Volume 14, Issue 2
December 2019

ISSN No.:2348-4667

Anthropological Bulletin

a peer reviewed international journal

Department of Anthropology
University of Lucknow, Lucknow, India

ANTHROPOLOGICAL BULLETIN
A peer-reviewed International Journal
Volume 14, Issue 2, December 2019.

Published by
Department of Anthropology,
University of Lucknow, Lucknow,
India – 226 007

ANTHROPOLOGICAL BULLETIN

Vol. 14, Issue 2, December, 2019

CONTENTS

ISSN: 2348-4667
Anthropological Bulletin
14 (2), 5-23, 2019

Laboratory evaluation of the toxicity of Acephate for the management of jute hairy caterpillar, *Diacrisia obliqua* walk. (Lepidoptera: Arctiidae).

Khowaja Jamal[1] and Sehba Masood[2,*]

ABSTRACT

Laboratory trials were conducted to assess the insecticidal activities of sublethal concentrations of acephate on mortality, longevity, fecundity, fertility, structural and cellular organization of the reproductive system of Diacrisia (Spilosoma or Spilarctia) obliqua Walker. The toxicity of acephate insecticide against 24 hrs old 5th and 6th instars larvae was dose-dependent and increase with increasing concentrations. Observations on developmental response showed that acephate prolonged larval and pupal period, reduced percent pupation and supress reproductive potential. In addition, acephate also induced morphological abnormalities on survived larvae, pupae and adults.Beside these anatomical and histological studies of the male and female reproductive system of the adults emerged from the survived treated larvae showed dose-dependent damage. The size of the ovaries of the affected females was smaller as compared to unaffected (control-I) females. The germarium and the vitellarium were clearly distinguishable. The common oviduct became slightly broader as compared to that of control females. The bursa copulatrix became comparatively small and less sclerotized. The ovarioles of the affected females showed cellular damage. The nature of the cellular damage was almost identical but the degree of damages was dose based. It is clear that acephate which possesses insecticidal, growth and reproductive retardant and may be useful in the management of jute hairy caterpillar.

KEY WORDS: *Diacrisia obliqua*, acephate, toxicity, mortality, longevity, fecundity, fertility, anatomy and histology

Introduction

Diacrisia obliqua Walker (Syn: *Spilosoma obliqua*, *Spilarctia obliqua*) (Lepidoptera: Arctiidae), commonly known as Bihar hairy caterpillar in Asia, is a polyphagous pest infesting about 126 crops (Singh and Varathrajan, 1999) including forest shrubs and trees (Yadav et al., 2001), various agricultural crops (pulses, oil seeds, cereals), fibre crops, vegetables, mulberry, medicinal, aromatic and other economically important plants (Singh and Singh, 1992; Gupta and Bhattacharya, 2008). It is widely distributed in India, China,

[1] Department of Zoology, Aligarh Muslim University, India, drkhowajajamal@gmail.com
[2] Department of Computer Science, Aligarh Muslim University, India, sehba.masood.cs@amu.ac.in
[*] Corresponding author

Pakistan, Bangladesh, Nepal, Myanmar, and Sri Lanka (Bhattacharya and Rathore 1977; Nagia et al. 1990; Bhadauria et al. 2001; Goel et al. 2004; CPC, 2004).In India, it is a serious pest in West Bengal, Bihar, Madhya Pradesh, Uttar Pradesh, Punjab, Manipur, and other states (Kalleshwaraswamy and Basavarajappa 2005). The adult single female moth lays eggs in batches and after hatching first to third instar larvae feeds gregariously while fourth to sixth instar larvae feeds solitarily that cause significant reduction in yield (Hussain and Begum 1995; Gupta and Bhattacharya, 2008). Timely management of this pest is very important as delay may even lead to complete defoliation ofcrop if remains unchecked in the field. The chemical control of advance larval stage is difficult because of dense hairiness and moreover, some time certain levels of behavioural resistance to different class of insecticides has also been reported (Perry et al. 1998; Dhingra et al, 2007; Mandal et al. 2013). To overcome this, rotations of insecticides with different modes of action have been the strategies to avoid resistance development (Roush and Miller, 1989; Tabashnik, 1989; Bharathi, et al.,2010), hence continuous assessment of the toxicity of various insecticides is essential as an alternative tool for the successful control of this pest. Perhaps, all categories of insecticides may decline the production of pest offspring either through affecting feeding behavior, larvae mortality, developmental time, pupal weight, sex ratio, time to adult emergence, fecundity, and development of the female ovipositor and egg hatch (Moreau and Bauce 2003; Seth et al. 2004; Galvan et al. 2005; Borchert et al. 2005; Eizaguirre et al. 2005; Abbott et al. 2008).The reproductive function especially that of males is a potential target for the toxic effects caused by exposure to pesticides (Bretveld et al., 2007). Results of Farag et al. (2000, 2007, 2010), Ismail and Al-Taher (2011), Joshi et al. (2003) revealed that exposure of different organophosphate pesticides to rodents resulted reduction in fertility, changes in sperm count and motility, changes in reproductive organs, inhibition in brain and skeletal muscle acetylcholinesterase activity and degeneration of muscle fibers. Similar results were also observed in humans' studies where prolonged exposure to pesticides caused low semen sperm counts beside hormonal changes which ultimately resulted in infertility(Oliva et al., 2001, Perry et al., 2007). Therefore, the present experiment was undertaken to investigate the acute and subacute toxicity of acephate against 5th and 6th instar larvae on mortality, longevity, fecundity, fertility as well as anatomical and histological structure of male and female reproductive system of*Diacrisia obliqua* under laboratory condition.

Acephate [*O*, *S*-dimethyl-acetyl-phosphoramidothioate, molecular weight (MW) = 183.17] is a class II "moderately hazardous" (World Health Organization,2009) systemic organophosphate pesticide that has been widely used to control insect pests in agricultural fields as well as parasites on mammalians for decades. It is highly soluble in waterand can easily absorb by soil thus easily absorbed by plants and accumulated in edible parts of plants (Mohapatra et al., 2011; Syed et al., 2014). Acephate and its metabolitemethamidophos are two of the most common and efficient OPs that are used for pest control in agriculture (Maia et al., 2011; Kumar et al., 2015; Pan et al., 2015).

MATERIALS AND METHODS

Insects culture

Adults of *Diacrisia obliqua* Walker were collected on light during the month of September and Octoberand were kept in glass rearing jars (20x15 cms),covered with a piece of muslin cloth which was tightly fixed by means of a rubber band and maintained at 27 ± 2°C temperature and 70-80% relative humidity in BOD incubator. The adults were offered 5% glucose solution soaked in sterilized cotton wool as food. The females laid eggs on folded paper strips 2"x20" kept in the jars.Following egg laying adults were transferred to other rearing jars for further egg laying. After hatching the larvae were provided with fresh castor (*Ricinus communis*)leaves as food. These larvae pupated at the surface of the jars or at the under surface of the leaves. The emergence of adults took place after a week following pupation. Then the newly emerged adults were transferred in pairs to separate rearing jars for further generations. For treatment newly moulted 5th and 6th instar larvae were sorted out for experimental purpose.

Laboratory Bioassay for Acephate

The topical application method was used for bioassay with acephate (O, S-dimethyl acetyl phosphoramidothioate) to determine the mortality, longevity, fecundity, fertility, anatomy and histology of the reproductive system of *S. obliqua*. In a preliminary experiment, LC-50 value of acephate for 5th instar larvae was obtained. On the basis of LC-50 value, five serial dilutions (0.1, 0.08, 0.06, 0.04 and 0.02%) of acephate were prepared in acetone (Analytical grade). One hundred (24 hrs old) 5th and 6th instar larvae in 4 replicates were topically treated with 2 µl of each concentration with the help of a 2 ml tuberculin syringe fitted to a manually operated micro-applicator. For control (designated as control-I) only 2 µl acetone (Analytical grade) was applied on the same number of larvae obtained from the same stock. To compare the effect of solvent (acetone), same number of larvae were treated with 2 µl distilled water (designated as control-II) were maintained at the same controlled conditions. Daily mortality of the treated insects as well as the emergence of the adults from the survived nymphs was recorded to observe longevity.

For the observations on egg production and egg viability, the adult females emerged from the nymphs treated with each concentration of acephate and acetone (control) were paired with males of the corresponding age obtained from untreated stock. The response variables were subjected to one-way analysis of variance (Snedecor& Cochran, 1967; Sokal&Rohlf, 1981) to determine significance differences ($P<0.001$) among the treatments.

Anatomical and Histological Preparation

Active and healthyfemales which emerged from the survived treated and untreated nymphs were paired with their corresponding males. From such stock, 10 females and 10 males were dissected out simultaneously, at the intervals of 01, 05, 10 and 20 days following emergence, to study the changes both in anatomical as well as histological structure of the reproductive system. For anatomical study, the dissected material was prepared according to Pantin (1959). For histological observations, the testes and ovaries wereremoved in the physiological saline and fixed in Duboseq-Brasil for one hour and then washed in 90% ethanol, dehydrated, cleared in methyl benzoate and benzene and finally embedded in paraffin wax (56-58^{o}C melting point, Merck). Serial sections of 5-8 micron thick were cut on rotary microtome. These sections were stained with Heiden Hains Iron Haematoxylin and Eosin (Khowaja, J.2015). The staining was achieved by YSI-106 Yorko automatic staining machine having 12 stations using Culling (1974) method.

Statistical Analysis

The larval mortality was observed after 24, 48 h, and 72 h and the data were corrected by adjusting mortality in controls using Abbott's formula (Abbott's, 1925).

$$\text{Corrected mortality} = \frac{\text{Treated mortality- Control}}{\text{100-Control mortality}} \times 100$$

The moribund larvae were also counted as dead. Finally, the mortality data were analysed by probit analysis (Finney 1985) to calculate Lc-50 value using SPSS statistical package programme.

Results and Discussion

The mortality of the test insects was found to increase with an increase in concentrations of acephate. The topical application of serially diluted 0.1, 0.08, 0.06, 0.04 and 0.02% acephate on 5th instar (24 hrs old) larvae of *Diacrisia obliqua* caused 35, 24,15,09, and 04% initial mortality (Fig.01) respectively within 24 hrs ($Y= -5.8571x + 35.857$, $R^2 = 0.9221$, $P< 0.001$; Fig.5), whereas the total larval mortality up to adult emergence was 53, 40, 26, 11, and 07% (Fig. 02) respectively as compared to 02% in control ($Y= -8.75x + 55.286$. $R^2=0.8979$, $P< 0.001$; Fig. 06). The topical application of the same above-said concentrations on 6th instar larvae produced 20, 19, 06, 04, and 03% initial mortality (Fig. 09) respectively as compared to control ($Y= -3.5x + 21.571$,$R^2 = 0.8133$, $P< 0.001$; Fig. 13), however the total larval mortality up to adult emergence was 34, 27, 17, 06, and 03% (Fig. 10) respectively as compared to 04% in control ($Y= -5.6786x + 35.857$; $R^2 = 0.8793$; $P< 0.001$; Fig. 14). Earlier, Singh and Singh (2000) performed a bioassay studies to determine the relative toxicity of five synthetic pyrethroids (decamethrin [deltamethrin], cypermethrin, lambda-cyhalothrin, fenvalerate, and bifenthrin) and four non-pyrethroids (endosulfan, chlorpyriphos [chlorpyrifos], lindane, and malathion) against the 2nd instar (5±1-day-old) larvae of *Spilarctia obliqua* in the laboratory. Based on the LC_{50} values of the insecticides, the order of toxicity against *Spilarctia obliqua* was decamethrin > cypermethrin > lambda-cyhalothrin > fenvalerate > bifenthrin > endosulfan > chlorpyriphos > lindane > malathion. On the basis of the observations they concluded that pyrethroid insecticides were more toxic to *Spilarctia obliqua* than the other insecticides. Gupta et al., 2004 also studied the efficacy of different synthetic pesticides and reported that endosulfan can effectively control the larva of *S. oblique*. Whereas, further study by Nair et al. (2007) found that indoxacarb was highly toxic than endosulfan against the larva of *S. oblique* in laboratory condition. However, Mishra et al (2017) while evaluating the effectiveness of eleven insecticides against bihar hairy caterpillar, *Spilosoma obliqua* Walker observed that Flubendiamide 480 SC was more toxic than Indoxacarb 14.5 SC and the overall order of effectiveness of these insecticides was Flubendiamide 480 SC > Indoxacarb 14.5 SC > Spinosad 45 SC > Thiodicarb 75 WP > Emmamectin benzoate 5 SG > Rynaxypyre 20 SC > Thiomethoxom 25% WG > Fipronil 5% SL > Imidacloprid 17.8 SL > Chloropyriphos 20 EC. Muthusamy et al (2011) studied the baseline susceptibility of five classes of chemical insecticides namely imidacloprid, cypermethrin, Emamactin, Neem and Flubendiamide on third instar larvae of *S. oblique* and observed that emamectin benzoate was the most potent insecticide (LC_{50}: 2.459 g a.i/ha), followed by cypermethrin (LC_{50}: 41.72 g a.i/ha) and concluded that tThis information can be used for designing IPM programs in groundnut. Kumar et al (2013) tested 5 insecticides against the larvae of *Spilarctia obliqua* and observed that Deltamethrin was most toxic insecticide against the larvae of *Spilarctia obliqua* followed by triazophos, spinosad, chlorpyrifos and fipronil in leaf dip. Selvaraj et al (2015) studied the toxicity of conventional (profenofos 50 EC and λ-cyhalothrin 5 EC) and non-conventional (flubendiamide 480 SC, chlorantraniliprole 18.5 SC, emamectin benzoate 5 SG) insecticides against the third instar larvae of jute hairy caterpillar, *Spilarctia obliqua* under laboratory conditions and reported that the bioefficacy of synergistic binary combinations along with individual insecticides established the superiority of profenophos + λ- -1 cyhalothrin (3:1) with 89.12% reduction in infestation and recorded maximum fibre yield 38.67qha under field condition. Sharma et al (2015) studied the stomach toxicity of Cypermethrin, Lambda cyhalothrin and Chlorpyriphos against 7d old larvae of *Spilarctia obliqua* by leaf dip method. On the basis of LC50 values at different time intervals the order of toxicity was recorded as Cypermethrin > Lambda cyhalothrin > Chlorpyriphos. These findings can be helpful for the selection of suitable insecticides for effective pest management under field condition. According to Khowaja et al. (1995) the exposure of 10, 08, and 06-ppm temik to the 4thinstar nymphs of *Dysdercus cingulatus* caused 52, 43 and 29% total nymphal loss up to adult emergence. Fakhri et al. (2011) studied the comparative toxicity of conventional and nonconventional insecticides against 4th instar nymphs of *Dysdercus koenigii* and reported that in term of mortality the conventional insecticide (imidacloprid) proved more toxic than the non-conventional insecticide multineem. Likewise, the topical application of conventional insecticide i.e., monocrotophos on 4th instar nymphs of *D. koenigii* showed higher mortality than nonconventional neemjeevan (Fakhri et al. (2011). However, the toxicity of two conventional insecticides i.e., quinalphos and oxydemeton-o-methyl against 4th nymphal instar of *Dysdercus koenigii* remain almost same (Fakhri et al., 2012).

Ali et al (2008) studied the biological activity of eco-friendly insecticide, nimbicidine on the mortality, growth and feeding responses of jute hairy caterpillar, *Spilarctia obliqua* (Walker) and reported that nimbicidine possesses insecticidal, growth retardant and antifeedant properties and may be useful in the management of jute hairy caterpillar. Gupta and Bhattacharya (2008) studied the lethal and sublethal effects of three post-emergence herbicides, 2,4-D ethyl ester (Weedkill 80WP), imazethapyr (Pursuit 10EC) and quizalofop ethyl (Tergasuper 5EC) against the larvae of *Spilarctia obliqua* Walker (Lepidoptera: Arctiidae) and observed that Quizalofop ethyl and imazethapyr caused signifcant reduction of pest survival at almost all levels; however, 2,4-D ethyl ester was nontoxic. Mandal et al (2013) evaluation the toxicity of azadirachtin 1500ppm @3ml/l, endosulfan 35EC @ 300g a.i/ha, triazophos 40 EC @ 250g a.i/ha, thiamethoxam 25 WG @ 40g a.i/ha, ë-cyhalothrin 5 EC @ 40g a.i/ha, indoxacarb 14.5 SC @ 75g a.i/ha and imidacloprid17.8 SL @ 30g a.i/ha for the management of bihar hairy caterpillar (Spilosoma obliqua Walk.) in black gram and reported the order of efficacy: triazophos (90.64%) >ë-cyhalothrin (83.71%) >indoxacarb (78.76%) >endosulfan (69.53%) >imidacloprid (62.31%) > thiamethoxam (57.40%). Azadirachtin was found to be least effective in controlling of hairy caterpillar. Highest cost benefit ratio (1:21.69) was observed in triazophos 40 EC @ 250g a.i/ha. Bandyopadhyay et al (2014) studied the toxicity of the commercial formulation Delfin® containing *Bacillus thuringiensis* var. kurstaki (Btk) serotype 3A, 3B, SA11 (WG) and Margo Econeem™ Plus (EC) based botanical insecticide containing azadirachtin 1% (10,000 ppm) alone and in different sublethal combinations against 3rd instars of *Spilarctia obliqua* Walker (Lepidoptera: Arctiidae) under laboratory conditions and suggested that combination of botanicals with microbes could be strategized for utilization in integrated management. Hussein and Mohammed (2015) studied the toxicity of botanical extracts of Neem, Sarifa, bioagent Beauveria bassiana and conventional Insecticide (Cypermethrin 0.07%) against larvae of Spilosoma obliqua on cabbage leaves in plastic jars under laboratory conditions and observed that Cypermethrin caused 100% population reduction of Spilosoma obliqua (100%) followed by leaf extracts of Neem (90.00%), Sarifa (83.33%) and Beauveria bassiana (73.33%) as compared with Control (0.00%). The Bioefficacy of ethiprole 40+ imidacloprid 40 (Glamore 80WG) against 14d old larvae of *Spilosoma obliqua* (Walker) by leaf dip method revealed a feeding inhibition of 87.60 and 81.86% @0.833 and 0.666% at 24HAF (hours after feeding) as compared to control, respectively. The LC50 values against 9d old larvae at 2.5, 3.0, 3.5, 4.0 and 5.0 days after feeding (DAF) were 1.018, 0.802, 0.606, 0.464 and 0.334%; and against 14d old larvae at 4.0 and 5.0 DAF were 0.628 and 0.563%, respectively. The LT50 values against 9d old larvae were 51.08, 81.90 and 96.85 hr @0.833, 0.666 and 0.499%, respectively. The LC50 values against 9d old larvae in atomization method at 3, 4 and 5 DAE (days after exposure) were 0.466, 0.369 and 0.324%, respectively; and against 5d old larvae it was observed to be 0.293 and 0.130% at 3 and 4 DAE, respectively (Devi and Srivastava, 2018).

The longevity of 5th instar (24 hrs old) treated larvae of *Diacrisia obliqua* increased linearly ($Y = -4.3286x + 108.3$, $R^2 = 0.907$; $P < 0.001$; Fig.07) with increasing concentrations of acephate. Similarly, the survival duration of 6th instar larvae, pupal period, average life span of adult males and females that emerged from the 5th instar treated nymphs also increased linearly ($Y = -2.9679x + 146.94$, $R^2 = 0.7895$; $Y = -9.5429x + 296.8$, $R^2 = 0.7463$; $Y= -10.318x + 426.73$, $R^2 = 0.8302$; $Y= -4.4464x + 216.67$, $R^2= 0.8943$, $P <0.001$ respectively, Fig 07), and exhibited positive correlation. The average larval duration of 5th instar treated larvae and 6th instar survived larvae following the topical application of 0.1, 0.08, 0.06, 0.04, and 0.02% of acephate was enhanced by 25.7, 14.9, 9.1, 4.4,3.2 hrs and 21.6, 11.4, 8.9, 3.9, 6.2 hrs respectively (Fig. 03) as compared to control-I, whereas the average pupal period, average life span of adult males and adult females that emerged from the treated 5th instar larvae also increased by 67.1, 31.1, 18.5, 4.6, 9.4; 68.7, 43.4, 21.6, 14.4, 10.3 and 26.6, 15.2, 9.5, 3.8, 5.7 hrs respectively as compared to control (Fig.03).The longevity of 6th instar (24 hrs old) treated larvae following the topical application of same above said concentration also increased linearly ($Y= -2.425x + 142.43$, $R^2= 0.675$, $P <0.001$, Fig.15) with increasing sublethal concentrations of acephate. Similarly, the pupal duration, adult male and female life span that emerged from the 6th instar treated larvae also increased linearly ($Y=-7.5679x + 290.57$, $R^2 = 0.7392$; $Y= -16.23x + 503.9$, $R^2 = 0.8108$; and $Y= -5.4286x + 268$, $R^2 = 0.9049$, $P <0.001$ respectively, Fig. 15) with increasing sublethal concentrations and exhibit positive correlation.The average survival duration of 6thinstar treated larvae following the topical application of 0.1, 0.08, 0.06. 0.04, and 0.02% of acephate was enhanced by 17.5, 11.4, 02.0, 03.7, 02.5 hrs respectively (Fig. 11) as compared to control-I, whereas the average pupal period, average life span of adult males and adult females that emergedfrom the survived6th instar treated larvae also increased by 53.8, 26.9, 12.2, 05.6, 08.3; 104.9, 72.5, 36.2, 12.0, 16.4 and 30.8, 14.2, 16.0, 04.9, 03.1 hrs respectively as compared to control (Fig.11).

The nymphal-adult moulting of the treated insects was also affected adversely and 9 out of 20 survived nymphs could not cast off their exuvae and succumbed to incomplete moulting. According to Khowaja et al., 1992, the topical application of 0.003% monocrotophos on 4thinstar nymphs of *Dysdercus cingulatus* caused an increase of 41.86 and 50.9% in longevity of 4th as well as 5th instar nymphs respectively compared to control. The longevity of male *Blatella germanica* following the exposure of LD-50 dose of cyfluthrin and hydramethylnon reduced by 52and 81% respectively compared to control (Abd-Elghafar& Appel, 1992). The larval duration of 6thinstar *Spodoptera litura* when exposed to 1000-ppm cythion (malathion) was enhanced by 72.02% as compared to control (Khowaja et al., 1993). Likewise, the nymphal duration of 5th instar nymphs of *D. cingulatus* following the topical application of 30 ppm monocrotophos enhanced by 43.1%, whereas, the longevity of the adult males and females emerged from the treated 5th instar nymphs increased by 31.51 and 26.5% respectively as compared to control (Khowaja et al., 1994). The topical application of 80 ppm cythion on 4thinstar nymphs of *D. koenigii* increased 4th instar nymphal longevity by 64.8 hr (i.e. 90%), whereas, the longevity of 5th instar nymphs, adult males and females which emerged from the 4th instar treated nymphs was enhanced by 43.2 hr (i.e. 34%), 189.7 hr (i.e. 40.8%) and 177.6 hr (i.e. 42.5%) respectively as compared to control (Khowaja et al., 2001). The longevity of the nymphs which survived by the treatment of both quinalphos and oxydemeton-o-methyl insecticidesincreased significantly as compared to control Fakhri et al. (2012).

The average egg production of the females that emerged from the survived treated5thinstar larvae showed negative linear correlation with increasing concentration ($Y = 44.75x + 1589.9$, $R^2= 0.9383$, $P <0.001$, Fig. 08). Following the topical application of higher selected sublethal concentrations viz., 0.1,0.08, and 0.06% acephate/5thinstar larvae, the fall in fecundity of the affected females was 14.22,09.52 and 07.81% respectively (Fig. 04) as compared to control. The hatching of the eggs laid by the affected females also decreased linearly with increasing concentrations of acephate ($Y = 71.571x + 1398.4$, $R^2 = 0.9095$, $P < 0.001$, Fig. 08). The viability of the eggs following the application of 0.1, 0.08 and 0.06% acephate, was slipped by 24.59,14.92 and 11.46% respectively as compared to control (Fig. 04).

Similarly, the average egg laying of the females that emerged from the survived 6th instar treated larvae also showed negative linear correlation with increasing concentration ($Y = 47.036x + 1528.6$, $R^2 = 0.8335$, $P <0.001$, Fig. 16). Following the topical application of higher selected sublethal concentrations viz., 0.1, 0.08, and 0.06% acephate/6th instar larvae, the fall in fecundity of the affected females was 17.98, 09.05 and 08.01% respectively (Fig. 12) as compared to control. The average hatching of the eggs laid by the affected females also decreased linearly with increasing concentrations of acephate ($Y = 79.929x + 1291.1$, $R^2 = 0.9117$, $P < 0.001$, Fig. 08). The viability of the eggs following the application of 0.1, 0.08 and 0.06% acephate, was slipped by 28.15., 15.62 and 1.85% respectively as compared to control (Fig. 12).

The results of Chattoraj and Bhise (1980) also indicated that fecundity of adult *Spodoptera litura*, emerged from the treated larvae exposed to sub lethal dose of 3µg dieldrin, was reduced significantly as compared to control. In laboratory test, the exposure of sub lethal concentrations (Lc-30 and Lc-50,0.0088, 0.0182% respectively) of parathion (ethylparathion) to the larvae of *Spodoptera litura* resulted in reduction in oviposition and egg hatching rate of the adults (Patil and Khanvilkar, 1977).

The results of Khowaja et al., 1992 indicate that the topical application of sublethal concentrations of monocrotophos (0.003%) on 4th instar nymphs of *D. cingulatus* resulted in 21.86 and 29.89% reduction in fecundity and fertility of the surviving females. Similarly, the topical application of 30 ppm monocrotophos on 5thinstar nymphs of *D. cingulatus* caused 18.1 and 22.4% reduction in the total egg production and hatching of the eggs (Khowaja et al., 1994). The topical application of cythion (malathion) on6th instar larvae of *Spodoptera litura* and on 4th instar nymphs of *D. koenigii* (Khowaja et al., 1993 & 2001), quinalphos and oxydemeton-o-methyl on 4th instar nymphs of *D. koenigii* (Fakhri et al., 2012) caused significant reduction in fecundity and fertility of the adults emerged from the survived treated nymphs. Among the emerged adults, 14.3% had malformed wings and legs. The ingestion of sub-lethal doses of arsenates by 4 species of adult diptera viz., *Rhagoletis pomonella* (Walsh), *Drosophila melanogaster* Meigen, *D. hydei* Sturtevant, and *Musca domestica* was found to suppress egg production through a suppressing effect on ovarian development (Pickett and Patterson, 1963).

The ovaries of the two days old females which emerged from the survived 5th instar as well as 6th instar treated larvae following the topical application of 0.10 and 0.08% concentrations of acephate showed some anatomical deformities. The size of the ovaries of the affected females was smaller as compared to unaffected (control-I) females however the germarium and the vitellarium were clearly distinguishable. Although, the length of each ovariole was normal, the development of oocytes was slow in the vitellarial portion and there was loose arrangement of chorionated eggs at the base of some ovarioles. In some ovarioles more than one oocytes were present in a single egg chamber resulting in the formation of compound egg chamber. In addition, there was formation of an ovariole loop and the common oviduct became slightly broader as compared to that of control females. The bursa copulatrix became comparatively small and less sclerotized. Although, the shape of the accessory glands was unchanged, its size was reduced proportionately with respect to the size of the ovary as compared to that of the control. However, the females that emerged from the survived 5th instar larvae treated with 0.06, 0.04 and 0.02% acephate did not show any remarkable damage in the anatomical structure of their ovaries. The shape and size of the ovaries of the affected females was almost similar to that of the control-I.

The histological picture of the ovarioles of the affected females following the topical application of 0.10, 0.08 and 0.06% acephate on the 5th and 6th instar larvae showed cellular damage where the nature of the changes was almost identical with respect to each treatment but the degree of damages varied with concentrations. The germinal part of the ovariole was intact having normal primordial germ cells. Below the germarium, there was a long immature vitellarial portion which contained more immature oocytes as compared to control. The linear arrangement of both immature and mature eggs in certain ovarioles was not uniform and the density of ooplasm was very thin in the oocytes. The development of these oocytes was rather slow and contained less ooplasm as compared to the control. Below this portion, the ovarioles had the chorionated eggs. The accumulation of yolk protein spheres at the egg cortex was not normal in the eggs of the same region of the ovarioles as evident by differential staining property. In some ovarioles the ooplasm of the chorionated eggs developed differential growth pattern including the accumulation of the yolk protein spheres as compared to normal pattern of the controls. The staining property of these oocytes showed their young condition though their accompanying trophocytes were almost exhausted. The follicle cells of immature oocytes in few cases had loose arrangement leaving some space between them. The trophocytes in some ovarioles became short and loosely arranged. The ovarioles of the affected females by lower concentrations (0.06, 0.04 and 0.02%) of acephate had either insignificant effect or no damage at all. The histological picture of the ovaries of these females was almost identical with that of the unaffected (control-I) females.

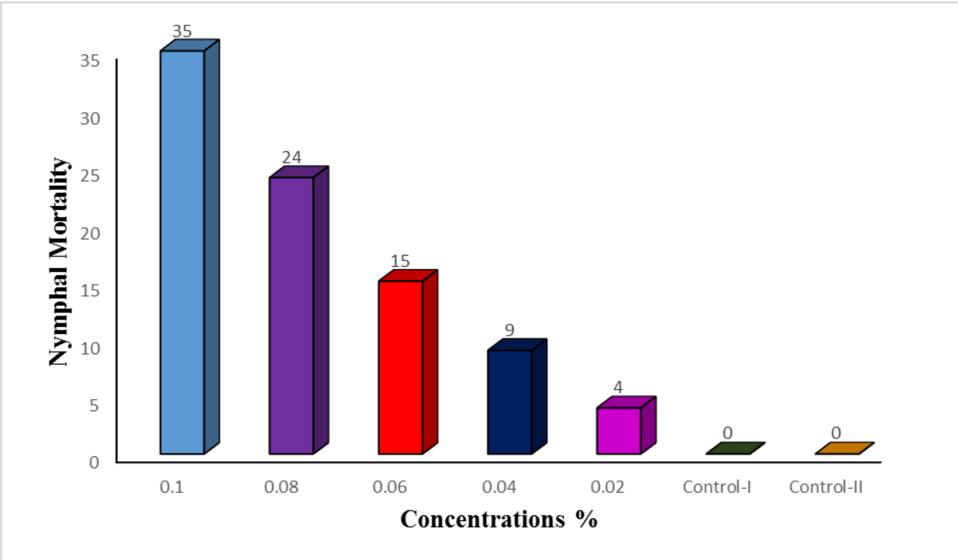


Fig.01. Initial larval mortality within 24 hrs (Knockdown effect) following topical application of sublethal concentrations of Acephate on 5th instar larvae of *Diacrisia obliqua*

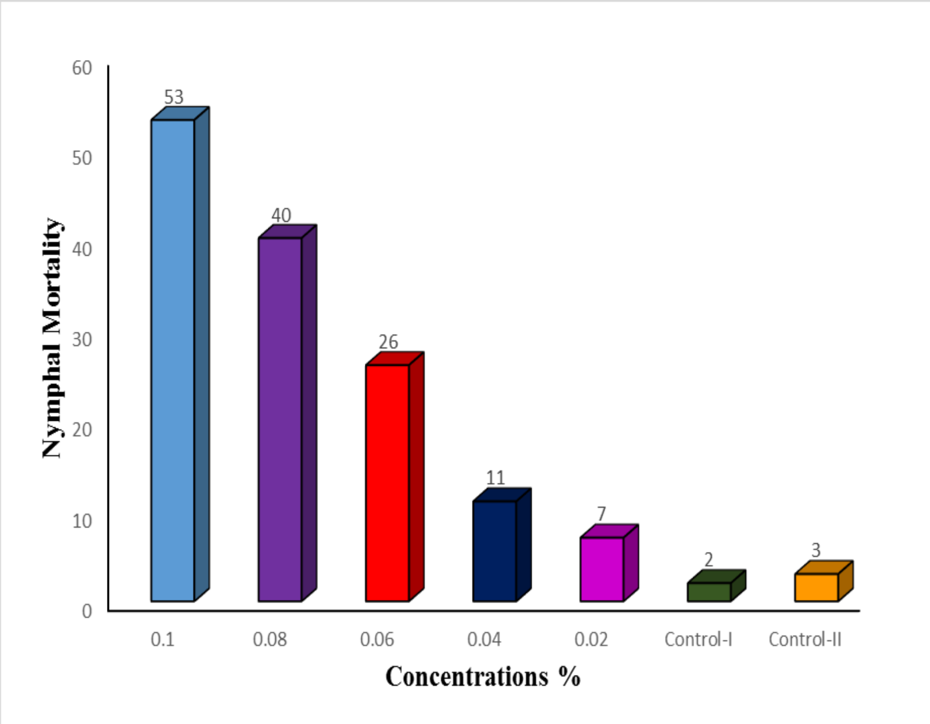


Fig.02. Total larval mortality up to adult emergence (Residual effect) following topical application of sublethal concentrations of Acephate on 5th instar larvae of *Diacrisia obliqua*

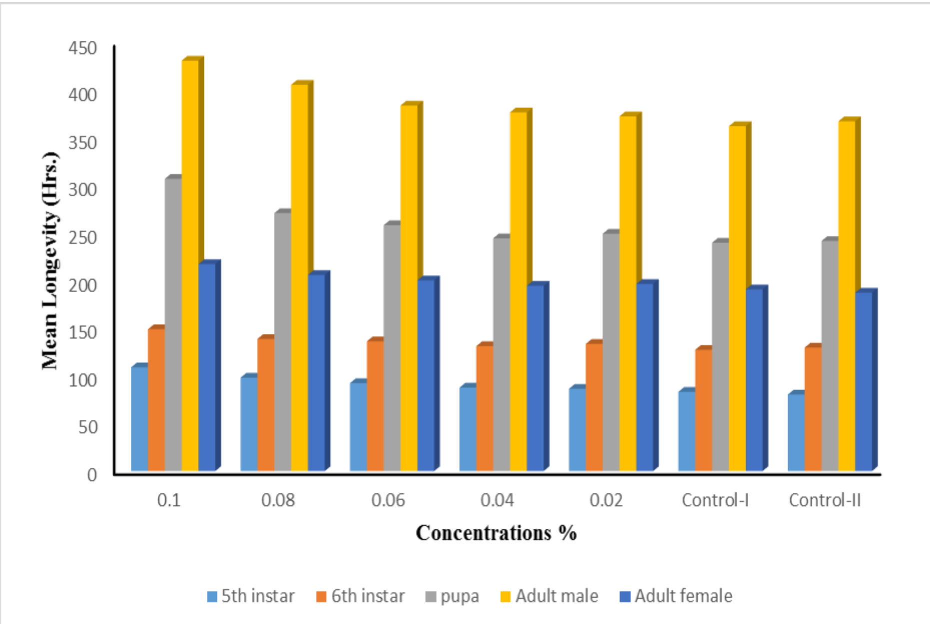


Fig. 03. Larval, pupal and adult longevity following topical application of sublethal concentrations of Acephate on 5th instar larvae of *Diacrisia obliqua*

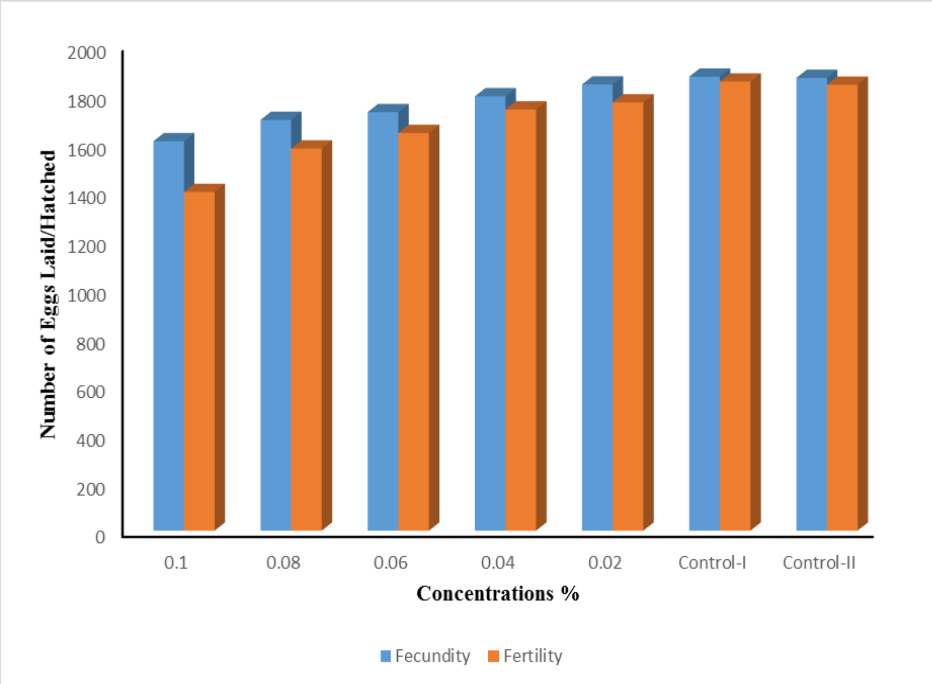


Fig. 04. Fecundity and fertility of the adult females following topical application of sublethal concentrations of Acephate on 5th instar larvae of *Diacrisia obliqua*

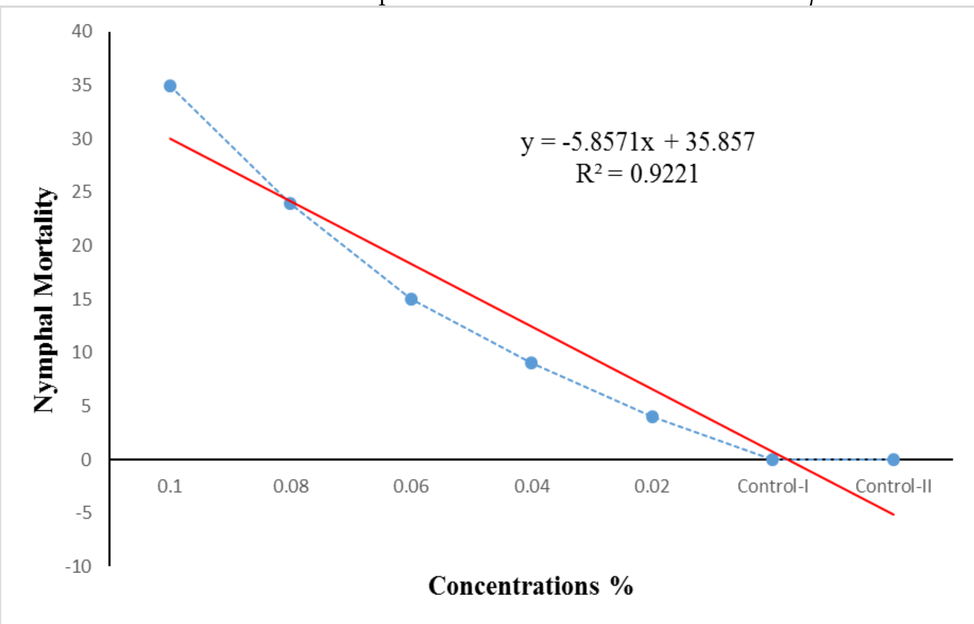


Fig.05. Initial larval mortality within 24 hrs (Knockdown effect) following topical application of sublethal concentrations of Acephate on 5th instar larvae of *Diacrisia obliqua*

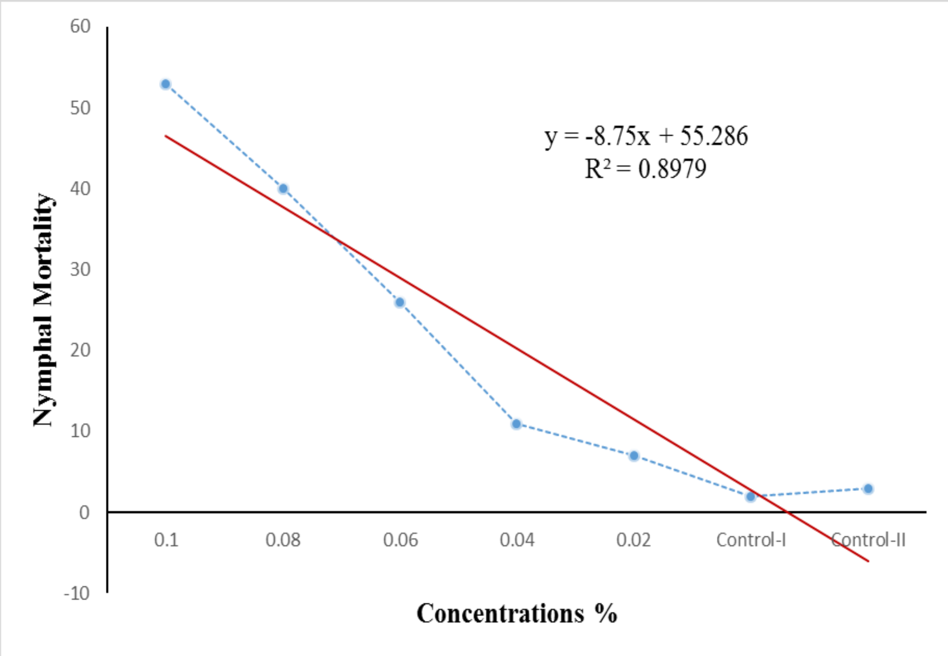


Fig. 06. Total larval mortality up to adult emergence (Residual effect) following topical application of sublethal concentrations of Acephate on 5th instar larvae of *Diacrisia obliqua*

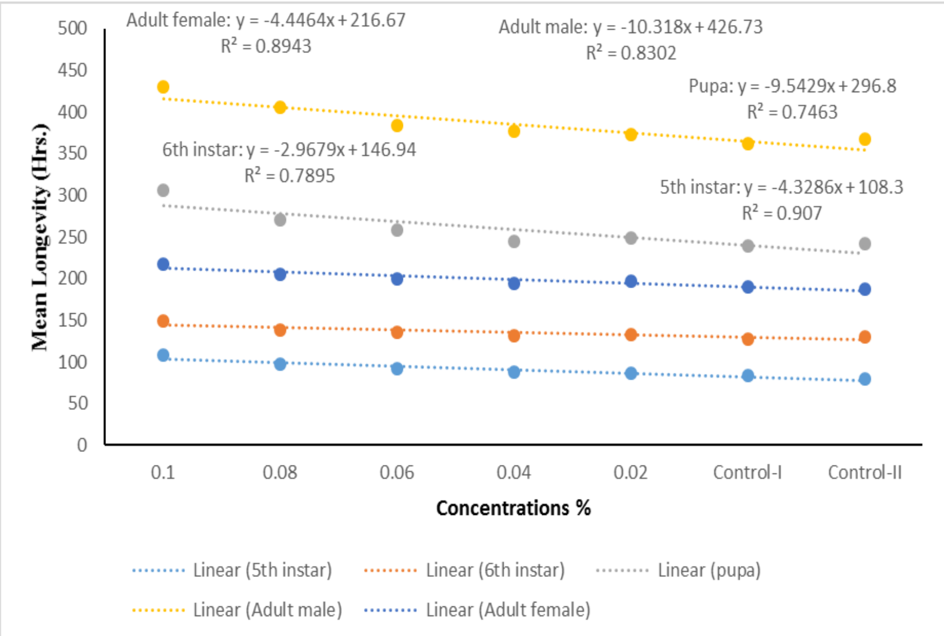


Fig. 07. Larval, pupal and adult longevity following topical application of sublethal concentrations of Acephate on 5th instar larvae of *Diacrisia obliqua*.

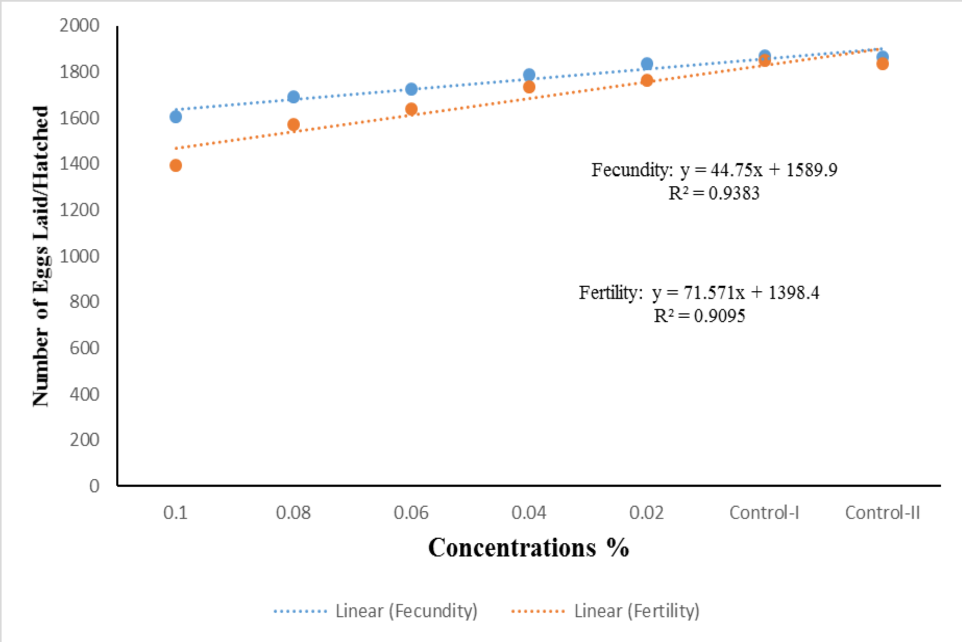


Fig. 08. Fecundity and fertility of the adult females following topical application of sublethal concentrations of Acephate on 5th instar larvae of *Diacrisia obliqua*

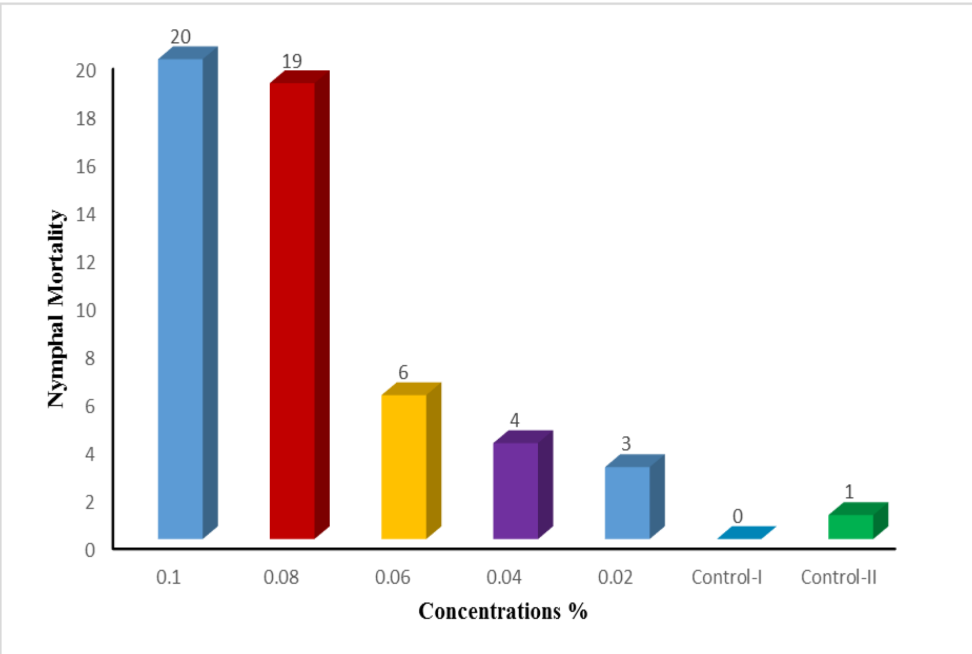


Fig.09. Initial larval mortality within 24 hrs (Knockdown effect) following topical application of sublethal concentrations of Acephate on 6th instar larvae of *Diacrisia obliqua*

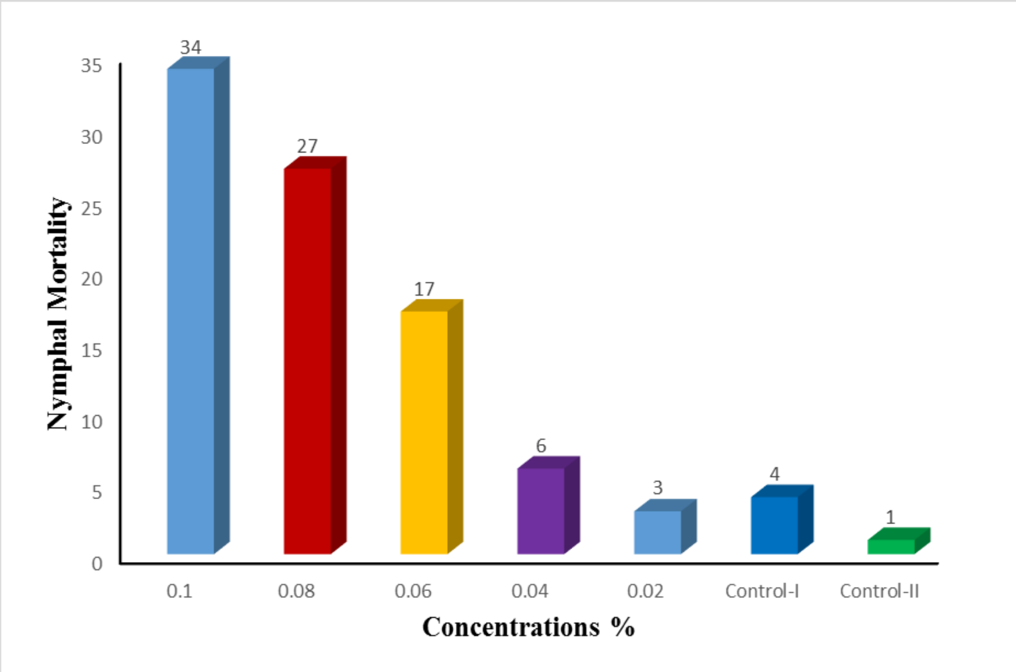


Fig.10. Total larval mortality up to adult emergence (Residual effect) following topical application of sublethal concentrations of Acephate on 6th instar larvae of *Diacrisia oblique*

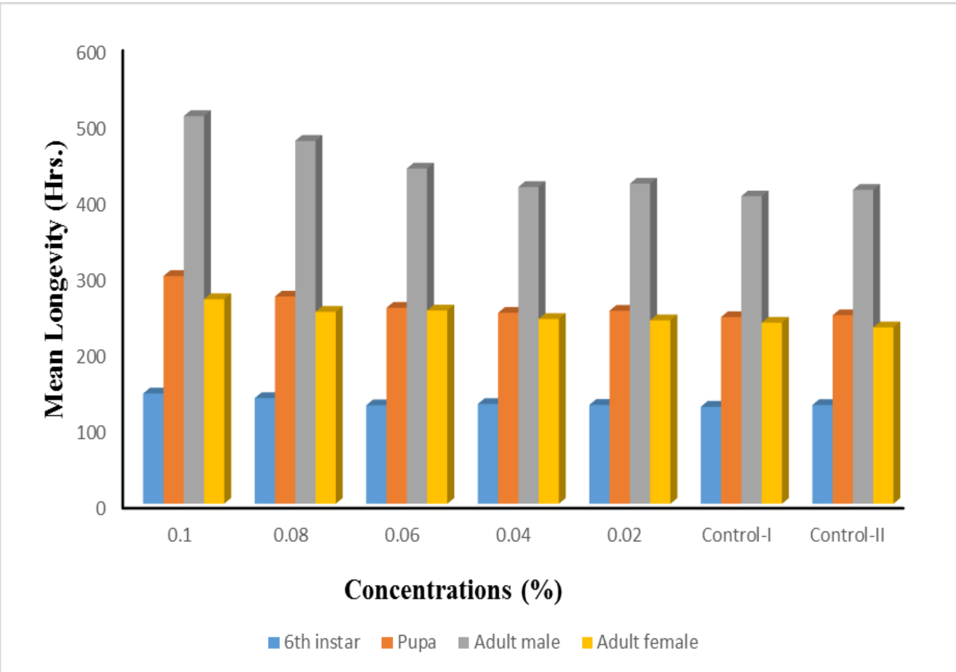


Fig. 11. Larval, pupal and adult longevity following topical application of sublethal concentrations of Acephate on 6th instar larvae of *Diacrisia obliqua*

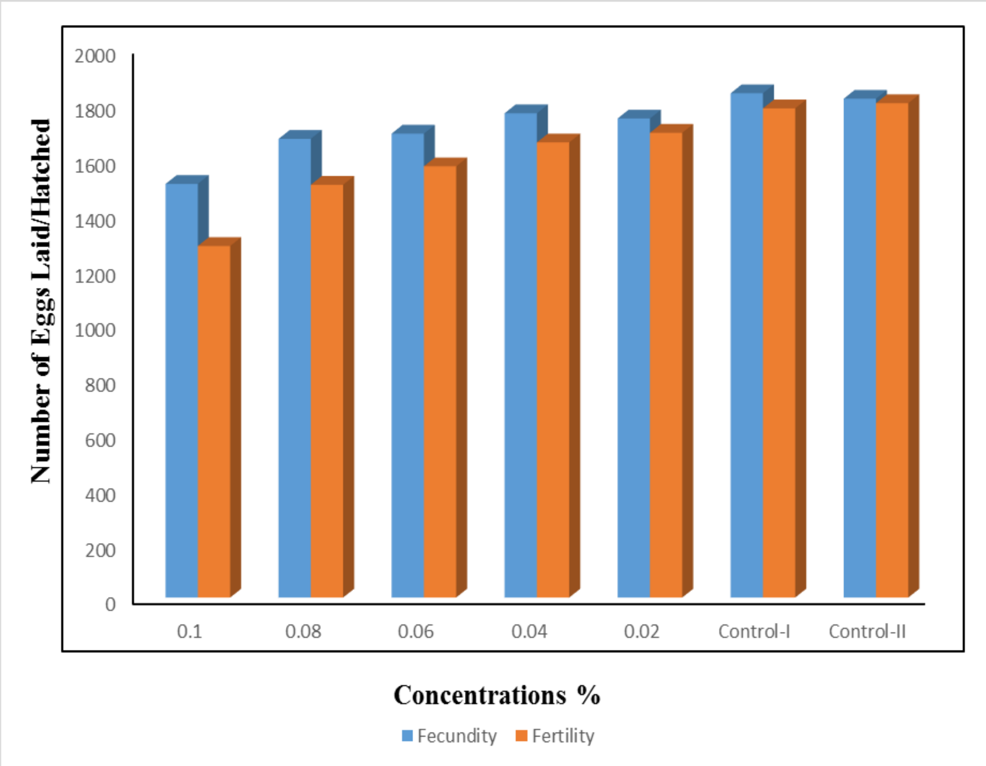


Fig. 12. Fecundity and fertility of the adult females following topical application of sublethal concentrations of Acephate on 6th instar larvae of *Diacrisia obliqua*

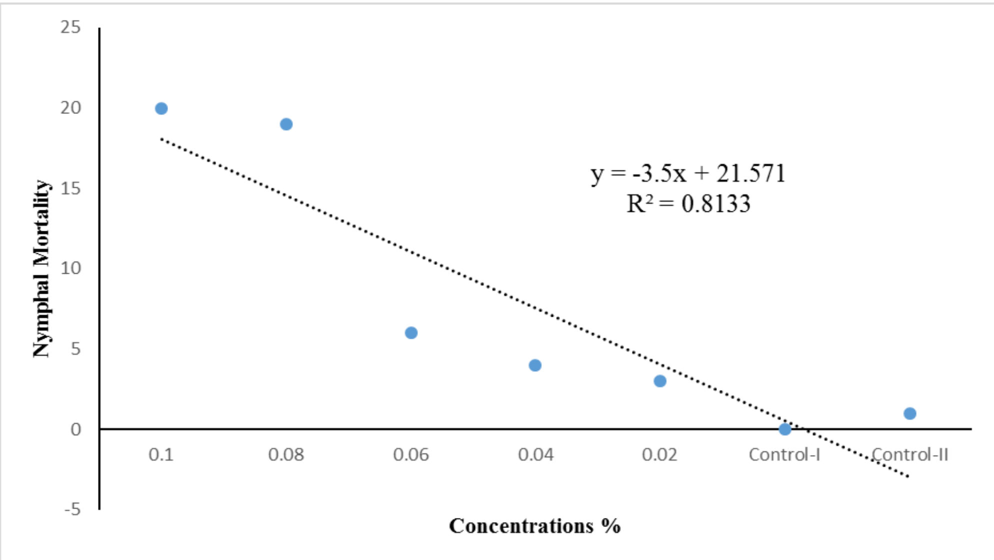


Fig.13. Initial larval mortality within 24 hrs (Knockdown effect) following topical application of sublethal concentrations of Acephate on 6th instar larvae of *Diacrisia obliqua*

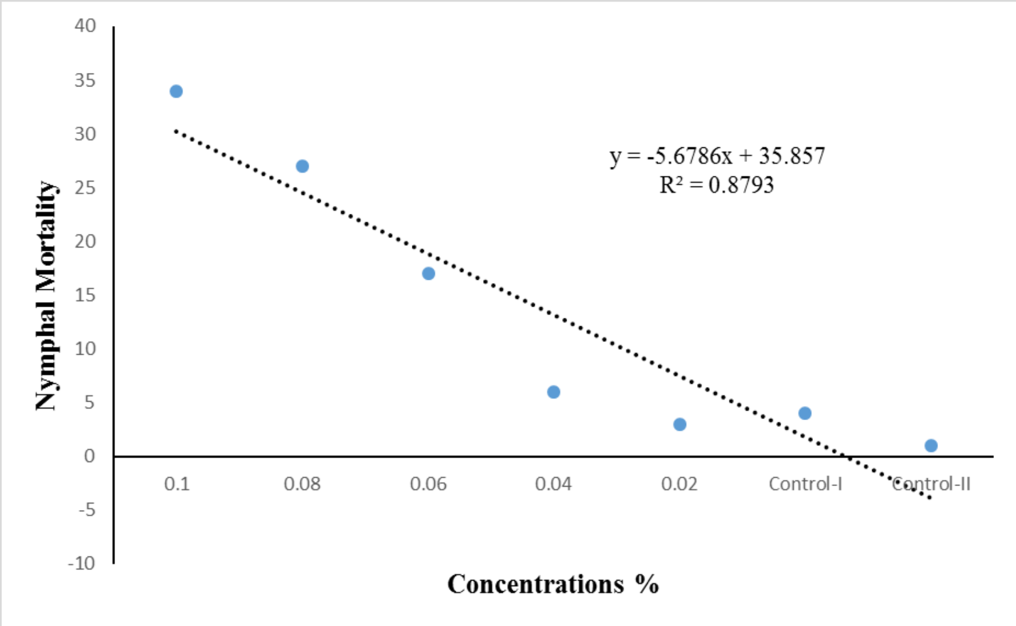


Fig.14. Total larval mortality up to adult emergence (Residual effect) following topical application of sublethal concentrations of Acephate on 6th instar larvae of *Diacrisia obliqua*

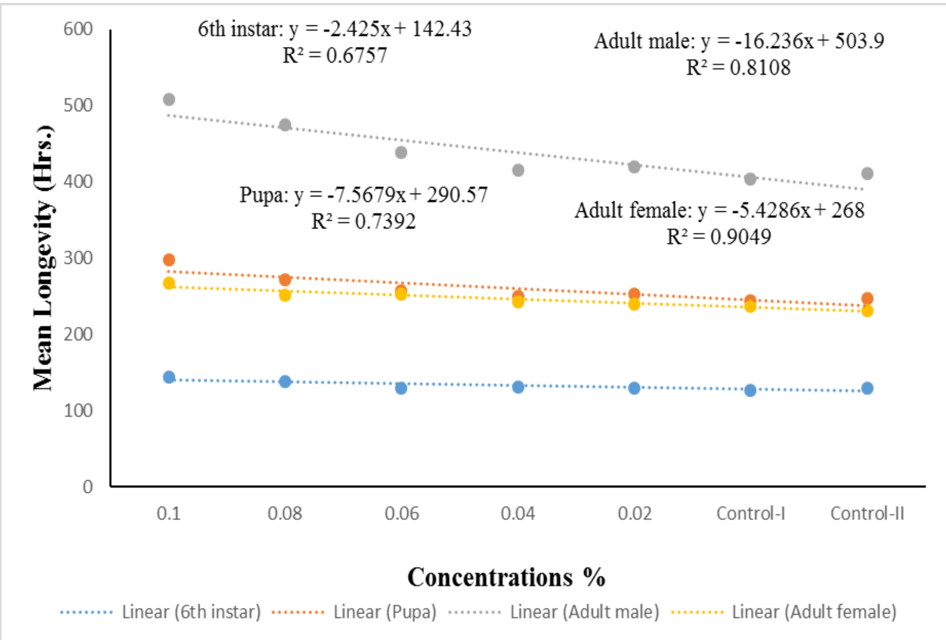


Fig.15. Larval, pupal and adult longevity following topical application of sublethal concentrations of Acephate on 6th instar larvae of *Diacrisia obliqua*.

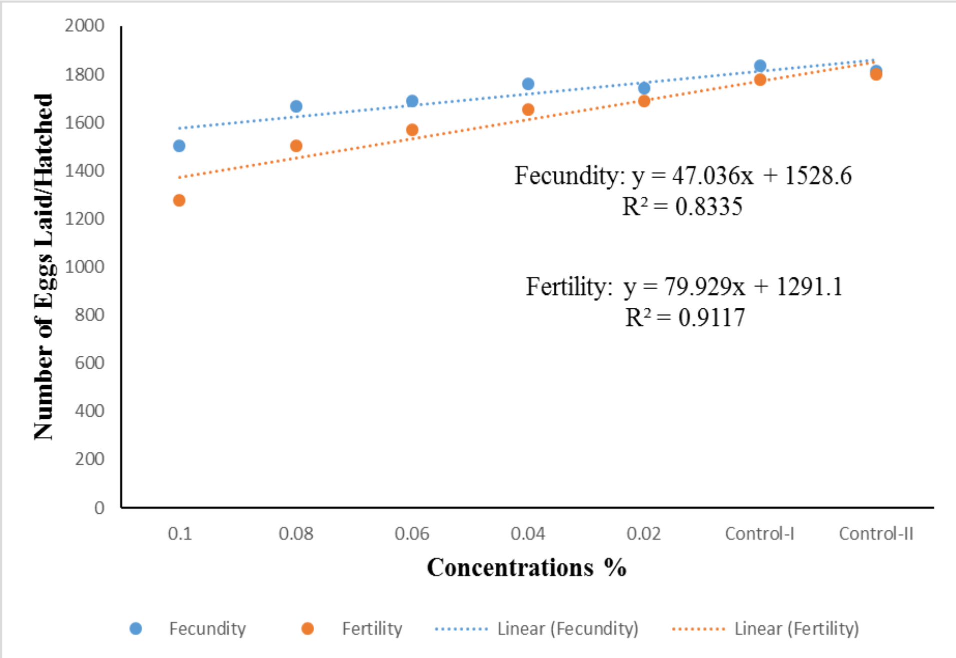


Fig. 16. Fecundity and fertility of the adult females following topical application of sublethal concentrations of Acephate on 6th instar larvae of *Diacrisia obliqua*

REFERENCES

Abbott, V.A.; Nadeau, J.L.; Higo, A.H.; Winston, M.L. (2008) Lethal and sublethal effects of imidacloprid on Osmia lignaria and clothianidin on Megachilerotundata (Hymenoptera: Megachilidae). J Econ Entomol 101:784–796.

Abbott, W. S. 1925. A method of computing the effectiveness of an insecticide, J. Econ. Ent. 18: 265-267.

Abd-Elghafar, S.F. and Appel, A.G. (1992) Sublethal effects of insecticides on adult longevity and fecundity of German cockroachs (Dictyoptera: Blattelidae). J. Econ. Entomol., 85(5): 1809-1819.

Ali, M. M.; Haque, M. A.; Ahmad, M. (2008). Biological activity of nimbicidine against jute hairy caterpillar, *Spilarctia obliqua* (Walker). J. Agrofor. Environ. 2(2): 107-111.

Bandyopadhyay, S.; Gotyal, B. S.; Satpathy, S.; Selvaraj, K.; Tripathi, A.N.; Ali, N. (2014). Synergistic effect of Azadirachtin and *Bacillus thuringiensis* against Bihar Hairy Caterpillar, *Spilarctia obliqua* Walker. Biopestic. Int. 10(1): 71-76.

Bhadauria, N. K. S.; Bhadauria, N. S.; Jakhmola, S. S. (2001). Larval development and survival of Bihar hairy caterpillar, *Spilosoma obliqua* (Walk.) on different host plants. Indian J. Entomol 63:475–477

Bharathi, K.; Kuttalam, S.; Monoharan, T.; Ravi, M.; Ramasubramanian, T. (2010) Developmentand use of species specific insecticide mixtures:a noval concept for the management of insecticide resistance in Helicoverpa armigera.Indian J. Agric. Sci., 63, 555–558.

Bhattacharya, A. K.; Rathore, Y. S. (1977). Survey and study of the bionomics of major soybean insects and their chemical control. Pantnagar, Nainital, India, G.B. Pant University of Agriculture and Technology, Pantnagar, p 164

Bretveld, R.; Brouwers, M.; Ebisch, I.; Roeleveld, N. (2007). Influence of pesticides on male fertility. Scandinavian Journal of Work, Environment & Health, Vol. 33 (1): 13-28.

C.P.C. (2004) Crop Protection Compendium. CAB International, Wallingford, UK.

Culling, C.F.A. (1974). In: Hand book of histopathological and Histochemical techniques, 3rd edn., pp 214.

Devi, N. I.; Srivastava, R. P. (2018). Bioefficacy of Ethiprole 40 + Imidacloprid 40 (glamore 80WG) against bihar hairy caterpillar, *Spilarctia obliqua* (Walker). Indian Journal of Entomology, 80(2): 197-202. DOI No.: 10.5958/0974-8172.2018.00035.4

Dhingra, S.; Bhandari, J. K. S.; Shankarganesh, K. (2007) Relative resistance of Bihar hairy caterpillar to insecticide mixtures. J. Entomol. Res., 31, 209–212.

Eizaguirre, M.; Tort, S.; Lo´pez, C.; Albajes, R. (2005) Effects of sublethal concentrations of *Bacillus thuringiensis* on larval development of Sesamianonagrioides. J Econ Entomol 98:464–470.

Fakhri, M. S. A.; Ansari, M. S.; Khowaja, J; Ali, H. (2011). Comparative assessment of conventional and non-conventional insecticides on the biology of *Dysdercus koenigii* Fabr. *J. ent. Res*., 35(3): 209-214

Fakhri, M.S.A.; Ansari, M.S.; Khowaja, J. and Ali, H. (2012).Comparative toxicity of Quinalphos and Oxydemeton-O-Methyl on life stages of *Dysdercus koenigii* (Fabr.) *Ann. Pl. Protec. Sci. 20(1): 51-54.*

Farag, A. T.; Eweidah, M. H.; El-Okazy, A. M. (2000).Reproductive toxicology of acephate in male mice. Reproductive Toxicology, 14, (5): 457-462.

Farag, A. T.; El-Aswad, A. F.; Shaaban, N. A. (2007). Assessment of reproductive toxicity of orally administered technical dimethoate in male mice. Reproductive Toxicology, 23(2): 232-238.

Farag, A.T.; Radwan, A.H.; Sorour, F.; El Okazy, A.; El-Sayed El-Agamy El-Sebae, A.E. (2010). Chlorpyrifos induced reproductive toxicity in male mice. Reproductive Toxicology, 29(1): 80-85.

Finney, D. J. (1985) The median lethal dose and itsestimation. Archives of Toxicology., 56: 215-218.

Galvan, T.L.; Koch, R.L.; Hutchison, W.D. (2005) Effects of spidosad and indoxacarb on survival, development, and reproduction of the multicolored Asian lady beetle (Coleoptera: Coccinellidae). Biol Control 34:108–114.

Goel, S.C.; Kumar, S.; Bhardwaj, D.K. (2004) Salient features and bibliography of Bihar hairy caterpillar, *Spilosoma obliqua* Wlk. (Lepidoptera: Arctiidae). U. P. J. Zool. 24:1–31

Gupta, A. K.; Kaushik, U. K.; Dixit, S. A. (2004). Studies on chemical control of *Spilosoma obliqua* (Walker) under laboratory condition. Journal of Maharashtra Agricultural Universities. 29:228-29

Gupta, G.; Bhattacharya, A. K. (2008). Assessing toxicity of post-emergence herbicides to the *Spilarctia obliqua* Walker (Lepidoptera: Arctiidae). J Pest Sci. 81:9–15

Hussain, M.; Begum, M. (1995). Food preference of jute hairy caterpillar *Spilosoma obliqua* (Walk.) on some varieties of jute. Bangladesh J Entomology, 5(1,2):57-59.

Hussein A. S.; Mohammed, S. A. (2015). Effect of botanical extracts, biological and chemical control against *Spilosoma oblique* on cabbage (Brassica oleracea). Journal of Entomology and Zoology Studies; 3 (1): 43-46.

Ismail, M.; AL-Taher, A.Y. (2011). Effect of propetamphos on the male rats reproductive system. Environmental Toxicology and Pharmacology, 31 (2): 333-338.

Joshi, S.C.; Mathur, R.; Gajraj, A.; Sharma, T. (2003). Influence of methyl parathion on reproductive parameters in male rats. Environmental Toxicology and Pharmacology, 14 (3): 91-98.

Kalleshwaraswamy, C. M.; Basavarajappa, M. P. (2005). Outbreak of *Spilosoma obliqua* Walker on sunflower in Bijapur district of Karnataka. Insect Environment 11:143.

Khan, B. A.; Khan, M. A.; Khowaja, J. and Qamar, A. (1992). Muristerone (a phytoecdysone) as growth inhibitor to *Utetheisa pulchella* (Arctidae: Lepidoptera). *Agric. Biol. Res*. 8(2): 77-81.

Khowaja, J. (2015). Toxic impact of sublethal concentrations of acephate (an organophosphate) on mortality, longevity, fecundity, fertility, and reproductive system of *Dysdercus cingulatus* (Hemiptera: Pyrrhocoridae). Global Journal of Bio-science & Biotechnology (GJBB), Vol. 4(1): 1-5. (ISSN 2250-3560 Print; ISSN 2250- 3579 Online)

Khowaja, J.; Ayesha, Q; Murad, H and Murad, N. 2001. Inhibitory effect of Cythion (Malathion) on the biology of red cotton bug, *Dysdercus koenigii* F. (Hemiptera:Pyrrhocoridae). *J. ent. Res.*, 25 (2): 113-120

Khowaja, J.; Khan, M. A.; Ayesha Q; Khan, B. A. (1995). Toxicity of temik (aldicarb) to the red cotton bug *Dysdercus cingulatus* (Hemiptera: Pyrrhocoridae). *Adv. Bios.*, Vol.14 (II): 49-56

Khowaja, J.; Khan, M. A.; Ayesha, Q; Khan, B. A. (1993). Cythion (an organophosphate) as inhibitor of growth and reproduction of *Spodoptera litura* Fabr. (Lepidoptera: Noctuidae). *Bio-Science Research Bulletin*, Vol.9 (1-2): 27-32.

Khowaja, J.; Khan, M. A.; Ayesha, Q; Khan, B. A. (1994). Biological effects of sublethal concentrations of monocrotophos on *Dysdercus cingulatus* Fabr. (Hemiptera: Pyrrhocoridae). *J. ent. Res*. 18 (1): 37-44.

Kumar, A.; Bhatnagar, S.; Sharma, R. K. (2013). Toxicity of some commonly used insecticides against *Spilarctia obliqua* (walker). Indian Forester, 139 (3) : 260-263, 2013.

Kumar, V.; Upadhyay, N.; Kumara, V.; Sharma, S. (2015). A review on sample preparation and chromatographic determination of acephate and methamidophos in different samples. Arab. J. Chem. 8, 624–631. doi: 10.1016/j.arabjc.2014.12.007.

Maia, L. O.; Júnior, W. D.; Carvalho, L. S.; Jesus, L. R.; Paiva, G. D.; Araujo, P. (2011). Association of methamidophos and sleep loss on reproductive toxicityof male mice. Environ. Toxicol. Phar. 32, 155–161. doi: 10.1016/j.etap.2011.04.007.

Mandal, D.; Bhowmik, P.; Baral, K. (2013). Evaluation of insecticides for the management of Bihar hairy caterpillar, *Spilosoma obliqua* walk. (Lepidoptera: Arctiidae) in black gram (Vigna mungol.) journal of life sciences ,8(2): 429-431.

Mandal, D.; Bhowmik, P.; Baral, K. (2013). Evaluation of insecticides for the management of bihar hairy caterpillar, *Spilosoma obliqua* walk. (Lepidoptera: Arctiidae) in black gram (Vigna mungo L.). The Biascan, 8(2): 429-431.

Mishra, S. K.; Gupta, V.; Saraf, R. K. (2017). Evaluating the efficacy of novel insecticides against Bihar hairy caterpillar, *Spilosoma obliqua* walker (Lepidoptera: Arctiidae) in soybean crop. International Journal of Plant Protection Volume 10,(2): 241-246

Mohapatra, S.; Ahuja, A. K.; Deepa, M.; Sharma, D. (2011).Residues of acephate and its metabolite methamidophos in/on mangofruit (Mangiferaindica L.). B. Environ. Contam. Tox. 86, 101–104.doi: 10.1007/s00128-010-0154-2

Moreau, C.; Bauce, E. (2003) Lethal and sublethal effects of single and double applications of Bacillus thuringiensis variety kurstaki on spruce budworm (Lepidotpera: Tortricidae) larvae. J Econ Entomol 96:280–286

Muthusamy, R.; Karthi, S.; Shivkumar, M. S. (2011). Baseline susceptibility of five classes of insecticides on Bihar hairy caterpillar *Spilosoma obliqua* (Walk.) (Lepidoptera: Arctiidae). Resistant Pest Management Newsletter, Vol.21 (1): 11- 13.

Nagia, D.K., Kumar, S., Saini, M.L. (1990) Laboratory evaluation of some insecticides against Bihar hairy caterpillar, *Spilosoma obliqua* (Walker) (Arctiidae: Lepidoptera) on castor (Ricinus communis L.). Pl Protec Bull Faridabad 42:13–16

Nair, N.; Sekh, K.; Debnath, M.; Chakraborty, S.; Somchoudhury, A.K. (2007). Relative toxicity of some chemicals to bihar hairy caterpillar, *Spilarctia obliqua* Walker (Arctiidae, Lepidoptera). Journal of Crop Weed. 3(1):1-2

Oliva, A.; Spira, A.; Multigner, L. (2001). Contribution of environmental factors to the risk of male infertility. *Human Reproduction*, 16(8): 1768–1776.

Pan, R.; Chen, H.; Wang, C.; Wang, Q.; Jiang, Y. (2015). Enantio selective dissipation of acephate and its metabolite, methamidophos, during teacultivation, manufacturing, and infusion. J. Agric. Food Chem. 63, 1300–1308.doi: 10.1021/jf504916b.

Perry, A. S.; Samamoto, I.; Ishaaya, I.; Perry, R.Y. (1998) Insecticides in Agriculture and Environment, Springer, Berlin.

Perry, M.J.; Venners, S.A.; Barr, D.B.; Xu, X. (2007). Environmental pyrethroid and organophosphorus insecticide exposures and sperm concentration. Reproductive Toxicology, 23(1): 113-118.

Roush, R.T.; Miller, G.L. (1986) Consideration fordesign of insecticide resistance monitoringprogrammes. J. Econ. Entomol., 79, 293–298.

Selvaraj, K.; Babu, V.R.; Gotyal, B.S.; Satpathy, S. (2015). Toxicity and bioefficacy of individual and combination of diversified insecticides against jute hairy caterpillar, *Spilarctia oblique*. Journal of Environmental Biology, Vol. 36, 1409-1414.

Seth, R.K.; Kaur, J.J.; Rao, D.K.; Reynoldse, S.E. (2004) Effects of larval exposure to sublethal concentrations of the ecdysteroid agonists RH-5849 and tebufenozide (RH- 5992) on male reproductive physiology in Spodoptera litura. J Insect Physiol 50:505– 517.

Sharma, P.; Geetanjly; Rai, V. L. (2015).Toxicity of some insecticides against seven day old larvae of Bihar hairy caterpillar, *Spilarctia obliqua* Walker. Journal of Applied and Natural Science 7 (2) : 960 – 963.

Singh, D. S.; Singh, J. P. (2000). Status of pyrethroid and non-pyrethroid insecticides to the larvae of bihar hairy caterpillar, *Spilarctia obliqua*. Indian Journal of Entomology V 62 (2): 141-145.

Singh, I.; Singh, G. (1992). Assessment of foliage loss caused by different larval instars of Bihar hairy caterpillar, *Spilosoma obliqua* Walker on sunflower. Journal of Insect Science. 1992; 6(2):185-186.

Singh, Y.R.; Varatharajan, R. (1999). Host range of Bihar hairy caterpillar, *Spilosoma obliqua* (Walker) (Arctiidae: Lepidoptera). Hexapoda., 11, 65-74.

Snedecor, G.W. and Cochran, W.G. (1967) In Statistical Methods. sixth edn. Iowa State University Press, Ames., Iowa

Sokal, R.R. and Rohlf, F.J. 1981) In Biometry. W.H. Freeman & Co., New York.

Syed, J. H.; Alamdar, A.; Mohammad, A.; Ahad, K.; Shabir, Z.; Ahmed, H. (2014). Pesticide residues in fruits and vegetables from Pakistan: a review ofthe occurrence and associated human health risks. Environ. Sci. Pollut. Res. 21,13367–13393. doi: 10.1007/s11356-014-3117-z.

Tabashnik, B.E. (1989) Managing resistance withmultiple pesticide tactics: theory, evidence, and recommendations. J. Econ. Entomol., 82, 1263–1269.

World Health Organization [WHO], (2009). The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification. Geneva:WHO.

Yadav, J. S.; Valli, M. Y.; Prasad, A. R. (2001). Isolation, identification, synthesis, and bioefficacy of female *Diacrisia obliqua* (Arctiidae) sex pheromone blend. An Indian agricultural pest. Pure Applied Chemistry, 73 (7): 1157–1162.

****

ISSN: 2348-4667
Anthropological Bulletin
14(2), 24-32, 2019

Human rights and rule of the society

Haider Mehdi[1]

ABSTRACT

Human being is a Social Animal of the highest grade created on this planet earth. So it posses the highest grade of Anatomy, Physiology and Psychology. Being an animal i.e. a Biological Unit, theory of Darwin, that is straggle for existence and survival of the Fittest is operative at all the time and at every space. This straggle ultimately makes a man indulged in violent competition. As Herbert Spencer has written in his book "The Principle of Sociology" [1896] the society also behaves like an organism. There is struggle and violence to survive with a particular social structure and belief. Thus Violence and Competition Increases every time in the society. In order to survive there is adjustment at Biological as well as social level. This is the root cause of social change. Accordingly human population evolve Technologies to minimize Biological Competition for survival. Societies also evolve Taboos, Religion and social values so that Biological existence of mankind is easier and Human Race is not doomed.

In this way Right to Live and Right to Biological Survival give rise to the concept of Human Rights in the society. In other words one can say that the evolution of Human Society is not only the history of search of bread and butter but also the history of the recognition and evolution of Human Rights. From the religious Teaching and the Preaching of Mercy to the signing of Magna Carta (1215AD) and again from French Revolution [1789] to establish Mart of U.N.O. (1945), we find only Recognition of Human Rights in the shape of equality, Liberty and Sovereignty. These factors have been the guiding force of social evolution. Karlmarx (1850) first time synthesized the theory of Biological Struggle and the social struggle. Marxian theory also emphasized on the exploitation of human being that is the crushing of Human Rights. Accordingly the full fledged concept of Human Rights took its proper and complete shape because of the theory. Protests and organizations of the exploited compelled the society to frame full fledged Laws to protect human rights and to punish the violators. World War II paved the way globally to think over human rights and to form international Laws so that if the national government crushes the human rights of the people, a joint action by International society could be taken against the guilty nation. Unfortunately national government are not bothering for Human Rights for their political reasons and interest groups which are ruling the nations in their own way. They have their limited approach

[1] Shia P.G. College, Lucknow, India

and Interpretation towards Human Rights. Likewise, International organization [UNO] has also been converted into a group of few developed nations having their own approach and Interpretation towards an International problem. In this way more Human Rights are being crushed by the U.N.O than it is [Human Rights] protected and prorogated. NATO, a military organization was formed in 1949, soon after passing "Universal Declaration for Human Rights". NATO has done more losses than U.N.O's repairing on the body of Human Rights. Human Rights can only be protected when a strong U.N.O having an expanded security council come into existence and every nation get an equal rights and weightage for its vote.

Introduction:

Human being is the highest grade of creation by the Almighty God in the history of evolution of life on this earth. It is of the highest grade in all respect viz. anatomically, physiologically and psychologically. So the human history has broadly been trying to understand a human being on the basis of two aspects viz. Body (physical aspects) and mind (psychological aspects). Both the areas are infinite because neither complete study of the body including inner organs and their physiology, nor could be studied and fully understood the psychological or metaphysical aspects of societies and thoughts as yet Researches are continued and every time some new astonishing facts emerge in the physical or psychological aspects of the human being.

However, the most important theory on physical aspect which emerged in the past is the theory of struggle for existence and survival of the fittest i.e. theory of natural selection, given by Darwin. This theory applies on the biological aspects as well as the social and psychological aspects of human behavior. Accordingly we have commentaries in the form of social organic theory i.e. society also behaves like as organic unit of human being and there is continuous struggle for change and adjustment in social behavior, beliefs and values etc. also. In fact biological struggle for existence and survival, seriously affect the behavioral Action of human being. The successful behavioral Action leads to repetitions and set of behavioral pattern to be adopted and perpetuated. This behavior in a particular geography and environment forms social cultural behavior and finally an association or group of person. This is later changed into a society.

Beside this, "The theory of Dialectical Materialism" has also explained the human progress through dialectical materialism, presented by Karl Marx (1850), this theory for the first time proved that how the economic factor plays a key role in the development of society in human history. The thought of class struggle is actually a synthesis of the theory of biological struggle for existence (Darwin) which explains social changes. To sum up, struggle for biological survival and struggle for social survival are the main occupation of human being and is a continuous process applicable to all the societies at all the time and at all space.

Struggle, as the phrase itself indicates, involves all sort of possible violence unleashing the form of competition to survive and live. This natural killer instinct and first urge of human body unleash different forms of violence and exploration of the human fellow. Accordingly, Human Rights can be broadly defined to mean all the biological rights to live and enjoy life, which a human being has acquired during the course of evolution to the present state of living, as well as all the socio cultural economic rights which a human being has acquired/achieved during the course of social development, in a particular geographic area and in its society. To put in a nut shell, right to live peacefully without any fear and want as a natural being and right to live as a social being, and free to associate and celebrate its way of life, is the essence of Human Rights.

Therefore, in order to avoid violence and clashes, in human society due to biological an social struggles, every society strikes its ways to safe guard Human Rights and try to create an atmosphere for peaceful co-existence by way of socially recognised rules of Dos and Donts, so that not only order or system is maintained but self confidence in the psyche of Human being is also strong to face to face exigencies of life. Primitive societies invented and developed the thoughts about supernatural forces, ritual of magic and sorcery etc. to deflects and redirect the violence and clashes among their population as well as to introduce a system of order to boost confidence leading to a set pattern of social behavior and life. Later on violence and killings of weakers, ills, children, women and old aged etc. appear to have been controlled by creating Taboo and prohibition of cannibalism. To my mind prohibition of cannibalism is the first set of unwritten rule to wards safe guard and establishment of Human Rights in the ancient primitive societies. It caused increase in the numbers of members in a group and society and caused to move out freely in jungle in groups without fear of wild animal and their attacks as increased numbers enthused sense of security and groups strength feeling i.e. feeling of collectiveness among the tribal.

After the stage of Nomadism when the human being started to lead a settled life as a pastoral society and agricultural society in different globes of this earth, it invented and formed a totally different type of social laws of taboos and symbols of worship. Full set of rules or codes of conduct and behaviour were formed so that violence among the groups and within the group is avoided. Rules of punishment/ fines and repentations were framed. A precursory form of division of labour among Men, Women, olds and children. as also introduced. A Proto type religion through worship of useful objects like sun, moon and rains etc developed. Since settled life multiplied the population and also created the experienced lots, professionalism specialisation as well as interdependence in the society. It also increased socio-economic struggle and competition leading to exploitation.

Accordingly more emphasis was laid on sober human behavoiur and inter personal relationship. If we go into details of philosophies of teaching and preaching of religions we can draw philosophical messages lying beneath the religious teachings which are exclusively aimed at to promote human rights

For example, live and let other live, Ahinsa Parmo Dharma (Non Violence is the greatest worship), Parop-kar parmo dharma (help is his great religion) etc. finding place in Jainism and Hinduism, and message of mercy and charity of Christianity or universal Brotherhood and equality of human being contained in Islamic philosophy, appear to be devoted only to propogate and preserve Human Rights in the society. As the economic factor gained importance in the social life and society progressed through means of productions, and trades of surplus along with communication and transport also increased, this only complicated the struggle for existence.

The socio-economic struggle resulted in the exploitation and deceit among human being. Clashes within the group as well as among inter-group started. Since religions or cultural codes or conduct has no specific systems of monitoring and punishment and are mainly based on the philosophy of self -restraint and self control, Human population often transgress and violate the social rules and customs for personal progress and prominence of self or ego leading to a social disorder through individual social disorder or corruption. We have history of exploitation of a class of people by another class of people. Union of King and clergy with a handful of soldiers believing in and practicing violence, has ruled, for most of the period of human history, adopting gross violation of Human Rights.

Thus it is interesting to note that in the first phase of human development, struggle for biological survival led to excessive violence, therefore to reduce violence, supernatural forces and institution of religion preaching about non violence and peaceful existence, was invented. Later on, in the second phase institution of religion was transformed into a tool of exploitation by intelligent interest group within the society as well as waged.

The expansion of war for its religion and culture which causing more violence and exploitation. Then started 3rd phase of the technologies, economic means and method of pursuits social development. The same religious exploiter group equipped with power of technology and capital exploited the human lots. Thus the Feudal and Bourgeoisie class emerged rendering a sizeable population to the ebb of slavery and bounded labour. Industrial revolution further complicated the exploitation of man kind till the theory of class struggle explained by Karmarx (1850) dwell upon the detailed reasons about the exploitation of human being in the contemporary world. This theory not only organised peasants and worker society on logical ground, but also compelled the capitalist to think to change and reformed the themselves.

In human society, the process of oppression and opposition lead to adjustment and adaptation. This forms the basic wheel of social change. Oppression means to gain upper hand in the assertion of One's own Human Rights and opposition means not to accept and allow any upper hand in the field of anyone's Human Rights. This opposition is the basic concept of equality. It is present in the human psychology and was embedded at the time of biological struggle for existence. However this oppression and violence has been the cause of stagnation in the society leading to radicalism is negative factor but opposition is the symbol of transformation and change is a positive indicator.

In the rent human history the first written document of assertion of Human Rights and equality appear to be Magna Carta (1215) signed by King John of England due to heavy opposition of Feudal Baron's (Land lords) of England. It promised that King will not Act arbitrarily and bound by law of equality.

French revolution (1789) against King of France laid the foundation stone at scope of human rights in the form of declaration about right of Liberty, Equality and Sovereignty.

Lincoin in 1860, in American subcontinent further strengthened the Fundamental Rights which recognized during French Revolution. Finally in 1917, Acting and organizing themselves on the line of Marxian theory of "class struggle". Russian people revolted against regime of the despotic czar kings and set on example of Marxian movement and revolt against in human treatment of human being.

Inspite of these international events, capitalist and Kings through their venture continued to exploit the masses without any major change in the situations. Direct Legislation on Human Rights was altogether absent and there was no any proper agency to safe guard Human Rights till the World War II when the wary nation realized that rulers, can't be supposed to be the master of human life as no body except God can create life.

At last due to division of world nation into two interest group called Axis Nations and Allied nations. Violence and war resulted into colossal losses to the human lives and property. Wisdom dawned upon the mankind, like losses of human life in Kalinga War. The American President Franklin D. Roosevelt and the Prime Minister of U.K Mr. Winston Churchill and on 14 Aug.1941 declared Atlantic charter. The charter promised that all the men in their Lands may live out their lives in freedom from fear and want. Soon after this Allies Power also agreed to from an Association. "To preserve human right and justice in our (own) Land as well as in the other land".

But due to economic interest world war continued and after the atomic bombardment of Japan at Hiroshima and Nagasaki in Aug. 1945, an international organization i.e. U.N.O came into being after formal declaration on 24 Oct. 1945. The charter U.N.O. Aims at to save the humanity and coming generation from the scourge of war and to establish peace in the world over. After many pledges and conventions as historical universal declaration of Human Right (UDHR) was passed in the General Assembly on 10 Dec. 1948. This is the Manusmrity of human rights. Every member nations was expected to follow the declaration and to work for the human rights as far as possible. After numerous conventions and assemblies held again finally in 1966 Convention of Human Rights at Tehran, Iran. It was agreed that Human Rights and fundamental freedom are indivisible, the full realization of the civil and political Rights without the enjoyment of the economic, social and cultural Rights is impossible.

In other words U.N.O. recognized socio- cultural and economic Rights as an integral part of Human Rights as late as 1966 i.e. after two decades of U.N.O's establishment. However India had realized and recognized these rights as early as in 1949 with the Adoption of New constitution of India soon after Independence on 15 Aug. 1947. This became possible only due to the fact that our freedom fighters had experienced and realised the bitter taste of discrimination at the hand of Britishers during the East India company-rule as well as rule of the crown. Not only this at the time of Uniting Indian society to girdle up for freedom, struggle leaders also realized that divisive elements like difference in language religion culture & region etc. already exist in our society. Worst to this, Indian Society has also been infested with casteism which has resulted in human customs and belief of untouchability. Gandhi Ji being social reformer, Jawhar Lal Nehru being a visionary of modern India and Dr. Ambedkar being a sufferer of untouchability laid down the foundation stone of human rights in the Indian constitution. Therefore, the constitution of India not only burrowed the best from American British, Canadian and Swiss constitution but also contained the special chapter of directions to states to fulfill the goals to preserve and sustain the fundamental rights and human rights viz. Social/cultural, economic, and political rights. It also contained the provision of reservation of election constituencies to the scheduled caste and schedule tribes as well. Provision for reservation in Govt. job to the weaker section of society to deliver, social economic and political justice. Govt. of India is in the latest venture and process of providing reservation to the Sc/St in promotions so that being at top of the management they could also affect process of making policy and affect the emphasis of implementation of policies for the betterment of their classes. Not only this, after the recommendation of sachhar committee similar proposal and provision of reservation in Govt. job and policy- making in respect of minority are also under serious discussion and likely to be implemented very soon. These are nothing but a process of measure to strengthen Human Rights. Indian record of legislation history about Acts and rule pertaining to various aspect of human rights has been excellent. India has a serious engagement in the implementation of following Acts which are either ways concerned with preservation of human rights of men, women, children-worker and peasant. Some important legislation can be listed as under-

1- The factories Act 1948
2- The minimum wage Act 1948
3- The immoral traffic (Prevention) Act 1956.
4- The Bonded labour system (Abolition) Act 1976
5- The contract labour (Regulation and Abolition) Act 1976
6- The child labour (Prohibition) Act 1986
7- The Dowry Prevention Act 1961
8- The indecent representation of women (Prohibition) Act 1986
9- The commission of sati prevention Act 1987
10- National commission for woman Act 1990

And finally the national Human Rights Act 1993 and Right to information Act 2005 etc. are having either direct bearing on Human Rights related to the preservation and protection of

Human Rights in India. In the recent past after the declaration of millennium goals by the U.N.O, the right to food Act, the right to water Act. right to education Act. etc. have also been passed so that every human being may lead a life with dignity and without any feeling of discrimination.

Although the legislative history of Human Rights and the passing of resolution declaration, treaty etc. are appreciative at U.N.O. level as well as national level in India, the implementation spirit and efforts still suffer great handicapey at both the level. At U.N.O. level we find that it was formed to save humanity from the scourge of war and to honour Human Rights of all types viz life expression, socio cultural, economic and political etc. but U.N.O. failed to evolve a culture of work and implementation since the beginning. To utter surprise soon after formation of U.N.O. for peace in Oct 1945 and the universal declaration of Human Rights in Dec., 1948, Allies power (United Nations) formed a strong new military organization called NATO (North Atlantic Treaty Organization) on 4th April 1949 to meet challenges of communism and challenges of Russia. This organization called NATO started a new phase of war in the Europe in the post world war II period and again divided the world society into two parts viz. Pro-American Nation (so-called allies of world war II period) and Pro-Russian. This division of world unleashed various proxy wars and the Act of wars were fought between the under developed nations spreading over globe. This cold war-tension lasted for 40 years from 1950 to 1990 till the dismantling of Russia into smaller independent nations like Tajikistan, Turkmenistan and Uzbekistan etc. in 1990. This tension of cold war also led to a new competition to establish war industry and to form nuclear weapons through proliferation of nuclear technology behind and behind the doors. Politics nations of American USSR, China, India, Pakistan, Israel, North Korea and finally Iran appear to have been benefited to acquire a mass nuclear capability and bombs only due to this cold war politic.

To the sum of UNO utterly failed to stop nuclear weapons and technology proliferation in spite of having a will and treaty for non-proliferation. Accordingly now world is on the verge of third world war to doom with UNO due to these excessively acquired nuclear technology and capabilities.

Further after Russian revolution in 1917 on Marxism line, China also organized them for revolution and were liberated from the capitalist regime in 1946. From 1946 to 1971 China was not recognized by UNO because of being communist polity. A smaller Chinese country, modern Taiwan (old Farmosa Island) represented the China in UNO on the adamancy of America till 1970. This to quote like an old Indian proverb that tusk of elephant are only show piece but Actual teeth are quite different. Out of about 80 times veto used in UNO. 38 time veto power have been used by America and that too in favour of Israel, not to punish it against the crime of violation of Human Rights perpetuated against Palestinians Arab world. Detailed study of recent case of Afagnistan, Iraq, Egypt, Libia, Syria and military presence in Arabian Sea land Saudi Yemen, Bahrein and Kuwait etc. only raises suspicion on the Aims and objective of peace-keeping role of America and UNO in Arabian pockets which are, of course rich and store of essential commodity "petroleum" for the modern economy & technology. In short UNO has a low credibility since beginning and in the recent past its credibility has been highly eroded. Hot spot of impending nuclear war appear to at lands of Arab, Chinese-Sea including lands of Korea, Japan and Vietnam, even if we ignore the Indo-Pak, Indo-Chinese tension and the Iranian nuclear issues for the time being.

Thus, in order to protect Human Rights and restore credibility of UNO there is immediate need to overhaul the veto system of UNO expanding security council so that member from each group of nation and each geographical area and cultural region get adequate representation. Chances of direct war and skirmish can only be stopped through the power of veto. It is a positive step and positive power but only if strength of security council is properly increased with number of permanent members. All the decision for military intervention, peace keeping roles should be taken by two third majority votes in the General Assembly by convening and emergency meeting.

Likewise emergency discussion in Security Council (with at least 50 member) should also be taken by two third majority vote. Further every nation should compulsorily maintain a permanent peace keeping force for UNO use in which all creed class and region of the nation should represent the force. This should equally be used within the nation as well as outside the nation as per need. Number of soldiers should depend upon the size of population and area of the country so that adequate number of peace keeping force may be maintained for UNO at the cost of native nation. At least 10% military budget of the nation should be used for UNO Peace keeping force.

This will certainly boost peace and Human Rights at native as well as at foreign land. It will also prove as an ideal force for peace & cultural preservation. The national Para military forces may also be inspired to achieve high class of impartial and human approach towards citizen.

Like UNO legislation and non-implementation thereof, one can also realize easily that although there are numerous legislations in India to protect and preserve human rights since the time of rule in British-India, there appears to be Laxity and absence of will- power to properly implement the provisions of law relating to Human rights. Social Barriers like casteism and religion discrimination are still prevalent in society. Bureaucracy police and Indian polity has no will power to implement law relating to people rights due to being divided in the groups with vested interest and belief on the basis of social barriers.

The entire society including Bureaucracy and Para military forces is divided, shaded and colored with socio-political division of society. There are clear ant lobbies and union/association in the paramilitary forces and civil Bureaucracy. They think, work and report, investigate a case on the basis of political party to which they subscribe in their private life. Thus human rights and justice suffer in Indian system. Atrocity on SC/ST and minorities, be it male or female often go unreported and investigated due to cultural barriers and feeling of cartelism etc. Case is properly entertained only at the coverage instance. Corruption, Bribery and favoritism impede the strengthening of Human Right in India. Globalization of economy and world society opened the new ways of economic exploitation for work force and labour in India. Recent case of in MDLR Airlines, sexual explication of Geetika Sharma by CEO Mr. Gopal Kanda in Haryana ministry is a burning example to prove that woman workers are being sexually exploited on the name of employment and promotion. "In Mumbai" in the simple building, 350 woman sex workers arrested at one time. The building is 50 meter far at the distance of police station. This is glaring example of immoral trafficking.

Episode of kingfisher indicates that industrialist want to make money at the cost of corruption and violation of human rights. Kingfisher has not paid salaries to their staff for months. They have also not properly paid bills of oil companies, parking fees to Airport, income tax and service tax etc. total balance running is more than Rs. 10,000/- corer. Even then industrialist expects loan from Bank or package from Govt. to bailout him, on the other hand he also own a wine and bear factory, of which he is earning profit in thousands crore. Globalization in economy has reduced the average pay due to contract labour. It has also reduced the job guarantee and permanency. It compel to work without pay. Permanency of a job, long working and his unhealthy working atmosphere prevailed as private sector do not invest in non-profiting and warfare area, working hours has mainly increased due to quota of work allotted for daily performance etc. Engagement of Indian software engineers at low salary in America and out sourcing various job all low price in India is an economic exploitation. Though India has sacred chapter of fundamental rights since 1950, yet no machinery to implement and protect human rights were formed. Every thing had been depending on police which is a Actually a British legacy. To control Indian public it has the history of legislation of MISA, TADA and POTA etc. The misuse of these Acts and gross violation of human rights were reported by the NGO, Human Rights Act was passed as late as 1994. This Act s ambiguous and half baked with no proper political will in India to protect and preserve the human rights. For example section 2(d) of the Human Rights Act. 1993 is ambiguous and ineffective because it define that human rights means the right relating to life liberty, equality and dignity of the individual guaranteed by the constitution or embodied in the international convenant and enforceable by court of India. Learned Dr. H.O. Agarwal in his book international law, published by central law publication has written that this definition of Human Rights restricts function of national human rights commission, as only a few fundamental rights are enforceable by court, thus infect even after the passing of human rights Act. 1993 and the formation of a human rights commission in India, one can't take shelter to court for protection of human rights as only a few listed fundamental right can be entertained by court of India. Accordingly human right Act 1993 enacted about 45 year of freedom is of only a decorative importance and waste of time for NGOS. It does not protect all social, central and economic rights given in the fundamental rights. Further more, even after passing human rights Act 1993 public had not been equipped with tools and power to have information. Police, paramilitary force, court and other Govt. department etc. withheld information and document etc. It is only after waste of 12 years time that right to information Act 2005 was passed. NGOS are now in a position to obtain copies of document to read the police and paramilitary story of charges and investigation to challenge and question them.

The summed up legislation is not enough unless there is social will in the society to implement and to improve the lot of public. Improper adjective legislation without corroborating with constitution and aligning with other similar Act passed on the issue, is useless and toothless. Further in order to safeguard Human rights, law maintaining agencies and other allied Govt. department officials also need orientation programme and training. There is a need to awake public as well as enforcing machinery to the real aims and objective of the Act and rules concerning to human rights. Agencies and departmental officer violating human rights should be strictly punished. At the time of entry in Govt. services, every public servant must file affidavit to honor Indian constitution and human rights. Court and department should specially have power to punish for violation of affidavit. Power and duties of law enforcing officer must clearly be defined and the line of transgression (Laxman Rekha) should clearly be drawn through instructions and public notice available to public. There is also a need for comprehensive human rights Act where rights and duties of industrialist, traders manufacturer, contractor, public servant and press etc. Should clearly be spelt out at one place in single Act Chapter of human rights must be added to the curriculum of study material at the standard of high school/XII, and paper should be made compulsory so that future generation is may already be aware and trained. Every body should be made aware of the right and duties respectively and punishment enunciated in the Human Rights Act. Let us hope with the emphasis of Human Rights at international level by the recognized UNO and by the Govt. and society at national level through comprehensive human rights Act. A responsible, self-disciplined and helping international citizen will emerge. In this global age, common human rights Act will lay a foundation to establish an international human society believing in scientific temperament, equality liberty and fraternity in which having no place to exploitation and violence.

BIBLIOGRAPHY

1. Maclver and page, The book "Society"

2. Ghurye; “Caste, class and occupation”
3. M.K. Gandhi; “Hindu Dharma”
4. Gillin and Gillin; “Cultural Sociology”
5. B.Malinowski; “Crime & Custom in savage society”
6. Herbert Spencer “Principals of Sociology”
7. Dr. J.N. Pandey; “Constitutional Law of India”, Published by central Law Agency.
8. Dr. S.K. Kapoor; “International Law and human rights”, Published by C. Law Agency
9. R.P. Anand; “New States and International Law” by Vikas Publications (1972)
10. C.Wilfred “Social Justice in the Law of Nation”
11. Yojana Magazine, April 2011 “Human Rights and Social Justice”

****

ISSN: 2348-4667
Anthropological Bulletin
14(2), 33-42, 2019

Electronic Contracts in India: An Analysis

Mohd Ashraf [1] and Shagufta Kahkeshan[2]

ABSTRACT

Electronic contracts or e-contracts are legal agreements formed and executed electronically, without the need for paper-based documents or physical signatures. In India, the Information Technology Act, 2000 (IT Act) governs the legal validity of e-contracts. The IT Act recognizes electronic records and digital signatures as legally valid and enforceable, as long as they meet certain requirements such as the use of a secure electronic signature and a reliable electronic record-keeping system. E-contracts can be formed in various forms, such as website terms of service, online purchase agreements, and e-commerce transactions. E-contracts offer several benefits, including reduced transaction costs, increased efficiency, and greater accessibility. However, they also pose some challenges, such as the need for secure electronic signature technology and reliable digital record-keeping systems. In recent years, there has been a growing trend towards the use of e-contracts in India, particularly in the e-commerce sector. The government has taken steps to promote the use of digital signatures and electronic authentication mechanisms to support the growth of e-contracts. Also, electronic contracts have the potential to transform the way business is conducted in India, providing greater convenience and efficiency for both businesses and consumers, while ensuring legal validity and enforceability. This paper will explore the various aspects of Electronic contracts, including essentials, classification of subject matter for electronic contracts, types, and the ways in which an electronic contract can be concluded.

KEYWORDS- Electronic contracts, Information Technology Act, Digital, E-commerce etc.

I. INTRODUCTION

The progress of technology worldwide has resulted in significant advancements in business and trade. The e-commerce sector, in particular, has emerged as one of the most profitable industries globally. The internet functions as a mediator and facilitates agreements between parties, often unconsciously. The rise of e-commerce has also led to an increase in electronic contracts. Due to the fast-paced and profitable nature of this industry, a legal framework is necessary to safeguard the interests of all parties involved. In India, "the

---

[1] Professor, Department of Law, Aligarh Muslim University, Aligarh.
[2] LLM Student, Department of law, Aligarh Muslim University, Aligarh.

Information Technology Act of 2000, the Indian Contract Act of 1872, and the Indian Evidence Act of 1872 establish the validity and enforceability of electronic contracts (e-contracts) within the country".

Entering into an "e-contract" is possible through various means, such as "email agreements and online agreements like Browse Wrap Agreements, Shrink Wrap Agreements, and Click Wrap Agreements". These types of e-contracts are encountered frequently in our daily lives, but their legal complexities often go unnoticed. While e-contracts have enabled us to move beyond traditional methods of entering into contracts, they also present various challenges that require attention, such as raising common awareness and applying the law effectively. E-contracts have two sides, like a coin. On one hand, they streamline and promote "growth of e-commerce", whereas they present challenges regarding technical and legal comprehension.

"The legal framework for electronic contracts in India is primarily regulated by the Information Technology Act, 2000". This act defines electronic contracts as those created, entered into, stored, and executed in electronic form. The act outlines the validity and enforceability of electronic contracts and recognizes digital signatures as a legitimate and legally binding form of signature. Compared to traditional paper-based contracts, the use of electronic contracts in India offers numerous advantages. They are faster, more efficient, and more convenient in the contracting process, and they also present a cost-effective alternative by reducing the need for printing, scanning, and courier services. Electronic contracts are more secure than paper-based contracts, as they use encryption technology and digital signatures that provide greater security and protection against fraud and tampering. Additionally, they offer more transparency and accessibility, as parties can review the contract's terms at any time.

II. WHAT IS AN ELECTRONIC CONTRACT?

"An electronic contract is a contract that has been automated or digitised as part of a cross-organizational business process". It is the most current electronic tool for facilitating business-to-business trade connections, and it is completely or partially deployed, modelled, specified, executed, managed, and monitored by an electronic system. An electronic contract, or e-contract, is a contract that is made electronically. "E-contracts are conceptually quite similar to conventional (paper-based) contracts". For instance, sellers may offer prospective customers with their goods or services, pricing, and conditions; customers may then consider their selections, negotiate prices and terms (if at all practicable), place orders, and settle their bills. The sellers then supply the ordered goods or services (either right away or later). An e-contract is thus, as its name indicates, a contract that is entirely or partially made electronically.

So, an electronic contract is a type of legal agreement that was made entirely or in part electronically. It is an electronic contract rather than one that is on paper. For instance, if "X" uses his computer to create an offer and sends it by email to "Y," and "Y" replies with an electronic signature indicating acceptance, the e-mail transaction results in the creation of a contract. Similar to this, "an electronic contract can also take the form of a Click to Agree" agreement, which is typically used when downloading software: Before the purchase can be completed, the user must click the "I Agree button on a page stating the conditions of the software licence".

Although "e-contracts" and "online contracts" are sometimes used interchangeably, it should be highlighted that "e-contract" is a larger term that encompasses both concepts. This is due to the fact that e-contracts can be completed by exchanging any form of electronic record[3] via a mobile phone or other comparable device, such as an "MP3 audio file, a Short Messaging Service (SMS), a Multimedia Message Service (MMS), an email, etc". They are typically used to refer to contracts and all of its ramifications that result from computer network operations, particularly real-time transactions. The aforementioned terms are not exclusively applicable to online purchases. These encompass transactions involving any type of computer network[4], besides the internet. All or some of the tasks are completed electronically via an e-contract. So, it was not required for the entire process (negotiation, proposal, acceptance, etc.) to be completed online.

An e-contract has the benefit of avoiding the delays and individual biases associated with the manual procedure. One reason for this is that the majority of "web services technologies facilitate the coordination of activities between parties" and hence support e-contracts. Although an "e-contract is not a specific type of contract like a contract of partnership, contract of agency, contract of sale of products," etc., it is important to keep this in mind. "It's because an e-contract is not the same kind of contract that is entered into for a particular reason" like a partnership or guarantee contract or one that has a very defined subject matter like a contract for the sale of commodities, etc. An electronic contract, or e-contract, is a contract that is entirely or partially entered into using electronic means.

III. ESSENTIALS OF AN ELECTRONIC CONTRACT

"The fundamental rules of contract law" have been created through time by the courts' judicial rulings. Regardless of whether a contract is created online, orally, or through written correspondence, these concepts still hold true. Many of the questions that need to be answered have to do with "how these traditional contract law rules will work with contemporary forms of technology". The following aspects are essential in an e-contract, just like in any conventional contract:

(1) Offer: An offer to create an e-contract must be made, just as in any other situation. Yet, the offer is not presented in direct one-to-one correspondence in a number of transactions whether online or offline. The customer "browses the products and services offered on the vendor's website before selecting what he wants to buy".

(2) "Acceptance": "The proposal must be taken up, the offer is often made by the customer in response to the invitation to treat", and the business/vendor then take action to accept it. Before the offer is accepted, the offer may be withdrawn at any moment.

(3) Parties' Competency: Each party to the agreement must be able to engage into contracts legally. Agreements made by incompetent parties, including juveniles, insane people, insolvents, etc., are invalid.[5]

(4) Free consent: Free and sincere consent is required. "When there is no coercion, deception, undue influence, or fraud, consent is said to be free". To be more explicit, no vitiating element may be used to acquire the other party's permission. The "click through technique

---

[3] As per section 2 (1)(t) of the Information Technology Act 2000, 'electronic record' means data, record or data generated, image or sound stored, received or sent in an electronic form or micro film or computer-generated micro fiche. And as per section 2 (1)(r) of the Information Technology Act 2000, 'electronic form' with reference to information means any information generated, sent, received or stored in media, magnetic, optical, computer memory, micro film, computer generated micro fiche or similar device.

[4] Section 2 (1)(j) of the Information Technology Act 2000 defines 'computer network' as, 'the inter-connection of one or more computers or computer systems or communication device through— (i) the use of satellite, microwave, terrestrial line, wire, wireless or other communication media; and (ii) terminals or a complex consisting of two or more inter-connected computers or communication device whether or not the inter-connection is continuously maintained.

[5] https://blog.ipleaders.in/all-that-you-should-know-about-e-contracts/

often assures free and authentic consent in online contracts, especially where there is no active real-time connection between the contractual parties, such as between a website and the buyer who makes a purchase through the site".

(5) Legal consideration: Legal consideration must be given. Every agreement created electronically must include valid consideration in order to be enforceable by law, just like any other contract. For instance, a contract between two parties is unlawful if the auction site supports the exchange of certain illegal narcotics as payment for the purchase of a video camera.

(6) Legal purpose: The purpose of the contract must be legal. A contract assumes that its intended aim is legitimate. An agreement to sell sedatives or pornographic movies online is therefore null and invalid.

(7) Intent to establish legal ties: Establishing legal relations requires having an intention. No contract between the parties is likely to be enforceable if neither party intends for there to be a legal relationship between them. “Domestic or social agreements are typically not considered contracts and are therefore not enforceable”.

(8) “Clarity and possibility of legal performance”: In order for a “contract to be enforceable”, it must be clear, unambiguous, and possible to carry out. A contract that is impossible to fulfil is invalid, such as one where a website promises to use magic to find hidden wealth. Similar to this, a contract whose meaning cannot be established or established with reasonable certainty is invalid.[6]

IV. BROAD CLASSIFICATION OF SUBJECT MATTER FOR ELECTRONIC CONTRACTS

“There are three major kinds of subject matter for e-contracts”, usually speaking:

(1) Sale of tangible goods: Orders for goods are placed online, payments are made online, but delivery takes place offline;

(2) Sale of digitised products: Orders for goods, like software, are placed online, payments are made online, and deliveries are made online;

(3) “Supply of services: Examples of services in this category include electronic banking, the sale of shares, financial advice, and consumer advice”.

V. TYPES OF ELECTRONIC CONTRACTS

“Broadly, Electronic contracts may be classified into following four types:

(1) Individually Negotiated Contracts (using electronic mode)

(2) Click-wrap Contracts

(3) Shrink-wrap Contracts

(4) Browse-wrap/ Web-wrap Contracts

(1) Individually Negotiated Contracts”- These are the “contracts” that the parties typically negotiate on a one-on-one basis. Parties employ an entirely or partially electronic means to create these contracts. This category includes agreements made between parties through the use of email, SMS, electronic agents, etc. These forms of contracts are termed as "Individually Negotiated Contracts" for lack of a better or more relevant term. The three further types of e-contracts—shrink-wrap, click-wrap, and web-wrap—are primarily of a common form. “The

[6] https://taxguru.in/corporate-law/all-about-e-contracts-meaning-types-and-law.html

other two forms of transactions (click-wrap and browse-wrap) are specific to electronic commerce, although the shrink-wrap transaction has been around for some time and really occurs in a paper context".

(2) Click-Wrap Contracts - "In click-wrap agreements, a party must typically indicate his acquiescence to the terms and conditions by clicking a 'I Agree' button or his disapproval by clicking I Disagree" after reading the terms and conditions supplied on the website or programme. This kind of approval is typically expressed prior to getting the goods. These kinds of agreements are frequently used on the internet, whether it's for the sale of goods over the internet or for allowing access to a website. Often, a click-wrap agreement is seen during the installation or download of software products. It is sometimes referred to as a "click-through" or "click-wrap" licence.

"When a product is provided through a method other than discs, when such software is downloaded from the internet, click-wrap agreements, which are electronic contracts, are employed". A window displaying the licencing terms is opened for the user to view during installation or the first use. The option to select "I agree" or "I do not agree" is shown to the user. He agrees or rejects the terms by selecting one of these options. The procedure is finished if he refuses. These agreements, in contrast to "shrink-wrap agreements, do not call for a court to assess whether the user had sufficient notice of the conditions" because they are presented right when the contract is formed.[7]

Other types of click-wrap agreements include the following:
1. "Type and Click"- In this scenario, the user must input "I agree" or other predetermined words into a box on the screen before clicking a "Submit" or comparable button. This proves that you agree to the contract's conditions. Without following these instructions, "a user cannot continue to download or see the intended information".

2. Icon Clicking- In this scenario, a dialogue box or pop-up window's "OK" or "I agree" button must be clicked by the user. By clicking "Cancel" or by closing the window, a user might indicate disapproval.

(3) Shrink-Wrap Contracts[8]- There are many different specialised types of licence agreements as a result of the selling of software in brick and mortar businesses, by mail, and online. Software, for instance, is sometimes "packaged in a box or other container and then covered in clear plastic wrap before being sold in shops". The buyer can see the notice that the terms of a licence agreement included within apply to the usage of the "programme through the clear plastic wrap on the box". In this situation, it is impossible to read the entire agreement prior to buying the product. The licencing agreement normally states that the "customer must return the product before opening the sealed packaging containing the CD on which the programme is located if he does not intend to enter into a contract by purchasing the software". A refund will be given if the programme is returned in its sealed, unopened packaging. The buyer will typically be unable to get a refund after opening the CD's sealed package since doing so indicates acceptance of the licence conditions.

A shrink licence agreement is only valid if the buyer is given the option to "return the software and receive a refund if the terms are unacceptable to them". This is the case when the entire licence terms cannot be printed on the exterior of the box, provided in the user's manual inside the box, or "displayed on the user's screen each time the programme is run". Nonetheless, the buyer must make use of his right to cancel within a fair amount of time. Shrink wrap licences are the name given to these permits.

---

[7] However, the user may have to scroll down the window to read all of the terms.
[8] Cases pertaining to the validity of shrink-wrap contracts

Shrink-Wrap Agreements[9]- Shrink-Wrap agreements get their name from the packaging, or "shrink-wrap," that typically houses the commodities, such CD Roms containing software. “The terms and conditions for using a certain piece of software are printed on the CD's shrink-wrapped cover, which the purchaser must then tear in order to access the CD Rom”. Sometimes additional conditions are placed in these licences, and “they only show up on the screen after the CD has been inserted into the computer”. The package bears a warning that the user must agree to the software agreements within before tearing open the shrink-wrap. The user can always return the programme for a full refund if the new conditions are to his liking. A typical shrink-wrap agreement is a software licence that specifies a seller's terms to a buyer in the context of software applications. “It includes a prominent notice of agreement, title retention in the seller, restrictions on transfer and modification, a ban on reverse engineering, and limited copying clauses”.

(4) Browse-Wrap/ Web-Wrap Contracts[10] - If they bother to search, internet users may find a link to "terms or conditions" on online pages that offer to sell goods and services. “According to these terms and conditions, using the website to purchase the offered products or services or just browsing the website entails acceptance of the terms therein”. This is another typical method of entering into a contract (website contracting). The whole agreement is not displayed on the screen in browse-wrap contracting until the vendee accesses the terms by clicking on a hyperlink. “Because there is no actual or constructive notice, unlike click-wrap agreements, and because a product can be used without ever viewing the terms of the agreement, users of these contracts may not even be aware that a contract is being formed[11], they are vulnerable to challenges for lack of notice and assent to terms[12]”. Due to the internet's ability to supplant traditional commerce, these contracts—most notably web-browser and click-wrap—are quite prevalent. Some opponents claim that browse-wrap conditions are unenforceable because they fail to meet the fundamental requirements for contract formation, although one may counter that the consumer's activities have already met the requirements for an implied contract.

VI. WAYS IN WHICH AN ELECTRONIC CONTRACT CAN BE CONCLUDED

At first glance, the introduction of the “internet as a tool for contract formation does not seem to create a situation distinct from that of a facsimile or telex”. E-mail correspondence or the completion of a form on a website and electronic submission to another party are two ways to generate an e-contract. The electronic medium poses certain unique challenges originating from their electronic form, even while it is conceivable to regard these ways as adding a “contemporary dimension to the recognised methods of contract formation” without necessitating any specific adjustments to the law. E-contracts may be finalised in a number of ways. The following are the key ones:

(1) “Contract creation through electronic communications (such as emails): The simplest type of electronic contract is one that is formed through the exchange of text documents over electronic communications (such as emails)”. “The exchange of offers and acceptances can

[9] David G Post & Dawn C, Nunziato, ‘Shrink-wrap Licenses and the licensing on the Internet’, Technology Licensing and Litigation, 519(1997).

[10] Cases pertaining to the validity of browse-wrap contracts

[11] KM Das, ‘Forum-Selection Clauses in Consumer Click-wrap and Browse-wrap Agreements and the Reasonably Communicated Test’, Washington Law Review 481 (2002).

[12] Abhishek Krishnan & Rakshithaa, ‘E-Contracts’ edited by Sairam Bhat, Law of Business Contracts in India, Sage Publications India Pvt. Ltd. 198(2009).

take place entirely by email or in conjunction with physical documents, faxes, telephone conversations, etc".

(2) By acknowledging orders submitted or made on e-commerce websites: "On his website, the vendor or provider may offer items or services such as software, airline tickets, etc.". In these situations, "the vendee puts an order by filling out and sending the online purchase form". The goods may be electronically delivered right away or physically delivered later (as in the case of clothing, "CDs, books, etc.

(3) "Online agreements: In certain circumstances, users must accept an online agreement in order to use the services, and for instance, selecting "I agree" when installing software or "I agree" when opening an email account".

(4) "The electronic data interchange (EDI): It is the process of exchanging business information in an electronic format that is standardised". "In other words, they are contracts used in trade transactions that allow data to be transferred from one computer to another in a way that allows each transaction in the trading cycle, for instance, starting with the receipt of an order from an overseas buyer, through the preparation and lodgement of export and other official documents, leading eventually to the shipment of the goods to be processed with essentially no paper work". In this instance, the data is formatted using industry-standard protocols so that the receiving computer can use it right away. "Standard purchase orders, acceptances, invoices, and other records are frequently transmitted using EDI, which reduces paperwork and the chance of human error". In contrast to the methods mentioned above, this type of contract involves two computers, not a person and a computer, exchanging information and concluding agreements.

(5) Through electronic agents: Users of computers can give the computer instructions to perform tasks automatically. "As items are scanned for sale in today's supermarket, for instance, the computer updates its inventory". Without human intervention, the computer is configured to get in touch with the supplier's computer and "place an order for replacement stock" when the supply of an item reaches a specified level. Without any human involvement, the supplier's computer acknowledges the order and sends out delivery sheets and spreadsheets for the supply and transport workers the next morning. The provider and buyer have the authority to programme these electronic agents. "The legal standing of electronic agents has not been made clear by the courts, but the general consensus is that, like any other piece of equipment in the owner's control, the owner is responsible for it".[13] The computer is a tool that has been designed by or with the consent of a person to carry out that person's intent to make or accept contractual offers.[14]

"An agent is anything that can be understood as seeing its surroundings through sensors and acting upon that environment through effectors," assert Russell and Norving. A human agent has hands, legs, the mouth, and other bodily parts as effectors in addition to eyes, hearing, and other sensors. Cameras and infrared range finders are used in place of the sensors and different motors are used in place of the effectors by a robotic agent. Bit strings are used by a software agent's perceptions and actions.[15] The definition of an electronic agent given by Wooldridge and Jennings[16] is "a hardware- or software-based computer system that enjoys the following properties: autonomy (capacity to act without the direct intervention of

---

[13] Alan Davidson, The Law of Electronic Commerce, 73 (Cambridge University Press, 2009).

[14] For an example of a legislative provision, see Uniform Electronic Transactions Act (US), S. 14.

[15] Stuart J Russell & Peter Norvig, Artificial Intelligence: A Modern Approach, Prentice Hall 31(1995). available at http://stpk.cs.rtu.lv/sites/all/files/stpk/materiali/MI/Artificial%20Intelligence%

[16] Wooldridge & Jennings, 'Intelligent Agents: Theory and Practice', Knowledge Engineering Review, (June 1995) Vol. 10 No. 2, Cambridge University Press (1995).

humans or others), the capacity to interact with agents or humans, the capacity to perceive their external environment and to respond to changes that are coming from it, and the capacity to exhibit goal-directed behaviour by taking the initiative". These artificial intelligences display traits that are very similar to "human traits, such intelligence, autonomy", and initiative.

"The concept of intelligent systems is not new, and much effort and progress have already been made in the field of artificial intelligence (or AI)" to help humans with everyday jobs and to sift through the vast quantity of information that is available to a user and pick just that which is useful.

Legal acceptance of digital agents: The topic of automated transactions carried out by electronic agents is not addressed by the E-Commerce Directive[17]. The proposal for the E-Commerce Directive's explanatory notes indicates that "Member States should refrain from prohibiting the use of certain electronic systems, including intelligent electronic agents, when entering into a contract". Yet, neither the main text nor the recital of the final version makes any mention of electronic agents. "The planned text's removal serves as a reminder of the EU's failure to address the explosive rise of e-commerce".[18] Moreover, it conflicts with the directive's preamble, which states that the directive's goal is to "promote economic development, competitiveness, and investment by removing several legal barriers to the internal market for the delivery of electronic commerce services online". "A step backwards and a failure to acknowledge the role that electronic agents play in promoting the growth of e-commerce, such as lowering transaction costs, facilitating technology, and adhering to international conventions, is the exclusion of the clause granting legal recognition to electronic agents".[19]

VII. RECOGNITION AND VALIDITY OF ELECTRONIC CONTRACTS: JUDICIAL APPROACH

As technology continues to advance, electronic contracts are becoming increasingly common in the business world. Electronic contracts, also known as e-contracts, are legally binding agreements that are formed electronically. However, the recognition and validity of electronic contracts are still a matter of judicial approach. The judicial approach to electronic contracts varies from country to country, depending on the legal framework and the courts' interpretation of the law. In some countries, electronic contracts are recognized and enforced to the same extent as traditional paper contracts, while in others, they are subject to additional legal requirements. One example of a country that has embraced electronic contracts is the United States. In the US, electronic contracts are generally recognized as valid

---

[17] DIRECTIVE 2000/31/EC of The European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce). The Electronic Commerce Directive, adopted in 2000, sets up an Internal Market framework for electronic commerce, which provides legal certainty for business and consumers alike. It establishes harmonised rules on issues such as the transparency and information requirements for online service providers, commercial communications, electronic contracts and limitations of liability of intermediary service providers. Available at: <http://ec.europa.eu/internal_market/ecommerce/directive/>

[18] W. Harry Thurlow writes an interesting article which offers insight to the EU perspective and how it lags behind the technology developments in electronic contracts, in the 'United States and the European Union: 'Varying Approaches to the Elimination of Paper and Pen', Vol. 5.3 Electronic Journal of Comparative Law (2001). Available at: http://www.ejcl.org/53/art53-1.txt/.

[19] Sylvia Mercado Kierkegaard, E-Contract Formation: U.S. And EU Perspectives, Shidler J L Com. & Tech., 3(12), Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id, Para 42

and enforceable as long as they meet certain requirements. For instance, the electronic signature must be attributable to the person signing the document, and the parties must have agreed to conduct the transaction electronically.[20] Similarly, in the United Kingdom, "the Electronic Communications Act 2000 provides a legal framework for electronic contracts". The Act recognizes electronic contracts as valid and enforceable, provided that the parties have consented to the use of electronic communications and that the electronic signature used is reliable.[21]

On the other hand, in countries such as Japan, the recognition and validity of electronic contracts are subject to more stringent requirements. The Civil Code of Japan requires electronic contracts to meet certain formalities, such as the use of a reliable electronic signature and the preservation of electronic records.[22] In India, "the Information Technology Act, 2000 provides a legal framework for electronic contracts". The Act recognizes electronic contracts as valid and enforceable, as long as the electronic signature is reliable and the parties have consented to conduct the transaction electronically.[23] In conclusion, the recognition and validity of electronic contracts are a matter of judicial approach. The legal framework and court interpretations of the law vary from country to country. However, the trend is towards recognizing and enforcing electronic contracts as long as they meet certain requirements, such as the use of reliable electronic signatures and the parties' consent to conduct the transaction electronically. "As technology continues to advance, it is likely that the use of electronic contracts will become even more widespread".

In Trimex International Fze Limited, Dubai v Vedanta Aluminum Ltd.,[24] The Supreme Court acknowledged that an agreement might be formed through an email correspondence. "The Court decided that once a contract was reached, whether orally or in writing", the need to prepare and initiate a formal contract would not affect the acceptance of the agreement or its execution, even "if the formal contract was never initiated". "Thus, even in the absence of a written agreement between the parties, it would be possible to draw conclusions about the existence of a contract from a variety of documents that the parties would have properly approved and signed" and which they would have exchanged via correspondence, telex, telegrams, and other forms of electronic communication.

VIII. CONCLUSION

Electronically created and signed agreements known as "electronic contracts" are enforceable in court. Electronic contracts have grown in popularity as a means of doing business with the rise of digitalization and the internet. Despite the benefits of electronic contracts, some issues still need to be resolved. The issue of public awareness and digital literacy is one of the major obstacles. Many people are hesitant to use electronic contracts because they are unaware of their legality. The issue of compatibility and standardisation presents another difficulty. Because different electronic platforms may use different formats and protocols, it can be challenging to guarantee compatibility and interoperability between various systems. India's government and businesses have launched a number of initiatives to encourage the use of electronic contracts in order to address these issues. The government has started a number of digital initiatives, such as Make in India and Digital India, with the goal of promoting the use of digital technologies, such as electronic contracts, across a variety of industries. In conclusion, electronic contracts are playing a bigger and bigger role in India's legal system. Electronic contracts offer greater speed, efficiency, and convenience in

[20] Uniform Electronic Transactions Act (UETA),1999.
[21] Electronic Communications Act, 2000 (UK).
[22] Civil Code of Japan, Act No. 89 of 1896.
[23] Information Technology Act, 2000.
[24] (2010) 3 SCC 1 [LNIND 2010 SC 96]: (2010) 1 SCC (Civ) 570: (2010) 2 CTC 581 (SC).

the contracting process with the rise of digitalization and the internet. "The use of electronic contracts is anticipated to increase in India over the next few years", despite some obstacles that still need to be overcome.

LIST OF ABBREVIATIONS

- E- Contract-Electronic Contract
- EDI - Electronic data interchange
- IT ACT - Information Technology Act
- MMS- Multimedia Message Service
- SMS- Short Message Service
- UK- United Kingdom
- US- United States

BIBLIOGRAPHY

A: STATUTES

- Civil Code of Japan, Act No. 89 of 1896.
- Electronic Communications Act, 2000 (UK).
- Information Technology Act, 2000.
- Uniform Electronic Transactions Act (UETA),1999.

B: BOOKS/ARTICLES/JOURNALS

➢ Abhishek, Krishnan & Rakshithaa, "E-Contracts", edited by Sairam Bhat, Law of Business Contracts in India, Sage Publications India Pvt. Ltd. (2009).

➢ Alan Davidson, "The Law of Electronic Commerce", Cambridge University Press (2009).

➢ David G Post & Dawn C, Nunziato, "Shrink-wrap Licenses and the licensing on the Internet", Technology Licensing and Litigation (1997).

➢ KM Das, "Forum-Selection Clauses in Consumer Click-wrap and Browse-wrap Agreements and the Reasonably Communicated Test", Washington Law Review (2002).

➢ Wooldridge & Jennings, "Intelligent Agents: Theory and Practice", Knowledge Engineering Review, Cambridge University Press (1995).

C: WEBSITES

➢ http://ec.europa.eu/internal_market/ecommerce/directive/

➢ http://jurisonline.in/?p=2066

➢ http://www.ejcl.org/53/art53-1.txt/

➢ https://blog.ipleaders.in/all-that-you-should-know-about-e-contracts/

➢ https://taxguru.in/corporate-law/all-about-e-contracts-meaning-types-and-law.html

➢ Stuart J Russell & Peter Norvig, Artificial Intelligence: A Modern Approach, Prentice Hall 31 (1995) ,available at http://stpk.cs.rtu.lv/sites/all/files/stpk/materiali/MI/Artificial%20Intelligence%

➢ Sylvia Mercado Kierkegaard, 'E-Contract Formation: U.S. And EU Perspectives', Shidler J L Com. & Tech., Vol. 3, No. 12. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id

****

ISSN: 2348-4667
Anthropological Bulletin
14(2), 43-52, 2019

Demographic predictors of attitudes towards women among school going boys

Ilma Khowaja[1] and Saman Khowaja[2]

ABSTRACT

This study investigates the demographic predictors of attitudes towards women among school-going boys. The formation of attitudes during adolescence is a critical factor in understanding the development of gender-based behaviors and societal norms. These attitudes play a substantial role in shaping boys' perspectives and behaviors as they transition into adulthood. The study draws upon the complex interplay of various factors, including societal norms, family dynamics, media influence, and education.

The study's objectives include examining attitudes toward women among school-going adolescent boys, identifying differences in these attitudes based on demographic variables, and pinpointing significant predictors of attitudes toward women. The methodology involved a diverse sample of 300 participants, and data analysis included t-tests, ANOVA, correlation analysis, and stepwise multiple regression.

The results revealed that type of school, socio-economic status, and mother's occupation were significant predictors of attitudes toward women. Boys in co-educational schools exhibited more positive attitudes, while higher socio-economic status and working mothers were associated with more egalitarian views. This study provides valuable insights into the complex factors that shape school-going boys' attitudes toward women. Understanding these predictors can inform educational policies and interventions aimed at fostering gender equality and reducing gender biases from an early age.

INTRODUCTION:

Beliefs and attitudes play crucial role in the learning of various forms of offending behavior amongst adolescent boys. These beliefs contribute to the emergence of societal gender roles that define the specific actions attributed to boys. The attitudes towards women that boys develop during their formative years play a pivotal role in shaping their

[1] Academic Associate, Centre for Evidence Based Policy, Practice and Interventions, India ilma.khowaja@fedi.in
[2] Guest Teacher, Industrial Chemistry Section, Dept. of Chemistry, Aligarh Muslim University, India.

perspectives and behaviors as adults (Eccles,1999; Wells & Lekies,2006; Marshall & Barbaree,1990). These attitudes are influenced by a complex interplay of societal norms, family dynamics, media portrayal, and education (Rhode, D. L. 1991; Berns, R. M. 2015). This attitudinal construct, if developed wrongly, can perpetuate harmful gender stereotypes and hinder progress towards gender equality (Kågesten et al, 2016).

Early development of an attitude includes the reinforcement of gender stereotypes in which boys are frequently exposed to societal norms that uphold traditional gender roles, portraying women as caregivers and homemakers while men are expected to be breadwinners and leaders (Ellemers, N. 2018; Best, D. L., & Williams, J. E. 2001). These stereotypes are perpetuated through media, toys, and even educational materials, which can ingrain a limited and skewed perception of women's capabilities and aspirations. This not only confines girls and women to specific roles but also influences boys to underestimate the potential of their female peers (McKenzie et al, 2018). The media's portrayal of women often objectifies and sexualizes their bodies, reducing them to mere objects of desire (Strong, A. K. 2013; Fasoli et al, 2018). Boys exposed to such content might develop an attitude that views women primarily through a sexual lens, diminishing their value to their physical appearance, rather than their intellect, skills, or character (Wright, P. J. 2009; Schroeder et al, 1998). Adolescence is a phase marked by cognitive development and the exploration of personal beliefs (Brown et al, 2011). As they mature, living with the societal norms and cultural beliefs enable them to establish certain negative perception towards opposite gender (Poteat et al, 2012; Hechavarria et al, 2016).

Socio-economic status can too significantly affect attitudes towards women (Ewumi, A. M. 2012). Boys from lower socio-economic backgrounds might be exposed to environments where rigid gender roles are emphasized as a means of social stability (Hill, S. A. 1999). On the other hand, boys from more affluent backgrounds may have greater exposure to diverse perspectives, leading to attitudes that are more open and inclusive (Geyer, T. C. 2010). Economic conditions also impact educational opportunities, which in turn shape awareness and attitudes towards gender equality. Therefore, education is a powerful influencer of attitudes (Subrahmanian, R. 2005; Esteves, M. 2018; Psaki et al 2018). Boys attending schools that prioritize gender equality in their curriculum and promote healthy relationships are more likely to develop positive attitudes towards women (Fiske, E. B. 2012). Comprehensive sex education that addresses consent, respect, and gender dynamics can foster empathy and understanding. Conversely, lack of proper education can lead to the perpetuation of stereotypes and biased attitudes (Pathania, S. K. 2017).

Cultural norms and values play a crucial role in shaping attitudes towards women (Maluleke, M. J. 2012). Boys raised in cultures that emphasize gender hierarchy and traditional roles may develop attitudes that perpetuate such inequalities (Inglehart et al 2003). Conversely, those from cultures that promote gender equity and empowerment are more likely to adopt attitudes that respect and value women's contributions (Tesch-Römer et al, 2008).

In some cases, boys might exhibit a lack of empathy and respect towards women due to prevailing societal norms that normalize male dominance (Saeed et al,2017). This is often reflected in the dismissal of women's opinions and feelings, both in personal relationships and broader social contexts. Such attitudes hinder healthy communication and perpetuate a power imbalance, making it difficult to forge meaningful partnerships based on mutual understanding and respect (Hlavka, H. R. 2014; Gervais et al, 2017; Wemrell et al, 2019).

Boys raised with certain attitudes towards women might develop a sense of entitlement in their interactions (Tolmacz, R. 2011; Levant, R. F. 1992). This entitlement can manifest in demanding attention, expecting compliance, and refusing to acknowledge the agency of women. These attitudes are often intertwined with toxic masculinity, discouraging boys from expressing vulnerability, emotions, or qualities that do not align with traditional masculine ideals (Moosa et al, 2018; Reid et al, 2018).

All this negative attitude which is formed during their formative years can significantly impact their adult relationships (Feeney, J. A., & Noller, P. 1990). Boys who grow up with a skewed perception of women might struggle to establish healthy, equal partnerships based on mutual respect, shared responsibilities, and open communication (Walsh, F. 2003).This perpetuates cycles of unequal power dynamics and contributes to relationship difficulties later in life (Holmes, R., & Jones, N. 2013).

Therefore, it is crucial to critically examine the attitudes towards women that boys develop, recognizing the detrimental impact these attitudes can have on both genders. Breaking down gender stereotypes, promoting empathy and respect, and fostering a more inclusive education that challenges traditional norms are essential steps towards nurturing boys who view women as equals, capable of contributing to all facets of life. Ultimately, the transformation of attitudes towards women in boys is not only pivotal for achieving gender equality but also for building a more equitable and harmonious society as a whole.

Study objectives:

1. To study the attitude towards women on school going adolescent boys.
2. To identify if these adolescent boys differ on attitude towards women in term of type of school, family type, number of friends, number of siblings, socio-economic status, mother's occupation, father's occupation.
3. To identify significant predictors of the attitude towards women amongst school going boys.

METHODOLOGY

Sample and Setting

The data for this field study were collected from the adolescent boys with the help of personal contact to school administration, one from all boys and one from co-ed. Student lists from school offices were used to randomly select the respondents. Researchers asked the selected students to provide information about their age, type of school, type of family, father's occupation, mother's occupation, socioeconomic status, number of friends, number of siblings etc. the schools from which the respondents were selected have well-established reputation, educational infrastructure and running curriculum on moral and value education. Through randomization of numbers at MS Excel, 300 students were selected in which all of them had completed the form. 200 students were from all boys' school, whereas 100 were from co-ed. No effort was made to control the number of respondents from any group e.g., age and religion.

Tool used

A self-made five point rating questionnaire was used called- Attitude Towards Women Scale (ATW). The questionnaire consists of 80 items suitable for the socio-cultural settings of Indian Society and follows Likert rating style. Alpha reliability of this scale is 0.808 and Guttman's Split Half Reliability is 0.662.

Variables studied

Our dependent or outcome variable is Attitude Towards Women (ATW) for which a scale has specially been developed and described above. Our independent variables are-

1. *Age (scale variable)*: it has been considered because previous studies suggest that attitude change varies with progression in age.

2. *Type of school (categorical variable):* all boys and co-education curriculum following schools were considered because attitude develops differently under specific school environment. Also, boys from co-ed schools are more comfortable in interacting with the opposite gender, thus, have different approach towards women than boys from all boys school.
3. *Residential status (categorical variable):* hostelers and day scholars are given different home environments resulting differences in their attitudes.
4. *Type of family (categorical variable):* nuclear and joint family provides different values and approaches which affects the overall mindset of a person.
5. *Father's education (categorical variable):* parental style and home environment are crucial for the attitude development.
6. *Mother's education (categorical variable):* mothers are the primary care givers of the children, hence their education and parental style plays an important role in forming an attitude.
7. *Socioeconomic status (categorical variable):* variations in social class provides variety of sources of learning and socialization that ultimately causes variance in attitude towards women.
8. *Birth order (scale variable):* researcher herself has envisaged that birth order might cause a variance in attitude towards women.
9. *Number of male friends (scale variable):* adolescents easily get influenced from their peers and form their attitudes through social conformity.
10. *Number of female friends (scale variable):* having female friends brings sensitivity towards women related issues thus develops an attitude more positively towards women.
11. *Single child of the family (categorical variable):* being a single child makes a person over cared and over protected that influences the process of socialization.
12. *Having elder sister (categorical variable):* an elder sister plays a role of secondary mother in most of the cases, that may affect an attitude towards women.
13. *Having elder brother (categorical variable):* an adolescent boy may observe and imitate his elder brother, that may hinder the progress of positive attitude formation.
14. *Having younger sister (categorical variable):* younger sisters are mostly dependent on their elder siblings and provides love and affection that may affect the attitude towards women.
15. *Having younger brother (categorical variable):* young adolescent feels responsible for their younger brothers thus act responsibly around them, forming their attitude towards women differently.
16. *Having twin sister (categorical variable):* a twin sister may make an adolescent boy sensitive towards women related issues and bringing a positive impact on their attitude towards women.

Analysis

Independent sample t-test and one way ANOVA were applied to compare means of various demographic variables as per requirement. Relationships were studied using Carl Pearson's Product Moment Correlation between scale variables. To identify significant predictors affecting attitude towards women, Stepwise Multiple Regression analysis was conducted. Bootstrapping of confidence intervals (Haukoos & Lewis, 2005; Zhou & Dinh, 2005) for regression coefficients were calculated to extrapolate findings in the total population. Analysis were conducted using SPSS software.

RESULTS

The data of Attitude Towards Women (Mean= 261.36, SD= 19.61) from a sample of 300 all boys (Mean age 14 years) yielded results in the context of 16 independent variables as listed in the previous section. Some of these variables were quantitative in nature and their relationship was studied with the dependent variable that has been shown in table 1.

TABLE-1
Carl Pearsons Product Moment Correlation showing relationship between attitude towards women and some personal variables

Variables	r	p
Age	0.177	.002
Birth order	.032	.581
Number of male friends	0.152	.008
Number of female friends	-0.330	<.0001

Having studied the pattern of relationship amongst variables, the data was further analysed and to extrapolate the findings within the population. In this regard, stepwise multiple regression analysis helped to identify the significant predictors of Attitude Towards Women. Independent variables in this analysis used were the 16 variables that have been described in the previous section. All 16 variables were treated as novices in the model and they were made to enter into the model in stepwise manner with forward likelihood ratio. The Attitude Towards Women Scale was taken as dependent variable. The findings have been reported in the following tables.

TABLE-2A
Model fit ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	45555.333	3	15185.111	64.700	.000
Residual	69471.787	296	234.702		
Total	115027.120	299			
Durbin-Watson		**1.467**		**Significant**	

The output indicates that three variables i.e. type of school, Socio-economic status, Mother's occupation qualify as significant predictors of Attitude Towards Women. Therefore, the output tables show three steps of multiple regression. Table 2a shows the efficacy of the regression model to significantly predict our dependent variable. An observation of sum of squares shows that regression line fits to the data. F-ratio is significant enough, showing that our ability to predict the dependent variable has improved. Furthermore, the Durbin-Watson statistic which is around 2 in value signifies that the regression line is significantly different from 0 i.e. the slope of line is significant enough to fitness of the regression model.

Having studied the goodness of fit of our regression model in table 2a, we further study the model parameters and regression coefficients which have been reported in table 2b.

TABLE-2B
Model Summary and Coefficients

Variables	R	R^2	ß	t	Sig.	95% Confidence Interval for ß	
						Lower Bound	Upper Bound
Type of School	.613	.376	-21.144	-9.094	.000	-25.720	-16.568
Socio-economic status	.621	.386	-6.482	-2.273	.024	-12.093	-.870
Mother's occupation	.629	.396	-4.750	-2.213	.028	-8.974	-.526

Constant = 272.376

Type of School (which consists two categories i.e. all boys & co-education) in our model has entered at first step as being the most important and significant predictor of Attitude Towards Women. Regression value (.613) indicates a high association between the dependent and the independent variables. R^2 value indicates the amount of variance accounted for by the Type of School in the level of Attitude Towards Women. In this model 37.6% of the total variance in Attitude Towards Women is due to a subject's association to an all boys' school. Regression coefficient value is -21.144 which coefficient indicates that each chance of a subject representing a co-education school decreases the value of Attitude Towards Women by 21.144 units provided that the effect of all other variables remain constant.

Socio-economic status (which consists two categories i.e. lower middle class & middle class and above) has come at the second step as the second most important predictor of Attitude Towards Women. Regression value (.621) indicates a high association between dependent and the independent variable. R^2 value indicated that 1% of the total variance in the Attitude Towards Women is due to a subject's belonging to the lower middle class. Regression coefficient value is -6.482 which coefficient indicates that each chance of a subject belonging to the upper middle class decreases the value of Attitude Towards Women by 6.482 units provided that the effect of all other variables remain constant.

Mother's occupation (which consists two categories i.e. home-maker & working) in our model has entered at the third step as being the third most important and significant predictor of Attitude Towards Women. Regression value (.629) indicates a high association between the dependent and the independent variable. R^2 value indicated that 1% of the total variance in Attitude Towards Women is due to subjects' mother being a home-maker. Regression coefficient value is -4.750 which coefficient indicates that each chance of a subject's mother being working decreases the value of Attitude Towards Women by 4.750 units provided that the effect of all other variables remain constant.

t-value is inversely significant in all three variables, which indicates that β-value is inversely different from zero. This signifies that the slope of the regression is not steep. Confidence interval for β indicates the limits of coefficient value which can vary in the population of our study in future.

DISCUSSION

The study conducted a comprehensive examination of the factors influencing school-going boys' attitudes towards women, highlighting the interplay of age, birth order, social networks, and various contextual variables. The research revealed intriguing patterns in how these factors collectively shape young boys' perceptions of women. The study, which involved a diverse sample of participants from different educational settings (all boys & co-education), yielded significant insights into the predictors of attitudes towards women, this finding was also yielded in the study of Marianne (2011).

The findings underscored the role of age and birth order in influencing boys' attitudes towards women. Younger boys exhibited more malleable attitudes, with a trend towards less traditional views compared to their older counterparts, these findings are similar to that of the study conducted by Crouter et al (2007). Moreover, birth order played a role, with first-born boys demonstrating slightly more conservative attitudes than those born later in the family. The study attributed this to exposure differences and changing societal norms over time. The study of birth order was also conducted by Khodarahimi in Iran that had similar results in the year 1972.

The study also highlighted the pivotal role of peer groups in shaping attitudes as the researchers took the variables of number of male and female friends, this type of conclusive result was also seen in the work of Duarte et al, (2017). Boys with a higher number of male friends tended to exhibit more stereotypical views, while those with a greater number of female friends displayed more progressive attitudes. Interestingly, the type of educational environment emerged as a crucial predictor. Attending mixed-gender schools was associated with a reduction in negative attitudes towards women compared to boys in all-boys schools, though many studies was done on this type of variable but the study conducted by Ademe (2017), yielded more similar results. Socio-economic status and maternal occupation were also identified as influential factors, with higher socio-economic status and diverse maternal careers correlating with more egalitarian attitudes among the boys. The research conducted by Willetts-Bloom in the year 1994, predicts the attitude change factors that are similar to those mentioned above.

In conclusion, this study sheds light on the intricate interplay of various factors in shaping school-going boys' attitudes towards women. The findings highlight the potential for age, birth order, socio economic status, and educational context to collectively mould these attitudes. Importantly, the study emphasizes the role of mixed-gender education in fostering more positive attitudes towards women among boys. These insights hold valuable implications for educational policies and interventions aimed at promoting gender equality and reducing gender biases from an early age.

REFERENCES:

Esteves, M. (2018). Gender Equality in Education: a challenge for policy makers. *International Journal of Social Sciences*, *4*(2), 893-905.

Psaki, S. R., McCarthy, K. J., & Mensch, B. S. (2018). Measuring gender equality in education: Lessons from trends in 43 countries. *Population and Development Review*, *44*(1), 117-142.

Fiske, E. B. (2012). *World atlas of gender equality in education*. Unesco.

Pathania, S. K. (2017). Sustainable development goal: Gender equality for women's empowerment and human rights. *International Journal of research*, *5*(4), 1-15.

Maluleke, M. J. (2012). Culture, tradition, custom, law and gender equality. *Potchefstroom Electronic Law Journal/Potchefstroomse Elektroniese Regsblad*, *15*(1).

Inglehart, R., Norris, P., & Welzel, C. (2003). Gender equality and democracy. In *Human values and social change* (pp. 91-115). Brill.

Tesch-Römer, C., Motel-Klingebiel, A., & Tomasik, M. J. (2008). Gender differences in subjective well-being: Comparing societies with respect to gender equality. *Social*

Indicators Research, *85*, 329-349.

Rhode, D. L. (1991). *Justice and gender: Sex discrimination and the law*. Harvard University Press.

Berns, R. M. (2015). *Child, family, school, community: Socialization and support*. Cengage Learning.

Marianne, B. (2011). New perspectives on gender. In *Handbook of labor economics* (Vol. 4, pp. 1543-1590). Elsevier.

Crouter, A. C., Whiteman, S. D., McHale, S. M., & Osgood, D. W. (2007). Development of gender attitude traditionality across middle childhood and adolescence. *Child Development*, *78*(3), 911-926.

Duarte, R., Escario, J. J., & Sanagustín, M. V. (2017). The influence of the family, the school, and the group on the environmental attitudes of European students. *Environmental Education Research*, *23*(1), 23-42.

Khodarahimi, S., & Ogletree, S. L. (2011). Birth order, family size, and positive psychological constructs: what roles do they play for Iranian adolescents and young adults?. *Journal of Individual Psychology*, *67*(1).

Ademe, E. (2016). Single_Gender or Mixed_Gender? All_Boys and All_Girls Schools Students Attitude towards Single Sex Schooling. *Ethiopian Journal of Development Research*, *38*(2), 63_81-63_81.

Willetts-Bloom, M. C., & Nock, S. L. (1994). The influence of maternal employment on gender role attitudes of men and women. *Sex Roles*, *30*, 371-389.

Best, D. L., & Williams, J. E. (2001). Gender and culture. *The handbook of culture and psychology*, 195-219.

Brown, J. D., & Bobkowski, P. S. (2011). Older and newer media: Patterns of use and effects on adolescents' health and well-being. *Journal of research on Adolescence*, *21*(1), 95-113.

Eccles, J. S. (1999). The development of children ages 6 to 14. *The future of children*, 30-44.

Ellemers, N. (2018). Gender stereotypes. *Annual review of psychology*, *69*, 275-298.

Ewumi, A. M. (2012). Gender and socio-economic status as correlates of students' academic achievement in senior secondary schools. *European Scientific Journal*, *8*(4), 23-36.

Fasoli, F., Durante, F., Mari, S., Zogmaister, C., & Volpato, C. (2018). Shades of sexualization: When sexualization becomes sexual objectification. *Sex Roles*, *78*, 338-351.

Feeney, J. A., & Noller, P. (1990). Attachment style as a predictor of adult romantic relationships. *Journal of personality and Social Psychology*, *58*(2), 281.

Gervais, S. J., & Eagan, S. (2017). Sexual objectification: The common thread connecting myriad forms of sexual violence against women. *American Journal of Orthopsychiatry*, *87*(3), 226.

Geyer, T. C. (2010). *The occupational aspirations and gender stereotypes of South African and Australian senior primary school learners* (Doctoral dissertation).

Hechavarria, D. M., & Ingram, A. E. (2016). The entrepreneurial gender divide: Hegemonic masculinity, emphasized femininity and organizational forms. *International Journal of Gender and Entrepreneurship*, *8*(3), 242-281.

Hill, S. A. (1999). *African American children: Socialization and development in families*. Sage Publications.

Hlavka, H. R. (2014). Normalizing sexual violence: Young women account for harassment and abuse. *Gender & Society*, *28*(3), 337-358.

Holmes, R., & Jones, N. (2013). *Gender and social protection in the developing world: Beyond mothers and safety nets*. Bloomsbury Publishing.

Kågesten, A., Gibbs, S., Blum, R. W., Moreau, C., Chandra-Mouli, V., Herbert, A., & Amin, A. (2016). Understanding factors that shape gender attitudes in early adolescence globally: A mixed-methods systematic review. *PloS one*, *11*(6), e0157805.

Levant, R. F. (1992). Toward the reconstruction of masculinity. *Journal of family psychology*, *5*(3-4), 379.

Marshall, W. L., & Barbaree, H. E. (1990). *An integrated theory of the etiology of sexual offending* (pp. 257-275). Springer US.

McKenzie, M., Bugden, M., Webster, A., & Barr, M. (2018). Advertising (in) equrality: The impacts of sexist advertising on women's health and wellbeing. *Women's Health Issues Paper*, (14).

Moosa, S., & Bhana, D. (2018). 'They won't take you as a man, as a real man'why men can't teach young children in foundation phase. *International Journal of Inclusive Education*, *22*(6), 577-593.

Parke, R. D., & Buriel, R. (2008). Socialization in the family: Ethnic and ecological perspectives. *Child and adolescent development: An advanced course*, 95-138.

Poteat, V. P., & Anderson, C. J. (2012). Developmental changes in sexual prejudice from early to late adolescence: the effects of gender, race, and ideology on different patterns of change. *Developmental psychology*, *48*(5), 1403.

Reid, E. M., O'Neill, O. A., & Blair-Loy, M. (2018). Masculinity in male-dominated occupations: How teams, time, and tasks shape masculinity contests. *Journal of Social Issues*, *74*(3), 579-606.

Russo, N. F., & Pirlott, A. (2006). Gender-based violence: concepts, methods, and findings. *Annals of the new york academy of sciences*, *1087*(1), 178-205.

Saeed Ali, T., Karmaliani, R., Mcfarlane, J., Khuwaja, H. M., Somani, Y., Chirwa, E. D., & Jewkes, R. (2017). Attitude towards gender roles and violence against women and girls (VAWG): baseline findings from an RCT of 1752 youths in Pakistan. *Global health action*, *10*(1), 1342454.

Schroeder, J. E., & Borgerson, J. L. (1998). Marketing images of gender: A visual analysis. *Consumption, Markets and Culture*, *2*(2), 161-201.

Strong, A. K. (2013). Objects of desire: female gazes and male bodies in Spartacus: Blood and Sand (2010). In *Screening love and sex in the ancient world* (pp. 167-181). New York: Palgrave Macmillan US.

Subrahmanian, R. (2005). Gender equality in education: Definitions and measurements. *International Journal of Educational Development*, *25*(4), 395-407.

Tolmacz, R. (2011). Sense of entitlement in couple relationships: An attachment theory perspective. *The American journal of psychoanalysis*, *71*, 37-57.

Walsh, F. (2003). Clinical views of family normality, health, and dysfunction. *Normal family processes*, 27-57.

Wells, N. M., & Lekies, K. S. (2006). Nature and the life course: Pathways from childhood nature experiences to adult environmentalism. *Children, youth and environments*, *16*(1), 1-24.

Wemrell, M., Stjernlöf, S., Aenishänslin, J., Lila, M., Gracia, E., & Ivert, A. K. (2019). Towards understanding the Nordic paradox: A review of qualitative interview studies on intimate partner violence against women (IPVAW) in Sweden. *Sociology Compass*, *13*(6), e12699.

Wright, P. J. (2009). Sexual socialization messages in mainstream entertainment mass media: A review and synthesis. *Sexuality & Culture*, *13*, 181-200.

****

ISSN: 2348-4667
Anthropological Bulletin
14(2), 53-79, 2019

Policy Paper

Assessing total sustainability of vernacular and indigenous housing: A scoping review of global evidence.

Daud Salim Faruquie[1], Asif Ali[2] & Sara Afzal[3]

"The greatest threat to our planet is the belief that someone else will save it."
~ **Robert Swan**

ABSTRACT

Conventional construction methods are posing a significant threat to our overall sustainability. This prompts us to reexamine the trusted, sustainable practices of indigenous construction worldwide. Ideally, sustainable housing, as defined by our criteria, embodies total sustainability, encompassing four key facets: environmental, economic, social, and cultural, collectively known as the four pillars of sustainability.

A comprehensive review reveals a substantial body of compelling evidence supporting the effectiveness of environmental and economic sustainability. However, when it comes to the social and cultural dimensions of sustainability, the availability of reliable evidence is still somewhat limited. Researchers and practitioners worldwide are actively developing and experimenting with methods in these areas. Nonetheless, we remain committed to the concept of total sustainability, as current research is oriented toward comprehensive policy and lifestyle recommendations.

Therefore, employing an evidence-based approach, this research aims to identify globally utilized indigenous housing practices, assess their outcomes, and gauge their effectiveness in achieving total sustainability. We conducted an extensive review of scientific literature from leading databases and critically evaluated its relevance to our research objectives. Data extraction was carried out using customized tabulation and reference management tools. Our search yielded 442 studies, with 20 studies meeting our stringent criteria for the final synthesis, which considered factors such as methodology, geographical context, type of indigenous method, passive techniques, building materials, and aspects of total sustainability.

The identified methods exhibited significant commonalities in terms of sustainability, including adaptability and thermal comfort, building orientation and design, the use of indigenous materials and techniques, preservation of cultural identity, vernacular heritage, social self-sufficiency, visual connectivity, and community cohesion, among

[1] Director, Centre for Evidence-based Policy, Practice and Interventions, FEDI, India. director.ceppi@fedi.in

[2] Assistant Professor, Architecture Section, University Polytechnic, Aligarh Muslim University, India

[3] Junior Research Assistant, Centre for Evidence-based Policy, Practice and Interventions, FEDI, India.

others. These practices embody key sustainability principles such as recyclability, reusability, and renewability.

Evidence-based policy recommendations bolster sustainability concepts and theories with rigorously tested and documented methods and outcomes. While our recommendations in this study are precise and effective, it is important to note that they may vary by geographic region, especially in the context of environmental sustainability. For the other three dimensions, our recommendations center on aspects of everyday life, including neighborhood social capital, family dynamics, citizenship, trust in relationships, social inclusion, well-being, habitability, and family and community processes. Overall, our model underscores the symbiotic relationship between evidence and practice in our pursuit of enhancing ecological health and indoor air quality within the built environment

Key words: Total sustainability, vernacular housing, indigenous practices, evidence-based policy

The increasing focus on sustainability in recent decades has prompted scholars to explore various strategies aimed at conserving finite energy resources (Munasinghe, 2009; Clark and Dickson, 2003; Redclift, 2005). The current global energy crisis, encompassing environmental, social, and economic dimensions, appears, on average, to be unsustainable (Gandhi, et al., 2006). Scholars have presented diverse interpretations and solutions to address this pressing crisis (Smit & Pilifosova, 2003; Giddings, Hopwood, & O'Brien, 2002; Hopwood, et al. 2005). Notably, a significant portion of research efforts has been directed towards environmental sustainability through technological advancements, often referred to as the Eco-techno-centric approach. However, the social and economic dimensions of sustainability have not received commensurate attention from scholars (Shields & Šolar, 2005). This bias has resulted in an overemphasis on high-tech, environmentally oriented explanations, with insufficient consideration of socio-cultural factors. A more comprehensive and effective approach to sustainable development, referred to as the sociotechno-centric approach, is thus called for (Cam, 2004; Dempsey, et al., 2011).

Vernacular and indigenous knowledge, passed down through generations via careful observation and cultural transmission, holds significant potential in the modern world (Gadgil, et al., 1993). This architectural knowledge, often unique to specific cultures and regions (Nakata, 2002), has evolved within natural environments and is inherently harmonious with them. Consequently, vernacular practices tend to align well with environmental sustainability principles (Agrawal, 1995). Shaped by the ecology of distinct cultures and societies, these practices also inherently support the social and cultural aspects of sustainability (Salman, 2018; Opoku, 2015; McCarter et al, 2014; Oliver, 2007). Thus, vernacular practices offer a balanced approach that addresses all facets of sustainability effectively.

Research has highlighted the prolific nature of vernacular and indigenous knowledge. A review of bioclimatic strategies in various countries also revealed that vernacular wisdom can be applied to contemporary buildings (Manzano-agugliaro, Montoya, Sabio-ortega, & García-cruz, 2015). These reviews collectively conclude that indigenous wisdom, in the form of vernacular knowledge, not only contributes to overall sustainability but is also applicable in the contemporary world. In another comprehensive review, Chandel et al. (2016) explored the thermal comfort ability of vernacular houses, emphasizing natural ventilation justified by indoor and outdoor temperature. They also investigated the impact of climate, geographical conditions, socio-economic factors, and cultural elements of vernacular residences in relation to energy efficiency. Finally, their research examined the feasibility of incorporating vernacular materials and features into contemporary buildings. In a review of natural ventilation through building facades in tropical climates, Aflaki et al. (2015) discovered that vernacular elements in various buildings are effective means of ventilation. They proposed further comprehensive research on vernacular techniques for ventilation and their potential integration into modern buildings.

Indigenous housing, as a fundamental human need and a representation of cultural and social identity, has evolved uniquely in various regions over time (Matunga, 2018). Naturally originating indigenous housing has historically had minimal negative impact on the environment (Strauss, Lau & Carroll, 2006). However, with the influence of the industrial revolution, the harmony between nature and housing was disrupted worldwide, leading to an overburdened situation regarding energy resources (Agudelo-Vera, et al, 2011). Different interpretations of sustainable architecture suggest eco-cultural and eco-social logics for creating sustainable housing (Guy, & Farmer, 2001; Soini, & Birkeland, 2014). Scholars have studied indigenous housing as a rational approach to address environmental challenges (Chiu, 2004).

The motivations behind indigenous architecture are rooted in the needs, activities, and aspirations of dwellers. Local building practices are not only responsive to climate and locally available materials but also involve traditional technologies passed down from one generation to another (Oliver, 2007). Research interest in indigenous and traditional technologies has grown in recent years in both developed and developing countries (Lee Kyung-Hoi et al. 1996, Sharples Steve and Malama Albert, 1996, Jingxia Li.1996, Wang F, Liu Y., 2002, Ooka Ryozo, 2002, Borong Lin, 2004, Kim Do-Kyoung, 2005, Sozen Mujgan Serefhanoglu and Gedik Gulay Zorer. 2007, Ryu Youngryel et al. 2009, Singh Manoj Kumar, 2009, Cantin R et al. 2010). Researchers have extracted passive techniques from these studies and applied them practically in modern buildings.

Vernacular and Indigenous housing, representing human needs and cultural identity, uniquely evolves with deep connections to sustainability principles, encompassing environmental, social, cultural, and economic aspects (GhaffarianHoseini, 2014; Guy & Farmer, 2001). Vernacular housing inherently embodies environmental sustainability, emphasizing local ecosystems, energy efficiency, and resource conservation. Prioritizing total sustainability over environmental aspects recognizes vernacular housing's multifaceted nature (Yang, 2012; GhaffarianHoseini, 2011). It safeguards cultural heritage, fostering community cohesion, and economic viability (Hosagrahar et al, 2016; Soini, & Birkeland, 2014). Moreover, vernacular housing demonstrates resilience in adapting to local challenges, contributing to overall sustainability (Bosher, 2008). In sum, total sustainability, encompassing diverse dimensions, supersedes environmental sustainability in vernacular housing, ensuring cultural preservation, community well-being, and economic vitality while harmonizing with the environment (Rodwell, 2008; Weaver, 2006).

In order to establish a structured framework for addressing complex environmental, social, and economic challenges and ensuring a harmonious and resilient future, a policy perspective on vernacular housing is undeniably essential (Ahern, 2002). Vernacular housing stands as a testament to cultural heritage and traditional wisdom, making it imperative to develop policies that safeguard and promote these invaluable assets (Adams & Tiesdell, 2012; Cernea, 2001). Furthermore, vernacular housing, by its very nature, often embodies environmentally sustainable practices, aligning with broader goals of ecological conservation. Policies can play a pivotal role in encouraging and preserving these eco-friendly approaches (Williamson, Radford, & Bennetts, 2003). Additionally, vernacular housing fosters community cohesion through its promotion of communal living and shared resources (Degen & García, 2012). Policies that empower communities to actively shape their housing environments are crucial for sustaining social well-being and unity (Lawson, 2005). Moreover, economic viability is inherent in vernacular housing, and policies can incentivize the utilization of locally sourced materials and traditional construction methods, thereby bolstering local economies and creating employment opportunities (Golden, 2017; Edensor et al., 2009). Vernacular housing's resilience in the face of regional environmental challenges underscores its significance in disaster-resistant housing and climate adaptation, further emphasizing the need for supportive policy frameworks (Shaw, Okazaki & Narita, 2004). Investment in research and innovation specific to vernacular housing can lead to modern adaptations that enhance sustainability while preserving cultural and environmental attributes, necessitating policy support for such endeavors (Hamza, 2019; Oliver, 2007). Finally, legal frameworks that recognize and protect vernacular housing, encompassing zoning regulations, heritage preservation laws, and incentives for sustainable construction, are fundamental to ensuring its continued relevance and contribution to total sustainability (Tyler, Tyler & Ligibel, 2018; Cantell, 2005).

Vernacular and indigenous housing techniques could greatly benefit from an evidence-based approach to enhance informed decision-making and policymaking (Simpson, Caffery, & McConvell, 2009). Evidence-based approach involves a thorough examination of the local context, encompassing cultural practices, environmental conditions, and historical perspectives that profoundly influence housing choices (Sheehan, 2011; Chen, Kakkad, & Balzano, 2008). It provides insights into resource allocation, helping policymakers determine the most suitable materials, techniques, and designs for specific regions (Bogenschneider & Corbett, 2011; Davies & Nutley, 2000). Sustainability considerations are vital, as indigenous housing often embodies sustainable practices, and evidence-based insights can facilitate their integration into modern housing initiatives (Gkartzios & Scott, 2014). Additionally, evidence-based research identifies health and safety aspects, fostering safe living conditions (Flynn et al, 2018). Community engagement ensures that local knowledge and preferences shape policies, preserving cultural heritage and promoting community ownership (David-Chavez & Gavin, 2018). Long-term viability assessments address changing conditions, while legal and regulatory frameworks are informed by data and insights to promote fairness and cultural preservation (Wester, 2019; Agol, Latawiec, & Strassburg, 2014). Monitoring and evaluation mechanisms ensure policy adaptability, and knowledge transfer sustains traditional practices (Ebi, 2018; MacDermid, & Graham, 2009). In essence, the evidence-based approach ensures culturally sensitive, effective policies that address the unique challenges and opportunities of vernacular and indigenous housing while benefiting communities.

Given that housing, as a significant consumer of energy resources, simultaneously serves as an indicator of socio-cultural changes within society, we endeavor to enhance our understanding of overall sustainability by conducting a global review of studies on vernacular housing. This review will encompass socio-cultural and economic aspects to bolster comprehensive sustainability considerations. Our chosen methodology entails an evidence-based global scoping review of vernacular and indigenous buildings. We anticipate that these vernacular and indigenous structures, which serve as testaments to the wisdom of past generations, exemplify a harmonious relationship between culture, environment, and human ingenuity. They are poised to offer invaluable insights into sustainable design principles and adaptation strategies that hold utmost relevance in today's world. Through an examination of the diverse range of vernacular and indigenous architectures from around the globe, this review aims to illuminate their enduring significance and establish a foundation for understanding how they can inform contemporary sustainable design practices.

Aim, objectives and review question:

The primary objective of this scoping review is to systematically collate and delineate inspirations, ideas and prescriptive guidelines emanating from vernacular and indigenous architectural constructs, particularly focusing on the holistic paradigm of sustainability, encompassing environmental, economic, social, and cultural dimensions. Additionally, the review endeavors to discern salient technical particulars pertaining to vernacular and indigenous architectural prototypes that contribute substantively to the promotion of energy conservation and the augmentation of inherent comfort levels.

The overarching inquiry guiding this scoping review is framed as follows: "To what extent has the scholarly literature documented vernacular and indigenous architectural approaches characterized by naturalistic methods and a comprehensive commitment to sustainability?"

Methodology

Search strategy:

To conduct a comprehensive evidence-based scoping review that examined sustainability features in vernacular and indigenous housing, we devised a systematic search strategy according to PRISMA statement for transparent reporting of systematic reviews and meta-analysis (Moher et al, 2009). We identified the primary concepts of sustainability, vernacular housing, indigenous housing, and features or characteristics of total sustainability. We generated a variety of keyword variations and synonyms for each concept to ensure comprehensive coverage. We employed Boolean operators such as AND, OR, and NOT to combine these keywords effectively, resulting in search strings that encompassed multiple facets of the research focus. Furthermore, we considered subject headings specific to the relevant databases, selecting databases like Arch Daily, emaar, skyscrapercity, PubMed, Scopus, Web of Science, Google Scholar, and discipline-specific resources for the search. We applied filters and limits as necessary, including those for publication date, language, and study type. We meticulously documented the search strategy to maintain transparency and continuously evaluated and refined it based on initial results. We also considered grey literature sources and manually searched relevant journals and reference lists to ensure a comprehensive search.

Inclusion/exclusion criteria:

For the purposes of our review, we established clear inclusion and exclusion criteria to guide the selection of studies. Inclusion criteria encompassed studies published in peer-reviewed journals, conference proceedings, government reports, theses, and dissertations between January 2000 and the present, with a focus on English-language publications that addressed sustainability features within vernacular and indigenous housing on a global scale. We sought research that delved into aspects such as energy efficiency, local material utilization, cultural significance, adaptability, and resilience. On the other hand, we excluded grey literature, publications in languages other than English (unless English translations were available), studies predating January 2000, region-specific research lacking broader applicability, and papers that did not explicitly address sustainability features within vernacular and indigenous housing. These criteria were applied to ensure the selection of pertinent, recent, and high-quality studies for our comprehensive scoping review of vernacular and indigenous housing sustainability features.

We employed a systematic approach to bibliographic management, wherein retrieved references resulting from the designated search strategy were meticulously curated and imported into the EndNote reference management software. A rigorous process of duplicate removal was conducted to ensure the integrity of the dataset. Subsequently, the initial screening and assessment of relevance for identified citations were performed independently by researchers DSF and AA, who evaluated the suitability of each reference based on the information presented in their titles and abstracts. SA organized pre and post analysis information in MS Excel sheets and made the data ready for the development of inferences and conclusions. Full-text manuscripts were procured either via academic search engines such as GoogleScholar and ResearchGate or by direct correspondence with the corresponding and/or primary authors. Following the acquisition of the complete texts, a comprehensive evaluation was undertaken to ascertain their eligibility for inclusion in the study. The extracted data were meticulously organized and cataloged within a Microsoft Excel spreadsheet for further analysis and synthesis.

Results

The search based on the inclusion criteria yielded a total of 442 articles. After the application of exclusion criteria (Figure: 1), we narrowed this number to a total of 20 articles relevant to the present scoping review of literature on vernacular and indigenous housing.

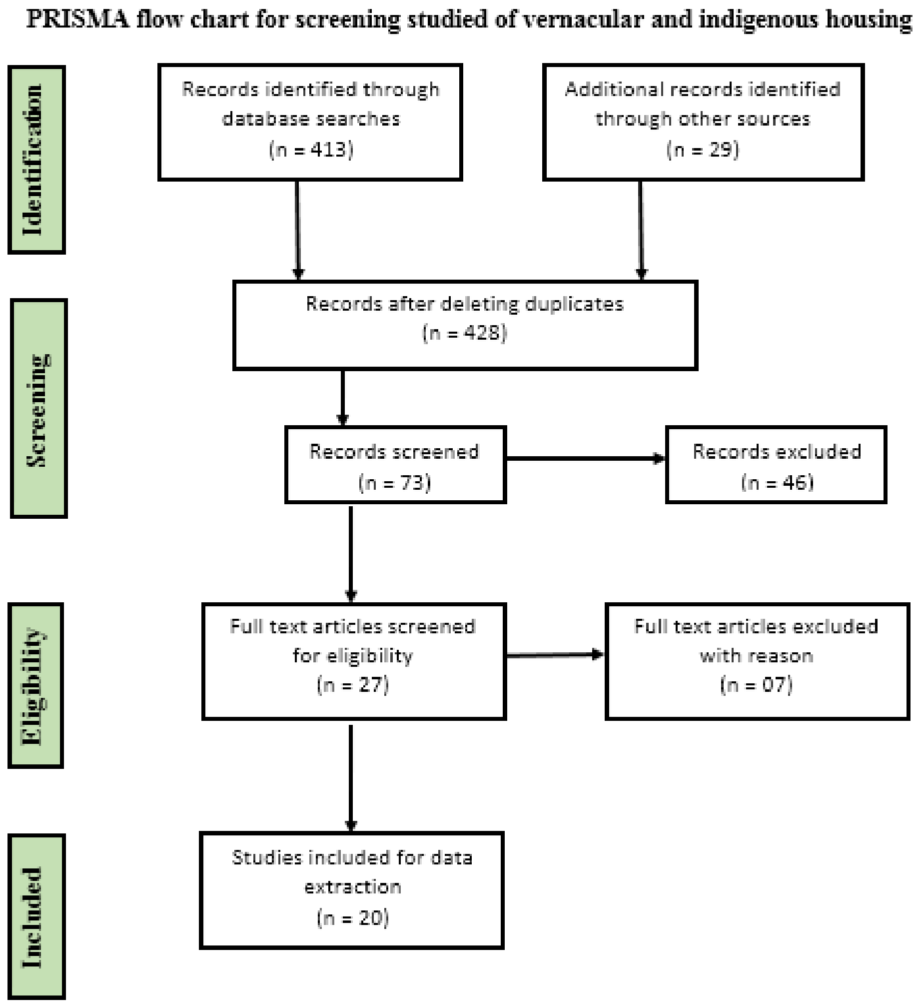


Figure 1: Reporting items for the scoping review on the basis of the Preferred Reporting Items for Systematic Reviews (PRISMA) statement.

Diverse Insights into Vernacular and Indigenous Construction Practices:

The compilation of twenty chosen studies yielded an extensive corpus of knowledge, with each investigation proffering distinctive perspectives on indigenous construction methodologies and architectural customs within variegated geographical settings. The evaluators judiciously amalgamated and scrutinized the data enshrined within the dataset, concurrently accentuating the scholarly import inherent in each of the examined studies.

Nguyen et al. (2011) conducted a primary study in Vietnam, meticulously investigating vernacular housing practices. Their research spanned Northern, Central and Southern zones within Vietnam and employed a systematic analysis approach that incorporated climate zoning, in-situ surveys, and building simulations. This study underscores the importance of considering building physics in indigenous construction techniques. Materials such as bamboo, laterite stone, ramped earth, clay-straw mixtures, and thatch featured prominently in these vernacular housing constructions.

Atolagbe & Fadamiro (2014) conducted a comprehensive review of African building techniques, casting a wide net across the entire African continent. Their study sheds light on the diverse range of building materials utilized, including earth, wood, bamboo, stone, palms, straws, and reeds. Notably, the review emphasizes the critical role of sustainable building materials in both housing and environmental development across Africa.

Dili et al. (2010) delved into the realm of passive control in architectural design, focusing their primary study in Nilambur, Kerala, India. Their research introduced the Architectural Evaluation System as a tool to evaluate architectural designs. The study underscores the significance of architectural design considerations in the context of thermal control and humidity management.

Caimi et al. (2013) conducted a primary research in Haiti, specifically in areas affected by the devastating 2010 earthquake. Their methodology adopted a participatory-driven approach, actively involving local communities in data collection and validation. The materials employed in vernacular housing in this earthquake-prone region included wooden frames, stone masonry, and mud, earth, or lime/cement mortar. This study exemplifies the importance of community involvement in designing disaster-resilient architecture.

Fernandes (2014) embarked on a primary study in Évora, Portugal, focusing on vernacular cooling strategies. Employing a case study approach, the research conducted a quantitative analysis of passive cooling strategies inherent in vernacular architecture. The study also emphasized the intricate relationship between architectural design and climatic conditions in the Portuguese context, with materials such as traditional brick vaulted ceilings, ceramic tile finished floors, lime mortar finished walls, and single glazed wooden windows being prominent features.

Dhote, Onkar & Das (2012) shifted the focus to indigenous tribal housing in Madhya Pradesh, India. Their study employed a typological qualitative analysis and concentrated on sustainability dimensions in building and settlement design. Noteworthy was the use of diverse building materials, including earth mixed with straw, stones, bamboo, bulrushes, and maize stalks, in crafting these indigenous dwellings.

O'Rourke (2014) conducted a primary study in Australia, specifically in regions such as Alice Springs, Northwest Queensland, and the Georgina River Basin. The study harnessed surveys, both quantitative and qualitative, to gather insights into aboriginal housing, energy use, and cultural practices in remote semi-arid and arid regions of Australia.

Martins, Carlos & Vieira (2015) undertook a primary study in Madeira Island, Portugal, with a focus on the rehabilitation of vernacular heritage. Employing a case study and typological study approach, the research centered on wooden structures and thatched high-pitched roofs. This study showcased the transformation of anonymous vernacular houses into structures serving new purposes and underscored the theoretical underpinnings of vernacular architecture.

Canas & Silvia (2004) contributed a comprehensive review of vernacular techniques in Spain. Their research identified nine key factors integral to vernacular construction, including high thermal mass, protection against solar radiation, and town planning. This comprehensive review provided invaluable insights into the principles underpinning vernacular architecture in the Spanish context.

Manioglu & Yılmaz (2008) carried out a primary study in Mardin, Turkey, involving a comparative analysis of traditional techniques vis-à-vis contemporary houses. The study centered on factors such as building materials, insulation, and design criteria, with a focus on evaluating indoor thermal comfort and energy efficiency in both traditional and modern buildings.

Uddin (2008) conducted a primary study on traditional dwelling technology in Bangladesh, with a particular focus on Ghonapara, Cox's Bazaar District. Employing ethnographic research methods, the study unveiled the utilization of traditional materials such as mud, wood, bamboo, straw, and tin in indigenous housing construction. Of notable mention is the reference to the theory of Traditional Ecological Knowledge (TEK) and its pivotal role in sustaining mud-made housing technology.

Pinijvarasin (2003) embarked on a primary study delving into vernacular dwellings in Thailand, specifically in Tambon Pakkran. Their research adopted a cross-case analysis approach, shedding light on the utilization of wooden posts, stilts, and high-pitched roofs in vernacular construction within the Thai context.

Chen (2006) undertook a primary study focusing on traditional housing in Taiwan, with a specific concentration on Chi-Jia village of the Paiwan tribe. Working on the principles of cultural anthropology, environmental science, and sustainable development, the research synthesized qualitative and descriptive data, identifying the positive role of locally sourced building materials such as stone slate, wood, bamboo, and thatch.

Yildiz & Manioğlu (2015) conducted an evaluation study in Cyprus, particularly in Samanbahçe Settlement, Nicosia. Their research encompassed on-site analyses, modeling and simulation, and resident interviews. This comprehensive approach facilitated an assessment of climate-responsive design, passive construction, high ceiling and building materials, including specially made sun-dried earthen bricks and clay tiles. The study relied on thermophysical evaluation of sustainability and energy efficiency.

Mottaki & Amini (2013) conducted a primary study in Gilan, Iran, with a strong focus on sustainable building design principles. Their research emphasized the harmonious integration of architecture with nature, extroverted architectural designs facilitating direct contact with the outdoors, while using materials such as wood, Vali (a straw),Gali (rice stem), baked clay and Lat (flat pieces of wood). The important findings of this study from Gilan’s indigenous architecture were mutable geometry, dweller as designer, house as symbol of sustainable self, work with, not against nature and collective environmental knowledge.

Fernandes et al. (2015) ventured into Portugal, examining vernacular architecture in both the northern and southern regions, namely Beira Alta and Alentejo. The research delved into climate-responsive strategies. In Northern region, buildings were designed to reduce heat losses and to increase solar gains. For that, they often used a thatched roof—because of its insulating properties—and use south-facing glazed balconies to take advantage of solar radiation. In the south of the country, the focus is to minimize heat gains during summer. Therefore, several techniques such as reduced sized openings, high thermal inertia building systems, patios (courtyards), and light colours in order to reflect solar radiation were used. This study provided insight into the adaptive thermal comfort theory within the context of Portuguese vernacular architecture.

Du, Bokel & Dobblestien (2014) transported the research focus to free-running buildings in Chongqing, China. Their primary study involved field measurements and computational fluid dynamics (CFD) simulations. The study sought to evaluate natural ventilation while considering building materials such as wood, stone, and tiles, and the impact of building height and insulation placement on thermal comfort. While relying on adaptive thermal comfort theory, the study identified important role of unique microclimates in different spaces within the house during the summer.

Gabril (2014) undertook a mixed-methods study in Libya, spanning locations in Tripoli, Ghadames, and Gheryan. The study addressed modifications to the climate and delved into the theory of thermal comfort. The research centered on vernacular earth-sheltered houses, passive cooling and heating strategies, and building materials such as clay bricks and date palm leaves. Commonly, strategies like openings orientation and shading, form, building material and Passive solutions were used. In Gheryan, dominant techniques were earth sheltered housing (bearing wall or excavated) and earth passive cooling and heating were followed whereas in Ghadames, compact housing and in Tripoli, courtyard housing were followed to modify and cope with the harsh climate.

Shastry, Mani & Tenorio (2016) conducted a survey in Suggenhalli, India, with a specific focus on vernacular techniques. The study placed natural ventilation at the forefront and underscored building materials such as stones, locally procured soil enriched with cow dung, bamboo, and clay tiles. The research assessed naturally ventilated dwellings and referenced Fanger's predicted mean vote and Humphreys' adaptive thermal comfort theory.

Loftabad & Hancer (2019) initiated a case study in Famagusta, Northern Cyprus, shedding light on traditional design principles. Their research prioritized passive building design principles, with a particular focus on low thermal diffusivity and low thermal conductivity in building materials such as mud and limestone. The study underscored the importance of indoor temperature stability in achieving comfort within traditional architectural contexts.

In conclusion, these studies collectively contribute to the academic discourse surrounding indigenous construction techniques, architectural practices, and the utilization of locally available materials across various regions. They emphasize sustainability, climate responsiveness, and cultural preservation as central tenets of vernacular architecture. Each study serves as a valuable building block in advancing our understanding of how indigenous knowledge and practices can inform and enrich contemporary architectural approaches. A gist of these details has also been organized in table 1.

Table – 1: Architectural and methodical details of houses considered by the selected studies

Sr.	Short Reference	Study Type	Country	Local context	Dominant Strategy	Material used
1.	Nguyen et al (2011)	Primary (in-situ survey and building simulations)	Vietnam	Northern, central and Southern Vietnam	Climate zoning	Bamboo, laterite stone, ramped earth, clay-staw mixture, thatch
2.	Atolagbe & Fadamiro (2014)	Review	Whole Africa	African	Multiple	earth, pales, stakes, wood, bamboo, stone, palms, straws, reeds, etc.

3.	Dili et al (2010)	Primary (Architectural Evaluation System)	India	Nilambur, Kerala	Passive temperatu re control	Not considered (emphasis on the design)
4.	Caimi et al (2013)	Primary (participatory-driven approach)	Haiti	Cap Rouge (Jacmel), Grande Riviere (Carrefour), and Clemansso (Kenskoff), all affected by the 2010 earthquake.	Participato ry driven approach	wooden frame housing, stone masonry and mud, earth and lime or cement mortar
5.	Fernandes (2014)	Primary (Case Study, quantitative analysis)	Portugal	Evora	Passive cooling	Brick vaulted ceilings, ceramic tile floors, lime mortar walls and single glazed wooden windows
6.	Dhote, Onkar & Das (2012)	Primary study (Typological qualitative)	India	Tribes In M. P. state	Building and settlement	Earth mixed with straw, stones, bamboo, bulrushes, and maize stalks, earthen tiles roofing, cow dung or mud for finishing.
7.	O'Rourke (2014)	Primary study (quantitative and qualitative Survey)	Australia	Alice Springs, northwest Queensland , and the Georgina River Basin	Energy use and cultural practices	National Indigenous Housing Guide (3rd Ed.) published by the Department of Families, Community Services and Indigenous Affairs provides guidance on appropriate materials and construction techniques for Indigenous housing in Australia
8.	Martins, Carlos & Vieira (2015)	Primary study (case study)	Portugal	Mdeira Island	Rehabilitat ion Vernacula r heritage	Fully wooden structure with thatched high-pitched roof
9.	Canas & Martin(2004)	Review	Spain	Whole Spain	High thermal mass	Authors didn't collate this information
10.	Manioglu & Yilmaz (2008)	Primary study (thermal evaluation)	Turkey	Mardin	layered roofing and windows	calcareous rock (locally available volcanic rock), wood
11.	Uddin (2008)	Primary study (Typological ethnographic)	Banglade sh	Ghonapara, Cox's bazaar District	Traditiona l Ecological Knowledg e	Mud, Wood, Bamboo, Straw, Tin, Khord (a type of straw), "gholpata" (big and round leaves of a specific kind of tree) and "chon" (grass of big size usually grown in the hill area)
12.	Pinijvarasin, 2003	Primary study (cross-case analysis)	Thailand	Tambon Pakkran	Self-awareness and cultural	Wooden posts, stilts with high-pitched roofs

					sustainability	
13.	Chen (2006)	Primary study (qualitative & descriptive)	Taiwan	Chi-Jia village of Paiwan tribe	Restoration and preservation of the eco-habitat	Stone Slate, wood, Bamboo, thatch
14.	Yildiz & Manioglu (2015)	Evaluation (on-site analyses, Design Builder analysis software, interviews)	Cyprus	Samanbahce Settlement, Nicosia	climate-responsive design	Sun-dried earthen (adobe) bricks. These bricks are made of earth, gravel, clay, and water, mixed and bound together with straw, grass, or livestock hair. The walls of the houses are 50 cm thick and also have a layer of gypsum plaster coating each side. The roofs are covered with red tiles, and the windows have wooden shutters.
15.	Mottaki & Amini (2013)	Observational overview	Iran	Gilan	Mutable Geometry, dweller as designer	Wood, Vali (a straw),Gali (rice stem), baked clay, Lat (flat pieces of wood).
16.	Fernandes et al (2015)	Primary Study (Hygrothermal parameters and surveys on occupants' thermal sensation)	Portugal	Beira Alta and Alentejo (in Northern and Southern regions)	Climate-responsive strategies	Emphasis on strategies rather than material
17.	Du, Bokel & Dobblestien (2014)	Primary Study (Field Measurements and CFD simulations)	China	Chongqing	Natural ventilation, microclimates	Wood, stone, grey tiles and bricks
18.	Gabril (2014)	Primary (mixed-methods)	Libiya	Tripoli, Ghadames & Gheryan	Adaptive Thermal Comfort: excavated, orientation, courtyard	Gypsum, sun-dried clay bricks, smoothed trunks of date palm trees, date palm leaves, sun baked mud-sand slabs.
19.	Shastry, Mani & Tenorio (2016)	Primary (Survey)	India	Suggenhalli	Natural ventilation	stones and boulders, soil enriched with cow dung, timber frame, clay tile, thick timber sections, bamboo matting.
20.	Loftabad & Hancer (2019)	Primary (case study)	Cyprus	Famagusta, Northern Cyprus	Low thermal di-usivity and low thermal conductivity	Adobe, sandstone, limestone, timber, gypsum plastering, clay tile, asphalt

Total sustainability and its features:

Total sustainability in indigenous or vernacular housing is crucial in architecture and environmental studies. Indigenous communities, harmonizing with their natural environment, employ local resources and traditional techniques for resilient habitats. Cultural and social values play a pivotal role, as communities integrate their deep environmental knowledge, fostering biodiversity conservation and resource preservation. Indigenous housing fosters community bonds through thoughtful spatial arrangements, promoting social interaction and responsibility. Climate-responsive design and low embodied energy materials ensure thermal comfort and reduce environmental impact. These communities sustainably manage local resources, supporting their livelihoods and local economies. Challenges include material lifespan and urbanization threats, yet by embracing indigenous wisdom, we can enrich contemporary architectural practices and pursue a more sustainable future. On the basis of the reviewed twenty studies, the four features of total sustainability have been detailed in the following paragraphs. Before delving into the separate four sub-reviews of sustainability, let's take an account of which study has reported which type of sustainability from the following table 2:

Table: 2. Sustainability reported (Directly or Indirectly)

Sr.	Short Reference	Environmental	Economic	Cultural	Social
1.	Nguyen et al (2011)	Y	Y	N	Y
2.	Atolagbe & Fadamiro (2014)	Y	Y	Y	Y
3.	Dili et al (2010)	Y	N	N	N
4.	Caimi et al (2013)	Y	Y	Y	Y
5.	Fernandes (2014)	Y	Y	Y	Y
6.	Dhote, Onkar & Das (2012)	Y	Y	Y	Y
7.	O'Rourke (2014)	Y	Y	Y	Y
8.	Martins, Carlos & Vieira (2015)	Y	Y	Y	Y
9.	Canas & Martin(2004)	Y	N	N	N
10.	Manioglu & Yilmaz (2008)	Y	Y	Y	Y
11.	Uddin (2008)	Y	Y	N	N
12.	Pinijvarasin, 2003	Y	N	Y	N
13.	Chen (2006)	Y	N	Y	Y
14.	Yildiz & Manioglu (2015)	Y	Y	Y	Y
15.	Mottaki & Amini (2013)	Y	Y	Y	Y
16.	Fernandes et al (2015)	Y	Y	Y	N
17.	Du, Bokel & Dobblestien (2014)	N	N	Y	N
18.	Gabril (2014)	Y	Y	Y	Y
19.	Shastry, Mani & Tenorio (2016)	Y	Y	Y	Y
20.	Loftabad & Hancer (2019)	Y	Y	Y	Y

A. Environmental sustainability:

The selected studies provide a diverse array of insights into environmental sustainability within the context of indigenous or vernacular housing practices across various geographical regions. Nguyen et al. (2011) emphasize the role of natural ventilation, building orientation, and solar shading in promoting sustainability while acknowledging the potential need for low-energy mechanical systems or adaptive responses under extreme conditions. Atolagbe & Fadamiro (2014) underscore the ecological sustainability factors, including recycling, energy efficiency, and regeneration, essential for fostering a healthy and qualitative environment. Caimi et al. (2013) advocate for the integration of traditional and scientific knowledge in rural housing design to reduce vulnerability and enhance resilience, considering physical, climatic, geological, and morphological factors. Fernandes et al (2014) explore the energy and microclimatic performance of Mediterranean vernacular buildings and their suitability for sustainable design. Dhote, Onkar & Das (2012) emphasize the luminosity and ventilation considerations in tribal settlements, optimizing natural lighting and minimizing solar radiation. O'Rourke (2014) highlights various features of environmental sustainability in remote aboriginal communities, including gardening practices, use of trees, passive thermal comfort, and microclimates. Martins, Carlos & Vieira (2015) extol the sustainability attributes of vernacular architecture, such as sustainable materials, passive climate control, and adaptation to the local environment. Canas & Silvia (2004) emphasize high thermal mass strategies for countering cold temperatures and protection against solar radiation. Manioglu & Yılmaz (2008) examine environmental sustainability from the perspective of reducing energy consumption and providing comfortable, healthier, and sustainable living spaces, considering design criteria, thermal evaluation, and comparison between traditional and contemporary houses. Uddin (2008) elucidates the ecological, low causality, eco-adaptive, climate-responsive, energy-efficient, sustainable material, cost-effective, and locally available construction materials aspects of environmental sustainability in traditional housing. Pinijvarasin (2003) delineates how adaptation, use of local materials and techniques, integration with the natural environment, and preservation of cultural heritage contribute to the environmental sustainability of Thai vernacular houses. Chen (2006) expounds on the use of local materials, natural cooling, landscape adaptation, and self-sufficiency in the context of traditional Paiwan tribe's eco-habitat. Yildiz & Manioğlu (2015) evaluate the sustainability and energy efficiency of Samanbahçe Housing in Cyprus, considering climate-responsive design, traditional materials, passive strategies, and modifications. Mottaki & Amini (2013) advocate for working with nature, respecting nature, using natural materials, and maintaining harmony with the environment in Gilan's vernacular architecture. Fernandes et al. (2015) emphasize low-tech and passive strategies, utilization of local materials, reduction of energy consumption, climate-responsive design, integration of passive solar techniques, and thermal inertia in vernacular buildings to achieve environmental sustainability. Gabril (2014) focuses on energy conservation, while Shastry, Mani & Tenorio (2016) stress the use of locally procured raw materials and the potential for sustainable design practices informed by vernacular architecture. Loftabad & Hancer (2019) consider features of sustainability including traditional wisdom, local materials, energy efficiency, insulation placement, natural ventilation, and awareness of traditional techniques. These studies collectively provide a multifaceted view of environmental sustainability principles and practices in indigenous or vernacular housing across different regions and climates, contributing to a broader understanding of sustainable architectural approaches.

B. Economic Sustainability:

The concept of economic sustainability in indigenous or vernacular housing emerges as a multifaceted and essential facet of sustainable architectural practices. This review draws upon various scholarly references to elucidate the nuanced dimensions of economic sustainability within this context.

Nguyen et al. (2011) underscore the significance of adapting indigenous housing to local climatic conditions while minimizing energy consumption—a notion intrinsically tied to economic sustainability. This entails crafting dwellings that provide human comfort without unduly burdening resources. In a similar vein, Atolagbe & Fadamiro (2014) accentuate the pivotal role of "Cost and Affordability" attributes, encompassing factors like material procurement, transportation, and recyclability. These considerations align closely with economic sustainability by prioritizing cost-efficient construction practices. Caimi et al. (2013) advocate for the incorporation of economic factors in building activities. While specifics are not detailed, the study underscores the pertinence of economic sustainability in construction. Fernandes (2014) explores the potential of energy-efficient construction techniques, passive solar design, and locally-sourced materials to reduce waste and energy consumption. This approach not only contributes to environmental sustainability but also resonates with economic sustainability goals. Dhote, Onkar & Das (2012) highlight the self-sufficiency of tribal communities through diverse occupations, indirectly advancing economic sustainability by reducing reliance on external resources. O'Rourke (2014) emphasizes the necessity of low-energy housing in remote aboriginal settlements, taking into account socio-economic considerations and investment costs. This study elucidates the economic dimensions of sustainable housing. Martins, Carlos & Vieira (2015) highlight the importance of choosing building materials with implications for local economies, promoting regional development in alignment with economic sustainability goals. Manioglu & Yılmaz (2008) stress upon the pivotal role of the building envelope, heat transfer coefficients, and thermal performance in energy-efficient designs. These factors directly impact operational costs, aligning with economic sustainability objectives. Uddin (2008) provides a comprehensive overview of economic sustainability, emphasizing cost-effectiveness, the availability of construction materials, sustainable material choices, self-sustainability, and economic considerations within traditional housing. Yildiz & Manioglu (2015) although do not explicitly mention economic sustainability as one of its main objectives but they indirectly address economic aspects by examining the energy consumption and efficiency of the housing units. By evaluating the modifications made by residents and their impact on energy loads, the study provides insights into potential energy-saving measures that can contribute to economic sustainability. Additionally, the study acknowledges the need for residents to be informed about lower energy-consuming devices and equipment, which suggests an awareness of the economic implications of energy usage. Mottaki & Amini (2013) mention the utilization of local materials and traditional technologies, reducing construction expenses and reliance on external resources. The concept of multifunctional room use within vernacular architecture indirectly advocates for resource efficiency and economic sustainability. Fernandes et al. (2015) emphasize the significance of conserving resources through optimal natural energy utilization, resonating deeply with economic sustainability principles. Gabril (2014) briefly cover economic sustainability by advocating resource management while conserving energy via a consideration of activity metabolic rate. Shastry, Mani & Tenorio (2016) explore natural ventilation and cooling strategies, reducing energy consumption and operational costs—a substantial contribution to economic sustainability. Finally, Loftabad & Hancer (2019) indirectly address economic sustainability by assessing energy performance and consumption. Sustainable architectural designs that minimize energy use promise economic benefits through reduced operational expenditures and increased property valuations.

In conclusion, economic sustainability in indigenous or vernacular housing encompasses various considerations, including cost-effectiveness, prudent resource management, and energy efficiency. These dimensions are interwoven with broader sustainability objectives, underpinning both environmental conservation and the economic well-being of local communities.

C. Cultural Sustainability:

Cultural sustainability within the realm of indigenous or vernacular housing is a multifaceted domain that encompasses an array of intricate elements, each deeply intertwined with the preservation and promotion of cultural heritage. This review draws upon a variety of researches to illuminate the nuanced dimensions of cultural sustainability within this context.

While Atolagbe & Fadamiro (2014) assert that the materials used in building indigenous structures play a pivotal role in upholding cultural traditions. They emphasize the cultural significance of materials like earth, timber, and others, which not only embody cultural values but also contribute to the quality of life within specific cultural settings. On the other hand, Caimi et al. (2013) underscore the paramount importance of local knowledge, expertise, and building cultures in enhancing the resilience of local populations. This emphasis on leveraging indigenous wisdom and building traditions signifies the intrinsic link between cultural sustainability and the resilience of communities. Fernandes (2014) accentuates the pivotal role of traditional techniques and locally-sourced materials that have evolved in harmony with specific territories and climates. This approach not only respects cultural heritage but also highlights the dynamic interplay between culture and sustainable architectural practices. Dhote, Onkar & Das (2012) illuminate how indigenous communities intertwine art forms like music and painting into the fabric of their daily lives. Festivals, religious rituals, and social functions serve as platforms for cultural expression, transcending community boundaries and exemplifying the cultural richness inherent in vernacular lifestyles. O'Rourke (2014), in this connection, highlights the challenge of aligning modern housing designs with the sociocultural traditions of aboriginal households. He upholds the importance of creating bioclimatic houses that are in harmony with cultural patterns, emphasizing the need to consider diverse historical and economic conditions when striving for cultural sustainability. Martins, Carlos & Vieira (2015) not only recognize the cultural and historical significance of vernacular architecture but also advocate for its preservation and rehabilitation. They emphasize that the restoration of vernacular heritage housing can foster cultural growth and development, particularly when local communities are actively engaged in the process. Manioglu & Yılmaz (2008) shed light on how traditional housing principles, rooted in cultural, topographical, and climatic considerations, can inform contemporary sustainable housing designs. By integrating the cultural dimensions of traditional architecture into modern practices, they emphasize the synergy between cultural sustainability and sustainable design. Pinijvarasin (2003) delineates the features of cultural sustainability, including self-awareness, wisdom, adaptability to changing conditions, and the reflection of intrinsic cultural values. These features are crucial for preserving the cultural significance of vernacular houses and sustaining the identity of local cultures. Chen (2006) delves into the preservation of traditional housing systems within the Paiwan tribe, emphasizing their role in safeguarding cultural heritage. The study showcases the significance of these houses as symbols of cultural identity and the importance of community participation in restoration efforts. Yildiz & Manioğlu (2015) examine the original design and function of indigenous houses, focusing on the modifications made by residents over time. They explore climate-responsive design strategies and their impact on cultural practices and values, illuminating the intricate interplay between cultural sustainability and the built environment. Mottaki & Amini (2013) offer insights into the concept of "Dweller as Designer" in vernacular architecture, highlighting the importance of local knowledge and involvement in the design process. They emphasize cultural solutions within vernacular architecture, such as the multifunctional use of rooms, which bolster cultural sustainability while addressing energy consumption. Fernandes et al. (2015) stress the incorporation of cultural elements into sustainable building practices, asserting that this integration preserves and promotes local cultural heritage. By marrying traditional techniques with contemporary design, they champion the cause of cultural sustainability. Du, Bokel & Dobblestien (2014) extol vernacular architecture as a repository of local climate and culture-influenced design wisdom. They advocate for its utilization in modern buildings, recognizing its potential to foster bioclimatic design approaches. Gabril (2014) emphasizes the cultural significance of traditional house construction methods, underscoring how they have shaped distinct cultural identities. This study highlights the profound cultural underpinnings of vernacular construction techniques. Shastry, Mani & Tenorio (2016) shed light on traditional dwellings that foster a sense of communal living, exemplifying the cultural values embedded within indigenous housing. They emphasize the cultural importance of communal living spaces. Finally, Loftabad & Hancer (2019) accentuate the importance of preserving and respecting cultural and architectural traditions, which they consider a vital component of cultural sustainability. Their research highlights the enduring value of traditional methods and designs in preserving cultural heritage.

In summation, cultural sustainability in indigenous or vernacular housing is a rich tapestry of traditions, materials, and practices that are deeply rooted in culture. These elements not only preserve cultural heritage but also enrich the identity of local communities, providing a foundation for sustainable architectural practices that resonate with cultural values and wisdom.

D. Social Sustainability

Social sustainability is a multifaceted concept that encompasses various aspects of societal well-being and cohesion within communities. Several studies have shed light on the crucial role of social sustainability in the context of architecture and sustainable development. This review synthesizes key findings from the included studies, emphasizing the significance of social sustainability in architectural design and its impact on communities.

Nguyen et al (2011) identify the presence of courtyards as a potential architectural element contributing to social sustainability. While not explicitly elaborated upon, courtyards have historically served as communal spaces for social interaction and shared activities within communities. Atolagbe & Fadamiro (2014) emphasize the importance of societal cohesion, effective family interactions, and unity in promoting social well-being. Their study identifies the role of indigenous building materials and their assembly in enhancing social well-being, highlighting the interconnectedness between architectural choices and social outcomes. Caimi et al (2013) recognize the value of local knowledge and community engagement in sustainable housing solutions. They emphasize the need for active community participation in the development and implementation of housing projects, as this fosters a sense of ownership and collective responsibility, contributing to social sustainability. Fernandes (2014) indirectly addresses social sustainability by emphasizing passive design principles that enhance the comfort and well-being of building occupants. Comfortable living environments can positively influence social interactions and overall community satisfaction. Dhote, Onkar & Das (2012) highlight the interdependency between different societal groups, such as tribes and farmers, as a factor contributing to social cohesion. Shared community spaces play a pivotal role in facilitating various community activities, fostering social value, and promoting interconnectedness. O'Rourke (2014) underscores the importance of considering aboriginal cultural practices and preferences in housing design. This recognition of cultural diversity within communities is vital for ensuring social sustainability. The study also acknowledges the need for ethnographic research to address socio-cultural changes effectively. Martins, Carlos & Vieira (2015) stress the preservation of cultural traditions, adaptation to local contexts, and cooperation as essential features of social sustainability. Their study highlights the importance of satisfying inhabitants' needs and maintaining societal identity in architectural rehabilitation projects. Study by Manioglu & Yilmaz (2008) examines design strategies in hot and dry climate and evaluates modern and traditional houses in terms of design criteria such as selection of the area, distance between buildings, orientation, building envelope, and building form. The study, through a survey, also determines the users’ perception for indoor environment and to determine the users’ degree of satisfaction. These features of this study manifest authors’ consideration for social sustainability. Chen (2006) places significant emphasis on community conservation, preservation of cultural identity, and the revitalization of traditional settlements within the Paiwan tribe. These efforts contribute to social sustainability by fostering social cohesion, cultural preservation, and community well-being. Yildiz & Manioğlu (2015) focus on social interaction, interdependence, and community involvement as essential aspects of social sustainability. They focus at the prominence of resident engagement in sustainable development projects and the need to consider residents' satisfaction and needs. Mottaki & Amini (2013) advocate for cultural sustainability in vernacular architecture, emphasizing the harmonious relationship between local knowledge, cultural practices, and the environment. This approach promotes social cohesion, identity preservation, and overall social sustainability. Gabril (2014) explores the impact of family social structure on space use in vernacular houses. Understanding these social dynamics is crucial for designing spaces that accommodate and facilitate social interactions within communities. Shastry, Mani & Tenorio (2016) highlight the significance of family and community interaction in promoting social sustainability. Architectural design that encourages communal activities and social gatherings contributes to the well-being of residents. Finally, Loftabad & Hancer (2019) highlight the importance of thermal comfort in building design and its implications for social sustainability. Comfortable living and working environments enhance the quality of life and support the well-being and productivity of occupants, aligning with social sustainability goals.

In conclusion, these reviewed studies collectively emphasize the multifaceted nature of social sustainability within architectural and sustainable development contexts. They underscore the importance of community cohesion, cultural preservation, resident engagement, and well-designed communal spaces in fostering social well-being and harmony within communities. These findings highlight the interconnectedness of architectural choices and societal outcomes, emphasizing the pivotal role of social sustainability in sustainable architectural design and community development.

Collective take home message:

Vernacular architecture, particularly in the realm of seismic-resistant housing, has emerged as a compelling solution that strikes a balance between sustainability, cost-effectiveness, cultural preservation, and performance. Here, we synthesize the collective findings of various studies, shedding light on the crucial role of vernacular architecture in addressing contemporary housing challenges. Nguyen et al. (2011) highlight the adaptability to local conditions while cautioning about potential thermal comfort issues in extreme weather, underlining the need for further research and development. Atolagbe & Fadamiro (2014) emphasize the importance of eco-friendly indigenous building materials for sustainable construction practices, while Dili et al. (2010) showcase Kerala's traditional architecture as a model for year-round thermal comfort. Integrating traditional and scientific knowledge, as emphasized by Caimi et al. (2013), and harnessing energy-efficient passive cooling strategies, as shown by Fernandes (2014), collectively advocate for preserving cultural heritage, using sustainable materials, and considering local climate conditions in architectural design. These insights, combined with Martins, Carlos & Vieira's (2015) endorsement of bioclimatic strategies, and Ignacio Canas & Martin's (2004) focus on historical building preservation, highlight the multifaceted significance of vernacular architecture. Loftabad & Hancer (2019) add that innovative solutions in contemporary construction can harmonize comfort and efficiency, further reinforcing the pivotal role of vernacular architecture in addressing architectural and environmental challenges. Collectively, these studies offer invaluable insights into how vernacular architecture can provide sustainable, culturally meaningful solutions to today's pressing issues.

In conclusion, vernacular architecture stands as a compelling solution in the realm of sustainable housing, as highlighted by a series of studies. This architectural approach not only balances cost considerations, cultural preservation, and performance but also underscores the importance of adapting to local conditions and fostering sustainable construction practices. The findings underscore the need for continued research and development in this area and promote the integration of traditional and scientific knowledge in architectural design. By harnessing energy-efficient strategies and innovative solutions, vernacular architecture can play a pivotal role in preserving cultural heritage, using sustainable materials, and addressing contemporary architectural and environmental challenges.

Policy Projection for Sustainable Housing in India:

India's rapid urbanization and also rural development presents a critical challenge for sustainable development (Sharma & Newman, 2017; Datta, 2015). As populations grow, there is an increasing need for housing solutions that are not only affordable and accessible but also totally sustainable (Omer, 2008; Campbell, 1996). Indigenous and vernacular housing practices have demonstrated remarkable sustainability over generations, offering valuable lessons for India's urban development (Porter et al, 2017). This policy projection draws upon a global review of evidence from studies of indigenous and vernacular housing to inform policies for sustainable urbanization in India and heralds a few points worth consideration.

Acknowledge Indigenous and Vernacular Wisdom:

Embracing Indigenous and Vernacular Wisdom by acknowledging the profound significance of indigenous and vernacular housing practices within India's rich cultural heritage and historical legacy (Picq, 2018). Also, fostering a culture of research and documentation focused on local housing traditions and techniques, safeguarding their preservation and dissemination (Kreps, 2009). Additionally, integrating indigenous knowledge into urban planning and development strategies, thereby fostering the creation of more sustainable and culturally enriched communities (Bohensky & Maru, 2011).

Promote Sustainable Materials and Construction:

Developing and implementing building codes and standards that promote the use of locally sourced, sustainable materials (Brilhante, & Skinner, 2014; Ritter, Skog, & Bergman, 2011). Encouraging the adoption of low-impact construction techniques, such as earth architecture and bamboo construction (Woolley, 2013). Facilitating training programs for construction workers in vernacular building methods (Danisa, 2014).

Energy Efficiency and Passive Design:

Advocating for passive design principles in urban planning and architecture (Elgendy, 2012). Promoting energy-efficient building designs that consider local climate conditions (Akande, Fabiyi, & Mark, 2015; Hui, 2001). Encouraging the use of traditional cooling and heating techniques, such as natural ventilation and thermal mass (Gagliano et al, 2016; Tantasavasdi, Srebric, & Chen, 2001).

Community-Centered Planning:

Prioritizing community engagement in the design and planning of housing projects (Sanoff, 1999). Supporting community-driven initiatives for sustainable housing development (Ahmad & Abu Talib, 2015). Fostering the creation of mixed-use neighborhoods that encourage walkability and reduce the need for extensive transportation (Furlan & AlMohannadi, 2016; Leyden, 2003).

Affordable Housing Solutions:

Incentivize the development of affordable, sustainable housing options for low-income communities (Jeddi Yeganeh, McCoy, & Hankey, 2019; Bah, 2018; Szibbo, 2016). Explore financing models that make sustainable housing accessible to a wider population (Bowes et al, 2018). Encourage public-private partnerships to address housing affordability and sustainability (Taylor, & Harman, 2016; O Ibem & Aduwo, 2012).

Water and Sanitation Solutions:

Promoting water-efficient design and sanitation solutions that align with local traditions (Nelson, 2008). Investing in rainwater harvesting, grey-water recycling, and waste management systems that integrate with vernacular practices (Sharmili et al, 2019). Enhance access to clean water and sanitation facilities in urban slum areas (Joshi et al, 2014).

Disaster Resilience:

Integrate indigenous knowledge on disaster-resistant construction and location planning (Burby et al, 1999). Develop policies and guidelines for building resilient housing in areas prone to natural disasters (Burby et al, 2000). Create incentives for retrofitting existing urban structures to enhance resilience (Ferreira et al, 2016).

Research and Innovation:

Support research and development in sustainable building materials and technologies (Passer et al, 2015; Reddy, 2004). Establish centers of excellence and research institutions focused on indigenous and vernacular housing. Encourage the use of traditional knowledge as a source of inspiration for innovative solutions (Zaman, Yeo & Kulathuramaiyer, 2011; Boven, & Morohashi, 2002).

Education and Awareness:

Incorporate sustainability and indigenous housing principles into educational curricula for architects, planners, and engineers (Porter et al, 2017). Conduct awareness campaigns to educate the public on the benefits of sustainable housing (Manaktola, & Jauhari, 2007). Foster a sense of pride and cultural identity associated with sustainable living practices (Murphy, Enqvist, & Tengö, 2019).

Monitoring and Evaluation:

Establish mechanisms for monitoring and evaluating the impact of sustainable housing policies (Bhattacharya, Patro, & Rathi, 2016). Periodically review and update policies based on lessons learned and emerging best practices. Ensure transparency and accountability in the implementation of sustainable housing initiatives (Agarchand, & Laishram, 2017; Randhawa, & Kumar, 2017).

This policy projection draws upon the rich heritage of indigenous and vernacular housing to guide India's journey towards sustainable urbanization. By acknowledging traditional wisdom, promoting sustainable materials and construction techniques, and fostering community-centered planning, India can build a future where urbanization coexists harmoniously with nature, culture, and the well-being of its citizens.

In conclusion, this evidence-based review of twenty studies on vernacular and indigenous housing from diverse global contexts has provided compelling insights into their myriad benefits and sustainability. These housing forms not only demonstrate remarkable adaptability to local environments but also offer significant social, cultural, and environmental advantages. As we turn our attention to the policy projection for India, it is clear that integrating vernacular and indigenous housing principles into urban and rural planning can pave the way for a more sustainable and harmonious built environment. By aligning policies with the lessons learned from these housing traditions and promoting their contemporary adaptation, India can advance towards a future characterized by resilient communities, reduced ecological footprint, and preservation of cultural heritage. In light of the robust evidence presented in this review, policymakers in India are encouraged to embrace vernacular and indigenous housing as a cornerstone of sustainable development, ensuring a brighter, more sustainable future for generations to come.

Reviewed Studies:

Atolagbe, A. M. O., & Fadamiro, J. A. (2014). Indigenous African building techniques and the prospects for sustainable housing and environmental development. *Environment, development and sustainability*, *16*, 1041-1051.

Caimi, A., Guillaud, H., Moles, O., Vieux-Champagne, F., Garnier, P., Grange, S., ... & Daudeville, L. (2013). Traditional and scientific knowledge for a sustainable vulnerability reduction of rural housing in Haiti. *Structures and Architecture: Concepts: Applications and Challenges*, 1807-1815.

Cañas, I., & Martín, S. (2004). Recovery of Spanish vernacular construction as a model of bioclimatic architecture. *Building and environment*, *39*(12), 1477-1495.

Chen, C. J. (2006). The study of restoring an eco-habitat of the traditional Paiwan tribe in Taiwan. *Eco-Architecture: Harmonisation between Architecture and Nature*, 73-82.

Dhote, K.K., Onkar, P. & Das, S. (2012). Identifying the Sustainable Practices from the Vernacular Architecture of Tribes of Central India. *American Transactions on Engineering & Applied Sciences,* 1 (3), 237-251.

Dili, A. S., Naseer, M. A., & Varghese, T. Z. (2010). Passive control methods of Kerala traditional architecture for a comfortable indoor environment: comparative investigation during various periods of rainy season. *Building and Environment*, *45*(10), 2218-2230.

Du, X., Bokel, R., & van den Dobbelsteen, A. (2014). Building microclimate and summer thermal comfort in free-running buildings with diverse spaces: A Chinese vernacular house case. *Building and Environment*, *82*, 215-227.

Fernandes, J. E. P., Mateus, R., Bragança, L., Silva, J., & Silva, S. (2014). *An analysis of the potentialities of portuguese vernacular architecture to improve energy efficiency*. Presented in 30th INTERNATIONAL PLEA CONFERENCE, 16-18 December 2014, CEPT University, Ahmedabad

Fernandes, J., Pimenta, C., Mateus, R., Monteiro Silva, S., & Bragança, L. (2015). Contribution of portuguese vernacular building strategies to indoor thermal comfort and occupants' perception. *Buildings*, *5*(4), 1242-1264.

Gabril, N.M.S. (2014). Thermal Comfort and Building Design Strategies for Low Energy Houses in Libya: Lessons from the vernacular architecture. Doctoral Dissertation, University of Westminster.

Lotfabadi, P., & Hançer, P. (2019). A comparative study of traditional and contemporary building envelope construction techniques in terms of thermal comfort and energy efficiency in hot and humid climates. *Sustainability*, *11*(13), 3582.

Manioğlu, G., & Yılmaz, Z. (2008). Energy efficient design strategies in the hot dry area of Turkey. *Building and Environment*, *43*(7), 1301-1309.

Martins, A. M. T., Carlos, J. S., & Vieira, E. (2015). The rehabilitation and sustainability of vernacular heritage housing: a case study in Madeira Island. In *REHAB 2015 Proceedings-2nd International Conference on Preservation, Maintenance and Rehabilitation of Historic Buildings and Structures* (pp. 345-552).

Mottaki, Z., & Amini, I. (2013). Cultural sustainability patterns in vernacular architecture: a case study of Gilan, Iran. *GSTF Journal of Engineering Technology (JET)*, *2*(1), 106.

Nguyen, A. T., Tran, Q. B., Tran, D. Q., & Reiter, S. (2011). An investigation on climate responsive design strategies of vernacular housing in Vietnam. *Building and Environment*, *46*(10), 2088-2106.

O'Rourke, T. (2014). The influence of culture on energy consumption in Aboriginal housing in arid regions of Australia. In *30th International PLEA Conference. Ahmedabad: CEPT University*.

Pinijvarasin, W. ความ ตระหนัก ใน ตน ความ ธำ รง ทาง วัฒนธรรม ของ บ□ า น ไทย พื้น ถิ่น Self-awareness: cultural sustainability of Thai vernacular houses.

Shastry, V., Mani, M., & Tenorio, R. (2016). Evaluating thermal comfort and building climatic response in warm-humid climates for vernacular dwellings in Suggenhalli (India). *Architectural Science Review*, *59*(1), 12-26.

Uddin, N. (2008). A study on the traditional housing technology of Bangladesh. *Indian Journal of Traditional Knowledge*, 7(3), pp. 494-500.

Yıldız, D., & Manioğlu, G. (2015). Evaluating sustainability and energy efficiency of a traditional housing: The case of the Samanbahçe Settlement in Cyprus. *A | Z ITU Journal of the Faculty of Architecture*, *12*(2), 205-220.

Other References

Adams, D., & Tiesdell, S. (2012). *Shaping places: urban planning, design and development*. Routledge.

Aflaki, A., Mahyuddin, N., & Mahmoud, Z. A. (2015). A review on natural ventilation applications through building fac components and ventilation openings in tropical climates. *Energy & Buildings*, *101*, 153–162.

Agarchand, N., & Laishram, B. (2017). Sustainable infrastructure development challenges through PPP procurement process: Indian perspective. *International Journal of Managing Projects in Business*, *10*(3), 642-662.

Agol, D., Latawiec, A. E., & Strassburg, B. B. (2014). Evaluating impacts of development and conservation projects using sustainability indicators: Opportunities and challenges. *Environmental Impact Assessment Review*, *48*, 1-9.

Agrawal, A. (1995). Dismantling the Divide Between Indigenous and Scientific Knowledge. *Development and Change*, 26(3), pp.413-439.

Agudelo-Vera, C. M., Mels, A. R., Keesman, K. J., & Rijnaarts, H. H. (2011). Resource management as a key factor for sustainable urban planning. *Journal of environmental management*, *92*(10), 2295-2303.

Ahern, J. (2002). *Greenways as strategic landscape planning: theory and application*. Wageningen University and Research.

Ahmad, M. S., & Abu Talib, N. B. (2015). Empowering local communities: decentralization, empowerment and community driven development. *Quality & Quantity*, *49*, 827-838.

Akande, O. K., Fabiyi, O., & Mark, I. C. (2015). Sustainable approach to developing energy efficient buildings for resilient future of the built environment in Nigeria. *American Journal of Civil Engineering and Architecture*, *3*(4), 144-152.

Bah, E. H. M., Faye, I., Geh, Z. F., Bah, E. H. M., Faye, I., & Geh, Z. F. (2018). Slum upgrading and housing alternatives for the poor. *Housing market dynamics in Africa*, 215-253.

Bhattacharya, S., Patro, S. A., & Rathi, S. (2016). Creating Inclusive cities: A review of indicators for measuring sustainability for urban infrastructure in India. *Environment and Urbanization Asia*, *7*(2), 214-233.

Bogenschneider, K., & Corbett, T. (2011). *Evidence-based policymaking: Insights from policy-minded researchers and research-minded policymakers*. Routledge.

Bohensky, E. L., & Maru, Y. (2011). Indigenous knowledge, science, and resilience: What have we learned from a decade of international literature on "integration"?. *Ecology and*

Society, *16*(4).

Borong Lin, Gang Tan, Peng Wang, Ling Song, Yingxin Zhu, Guangkui Zhai. Study on the thermal performance of the Chinese traditional vernacular dwellings in summer. Energy and Buildings 2004;36:73e9.

Bosher, L. (Ed.). (2008). *Hazards and the built environment: attaining built-in resilience*. Routledge.

Boven, K., & Morohashi, J. (2002). *Best practices using indigenous knowledge* (pp. 12-13). The Hague: Nuffic.

Bowes, J., Desai, M., Prabhu, N., Gao, L., Rahman, K., & McCullogh, R. (2018). Exploring innovation in housing typologies.

Brilhante, O., & Skinner, J. (2014). European experiences of building codes for promoting sustainable housing. *Institute for Housing and Urban Development Studies, Rotterdam [WWW document]. URL http://www. ihs. nl/fileadmin/ASSETS/ihs/Marketing/prospective_ students_pages/ECO_and_MFUI/EU_Experiences_of_ Building_codes. pdf (accessed 4 January 2017)*.

Burby, R. J., Beatley, T., Berke, P. R., Deyle, R. E., French, S. P., Godschalk, D. R., ... & Platt, R. H. (1999). Unleashing the power of planning to create disaster-resistant communities. *Journal of the American Planning Association*, *65*(3), 247-258.

Burby, R. J., Deyle, R. E., Godschalk, D. R., & Olshansky, R. B. (2000). Creating hazard resilient communities through land-use planning. *Natural hazards review*, *1*(2), 99-106.

Cam, C. (2004). A conceptual framework for sociotechno-centric approach to sustainable development. *International Journal of Technology Management and Sustainable Development*, 3(1), pp.59-66.

Campbell, S. (1996). Green cities, growing cities, just cities?: Urban planning and the contradictions of sustainable development. *Journal of the American Planning Association*, *62*(3), 296-312.

Cantell, S. F. (2005). The adaptive reuse of historic industrial buildings: regulation barriers, best practices and case studies. *Virginia polytechnic institute and state university*.

Cantin R, Burgholzer J, Guarracino G, Moujalled B, Tamelikecht S, Royet BG. Field assessment of thermal behaviour of historical dwellings in France. Building and Environment February 2010;45(2):473e84.

Cernea, M. M. (2001). *Cultural heritage and development: a framework for action in the Middle East and North Africa*. The World Bank.

Chandel, S. S., Sharma, V., & Marwah, B. M. (2016). Review of energy ef fi cient features in vernacular architecture for improving indoor thermal comfort conditions. *Renewable and Sustainable Energy Reviews*, *65*, 459–477.

Chen, E. C., Kakkad, D., & Balzano, J. (2008). Multicultural competence and evidence-based practice in group therapy. *Journal of Clinical Psychology*, *64*(11), 1261-1278.

Chiu, R. L. (2004). Socio-cultural sustainability of housing: a conceptual exploration. *Housing, Theory and Society*, *21*(2), 65-76.

Clark, W. and Dickson, N. (2003). Sustainability science: The emerging research program. *Proceedings of the National Academy of Sciences*, 100(14), pp.8059-8061.

Danisa, L. M. P. (2014). *Architectural approach that facilitates traditional medicine and biomedicine integration towards a design for an UNAIDS Research Institute in the Valley of a Thousand Hills-Bothas Hill, KZN* (Doctoral dissertation).

Datta, A. (2015). New urban utopias of postcolonial India: 'Entrepreneurial urbanization'in Dholera smart city, Gujarat. *Dialogues in human geography*, *5*(1), 3-22.

David-Chavez, D. M., & Gavin, M. C. (2018). A global assessment of Indigenous community engagement in climate research. *Environmental Research Letters*, *13*(12), 123005.

Davies, H. T., & Nutley, S. M. (Eds.). (2000). *What works?: Evidence-based policy and practice in public services*. Policy Press.

Degen, M., & García, M. (2012). The transformation of the 'Barcelona model': an analysis of culture, urban regeneration and governance. *International journal of urban and regional research*, *36*(5), 1022-1038.

Dempsey, N., Bramley, G., Power, S., & Brown, C. (2011). The social dimension of sustainable development: Defining urban social sustainability.*Sustainable development*, *19*(5), 289-300.

Ebi, K. L., Boyer, C., Bowen, K. J., Frumkin, H., & Hess, J. (2018). Monitoring and evaluation indicators for climate change-related health impacts, risks, adaptation, and resilience. *International journal of environmental research and public health*, *15*(9), 1943.

Edensor, T., Leslie, D., Millington, S., & Rantisi, N. (Eds.). (2009). *Spaces of vernacular creativity: Rethinking the cultural economy* (Vol. 30). Routledge.

Elgendy, K. (2012). A Review of Sustainable Design in the Middle East. *Carboun Sustainability-Middle-East Journal. Available online at [http://www. carboun. com/category/sustainable-design/]*.

Ferreira, T. M., Maio, R., Vicente, R., & Costa, A. (2016). Earthquake risk mitigation: the impact of seismic retrofitting strategies on urban resilience. *International Journal of Strategic Property Management*, *20*(3), 291-304.

Flynn, J. P., Gascon, G., Doyle, S., Matson Koffman, D. M., Saringer, C., Grossmeier, J., ... & Terry, P. (2018). Supporting a culture of health in the workplace: a review of evidence-based elements. *American Journal of Health Promotion*, *32*(8), 1755-1788.

Furlan, R., & AlMohannadi, M. (2016). Light rail transit and land use in Qatar: An integrated planning strategy for Al-Qassar's TOD.

Gadgil, M., Berkes, F., & Folke, C. (1993). Indigenous Knowledge for Biodiversity Conservation.*Ambio, 22*(2/3), 151-156. Retrieved from http://www.jstor.org/stable/4314060

Gagliano, A., Nocera, F., Patania, F., Moschella, A., Detommaso, M., & Evola, G. (2016). Synergic effects of thermal mass and natural ventilation on the thermal behaviour of traditional massive buildings. *International Journal of Sustainable Energy*, *35*(5), 411-428.

GhaffarianHoseini, A., Berardi, U., Dahlan, N. D., & GhaffarianHoseini, A. (2014). What can we learn from Malay vernacular houses?. *Sustainable Cities and Society*, *13*, 157-170.

GhaffarianHoseini, A., Dahlan, N. D., Ibrahim, R., Baharuddin, M. N., & GhaffarianHoseini, A. (2011). THE CONCEPT OF LOCAL-SMART-HOUSING: TOWARDS SOCIO-CULTURAL SUSTAINABILITY OF VERNACULAR SETTLEMENTS. *International Journal of Architectural Research*, *5*(2), 91-105.

Giddings, B., Hopwood, B., & O'brien, G. (2002). Environment, economy and society: fitting them together into sustainable development. *Sustainable development*, *10*(4), 187-196.

Gk, M., Debajyoti, C., & Rd, G. (2017). Indian Indigenous Traditional Knowledge (ITK) on termites : Eco-friendly approaches to sustainable management. *Indian Journal of Traditional Knowledge Vol.*, *16*(April), 333–340.

Gkartzios, M., & Scott, M. (2014). Placing housing in rural development: exogenous, endogenous and neo-endogenous approaches. *Sociologia Ruralis*, *54*(3), 241-265.

Golden, E. M. (2017). *Building from Tradition: Local Materials and Methods in Contemporary Architecture*. Routledge.

Guy, S., & Farmer, G. (2001). Reinterpreting sustainable architecture: the place of technology. *Journal of Architectural Education*, *54*(3), 140-148.

Hamza, N. (2019). Contested legacies: vernacular architecture between sustainability and the exotic. *Sustainable Vernacular Architecture: How the Past Can Enrich the Future*, 7-21.

Hopwood, B., Mellor, M., & O'Brien, G. (2005). Sustainable development: mapping different approaches. *Sustainable development*, *13*(1), 38-52.

Hosagrahar, J., Soule, J., Girard, L. F., & Potts, A. (2016). Cultural heritage, the UN sustainable development goals, and the new urban agenda. *BDC. Bollettino Del Centro Calza Bini*, *16*(1), 37-54.

Hui, S. C. (2001). Low energy building design in high density urban cities. *Renewable energy*, *24*(3-4), 627-640.

Jeddi Yeganeh, A., McCoy, A. P., & Hankey, S. (2019). Green affordable housing: Cost-benefit analysis for zoning incentives. *Sustainability*, *11*(22), 6269.

Jingxia Li. The bioclimatic features of vernacular architecture in China. Renewable Energy MayeAugust 1996;8(1e4):629e36.

Joshi, A., Prasad, S., Kasav, J. B., Segan, M., & Singh, A. K. (2014). Water and sanitation hygiene knowledge attitude practice in urban slum settings. *Global journal of health science*, *6*(2), 23.

Kim Do-Kyoung. The natural environment control system of Korean traditional architecture: comparison with Korean contemporary architecture. Building and Environment 2005;41:1905e12.

Kreps, C. (2009). Indigenous curation, museums, and intangible cultural heritage. *Intangible heritage*, 193-208.

Lawson, H. A. (2005). Empowering people, facilitating community development, and contributing to sustainable development: The social work of sport, exercise, and physical education programs. *Sport, education and society*, *10*(1), 135-160.

Lee Kyung-Hoi, Han Dong-Wook, Lim Ho-Jin. Passive design principles and techniques for folk houses in Cheju Island and Ull ng Island of Korea. Energy and Buildings 1996;23:207e16.

Leyden, K. M. (2003). Social capital and the built environment: the importance of walkable neighborhoods. *American journal of public health*, *93*(9), 1546-1551.

MacDermid, J. C., & Graham, I. D. (2009). Knowledge translation: putting the "practice" in evidence-based practice. *Hand clinics*, *25*(1), 125-143.

Manaktola, K., & Jauhari, V. (2007). Exploring consumer attitude and behaviour towards green practices in the lodging industry in India. *International journal of contemporary hospitality management*, *19*(5), 364-377.

Manzano-agugliaro, F., Montoya, F. G., Sabio-ortega, A., & García-cruz, A. (2015). Review of bioclimatic architecture strategies for achieving thermal comfort. *Renewable and Sustainable Energy Reviews*, *49*, 736–755.

Mashela, P. W., D, D. D. W., & Pofu, K. M. (2011). Use of indigenous Cucumis technologies as alternative to synthetic nematicides in management of root-knot nematodes in low-input agricultural farming systems : A review. *Scientific Research and Essays*, *6*(33), 6762–6768.

Matunga, H. (2018). A discourse on the nature of indigenous architecture. *The handbook of contemporary Indigenous architecture*, 303-330.

McCarter, J., Gavin, M. C., Baereleo, S., & Love, M. (2014). The challenges of maintaining indigenous ecological knowledge. *Ecology and Society*, *19*(3).

Mohan Das Gandhi, N., Selladurai, V., & Santhi, P. (2006). Unsustainable development to sustainable development: a conceptual model. *Management of Environmental Quality: An International Journal*, *17*(6), 654-672.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group*. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of internal medicine*, *151*(4), 264-269.

Munasinghe, M. (2009). *Sustainable development in practice*. 1st ed. Cambridge, UK: Cambridge University Press.

Murphy, A., Enqvist, J. P., & Tengö, M. (2019). Place-making to transform urban social–ecological systems: insights from the stewardship of urban lakes in Bangalore, India. *Sustainability Science*, *14*, 607-623.

Nakata, M. (2002). Indigenous Knowledge and the Cultural Interface: underlying issues at the intersection of knowledge and information systems. *IFLA Journal*, *28*(5–6), 281–291.

Nelson, V. I. (2008). New approaches in decentralized water infrastructure. *Gloucester. MA. USA: Coalition for alternative wastewater treatment*.

O Ibem, E., & B Aduwo, E. (2012). Public-Private Partnerships (PPPs) in Urban Housing in Nigeria: Evidence from Ogun State. *International Journal of Architecture and urban development*, *2*(2), 5-14.

Oliver, P. (2007). *Built to meet needs: Cultural issues in vernacular architecture*. Routledge.

Omer, A. M. (2008). Energy, environment and sustainable development. *Renewable and sustainable energy reviews*, *12*(9), 2265-2300.

Ooka Ryozo. Field study on sustainable indoor climate design of a Japanese traditional folk house in cold climate area. Building and Environment 2002;37:319e29.

Opoku, A. (2015). The role of culture in a sustainable built environment. *Sustainable operations management: Advances in strategy and methodology*, 37-52.

Oliver, P. (2007). Shelter and Society: Vernacular Architecture in its Cultural Contexts. *General Studies Lectures: Engineering Towards Development and Change, University of Addis Ababa, Faculty of Technology*, *14*(07).

Passer, A., Wall, J., Kreiner, H., Maydl, P., & Höfler, K. (2015). Sustainable buildings, construction products and technologies: linking research and construction practice. *The International Journal of Life Cycle Assessment*, *20*, 1-8.

Picq, M. L. (2018). *Vernacular sovereignties: Indigenous women challenging world politics*. University of Arizona Press.

Porter, L., Matunga, H., Viswanathan, L., Patrick, L., Walker, R., Sandercock, L., ... & Jojola, T. (2017). Indigenous planning: from principles to practice/a revolutionary pedagogy of/for indigenous planning/settler-indigenous relationships as liminal spaces in planning education and practice/indigenist planning/what is the work of non-indigenous people in the service of a decolonizing agenda?/supporting indigenous planning in the city/film as a catalyst for indigenous community development/being ourselves and seeing ourselves in the city: enabling the conceptual space for indigenous urban planning .... *Planning Theory & Practice*, *18*(4), 639-666.

Randhawa, A., & Kumar, A. (2017). Exploring sustainability of smart development initiatives in India. *International Journal of Sustainable Built Environment*, *6*(2), 701-710.

Redclift, M. (2005). Sustainable development (1987–2005): an oxymoron comes of age. *Sustainable development*, *13*(4), 212-227.

Reddy, B. V. (2004). Sustainable building technologies. *Current Science*, 899-907.

Ritter, M. A., Skog, K., & Bergman, R. D. (2011). *Science supporting the economic and* *environmental benefits of using wood and wood products in green building construction* (p. 9). Washington, DC, USA: United States Department of Agriculture, Forest Service, Forest Products Laboratory.

Rodwell, D. (2008). *Conservation and sustainability in historic cities*. John Wiley & Sons.

Ryu Youngryel, Kim Seogcheol, Lee Dowon. The influence of wind flows on thermal comfort in the Daechung of a traditional Korean house. Building and Environment 2009;44:18e26.

Salman, M. (2018). Sustainability and vernacular architecture: Rethinking what identity is. In *Urban and architectural heritage conservation within sustainability*. IntechOpen.

Sanoff, H. (1999). *Community participation methods in design and planning*. John Wiley & Sons.

Sharma, R., & Newman, P. (2017). Urban rail and sustainable development key lessons from Hong Kong, New York, London and India for emerging cities. *Transportation research procedia*, *26*, 92-105.

Sharma, S., Bajracharya, R., & Sitaula, B. (2009). Indigenous Technology Knowledge in Nepal — A review, *8*(October), 569–576.

Sharmili, S., Revathy, S., Babjee, S., & Habiba, H. U. (2019). Hybrid Energy Harvesting System based Sustainable Building.

Sharples Steve, Malama Albert. Thermal performance of traditional housing in the cool season in Zambia. Renewable Energy 1996;8:190e3.

Shaw, R., Okazaki, K., & Narita, E. (2004, August). Earthquake Safer Non-Engineered Construction Practices: Problems and Prospects. In *13th World Conference on Earthquake Engineering* (pp. 1-6).

Sheehan, N. W. (2011). Indigenous knowledge and respectful design: An evidence-based approach. *Design Issues*, *27*(4), 68-80.

Shields, D. J., & Šolar, S. V. (2005). Sustainable Development and Minerals: Measuring mining's contribution to society. *Geological Society, London, Special Publications*, *250*(1), 195-211.

Simpson, J., Caffery, J., & McConvell, P. (2009). Gaps in Australia's Indigenous language policy: Dismantling bilingual education in the Northern Territory.

Singh Manoj Kumar, Mahapatra Sadhan, Atreya SK. Bioclimatism and vernacular architecture of north-east India. Building and Environment 2009;44:878e88.

Smit, B., & Pilifosova, O. (2003). Adaptation to climate change in the context of sustainable development and equity. *Sustainable Development*, *8*(9), 9.

Soini, K., & Birkeland, I. (2014). Exploring the scientific discourse on cultural sustainability. *Geoforum*, *51*, 213-223.

Sozen Mujgan Serefhanoglu, Gedık Gulay Zorer. Evaluation of traditional architecture in terms of building physics: old diyarbakır houses. Building and Environment 2007;42:1810e6.

Strauss, S. Y., Lau, J. A., & Carroll, S. P. (2006). Evolutionary responses of natives to introduced species: what do introductions tell us about natural communities?. *Ecology letters*, *9*(3), 357-374.

Szibbo, N. (2016). Lessons for LEED® for neighborhood development, social equity, and affordable housing. *Journal of the American Planning Association*, *82*(1), 37-49.

Tantasavasdi, C., Srebric, J., & Chen, Q. (2001). Natural ventilation design for houses in Thailand. *Energy and buildings*, *33*(8), 815-824.

Taylor, B. M., & Harman, B. P. (2016). Governing urban development for climate risk: What role for public–private partnerships?. *Environment and Planning C: Government and Policy*, *34*(5), 927-944.

Tyler, N., Tyler, I. R., & Ligibel, T. J. (2018). *Historic preservation: An introduction to its history, principles, and practice*. WW Norton & Company.

Wang F, Liu Y. Thermal environment of the courtyard style cave dwelling in winter. Energy and Buildings 2002;34:985e1001.

Weaver, D. B. (2006). *Sustainable tourism: Theory and practice*. Routledge.

Wester, P., Mishra, A., Mukherji, A., & Shrestha, A. B. (2019). *The Hindu Kush Himalaya assessment: mountains, climate change, sustainability and people* (p. 627). Springer Nature.

Williamson, T. J., Radford, A., & Bennetts, H. (2003). *Understanding sustainable architecture*. Taylor & Francis.

Woolley, T. (2013). *Low impact building: Housing using renewable materials*. John Wiley & Sons.

Yang, Z. (2012). *A framework of promoting stakeholder mutual benefits for sustainable housing implementation* (Doctoral dissertation, Queensland University of Technology).

Zaman, T., Yeo, A. W., & Kulathuramaiyer, N. (2011). Harnessing community's creative expression and indigenous wisdom to create value. In *Indigenous Knowledge Technology Conference* (pp. 137-148).

****

ISSN: 2348-4667
Anthropological Bulletin
14(2), 80-84, 2019

Melodies and Melancholies: Hope, Optimism and Resilience in Rumi's Works

Kushagra Srivastava[1] and Navida Gul[2]

ABSTRACT

What mystery this conviction holds that a thirteenth century philosopher has emerged as the most popular writer of metaphysics in the world at present? Rumi's life and afterlife have greatly influenced litterateurs, philosophers and psychologists alike. Rumi impacts the life's perspectives in his own peculiar ways which redefines several truths. He has regarded death as a subsequent life, which is unpleasant but eternal. Randomly chosen poems of Rumi from his classic Mathnawi were analyzed for the present research study. Data was collected through a total of 40 research papers which were consulted across the major research databases including Google Scholar, CrossRef and OpenAccess. Prominent books enshrining Rumi's Mathnawi were also consulted and have been annexed as reference in the study. The study has emphasized upon seeing through the subliminally therapeutic effects of poetry with special reference to Rumi's works. Socio-psychological constructs such as hope, optimism and resilience were examined across the data thus collected. The qualitative content analysis method was used to analyze the concept of happiness and sadness in Rumi's writings.

Keywords: Rumi, Sufi, Hope, Optimism, Resilience

Overture

People generally get intrigued upon knowing that Mevlana Jalaluddin Rumi, a Persian poet and Sufi mystic from the thirteenth century, is one of the most well-known and best-selling poets in the United States. The mystic Sufi order that came to existence after Rumi initiated the tradition has been named after him as the Mevlevi order, predominantly existent in the Constantinople of older times and the Turkiye of today.

Rumi was a practicing Sufi, a school of Islamic asceticism that began in modern-day Iran in the seventh century. However, his spiritual devotion dispelled all-too-common misconceptions about Islam as a rigid, monotheistic religion and instead fostered a stronger sense of unity among all living things. Rumi is seen as a liberal Muslim who had considerable deviations from the major practices of Muslims. Often he is portrayed as someone who was on contrary with the traditional Islam, who challenged the clergy and questioned their knowledge of the almighty. With his poetry Rumi initiated therapeutic

[1] Assistant Professor, Department of English, Mohammad Ali Jauhar University, Rampur, India
E-Mail: kushagra.srivastava1@gmail.com
[2] Assistant Professor, Department of Psychology, Mohammad Ali Jauhar University, Rampur, India

elements in his writings, presenting almighty as the ultimate savior of humanity. He has presented challenges of life as tests from the creator for the creations, which are there to prepare them for bigger challenges and become resilient in life.

Mystique and Melancholies

Every language has a unique connection to suffering and grief frequently takes the form of poetry when it becomes too intense to communicate verbally. Rumi has been romancing with grief and sorrow across his works, talking of separation and annihilation from and with the beloved. To him, ultimate happiness is resting in the end of worldly life, inspired by his personal belief system. He has portrayed death as the most pleasurable meeting with the supreme lord and the ultimate chance of an entity to become one with the maker of everything existent. The central figure in Rumi's writings is the beloved; his beloved is the supreme lord, the creator of everything. He sees life as something that keeps an individual at distance from his creator, while death as the climax of a trying and testing tenure in the physical world which would diminish sooner or later. The fundamental theme of Rumi's poetry is the yearning and quest for oneness with the divine. His innermost thoughts were reflected in his poetry. Paradoxically, Rumi claimed that there were no words that could fully capture the feeling of spiritual and divine connection. However, his poetry comes through as a compelling inspiration and a reminder of each person's limitless divine potential.

Rumi's style of writing is mystic and mysterious both at the same time. Considering the following poem, one could get an idea about how expressive he has been with his ideas.

> *"Who looks out with my eyes?*
> *What is the soul?*
> *I cannot stop asking.*
> *If I could taste one sip of an answer,*
> *I could break out of this prison for drunks.*
> *I didn't come here of my own accord,*
> *and I can't leave that way.*
> *Whoever brought me here will have to take me home."*

Hope and Hymns

People who experience hardships need to keep in mind that a shadow cannot exist in the absence of light. Overcoming the hardships aids in one's development and strength. As nature goes through transitions, life events also undergo metamorphosis. No difficulty comes to stay, with time passing by, things change on a natural course. Human beings are just stuck between time, space and existence; therefore they tend to make sense of things as per their acquired knowledge and insights about all that is physically evident and existent.

Realizing there is light in the midst of darkness is what gives one hope. As the saying goes, 'light in the end of tunnel', it conveys a message that hope remains even if you are all caught up in the dark and cannot find yourself a way through it. By consistently practicing both giving and receiving empathy, people cultivate a life skill that facilitates the transition through loss. If one searches for it, there is a lot of compassion and understanding along this tunnel. Joy is the gift or light at the end of the journey. At this point, it could be well believed that love has always been there and has provided the willpower to keep going.

The shadow is only diminished by a full, overhead sun. However, that shadow also functions as a sun dial for the individual, helping to determine the time so that things can be scheduled in case a person is stranded somewhere without a clock. With pains arrive blessings of sort, darkness often becomes the torch itself, and the quest to know ascertains one's wisdom and enlightenment. Individuals acquire the life skills of mourning, which are the abilities of attentive listening, introspection, and waking to the divine meaning of these age-old feelings, for which the perfectly calibrated muscles and nerves are wired.

Odes and Optimisms

Humans must accept every circumstance with happiness and satisfaction. A person lacking optimism cannot thrive in this world. An optimist finds the bright side of things rather than giving up hope, even when horrible things happen. To be optimistic is to think, anticipate, or want for a positive outcome. Because of this, problems and anxieties abound in our lives, and a pessimistic person finds it impossible to get past them. According to Rumi, true contentment arises from keeping things simple. A person filled with optimism may learn to enjoy every moment of life when he would have the capability to learn how to value the little things, like taking a stroll in the sunshine or feeling the breeze on the skin.

Positive thinking allows one to make positive changes in their life, especially in the face of overwhelming odds. Man lives in hope all the time and his existence becomes meaningless if he gives up hope. Nobody appreciates a life devoid of color and significance. Man is a tireless worker. He searches for bright paths as he looks to the future. People can only smile beautifully, face challenges, and persevere through sufferings when they have hope. If by any means they devoid themselves of optimism their lives begin to make no sense, at least to themselves.

Rumi and Resilience

At present, when the world is at the fingertips and people have access to the internet, events like a fatal accident, an unexpected heart attack, suicide, or a mass shooting can quickly enter the consciousness. One of the many advantages of going through a deep personal grieving process is that it can help us become more compassionate and empathetic toward others, something individuals never realize until they are in a difficult situation. If one fine morning when a person wakes up and they are hit by a wave of unexpected loss, his emotions would get impacted by its aftermaths.

Ali (2017) has pointed out in her article, 'The Erasure of Islam from the Poetry of Rumi', that the lead singer of Coldplay, Chris Martin was in middle of a divorce from Gwyneth Paltrow and was very depressed during those days. He was presented with a book to lift the spirits up, the bok was a collection of Rumi's poems, translated by Coleman Barks. Martin later said in and interview that the book had changed his life. A song from Coldplay's one of the albums features Barks reciting one of the poems: "This being human is a guest house / Every morning a new arrival / A joy, a depression, a meanness, / some momentary awareness comes / as an unexpected visitor".

Rumi has written extensively about resilience and coping with reference to traumatizing events of life. He has mentioned that people go through a lot of misery and find themselves in a state of shock, numbness, bewilderment, or even paralysis when faced with someone's abrupt death.

Methodology

The current study has aimed to see through the subliminally therapeutic effects of poetry with reference to Rumi's works. For the purpose of data, a total of 40 research papers were consulted and relevant references have been incorporated in the study. Databases consulted include Google Scholar, CrossRef, OpenAccess and Road. Prominent books enshrining Rumi's Mathnawi were also consulted and have been annexed as reference in the study. The study also made use of online articles in addition to a few blog articles.

Conclusion/Major Research Findings

While his masterpiece Mathnawi has long been held in high regard within the Muslim community, it has only lately captured the attention of modern American readers from many religious backgrounds. The Christian Science Monitor in its issue of year 1997, had stated that Rumi was the nation's best-selling poet (Marks, 1997). Rumi has written about a world far different from our own, yet his lyrical poetry is unexpected because they are challenging, approachable, and current. Rumi, a man who experienced sorrow, conflict, and exile firsthand, presents us with a vision of humanity that appears limitless in its vibrancy and compassion, even in comparison to our modern ideas of multiculturalism.

Coulehan & Clary (2005) have reported that there have been significant effects of Rumi's poetry on the caregivers who worked as the therapists of the mentally affected people. It was noticed that those healers and therapists who had been exposed to Rumi's poetry displayed resilient characteristics all across the therapeutic procedures. Hebboudji & Filali (2018) have reported that poetry could be well attributed to spiritual healing, in case the selection of words have lasting relaxing effect on the individual engaged in its recitation. Soleha & Retnaningdyah (2019) have emphasized on the role of poetry in harnessing spirituality through poetic recitations, additionally chants from sacred texts and their commentaries could instill an enduring positivity amongst individuals. Mannani (2010) has noted that Rumi's poetry invokes a deep sense of hope in a person as it builds up optimism through the web of words. Mirdal (2012) has mentioned the role of religious and sacred poetry in the rehabilitation process of individuals who have suffered traumatic events in life.

Kaya (2016) has investigated the psychological effects of Rumi's poetry and found out that episodic recitations and reading of Rumi's poetry could initiate resilience in the individuals.There could be innumerable reasons to celebrate the life of Rumi, but the compassion and resilience he has woven with his words stand unchallenged to this day. He has provided with the insights to relinquish grief, sorrow and suffering. It could be ascertained with all which has been written by him, that poetry becomes a therapy when one invokes Rumi.

Epilogue

Rumi invites everyone to join his caravan and embark upon the journey, not big or small, but distant for sure, which could resurrect the basic human in everyone, that which, he believes, the supreme lord desires for an individual to become. He says:

> "Come, Come,
> Whoever you are
> Wanderer, idolater, worshipper of fire
> Come even though you have broken
> your vows a thousand times
> Come, and come yet again
> Ours is not a caravan of despair."

References

Ali, R. (2017). The Erasure of Islam from the Poetry of Rumi. Retrieved from : https://www.newyorker.com/books/page-turner/the-erasure-of-islam-from-the-poetry-of-rumi

Coulehan, J., & Clary, P. (2005). Healing the healer: poetry in palliative care. Journal of palliative medicine, 8(2), 382-389.

Hebboudji, N., & Filali, B. (2018). Spiritual healing.

Kaya, Ç. (2016). Rumi from the viewpoint of spiritual psychology and counseling. Spiritual Psychology and Counseling, 1(1), 9-25.

Mannani, M. (2010). The metaphysics of the heart in the Sufi poetry of Rumi. Religion & literature, 42(3), 161-168.

Marks, A. (1997). Persian Poet Top Seller In America. Retrieved from: https://www.csmonitor.com/1997/1125/112597.us.us.3.html

Mirdal, G. M. (2012). Mevlana Jalāl-ad-Dīn Rumi and mindfulness. Journal of Religion and Health, 51, 1202-1215.

Soleha, J., & Retnaningdyah, P. (2019, December). The Representation of Spirituality in Rumi's Selected Poems: An Ecocriticism Analysis. In Social Sciences, Humanities and Education Conference (SoSHEC 2019) (pp. 225-229). Atlantis Press.

ISSN: 2348-4667
Anthropological Bulletin
14(2), 85-102, 2019

Rural Development through Ecotourism: A Case Study of Okharey Village, Sikkim

Dawa Doma Sherpa[1] and Paramita Suklabaidya[2]

ABSTRACT

This paper focuses on the role of ecotourism in the development of rural community in the village of Okharey, Western Sikkim. In this context the objectives of the present study are to find i) the impact of ecotourism on rural community; and ii) the role of government agency in the marketing of rural ecotourism destinations. Mixed methodology approach was used for this paper. Primary data was collected from the respondents using structured questionnaire, interviews, Group discussion as well as by observation; for an in - depth case study. Secondary data was collected from the books, journals, government reports and internet sources. The study reveals that ecotourism is transforming this village into a model village for ecotourism development; as ecotourism has contributed in reviving the cultural values as well as provide a means of livelihood. Further, it was observed that socio-economic status of people has improved after they got involved in providing ecotourism services. Suggestions for appropriate planned and ecotourism activities are being mentioned.

Keywords: *Rural Development, Ecotourism, Eco Tourism Zones, Local Community, Impact*

Introduction

Ecotourism, based on the principles of ecosystem structures and functions, is an important tool for the development of rural community. World Commission on Environment and Development's Brundtland Report (1987) stated that Ecotourism is rooted in the concept of sustainable development. Ecotourism encompasses a spectrum of nature-based activities that foster visitor appreciation and understanding of natural and cultural heritage. Ecotourism is considered to be sustainable due to the following characteristics - a) attracting tourists to natural environments which are unique and accessible; b) tourism that brings about improved nature conservation, through education, changing attitudes in local people

[1] Research Scholar, School Of Tourism and Hospitality Services Management, IGNOU, New Delhi. India
[2] Associate Professor, School Of Tourism and Hospitality Services Management, IGNOU, New Delhi, India. Email: paramitaz@ignou.ac.in

and governments, community development and altered political priorities; and c) providing employment and entrepreneurial opportunities for local people.

Ecotourism is a development tool in ecologically sensitive areas and one of its most important features is the highlighting of lesser-known natural sites, globally. Ecotourism encompasses a spectrum of nature-based activities that foster visitor appreciation and understanding of natural and cultural heritage and are managed to be ecologically, economically and socially development which means to be an alternative type of sustainable development for rural communities. At the same time, it is also a money-spinning economic activity based on the locally available natural resources that act as an alternative sustainable economic development plan for rural communities. Interim Report, Govt. of Sikkim, (2009) mentions that ecotourism is the solution for environmental and socio-economic problems in the rural areas as it has the potential for the regeneration of rural areas into a beautiful destination. Ecotourism, if managed properly, have positive impact on local community that leads to - improved socio-economic condition; increased education, employment, and income opportunities, as well as infrastructural development.

Background

Sikkim is a small state located in North-East of India with a total geographical area of 7096 sq.kms. Sikkim is well setting for ecotourism development due to its abundant natural beauty, flora and fauna and unique essence of indigenous cultures. Govt. of Sikkim, FEWMD report (2011) mentions that the state is embraced with rich biodiversity of more than with the rich biodiversity of more than 4,500 species of flowering plants, more than 50 species of Pisces, 690 species of butterfly, 16 species of amphibians, 78 species of reptiles, 550 species of birds, 154 species of mammals. The forest coverage of the state was 37% in 1975, 43.95 percent in 1993 then it steadily increased to 47.34 percent in 2013.

Sikkim is growing fastest in terms of tourism and is renowned leading ecotourism destination in the north-east region of India. The state is predominantly rural in nature and being promoting ecotourism improves income generation without harming the environment. Tourist visiting the rural parts of state motivates the local community to engage themselves in environment related tourism business. Ecotourism is the only viable industry to enhance livelihood opportunity to the rural community of Sikkim. Yuksom is the first village to practice ecotourism under the JICA project with the collaboration of Forest Department. Ecotourism in Sikkim is reflected in the combination of Trekking and Homestay which actually falls in Rural and Adventure tourism. Trekking is the major recreation activity for the visitors to enjoy within the natural world in Sikkim (Watabe, 2010) Ecotourism focuses on environmentally sound practices and generating widespread economic benefits, offers an opportunity for Sikkim to improve the livelihoods of its mountain communities and protect its unique heritage. Ecotourism in Sikkim is practices in the fringe area of Khanchendzonga National park (World Heritage Site) and the Wildlife Sanctuary. (Wildlife Circle, 2014)

Literature Review

Ecotourism is studied on different aspects and its development due to which an extensive literature review was made for this study. Campbell(1999), holds the view that the absence of government planning and intervention led to *ad hoc* development of ecotourism at Ostional, Costa Rica. The Lack of awareness and increased outside investors has great impact on rural community. However, despite the positive attitudes of local residents toward tourism the benefit shared was limited for tourism development. Fennell (2000) in his book highlighted the need of eco - friendly tourism in order to get maximum benefit without affecting and altering physical and social quality. According to Nilson (2006) ecotourism is ecologically and economically sustainable nature and culture tourism. He opines that the important factors for the improvement of sustainable rural ecotourism is development of better nature and culture travel package. Ecotourism contributes direct money to the local rural economy. Tambe, Bhutia, & Arrawatia (2007) highlighted that different ecotourism activities developed in unique geographical settings makes possible to perform tourism activities throughout the years resulting ecotourism as an important economy contributor to Sikkim.

Cotthem (2007), viewed Ecotourism, a new source of income that transforms rural communities in sub-Saharan Africa. The study finds that "Increasing numbers of rural communities are signing commercial agreements with private companies to develop ecotourism pursuits on community land". This enables poor rural people to diversify their livelihoods and creates economic incentives to protect natural resources. Therefore, the development of Sustainable community-based ecotourism depends on how local people are maintaining control over natural resources. Bhattacharjee & Kumari (2009) in their study reported that the increase number of tourists in Khanchendzonga National Park due to the world renowned Dzongri Trail has created enormous pressure on its natural resources results in degradation near the settlement of tourists campsites. Buckley (2009) in his book "*Ecotourism: Principles and Practices*" has mentioned that Ecotourism has an immense potentiality to generate economic return from the undisturbed natural environment. Community based ecotourism is recognized as one particular type of Ecotourism where the primary focuses is on the involvement of the local communities and are socially benefitted to a larger extent. Chakraborty (2009) in his study mentioned that the transformation of the state into ecofriendly greenest destiantion is moreover due to the construction pattern of Urban centres of Sikkim. Kumar & Kumar (2009) holds the view that local people are very much enthusiastic to developed ancient caves as an important ecotourist site in Bihar. Hence, such movement would benefit the people socialy and economically. Oliveira & Silva, (2010)indicated that tourism development in rural areas improved the social and economic dynamics of local communities. The participation of local communities enlarged the sustainability of the destination by increasing economic activities and conservation of natural resources. However, the natural and cultural resources enchanced the development of environmental and green forms of toursim. Karmakar (2011) in his book "*Growth of Ecotourism in North Bengal and Sikkim*" mentioned that the influence of ecotourism on small communities is all based on the locally available natural and cultural resources. Soft adventure tourism and camping is an acceptable ecotourism product in the rural area due to which local community of Sikkim are motivated to get involve in ecotourism related activities. Tugba, Gulen, & Canan (2011) in their study indicated that ecotourism would be more understandable thorugh environmental, sociological and economic category. Community based ecotourism has significant potential effect to develop positive attitude of the local communities.

Aslam (2012) critically analysed and reviewed the existing published and unpublished literature on sustainable rural tourism. Lee (2005) quoted in (Aslam, 2012) mentioned that agricultural resources is a traditional economic base to sustain rural development and contributes largely towards the growth of tourism industry. The holistic process reviewed that understanding and awareness of stakeholders and local community is the primary requirement of sustainable tourism in rural areas. Bhattarai & Pandey, 2012 in their study stated that Sikkim is the home of Mt. Khanchendzonga the third highest mountain in the world, land of elaborate festivals and fairs, snow-capped mountains, lakes, religious hubs, hot springs, diverse cultures and natural wonders becomes an essential aspect in a refreshing atmosphere that promotes ecotourism in Sikkim. Sikkim is gaining popularity in the contest of ecotourism hotspot destination of India. Dorobantu & Nistoreanu (2012) in their study on *Rural Tourism and Ecotourism: the Main Priorities in Sustainable Development Orientation in Romania*, mentioned that there is a close relationship between rural tourism and ecotourism in order to preserve the local traditions and their feasible equilibrium is the need for sustainable development. The rural life style has transformed from agriculture to the industrial dependence since the major changes in technology. However, the change not only creates opportunities to rural community but favored with the challenges due to overexploitation of the natural resources. Therefore, ecological thinking makes possible of rural tourism development sustainably. According to Murphy(2013) the modern holiday industry begins when the people travelled to natural areas for relaxation from the congested urban environment. Dam(2013) in her study indicates that majority of tourists are unaware about sustainability aspects of ecotourism in Sikkim mostly among the domestic tourists. Ecotourism in Sikkim is practiced in protected areas where trekking, mountaineering and homestay are the main activities offered to tourists in this pristine environment with warm local hospitality. The author opines that development of ecotourism spots and products should based on nature and culture aspects which ultimately provides an income opportunities to the local communities.

Kakroodi & Gosha (2013), in their study has mentioned that the increasing number of tourist in Javaherdeh village develops supplementary activities in the field of agriculture, cultural, employment, and income. As to many countries, only village is a source of cultural and natural heritage. Expansion of ecotourism activities in rural areas attracts more environmental concerns people. Rao & Pawar (2013), in their study highlighted that involvement of local community in ecotourism is very low and neglected in process of ecotourism project implementation in Dandeli. Despite being neglected, the communities respect policy and reduce in illegal trading of forest products. The study revealed that the local communities were not priotized for job in the Dandeli Wildlife Sanctuary even though the Ecotourism project generates entrepreneurship to a larger extent. Therefore, active participation of local communities with Tourism Development Agencies led to positive effect of ecotourism and balance between conservation and development. Andrei, Gogonea, Christescu, Sztruen, & Busuioc (2014) highlighted that ecotourism is viable alternative for economic development of Romanian rural communities. Collaboration of various specialists is highly required in Protection and conservation of rural tourism. In this regard, the participation of local people in environment protection, economic and cultural – historical traditions contribute in eco-rural development. Chaudhary & Lama (2014) holds the view that despite being local communities as the central stakeholder for the development of Communtiy Based Tourism in rural areas, the lack of awareness has led them to remain unexplored and isolated. Hence, the NGOs ecouraged the local communties realizing their role in Community Based Tourism Development. Chakrabarti (2014) critically analyses that Sikkim has been identified as a popular tourist destination in the world and major role is played by the government in reviving tourism in the state. There is a need of the collaboration of the government agencies and private agencies for the development of tourism in the state which is seen working in isolation with each other. The author felt that Sikkim needs to have an integrated approach with the involvement of all the stakeholders and the local communities and then only tourism can be developed in a better way all over the state. According to Kumar (2014) Sikkim is the first state to structure an effective ecotourism policy with due support and assistance of experts from Japan. The ecotourism policy outcome revealed the state as the status of the cleanest state on the basis of their conservation initiatives. Hence, the state has been declared as the best ecotourism destination of the basis of a survey conducted by the world's leading travel guide 'Lonely Planet'.

According to Pandey (2014) Tourism in Sikkim is not only for its natural beauty but also to see the tribal culture and traditions due to which tourism helps to preserve indigenous life style and culture. He has highlighted that ecotourism is the only suitable option for the development of socio-economic life of the people in the state. According to Laitpharlang (2014) eco-cultural tourism is a heady force for the overall economic, social and cultural development as well as biodiversity conservation. He has mentioned that responsible tourism as a form of tourism ultimately supports in the conservation of environment and culture through rural lifestyle. Viji (2014), holds the view that ecotourism is the most suitable economic sector in the rural areas that diversify the local economy within the community and create employment directly and indirectly to the people who are excessively dependent on agriculture. The author opines that majority of the income from ecotourism is retained with the local people due to which they pay attention in conserving the environment. Winkler & Zimmermann (2014), hold the views that ecotourism has big effect on small development in community level in terms of local empowerment and protecting the pristine nature. It is necessary to make participation of local community in ecotourism project planning and to educate them in sustainable ecotourism development. Therefore, with this participation communities benefits financially if not then the ecotourism project discontinued. Dahal (2015), stated that community based ecotourism has a great impact on indigenous community that transform the lives of poor people, alleviate poverty and develop conservation as well. This study considered social capital as one of the important aspects for the success of Community Based Ecotourims Development. According to Chettri & Sharma (2016), communities participation necessary required to reconcile conservation of mountain ecosystem due to which a strong thrust has been given to community development. The study revealed that protected areas have increased greatly in number and shown that biodiversity conservation requires a comprehensive and multi-scaled approach. Therefore, the conservation efforts based on community participation has been more effective. KC (2016) suggested that a better cooperation among different entrepreneurs and apporpriate management policy has high rate of beneficial impacts in the development of rural areas according to the review of ecotourism researchers.

Thomas (2016) has mentioned that ecotourism is an important environmental friendly source of income and has positively contributed directly and indirectly to economic impact on the local communities. Nsukwini & Bob (2016), in their study hold the view that the involvement of Nompondo communities residing adjacent to protected areas is highly benefitted in various ways from ecotourism and develop a positive relation between Park and the community. Therefore, the local community has changed their perception positively towards Park management and realized its strength in socio-economic impacts and benefits. Community involvement is increasing in nature conservation and ecotourism development. Nugroho, Pramukanto, Negara, Purnomowati, & Wulandari (2016), in their study holds the view that ecotourism has changed the rural lifestyle from agricultural to tourism-friendly society and improve welfare to farmer and promotes conservation. The study revealed that homestay is an essential part of rural tourism development that generates revenue to the local community. Hence, Homestay is a platform to showcase the products and services, and evaluation of quality standards of tourism in rural areas Doke (2017) holds the view that Ecotourism is 'environment- friendly' tourism and is the fastest growing segment of international tourism in the world that contributes environment protection and sustainable use of natural resources for tourism development in Bhor. In addition, it has great potentials of economic development and the conservation of natural environment area. According to Acquah, Nsor, Arthur, & Boadi (2017) " increased awareness and respect for local cultures,putting the communities in the global spotlight and increased support for conservation are the socio-cultural benefits of of ecotourism in the sanctuary adjacent communities". Therefore local people develop positive attitude towards ecotourism practices in the village and the conservation efforts. Jefferies (2017), stated that ecotourism is different from the general tourism since it requires specialist stakeholder in conservation knowledge or skills.

Kaewkhunok (2018), mentioned that Ecotourism Policy is an important tool in changing the ecotourism management in the state of Sikkim. In addition, participation of the local people to in ecotourism activities is based on ecotourism policies and regulations issued by the Ecotourism Council. According to Seal (), the growth of tourism enterprises increases the power of women within the family and the community. Tourism hospitality in addition is the central part for its growth. Das (2019) highlighted the issues and challenges of sustainable tourism development in the state of Sikkim in terms of ecology, limited employment opportunities to the local, lack of regulation/ standards, connectivity, and communication. The high influx of tourist in the state has led to pressure on the infrastructure, environment and culture due to which a new approach in sustainable planning of the region has to be initiated. Furthermore, it is suggested that Research should be undertaken throughout all stages of tourism development in Sikkim.

Research Gap

Tourism has transformed the occupation pattern of rural areas in Sikkim for more than a decade. The educated youth are being trained in different fields of tourism and thus their involvement in tourism sector is increasing day by day. Ecotourism is preferred by tourists as it furnishes a taste of rural lifestyle along with soft adventure in pristine environment, rather than staying in bigger towns and cities. State government of Sikkim has been promoting ecotourism with incentives provided directly to the local community as ecotourism is an important tool for socio-economic growth of rural community. However, no study has been undertaken to find out the role of ecotourism in sustainable development of rural community of Sikkim. This study is an attempt in case study mode to fill in this research gap.

Objectives:

This study will focus on finding:

(i) The impact of ecotourism on rural community; and
(ii) Role of government agency in the marketing of rural ecotourism destinations.

Methodology

A descriptive research methodology has been used for this study. The village selected for the Case Study, namely Okharey is popular for ecotourism and is located in the western part of Sikkim. The present study is based on both quantitative and qualitative method based on both primary and secondary data. Primary data was collected using Random sampling technique in the study village of Sikkim. The sample size used for the study is 60 respondents. The primary date has been collected using structured questionnaire and observation. Personal interviews were also conducted to find out the socio-economic condition of the local residents in the study area who are involved in the ecotourism activities. Secondary data has been collected from the various literatures like government reports, journals, books and internet sources. The findings are presented in the forms of table analysis along with column, line, bar graphs and pie charts.

Findings

Ecotourism enhances the impacts on socio-economic status of the local community in Sikkim. This study provides the imminent impact of ecotourism related activities in the case study area namely Okharey. The data in the present case study is analysed and interpreted in the light of the objectives of the study.

Objectives 1: To find out the impacts of ecotourism on rural community

Okhrey is a base village for Barsey Rhododendron Sanctuary and is one of the mostly visited natural spot in Sikkim. This village is well-known for Ecotourism zone identified by the Forest department. The village is inhabited by the well known Himalayan tribe the "Sherpas". The diverse flora and fauna, symbiotic living of the local community and their traditions and rituals, trekking routes with the majestic view of Mt. Khanchendzonga supports in promoting ecotourism in the village. In an earlier time, the village is dominated by the agriculture as the main occupation and income source but now tourism is the main source of income besides government jobs. The village is transformed into a beautiful ecotourist destination. The village is famous for the major production of Potato in the state.

Barsey Rhododendron Sanctuary is the main attraction for tourists to be halted in this village. The increasing number of educated young generation in ecotourism business ultimately benefitted to the whole community in the context of income, employment, eco-friendly infrastructure development, environmental conservation and education, etc. To understand the perception of the local community about the benefits of ecotourism, the Gender and Age are considered an important factor.

Field Visit

Interaction with Local People

Table 1 shows that out of total 60 respondents, 38 (63%) were males and 22 (37.3%) were Females. *More males than females were involved in ecotourism business and for this reason larger number of male respondents was represented in this study.*

Gender	Frequency	%
Male	38	63
Female	22	37
Total	**60**	**100**

Table 1: Gender distribution of the respondents

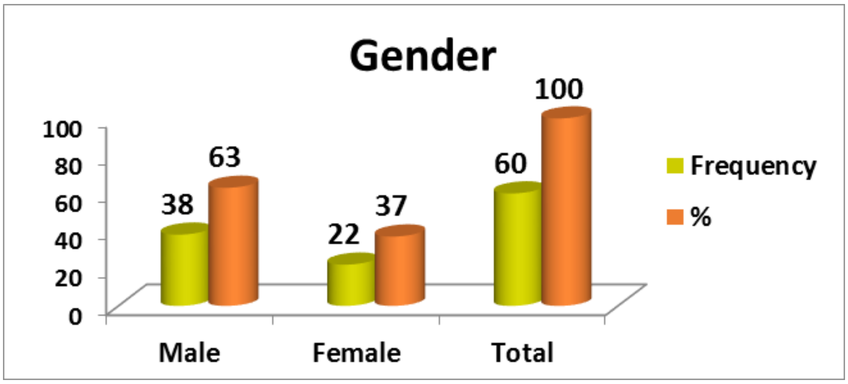


Figure 1: Gender of the Respondents'

Table 2 shows the age groups of the respondents who participated in the study in order to understand the perception of the local people regarding the benefits of ecotourism, respondents belonging to wide section of age groups were selected for the study. This shows the majority of respondents (46.6%) involved in ecotourism belong to this age group of 20-30 years. Besides, more than (41.6%) of the respondents belonged to the age group of 30-40 years, and nearly (5%) belonged to the age group of 40-50 years. Participation of respondents in the age groups of below 20 years (3.3%) and above 50 years (3.3%) was minimal.

Age Group	Frequency	%
Below 20	2	3.3
20-30	28	46.6
30-40	25	41.6
40-50	3	5
Above 50	2	3.3
Total	**60**	**100**

Table 2: Age distribution of the Respondents

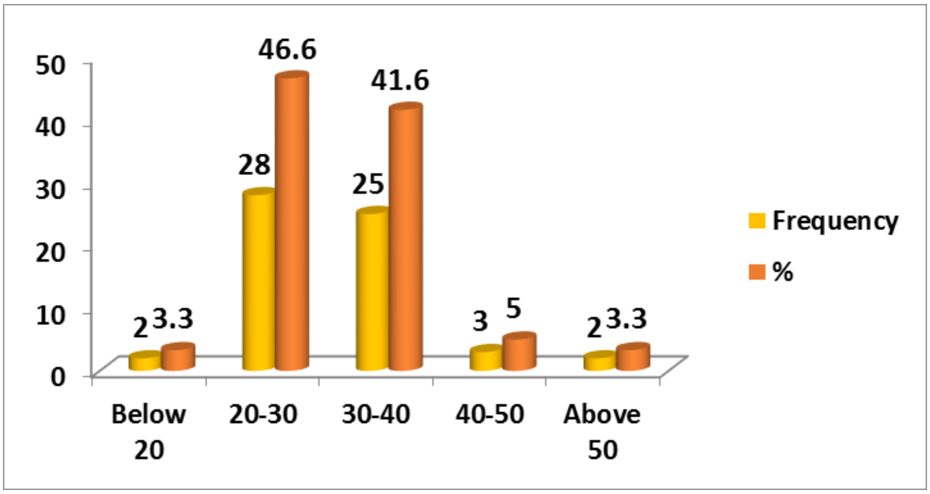


Figure 2: Age Group of the Respondent

Table 3 shows the occupation of 60 respondents Out of which 25 (41.6 %) respondents were running home stays, 8 (13.3%) respondents were involved in Preparation and selling of Local wine, 7(11.6%) were trekking guides, 7(11.6) were tourist cab drivers, 3 (5%) were bird watcher guide, 2(3.3%) respondents owned Restaurant, and 2(3.3%) of respondent worked as porter in trekking group, and 2 (3.3%) % of the respondents run Forest Trekkers Huts within the sanctuary.

Occupation	No of Respondents	Percentage %
Homestay Operator	25	41.6
Trekking Guide	7	11.6
Bird watching Guide	3	5
Porters	2	3.3
Tourist Cab Drivers	7	11.6
Local Wine Preparation	8	13.3
Culture Performers	4	6.6
Restaurant	2	3.3
Manager in Forest Trekkers Huts	2	3.3
Total	**60**	**100**

Table 3: Occupational breakup of Respondents through Ecotourism

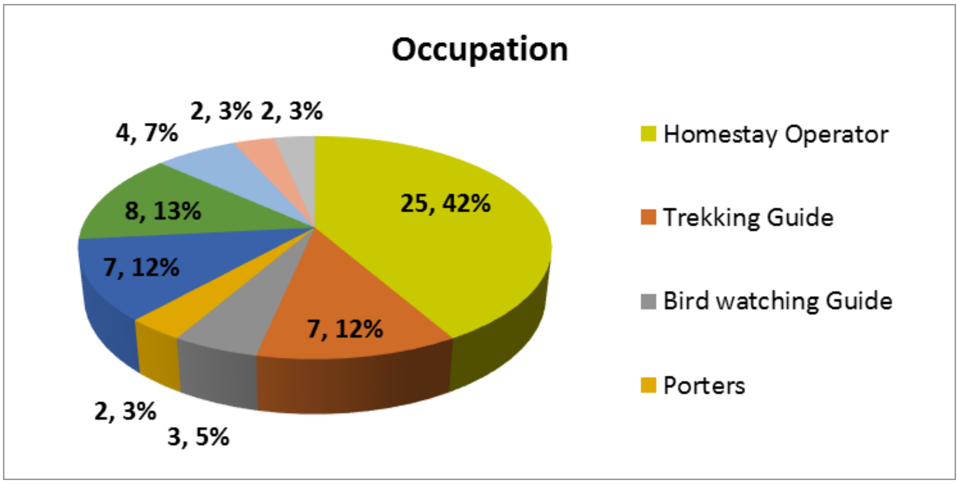


Figure 1: Respondents' Occupation due to Ecotourism

Table 4 show the respondents' approximate annual income earned through ecotourism. It was observed that a huge difference was made in earning of income pattern of local community. The survey in the study area revealed that approximate annual income from ecotourism varied from less than Rs. 5000 to Rs. 3, 00000 or more. The study observed that 17 respondents earned between Rs. 2, 00000 to Rs. 3, 00000 per year which was larger number of respondents in the survey study and the respondents were satisfied with this income. Out of 60 respondents, 10 respondents earned in between Rs 1, 00000 to Rs 2, 00000 per year and the study shows that this is an additional source of income. The 10 respondents earned in between Rs 20,000 to Rs 30,000 per year, 7 respondents earned in between Rs 50,000 to Rs 1, 00000, whereas 5 respondents earned between Rs 20,000 to Rs 30,000 per year and 4 respondents earned between Rs 30,000 to Rs 50,000 per year, 3 respondents earned more than 3, 00000 hence 2 respondents earned between Rs 10,000 to Rs 20,000 and 2 respondents earned below Rs 5000. *The data shows that local communities are largely benefitted in terms of income generated through ecotourism and ecotourism has supported to uplift their economic level and living standard.*

Income in Rupees	No. of Respondents	Percentage
Below 5000	2	3.3
5000-10,000	2	3.3
10,000-20,000	10	23.3
20,000-30,000	5	28.3
30,000-50,000	4	6.6
50,000-1,00000	7	11.6
1,00000-2,00000	10	16.6
2,00000-3,00000	17	3.3
Above 3,00000	3	3.3
Total	**60**	**100**

Table 4: Appropriate Income from Ecotourism

Table 5 shows the knowledge and understanding of ecotourism among the respondents who are participating in offering ecotourism activities. Out of 60 respondents 55 (92%) of the respondents are aware of ecotourism whereas 5 (8%) of the respondents are not aware of ecotourism. *The survey study revealed that majority of the respondents has some amount of knowledge about ecotourism and its practices.*

Opinion	Frequency	%
Yes	55	92
No	5	8
Total	**60**	**100**

Table 5: Knowledge of Ecotourism

Table 6 depicts the understanding attributes of ecotourism by the local community. Out of 60 respondents 15 (25%) of the respondents understand ecotourism as “rest and relaxation in a homestay”, 13 (21.6%) of the respondents indicates to “trekking through the forest”, 12 (20%) of the respondents refer to “see natural scenic beauty”, 10 (16.6%) mention “visiting wildlife sanctuary” and another 10 (16.6%) of the respondents’ mention “see indigenous cultures and traditions” as ecotourism.

Attributes	No of Respondents	Percentage %
Visiting Wildlife Sanctuary	10	16.6
Rest and Relax in Homestay	15	25

To see indigenous cultures and traditions	10	16.6
To see natural scenic beauty	12	20
To experience trekking through the forest	13	21.6
Total	**60**	**100**

Table 6. Understanding attributes of ecotourism by the local communities

Table 7 shows the inflow of tourist to Barsey Rhododendron Sanctuary. The study revealed that 95% of the tourists' data mentioned in above table stays in Homestays at Okharey at least for minimum of two days. and the revenue generated from the entry tickets are utilized in plantation and conservation of the Rhododendron Sanctuary and rural activities for ecotourism development. The data shows that there is a huge difference between Domestic and International tourists visiting towards the Sanctuary. *The carrying capacity is automatically maintained due to its seasonality.*

Year	Domestic Tourist	International Tourist	Total	Entry Fees Collected (In Rupee)
2005-2006	2159	27	2186	65,250
2006-2007	2559	20	2597	71,565
2007-2008	2099	13	2122	62,705
2008-2009	2890	15	2905	79,555
2009-2010	3574	13	3587	97,835
2010-2011	3025	16	33041	1,09,810
2011-2012	3315	10	3325	1,84,870
2012-2013	3193	12	3205	1,73,435
2013-2014	3640	19	3659	1,75,325
2014-2015	3327	07	3334	1,85,850
2015-2016	3098	32	3130	1,95,830
2016- 2017	3787	44	3831	2,639,30
2017-2018	4248	36	4284	2,75,850
2018-2019	3098	22	3120	1,80,420
TOTAL	**44012**	**286**	**74326**	**376910**

Table 7: Tourist Inflow in Barsey Rhododendron Sanctuary since from (2005-2018)
Source: *Forest Check post, Barsey Wildlife Sanctuary, West Sikkim*

Objectives 2: To find out the role of Government agency in the marketing of rural ecotourism destination.

Department of Forest Environment and Wildlife Management is the nodal agency for ecotourism development in Sikkim. This department has established a separate Ecotourism Cell under the Directorate of Ecotourism for the marketing of ecotourism zones and products. Ecotourism Policy has been formulated by the department for proper implementation and control on ecotourism zones. Department has consulted with the local community in planning process and the available products in Okharey.

1. Barsey Rhododendron Sanctuary is the protected area of Sikkim and the forest department has relaxed rules for allowing the tourists to enjoy the beautiful and Colorful sanctuary. The Forest department has demarcated this protected areas in the three zones such as:

- *Core Zone*: Totally restricted and prohibited all the human activities except for the maintenance work.
- *Buffer Zone*: Multiple use zones such as plantation and afforestation.
- *Tourism Zone*: Tourism utilization zone, such as trekking and camping only in the designated area or routes.

2. Accommodation within the Barsey Sanctuary**:** Forest department has established a Trekkers Hut within the sanctuary area such as Guras Kunj and Forest Barrack. These trekker's huts are lease out to the local interested people of Okharey to operate and serve to tourists under forest department.

Guras Kunj **Forest Barrack**

Source: *Courtesy; the Roaming Shoes*

3. Local community are the member of Ecotourism Development Committee (EDCs) in this zone and plays the following roles:

- ✓ Assistance in forestry works.
- ✓ Assistance in eco development activities.
- ✓ Assistance in ecotourism activities.
- ✓ Assistance in the implementation of various forest legislations.
- ✓ Protection and conservation of forests, environment, wildlife and biodiversity

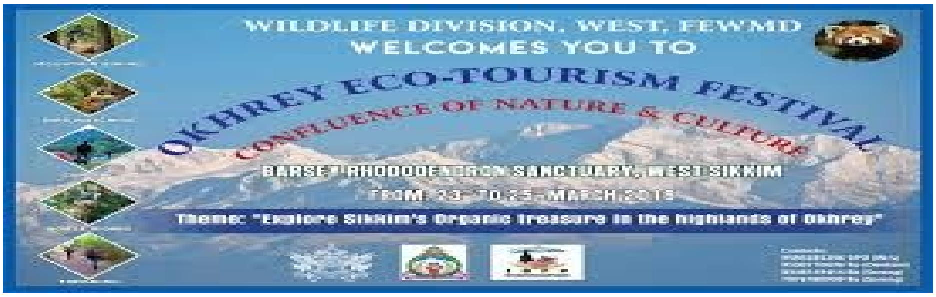
4. Forest department organises awareness programme and capacity building training provided to the local people in the study area on Homestay operation, Cooking, Trekking and Bird Watching Guides etc.

5. The study revealed that Directorate of Ecotourism has identified this study area as ecotourism zone in Sikkim based on the ongoing rural tourism activities within the village.

Protected Areas	Location	Ecotourism Zone	Ecotourism Activities

Barsey Rhododendron Sanctuary	West District	Okharey	✓ Trekking and Hiking through the forest within the Sanctuary. ✓ Relax in Homestay with local hospitality. ✓ Observing Cultural activities. ✓ Visiting Oldest Monastery. ✓ Bird watching ✓ Village walks ✓ Tasting Local cuisine and wine ✓ Participate in Agro-farming ✓ Gastronomy

Table 8: Showing study area, Okharey West Sikkim

6. Online promotion and marketing of this zone in the departmental websites of Sikkim Forest Environment and Wildlife Management Department.
7. Constant support from Forest department in the organization of first (2015) and second (2018) Ecotourism festival in order to boost ecotourism benefits in the village.
8. 

Source: *FEWMD, Government of Sikkim*

Discussion

Findings of the study revealed that Ecotourism in Sikkim is still in the nascent stage of development despite being practices since 1995. It was observed that increase in tourist inflow is larger in number only after the declaration of ecotourism zone 'Okharey' by Forest, Environment and Wildlife Management Department. Okharey is a newly growing ecotourism destination in Sikkim. The local community has priotized ecotourism as an important sector for economic development in the village only after attending the various trainings related to ecotourism services. The organization of ecotourism festival in the village by Ecotourism Cell, Forest, Environment and Wildlife Management Department motivated the local community to engage themselves in Ecotourism related activities. Survey revealed that 90% of the local people in the study area are aware of Ecotourism and its benefits due to the awareness programme, trainings and ecotourism festival organized by Forest, Environment and Wildlife Management Department time to time.

Directly and indirectly Locals are engaged in Ecotourism business in Okharey and to some people it has been an additional source of income. Homestay is pioneered as a tool to empower local people and gives an ample opportunity to sustain their livelihood but the local communities of Okharey are not satisfied with the distribution of Homestay permissions by the Tourism department as they feel it is biased to political influence among the local community. Ecotourism is a potential source of income generation in the remote village areas and employment opportunities to the local community. The indirect economic benefits in the form of multiplier effects are much more in the rural areas of Sikkim and Okharey is no exception to these benefits. The local community is opting for ecotourism in small scale and is largely focused on mass tourism since 'more footprints more money.' The locals are more excited to engage themselves in ecotourism related business in the village only if the inflow of tourist in village is arranged by the department.

The survey study shows that out of the 60 respondents, 99% of locals are involved in ecotourism related business and are largely benefitted in economic upliftment and standard of living was they have all basic domestic amenities. It was observed that requirement of constant training is a high demand of the local community.

Interviewed with Mr. Mingma Norbu Sherpa (Founder of homestay establishment in Okharey and now a Power Minister, Government of Sikkim) brought forth the fact that he was the first person to *provide accommodation service* to tourist in his private house along with local food for a minimal rate of Rs 300/- to the tourists visiting to Barsey Rhododendron Sanctuary *in the year 1998*. So, we can say that *homestay and tourism was existed long before the declaration of this village as ecotourism zone by Forest department.* He said that to a large extent Nature lovers have visited since 1998 till date. He has encouraged the locals to run homestay in their private houses so that at least a minimum income would generated. Slowly the locals have developed interest in homestay business and now this study has revealed that Majority (80%) of the locals are running homestay in Okharey (30 in number) and many more plan to start in the coming days. Locals are satisfied with the income generated from homestay and are a great inspiration to other local communities in the adjoining villages.

It was observed that around 10% of the Locals are indirectly engaged in ecotourism business though selling of organic vegetables, local meat and dairy products to the homestay owner. *Women are largely engaged in the preparation of Local Wine which ultimately generates income Upto Rs 50,000 to 1 lakhs per year.* Moreover, the locals are economically benefitted as they are engaged in various ecotourism supporting jobs.

Interview with the members of local NGOs namely, "Okharey Ecotourism Development Committee" revealed that the local community are more dependent on them regarding tourist inflow to the village. It was observed that this committee motivates the locals to actively participate in Plantation, Beautification of the village, Cleanliness drive in the village and the Sanctuary as well as showcase of cultural programme to tourists. Interaction with local Association further revealed that the reason to visit this village is to relax in Homestays, Cool environment, Trek to Barsey Rhododendron Sanctuary and to see the culture of indigenous tribes.

Lastly, it was observed that ecotourism practices in Okharey have improved the socio-economic conditions of the local communities with the income earned from various ecotourism related activities especially Homestays. With the income earned from ecotourism 70% of the local community enhances in providing good education to their children and uplift the living standard and fulfilled the basic necessity in their lives. *Interestingly, Ecotourism practices in the village has revived the culture and traditions of the indigenous tribal community 'The Sherpa'.*

Conclusion

This paper examined the socio-economic impacts of ecotourism in Okharey, an ecotourism destination with huge potentiality of attracting tourists. Ecotourism plays an important role in the study area in the overall socio-economic development of the local community as the income generated through ecotourism goes directly to the local community and they are happy and satisfied with their involvement in ecotourism. The positive impact of ecotourism in the study area has led to the revival of their culture as well as their involvement in the conservation and preservation of natural resources which supports ecotourism growth to a larger extent.

Suggestions:

Okharey village is proving to a great inspiration to other villages. However, a few changes will prove to be a boon for all concerned.

1. Build Permanent link with tourism promoting agencies; travel agencies, tour operators and others to promote this remotest rural village.
2. Tourist's feedback to be made mandatory with regard to the ecotourism activities, Homestays, amenities and the services availed. This will help improve services.
3. Wider Promotion of Homestay ecotourism through electronic media (websites, portals, blogs, etc).
4. Capacity building programs on homestay, birding, trekking guides, nature guides, porters, trek cooks, etc are to be imparted to the young people and women in the surrounding villages of Wildlife Protected Areas.
5. Construction of footpaths as nature walks and Canopy within the Wildlife Sanctuary would enhance ecotourism.
6. Avoid any construction of Cafeteria in the villages by the Department of Tourism & Civil as it will impact the local people in earning their livelihood.
7. Tea house can be operated in the fringe's villages of the Wildlife Sanctuary and which will ultimately benefit the rural people, particularly women.
8. Homestay opportunities provided by Department of Tourism and Civil Aviation; Government of Sikkim is not successful as it was not distributed to the interested people. In future, scheme benefits should be distributed after proper survey and interactions with the villagers to promote ecotourism.
9. The primary attraction in the study area is Trekking which in turn generates employment and income opportunity; so Trekking trials need to be maintained from time to time at least before the season starts.
10. Media and Publicity is required in the study villages to promote ecotourism, local media can also be encouraged.
11. Tourist wants to extend their stay in the village but it has never been possible due to unavailability of Banking and ATM facilities. Therefore, these basic amenities in ecotourism villages like nationalized bank along with ATM facility need to be provided.
12. Capacity Building Training Programmes to be organized for nature guide, trekking and homestay business regularly so as to keep people motivated as well as to inspire new people to join the business of ecotourism.

References:

Acquah, E., Nsor, C. A., Arthur, E. K., & Boadi, S. (2017). The Socio-Cultural impact of ecotourism on park-adjacent communities in Ghana. *African Journal of Hospitality, Tourism and Leisure , Vol.6* (No.2), 1-14.

Andrei, D. R., Gogonea, R. M., Chiritescu, V., Sztruten Lefter, G., & Busuioc, F. M. (2014). Ecotourism as a viable alternative for economic development of Romanian rural communities. *Bulletin UASVM Agriculture , 71* (1), 1-7.

Aslam, M. (2012). Issues and Challenges in Sustainable Tourism Development in Rural Areas. *Research Gate* , pp 1-9.

Bansal, S. P., & Gautam, P. (2007). *Sustainable Tourism Development: A Himalayan Experiences.* New Delhi: Indus Publishing Company .

Basu, K. Ecotourism of Sikkim- A Step Towards Sustainable Development. *Vision- a Dwijendralal College Journal , 1*.

Bhattacharjee, P., & Kumari, S. (2009). Tourism in Sikim: Quest for a Self Reliant Economy. *NEHU Journal , Vol.III* (No.1), 89.

Bhattarai, B., & Pandey, D. (2012). Ecotourism: An Engine of Economic Growth in Sikkim. *Kurukshetra: A Journal of Rural Development.* , pp. 43–46.

Buckley, R. (2009). *Ecotourism: Principles and Practices.* Cambridge, UK.: Cambridge university press.

Buckley, R. (2000). Neat Trends :Current Issues in Nature ,Eco-and Adventure Tourism. *International Journal of Tourism Research 2.*

Campbell, L. (1999). Ecotourism in rural developing communities. *1999 , 26* (3), 534-553.

Chakrabarti, A. (2014). Economic Development and Tourism in Sikkim: A Critical Review. *International Journal of Research in Commerce, Economics and Management , 4* (3).

Chakraborty, A. (2009). Tourism in sikkim: Quest for Self Reliant Economy. *NEHU Journal , Vol. III* (No.1), 89.

Chaudhary, M., & Lama, R. (2014). Community Based Tourism Development in Sikkim of India– A Study of Darap and Pastanga Villages. *Transnational Corporations Review , Volume 6* (Number 3), 241-268.

Chettri, N., & Sharma, E. (2016). Reconciling the Mountain Biodiversity Conservation and Human Wellbeing: Drivers of Biodiversity Loss and New Approaches in the Hindu Kush Himalayas. *Proc Indian Natn Sci Acad , 82* (1), 53-73.

Cotthem, W. V. (2007). Retrieved from http://www.id21.org/rural/r1fn1g1.html.

Dahal, D. R. (2015). Pastanga Khedi, a potential Ecotourism Destination in Taksom Valley, East Sikkim, India: Scope for promoting nature adventure. *Envis Centre Sikkim on Ecotourism* , 1-8.

Dam, S. (2013). Issues of Sustainable Ecotourism Development in Sikkim: An Analysis. *South Asian Journal of Tourism and Heritage , Vol. 6* (No. 2).

Das, S. (2019). Towards the Development of Sustainable Tourism in Sikkim, India: Issues and Challenges. *International Journal of Research in Social Sciences , Vol. 9* (Issue 2), 575-591.

Doke, A. (2017). Ecotourism as a field of Sustainable Rural Development: A case study of Bhor Tehsil (MS). *INTERNATIONAL RESEARCH JOURNAL OF MULTIDISCIPLINARY STUDIES , Vol. 3* (Issue 6), 1-8.

Dorobantu, M. R., & Nistoreanu, P. (2012). Rural Tourism and Ecotourism – the Main Priorities in Sustainable Development Orientations of Rural Local Communities in Romania. *Economy Transdisciplinarity Cognition , Vol. XV* (Issue 1), 259-266.

Dorobantu, M. R., & Nistoreanu, P. (2012). Rural Tourism and Ecotourism:the Main Priorities in Sustainable Development Orientation in Romania. *Economy Transdisciplinarity Cognition , Vol. XV* (1), 259-266.

Fennell, &. D. (2000). Ecotourism-Second Edition. 72-78.

Fennell, D. (2000). *Ecotourism-: An Introduction* (Second Edition ed.). London: Routledge.

FEWMD. (2011). *Sikkim Ecotourism Policy:2011.* Deorali, Gangtok: Sikkim Biodiversity Conservation and Forest Management.

FEWMD, I. R. (2009). *Preparatory Study on Integrated project for Sustainable Development of Forest Resources in Sikkim.* Gangtok Sikkim: Department of Forest, Environment & Wildlife Management, Government of Sikkim.

Jefferies, A. (2017). Ecotourism can help rural areas to deliver sustainable growth. *Environment Journal* .

Kaewkhunok, S. (2018). Public Participation and Ecotourism: The role and the right of people in Sikkim. *South Asian Democratic Forum* (37).

Kakroodi, N. I., & Gosha, M. G. (2013). The role of Ecotourism in Rural Sustainable Development Case Study of the Javaherdeh Village, Ramsar, Iran. *Journal of Basic and Applied Scientific Research , 3* (6), 529-534,.

Kamrmakar, M. (2011). *Growth of Ecotourism in North Bengal & Sikkim.* Siliguri, West Bengal: N.L Publication.

KC, A. (2016). Ecotourism and Its Role in Sustainable Development of Nepal. *Tourism - From Empirical Research Towards Practical Application* , 31-59.

Kumar, A. (2014). Sikkim; A Role Model of Ecotourism in India: A Critical Analysis. *Indian Streams Research Journal , 4* (6).

Kumar, A., & Kumar, V. (2009). Assessment of Socio-economic impact of Tourism/ Eco-Tourism at Barabar and Nagarjuni(B and N) Hills in Bihar (India). *Journal of Environment Research and Development , Vol. 4* (No. 2), 601-610.

Laitpharlang, C. (2014). Eco-Cultural Tourism: A Tool for Environmental, Cultural and Economic Sustainability (A Case Study of Darap Village, West Sikkim). *SHS Web of Conferences* .

Murphy, P. E. (2013). *Tourism: A community approach.* London: Routledge.

Murphy, P. E. (2013). *Tourism: A community approach.* NewYork: Routledge, London.

Nilson, N. O. (2006). Rural Development Through Ecotourism. In S. G. Hultman, *ECOTOURISM IN SCANDINAVIA: Lessons in Theory and Practice* (pp. 133-142). Lund University, Helsingborg, Sweden: CAB International.

Nsukwini, S., & Bob, U. (2016). The socio-economic impacts of ecotourism in rural areas: a case study of Nompondo and the Hluhluwe-iMfolozi Park (HiP). *African Journal of Hospitality, Tourism and Leisure , Vol 5* (3), 1-15.

Nugroho, I., Pramukanto, F. H., Negara, P. D., Purnomowati, W., & Wulandari, W. (2016). Promoting the Rural Development through the Ecotourism Activities in Indonesia. *American Journal of Tourism Management , 5* (1), 9-18.

Oliveira, F., & Silva, F. (2010). Tourism as a tool of community development:an ecotourism project in Cantanhez, Guinea-Bissau. *WIT Transactions on Ecology and the Environment, , Vol 139*, 551-561.

Pandey, D. (2014). Prospects and Constraints of Eco-Tourism in the state of Sikkim.. *Ethiopian International Journal of Multidisciplinary Research , 1* (4).

Pandey, D. (2014). Prospects and Constraints of Eco-Tourism in the state of Sikkim. *Ethiopian International Journal of Multidisciplinary Research , Vol.1* (4).

Rao, M. N., & Pawar, R. (2013). Assessment of Community Participation in Ecotourism and Conservation at Dandeli Wildlife Sanctuary, Karnataka, India. *National Conference on Biodiversity : Status and Challenges in Conservation - 'FAVEO'* , 88-93.

Seal, M. (n.d.). Rural Women Empowerment Through Rural Tourism: A Case study on Anegundi, Karnataka . *ELK Asia Pacific Journals* .

Tambe, S., Bhutia, K. S., & Arrawatia, M. L. (2007). *Tambe Sandeep, Bhutia, K.S. & M.L. Arrawatia Mainstreaming Ecotourism in Sikkim Economy.* Sikkim Today.

Thomas, B. (2016). Economic Impact of Ecotourism on Lives of Service Providers with reference to Four villages of Sikkim. *Imperial Journal of Interdisciplinary Research* , 242-249.

Tugba, K., Gulen, O., & Canan, S. (2011). Environment, socio-cultural and economical effects of ecotourism percveived by the local people in the north western Turkey: Kiyikoy Case. *Scientific Research and Essays, Academic Journals , Vol. 6* ((19)), pp.4009-4020.

Uprety, I. M. (2012). *Cultural Landscape: The Basis for linking Biodiversity Conservation with the Sustainability Developement.* New Delhi: K.S. Rao, National Institute of Ecology.

Viji, M. M. (2014). Eco tourism and the sustainable socio economic development. *Scrutiny International Research Journal of Biological and Environmental Science (SIRJ-BES) , Volume 1* (Issue 8), 41-46.

Watabe, K. (2010). *Study of Eco-Tourism for the Sikkim Biodiversity Conservation and Forest Management Project.* Gangtok: Department of Forest, Environment, and Wildlife Management (DFEWM).

Wildlife Circle, F. E. (2014). *Management Plan of the Khanchendzonga National Park*. Retrieved October Thursday, 2019, from sikenvis.nic.in.

Winkler, T., & Zimmermann, F. (2014). Ecotourism as Community Development Tool – Development of an Evaluation Framework. *Current Issues of Tourism Research* , 45-56.

****

ISSN: 2348-4667
Anthropological Bulletin
14(2), 103-107, 2019

Places, Identities, Homesickness and Happiness: Looking Through the Savanna Prism

Faisal Hassan[1]

ABSTRACT

People's intentions and behaviours toward specific locations are influenced by their connections to such locations. These goals and actions may have a significant impact on the vitality, growth, and existence of human settlements, particularly those that are comparatively newer. Humanistic geographers and environmental psychologists have long investigated and supported the psychological connections that humans have to locations. Researchers explained this phenomenon in terms of human experiences. Several models were put forth and refined in an effort to learn more about how people relate to their environments. Consequently, place attachment has undergone a great deal of research and has grown into a multifaceted idea that represents people's social, emotional, cognitive, and functional relationships with places. This research paper made use of available literature regarding emotional impact of places on human psyche with special reference to savanna theory of happiness. Observations suggest that there is a significant relationship between happiness invoked by visiting and revisiting places and genetic evolution of human beings. Findings indicate that emotions about places could very well be inherited through ancestry.

Keywords: Place Perception, Homesickness, Identity, Savanna, Happiness

Prelude

Nostalgia encompassing cities, monuments, landforms and habitats leave people with a trail of memories and lived experiences that have been sitting in their minds subconsciously. The very idea of places need not be set in terms of time or space while it can be used at any of the designated scales. Furthermore, as a result of globalization, a place's physical environment and cultural norms can alter over time as a result of new introduced concepts or technological advancements. With time, places become identities and an integral part of personalities of individuals. The joy that is brought by rediscovering the familiarity of a place is beyond comprehension. Some people simply explain it in terms of '*déjà vu*', while refer to it

[1] Research Scholar, Department of Psychology, Aligarh Muslim University, Aligarh, India
E-mail: faisal.hassan.rizvi@gmail.com

as nostalgia. Psychology aims to understand behaviours and changes in it, therefore the ideas of places, identities, homesickness and happiness collectively sail towards the nascent domain of psychogenetics. It is comparatively a newer branch of behavioural sciences that enshrines a multidimensional approach towards psychological research. This research paper aims to examine the intersections of places, identities and happiness with respect to the savanna theory of happiness.

Genesis

People frequently assign specific meanings to a place in order to comprehend sense of place; for instance, they may know a person's house or place of employment. They know where it is, what it looks like, and how far it is from where they are right now, this explains the very feeling of location. The basic idea of a sense of place serves as an explanation for how people conceptualize and classify different places. When a place has any meaning for someone, that individual perceives it as a place. Positive psychologists working on personal meaning have not drawn on significantly, insights from evolutionary psychology, the sub-discipline of psychology that deals with ultimate causations of psychological phenomena (Heintzelman & King, 2014).

People do not give much thought to every location they have ever heard of or seen because the world is so vast. Gradually, the place becomes a person bearing a discrete and discerning identity which in due course amalgamates with the identity of individuals in order to invoke emotional expressions about the place at every mention. The concept of place is among geography's most ancient concepts. Thus, place can mean many different things, such as a space or location with meaning or an area having unique physical and human characteristics interconnected with other places. Place is made up of three essential elements: location, locality, and feeling of place. A point's location on Earth's surface is its specific position. Locale, which includes places like the Smoky Mountains and the South of France, is the actual environment in which connections take place. Ultimately, a person's feelings about a location are a reflection of their experiences and their sense of place. Location is not always set in time or scale and can be used at any scale. Contrary to urban dwellers and those who grew up in the urban areas, an fMRI study has revealed that the brains of those who grew up in the rural areas and those who currently live in cities respond to stress with greater activities (Lederbogen et al., 2011). These studies, however, simply raise another question: Why does the human brain perceive urban life as stressful, alienating, and depressing, but not rural life?

Perception and Places

People's perception of places describes how our understanding of geography shapes our identities and what makes us the person that we are. The two areas of geography that most effectively contribute to the development of these ideas are behavioral and humanistic geography. Humanistic geography is concerned with how individuals relate to their surroundings and how they feel and think about space and place. A contrast between an objective observation of places and perceived places is made by behavioral geography.

Schroeder (1991) has differentiated preferences from meaning by maintaining that meaning refers to the thoughts, feelings, memories, and interpretations evoked by a landscape, while preference sums up as the degree of innate liking for one landscape as compared to another. A similar method to describe the link between individuals and spatial environments is place attachment, which is the emotional bond that exists between a person and a place. It is greatly impacted by the person and his or her unique experiences. Determining what constitutes a place meaningful enough for place attachment to arise is a topic of much investigation.

The affective bond between people and place or setting is called topophillia. It may also be expressed as a strong sense of place, which often blends with the sense of cultural identity for certain groups, but may simply termed as an individual's affinity of certain aspects of a particular place. A person-place bond that evolves from specifiable conditions of place and characteristics of people is called place attachment. Place identification is attachment in the sense of personal, symbolic, or affective implications. An individual's self-identity is shaped by the physical surroundings or location. Place attachment and sense of place are terms that can be used interchangeably to describe an emotional connection that an individual or group has with a particular location or landscape. Place meaning is an association between a physical environment and importance, purpose, symbolic role, or value that is founded on cognitive processes. A function-based attachment is called place dependence. The ability of a particular location to meet the demands or behavioral objectives of a person or group determines its worth in comparison to other possible locations.

Identities and Crises

Since identification is one significant process in our culture, individuals have a strong sense of identity with their cities. Because their cities, towns, or neighborhoods become essential extensions of who they are, people frequently feel superior to the locations they live in. Similar to any other type of connection, a person's bond with their home might go wrong. If the place attachment has to be taken at face value, then, it's just an emotional bond people make with their surroundings. A contemporary explanation for the lower level of life satisfaction in different cities is that urban life brings with itself a number of 'social ills', such as anomie, alienation, social disorganization, and depression (Wirth, 1938).

A person's identity and their place of residence are intrinsically intertwined. Where we live is very much tied to our identity, but where we grow up can be a matter of choice or chance. Places can have a greater impact on a person's identity than everything else, including their relationships, career, and religion. As a result, people develop strong bonds with their cities made up of lived experiences and memory. Briefly, place attachment is this idea that people become attached to places in the same ways they become attached to people. Those attachments become significant components of the structures people make in their lives. People's resistance to moving to the suburbs or even to a different area within their metropolis can also be explained by place attachment. It clarifies the basic idea of homesickness as well, with reference to behavioural sciences. Studies have shown that rural dwellers in economically developed nations tend to be happier than their urban counterparts (Berry & Okulicz-Kozaryn, 2009).

Psychology of Homesickness

The emotional anguish that comes from being away from home and in a strange and new place is known as homesickness. It has an impact on those who have relocated, both permanently and temporarily, including students, immigrants, refugees, police and members of the armed forces.

Slootman & Duyvendak (2015) have concluded in their recent study of foreign residents in the Netherlands, that workers between the ages of 30 and 39 who had lived there for six to eight years were more likely to experience homesickness. Even though the surroundings were now familiar, the foreigners may still have felt like outsiders after a few years, which could account for the heightened level of homesickness.

Between 50% and 75% of people in general are thought to have experienced homesickness at some point in their lives. When people are away from their homes, they miss something about their lived experiences. However, some people may experience learned helplessness in terms of homesickness more intensely than others. The quality of social relationships, particularly friendships has emerged as the most important determinants of happiness attached with places (Dolan, Peasgood & White, 2008).

Researchers have discovered that the more civilizations and cultural norms diverge, the harder it is to adjust and the higher the likelihood of experiencing homesickness, therefore contrasting culture might lead to situations of conflict. Adjusting to a new environment calls for flexibility, but not everyone finds it simple. A study of recent military recruits revealed that homesickness was more common among those who behaved more rigidly. They stayed in their comfort zones and shied away from circumstances that called for change.

Methodology

The present research study has aimed to examine the effects of attachment with places on people. It has looked into the dynamics of emotions as against the lived experiences of individuals. Considering homesickness and homecoming a dyad of emotional responses of individuals, the paper has aimed to understand if these emotional responses invoked by places are inherited through ancestry as suggested by the savanna theory of happiness. Data was collected through a total of 50 relevant research papers. Research articles were consulted and relevant studies were incorporated in the study. Research databases taken into consideration included Google Scholar, CrossRef, OpenAccess and Road.

The Subconscious Happiness

The Savanna theory is the belief that the human brain is not so much adapted to the present era as it is to the circumstances under which our ancestors formerly lived. The phrase was first used in a 2004 scholarly paper by American evolutionary psychologist Satoshi Kanazawa, who suggested that the human brain might have evolved during the period when our ancestors roamed the African savannas (Kanazawa, 2004b).

Many modern human behaviors seem illogical, and this has been explained by the Savanna principle. In terms of evolution, the modern era is relatively new, thus it's possible that the human brain hasn't evolved far enough to cope with the current surroundings.

The theory emphasizes upon the evolutionary history of the human brain and makes the claim that the world in which humans evolved was very different from the one in which natural selection shaped the human brain. The idea states that there is a wide range of societal issues that result from this gap between what men were meant to do and what they are currently capable of doing. For example, in a time when such items were comparatively uncommon, our ancestors who liked sugary and considerably fatty foods lived longer and were healthier than those who didn't. These days, there are a lot of these temptations, which causes obesity and heart disease. Television, sex, and jealousy are examples of similar situations.

It goes on to suggest that people's happiness might not only be influenced by the outcomes of a particular circumstance in their current surroundings, but also by what those outcomes would have been in their ancestral surroundings. According to the conviction, those who are less clever are more likely to experience the negative effects of such ancestral repercussions on happiness than those who are more brilliant. Those residing in an urban region, associating with friends less frequently, and belonging to an ethnic minority all have a negative impact on happiness; however, the consequences of these variables are substantially stronger in less clever people than in more intelligent people. The idea can also clarify why some people experience Seasonal Affective Disorder (SAD) and why there exist gender differences when it comes to emotions (Partonen & Lönnqvist, 1998).

Eplilogue

The Savanna theory although suggests that happiness has a genetic base which strengthens the notion that human brains are not absolutely independent, yet there are observations which could also be attributed to it. Such observations include the feelings of uneasiness experienced by individuals in certain places; this could coincide with their respective ancestral impressions and experiences. Human brain is the most complex structure in this world and newer observations and discoveries only prove Freud's proposition of the unconscious. This study was just an endeavour to search base for empirical researches in the subject matter of savanna theory and develop a fundamental understanding of emotions attached to places. Future researches could focus on the cause-effect relationships of places and emotions through empirical approaches.

References

Berry, B. J. L., & Okulicz-Kozaryn, A. (2009). Dissatisfaction with city life: A new look at some old questions. Cities, 26, 117– 124.

Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. Journal of Economic Psychology, 29, 94–122.

Heintzelman, S. J., & King, L. A. (2014). Life is pretty meaningful. American Psychologist, 69, 561–574.

Kanazawa, S. (2004b). The Savanna Principle. Managerial and Decision Economics, 25, 41–54.

Lederbogen, F., Kirsch, P., Haddad, L., Streit, F., Tost, H., Schuch, P., … Meyer-Lindenberg, A. (2011). City living and urban upbringing affect neural social stress processing in humans. Nature, 474, 498– 501.

Partonen, T., & Lönnqvist, J. (1998). Seasonal affective disorder. Lancet, 352, 1369–1374.

Schroeder, H. W. (2007). Place experience, gestalt, and the human–nature relationship. Journal of environmental psychology, 27(4), 293-309.

Slootman, M., & Duyvendak, J. W. (2015). Feeling Dutch: the culturalization and emotionalization of citizenship and second-generation belonging in the Netherlands. Fear, anxiety, and national identity: Immigration and belonging in North America and Western Europe, 147-168.

Wirth, L. (1938). Urbanism as a way of life. American Journal of Sociology, 44, 1– 24

****

ISSN: 2348-4667
Anthropological Bulletin
14(2), 108-114, 2019

Fear of Missing Out: Technology Driven Emotions

Shadab Ahmad Quadri[1]

ABSTRACT

This paper explores the impact of technology, particularly social media, on human emotions, focusing on the phenomenon of Fear of Missing Out (FoMO). The constant exposure to curated versions of others' lives on social media platforms contributes to FoMO, a pervasive feeling of anxiety when individuals perceive others engaging in activities without them. The psycho-social impacts of FoMO are extensive, affecting mental well-being, leading to heightened feelings of loneliness, inadequacy, and low self-worth. The study advocates for strategies such as setting boundaries with social media and cultivating meaningful offline relationships to mitigate FoMO's negative impact.

The paper also discusses the intersection of sociology and the internet, emphasizing how the internet influences various aspects of society and poses challenges and opportunities for sociological research. Additionally, it highlights psycho-social interventions, including Cognitive-Behavioral Therapy and mindfulness techniques, as effective treatments for FoMO. The research findings underscore the significant impact of FoMO on mental well-being, emphasizing the need to prioritize strategies that promote a healthy balance between technology use and emotional health.

Keywords: Fear of Missing Out, Technology, Emotions, Society, Behaviour

Introduction

The society we live in today has evolved through a perpetual process of civilization that dates back to millions of years ago when the first human walked this earth. Mankind has witnessed numerous changes in the social systems that it had established for the functioning of human beings. As the sciences developed and researches became order of the day, the world got to know about the dynamics of human mind. The interaction of mind and society has shaped behaviour, feelings and emotions of human beings. The mobile phone is the gadget with the most emotional burden among all the technologies; thus, it is the one that has sparked the most writing in this area. The mobile phone has evolved into "a personal

[1] Assistant Professor, Department of Sociology, The Great Memorial Degree College, Pilibhit, India
Email: shadabahmad4916@gmail.com

compendium for the life of the user" due to its omnipresence, it is being considered as a tool with customizable features, and widespread connectivity (Vincent, 2013).

In the rapidly evolving digital age, technology has become an integral part of our lives. From smartphones to social media platforms, we are constantly surrounded by gadgets and innovative devices that shape the way we communicate, think, and express ourselves. While these advancements have undoubtedly improved our efficiency and connectivity, they also have a profound impact on our emotions and overall well-being. This article aims to delve into the intricate relationship between technology and human emotions, exploring the psycho-social effects that emerge as a result.

One of the key ways in which technology influences human emotions is through its impact on social interactions. Traditional face-to-face conversations and interactions have been gradually replaced by virtual connections facilitated by technology. While this has allowed us to connect with people across the globe, it has also led to a shift in the quality of our relationships. The absence of non-verbal cues and physical presence in virtual communication channels can hinder the accurate interpretation of emotions, leading to miscommunication and misunderstandings. This has the potential to create a sense of emotional detachment and isolation, ultimately affecting our emotional well-being.

Moreover, the constant exposure to the curated and often idealized versions of others' lives on social media can give rise to a phenomenon known as the "social media envy." Comparing our own lives to the seemingly perfect lives of others can result in feelings of inadequacy, anxiety, and even depression. This pervasive comparison culture can substantially impact our self-esteem and self-worth, as we strive to meet unrealistic standards set forth by social media influencers and celebrities. Consequently, the increasing reliance on technology for self-validation can lead to a decline in overall emotional well-being. On the other hand, technology also has the potential to amplify and enhance positive emotions. Social networking platforms, for instance, provide opportunities for individuals to connect with like-minded individuals and foster a sense of belonging. Online support groups and forums allow individuals to find solace and understanding in a community that shares their experiences and emotions. This virtual camaraderie can offer emotional support in times of distress and act as a source of validation, ultimately improving emotional well-being.

Fear of Missing Out

The term "fear of missing out" (FoMO) was first used in 2004 to describe a phenomenon observed on social media platforms. The feeling of missing out and the compulsive behavior to maintain these social connections are the two processes that combine to form the comparatively new emotion FoMO. Understanding the complex idea of FoMO and how it connects to the need for consistency in interpersonal relationships and a sense of belonging is the aim of this research study. Since the notion is thought to be a problematic social media connection, it has eventually been connected to a range of unpleasant life events and feelings. It is thus believed that excessive and unchecked use of social media could lead to a unique anxiety which makes an individual worried about being alienated and sidelined.

The concept of Fear of Missing Out, or FoMO, is widely recognized in popular culture. As such, it has been appropriated and effectively employed in commercial advertising appeals aimed at generating sales. Nevertheless, scholarly investigations have solely concentrated on FoMO as a personal feature that result in self-initiated behaviors motivated by FoMO up until now (Hodkinson, 2019). On the other hand, consumer responses are what determine if FoMO sales appeals are successful, therefore it's important to comprehend these dynamics. Fear of missing out is a pervasive feeling that individuals' experience, driven by the fear of not being present or involved in an exciting event or activity happening in the present moment. This fear often stems from the constant exposure to other people's lives through social media, where we see curated social media posts highlighting all the fun and interesting things others post online to showcase the life events they are experiencing and subjected to.

In today's fast-paced, technologically driven society, the fear of missing out, commonly known as FoMO, has become a prevalent and concerning phenomenon. FoMO refers to the anxiety and apprehension individuals experience when they perceive that others are engaging in activities or experiences without them. This fear can stem from social media platforms, where curated portrayals of others' lives can create a constant stream of envy and insecurity. The psycho-social impact of FoMO is multifaceted and can have profound effects on individuals' mental and emotional well-being.

Horrors of Being Vulnerable

Vulnerability in online exchanges is largely dependent on the way in which an individual interacts with the site. Internet practices that include self-disclosure and the accumulation of large unmanageable online networks tend to make an individual vulnerable (Buglass et al., 2016). One of the primary psycho-social impacts of FoMO is heightened feelings of loneliness and isolation. Constant exposure to others' seemingly exciting and fulfilling lives can lead individuals to question their own sense of belonging and connection. They may feel left out, leading to a sense of loneliness and exclusion. This isolation can manifest itself in various ways, such as decreased self-esteem and increased levels of anxiety and depression. The fear of missing out can also lead to a sense of inadequacy and low self-worth. Seeing others' achievements and experiences can create a comparative mindset, where individuals constantly measure themselves against others. This constant comparison can fuel feelings of inadequacy and a sense of not measuring up to societal standards. As a result, individuals may develop low self-esteem and struggle with their own self-worth.

Another psycho-social impact of FoMO is a decline in overall life satisfaction. The constant need to be part of every event and experience can promote a never-ending cycle of dissatisfaction. Individuals may find it challenging to be fully present in their own lives, always longing for what they do not have or cannot be a part of. This perpetual longing can prevent individuals from finding contentment and happiness in their own journey, as they are constantly searching for something outside themselves. Research focussing on students has demonstrated that FoMO is a common occurrence for students, especially later in the day and during the week, as well as when they are engaged in a necessary activity like working or studying (Milavskaya et. al., 2018). FoMO can contribute to a decreased ability to focus and engage in meaningful relationships. The constant bombardment of information and the fear of missing out on the latest news or events can make it challenging for individuals to be fully present in the moment. This constant distraction can hinder their ability to form deep connections and maintain healthy relationships, as their attention is divided and constantly seeking external validation.

The psycho-social impact of the fear of missing out is far-reaching and can have detrimental effects on individuals' mental and emotional well-being. The constant exposure to others' lives through social media platforms and the subsequent feelings of loneliness, inadequacy, and low self-worth can lead to increased levels of anxiety and depression. The perpetual longing for something outside oneself can hinder individuals' ability to find contentment and satisfaction in their own lives. It is crucial for individuals to be mindful of the negative impact of FoMO and to develop strategies to mitigate its effects, such as setting boundaries with social media and focusing on cultivating meaningful relationships and experiences. Students' fears of missing out on experiences that others are enjoying relate to their worries about missing out on activities in their own culture. Fear of Missing Out, or FoMO, is a social construct (Hetz, Dawson & Cullen, 2015).

Technology and Human Emotions

Scientists have been exploring the role of human emotions extensively across the disciplines such as psychology, medicine, neurology and sociology for last few decades. But still the study of emotions largely remains the subject concern of arts, humanities and social sciences and not very substantially an issue of life sciences. Emotions play a crucial role in shaping human behavior, relationships, and social interactions. They are not just individual experiences but are consequently shaped and influenced by societal norms, cultural expectations, and social structures. From the writings of Aristotle to the recent works by Descartes, Spinoza, William James and George Mead, human emotions have been the centre of attention for several scientific fields such as anthropology, economics and linguistics, etc (Solomon, 2003). Emotions permeate every facet of social reality in the modern world. This aspect of people's active presence is revealed by the fact that study on people's emotive dimension is done in a variety of fields.

While social interaction and human connection play a major role in our happiness, technology can sometimes negatively affect our quality of life. Innovation in ethical technology is increasingly considering emotions. Nonetheless, several significant aspects of emotions are still not examined in the research. People use technology extensively in their daily lives all over the world, but it's still unclear how shifting communication online will impact it, especially in the context of interpersonal relationships. Unchecked and excessive engagements with social media platforms has also resulted in social media addiction, effects of which are beginning to emerge across the world (Riordan et. al., 2015).

Understanding and analyzing the sociology of emotions allows us to explore how emotional interactions are shaped by power dynamics, social inequalities, and societal norms, thereby shedding light on how emotions both reflect and contribute to social structures and processes. For instance, studying the sociology of emotions can help us understand how certain emotions are valued or devalued based on gender, race, class, and other social factors. Furthermore, the sociology of emotions examines how emotional expressions and experiences are socially constructed and shaped by socialization processes. This field of study also explores how emotions can be mobilized for collective action, social movements, and the maintenance of social order. In summary, the sociology of emotions examines the influence of society on emotional experiences, expressions, and interactions, highlighting the interconnectedness between emotions and social structures.

In addition to its effects on social interactions and emotional well-being, technology also alters the way we express and interpret emotions. The emergence of emojis, for instance, has revolutionized the way we convey emotions in digital communication. These miniature icons allow us to add nuance and emotional context to our messages, bridging the gap created by the absence of facial expressions and tone of voice. While this can facilitate more accurate emotional communication, it can also limit the depth of our emotional expressions, as we rely on predefined symbols rather than genuine, spontaneous emotions. Technology undeniably plays a significant role in shaping human emotions. Its impact on social interactions, emotional well-being, and the expression of emotions is profound. While technology offers countless conveniences and benefits, it is crucial to remain mindful of its potential psycho-social implications. Striking a balance between the benefits and drawbacks of technology is essential in harnessing its power without compromising our emotional well-being. By fostering healthy digital habits, we can ensure that technology enhances rather than impedes our human emotions and connections.

Sociology of the Internet

Statistical demographics and online media studies, which examine evolving messages and symbols, are two methods for examining social change. The term "sociology of the internet," also referred to as "social psychology of the internet," refers to the application of sociological or social psychological theory and methodology to the Internet as a communication and information source. Sociology and Internet have become increasingly intertwined in the modern era, as the internet has revolutionized the way we communicate, interact, and create social relationships.

The internet has provided new opportunities for sociological research and analysis, allowing scholars to study online communities, digital cultures, and the impact of technology on social structures and dynamics. Understanding how digital media is used in daily life and how different technologies affect social interactions, behavioral patterns, and self-concepts are the core goals of the overlapping discipline of digital sociology. Sociologists study how technology affects society; this includes issues related to cybercrime as well as the rise of new social networks, online communities, and communication channels. The Internet piques the interest of sociologists for various reasons. It can be a topic for research, a discussion forum, or even a tool for research, such as an online questionnaire in place of a paper one. The latest in a long line of important information inventions is the Internet. Additionally, the internet has also given rise to new forms of social inequality and digital divides, with certain populations having greater access and privileges online than others. Furthermore, the internet has facilitated the spread of information and knowledge, enabling individuals to access a wide range of resources and engage in online learning. Moreover, the internet has also brought about significant changes in social norms and behaviors, shaping how people present themselves online, participate in virtual communities, and engage in online activism and social movements.

Overall, the intersection of sociology and the internet provides a fascinating area of study for understanding the social implications of technology and how it influences human behavior, relationships, and societal structures. Moreover, the internet has also posed new ethical concerns and challenges in terms of privacy, security, and online harassment, requiring sociologists to examine the impact of these issues on individuals and society as a whole. The intersection of sociology and the internet provides a fascinating area of study for understanding the social implications of technology and how it influences human behavior, social interactions, and societal structures. It is important for sociologists to critically examine the internet and its impact on society, as well as to explore ways in which it can be used to foster societal relationships and social structures. Frequent and prolonged usage of social networking sites has been connected to online self-promotion through befriending and information sharing as well as FoMO (Buglass, Binder, Betts & Underwood, 2017).

Subsequently sociology and the internet are deeply interconnected, with the internet influencing various aspects of society while also posing new challenges and opportunities for sociological research and analysis. Broadly speaking, the sociology of the Internet examines organizational change spurred by new media like the Internet and broader social change related to the transition from an industrial to an informational society. Online communities include those found in newsgroups, virtual communities, and virtual worlds. Online communities can be studied using network analysis and assessed both subjectively and statistically, for instance using virtual ethnography.

Psycho-Social Interventions

Issues related to mental health, social functioning, sleep patterns, academic performance and professional competence, neuro-developmental issues, and physical well-being. Cognitive Behaviour Therapy (CBT) has emerged as an effective treatment for FoMO. Researchers are conducting studies to explore more treatment possibilities depending upon the ramifications in diagnosis. Patients who do not respond to standard treatment procedures could be provided the advanced therapeutic interventions so as to deal with the situations presented before by FoMO.

Fear of Missing Out is a common psychological experience characterized by anxiety and the fear of not being included in social activities or events (Franchina et al., 2018). There are several psychological interventions that can be helpful in addressing Fear of Missing Out:

1. Cognitive-Behavioral Therapy: CBT can help individuals challenge and reframe negative thoughts and beliefs related to missing out. By identifying and correcting cognitive distortions, such as comparing oneself to others and catastrophizing the consequences of missing out, individuals can reduce the intensity of their fear and anxiety.

2. Mindfulness-Based Interventions: Mindfulness techniques, such as meditation and deep breathing exercises, can help individuals stay present and reduce their preoccupation with the fear of missing out.

3. Exposure Therapy: Gradual exposure to situations that trigger the fear of missing out can help individuals confront their fears and realize that they can still be happy and fulfilled even if they miss out on certain social events or activities.

4. Social Skills Training: Enhancing social skills and building self-confidence can help individuals feel more comfortable in social situations and reduce their fear of missing out.

5. Supportive Therapy: Working with a therapist to explore underlying fears and emotions associated with the fear of missing out can provide individuals with a safe space to process.

Research Findings

The psycho-social impact of the fear of missing out (FoMO) is a topic that has gained much attention in recent years. The advancement of technology and the rise of social media platforms have made it easier than ever for individuals to constantly compare their lives to others and feel a sense of anxiety and inadequacy as a result. This fear of missing out on experiences, opportunities, or social events can have a profound impact on our mental and emotional well-being, as well as our social interactions. Considering the case of social networking sites, particularly platforms like Facebook, LinkedIn, and Twitter that offer the continuous chance to be "liked," to have friends and followers, and to compare one's status are likely to encourage FoMO, in case the number ‘likes’ dips (Dossey, 2014).

One of the key ways in which the fear of missing out affects us psycho-socially is by fueling a constant need for validation and acceptance. In today's digital age, our worth and popularity are often measured by the number of likes, comments, and followers we have on social media. This constant exposure to others' seemingly perfect lives can leave us feeling insecure and constantly seeking external validation. We may find ourselves obsessively checking our social media accounts, fearing that we are missing out on some event or experience that would make us more desirable or interesting. The fear of missing out can also lead to a constant state of comparison, which can be detrimental to our mental health. When we are constantly exposed to images and updates of others having fun, achieving success, or experiencing exciting events, it can be difficult to escape the feeling that we are somehow falling behind or not living up to expectations. This can lead to feelings of envy, self-doubt, and even depression.

Furthermore, the fear of missing out can have a significant impact on our social interactions and relationships. When we are constantly preoccupied with what we might be missing out on, we may find it difficult to be fully present and engaged in the moments and experiences we do have. This can lead to a diminished sense of enjoyment and connection with others, as well as a decreased ability to form and maintain mutually meaningful societal relationships. Additionally, the fear of missing out can also contribute to a constant state of busyness and over-commitment. We may find ourselves saying yes to every invitation or opportunity out of a fear of being left out. This can lead to exhaustion, burnout, and a lack of balance in our lives.

Consequently, it could be established that the psycho-social impact of the fear of missing out is significant and should not be underestimated. It can lead to a constant need for validation and acceptance, a state of comparison and self-doubt, and a decreased ability to fully engage in and enjoy our relationships and experiences. It is important that we recognize and address this fear in order to prioritize our mental and emotional well-being, as well as our social connections. By setting boundaries, practicing self-care, and cultivating a sense of gratitude for the present moment, we can mitigate the negative effects of FoMO and live more fulfilling and meaningful lives.

References

Buglass, S. L., Binder, J. F., Betts, L. R., & Underwood, J. D. (2017). Motivators of online vulnerability: The impact of social network site use and FOMO. Computers in Human Behavior, 66, 248-255.

Dossey, L. (2014). FOMO, digital dementia, and our dangerous experiment. Explore: The Journal of Science and Healing, 10(2), 69-73.

Hetz, P. R., Dawson, C. L., & Cullen, T. A. (2015). Social media use and the fear of missing out (FoMO) while studying abroad. Journal of Research on Technology in Education, 47(4), 259-272.

Hodkinson, C. (2019). 'Fear of Missing Out'(FOMO) marketing appeals: A conceptual model. Journal of Marketing Communications, 25(1), 65-88.

Milyavskaya, M., Saffran, M., Hope, N., & Koestner, R. (2018). Fear of missing out: prevalence, dynamics, and consequences of experiencing FOMO. Motivation and emotion, 42(5), 725-737.

Riordan, B. C., Flett, J. A., Hunter, J. A., Scarf, D., & Conner, T. S. (2015). Fear of missing out (FoMO): The relationship between FoMO, alcohol use, and alcohol-related consequences in college students. Annals of Neuroscience and Psychology, 2(7), 1-7.

Solomon, R. C. (ed.) (2003) What Is an Emotion? Classic and Contemporary Readings - 2nd Edition. Oxford: Oxford University Press.

Vincent, J. (2013) 'Is the Mobile Phone a Personalized Social Robot?'. Intervalla 1: Retrieved from:http://www.fus.edu/intervalla/index.php?option=com_content&view=article&id=6&Itemid=4

******

ISSN: 2348-4667
Anthropological Bulletin
14(2), 115-122, 2019

Homeostasis, Acculturation and Quality of Life among Nepalese Immigrants in India

Mohammed Arafat Hasan Rizvi[1]

ABSTRACT

People, when faced with adversities, tend to change their environments. Endurance of stressors propels them to transcend and transition. Barely few can control their internal environment and stay in a favourable state even when their external environment changes, fewer brave the imminent situations and multiply their adaptability and survive, emerging as the fittest among the rest. Individuals failing to adapt find themselves into a 'fight or flight' situation and their responses therein decides the further course of life. This paper looks into the acculturation with respect homeostasis among Nepalese migrants in India, and tends to ascertain their resultant quality of life. Findings show significant relationships between the constructs in consideration and provide insights into many lives immigrants live.

Keywords: Homeostasis, Acculturation, Quality of Life, Migration, India, Nepal

Prologue

Migration has been an inevitable element of human history, dating beyond the beginning of the story of civilization. People have been migrating for several reasons; the popular motivation has been 'a better life'. Nepalese migrants have been working in India since long, most popular reason for their migration has been the socio-economic status whilst less popular being the permeable international borders facilitating smooth immigration. Legend has it that people who migrated, had both intrinsic and extrinsic motivational factors. Whether environmental factors inspired them to relocate for better survival conditions or the aspirations of better life conditions took them to places.

Homeostasis

Homeostasis refers to the body's natural inclination to seek for stability, balance, and equilibrium. Equilibrium for both physiological and psychological conditions is acquired

[1] Research Scholar, Advanced Centre for Women's Studies, Aligarh Muslim University, Aligarh, India
E-Mail: arafat.hasanrizvi@gmail.com

through homeostasis (Stagner, 1951). It could also be understood as the natural tendency of the human body to look for and preserve equilibrium, stability, and balance in order to operate at its best. It should be mentioned that many plant and animal species share this issue as they try to regulate themselves in order to survive on our planet in different environments. In reality, homeostatic psychology may involve far more intricate personal considerations. Moreover, a balanced equilibrium for psychological and physiological states is characterized as homeostasis. The present study makes use of this construct in a social psychological manner and aspires to understand as to how it influences the phenomenon of migration.

Acculturation

Acculturation is a process of behavioral and attitudinal changes that people who live in multicultural societies or who have encountered people from different cultures go through as a result of invasions, colonization, political upheaval, globalization, and increased social mobility brought about by technological advancements. Acculturation is considered as the process of maintaining pre-existing cultural values, beliefs, and customs while adjusting attitudes and actions as a result of interaction with a dominant group (Berry, 2006)

The process of cultural and psychological transformation that results from interactions between members of different cultural groups is known as acculturation. After migration, acculturation continues among ethno-cultural populations in civilizations comprising of diverse cultures. Living in environments where cultures interact requires gradual adaptation of different life conditions. It can get stressful at times, but it usually leads to some kind of compromise and brings about pacification. In recent decades, acculturation has grown to be one of the most researched and applied fields (Boyd, Richerson, & Henrich, 2011). Since most aspects of the acculturation and adaptation process and its results are now fairly well understood, policies and programs that support successful outcomes for all parties can be developed. This study examines acculturation resulting from migration in search of better quality of life and also attempts to investigate the role and magnitude of social homeostasis in the due course.

Quality of Life

Quality of Life (QOL) is the degree to which an individual finds fulfillment in his/her life. A high quality of life requires the following: involvement in society, exercise of rights and self-determination in lifestyle decisions, emotional, material, and physical and spiritual well-being, interpersonal relationships, and personal growth possibilities. Improving quality of life is especially important for older adults, people receiving medical or psychological therapy, people with developmental or other disabilities, and those with chronic illnesses (Sinha, 2019).

The push and pull model and its continuity through the lens of network theory have been used to analyze the high rates of poverty, limited opportunities, changing nature of the nation's profession and desired options, income disparities, and sense of security among migrants (Adhikari, 2019). From a psychological perspective, a person's view of their place in life in relation to their objectives, expectations, standards, and worries, as well as the culture and value system, in which they live, is referred to as their quality of life. It is a broad notion that is intricately influenced by an individual's amount of independence, personal liberties, psychological condition, physical health, social interactions, and relationship to prominent environmental characteristics. In this study, the construct of quality of life is set against migration, so as to ascertain if it actually enhances the quality of life or not.

Migration

Migration is a global phenomenon that has occurred from the beginning of human existence. Individuals relocate for a variety of reasons, but the primary motivations for doing so are to better their living circumstances or to get away from debt and poverty. Another social phenomenon that affects both the surrounding environment and human existence is migration.

Kennan & Walker (2011) have reflected on decision making about migration and have noted that they are made in light of the individual's requirements and goals, and these decisions carry a degree of uncertainty. Future opportunities are not fully known, and whether or not moving is a successful personal move depends largely on factors that are out of the control of the migrants themselves both before and after they leave. The study of migration connects the fields of environmental psychology and population psychology. Significant advancements in psychologically oriented studies of migration behavior have occurred throughout the last 20 years. The studies of migration intentions and behavior are contextualized by new decision making models that integrate place perceptions and motivational factors.

Consequently, migration greatly affects any given geographic area and is recognized as one of the three fundamental factors influencing population increase in any geographical region, the other two being fertility and mortality. Migration is a process and as it requires going through specific phases, it could also be considered as a mechanism directed towards attaining pre-decided goals. The complexity of the local system, the inability to adjust to the new environment, language barriers, cultural differences, and unfavorable experiences are often the main causes of discomfort for migrants.

Nepalese Migrants in India

Manhas & Sharma (2014) have recorded that India and Nepal have a lengthy, unobstructed border. The history of migration from Nepal to India precedes the Peace and Friendship Treaty of 1950, which established the framework for the unrestricted cross-border movement of people and commerce between India and Nepal. Nepalese labourers moved to India in the eighteenth century to serve as porters, on building sites, and on tea plantations during the colonial era. The majority of research on cross-border migration and the India-Nepal border concentrates on the economic aspects of the phenomena, characterizing the migration of Nepali workers to major Indian cities like New Delhi, Mumbai, and Kolkata as a simply method of providing for their families back home.

Methodology

The methodology for a research study based on research literature regarding acculturation, migration, and quality of life involves a systematic approach to ensure the validity and reliability of the findings. The integration of both quantitative and qualitative research methods allows for a comprehensive understanding of the complex interplay between these concepts. The present research aims to shed light on the experiences and factors that influence the quality of life of migrants in the context of acculturation and migration. Ultimately, such research can contribute towards the development of effective strategies and policies to support individuals in their acculturation journey and enhance their overall quality of life. This study made use of 75 research papers, books and popular articles harvested in a chronological manner in order to get secondary and tertiary data for the purpose of investigation into the impact migration casts on quality of life of Nepalese migrants in India, as they acclimatize themselves in the new terrains.

The Price of Happiness

Historical records tell us that there was constant and unrestrained people mobility between India and Nepal. The boundaries between the two countries were not well defined, and until 1815 AD, there was no boundary between India and Nepal other than a loose line separating the Terai region of Nepal from the Indian plains. The borders of the territories were constantly shifting under different rulers. The Terai was ruled by the Karnatas, the

Senas, until Prithvinarayan Shah and his heirs united Nepal. The formal boundary between Nepal and the East India Company was established by the Treaty of Sugauli, which was signed on December 2, 1815 (Timalsina, 2018).

The physical layout of India and Nepal's border, which lacks any natural obstacles, is largely responsible for the migration of people between these two countries. The mountains that border Nepal and India range in height from 610 to 2,200 meters on average. Even lower are the valleys that rivers reach India through. The Terai region of Nepal is a band of alluvial terrain that is roughly 45 km broad and 215 meters above sea level. Naturally yet strategically, it borders the Gangetic plains of India. In stark contrast, Nepal's 1,415-kilometer northern border is not only mountainous but also faces the vast, parched Tibetan plateau, making contact between the two nations difficult, if not impossible (Ramble, 2007).

People have been moving between the two countries because of their similar socio-cultural identities. There were people of the same race living on Nepal's western border, which is near the Garhwal and Kumaon regions of western Uttar Pradesh (Whelpton, 2012). The population flow between the two countries persisted despite their borders being drawn because of economic exchanges and socio-cultural ties. There are similarities among the tribes, castes, dialects, religions, and social customs in the Terai border region of Nepal, which is near the Indo-Gangetic plains of India. Due of theological overlap, people's attitudes on accepting the migration of individuals from one country to another have become more pliable.

The temple of Pashupatinath in Nepal is highly revered by Hindus from India, and it is customary for the chief priest to be from Karnataka. India's majority population has a particular place in their hearts for Nepal because it has identity of being the sole officially Hindu country worldwide. Hindus and Buddhists from Nepal travel to India for pilgrimages due to religious reasons. There is still a constant flow of individuals between the two nations. The governments of India and Nepal should take the credit for this, as they attempted to legitimize it by signing the Treaty of Peace and Friendship in the year 1950 (Shah, 1990).

Nepalese people have been taking up jobs with the Indian government, including in the civil service and its renowned Gorkha regiments. They have also held positions in the private sector as security guards, domestic helpers, and manual laborers in mines, tea fields, and dairy farms. The phenomenon of a high number of Nepali students migrating to India as well as the influx of second-generation Nepali migrants working in various white-collar professions in India emerge as recent geo-political developments. Nepalese people employed in India have made significant contributions to their families' daily needs in their native country. However, the significance of Nepalese migration to India goes beyond remittances (Thieme & Wyss, 2005).

In South Asia, the processes of state and nation building are still ongoing, resulting in cross-border migration and large-scale population exchanges. The region's socio-cultural ties and the ease with which borders can be crossed as a result of proximity have sped up population migration between nations. Factors such as economic regression, natural disasters, political, religious, or racial persecution inside a state, have contributed to demographic transgression in South Asia. India has seen the greatest influx of immigrants due to its unique position as the only nation in the region sharing sea or land borders with all other nations (Martin, 2013).

Remittances have grown to be a significant resource for the nation at the same time, accounting for more than 29% of GDP overall. The fact that remittances are rising indicates that young Nepalese are consistently leaving the country. Growing overseas migration for employment has emerged as a modern problem and catchphrase. In the meantime, the educational disparity is being widened by overseas employment. Because of this, government initiative in the sector has become extremely centralized even if it is not sufficient (Sapkota, 2013).

Vigil & Hanley (2002) have found that changes in social identity and self-image are necessary as a result of the disorganizing and rearranging experiences of immigration and acculturation. Without the assistance of well-known social networks, immigrants frequently have to navigate several new and distinct systems while navigating unfamiliar societies. In order to account for cultural differences and the disruption of established family roles, acculturation necessitates modifying responses to deeply ingrained life scripts. When they relocate to a new culture, they discover that different socialization agents, such as other parents, educators, and professionals may have distinct ideas about what makes a good parent and employ discrete childrearing techniques.

Acculturation processes tantamount to greater resilience and make individuals expand their abilities to adapt to challenging situations, ultimately contributing to the enhancement in their quality of life (Kuo, 2014). Numerous studies have examined the process of acculturation that occurs for migrants when they reach their destination. Few academics, nevertheless, have looked at the pre-departure period as crucial to comprehending the backdrop of the migration experience outside of studies on forced migration (Berry, 1992).

Benson & O'Reilly (2009) have investigated the goals of migration and inferred that migration primarily is directed towards raising one's standard of living and improving the quality of life. Conventionally speaking, one could anticipate that such an attempt would typically be successful, especially when migrants are relocating to nations with generally higher standards of living, partially due to such nations' greater income. However, it is not clear that movement generally improves the pleasure of migrants. Higher incomes generally do not translate into greater happiness; therefore migration driven by the desire for financial gain may not turn out to be as successful as expected. Migrants may see a decline in their relative economic standing after moving to wealthier nations, which could have unfavorable effects on their satisfaction. Children's presence in families is thought to impact family migration motivations; however it's frequently believed that kids don't really participate in family migration decisions.

The Relocation Response: Fight or Flight

American physiologist Walter Bradford Cannon first discussed the fight-or-flight reaction in his book Bodily changes in pain, hunger, terror, and fury, a classic work of the year 1915. He explained it as an instinct based physiological response to a stressful or terrifying experience is known as the fight or flight response (Cannon, 1994). The sympathetic nervous system is triggered when the body perceives a threat, which sets off an acute stress reaction that directs the body to get ready to fight or run. These reactions are examples of evolutionary adaptations designed to improve survival rates in perilous circumstances. Activation of the fight or flight response that is excessively frequent, strong, or inappropriate is linked to a number of clinical problems, most notably anxiety disorders. Better understanding of the role and intent of the fight-or-flight response is beneficial in the treatment of anxiety (Kim & Gorman, 2005).

Schauer & Elbert (2010) reflected a more contemporary knowledge of the fight or flight response. They referred to their more complex model of behavioral, psychological, and physiological reactions to threat as the 'defense cascade'. They outlined a range of reactions that people may experience when faced with danger or stress, including freeze, flight, fight, terror, flag, and faint.

The bio-medical perspective of behavioural and cognitive sciences suggests the fact that in the adaptation process, adjustment related problems appear frequently, these usually being interpreted as a behavioural concern and not in the context of the readjusting effort and informational reintegration. Therefore acculturation in a new geographical location is a chronological process which progresses as per its due course (Borosanu, 2015).

Persons when faced with existential challenges usually find themselves in fight or flight situations. The present study sees through the socio-economic challenges of Nepalese migrants in India and examines the socio-cultural issues they face. Their fight response in this regard is the social-homeostatis they invoke while staying back in Nepal and during the relocation to India. They have been observed providing a similar response as they deal with acculturative stress, as they situate themselves into new culture and people to whom they seem strangers, this constructs their flight response.

Eplilogue

There are many different reasons why people migrate around the world, and these factors must be considered when analyzing the situation of Nepalese migration in northeast India. What has become interesting are their abilities to adjust themselves to newer situations, since this involves dynamics of human behaviour and psychology is by all means interested in exploring it further. Scientists from a variety of scientific disciplines have started exploring the phenomenon of homeostasis off late. The present study examined the relations between acculturation and homeostasis and their impact on quality of life. Environmentalists, for example, use the idea of homeostasis to explain how contemporary civilization is evolving in a global context. Nowadays, homeostasis is applied in many disciplines, including the social sciences, psychology, and cybernetics.

Peasant settlers in particular are always driven by a specific set of economic incentives when they migrate. The reality is that the outsiders are forced to migrate due to their own extreme poverty while they are looking for a way for survival. Apart from the cases of merchants, political refugees, and individuals due to connections made through marriages, migration is primarily the result of specific economic circumstances, wherein the migrant's homeland provides limited opportunity for economic growth but a new environment does offer a lot on their platter.

Hosseini (2016) has linked the inability to establish and invoke social-homeostasis with an enduring feeling of loneliness in his doctoral work. Diener et.al. (1999) have also shown that even in the face of unfavorable objective conditions, people can remarkably sustain typical levels of subjective wellbeing. This implies that homeostatic control may be able to maintain such well-being for those willing to stay back in the environments they have inhabited.

Nielsen, Paritski & Smith (2010) have found that the homeostatic mechanism is fairly resilient, even when the individual leads relatively a hard life based on objective indicators, subjected to challenging life situations in a new environment. Thus, it could be inferred that individuals who are able to invoke homeostasis significantly compromise on their socio-economic statuses even when they are dealing with challenges of sort in their respective lives.

While people who perceive the same challenges with a fight or flight situation illicit their cognitive constructs of decision making. Most of the individuals choosing flight response take the migratory route and embark on journeys which could lead them to better life. This process in entirety significantly impacts the Quality of Life as the individuals in question adapt a new environment, passing through a funnel of acculturation and dealing with the challenges of homeostasis in a new form, in a new place. Some people after even migration to urban spaces find it too difficult to cope in the cities, most find themselves in the fallback position that they can return to their homes in the countryside, and this situation could be termed as an example of low homeostasis and acculturation (Nielsen, Smyth & Zhai, 2010).

Globally, international migration is now a recognized aspect of modern social and economic life. For the participating nations and people, it offers both advantages and disadvantages. Because of this, international policy has focused a lot of attention on cross-border movement in recent years. Migration issues were firmly put among the recommendations for a global policy agenda in two recent global studies, a report issued by the Commission on Human Security in 2003 another by the World Commission on the Social Dimension of Globalization in 2004 (Koser, 2005).

Human communities, being open systems, display general states that are identifiable as manifestations of social equilibrium. Social homeostasis is maintained by a variety of mechanisms, including balanced migration, resistance to acculturation processes, high levels of intra-community control, manifestations of preferred identity phenomena, and high levels of involvement in the gray economy. Nepalese migrants in India have adjusted and adapted well with the Indian societal system and have mainstreamed themselves by learning different languages, establishing businesses and other commercial enterprises and joining government services. This has improved their situation drastically, which would surely benefit their future generations. Therefore, it could also be said that migration has a direct positive relationship with quality of life, particularly in case of Nepalese migrants who have relocated to India.

References

Adhikari, D. S. (2019). Transnational Work Migration of Nepali Youths: The Changing Phenomena and the Context of Achieving Education. Journal of Education and Research, 9(2), 74-92.

Benson, M., & O'reilly, K. (2009). Migration and the search for a better way of life: a critical exploration of lifestyle migration. The sociological review, 57(4), 608-625.

Berry, J. W. (1992). Acculturation and adaptation in a new society. International migration, 30, 69-69.

Berry, J. W. (2006). Acculturation: A conceptual overview. Acculturation and parent-child relationships, 13-32.

Borosanu, A. (2015). The acculturation process approach, a new perspective. *Journal of Educational Sciences & Psychology*, 5(2).

Boyd, R., Richerson, P. J., & Henrich, J. (2011). The cultural niche: Why social learning is essential for human adaptation. Proceedings of the National Academy of Sciences, 108(supplement_2), 10918-10925.

Cannon, B. (1994). Walter Bradford Cannon: Reflections on the man and his contributions. International Journal of Stress Management, 1, 145-158.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. Psychological bulletin, 125(2), 276.

Hosseini, A. (2016). *Migration experience, resilience and psychological outcomes: An exploratory study of Iranian immigrants in Australia* (Doctoral dissertation, University of Melbourne, Faculty of Medicine, Dentistry and Health Sciences).

Hsu, F. L. (1971). Psychosocial homeostasis and jen: Conceptual tools for advancing psychological anthropology. *American anthropologist*, 73(1), 23-44.

Kennan, J., & Walker, J. R. (2011). The effect of expected income on individual migration decisions. Econometrica, 79(1), 211-251.

Kim, J., & Gorman, J. (2005). The psychobiology of anxiety. Clinical Neuroscience Research, 4(5-6), 335-347.

Koser, K. (2005). Irregular migration, state security and human security (p. 10). Geneva: GCIM.

Kuo, B. C. (2014). Coping, acculturation, and psychological adaptation among migrants: a theoretical and empirical review and synthesis of the literature. Health Psychology and Behavioral Medicine: An Open Access Journal, 2(1), 16-33.

Manhas, N., & Sharma, M. (2014). The 1950 treaty of peace & friendship: An issue of contention between India and Nepal. International Journal of Scientific and Research Publications, 4(11), 1-5.

Martin, P. L. (2013). The global challenge of managing migration (Vol. 68). Washington, DC: Population Reference Bureau.

Nielsen, I., Paritski, O., & Smyth, R. (2010). Subjective well-being of Beijing taxi drivers. *Journal of happiness studies*, *11*, 721-733.

Nielsen, I., Smyth, R., & Zhai, Q. (2010). Subjective well-being of China's off-farm migrants. *Journal of happiness studies*, 11, 315-333.

Ramble, C. (2007). The navel of the demoness: Tibetan Buddhism and civil religion in highland Nepal. Oxford University Press.

Sapkota, C. (2013). Remittances in Nepal: boon or bane?. The Journal of Development Studies, 49(10), 1316-1331.

Schauer, E., & Elbert, T. (2010). The psychological impact of child soldiering. Trauma rehabilitation after war and conflict: Community and individual perspectives, 311-360.

Shah, R. (1990). Ancient and medieval Nepal.

Sinha, B. R. K. (2019). Introduction: An overview of the concept of quality of life. Multidimensional Approach to Quality of Life Issues: A Spatial Analysis, 3-23.

Stagner, R. (1951). Homeostasis as a unifying concept in personality theory. Psychological Review, 58(1), 5.

Thieme, S., & Wyss, S. (2005). Migration patterns and remittance transfer in Nepal: A case study of Sainik Basti in western Nepal. International Migration, 43(5), 59-98.

Timalsina, S. K. (2018). Nepal-India-Relation: The Border Encroachments. International Journal of Innovative Science and Research Technology, 3(10).

Vigil, J. D., & Hanley, G. (2002). Chicano macrostructural identities and macrohistorical cultural forces. Journal of Historical Sociology, 15(3), 395-426.

Whelpton, J. (2012). Political identity in Nepal: State, nation, and community. In Nationalism and ethnicity in a Hindu Kingdom (pp. 39-78). Routledge.

****

ISSN: 2348-4667
Anthropological Bulletin
14(2), 123-125, 2019

Commentary

Anthropogenic and Behavioural Links to Anti-microbial Resistance

Sara Afzal[1]

Antimicrobial resistance (AMR) is not solely a biological issue; it is a multifaceted global health crisis that jeopardizes our ability to combat infectious diseases effectively (National Academies of Sciences, Engineering, and Medicine, 2017). While the biological mechanisms of AMR are well-understood, this commentary delves into the intricate tapestry of human behaviors and societal factors that propel the emergence and proliferation of AMR. Our examination emphasizes the interplay between microbiology, healthcare, culture, and economics in driving this critical challenge.

The Human Behaviors Contributing to AMR:

One of the most significant drivers of AMR is the overuse and misuse of antimicrobial drugs, particularly antibiotics (Dadgostar, 2019; Kardos, 2017). This problem is compounded by healthcare providers, who often overprescribe antibiotics due to patient demand, diagnostic uncertainty, or concerns about potential bacterial complications (Krockow, et al, 2019; Zetts, et al, 2018). Patients themselves contribute to this issue by not completing the full course of antibiotics, often discontinuing treatment once they feel better, inadvertently leaving surviving bacteria more prone to developing resistance.

Agricultural Practices and Their Role:

Agricultural practices also play a pivotal role in AMR. Antibiotics are frequently employed in farming to boost animal growth and prevent disease (Peng, Salaheen, & Biswas, 2014). In some systems, antibiotics are administered routinely to animals, even in the absence of illness, leading to the selection of resistant bacteria within animal populations (Call, Davis, & Sawant, 2008). These resistant bacteria can be transmitted to humans through the food supply chain or direct contact with animals, further propagating AMR (Ayukekbong, Ntemgwa, & Atabe, 2017).

Globalization and Its Impact:

Globalization and international travel significantly contribute to the spread of AMR (Arcilla, et al, 2014; Zhang, et al, 2006). People traveling across borders can carry resistant bacteria with them, introducing them to new regions and communities (Okeke, & Edelman, 2001). Medical tourism is another critical factor, exposing patients to different antibiotic regimens and resistant bacteria, which can then be imported back to their home countries (Frost, et al 2019; Hill, 2011).

---

[1] Junior Research Assistant, Centre for Evidence-based Policy, Practice and Interventions, FEDI, India
Email: sara.afzal@fedi.in

Socioeconomic Factors:

Socioeconomic factors are also deeply intertwined with AMR. Limited access to healthcare often drives individuals to self-medicate and use substandard or counterfeit antibiotics, increasing the risk of resistance development (Okeke, Lamikanra, & Edelman, 1999). Poverty and resource constraints exacerbate AMR, as poor sanitation, overcrowding, and limited access to clean water can facilitate the spread of resistant infections.

Cultural Beliefs and Behaviors:

Cultural beliefs and behaviors exert a significant influence on antibiotic use (Harbarth, & Monnet, 2008). In certain cultures, traditional remedies are preferred over Western medicine, leading to delayed or inappropriate antibiotic use (Peeters Grietens, et al, 2012). Patient expectations can also drive antibiotic overuse, as patients may expect antibiotics for viral infections, and healthcare providers may prescribe them to meet patient demands, even when they are not indicated (Fletcher-Lartey, Yee, M., Gaarslev,& Khan, 2016).

A Comprehensive Approach to Addressing AMR:

To tackle the multifaceted challenge of AMR effectively, a holistic approach is imperative (Founou, Founou, & Essack, 2016). This approach should encompass not only advancements in medical science but also transformative changes in healthcare practices, agricultural policies, and public education (Roco, & Bainbridge, 2002). Efforts to combat AMR must recognize and address the intricate interplay of behavioral and anthropogenic factors that contribute to this global health challenge (Heesterbeek, et al, 2015).

In conclusion, AMR is a complex and multifaceted issue rooted in human behaviors, socioeconomic factors, agricultural practices, and cultural beliefs. To safeguard the effectiveness of antibiotics in modern medicine and preserve public health, we must adopt a comprehensive approach that encompasses medical advancements, changes in healthcare practices, agricultural policies, and public education. By understanding and addressing these interconnected factors, we can work towards a future where antibiotics remain a cornerstone of modern medicine, ensuring the well-being of our global population.

References:

National Academies of Sciences, Engineering, and Medicine. (2017). Infectious Diseases, Pandemic Influenza, and Antimicrobial Resistance: Global Health Security Is National Security. In Global Health and the Future Role of the United States. National Academies Press (US).

Dadgostar, P. (2019). Antimicrobial resistance: implications and costs. Infection and drug resistance, 3903-3910.

Kardos, N. (2017). Overuse of antibiotics and antibiotic resistance in medical applications featuring carbapenemase resistant enterobacteriaceae (CRE). SOJ Microbiol Infect Dis 5 (5): 1–21. Overuse of Antibiotics and Antibiotic Resistance in Medical Applications Featuring Carbapenemase Resistant Enterobacteriaceae (CRE).

Krockow, E. M., Colman, A. M., Chattoe-Brown, E., Jenkins, D. R., Perera, N., Mehtar, S., & Tarrant, C. (2019). Balancing the risks to individual and society: a systematic review and synthesis of qualitative research on antibiotic prescribing behaviour in hospitals. Journal of Hospital Infection, 101(4), 428-439.

Zetts, R. M., Stoesz, A., Smith, B. A., & Hyun, D. Y. (2018). Outpatient antibiotic use and the need for increased antibiotic stewardship efforts. Pediatrics, 141(6).

Peng, M., Salaheen, S., & Biswas, D. (2014). Animal health: global antibiotic issues. Encyclopedia of agriculture and food systems, 346.

Call, D. R., Davis, M. A., & Sawant, A. A. (2008). Antimicrobial resistance in beef and dairy cattle production. Animal Health Research Reviews, 9(2), 159-167.

Ayukekbong, J. A., Ntemgwa, M., & Atabe, A. N. (2017). The threat of antimicrobial resistance in developing countries: causes and control strategies. Antimicrobial Resistance & Infection Control, 6(1), 1-8.

Arcilla, M. S., van Hattem, J. M., Bootsma, M. C., van Genderen, P. J., Goorhuis, A., Schultsz, C., ... & Penders, J. (2014). The Carriage of Multiresistant Bacteria after Travel (COMBAT) prospective cohort study: methodology and design. BMC public health, 14(1), 1-8.

Zhang, R., Eggleston, K., Rotimi, V., & Zeckhauser, R. J. (2006). Antibiotic resistance as a global threat: evidence from China, Kuwait and the United States. Globalization and health, 2, 1-14.

Okeke, I. N., & Edelman, R. (2001). Dissemination of antibiotic-resistant bacteria across geographic borders. Clinical infectious diseases, 33(3), 364-369.

Frost, I., Van Boeckel, T. P., Pires, J., Craig, J., & Laxminarayan, R. (2019). Global geographic trends in antimicrobial resistance: the role of international travel. Journal of travel medicine, 26(8), taz036.

Hill, T. L. (2011). The spread of antibiotic-resistant bacteria through medical tourism and transmission prevention under the international health regulations. Chi. J. Int'l L., 12, 273.

Okeke, I. N., Lamikanra, A., & Edelman, R. (1999). Socioeconomic and behavioral factors leading to acquired bacterial resistance to antibiotics in developing countries. Emerging infectious diseases, 5(1), 18.

Harbarth, S., & Monnet, D. L. (2008). Cultural and socioeconomic determinants of antibiotic use. In Antibiotic policies: fighting resistance (pp. 29-40). Boston, MA: Springer US.

Peeters Grietens, K., Toomer, E., Um Boock, A., Hausmann-Muela, S., Peeters, H., Kanobana, K., ... & Ribera, J. M. (2012). What role do traditional beliefs play in treatment seeking and delay for Buruli ulcer disease?–insights from a mixed methods study in Cameroon. Plos one, 7(5), e36954.

Fletcher-Lartey, S., Yee, M., Gaarslev, C., & Khan, R. (2016). Why do general practitioners prescribe antibiotics for upper respiratory tract infections to meet patient expectations: a mixed methods study. BMJ open, 6(10), e012244.

Founou, L. L., Founou, R. C., & Essack, S. Y. (2016). Antibiotic resistance in the food chain: a developing country-perspective. Frontiers in microbiology, 7, 1881.

Roco, M. C., & Bainbridge, W. S. (2002). Converging technologies for improving human performance: Integrating from the nanoscale. Journal of nanoparticle research, 4, 281-295.

Heesterbeek, H., Anderson, R. M., Andreasen, V., Bansal, S., De Angelis, D., Dye, C., ... & Isaac Newton Institute IDD Collaboration. (2015). Modeling infectious disease dynamics in the complex landscape of global health. Science, 347(6227), aaa4339.

****

ISSN: 2348-4667
Anthropological Bulletin
14(2), 126-133, 2019

The Significance of International Criminal Court during International Crimes of Genocide, War Crimes and Crimes against Humanity.

Shoeb Ali [1]

ABSTRACT

This abstract delves into the imperative role played by the International Criminal Court (ICC) in preserving justice amidst the challenges posed by national conceit. As nations grapple with the complexities of sovereignty and domestic priorities, the ICC stands as a beacon of accountability, promoting the rule of law on the global stage. This paper explores the historical evolution of the ICC, its mandate, and its mechanisms for prosecuting individuals responsible for the most egregious international crimes. Emphasizing the tension between national interests and the pursuit of justice, the abstract analyzes cases where national conceit has obstructed the pursuit of accountability and underscores the ICC's significance in overcoming such hurdles. Additionally, it investigates the potential avenues for strengthening the ICC's authority and effectiveness in the face of increasing nationalist sentiments. Ultimately, the paper advocates for a collaborative international approach, recognizing the indispensable role of the ICC in upholding justice and fostering a world where impunity for heinous crimes is not tolerated, even in the face of national conceit.

Keywords: Upholding justice, International Criminal Court (ICC), National conceit, Sovereignty, Global accountability, international crimes, Impunity.

Introduction:

In the intricate tapestry of global affairs, nations often find themselves at crossroads where the pursuit of national interests converges with the imperative of international justice. It is during these critical junctures, marked by the conceit of nations, that the significance of institutions committed to upholding justice becomes most pronounced. The International Criminal Court (ICC), established in 2002 through the Rome Statute, emerges as a lighthouse in the storm, guiding the world through the tumultuous seas of impunity and ensuring that the darkest corners of human conduct are exposed to the light of accountability. In a world where nations often find themselves entangled in conflicts, both internal and external, the importance of international institutions committed to upholding justice cannot be overstated.

The International Criminal Court (ICC) stands as a beacon of hope, providing a mechanism for accountability and justice when nations succumb to the temptation of conceit.

[1] Research Scholar, Faculty of Law, Aligarh Muslim University, India. Email: phd.shoebali@gmail.com

This article explores the vital role played by the ICC in times of national conceit and the significance of its mandate to ensure that no one is above the law.

The very essence of the ICC lies in its mission to address the most egregious crimes that transcend borders—genocide, crimes against humanity, war crimes, and the crime of aggression. As a permanent international tribunal, the ICC serves as a sentinel against the excesses of power and a bulwark against the tendencies of national conceit that may lead to the erosion of justice within the borders of sovereign states.

The genesis of the International Criminal Court was a response to a historical realization that the international community needed a robust mechanism to confront those who commit atrocities, particularly when national legal systems prove inadequate or unwilling to dispense justice. In this regard, the ICC stands not as an encroachment on national sovereignty, but as a necessary supplement, intervening only when the pillars of justice within a nation begin to crumble under the weight of political expediency.

National conceit, often fuelled by political considerations, has historically led to instances where leaders remain shielded from accountability within their own jurisdictions. The ICC, with its mandate to act as a court of last resort, challenges the prevailing culture of impunity by asserting that no one is immune to the reach of justice. By doing so, the court asserts a fundamental principle—that even the most powerful leaders must be held accountable for their actions, and the victims of heinous crimes deserve redress, regardless of political affiliations or national allegiances.

The following exploration delves into the multifaceted role that the ICC assumes in times of national conceit. From preventing impunity and safeguarding human rights to fostering international cooperation and serving as a deterrent against future transgressions, the ICC emerges as a linchpin in the machinery of global justice. As the world grapples with evolving geopolitical dynamics and the persistent challenge of balancing national interests with the imperative of international accountability, understanding the crucial role of the ICC becomes paramount in charting a course towards a more just and equitable world order.

The primary responsibility of the International Criminal Court (ICC) is to serve as a court of last resort, capable of trying individuals for crimes against humanity, war crimes, and genocide, if national courts are unable or unable to do so for whatever reason.[2]

The Genesis of the International Criminal Court:

The establishment of the International Criminal Court (ICC) marks a watershed moment in the pursuit of global justice. Born out of the Rome Statute, which was adopted in 1998 and entered into force in 2002, the ICC represents a response to the need for a permanent international tribunal dedicated to addressing the most severe transgressions against humanity. This brief delves into the historical context and deliberations that led to the creation of the ICC, examining the motivations, challenges, and aspirations that culminated in the formation of this pivotal institution. From the Nuremberg Trials to the ad hoc tribunals for Rwanda and the former Yugoslavia, the journey to establish the ICC is one that reflects the evolving understanding of the international community regarding the necessity of a standing court to hold individuals accountable for genocide, crimes against humanity, war crimes, and the crime of aggression. With the ratification of the Rome Statute, ICC aiming to address the lack of a permanent international tribunal to prosecute individuals for the most egregious crimes—genocide, crimes against humanity, war crimes, and the crime of aggression. The court operates as a court of last resort, intervening only when national legal systems prove unwilling or unable to genuinely prosecute these offenses.

[2] https://www.cfr.org/backgrounder/role-international-criminal-court accessed on 10-10-2019

Preventing Impunity:
Impunity, the shield behind which perpetrators of heinous crimes often find refuge, undermines the very fabric of justice and accountability. This brief explores the imperative of preventing impunity, emphasizing the need for robust mechanisms such as the International Criminal Court (ICC). In the context of national conceit, where powerful leaders may evade accountability within their own legal systems, the ICC serves as a bulwark against this culture of immunity.

Impunity thrives in environments where the powerful remain beyond the reach of justice, shielding themselves from the consequences of their actions. The ICC, established in 2002 through the Rome Statute, disrupts this status quo by providing a global forum for prosecuting individuals responsible for genocide, crimes against humanity, war crimes, and the crime of aggression. By doing so, it dismantles the protective shield of impunity that often surrounds leaders accused of grave offenses.

This section delves into the mechanisms employed by the ICC to prevent impunity. From its role as a court of last resort to its intervention when national legal systems prove inadequate or unwilling to prosecute, the ICC operates on the principle that justice should be blind to political affiliations or national borders. Through case studies and examples, we illuminate how the ICC acts as a deterrent against the unchecked exercise of power and ensures that no individual, regardless of their position, is immune from accountability. In examining the concept of preventing impunity, we underscore the importance of global efforts to foster a world where justice is not only pursued but is seen to be pursued, even in the face of national conceit.

In times of national conceit, the International Criminal Court (ICC) assumes a pivotal role in preventing impunity, acting as a staunch deterrent against the shielding of perpetrators from justice within their own jurisdictions.[3] This section explores how the ICC, as a court of last resort, stands as a critical mechanism to ensure accountability for the most egregious crimes, challenging the prevailing culture of immunity that often accompanies the abuse of power by national leaders. By examining specific cases and the impact of the ICC's interventions, we illuminate the court's indispensable role in curbing impunity and promoting a global commitment to justice.

One of the primary reasons for the creation of the ICC was to put an end to the culture of impunity that often prevailed when powerful leaders committed grave crimes within their territories. National conceit, driven by political considerations, could lead to the shielding of perpetrators from accountability within their own legal systems. The ICC, however, acts as a check against such tendencies, ensuring that those responsible for the most serious crimes face justice, irrespective of their position or nationality.

Safeguarding Human Rights:
National conceit can manifest in the form of oppressive regimes violating the basic rights of their citizens. The ICC plays a pivotal role in safeguarding human rights by holding accountable those responsible for acts such as mass atrocities, systematic torture, and widespread persecution. This not only provides justice for the victims but also sends a

---

[3] ance, S Joseph, Corporations and Transnational Humans Rights Litigation, Oxford: Hart Pub lishing, 2020; D Leader, 'Business and human rights - time to hold companies to account', International Criminal Law Review humanitarian law:

powerful message that the international community values the protection of fundamental human rights.[4]

In the intricate landscape of international relations, the protection and promotion of human rights stand as a moral imperative and a cornerstone for fostering a just and equitable world. Amidst the challenges posed by national conceit, where oppressive regimes may violate the fundamental rights of their citizens, the International Criminal Court (ICC) emerges as a critical instrument in safeguarding human rights.

Addressing Systematic Violations:

The ICC plays a pivotal role in addressing systematic human rights violations. By focusing on crimes such as genocide, crimes against humanity, and war crimes, the court targets offenses that often result in mass atrocities and widespread human rights abuses. In situations where national legal systems falter or are compromised due to political considerations, the ICC steps in as a beacon of hope for the victims, offering the promise of justice and accountability.

Providing Justice for Victims:

Central to the ICC's mission is the provision of justice for victims of heinous crimes. In instances of national conceit, where oppressive regimes may suppress dissent and perpetrate violence against their own citizens, the court becomes a platform for those who have suffered to seek redress. The ICC's commitment to impartiality ensures that the pursuit of justice is not swayed by political interests, allowing victims to find solace in the international community's commitment to human rights.

Setting Precedents for Accountability:

By holding individuals accountable for grave offenses, the ICC contributes to the establishment of legal precedents that emphasize the inviolability of human rights. The court's decisions and judgments serve as a deterrent, discouraging potential perpetrators from engaging in gross human rights violations. This preventive aspect of the ICC's role contributes to a global environment where the protection of human rights is upheld as a universal value.

Challenging Impunity for Human Rights Abuses:

In situations where national conceit might lead to the shielding of perpetrators within sovereign borders, the ICC challenges impunity. Its intervention underscores the principle that no individual, regardless of their position or nationality, should escape accountability for crimes against humanity. This proactive stance against impunity reinforces the idea that human rights are not subject to geopolitical considerations but are inviolable principles that must be upheld globally.

Promoting a Culture of Human Rights:

Beyond its immediate legal functions, the ICC contributes to fostering a culture of human rights. By actively pursuing cases that involve the most egregious violations, the court sends a powerful message that the international community places paramount importance on the protection of human dignity. This, in turn, influences nations to reassess their commitment to human rights and encourages the development of robust domestic mechanisms to prevent abuses.

Fostering International Cooperation:

---

[4] International court: Libya can try uadhan s son, Ine uuardian, II November zUl 1, at http:// www. guara- ian.co.uk/world/feedarticle/9960502; and 'icc orders Libya to hand over Gadhafi's former spy chief

The ICC operates on the principle of complementarity, meaning it only steps in when national legal systems fail. This encourages nations to strengthen their own judicial institutions and promotes international cooperation in addressing crimes of global concern. By fostering collaboration between nations, the ICC contributes to the development of a more just and harmonious world order.

In an interconnected world where the actions of one nation can reverberate globally, fostering international cooperation is not just a diplomatic nicety but an essential component of addressing complex challenges, especially in times of national conceit. The International Criminal Court (ICC) exemplifies a paradigm of collaboration, serving as a catalyst for nations to work together in the pursuit of justice and the prevention of impunity.

Complementarity Principle:

At the heart of the ICC's approach to international cooperation is the complementarity principle. This principle stipulates that the ICC only intervenes when national legal systems are unable or unwilling to genuinely prosecute individuals for the most egregious crimes. By placing faith in the capacity of nations to administer justice, the ICC encourages and complements domestic legal processes, fostering cooperation rather than superseding national sovereignty.

Strengthening Domestic Legal Systems:

The ICC's emphasis on complementarity acts as a powerful incentive for nations to strengthen their domestic legal systems. Recognizing that effective national judiciaries are the first line of defense against impunity, the court's intervention serves as a reminder to states that investing in robust legal institutions is not only a domestic imperative but also a contribution to the global pursuit of justice.

Mutual Legal Assistance:

The ICC actively engages in mutual legal assistance, collaborating with national authorities to gather evidence, locate suspects, and facilitate the smooth conduct of trials. This cooperative approach not only expedites the judicial process but also builds bridges between the ICC and national legal entities, fostering a spirit of shared responsibility in the pursuit of justice.

Global Information Sharing:

In confronting international crimes, information is a critical currency. The ICC facilitates global information sharing, creating a network where nations contribute intelligence, evidence, and expertise. This collaborative sharing of information enhances the court's ability to investigate and prosecute cases effectively, transcending national borders in the pursuit of truth and justice.

Preventing Safe Havens:

The ICC's global jurisdiction sends a clear message that there are no safe havens for individuals accused of the most serious crimes. This dissuades nations from becoming refuge points for those seeking to evade justice, creating a shared understanding that accountability transcends national boundaries. In doing so, the ICC fosters a cooperative environment where nations actively contribute to preventing impunity.[5]

Diplomatic and Political Cooperation:

[5] Priya Pillai, "The African Union, the International Criminal Court, and the International Court of Justice: At the Fault Lines of International Accountability", American Society of International Law 22, no. 10 (2018).

The ICC operates in a geopolitical landscape where diplomatic and political considerations often come to the fore. Fostering international cooperation requires adept diplomacy and collaboration among nations. The ICC engages in diplomatic efforts to garner support, encourage cooperation, and build consensus, recognizing that the success of its mission is intricately linked to the goodwill and collaboration of the international community.

Capacity Building:
Recognizing the diversity in legal systems and capacities across nations, the ICC engages in capacity-building initiatives. This involves providing training, technical assistance, and support to enhance the ability of nations to investigate and prosecute international crimes. By investing in the capabilities of member states, the ICC contributes to a collective global effort to combat impunity.

Deterrence and Prevention:
The mere existence of the ICC serves as a deterrent against potential perpetrators of international crimes. The knowledge that there is a global institution committed to pursuing justice can dissuade leaders from engaging in acts of aggression or gross human rights violations. In this way, the ICC plays a crucial role in preventing the escalation of conflicts and the commission of heinous crimes.[6]

In the realm of international justice, the concepts of deterrence and prevention take center stage, serving as crucial pillars in the mission to curtail impunity and uphold human rights. The International Criminal Court (ICC) plays a pivotal role in this dynamic by not only prosecuting individuals responsible for grave crimes but also by acting as a deterrent against future transgressions.[7] This section delves into the mechanisms through which the ICC contributes to deterrence and prevention in times of national conceit.

Symbolic Deterrence:
The existence of the ICC alone carries significant symbolic weight. The knowledge that there is a standing international tribunal committed to prosecuting individuals for genocide, crimes against humanity, war crimes, and the crime of aggression acts as a deterrent. Leaders contemplating egregious actions are reminded that their deeds could lead to global condemnation and legal consequences, creating a deterrent effect that transcends borders.

Individual Accountability:
The ICC's emphasis on individual criminal responsibility is a cornerstone of its deterrence strategy. By holding specific individuals accountable for their actions, the court sends a powerful message that no one, regardless of their position or title, is immune to justice. This individualized approach reinforces the principle that those who order or commit serious crimes will be personally responsible and face the consequences.

Preventing Escalation of Conflicts:
The ICC's involvement in situations of national conceit serves as a deterrent against the escalation of conflicts. The prospect of facing international justice can influence leaders to reconsider their actions, particularly in situations where gross human rights violations or acts of aggression could lead to further destabilization. By acting as a deterrent, the ICC contributes to the prevention of the exacerbation of existing conflicts.

Creating Accountability Norms:

---

[6] Kristof, Nicholas. "Schoolyard Bully Diplomacy." The New York Times. The New York Times, October 16, 2005. https://www.nytimes.com/2005/10/16/opinion/ schoolyard-bully- diplomacy.html
[7] See Guido Acquaviva's response to this piece, "International Criminal Courts and Tribunals as Actors of General Deterrence? Perceptions and Misperceptions", in this issue of the Review.

Through its jurisprudence and legal precedents, the ICC contributes to the development of accountability norms. By establishing what constitutes criminal conduct on the international stage, the court sets clear standards that individuals and nations are expected to uphold. This normative framework acts as a preventive measure, shaping behavior and discouraging actions that could lead to international crimes.

Fostering a Culture of Justice:

The ICC's commitment to justice fosters a global culture where accountability is valued and sought after. This cultural shift contributes to the prevention of atrocities by creating an environment where leaders understand that their actions will be scrutinized. The ICC's work reinforces the idea that justice is not an option but an essential component of responsible governance, thus influencing decision-makers to act within the bounds of international law.

International Cooperation in Prevention:

The ICC's role in fostering international cooperation extends to collaborative efforts in preventing crimes. By actively engaging with nations, sharing intelligence, and cooperating in investigations, the court contributes to a collective effort to prevent the occurrence of egregious offenses. The collaborative approach emphasizes that preventing international crimes is a shared responsibility.

Discouraging Safe Havens:

The ICC's global jurisdiction and commitment to pursuing justice wherever crimes occur send a clear message that there are no safe havens for those accused of the most serious offenses. This discourages nations from becoming refuges for individuals seeking to evade accountability, contributing to the prevention of impunity.

Conclusion:

In times of national conceit, when leaders may be tempted to act with impunity, the International Criminal Court stands as a bulwark against injustice. Its mandate to prosecute those responsible for the gravest crimes ensures that no individual, regardless of their position or nationality, is above the law. As the world continues to grapple with complex geopolitical challenges, the ICC remains a crucial instrument in fostering accountability, upholding human rights, and promoting international cooperation for a more just and peaceful world.

In the intricate dance between national interests and the pursuit of global justice, the International Criminal Court (ICC) emerges as a beacon of hope and a steadfast guardian against the shadows of impunity. As nations grapple with the temptations of national conceit, the ICC stands as an indispensable institution, weaving a narrative of accountability, deterrence, and the safeguarding of human rights that transcends geopolitical boundaries.

The genesis of the ICC, rooted in the Rome Statute of 1998, represents a collective recognition that egregious crimes demand a response beyond the confines of sovereign borders. It is a response to historical lessons learned from Nuremberg, the ad hoc tribunals for Rwanda and the former Yugoslavia, and the realization that a permanent international tribunal is paramount to confront the darkest corners of human conduct. The ICC's establishment symbolizes a commitment to a shared global vision—one where justice is not a luxury for the privileged but an inalienable right for every individual.

The world is gradually evolving toward "dual sovereignty," also known as truncated sovereignty. This type of sovereignty, far from being absolute, merely grants the territorial state limited jurisdictional rights in a few, highly specialized areas that have little bearing on global society. States have turned become transmitters of global standards into the national mainstream, making choices increasingly limited in the post-Cold War world of interconnectedness and interdependence. Since there is a greater chance of peace and justice within a larger international organization than relying on a single Superpower to deliver justice through war, it may be preferable for small and weak nations to pool their sovereignties in international organizations rather than directing their sovereign energies towards a few, or rather, one powerful player in international politics. Therefore, reason rather than realism should direct the actions of weak and tiny states when determining the future course of action on strengthening international organizations.

Sovereignty is the backbone of the state, if it exists at all. Neo-realists contend that a nation's standing both domestically and internationally is determined by its military might and economic backbone. Constructivists, on the other hand, contend that since no person or state can maintain a rigid backbone for an extended period of time, the spine's flexibility is what allows the state to carry out and uphold a sound balance between its commitments both domestically and internationally. The question of how far a state should bend to prevent its back from breaking, however, is moot. Participating in international organizations such as the International Criminal Court may not undermine sovereignty to the same degree as being compelled to enter the global institutions established by a global hegemony.

Preventing impunity, a formidable challenge in times of national conceit, is at the core of the ICC's mission. By acting as a court of last resort and intervening when national legal systems falter, the ICC breaks the chains that often bind leaders to a culture of immunity. It stands as a reminder that no one is above the law, irrespective of their position or nationality. In preventing impunity, the ICC serves as a voice for the voiceless, providing justice for victims who have endured the gravest of human rights violations.

Safeguarding human rights, another cornerstone of the ICC's mandate, amplifies its significance in times of national conceit. The court becomes a sanctuary for those trapped under oppressive regimes, offering a pathway to justice when domestic institutions fail. Its commitment to impartiality ensures that the pursuit of justice is blind to political considerations, establishing a precedent that underscores the inviolability of human dignity.

Fostering international cooperation is a nuanced strategy employed by the ICC to navigate the complexities of global politics. Through the principles of complementarity, mutual legal assistance, and capacity-building, the ICC becomes a catalyst for nations to work collaboratively in the pursuit of justice. By preventing safe havens for perpetrators and promoting a culture of human rights, the ICC fosters an environment where international cooperation becomes not just a diplomatic nicety but a shared responsibility.

Deterrence and prevention, integral components of the ICC's role, paint a vision of a world where the shadows of mass atrocities and gross human rights violations recede. The court's symbolic deterrence, emphasis on individual accountability, and creation of accountability norms contribute to a global culture where the prospect of facing justice dissuades leaders from actions that could lead to international crimes.

In the International Criminal Court's role in upholding justice during times of national conceit is not confined to courtrooms and legal statutes. It is a testament to the resilience of human rights, the power of global cooperation, and the unwavering belief that justice is an inherent right, not a negotiable commodity. The ICC, with its mission to prosecute the most egregious crimes, stands as a testament to humanity's collective commitment to a world where justice prevails, even in the face of the gravest challenges posed by national conceit. As the ICC continues its journey, it leaves an indelible mark on the pages of history, reminding nations that the pursuit of justice is an enduring flame that can illuminate even the darkest corners of our shared humanity.

****