate goal of human life, according to Aristotle, is *eudaimonia*, or happiness. Happiness is a condition of perfection apart from wealth, fame, or pleasure. Relationships are also equally important for a good life because it is the feeling of love, co-operation and fellow feeling that bridges a unique bond between two individuals. Aristotle classifies relationship into three main categories, such as, friendship of utility, pleasant, and mutual admiration. The first two partnerships are instrumental in nature, whereas the third is intrinsic in character, necessitating a unique tie between individuals. Perfection can be possible



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## THE CONCEPT OF JUSTICE IN ARISTOTLE'S PHILOSOPHY

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### Abstract

The prime focus of this article is to present the concept of justice which is central to Aristotle's Politics and Ethics. Justice consists in obeying the rule ordained by the authority for the betterment of community welfare. Aristotle believes that justice is the ideal virtue which is required for the attainment of ultimate happiness. It describes sense of obligation towards the society and performing the duty honestly and sincerely. Justice is necessary for maintaining law and order and treating in a fair way. The aim of Aristotle is to obtain community welfare, where both do their own accord duty and help each for the satisfaction of their end. The sense of selflessness is the necessary criterion for the attainment political good.

**Key Words:** Distributive justice, Happiness, Geometrical Proportion, Merit

### The Concept of Justice in Aristotle's Philosophy

The prime focus of this article is to present the concept of justice which is central to Aristotle's Politics and Ethics. The concept of justice is one of the important issues of political philosophy. Greek philosopher







# Particulate Collection Potential of Trees as a Means to Improve the Air Quality in Urban Areas in India

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## Abstract

The particulate collection potential of tree species in a control and five experimental sites of an urban area in India were studied. Tree species selection was based on their commonness to all the sites, proximity to each location and their abundance in Indian subcontinent. A total of 45 leaf samples for all species in each site were analysed following standard protocols in three seasons (monsoon, post-monsoon and pre-monsoon) during 2015–2016. Out of the twenty one selected trees, eight were deciduous and thirteen evergreen. Particulate collection potential of deciduous trees was 22.6% more than that of evergreen trees. The leaf area showed direct relations, whereas petiole length and internodal distance showed antagonistic relations with particulate accumulation. The average particulate deposit on the leaves of trees of experimental sites ( $0.500 \text{ mg/cm}^2$ ) was significantly more than that of the control site ( $0.358 \text{ mg/cm}^2$ ). 80.95% of the species showed higher accumulation in the experimental sites against 19.04% of species in the control site. Distinct seasonality ( $p < 0.05$ ) was noticed in respect of both parameters. Among the trees, *Butea monosperma* ( $1.156 \text{ mg/cm}^2$ ), *Tectona grandis* ( $0.995 \text{ mg/cm}^2$ ) and *Diospyros melanoxylon* ( $0.766 \text{ mg/cm}^2$ ) had a high particulate deposit capacity with capturing efficiency of 48.44, 41.71 and 32.09%, respectively. On the basis of the study, it is advocated that tree species like *B. monosperma*, *T. grandis* and *D. melanoxylon* should be given top priority to function as barriers of particulate matter.

**Keywords** Morphological characters · Particulate capture efficiency · Particulate pollution · Phytoremediation

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