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Prof.Dr. Ratnakar D Bala
CEO & Director (Academics)
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Dear Associates

Welcome to each and every one of you congregated for the prestigious IMRF's 110th International Gathering in the name of the International Multidisciplinary Academic Conference Dubai 2019 at IMRF Dubai Chapter, Hotel Omega, Bur Dubai, UAE jointly organized by International Multidisciplinary Research Foundation (IMRF), Dubai Chapter and Sant Baba Bhag Singh University, Jalandhar, Punjab, India, is considered to be one of the premier events for the distinguished academic and research cult.

We know that an academic conference is a symposium for inventive academicians and imaginative researchers to give academics an opportunity to present their academic works, concepts and new discoveries and to exchange their ideas and develop their works and also to share idea in presenting for development in the new research and topics and so forth. Together with academic or scientific journals, conferences plausibly provide a central channel for exchange of information among earnest researchers.

IMRF with its Academic Chapters in many Countries, since inception, has a great academic, research and social priorities to promote the spirit of values and orientations in multidisciplinary research functions of education by working out in dexterity required by the integrity of a sophisticated social world order duly transmitting central heritage with scientific bent of mind forming socialization process in respect of reformation of attitudes to confer a serene status for a rational being called man on this civilized planet, of course, from the threshold of Ratna Prasad Multidisciplinary Research and Educational Society.

IMRF with its collaborative organizations like SBBS University, has left no stone unturned for the accomplishment of its vision and mission catering its influential services in the academic and research disciplines comprising the streams of Human Rights, Social Sciences, Arts and Education, English Studies, Business Sciences, Engineering Sciences, Mathematical Sciences, Life Sciences, organizing International Conferences humbly witnessing the virtuous presence and innovative presentations of investigating pioneers, potential leaders, promising researchers, intellectual academicians, working faculty, industry magnates, advanced educationists, eminent scientists, rational thinkers, earnest scholars and superior students with their bonafide work of discovery from as many as 50 and more countries in the world (with their recurring presence) including home towards showcasing their

professional performance with excellent communication skills based on their accumulated experience in the fields concerned successfully.

Globalization is a fact. Its internalization process integrates multidisciplinary fields to embark on an adventure in the realm of academics and research. As such, this conference by International Multidisciplinary Research Foundation (IMRF). I am pleased to unveil the fact that this Copy of Proceedings marked with ISBN No 978-93-86435-67-5 presents an educative network of research with strength of quality, originality and contribution to knowledge of significant fields of multidisciplinary realms duly identified by the solemn research portals and academic destinations in the world.

While presenting you with this sonata of latest academics and research findings, I humbly place on record my loyal acknowledgement of sincere appreciation, due recognition and heart-felt thanks to all intellectual paper presenters, article contributors, members on the esteemed Editorial Board, centres of higher learning in collaboration with IMRF, foreign-national delegates, erudite plenary speakers, scholarly participants and all those who are directly or indirectly in conformity with this IMRF conferences from home and abroad for their righteous everlasting support in one and all aspects and my sincere thanks to all institutions of higher education for their ever dynamic support and cooperation. Gratitude is attitude!

With effusive thanks,

Dr. Ratnakar D. Bala
Conference Chairman

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HUMANITIES

TAKING PRIDE ON TATTOOS AND PIERCINGS: THE LGBTQ COMMUNITIES OF LA UNION

**JM PAULINE OLEA, MARIELLA MIRASOL LOURDES TYRRELL,
CHRYSTA JOY GANAL, ADRIAN LOUISE PUGAL,
LANCE MICAIAH DAUZ, CHRISLYN KATE BALANON**

Abstract: Due to the evolution of our society, one's emotion or life story cannot only be seen in forms of literature or speech but also in the form of "body art" like Tattoos and Piercings. Nowadays, the LGBTQ Community has used body art as a way to cope up with their different experiences and to express themselves. Although possessing body art can be a difficult process, physically and mentally, as some undergo painful procedures and experience discrimination that affected their careers due to these tattoos that can be seen negatively. The researchers aimed to analyze the meanings of the tattoos among the LGBTQ members. For this phenomenological study, the researchers gathered data by conducting a semi-structured interview to LGBTQ members who possess tattoos. To further justify our research, pictures of the tattoos were also taken. Based from their responses, they are motivated by the people close to them and others are motivated by the life-changing experiences they had. The symbols of their tattoos were mostly animals that represent emotions like freedom and love while some are symbols of their organization. The tattoos may differ from their sizes and designs but the similarity is that it represents an important mark that changed their lives. With the data gathered, the researchers concluded that tattoos is more than just an aesthetic but it serves as a platform to express one's experiences and a reminder that one has dealt with an obstacle and was able to show it through art.

Keywords: LGBTQ, Tattoos, Expression, Identity, Discrimination.

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**THE CLASSICS OF THE *BIBLE*
IN SHAKESPEARE'S MACBETH (CENTRALIZING THE THEME OF
"PROPHECY AND ESCHATOLOGY")**

DR. SMRITI MARY GUPTA

Abstract: The Holy *Bible* is the classic text of the Christian community, having a deep and far-reaching influence on thought and everyday life of the people. The elements of the *Holy Bible* can be clearly seen in Shakespeare's play *Macbeth*. The play *Macbeth* contains numerous allusions which are described in the *Bible*, where the images of prophecy and eschatology are depicted. Shakespeare frequently interweaves them with allusions to the crucifixion, Psalms and the witch of envoy story. These interconnections reinforce the play's sense of apocalyptic doom. Thus, the crucifixion story is most important to *Macbeth* because of its almost apocalyptic sense of crisis that extends the implications of one individual's death to all humanity and the world.

Keyword: Holy Bible, Prophecy, Eschatology, Crucifixion.

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USE OF THE PASSIVE VOICE IN L₁ AND L₂ ENGLISH RESEARCH ARTICLES

FATİH GÜNGÖR

The use of tense, aspect and the passive voice has received noticeably attention in academic prose, but authors are still having a dilemma in terms of using conventionalized passive voice. Therefore, this study first analyzed and compared the use of passive voice in L₁ English research articles and L₂ research articles written by Turkish authors. The analysis of the MCRA-L₁ and MCRA-L₂ corpora of 3-million-word MCRA (Multilingual Corpus of Research Articles) revealed that the passive voice was more prevalent in L₂ English written by Turkish authors. While only one four-word lexical bundle was retrieved in the MCRA-L₁ as a procedure bundle, Turkish authors used 35 four-word lexical bundles in procedure, inferential, structuring, generalizing, and engagement bundle categories. Secondly, twenty randomly selected research articles from the MCRA-L₁ were analyzed qualitatively to find out how expert authors convey their arguments for the same functions. The results of this study are expected to help novice authors understand the role and function of passive voice in academic writing and to assist them in their research article writing process.

Keywords: The Passive Voice, Academic Writing, Research Article, Lexical Bundles.

Acknowledgement: This study was supported by Scientific Research Projects Unit, Afyon Kocatepe University (Project No: 18.KARİYER.168).

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**STRENGTH AND RESILIENCE OF TWO WOMEN
IN A *THOUSAND SPLENDID SUNS* BY KHALED HOSSEINI.**

DR MEENA GUPTA

Abstract: Khaled Hosseini is undoubtedly the rarest of the rare gems. He is a writer known for his heart-wrenching power and his voice has been revolutionary as a 'Spokesperson' for Afghan nation. *A Thousand splendid suns* is the story that is so heart-touching that it at once evoke emotions that cut to the core of human heart and dig deep into the human soul that demarcates between right and wrong, love and betrayal, redemption and loss, forgiveness and revenge, power and weakness.

The present paper is my sincerest effort to put in words what the novel had effect on me. The struggle of women for their existence and identity is not a new one but for country like Afghanistan it is so heart piercing that it sends a chill to the blood. The most soothing situation is the bond between the two women Laila and Mariam who during the most turbulent times stay connected with each other and bare the tortures of their husband Rashid. Their bond is their strength which gives hope to this novel.

Keywords: Rare, Revolutionary, Struggle, Existence, Identity, Strength.

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DISLOCATION AND ALTERITY IN PATRICIA ENGEL'S VEINS OF THE OCEAN

DARYOOSH HAYATI, SYED ADNAN REZA

Abstract: The paper shows the dislocation and alterity in Patricia Engel's 'Veins of the Ocean'. The Veins of the Ocean by Patricia Engel conveys a significant and riveting Pan-American story of cracked lives discovering comfort and reclamation in the magnificence and intensity of the characteristic world, and in each other. A lot of families got dislocated during the post 9/11 era and eventually, their life would be an everlasting outcast. The Veins of the Ocean reflects diaspora composing as a reaction to the lost homes and endeavors to receive another personality, without truly relinquishing the bygone one. Eventually, their life would be an everlasting outcast. Disengagement gives diaspora composing a feeling of misfortune and sentimentality. Diaspora composing, for the most part, turns into a reaction to sentimentality, disengagement and character emergency. The disengaged exile endeavors to absorb into another culture, while the aches of regret stop him/her. He endeavors to absorb into the new culture and begin another life while unknowingly mirroring the destination culture through recollections, visit moves between them over a wide span of time, and a bipolar/double condition of having a place with different societies. A lot of families put them into self-exile and a lot more just linger around the unforgiving circumstances and depravity. The paper will share the understandings and misunderstandings, pains and pleasures, locations and dislocations, hate and love, truths and lies, rises and falls during the dispersion of people from their original homeland.

Keywords: Dislocation, Alterity, Self-Exile, Identity, and Post 9/11 Fiction.

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THE CONTEMPORARY FEMINIST POLITICS IN THE NOVELS OF SHASHI DESHPANDE

TANMOY KUNDU

Abstract: Shashi Deshpande (born in 1938 in Dharward, Karnataka, India) is one of the award winning Indian novelists whom we can read with seriousness. Her novels usually have women protagonists. Women's aspirations, choices, lives play crucial part in shaping her narratives. This has led readers to call her a feminist writer. She has often complained against this title. But Shashiji feels that while she is feminist, her novels are novels. Almost all her novels – are defined by a constant and fluid movement between the present and the past, generally closing with a open future.

The novel, **Moving On** is peopled with many characters, seemingly simple and straight but quite complex, confused and uncertain about themselves and their lives. People's relationship with others come out of what they and the others are. She explores the trope of widowhood and illicit desire. This novel is a family story of intimate spaces, emotional wounds and intrusions that are absolutely unexpected. In this novel, Deshpande gives us a complex character who tries to achieve her real self through struggles.

“In childhood a woman should be under her father's control, in youth under her husband's and when her husband is dead, under her sons, she should not have independence”

(The Laws of Manu 5.148)

The importance of human experience, denied of female voice is tilted, distorted one. Men, right from the beginning have had every advantage in telling us their own stories. They had education, a much higher degree, to articulate and voice their dominance. But women had no education, nor were they strong to voice. Right from Christine de Pisan Wollstone Craft, from Simone de Beauvoir to Jane Austen and beyond, women have been demanding their rights in a male centric world. It is very rightly said in the Indian context that, “Yatra Naristu Pujyante Ramanti Tatra Devatha” meaning the gods reside in the place when women is worshipped. Ever since the dawn of civilization there has been a struggle to liberate women from male oppression. Feminism is an expression of resentment at the unjust treatment meted out to any woman. Feminism recognizes the inadequacy of male created ideologies and struggles for the spiritual, economic, social and racial equality of women, sexually colonized and biologically subjugated. In **The Vindication of the Rights of Women** (1792) Mary Wollstonecraft posits that women should be given the same rights as that of men. Thirty years ago, women were poised before what promised to be a whole new era for feminist politics. There was an accumulation of aspirations as more women flooded into universities and labour market; an explosion of resentment against the continuing trivialization and disparagements of 'the feminine' and an increasingly confident critique of social and political theories that so grabbed our contemporaries but paid scant attention to gender inequalities or the situation of women. It was a time of great inventiveness and innovation, perhaps particularly so because one of the characteristics of moment was that most of us knew little of what had gone before. We might have read Simone de Beauvoir's *The Second Sex*; we had some hazy ideas about the battle women had fought to win their right to vote; but much of the previous history of the feminist thinking and agitation was still shrouded in forgetfulness and indifference. In the field of feminist political theory there has been an explosion of critical work talking on the leading political theorists whose ideas frame current

normative conceptions; and as much more explicit focus on the way the discourse of political life operate in the inclusion or exclusion of women. In the process, there was what one might describe as a turn towards politics within feminist research.

Research Design and Methodology: The Complete work process entails a systematic study of the selected novels of Shashi Deshpande over the concepts which are discussed through chapterizations. The study is inclined to divulge and develop the declared mission exuberantly and with extent possible precision. It will make use of relevant critical works contributed by eminent scholars and critics in this arena. The most research material will be drawn from the works contemplated by experts and as complied by the academicians. The study will be divided into chapters, each dealing with specific theme. The process of composition of the features and schemes will be argumentative using the evidences available from the materials quoted and referred to. The thesis will evolve an eloquent style of composition leading to natural unfolding of the objectives designed to attain. The presentation of propositions will be simple and sublime.

Research Findings: My primary concern behind this extensive research is to find out those politics or techniques or tricks employed by the novelist in her short stories to explore the deplorable condition of women and their earnest desire sometimes to be within the social network and sometimes to go beyond all these and to make revolt. But finally they return to their own abode. My focus will be on the fact that the women characters in her novels never wants to establish themselves above male but that they are not inferior and they can go side by side of their male counterpart. They do not revolt only because of deep love they have for them but not because of their financially inferiority and list goes on.

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URDU'S DILEMMA: LANGUAGE USE AND AWARENESS OF MUSLIMS LIVING IN DELHI

DR. TAEJIN KOH

Abstract: This study examines the perception and identity of Urdu in Indian Muslims who are regarded the largest minority group in India. It examines the formation, development and change of the identity of Muslims in the multicultural and multi-religious society of India. For this purpose, the paper aims to identify the current status of Urdu by conducting surveys and interviews as well as literature research on how Muslims think about Urdu. In other words, it is a case study of the language selection and usage patterns of Muslims living in Delhi. The purpose of this study is to investigate how language works on the personal, social, religious, and political identities of Muslims. The first chapter will look into secularization and language use of Indian Muslims. Although Urdu had influenced the formation of Muslim identity as much as religion as a symbolic social capital after the process of independence, its influence has been weakened today, as decentralization is accelerating. In this context, we want to analyze their language use through questionnaires. In the second chapter, the relation between language and religion will be discussed. The language identity of Muslims seems to be getting weaker even unity of Muslims is needed in Hindu-centred society. This is a natural result of the similarity between Hindi and Urdu. Therefore, the linguistic characteristics between Hindi and Urdu will also be examined. It will also cover Muslim education environment and language selection. In this regard, we will look at what languages Muslims prefer to use according to the needs of society and individual. Lastly, interpretation and manipulative identity of Indian Muslim will be investigated. Urdu seems to be the most useful means of forming a Muslim identity with religion in India. However, the shared perception among the members of the language community that a particular language is the most appropriate means of expressing a particular identity is criticized for not recognizing the attributes of individuals in the domain of language and not forming social discourse correctly have. Therefore, we want to analyse Urdu as a mediator of how the Muslim group is forming and changing identity.

Keywords: Urdu, Indian Muslim, Language Identity, De-Secularization, Ghettoization, Hindi.

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BLENDED LEARNING: AN EFFECTIVE WAY OF ENHANCING STUDENTS' LEARNING EXPERIENCES AT SECONDARY & SENIOR SECONDARY LEVEL OF EDUCATION

DR. RICH A ARORA

Abstract—This paper studies the effect of blended learning on the learners and the subsequent outcomes. Blended learning, combines, traditional classroom methods with online digital media. The variety of innovative approaches used for teaching and learning have been shown to both directly impact and enhance students' learning experiences. Blended learning may influence students' learning environment and, subsequently, their study experiences, learning outcomes, and ultimate academic achievement. In this paper, an effort has been made to study the use of blended learning as a delivery method at the secondary and senior level of education and its effectiveness. An effort has been made to examine the benefits that blended learning provides to students' learning experiences. The discussion in this paper has been focused on developing methods of blended learning and its impact on students' perception and understanding. The data collected for this study includes responses from students to a questionnaire survey. The research findings formed the basis of recommendations of having blended learning as a fruitful approach for the development of learning and teaching practices and approaches that will enhance students' learning experiences.

Keywords: Blended Learning, Hybrid Learning, Institutional Approach, Student.

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EFFECTIVE LEARNING STRATEGIES FOR AUTISTIC CHILDREN

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Abstract: Autism is a developmental disorder characterized by impairments in social reciprocity and communication, and the presence of restricted or repetitive activities. It is a complex neurological disorders that have a lifelong effect on the development of various abilities and skills. Onset of autism is before the age of three. The diagnosis of autism can be made accurately at two years of age, with social and communication impairments as primary symptoms. Various learning strategies that are specialized for autism and begin at young ages have been found to contribute to significant gains in cognitive, social and language functioning. Thus, several different professional practice parameters emphasize the importance of both early identification and early intervention in promoting more positive outcomes for children with autism. Children diagnosed with autism are increasing now a day. As they have their unique learning needs so knowing how to teach these children and which effective learning strategies to use, is extremely important. With the Review of literature, the present study will try to explore and will increase the awareness about various effective methods to improve learning in Autistic children.

Keywords: Autism disorder, Learning, Social & Communication.

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PUBLIC SERVANTS SERVING THE ENVIRONMENT THROUGH URBAN AGRICULTURE

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RAESSA GAYLE M. VALMONTE, RALPH DENIEL V. CETRO, DARWIN T. PAMBID

Abstract: The research looked over the possibility of Urban Agriculture and encountered a lot of certain topics such as Production of Foods, Lack of Space, Early Childhood Education, now Urban Agriculture offers such an alternative ways to continue with the flow of modernization without any complications. This research covered implications of Agriculture in cities once it's already implemented. The goal of this study is to find ways of implementing Agriculture in urban areas that can benefit the people and also the country. Policemen of Baguio City who participated in the *Gulayan sa Kapulisan* program were the chosen participants for the study. The researchers made use of semi-structured interview as the instrument in data gathering for the research. The policemen of Baguio City applied organic farming, vertical gardening and crop rotation which is a way to maximize the limited space available. Urban Agriculture interplays with food production, early childhood education, and space wherein it provides secure access to food and the policemen were raised in a childhood of knowing basics of gardening, and maximizing space but certainly some were affected by road widening. As a conclusion, Agriculture is open for any profession wherein the policemen became role models for students and bystanders because they motivated people and sparked their interests.

Keywords: Urban Agriculture, Policemen, Sustainability, Urbanization, Farming.

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ABC'S OF ONLINE DATING

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Abstract: The main focus of this research named “the ABC’s of Online Dating” was pertained towards the teenagers’ views and relationship with online dating. For answering the statement of the problem, the dimensions of online dating had included love, time, accessibility and communication. The concept of love was defined as a fun influence of support and trust, time was a struggle for long-distanced partners yet they found time to manage and prioritize, and accessibility and communication were related to online dating from the apps technology had given them that led to a growing communication between many lovers. The impacts of online dating towards teens were comprised of how aware they had become with the challenges of dating online, and how they were benefited with the support through difficulties. The lived experiences of the participants involved in online dating specified how they went through many labors of building trust and opening up to people, as well their conflicts and their opinions on how they felt towards this topic. In conclusion, the dimensions of online dating were love, time, accessibility, and communication. The impacts of online dating towards the teens interviewed are how they had become more aware of difficulties in relationship building and how they had been benefited with support and comfort, and the lived experiences of the said teens vary from being fun, hard, useful, or opposed. A recommendation for teenagers involved in online dating was to balance one’s focus in their online relationship and personal priorities like studies, and etc.

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METACOGNITION: AN EFFECTIVE STRATEGY FOR TEACHING LEARNING PROCESS

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Abstract: Metacognition is a regulatory system that helps a person understand and control his or her own cognitive performance. Metacognition allows people to take charge of their own learning. For all age groups, metacognitive knowledge is crucial for efficient independent learning because it fosters forethought and self-reflection. Metacognition consists of two processes namely Knowledge of cognition, Regulation of cognition. Teachers who use metacognitive strategies can positively impact students to develop an appropriate plan for learning information, which can be memorized and eventually routine.

Introduction: Metacognition describes the processes involved when learners plan, monitor, evaluate and make changes to their own learning behaviours. Metacognition allows people to take charge of their own learning. It involves awareness of how they learn, an evaluation of their learning needs, generating strategies to meet these needs and then implementing the strategies. (Hacker, 2009). Learners often show an increase in self-confidence when they build metacognitive skills. Self-efficacy improves motivation as well as learning success.

Process of Metacognition: Many theorists organize the skills of metacognition into two complementary processes that make it easier to understand and remember. According to theory, metacognition consists of: 1) the knowledge of cognition and 2) the regulation of cognition.

Knowledge of Cognition has three components: Knowledge of the factors that influence one's own performance; Knowing different types of strategies to use for learning; Knowing what strategy to use for a specific learning situation.

Regulation of Cognition involves: Setting goals and planning; Monitoring and controlling learning; Evaluating one's own regulation (assessing results and strategies used).

Theory behind Metacognition: A theory of metacognitive regulation that is widely cited in the research literature is Nelson and Narens' (1990) Model of Metacognition. This consists of two levels: the object level and the meta level. The **object level** is where cognitive processes or 'one's thinking' occurs. One example is decoding text when reading. At the object level, cognitive strategies (e.g., decoding) are used to help the learner achieve a particular goal (understanding the meaning of the text). The **meta level** is where your 'thinking about thinking' takes place. At this higher-order level, metacognitive strategies are used to ensure the learner reaches the goal they have set.

Four Categories of Metacognitive Learners: Perkins (1992) defined four categories of metacognitive learners: tacit; aware; strategic; reflective.

'**Tacit**' learners are unaware of their metacognitive knowledge. They do not think about any particular strategies for learning and merely accept if they know something or not. '**Aware**' learners know about some of the kinds of thinking that they do – generating ideas, finding evidence, etc. – but thinking is not necessarily deliberate or planned. '**Strategic**' learners organize their thinking by using problem solving, grouping and classifying, evidence seeking, decision making, etc. They know and apply the strategies that help them learn. '**Reflective**'

learners are not only strategic about their thinking but they also reflect upon their learning whilst it is happening, considering the success or not of any strategies they're using and then revising them as appropriate. For an example of this categorization in action, see the work of Harvey and Goudvis (2007).

Benefits of Metacognition: Metacognitive practices help learners to monitor their own progress and take control of their learning as they read, write, and solve problems in the classroom. Research indicates that metacognition is a powerful predictor of learning. Metacognitive practices make a unique contribution to learning over and above the influence of intellectual ability. Metacognitive practices have been shown to improve academic achievement across a range of ages, cognitive abilities, and learning domains. This includes reading and text comprehension, writing, mathematics, reasoning and problem solving, and memory. Metacognitive skills help students to transfer what they have learnt from one context to the next or from a previous task to a new task.

Teacher's Role: Teachers who use metacognitive strategies can positively impact students to develop an appropriate plan for learning information, which can be memorized and eventually routine. As students become aware of how they learn, they will use these processes to efficiently acquire new information, and consequently, become more of an independent thinker. Here are some metacognitive strategies that will enhance learning

Ask Questions, During formal courses and in post-training activities, ask questions that allow learners to reflect on their own learning processes and strategies. In collaborative learning, ask them to reflect on the role they play when problem solving in teams. **Foster Self-reflection,** Emphasize the importance of personal reflection during and after learning experiences. Encourage learners to critically analyze their own assumptions and how this may have influenced their learning. **Encourage Self-questioning,** Foster independent learning by asking learners to generate their own questions and answer them to enhance comprehension. The questions can be related to meeting their personal goals. **Teach Strategies Directly,** Teach appropriate metacognitive strategies as a part of a training course.

Promote Autonomous Learning, When learners have some domain knowledge, encourage participation in challenging learning experiences. They will then be forced to construct their own metacognitive strategies. **Provide Access to Mentors,** Many people learn best by interacting with peers who are slightly more advanced. Promote experiences where novices can observe the proficient use of a skill and then gain access to the metacognitive strategies of their mentors. **Solve Problems with a Team,** Cooperative problem solving can enhance metacognitive strategies by discussing possible approaches with team members and learning from each other.

Think Aloud, Teach learners how to think aloud and report their thoughts while performing a difficult task. A knowledgeable partner can then point out errors in thinking or the individual can use this approach for increased self-awareness during learning. Another approach to thinking aloud is the working out loud approach. Listen to this interview with Jane Bozarth about working out loud. **Self-explanation,** Self-explanation in writing or speaking can help learners improve their comprehension of a difficult subject. **Provide Opportunities for Making Errors,** When learners are given the opportunity to make errors while in training, such as during simulations, it stimulates reflection on the causes of their errors.

Conclusion: Metacognition is a set of skills that enable learners to become aware of how they learn and to evaluate and adapt these skills to become increasingly effective at learning. Metacognitive practices help students become aware of their strengths and weaknesses as learners, writers, readers, test-takers, group members, etc. A catalyst is an agent that enhances rate of reaction, like catalyst metacognitive strategies enhances rate of teaching learning in the classroom.

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ROLE OF THE PROPAGATORS OF ISLAM IN THE GROWTH OF ARABIC LANGUAGE IN KERALA

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Abstract: Arabic being a global language has wide ascendancy over the communities all over the world. Muslims of Kerala are much familiar with Arabic language. It was the propagators of Islam who strived for the growth of Arabic language in Kerala. It's a great deal in the domains of literature studies, to study about the pioneers of language. So it's worth studying about the ones who stood up with the growth of Arabic language in Kerala.

To be precise, it was the traders and the propagators of Islam who made Arabic familiar to Kerala including Veliancode Omar Qadi, Sainudheen Maqdoom, Qadees from Kozhikode, shortly on Malik dinar whom I focus through my paper. I also comprehend the growth of Arabi-malayalam in my paper. The study is subjective and analytical.

It's evident from the texts of history about the role of the propagators of Islam in the growth of Arabic language in Kerala.

Keywords: Arabic in Kerala, Traders, Propagators, Teachings.

Introduction: Prophet Muhammad Nabi (PBUH) lived with the pertinacious and fanatic communities who inhabited in Arabia. Development of Arabic is the official language of 25 Nations and it owns 422 million Native and non-Native Arabic using people.

Arabic who sought routes for trade transferred Arabic to the lands they covered. Development of Arabic language in Kerala was bluffed mostly by trade and the religion propagators who made Arabic much familiar. There were even people, who was unable to speak Malayalam so well, who could speak Arabic, Arabi Malayalam was the arabi-malayalam helped the people to learn Arabic script. it's a big deal to study about the pioneers of Arabic language in Kerala and the stages of its development. The attempts made by Malik bin dinar, sainudheen maqdoom, veliyamkode Umar qadi, Kozhikode qadis.

Trade and Propagation: The trade routers through the Persian bay open the way for trade between Arabs and Indians the imported and exported goods through the ports. they made their way through each and every ports and islands of India and reached China through Assam and Bengal. The routers between India and Europe are most prominent now and then the trade relation between Arabs and Indians was armful.

Historians states that keralitis had trade relation with Arabs from ancient days. KM panikar states that Arabs frequently visited ports of Malabar exactly from Muscat. Famous Arab poet 'imrul qais' exemplifies the excrete of deer and that of the pepper. It makes evidence that pepper was found in Arabia even before the advent of Islam and the pepper was only seen in Kerala. So it could be assumed that Arabs had trade relations with Indians. As a result, the spread of Islam created in Kerala too. As the Arabs who came for trade also took over the role of propagators, the bond become stronger it leads to the way for spreading the culture of Arabs in Kerala

Muslim leaders from Arabia carried out propagators of Islam with trade affairs. It became necessary to launch the adoption to study the text of religions as the Muslim increased in numbers

Many of scholars migrated to Kerala and vacated the places in Kerala. It became necessary for study Arabic in order to study religion. Muslim centered in mosque setup the study center there. Later they come to known as 'daras'

There was a 'daras' having brilliant records in academics, at chaliyam before 15th century. It was chaliyam which occupied the capital, before Kozhikode grew as a center for Islam - Arabic learning. It was after that Kozhikode come to be the center of Arabic learning

Qadi's of Kozhikode were recognized by British government. They referred to qadi's for the affairs related to religion. Chaliyam was the center of the many of the prominent. Scholars of that time they produced many of the text in Arabic. qadi's Kozhikode penned a book on thaswuf named 'umdashul ashabil sanushdhul ahsab' qadi sainudheen his father qadi moosa, his father qadi Ibrahim, Muhammed qadi aforementioned, came under the family of Malik dinar. It is mentioned in the book " masahhebul kawakibu durriyya" in 1748, ka'ab bin Ashraf penned a ' muqammas' for a poem starting 'suad' qadi ahamed followed by Qari Abdul azeez were eminent one's,

Tuhfathul Mujahideen (تحفة المجاهدين): Tuhfathul mujahideen' was a historical book written by zainudheen maqdoom Ibn Muhammed gazzali. It was an open request before the believers of Kerala to march against the Britishers who subjugated them to a great extent. It's forward an initial chapters calls for the jihad against British reign. It also states that God will reward you with the best for every effort you put in the jihad, quoting was from Quran and Sunnah

Umar Qadi's Contributions: Qadi Muhammed Ibn qadi Abdul azeez the author of this historical text Fath ulh mue'en he was from qadi family of Kozhikode. It was written in (virtham) Raja's constituting 537 couplets this work depicts visibility and mobility of Muslims under the rule of "samuthiri"

Hazrat Umar qadi was a bond to Ali musliar and Amina. He went to tanur at his age of 11 .it was from their he studied 'alfiya' of Ibn Malik. It was one named ahamed musliar from maqdoom family of ponnani, Managed the affairs of tanur Juma masjid later he joined ponnani 'daras' and studied fathaul mueen and mahalli , tuhfath , thafseerul jalalaini , minhajul abideen and such classical texts . He was also bond ' uloomudheen' and ' fiqh' . he penned poems in the walls of masjids, were he appointed as qadi

It was most common at that times to provide Fathwas, referring to the books of Umar qadi, including ' ihanath', c sharahul bahraj 'He was a poet as well as a philosopher. He penned many of couplets in Arabi-malayalam. Main concern of these poems were tazkiyath (purification). And practicing religion he was also known as an ideal teacher among his students.

As a result of aforementioned attempt and Arabi-malayalam spread over the religion of Kerala with required to the profession of Islam even in his age, some of the madrasas still continue to teach Arabi-malayalam.

UpcomingProblems: Scarcity of academic quotations and contextual studies around the ones who stood up with the propagation of Arabic language in Kerala. So including their contribution and carrying theoretical study on them in the academic domains makes sense

Conclusion: Propagators of Islam played a vital role in the growth of Arabic language in Kerala. This believed that to learn Arabic is mandatory for all Muslims. Pressure of aforementioned situation accelerated the growth of the language. Majority of the propagators were engaged in teaching and this also was a reason.

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COGITATION OF FEMALE TRIBULATIONS AND A CATASTROPHE OF UNFULFILLED ASPIRATIONS IN BHARATI MUKHERJEE'S NOVEL WIFE

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Abstract: Literature is a robust weapon in the hands of a writer to alter the society and Bharati Mukherjee is one such writer, who through her most spell binding and appealing novel 'Wife' tries to change the mindset and outlook of society chiefly to escalate the position of women from the trials and tribulations of society just to give her a status equal to men. Bharati Mukherjee is one of the most erudite and morally earnest writers among the Indian women writers in Indian English literature. Her overarching claim is clear and cogent. She is admired as the 'Grande dame' of diasporic Indian English Literature. She has been entitled as an Indo-American writer, Indian Diaspora writer and writer of immigrant fiction and non-fiction. Mukherjee has not only exaggerated the inner world of characters with an escalating supremacy but also has annexed a current dimension to the Indian English fiction. Endowed with the quest of probing psychomatic perception, Mukherjee peeps into the inner recesses of the psyche rather than merely depicting the outer display of the world. Bharati Mukherjee's novel 'Wife' is narrated as a milestone in the field of psycho-analytical realism which depicts acute inner world of psycho- neurotic and solipsistic individual with an out and out realism. The present paper is in fact, an endeavor to scrutinize how Dimple Dasgupta, the chief female protagonist in the novel Wife is grasped in a chasm between two differing world directing to her hallucination, depression and alienation. Moreover, the paper is also an attempt to track down the usage of 'defence mechanism' by Dimple as a wife in the novel Wife. Besides, the present paper focusses on the catastrophe resulted by unfulfilled aspirations in the novel Wife. Right from the very beginning, Dimple appears such a persona who lives in an imaginary world, quite far from the real world or we can say, reality. She dreams of a perfect husband and perfect life but when her dreams remain dreams rather unfulfilled, she murders her husband and thinks after killing, that no one will grip her murder as she saw in most of the serials. The aim of writing this paper is, in fact, to study the tribulations of Dimple as an individual whose psychological demands and further reactions to them are governed by her experience of life and her unique individual psyche and how her unfulfilled aspirations create a catastrophe.

Keywords: Robust, Spell Binding, Trials And Tribulations, Erudite, Overarching, Cogent, Grande Dame, Diaspora, Immigrant, Psychomatic Perception, Recesses, Psychoanalytical Realism, Psycho Neurotic, Solipsistic, Chasm, Hallucination, Alienation, Defence Mechanism And Catastrophe.

Introduction: Indian writing in English has its own uniqueness. Indian women writers of fiction are well -acknowledged as well as highly appreciated globally for their works as they have made an ineffaceable imprint in world literature. Many women writers like Bharati Mukherjee, Manju Kapur, Shashi Deshpande, Shobha De, Arundhati Roy, Anita Nair have subsumed the revenant escapades of a woman in their respective writings.

Bharati Mukherjee is a cornucopian Diasporic writer of Indian origin. Infact, she employs a remarkable place in Diasporic writing which furthermore holds a consequential position in the current literary scenario. Her novels bespeak the existing modern women's struggle to elucidate as well as to procure an autonomous identity.

Wife is the second novel written by Bharati Mukherjee in the year 1975. The novel is the depiction of a woman's inner expanse as it depicts not only the female psyche but also the composite ways as to tell how a woman discerns her connubial relationship. It portrays the writers ideas of the chief female protagonist who is a young woman with unfeasible expectations regarding life and due to which she suffers so much in life .She faces a squabble between fantasy and reality.

The novel Wife narrates the story of Dimple Dasgupta, the main female protagonist who belongs to the middle class Bengali family. She aspires to hold a college degree that according to her, will enhance the chances more to find a good husband. Right from the very beginning, we go through her persona as well as create her picture in our mind as such a character who has unfeasible expectations of marriage. Her phobic personality is revealed to the readers. The character Dimple in the novel Wife is remodeled whose, " Inner demands and outer realities as well as liabilities of married life create a conflicting situation"(128)

Marriage, as we all know, is a commitment for a lifetime. It's a special bonding between husband and wife. Dimple's desire as well as her mindset of an ideal husband is quite unmatched with the one of her father's choice as she dreams to marry a neurosurgeon but her father looks for engineers. One can both see and say, she is rather quite imaginative of marriage and it's just not mere child bearing for her. "Dimple Dasgupta had set her heart on marrying a neurosurgeon, but her father was looking for engineers in matrimonial ads...She fantasized about young men with moustaches, dressed in spotless white, peering into open skulls. Marriage would bring her freedom, cocktail parties on carpeted lawns, fund-raising dinners for noble charities. Marriage would bring her love (3).

She starts lacking self-confidence after waiting for the perfect groom as mentioned in the novel, "Years of waiting had already made her nervous ,unnaturally prone to colds, coughs, and headaches.(4)As victimized by her mental troubles, "She worried that she was ugly, worried about her sitar-shaped body and rudimentary breasts. She grew bitter during the last days of August ,especially bitter about relying on others".(10) .After going through the novel, we come to know that she even consults a beautician by writing to her in order to ask her the remedies to change her outer appearance.

Dimple's parents succeed in getting a suitable match according to them, for their daughter after a long search for an engineer. Dimple is married to Amit Basu, an engineer, no doubt but their marriage is not on the so -called grounds of correlative concurrence.

In her article,'Bharati Mukherjee's Wife: A Post- Modernist Novel,'Dr. Mallika Arjun writes: "The two marry each other much against each other's wishes for the reason that Amit wanted Meena Sen like fat and tall, fair and fleshy belle, while Dimple wanted to marry someone, a surgeon rich enough to look after her".(120)

Amit Basu doesn't prove to be a good husband as desired by Dimple. He doesn't match to the man of her dreams as she always envisages her husband to look like a movie star. But nothing happens according to her imagination. As, Dimple lives in the realm of fantasy so she is dissatisfied with her married life because of her unfulfilled dreams and desires. She does not know actually what can bring her real satisfaction and happiness.

As a matter of fact, Dimple scorns common people and so are her in-laws. While living with them, she always curse herself and feels distressed as she knows that all these things are not in her control. It's not desired by Dimple we know but soon she gets pregnant whereas Amit gets a golden opportunity to work in the United States. She starts suffering from mental agony as she envisages that the baby to come might be a hindrance in her planning to go abroad.

She starts thinking as how to get rid of her baby to come. Finally, she gets the idea of skipping and later succeeds in aborting her baby by skipping.

Dimple fails to live a prosperous and a stress free married life. In order to lessen her disappointment she starts going to parties in America. Besides, she develops an illegal relationship with an American Milt Glasser just to overcome her mental stress, isolation rather alienation in the US. But that too proves futile. Her imagination encounters bitterly with the harsh reality. What happens now is she starts thinking to herself in many ways but ends up murdering her own husband as, "She would kill Amit and hide his body in the freezer. The extravagance of the scheme delighted her, made her feel very American somehow, almost like a character in a TV series. She dreamed up extravagant details: the small parts, the fingers, tonsils, heart and gizzard could be packed in plastic bags. House work could be creative and challenging. (195).

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A STUDY ON CUSTOMER ACCEPTANCE TOWARDS 'ONLINE FOOD DELIVERY' APPS IN MUMBAI W.R.T TO AGE GROUPS.

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Abstract: E-commerce in India is expected to grow unexpectedly fast. The consumption pattern of people has changed; their demands or expectations from companies are high. The traditional method of consuming food is sitting in restaurant for long time and enjoying food is slowly gradually changing. People are struggling to fetch some personal and quality time to spend. Online food delivery is solution for many challenges faced by numerous people. The role of mobile apps and also web-based system of ordering food cannot be undermined at this point. With more people using smart phones, increasing literacy and access to the Internet, the fortunes waiting to be reaped from the business of home delivery are just a click away! E-Tailing, which is having a sound presence online, is very promising for all delivery-based 'quick service restaurants' (QSR) compared to the revenues generated from the typical brick-and-mortar format. The objective of the study is as follows:

- To know awareness towards online food delivery app among all the age group
- To explore the reasons behind the growth of such online food delivery apps in India
- To understand consumer satisfaction towards Online Food Delivery apps
- To understand is there any impact of age on usage of App
- To understand the challenges faced by consumers while using Online Food Delivery App.

Keywords: Customer Acceptance, Online Food Delivery Apps, Age.

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PROBLEMS OF INTERNALLY DISPLACED PEOPLE IN REBUILDING LIFE IN HOME VILLAGES IN POST-WAR SRI LANKA

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Abstract: Sri Lanka witnessed a 30-year armed conflict that erupted between the government armed forces and the Liberation Tigers of Tamil Ealam (LTTE), a separatist outfit, when the LTTE attempted to establish a separate homeland in the Northern and Eastern Provinces of the country. The conflict turned hundreds of thousands of people into internally displaced persons, IDPs, since its outbreak. Following their displacement, the IDPs lived in temporary shelters and state-run transitional camps in other parts of the country with several untold difficulties. In 2009, the three-decade-old civil war came to an end after the government security forces defeated the LTTE militarily. The termination of the conflict was advantages for the IDPs to go back to their homes ending their years of vulnerably displaced life. Most of the displaced returned homes to continue life in their places of origin in this post-war context. However, the IDPs faced several problems that effectively challenged their efforts of rebuilding life in the home villages. This study aims to examine such problems and their effects on their life-rebuilding, and moot some recommendations to address the problems and enable the displaced to continue the life.

Keywords: Sri Lanka, Armed Conflict, IDPs, Problems, Life-Rebuilding.

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CONFLICT MANAGEMENT: AN INTRODUCTION.

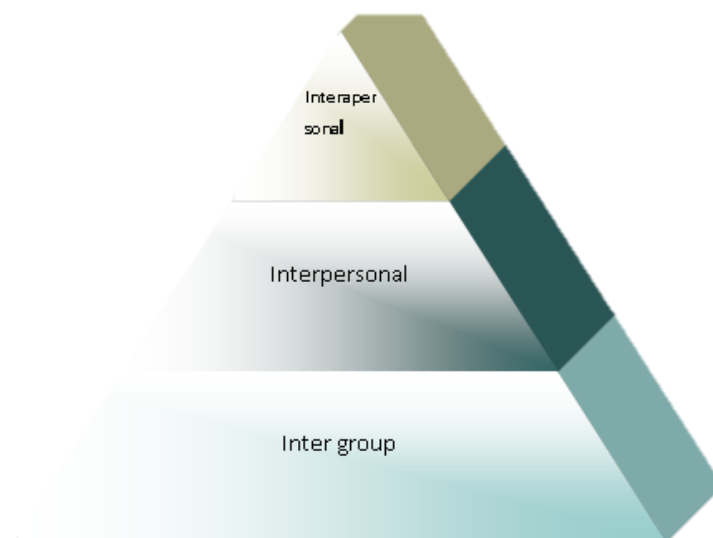
DR.AMIT PHILLORA, BS PHILLORA

Abstract: Conflict management is the process of limiting the negative aspects of conflict while increasing the positive aspects of conflict. The aim of conflict management is to enhance learning and group outcomes, including effectiveness or performance in an organizational setting. This is a descriptive paper which deals with different types of styles of Conflicts and how they are managed in different organizations. The research article deals with different Conflict Management skills which are helpful in resolving conflicts among the employees of the organizations. It also deals with how to handle conflicts in the workplace.

Keywords: Conflict, Conflict Management, Skills, Workplace, Performance.

Introduction: Conflict Definition, Types, Functions & Dealings: Conflict is a state of unresolved differences within an individual, between individuals, an individual and a group, or two or more groups. Conflict of some kind will occur throughout your career. To turn it into a positive factor, it must be managed in a way that will benefit you and your organization.

Types of Conflicts:



1. **Intrapersonal Conflict:** It's a conflict within the individual. It is the dilemma, dichotomy and struggle which an individual face from his inner thought process or feeling. 'Intrapersonal Conflict is the part of human life, at every points human face intrapersonal conflicts between should and wants. Conflict arises when any kind of decision needs to be taken, be it important or unimportant. Simple decisions like buying a car or complex decisions like marriage or money. Every time a decision needs to be taken, should and want weigh on us, based on which we take decision. One recent example of my intrapersonal conflict was between consuming alcohol or not, my conservative Islamic upbringing tells

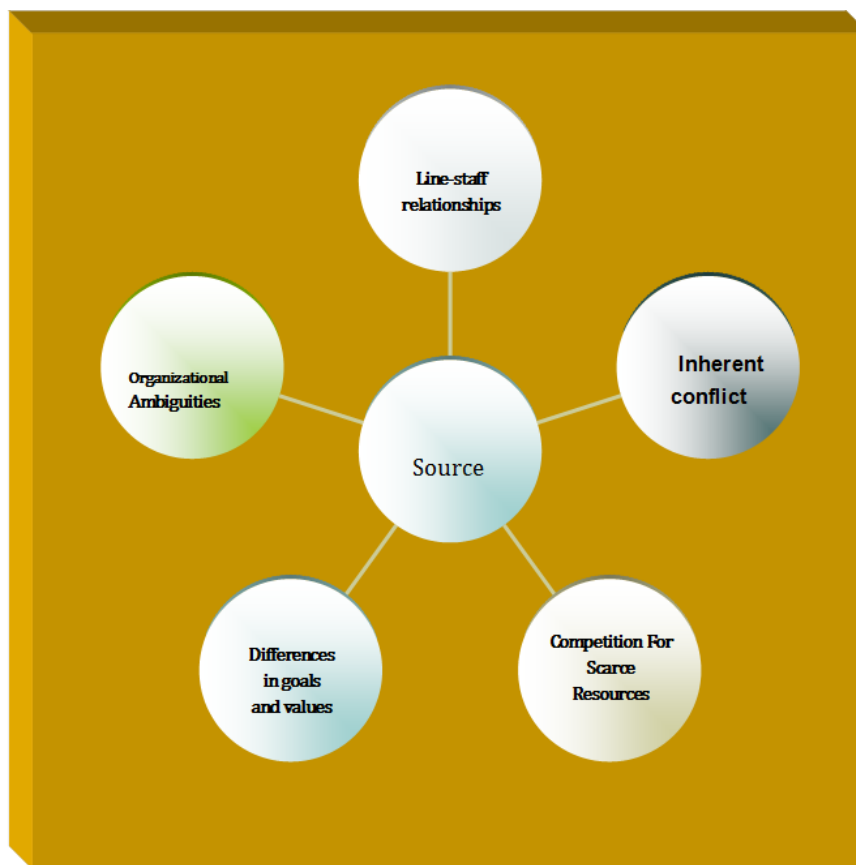
¹<https://www.speakingtree.in/blog/intrapersonal-conflict>

me to abstain from alcohol, however my social surrounding entices me to consume alcohol. At times should wins and wants to lose else wants win and should lose. Whenever should loses it leaves behind a sense of guilt, having consumed against the religious decree.

2. **Interpersonal Conflict:** It's the conflict between different people in an Organization. It exists whenever people interact in some way to produce results or achieve goals. Because they differ, however, in many ways; attitude, personality, values, goals, background, experience, etc. The resultant conflict makes the attainment of the goals quite difficult. Therefore, learning to make the proper adjustments is an important factor in managing interpersonal conflict.
3. **Intra Group Conflict:** It is the conflict between different groups of an Organization. It occurs whenever there is an interaction between direct groups of the same organization. There are 3 sources of inter conflicts between the groups:
 - a. Cohesion- "Sticking together" within a group often causes out-group hostility;
 - b. Structure-type of leadership and status of individuals within a group are factors that increase conflict;
 - c. Power-taking actions which affect others and purposely influencing the welfare of others produces conflict with less powerful groups.
 - d. Parties involved in conflict, by trying to find solutions acceptable to an, can reduce the dysfunctional aspects of conflict.

Conflict Management: Conflict may be defined as a struggle or contest between people with opposing needs, ideas, beliefs, values, or goals. Conflict on teams is inevitable; however, the results of conflict are not predetermined. Conflict might escalate and lead to nonproductive results, or conflict can be beneficially resolved and lead to quality final products. Therefore, learning to manage conflict is integral to a high-performance team. Although very few people go looking for conflict, more often than not, conflict results because of miscommunication between people with regard to their needs, ideas, beliefs, goals, or values. Conflict management is the principle that all conflicts cannot necessarily be resolved, but learning how to manage conflicts can decrease the odds of nonproductive escalation. Conflict management involves acquiring skills related to conflict resolution, self-awareness about conflict modes, conflict communication skills, and establishing a structure for management of conflict in your environment.

Sources of Organizational Conflict:



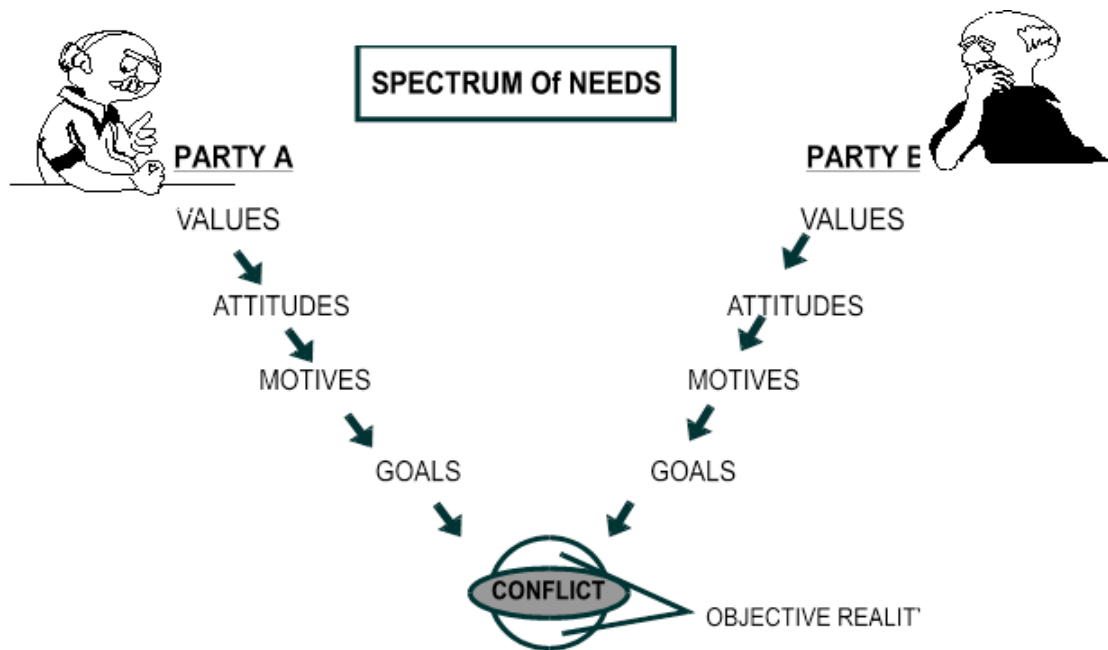
Fight or flight? Physiologically we respond to conflict in one of two ways—we want to “**get away from the conflict**” or we are ready to “**take on anyone who comes our way**.” Think for a moment about when you are in conflict. Do you want to leave, or do you want to fight when a conflict presents itself? Neither physiological response is **good or bad—it’s personal response**.

What is important to learn, regardless of our initial physiological response to conflict, is that we should intentionally choose our response to conflict. Whether we feel like we want to fight or flee when a conflict arises, we can deliberately choose a conflict mode. By consciously choosing a conflict mode instead of to conflict, we are more likely to productively contribute to solving the problem at hand.

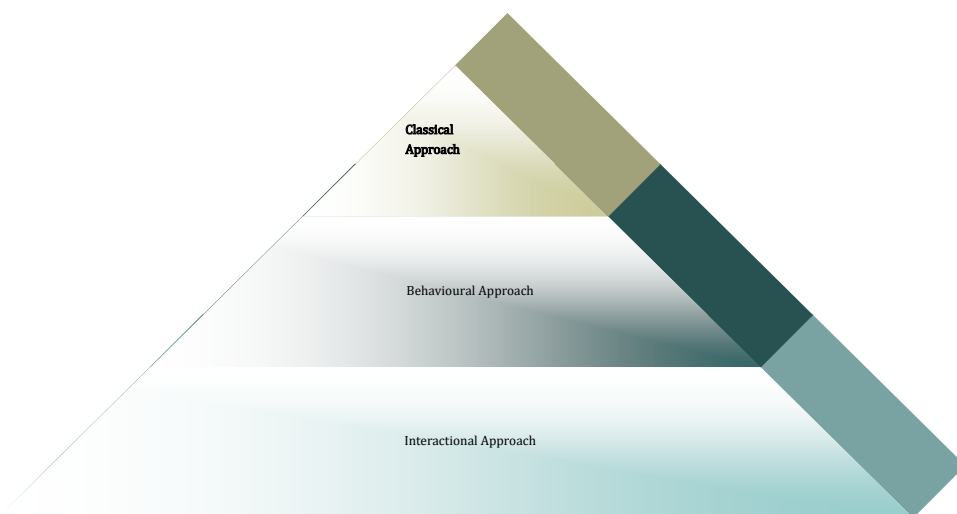
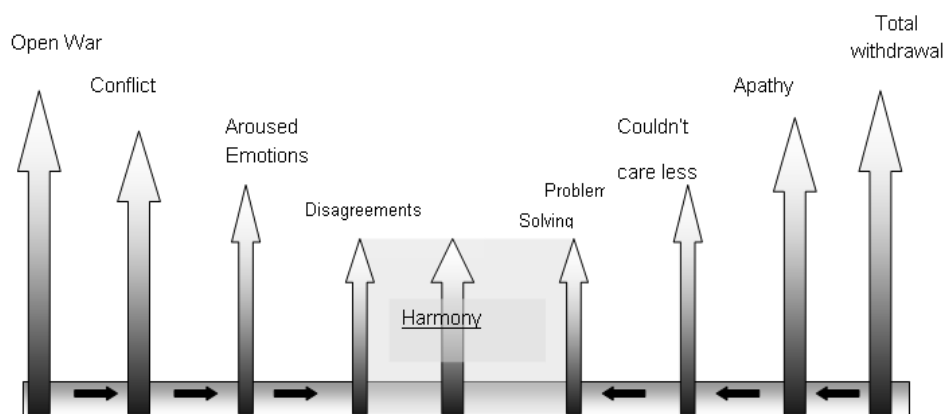
What is Conflict Management?

Conflict represents a gap, disagreement, incompatibility, contradiction , a tense situation created by competition of 2 or more then 2 people in groups. Conflict is a process in which a person puts all his/her efforts in blocking the progress for other person.

Basics of Conflicts:



Taxonomy of Conflict:



Resolving Interpersonal Conflicts: Interpersonal conflict is a situation in which one or both persons in a relationship are experiencing difficulty in working or living with each other. This usually occurs due to different or incompatible needs, goals or styles. The existence of conflict is usually signalled by negative feelings such as hurt, anger, confusion, etc. At this point, each person makes a decision whether to confront the conflict openly and directly or to ignore it, suppress it, or withdraw from the situation. The decision to confront the conflict assumes that the potential benefits of confronting outweigh the possible costs, and that confrontation is appropriate to the situation and the relationship.

The productive resolution of conflict usually strengthens relationships, whereas destructive confrontation, e.g., blaming, name calling, usually destroys relationships, or at the very least, detracts from their satisfaction and usefulness. Thus, it is very important how you confront the conflict once you have decided to do so. By following a sequence of steps and using communication and problem-solving skills, you can increase the chances that the conflict will be resolved productively. This paper outlines the steps involved and gives guidelines for instituting them.

Contracting: It is important that both parties agree to talk directly about the difficulty between them. One party initiates by stating the difficulty as s/he perceives it, and requesting that they find a mutually acceptable time and place to talk about it. The other party may accept the offer and negotiate the time and place, or may reject the offer. In the latter case, this avoidance may now become the prominent issue in the conflict.

Example:

Initiator: "David, I'm concerned about the argument we had in the meeting yesterday; and would like to get together to talk about it. How about tomorrow afternoon after coffee?"

Receiver: "I didn't really see a problem in the meeting, Reg, but I'd be happy to talk to you about it. Let's get together in the conference room at 3:30 tomorrow then, ok?"

In negotiating the time and place of the confrontation, it is important to choose a time when each person will feel ready and prepared to discuss the conflict, and to choose a setting that is relatively neutral and free from distractions. In the example, the conference room is not the "home ground" of either party. In the example, the receiver does not initially perceive a problem, but does acknowledge its existence for the other person and therefore the necessity of talking about it. If another person is unwilling to talk about difficulties in the relationship, that then becomes the focus of the contracting. If contracting on this basis is not possible, one or both parties may begin to question the utility and viability of the relationship.

Example:

Initiator: Raj, in the meeting on Tuesday, there were several times when I put forward my ideas and you came in with your point before, I had finished. I was really frustrated at not getting my input in, and that's part of the reason I took issue with your comments. By the end of the meeting was just boiling."

Receiver: "Geez, Reg, it sounds like I interrupted you repeatedly and you got very angry."

The receiver may also directly give his/her feeling reactions to the initiator's statements, and if these indicate motivation to further understand the conflict, the parties move to mutual

diagnosis. Often of course, the receiver will become defensive and attempt to explain, justify or deny his/her behavior. If so, the initiator should work hard as an active listener. The roles of speaker and listener should switch back and forth as necessary. Listening is often reciprocated, if the initiator is patient.

Problem Definition and Diagnosis: It is essential that the parties gain a clear understanding of the conflict before they move on to suggesting solutions or requesting changes from each other. The use of interpersonal communication skills is necessary in order to clearly describe the behaviors that are part of the conflict and the negative feelings that relate to them. A clear and concrete definition of the problem is a prerequisite to clear and concrete solutions. The initiator presents his/her perceptions and feelings using behavior description and description of feelings. The receiver uses the skills of paraphrasing and empathy to gain an adequate understanding of how the initiator is experiencing the conflict. Both parties must refrain from accusing, name calling, ridiculing, sarcasm, etc., which will only escalate the conflict further, or shut down the discussion.

Example:

Receiver: "I'm surprised I didn't let you finish. I wasn't aware of that, and I'm not happy with the result."

Initiator: "Sounds like you weren't aware of your coming in too soon, John. I want you to understand that I get pretty up-tight in those meetings with upper management, and am not very confident when I say something, so your interrupting really hits me hard. Then I start rejecting your ideas, whether they're good or not."

Receiver: "Ya, I can see you being more angry at being cut off than I would be. For me in the meetings, I get so involved in the discussion I forget sometimes whether you or someone else is talking or not, and I argue very strongly for my position."

The clarification and elaborating process should continue until both persons have a clear understanding of the behaviors and feelings that are part of the conflict. Understanding "where the other person is coming from" (their perceptions, motives, values) is also essential for moving toward solutions.

Problem Solving: Often, problem definition and diagnosis are adequate for the resolution of the conflict, i.e., the solution is obvious and the parties agree to monitor and change their problematic behavior. In the example above, John might agree to listen more carefully and be more sensitive to when Reg is finished speaking before making his own points. However, if the problem defined is of mutual concern and is not resolved by initial clarification, the parties can engage in a systematic problem solving process to arrive at resolution. Here are some suggestions.

- Brainstorm alternative solutions without evaluation. Any behaviors, agreements, etc., that might contribute to conflict resolution should be included.
- Evaluate, integrate, elaborate and/or delete alternative solutions by mutual consensus.
- Use force-field analysis to evaluate the difficulty of putting alternative solutions into practice, that is, list forces for the solution and forces against the solution and discuss how the former can be increased and the latter decreased.
- Choose a solution and decide on a mutually agreeable plan of action to implement it.
- Evaluate the solution after a trial period and make modifications if desirable, to make the solution more permanent, or try another solution if necessary.

Closure: Each person should describe what they understand the solution to be and indicated their agreement with it. The parties must be particularly clear on what behaviors, attitudes, etc., on their part will contribute to the solution, and both should indicate their commitment to these behaviors. The parties may also wish to explore whether there are any conflicts in their relationship that they want to confront. It is also useful to talk about the conflict resolution process that they have just been through, and commit to using the approach to prevent future conflicts from occurring and/or escalating.

Example:

Initiator: "John, I wonder if it would help in the meetings if I let you know when you have interrupted me?"

Receiver: "Ya, it would help me Reg. Then I'd back off and let you finish. Also I'm going to use paraphrasing more, so I have a better idea what you're saying before I give my suggestions. I don't want problems like this to mess up our work relationship."

Initiator: "I'm pleased we got together, John. I understand now what happened between us and I'm confident we'll do better."

Conclusion: Resolving interpersonal conflict is hard work. It requires skill, self-awareness, courage, compassion and patience. Confronting differences tests the true quality of our relationships and further develops interdependence and mutuality.

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IMPACT OF THE ARMS ON YOUTH IN KASHMIR

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Abstract: The region of Kashmir has been a site of violence and conflict for decades. The AFSPA was introduced in parts of Jammu and Kashmir in 1990, following the beginning of an armed separatist movement for independence. Throughout the 1990s and 2000s, there were grave human rights abuses committed by security forces as well as armed opposition groups. The 1990s witnessed a number of attacks by armed opposition groups on the Hindu minority Kashmiri Pandit community leading to hundreds of thousands fleeing the valley to live in displacement camps in Jammu and Delhi.

Popular protests against the state and security forces operating in the valley have been a feature of life in Kashmir for many years. In recent years, protests have taken the form of marches with some young people throwing stones and security forces retaliating, most of the times with gunfire. More than 100 protestors, some of whom engaged in stone pelting, were shot dead by security forces in the summer of 2010. A further 3,500 persons were reportedly arrested and 120 detained under the Jammu and Kashmir Public Safety Act (PSA).¹ In 2014, the Jammu and Kashmir State Home Department, in response to an RTI application, disclosed that 16,329 people had been detained in administrative detention under the PSA at various times since 1988.²

Impact on Young Mind: Situation of armed conflict often weakens the governments' ability to offer education and employment even more. As has been aptly said by someone that "*Older ones decide to fight, but young men fight*" There is no denying the fact that armed conflicts are notorious for promoting the involvement of young people as perpetrators, often resulting in them also becoming victims. The armed conflict going on since year 1989 in the state of Jammu and Kashmir has affected every section of society not only physically but psychologically as well. Various studies confirm that situation has not only deteriorated the social setup, but the economic conditions as well. Social relations have been destroyed, thousands have been killed, and thousands became widows and orphans and in addition to this family breakdown, family conflicts, unemployment, late marriages, orphanage culture, etc. grew at fast rate in Kashmir valley, and it is the youth who are the majority victims. It is worthwhile to mention here that the impact of armed conflict on the lives of youth and on society as a whole is enormous. Youth are at once targets, perpetrators and survivors of conflict and other rights violations in the upheaval of conflict. Conflict often destroys the safe environment provided by a house, a family, adequate nutrition, education and employment, thus forcing them to be vulnerable to physical as well as mental disequilibrium.

The youth protuberance has been at the centre of any debate on Jammu and Kashmir during the past few years, in particular with reference to unrest in the Kashmir Valley which

¹Wasim Khalid, "3500 arrests, 120 PSA detentions", Greater Kashmir, 29 December 2010, <http://greaterkashmir.com/news/2010/Dec/30/3500-arrests-120-psa-detentions-51.asp> (accessed 9 May 2018).

²UmerMaqbool, "Shocker: 16,329 PSA cases slapped in Jammu and Kashmir since 1988," Greater Kashmir, 25 February 2014.

<http://www.greaterkashmir.com/news/2014/Feb/26/shocker-16-329-cases-of-psa-slapped-in-jk-since-1988-40.asp> (accessed 10 May 2018);

Amnesty International, India: A 'lawless law': Detentions under the Jammu and Kashmir Public Safety Act (ASA 20/001/2011), 21 March 2011,

<https://www.amnesty.org/en/documents/ASA20/001/2011/en/> (accessed 10 May 2018).

limps back to upheaval before witnessing an little ease. Discourses on Kashmir are expectedly at variance, but the issues of youth find a place in each one of them. While there is more than a single layer of the problem that confronts the youth in Kashmir, at its heart is the political instability the state has witnessed since the partition of India.

Politics has been at the centre stage of Kashmir's situation and today's youth, like their counterparts elsewhere, also set out their journey in tune with political freedom. However, more than 68 years have passed since India got freedom but Kashmir's fate continues to hang in the balance. Many tricks have been played to keep the Kashmir issue alive and not resolving it and this sense of denial of political rights has persisted across four generations now, Jammu and Kashmir has always been under a constant shadow of political turmoil. This has significantly contributed to unrest among the youth.

Kashmiri youth have always been at the crossroads of the situation, confused with having to face many issues at any one time. From deprivation of political rights, merit and justice, denial of a rightful place in the system, to undecided identity, they face a range of challenges. While unemployment is one aspect of the problem in Jammu and Kashmir that could push an ordinary youth towards frustration, a choked democratic space and a sense of insecurity in their own land remains the biggest obstacle in their growth. The quagmire they are caught in comes in the way of instituting their identity. They aspire for many things but are held back from pursuing any of them due to colossal pressure from all sides. Kashmir's youth have talent and are capable of channelizing it to turn their place into a real paradise, but the experiences of the past two and half decades have resulted in their failing to realize any dream of being free.

A continued feeling of living under siege in their own homeland, coupled with economic deprivation and denial of participation in the democratic processes, has led to dejection. This has ultimately forced these youth to get together to take on the police and other security forces on a large scale. Just one incident of fake encounter in the remote Machil area in 2010 in which three youth were killed by the army, allegedly to get rewards and promotions, triggered a long cycle of violent unrest in the valley. As the youth took to the streets to protest repeated violations of human rights and absence of justice to victims, the cycle finally ended with the killing of 120 civilians. Earlier in 2008 and 2009 too, the youth had actively participated in the protests in the Amarnath land row and alleged rape and murder of two women in Shopian, widely believed to have been done by the state forces. However, an inquiry by the Central Bureau of Investigation gave a clean chit to the forces and maintained that the women had died of drowning. Denial of the delivery of justice, lack of accountability and transparency has been a continuous trend since the onset of militancy and it showed its ugly consequences during this phase. The new generation used stones to challenge the state apparatus but the response was the bullet. The government's repressive strategy to counter massive public demonstrations in which hundreds of youth were killed only added fuel to the fire.

Noor Ahmad Baba, the political analyst, observes that after 2000 there was some hope that Kashmir was being addressed seriously, but by 2008 and 2010 this hope faded. "The two mass uprisings of (2008-2010) transformed the Kashmir issue and discontent from older to younger generation but the state dealt with it with heavier hands. They were snatching all hope of peaceful public demonstrations". He opines that it is much more dangerous today to participate in public demonstrations in Kashmir as people are constantly watched, targeted,

and arrested.³ For example, in 2010 alone, nearly 5000 youth were arrested for having indulged in stone pelting.⁴ A few hundred, including some minors, were booked under the Public Safety Act (PSA), which has, of late proved to be more draconian than even the Armed Forces Special Powers Act (AFSPA). In such an atmosphere, the youth find that the way out is to use weapons and to do it more clandestinely. Coordinator of the Jammu and Kashmir Youth Civil Society, Ovais Manzoor, said, "You will find one thing common in all the cases that most of the youth who took to arms were repeatedly harassed by police for taking part in 2008 and 2010 unrest in which more than one million people, mostly youth protested against the killings. They are arrested, harassed, beaten up in front of their families. Even in some cases their family members, sisters and mothers are heckled and offended. To give a collective vent to anger against the unjust administration, they find no better way other than taking up guns".⁵

The security situation changed drastically after the agitations of 2008 over allocation of 800 kanals (100 Acre) forest land to the Sri Amarnath Shrine Board.⁶ Following the withdrawal of support by PDP, the State government fell. Kashmiri society got polarised on religious lines, which manifested itself in the sharp divide between Jammu versus Kashmir sentiments due to demographic distribution.⁷

The following years, 2009 and 2010, saw even more agitations due to accusations of human rights (HR) violations.⁸ 112 people got killed in 2010 during numerous protests, which were characterised by heavy stone pelting by the local public (consisting mostly of youth) against the Central Reserve Police Force (CRPF) and the State Police. In retaliation both returned fire, resulting in fatalities.⁹

According to figures published in major newspapers quoting Jammu and Kashmir Police data, 3500, 2000, and 700 youth were arrested on charges of stone pelting in 2010, 2011, and 2012 respectively; and 1155, 89 and 100 FIRs were registered against them. These landed them in jails¹⁰. Several of them were disconnected from their vocations, and got further radicalised.¹¹ Later, the Government granted amnesty to 1811 youth who were arrested on charges of stone pelting in 230 cases.¹²

³ Cited in The Diplomat, 22 August 2015.

⁴ Shujaat Bukhari, Kashmir's Youth Bulge, Eye on Kashmir, A Symposium on the Past and the Present of a Troubled State, March 2013.

⁵ Why J&K youth are opting for guns, The Milli Gazette, 28 April 2015.

⁶ 'Chronology of Amarnath agitation in J&K', Hindustan Times, at <http://www.hindustantimes.com/india/chronology-of-amarnath-agitation-in-j-k/story-IHBhzF5VQAY1cfptDl1svL.html>, accessed 29th november 2018.

⁷ 'Rise above narrow interests in J&K', 15 August 2008, at <http://www.tribuneindia.com/2008/20080816/main1.htm>; accessed 29th november 2018.

⁸ Rekha Chowdhary, 'The Summer of Unrest', at http://www.indiaseminar.com/2011/620/620_rekha_chowdhary.htm, accessed 29th November 2018.

⁹ Sanjay Kak, Until My Freedom Has Come: The New Intifada in Kashmir, Penguin Books India, 2011, p. 31.

¹⁰ Syed Yasir, 'Nocturnal raids force youths to hide, evade arrests', 22 July 2014, at <http://www.kashmirtimes.in/newsdet.aspx?q=34431>, accessed 10 November 2018.

¹¹ Brig. Anil Gupta (Retd.), 'Battle of minds: Radicalization growing in Kashmir Valley', 1 Dec 2015, at <http://southasiamonitor.org/detail.php?type=sl&nid=14534>, accessed 10 November 2018.

¹² Syed Yasir, 'Nocturnal raids force youths to hide, evade arrests', July 22, 2014 at <http://www.kashmirtimes.in/newsdet.aspx?q=34431>, accessed 10 november 2018.

The tendency of today's youth to pick up guns against the state, knowing well that their death is imminent, is worrisome. It indicates the degree of hopelessness and anguish which has gripped some sections of Kashmiri youth. The disaffection of such serious intensity has roots in all the domains affecting lives in Kashmir political, socio-cultural, religious, and economic.¹³

A large numbers of young Kashmiris were jailed in 2010 for agitations and stone pelting. Many of them were again taken into preventive detentions on several occasions to ensure law and order. This led to many young people nursing grudges against the police and the security forces. Detached from their vocations, and fed with provocative narratives on the social media,¹⁴ they got radicalised and joined terrorist ranks.

Frustration and Redundancy: Unemployment too is a major reason of youth frustration. Tourism has been down in the last two years due to the disturbed security situation as well as the floods of 2014. Kashmir has limited industries and enterprises. Civic amenities are considered poor and weather conditions are harsh, leading to limited days of productive work. There are also allegations of corruption and nepotism in many government departments,¹⁵ especially in getting jobs, leaving people frustrated and despondent.

At the socio-cultural and psychological level, the young generation of Kashmiris has seen violence and agitations all their lives. They have seen several encounters and the heavy presence of security forces, instilling a sense of fear and uneasiness in society. A large number of them suffer from psychological traumas and nurture deep grievances against security forces and the state. Several are in mental asylums or resorting to drug addiction. Increasing numbers, including women, are committing suicide.¹⁶ The increase in percentage of suicides in J&K in 2011 (over 2010) was 10.8 per cent, and in 2012 (over 2011) stood at 44.3 per cent,¹⁷ the second highest in the country. There are no worthy goals to be pursued and limited role models available to infuse optimism.

At the same time, the sustenance of life is not difficult in Kashmir. With heavy inflow of central funds and numerous subsidies/incentives, the youth is not struggling on an everyday basis to earn their daily bread. However, it is the higher motives of life which remain unfulfilled in the closed, clamped down society. Umpteen provocations and the availability of radical content in the social media, combined with the Islamic belief of attaining martyrdom serve as a strong motivating factor to pick up guns.¹⁸ The Janaza prayers of dead terrorists attract thousands, and provide a big spiritual inspiration for the youth who see picking up of

¹³Kapil Kak, 'Jammu & Kashmir at the Crossroads: Challenges and Opportunities', 13 July 2015 at [https:// kapilkaksecurityanalyst.wordpress.com/2015/07/13/jammu-kashmir-atthe-crossroads-challenges-and-opportunities/](https://kapilkaksecurityanalyst.wordpress.com/2015/07/13/jammu-kashmir-atthe-crossroads-challenges-and-opportunities/); accessed 12 March 2018.

¹⁴Fahad Shah, 'Kashmir's Young Rebels', 22 August 2015 at

[http:// thediplotmat.com/2015/08/kashmirs-young-rebels/](http://thediplotmat.com/2015/08/kashmirs-young-rebels/); accessed 24 January 2017.

¹⁵NDTV, 'Corruption a Major Challenge in Jammu and Kashmir: Mufti Mohammed Sayeed', 6 April 2015, at <http://www.ndtv.com/india-news/corruption-a-major-challenge-in-jammu-and-kashmir-mufti-mohammedsayeed-752653>; accessed 24 January 2018.

¹⁶'Government indifferent to spiralling suicides in Kashmir', Deccan Herald, 10 Aug 2014, at <http://www.deccanherald.com/content/424549/govtindifferent-spiralling-suicides-kashmir.html>; accessed 24 January 2018.

¹⁷'Suicides', Chapter 2, Fig 2. 3, pp. 172 of reports of National Crime Records Bureau of 2011 and 2012, at <http://ncrb.nic.in/>; accessed 24 January 2018.

¹⁸Brig. Anil Gupta (Retd.), 'Battle of minds: Radicalization growing in Kashmir Valley', 1 December 2015 at <http://southasiamonitor.org/detail.php?type=sl&nid=14534>; accessed 10 March 2018

the gun as a transformational phenomenon which will change their status from being insignificant to becoming a local hero.

Bandhs: However, Bandhs have since emerged as preferred tool to protest. For the next two to three years, these were staged for highlighting deficiencies in governance as well as became attention grabbers for voicing demands for better amenities and services. People also learnt to use Bandhs as a tool to pin down the security forces. However, as these protests were staged very frequently and with huge success, separatists adopted them as their main political tool. In the years preceding the July 2016 showdown, there were protests being staged upon every encounter that the security forces initiated with the militants.

Schools are shut down at the slightest pretext. When schools are shut, the state narrative cannot be propagated, and more children and youth are available for criminal activities like stone-pelting. They have created a false notion that there is militancy, stone pelting, and anger on the streets because the population is unhappy.

Panchayat elections for halqa panchayats (village level governing bodies) were successfully held in 2011 which saw an unprecedented 80% turnout of people despite threats from the militant groups and boycott calls from the separatists¹⁹.

The increase in numbers during the protests, including that of youth and women, along with near total compliance of Bandh calls given by separatists, indicates a surge in popular resentment towards the status quo in the stalled peace process and sense of strong alienation among masses. While briefing the press in July 2015, Lt. Gen. Hooda, previous Army Commander Northern Command, said, 'of course, there is a sense of alienation. Let us not hide it or shut our eyes to it'.²⁰ Numerous youth have died during the protests and several have suffered grievous injuries including eye injuries from the pellet gun firings. The government initiative of all-party delegation's visit to meet the stake holders, this time, has not been successful. With the passage of time, a disquieting peace has got settled in J&K, but its perpetuity does not seem assured.

Whereas, youth of Kashmir having immense potential and ability to crack even the highest and prestigious exam of their country, and its best example is not only Shah Faisal who topped the IAS (Indian Administrative Service) in 2009 at his first attempt, but there are many more who have the courage to achieve the excellence; and the youth of Kashmir always remains in turmoil situations, their schools are being closed during cycle of violence; and in this situation, their education become affected²¹.

Loss of Mental Well-being: Mental health can be defined as levels of psychological well-being or absence of mental disorders. It is a state of emotional and psychological well-being in which an individual is able to use his cognitive as well as emotional capability, functions for his society and meet their day to day life demands. Mental health is about being able to work

¹⁹ H.S. Gill, 'Local Governance in Jammu and Kashmir: Historical Perspective and Future Trends', at <http://www.claws.in/914/local-governance-injammu-and-kashmir-historical-perspective-and-future-trends-h-s-gill.html>, accessed 10 March 2018.

²⁰ 'Army concerned over Kashmiri youth joining terror groups', 19 Jul 2015, at <http://indianexpress.com/article/india/india-others/army-concerned-overkashmiri-youth-joining-terror-groups/>, accessed 10th march 2018.

²¹ Untold Stories of Human Rights Violations in Kashmir ABSTRACT:. Available from: https://www.researchgate.net/publication/312146759_Untold_Stories_of_Human_Rights_Violations_in_Kashmir_ABSTRACT [accessed Dec 12 2018].

properly cope with stresses of everyday life and live free and satisfied life. In simple words, we may say mental health means free from any type of psychological problems like stress, phobias, anxiety etc.

A.V Shah has expressed that the mental health is the most essential and inseparable component of health (A.V Shah 1982). The World Health Organization (WHO) defines mental health as “a state of well-being in which individual realize his or her own abilities, can cope with normal stresses of life, can work productively and fruitfully and is able to make contribution to his or her community”. Good mental health is the ability to respond with flexibility and a sense of purpose to many valid experience of life. More recently mental health is defined as a state of balance between the individual and the surroundings world, a state of harmony between oneself and others i.e. existence between the realities of the self and that of other people and that of the environment.

Drug Dependence: Naqshbandi²² in his paper “drug addiction and youth of Kashmir” interviewed 270 young Kashmiri people between the age group of 16-30 in different districts of Kashmir. His findings revealed that Conflict and unemployment were the main reasons of drug addiction among the youth. Several studies had shown that 80% of drug addicts get this addiction before the age of 30 years. Another study conducted with related to awareness of drug addiction among college students in Kashmir valley shows that majority of students believe that people started to take drugs in the age group of 20-30²³.

In addition to this, a substantial increase in the use of sedatives and drugs has been seen in the masses. Studies comparing the prevalence of substance misuse pre and post conflict reveals that the use of substances is ever increasing whereby use of alcohol has increased by 30% in a society where alcohol use was almost non-existent. Use of uploads has increased from 9% to 73%, people using multiple substances has increased from 15% to 41%. The same study concluded that 15% of people attributed their drug use to the prevailing trauma and turmoil (Margoob, 2004). “People cope with the trauma and negative emotional states by using anything, many substances to induce a temporary state of sleep and rest” writes Murali Krishnan quoting Mushtaq Margoob, the leading psychiatrist of the valley (Krishnan, 2010)²⁴.

A more recent study revealed the prevalence rate of depression to be (55.72%) where depression has been seen more prevalent (66.67%) in the 15 to 25 years age group, followed by (65.33%) in the 26 to 35 years age group. Moreover, a high percentage of depressive disorder has been found in rural areas (84.73%) as compared to urban areas (15.26%). Moreover, the prevalence of depression among females has been seen higher (93.10 %) as compared to males (6.8%) in rural areas (Amin & Khan, 2009)²⁵.

Defenselessness of Children: The Valley, which was once an epitome of “paradise on earth”, now has nothing to offer these children except violence, hatred, and death. The condition of children is worsening in states of armed conflict and Kashmir is no exception. The impact of

²²Naqshbandi MM (2012) Drug addiction and youth of Kashmir. *Int NGO J* 7: 84-90.

²³Bhat BA, Manish K, Mushtaq S (2013) Smoking patterns among people in Jammu region of Jammu and Kashmir State. *IIOAB*. 4: 36-39.

²⁴Krishnan, M. (2010). Conflict in Kashmir valley takes its toll on mental health. Deutsche Welle. Retrieved October 12, 2012, from Jamia Millia Islamia, Department of Psychology.

²⁵Amin.S., & Khan, A. W. (2009). Life in Conflict: Characteristics of Depression in Kashmir. *International Journal of Health Sciences*, 3(2), 213-223. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3068807/>

conflict in Kashmir is such that the exposure to actual armed conflict is limited but, the detrimental effects are in terms of repression, loss of security, income and service access, disrupted schooling, displacement, military harassment and other forms are visible in the lives of children and their families (Wessells 1998). Since the initiation of armed conflict in Kashmir, it has undergone many transformations at the micro and macro levels, with major implications for women and children. The impact has major consequences on the survival, development, mental health and overall wellbeing of children and adolescents (Khan and Ghilzai 2002). The major problems that children are suffering from armed conflict in Kashmir are presented under the following headings:

Social Commotion: Some of the environmental threats to children commonly associated with conflict include displacement from homeland, family dispersal, separation and dis-cord, destitution, loss of service access and social interaction, and the presence of military personnel. Usually a number of military camps are found to be located near schools in Kashmir which create a threatening atmosphere for students and teachers alike, particularly for females who fear sexual harassment etc. Often the disruption occurs in Kashmir during the times of combat and children somehow manage to leave their village and remain in their relative's place till the situation improves.

Loss of Parents: Orphanages seeking to accommodate children who have lost the care of their families due to conflict have become commonplace in Kashmir. It is reported that Kashmir has 33,000 conflict widows and only 8.7 % remarried and it has also created conditions where children are abused by step parents. Residing in orphanages children are exposed to new risks, incidences of orphan children being abused and beaten for petty reasons in Kashmir are often reported. UK-based child rights organization, Save the Children, has revealed that the estimated population of orphans in Jammu and Kashmir is 2,14,000 and 37 % of them were orphaned due to the armed conflict (Kumar 2012). The report titled "Orphaned in Kashmir—The State of Orphans in Jammu and Kashmir" based on a study conducted in six districts of the state revealed that 37 % of the orphans lost one or both parents due to the conflict while 55 % were orphaned due to the natural death of parents and remaining 8 % due to other reasons.

The proportion of children orphaned due to conflict is highest in Anantnag district of south Kashmir. The largest number of children orphaned due to conflict was in Anantnag, (56 %), followed by Ganderbal (48 %), Baramulla (33 %), and Rajouri (31 %); but number of orphans is higher in the Valley than Jammu due to the conflict. The study revealed that 5 % of the orphans were either physically abused or intimidated, such as having guns pointed at them, threatened by armed actors, accused of providing support to the fighting sides, physically assaulted and hurt, used as bait to capture their parents or as human shields during the conflict. "Among the orphans attending schools, a large number said that the main distraction in school was that they had worries about their families (28 %), noise of explosions during conflict (19 %), and intimidating presence of troops (13 %)," the report adds. As per the survey, one-third of the orphans had faced emotional stress during the conflict, "while 38 % felt despair and scepticism about the future, 32 % said that their anxiety was triggered by sudden loud noises or seeing battle uniforms". The child rights group has made number of recommendations for overall betterment of orphans in the state like formulation of child protection policy, setting up of child protection committees and so on.

Transformation in Roles and Responsibilities: When families undergo times of deprivation and material loss, it is not surprising that they may turn to their children as an economic

resource. This is true in many places but particularly so in a conflict ridden situation when regular breadwinners are absent, killed, or injured. The likelihood of hazardous work increases in conflict because of the reduction in normal economic opportunities and the prevailing climate of lawlessness and impunity. It will also depend on local cultural factors which, for example, may create few obstacles to the employment of boys but ensure that girls are largely prevented from pursuing any public economic activity. In Kashmir as well, the sons are encouraged to migrate for work. The Hanji community is increasingly relied on the earning capacity of their children in carpet weaving. Some families have become so indebted that they have committed their children in bonded labor to the owners of carpet factories. During conflict, children who have lost their father or the prime bread earner and they are left to run the households with younger siblings or simply left to fend for themselves on the streets of larger towns. Conflict increases the pressures on the young to work, possibly at the expense of their schooling. It also leads to under-nourishment and mal-nutrition; inability of parents to pay for the basic necessities of school education, such as uniform and writing materials; and more often than not leads to the child's withdrawal from religious, social, and cultural events.

The survey done by Dabla (1999)²⁶ revealed that 84.7 % of such child respondents lived with their mothers, 4 % with their uncle, 9 % with mother's father, and 2 % with their father's father. These children faced problems like economic hardships, psychological setback, denial of love and affection, and apathy by relatives and friends. Total dropouts among child respondents were 57 % during 1989–1999; 27 % at primary level, 48 % at middle level, and 25 % at the matric and above level. Children who were not going to school were engaged in domestic work (3.7 %), handicrafts (37.8 %), automobile workshops (3.7 %), non-governmental service (3.7 %), and business houses (3.65 %). These child workers felt that they got lesser wages and were exploited regularly.

Conclusion:

1. Violence can never be a solution to Kashmir problem because iron fist policy proves more detrimental and persuading more youth to join militancy. The policy should be modified. To cope with the prevailing situation in Kashmir and its effects on the mental health of the average person, a network of trained counsellors is the need of the hour. Counselling centres/counsellors can be helpful to the victims of torture and those suffering from trauma related mental problems. Young people are unhappy with their political leaders and highly confused about their future more and more employment should be provided so that youth doesn't indulge into unlawful activities. They must be given a good understanding of rule of law in India. It should be ensured that the provisions of the special law apparently comply, besides the Constitutional framework, with the International laws and the guidelines. The security legislations should comply fully with India's international legal obligations and should be in line with international standards including the UN Principles for the Prevention of Extra-legal, Arbitrary and Summary Executions. International human rights

²⁶“Conflict in Kashmir: Psychosocial consequences on children” published in D. Sibnath (ed.), *Child Safety, Welfare and Well-being: Issues and Challenges*, Springer India, pp.83-93 (ISBN 978-81-322-2424-2) DOI 10.1007/978-81-322-2425-9..

Available from:

https://www.researchgate.net/publication/281581535_Conflict_in_Kashmir_Psychosocial_consequences_on_children_published_in_D_Sibnath_ed_Child_Safety_Welfare_and_Well-being_Issues_and_Challenges_Springer_India_pp83-93_ISBN_978-81-322-2424-2_DOI_10100797 [accessed Dec 15 2018].

standards should be brought into compliance with all Indian laws and standard operating procedures relating to the use of force by law enforcement and security entities, particularly the use of firearms. Cases of human rights violations should be investigated and fast track such cases for speedy delivery of justice. It should also be ensured that victims are provided adequate relief and compensation. There is a need to formulate appropriate personality development programs for youth and implement these in educational institutions and otherwise. Through these programmes youth can freely seek help to deal with these challenges they face in day to day lives and build necessary skills to achieve a higher level of mental health and thus, make a positive contribution to the society.

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ENVIRONMENTAL PROTECTION AND ROLE OF JUDICIARY IN INDIA

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Abstract: The Indian Constitution is amongst the few in the world that contains specific provisions on environment protection. The directive principles of State Policy and the fundamental duties chapter explicitly enunciate the national commitment to protect and improve the environment.¹ Articulating these provisions, the Indian judiciary has developed a doctrinal web to protect the human rights of people and to uphold the cause of environmental justice by taking refuge to fundamental rights, fundamental duties and directive principles of state policy as provided under the Constitution to remind people and State of their pious obligation of protecting the nature. The present paper tries to analyse the Constitutional provisions for the protection of environment and the remarkable role of Indian judiciary in interpreting these provisions for the cause of environmental justice in India.

Introduction: The idea of environment had not been in the minds of the founding father when the original provisions of the Indian Constitution were debated and approved in the Constitutional Assembly. However, the scheme of distribution of powers between the centre and the state enabled the respective government to take required steps to protect the environment. For example, the public health, sanitation, agriculture, land, water and fisheries are the subjects within the state list on which the state can make laws. The union list contains items like atomic energy, oil fields and resources, inter- state rivers and valleys and fishing on which only Parliament has power to make laws. The Preamble of the Constitution clearly demonstrates that socio-economic justice was the foundation of the constitution.

Fundamental Rights and Environment: The Indian Constitution also contains the fundamental rights which are guaranteed to all citizens. These rights, which take precedence over any other law of the land, include the right to life, freedom of speech and expression, equality before the law, and freedom of religion.²

Chapter III deals with fundamental rights. The six fundamental rights of Indian Citizens are specified in Articles 14-32 of the Indian Constitution, such as right to equality³, right to freedom⁴, right against exploitation,⁵ right to freedom of religion,⁶ cultural and educational rights⁷ and right to Constitutional remedies⁸. The judicial interpretations of these various fundamental rights have widened their scope and they proved effective in achieving environmental justice in India. Article 14, Right to equality, states that the State shall not deny to any person equality before law and equal protection of laws within the territory of India. It

¹ See, S. Indra Devi, Law on Environment Pollution- A review, SCJ 1995, Vol.2, p. 60

² The fundamental rights are also aimed at overturning the inequalities of past social practices, such as the abolishment of 'untouchability' and the prohibition against discrimination on the grounds of religion, race, caste, sex or place of birth.

³ Articles 14-18.

Articles 23-24.

⁴ Articles 19-22.

⁵ Articles 25-28.

⁶ Articles 25-28.

⁷ Articles 29-31.

⁸ Article 32.

indicates that any action of the State relating to environment must not infringe upon the right to equality as enshrined in Article 14 of the Constitution. The Stockholm Declaration, 1972 also recognized this principle of equality in environmental management. Principle 1 of the Declaration states, 'man has the fundamental right to freedom, equality and adequate conditions of life, in environment of a quality that permits a life of dignity and well being...' On various occasions, the Indian Supreme Court have struck down the arbitrary official sanction in environmental matters on the basis that it was violative of Article 14.⁹ The pollution is mainly from trade and industries. For example tanneries, acid factories, dye factories, distilleries, hotel industries are contributing to environmental pollution. There is a growing problem of balancing the right to development and right to clean and healthy environment. Article 19 (1) (g)¹⁰ of the Indian Constitution guaranteed freedom of trade and commerce but at the same time it states that this right is subject to reasonable restriction. Some of the industries or trades are carried on in manners which endanger vegetation cover, animals, aquatic life and human health. Time and again, it has been clearly mentioned by the Supreme Court that this freedom of trade is subject to reasonable restriction. Any business or trade which is offensive to flora and fauna or human beings cannot be permitted to be carried on in the name of fundamental right¹¹.

Any activity which pollutes the environment and makes it unhealthy, hazardous to human health and flora and fauna, is violative of right to wholesome and living environment which is violative of right guaranteed in Article 21 of the Constitution.¹²

To protect the fundamental rights, Article 32¹³ is vested with the right to constitutional remedies for the enforcement of fundamental rights.

Directive Principles of State Policy and Environment: The Part IV¹⁴ of the Indian Constitution deals with the Directive Principles of State Policy. Some of them specifically deal with the various facets of human health and environment. In some cases these Directive Principles become complementary to the fundamental rights and are enforced by courts of law. All these articles are not directly related to environmental protection except Article 48 A which has been introduced by 42nd Amendment Act, to the Indian constitution in the year 1976. Article 39 of the Constitution envisages the distribution and management of material resources which includes natural and man-made resources in such a manner that their concentration and monopoly over their use should not give rise to ecological imbalance and health hazards.¹⁵

⁹ *Ajay Hasia v. Khalid Mujib*, AIR 1981 SC 487.

¹⁰ All citizens of India shall have a right to practice any profession, to carry out on any occupation, trade or business. This right is subject to reasonable restrictions.

¹¹ See *M.C. Mehta v. Kamal Nath* AIR 2000 SC 1997.

¹² Art-21.

¹³ Art. 32(1) guarantees the right to move Supreme Court, By appropriate proceedings, for the enforcement of the fundamental rights enumerated in the Constitution. Art. 32 (2) empowered the Supreme Court to issue appropriate orders or directions, or writs including writs in the nature of habeus corpus, mandamus, prohibition, quo warranto and certiorari, which ever may be appropriate, for the enforcement of the petitioner's Fundamental rights.

¹⁴ Article 36-35.

¹⁵ Article 39 lays down that State shall direct its policy towards securing:

- (a) That the citizen man and women equally have the right to an adequate means of livelihood;
- (b) That the ownership and control of material resources of the community are so distributed as best to subserve the common good;
- (c) That the operation of economic system does not result in concentration of wealth and means of production to common detriment;

Article 42 of the Constitution empowers State to make provisions for securing just and human conditions of work and for maternity relief.

The State is directed to secure just and human conditions of work which can be achieved in clean environment.

Article 47 provides that the State shall regard to the raising of the level of nutrition and the improvement of public health as among its primary duties and the standard of living of its people and in particular the state shall endeavour to bring about prohibition of the consumption except for the medical purposes of intoxicating drinks and of drugs which are injurious to health

Under this article the State is duty bound to improve the public health. This Constitutional duty can be fulfilled only in an atmosphere of lean environment.

Article 48 provides for the security of cows and calves and other milch cattle which help in maintaining ecological balance.²⁹²

Article 48 A deals specifically with environment protection which was inserted by 42nd Constitutional amendment.¹⁶

Article 49 provides that it shall be the obligation of the State to protect every monument or place or object of historic interest, declared by or under law made by parliament to be of national importance from spoliation, distraction, removal and disposal or export as the case may be. Protection of monuments and places and objects of national importance includes protection from environmental pollution. Therefore the state has to make efforts to improve the environment for protecting such monuments, objects and places of national importance.

Duties of the Citizen towards Environmental Protection: Prior to the Forty-Second Amendment, the Fundamental Law of the land attached more importance on rights. The makers of the Constitution were concerned about the moral and natural rights. The intention behind it was that the citizens and the State would shoulder the responsibility to protect the Constitutional order as their moral duty. As the time passes the citizens became conscious about their rights and thereby neglected their duties. Rights and duties are very important elements of Law. They correlated to each other in such a way that one cannot be conceived without the other. A right is always against someone upon whom they correlative duty is imposed.¹⁷ The Constitution (Forty-Second Amendment) Act, 1976 added a new part IV-dealing with “Fundamental Duties” in the Constitution of India.¹⁸

- Article 51-A (g) specially deals with fundamental duty with respect to environment that: “It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living creatures”.

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- (d) That the health and strength of workers, men and women and the tender age of children are not abused and that children are not forced by economic necessity to enter avocations unsuited to their age and strength;
 - (e) That children are given opportunities and facilities to develop in a healthy manner and in condition of freedom and dignity and that youth are protected against moral and material abandonment.

¹⁶ Article 48: The State shall endeavour to organized agricultural and animal husbandry on modern and scientific lines and shall in particular take steps for preserving and improving the breeds and prohibiting the slaughter of cows and calves and other milch and draught cattle.

¹⁷ Dr.SukantaK.Nanda, Environmental Law.

¹⁸ (Central Law Publication: Allahabad, 1st Edn., 2007).

- Article 51-A (g) refers to the fundamental duty of every citizen to protect and improve “natural environment”. But in the present days the pollution is caused not only by exploiting the “natural environment” but otherwise also. Nature has given us the gift of pollution free environment. The fundamental duty imposed on every citizen is not only to “protect” the environment from any kind of pollution but also to “improve” the environment quality if it has been polluted. So it is the duty of every citizen to preserve the environment in the same way as nature has gifted it to all of us.¹⁹ In *Rural Litigation and Entitlement Kendra v. State of UP*²⁰ Justice R.N. Mishra opined that “preservation of the environment and keeping the ecological balance unaffected is a task which not only the government but also every citizen must undertake. It is a social obligation and let us remind every Indian citizen that it is his fundamental duty as enshrined in Article 51-A(g) of the Constitution”.

Duties of the State towards Environmental Protection:

Article 47 of the Constitution which reads: *“The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular, the State shall endeavour to bring about prohibition of the consumption except for medical purposes of intoxicating drinks and drugs which are injurious to health.”*

The basic principle embodied in the Article very clearly denies the statement to some of the learned authors that initially our Constitution was environmentally blind²¹ and environment as a subject has been left out of the Constitution. Article 47 calls upon the State to perform the basic duty to look after the health of the citizen and also take necessary and effective steps to improve their standard of living and also raise the level of nutrition. Improvement of public health forms the core of environment because due to various environmental hazards it is the health of the general people which comes under severe threat. In order to protect the health the framers of the Constitution gave emphasis on the improvement of public health which is more vital for the existence of the mankind.

In the present times several factors account for the pollution hazards which is going beyond control. The pollution of water and air spoils the nature very well and affect our health. Therefore, taking into consideration, the Constitution very aptly recognized the right to health and casts a responsibility upon the State making it obligatory to work for improving the health of the citizens.

Role of the Indian Judiciary in Environmental Protection: Over the years the higher judiciary in India has been playing a significant role in evolving an Indian environmental jurisprudence, particularly through the device of public interest litigation, which is a Supreme Court innovation. “In order to improve access to justice for poor and disadvantaged sections, the traditional rules of ‘locus standi’ were diluted and a practice was initiated whereby public – spirited individuals could approach the court on Behalf of such sections.”²² Spirited individual citizens have moved the supreme court through article 32 (or the high court through article 226) of the

¹⁹ P.S. Jaswal and NishthaJaswal, Environmental Law.

²⁰ AIR 1987 SC 359.

²¹ K.L.Bhatia, “Human Rights and Human Environment – A Study in the Policy Perspectives”, ALJ, Vol. 10 (1990) p. 46.

²² Speech by Hon’ble Mr. K.G. Balakrishnan, Chief Justice of India on “The role of the Judiciary in Environmental Protection” (Bilaspur, March 20, 2010).

constitution to seek reliefs against several human activities affecting the environment.²³ Further, dispute relating to environment are treated as cases of fundamental rights violation instead of tort claims. In a landmark decision, *M.C. Mehtav.Union of India*,²⁴ the Supreme Court departed from the Common Law doctrine of 'Strict Liability' (rule in *Rylandsv.Fletecher*) and evolved the principle of "Absolute liability" in the context of India.

Environmental Dispute Settlement Mechanism: Civil remedies like tort action against the offender, writ petition, citizen suit for enforcement of statutory compliance, remedies under the Cr P.C. and the collector (under the *Public Liability Insurance Act 1991*) are the means available to the citizens to tackle the environment pollution.²⁵

The National Environment Tribunal was established in 1995 under the *National Environment Tribunal Act, 1995* according to its Preamble, the Act seeks to provide for strict liability for damage arising out of accident caused from the handling of hazardous substances. The National Environment Appellate Authority (NEAA) was setup by the ministry of environment and Forest, Government of India, under the *National Environment Appellate Authority Act 1997* "to hear appeals with respect to restriction of areas in which any industries, operations or processes or class of industries or operations or processes shall or shall not be carried out or shall be carried out subject to certain safeguard under the *Environment (Protection) Act 1986*"²⁶ the authority became non operational with the establishment of the National Green Tribunal in October 2010.

Expansive Judicial Interpretation of Article 21: An Environmental Perspective: In India, the Constitution does not contain explicit fundamental right to healthful environment, but it is implied in Article 21 of the Constitution. In India, the right to healthful environment is inseparable from the right to life and liberty. Article 21 states that "no person shall be deprived of his life or personal liberty except according to procedure established by law." this due process provision has been interpreted to include an implied environment protection by Indian Courts.²⁷ the concepts, 'the right to life', 'personal liberty' and 'procedure established by law' contained in article 21 of the constitution were in a state of inertia, during year 1976, the year of the national emergency, although there were a few decision during this period which rekindled the hope that Constitutional provisions had not been rendered completely meaningless.²⁸ In *A.K. Gopalanv. Union of India*²⁹ the Supreme Court by the majority held that the 'personal liberty' in Article 21 means nothing more than the liberty of the physical body that is freedom from arrest and detention without authority of law. this definition of the phrase 'personal liberty' given by Prof. Dicey, according to whom personal liberty means freedom from physical restraint and coercion which is not authorized by law. The word 'liberty' is a very comprehensive word and if

²³ 45Innumerable landmark environmental decisions have been pronounced by the Supreme Court of India in keeping with the-ideals 'envisaged by the Indian Constitution; for the purpose of this chapter, some of those worth mentioning are: *Municipal Council Ratlamv.Vardichan*, (1980) 4 SCC 162; *Francis Coralie V. Union Territory of India*, AIR 1981 SC 746; *MC. Mehta v. Union of India*, AIR 1987 SC 1086; *T.N. GodavarmanThirumulkpadv. Union of India*, W.P. No. 202 of 1995; *MC'. Mehta v. Union of India*, AIR 1992 3 SCC 256; *MC. Mehta v. U ion of India* (1998) 8 SCC 206; *MC. Mehta v. Union of India* (1999) 6 SCC 12.

²⁴ (1987) 1 SCC 95. These principles will be highlighted in chapter 4 of this paper.

²⁵ FurqanAhamad, *Legal Regulation of Hazardous Substances* 13 (Daya Publishing House, Delhi, 2009).

²⁶ See Preamble 10 the Act; Ministry of Environment and Forests, Government of India, "National Green Tribunal (NGT)", available at: <http://www.moefnic.in/legis/others/envapp97.html> (Visited on April 10, 2012).

²⁷ See, Rosencranz, Armin & Rustomjee, Shiraj, Citizens' right to a healthful Environment, 25 *Envtl.Pol'y& L.* 324 (1995).

²⁸ *Kharak Singh v. State of UP* AIR 1963 SC 1295 held that the nocturnal visit to a suspect's house, violates right to privacy, which is an essential ingredient of personal liberty.

²⁹ AIR 1950 SC27.

interpreted it is capable of including the rights mentioned in Article 19 of the Constitution. But this restrictive interpretation of the expression 'personal liberty' in *Gopalan's case*³⁰ has not been followed by the Supreme Court in its later decisions.

Tables were turned by the landmark decision of the Supreme Court in *Maneka Gandhiv.Union of India*.³¹ In this case the Supreme Court has not only overruled *Gopalan's case* but has widened the scope of the words 'personal liberty' considerably.

"The expression 'personal liberty' in Article 21 is of widest amplitude and it covers a variety of rights which go to constitute the personal liberty of man and some of them have raised the status of distinct fundamental rights and given additional protection under Article 19."

The Supreme Court held that the action of the government in impounding the passport of the petitioners without giving reasons and opportunity of being heard was illegal and against the safeguards provided in Article 21. Thus, due process was read into the Constitutional provision in Art.21 which held that the right to life and personal liberty, guaranteed under Article 21 can be infringed only by a 'just, fair and reasonable procedure. Narrow interpretation of legal and constitutional provisions gave way slowly to a more liberal juridical interpretation that kept the purpose of constitutional guarantees in view. The post *Maneka* developments truly reflect the ideals of democratic freedom³². The Supreme Court held that Article 21 not only generates a processual justice, but also widens the scope of the substantive right to life. According to the Court, the right to life is not confined to mere animal existence, but extends to the right to live with basic human dignity.³³

Right to Life Inclusive of Right to Wholesome Environment: The Constitution makers themselves construct the fundamental rights in its broad sense especially to right to life. The Supreme Court of India has given essence to the right so that every person can enjoy life to its fullest extent. The Indian Supreme Court came out of the shackles of mechanical and rule bound justice and provided impetus to the expanded horizons of the fundamental right to life and personal liberty guaranteed in Article 21. Two methods are used by Supreme Court to strengthen Article 21 and to interpret unremunerated rights under Article 21, it required laws affecting personal liberty to pass the tests of Article 14 and 19 of the constitution, thereby ensuring that the procedure depriving a person of his or her personal liberty be reasonable, fair and just. The Court recognized several matriculated right that were implied by Article 21. It is by this method the Supreme Court and High Courts interpret the right to life and personal liberty. The Supreme Court and High Courts of India have repeatedly interpreted a constitutional right to healthy environment through their liberal reading of the constitutional right to life. The Andhra Pradesh High Court has even held that it becomes the legitimate duty of the Courts as the enforcing organs of Constitutional objectives to forbid all actions of the State and the citizen from upsetting the environmental balance.³⁴ In effect the Indian Courts' willingness to read an environmental claim as constitution (as opposed to tort or common law nuisance), provides plaintiffs with procedural advantages that are associated with the enforcement of Constitutional

³⁰ *Ibid.*

³¹ AIR 1978 SC 597.

³² *Sunil Batra v.Delhi Administration*, Prison Tihar AIR 1978 SC 1675, *HussainaraKhatoon v Home Secretary, State of Bihar* AIR1979 SC 1360; AIR 1979 SC 1369; AIR 1979, SC 1377, *M.H. Hoskot v. State of Maharashtra* (1978) 3 SCC 544).

³³ See P.Leelkrishna, 1999.

³⁴ *T. Damodar Rao v.The Special Officer, Municipal Corporation Hyderabad*; AIR 1987 AP 171

rights. For this the effective tool of Public Interest litigation has played a remarkable role.³³⁶ The Supreme Court has held that Article 21 covers a plethora of rights, some of which are implicit³⁵, while others are expressly mentioned as fundamental rights. Through Supreme Court's and High Courts' creative interpretation, the fundamental right to life and personal liberty guaranteed under Article 21 has been expanded to include environment protection

In *T. Damodar Rao v. The Special Officer, Municipal Corporation of Hyderabad*³⁶ the Andhra Pradesh High Court observed: *"It would be reasonable to hold that the enjoyment of life and its attainment and fulfilment guaranteed by Article 21 of the Constitution embraces the protection and preservation of nature's gift without which life cannot be enjoyed. There can be no reason why practice of violent extinguishment of life alone should be regarded as violative of Article 21 of the Constitution. The slow poisoning by the polluted atmosphere caused by environmental pollution and spoliation should also be regarded as amounting to violation of Article 21 of the Constitution."*³⁷

Right to Live in a Healthy Environment: Article 21 guarantees the right to life, a life of dignity, to be lived in a proper environment, free of danger of disease and infection. It is an essential fact that there exists a close link between life and environment. Right to life would become meaningless if there is no healthy environment. The right to live in healthy environment as a part of Article 21 was evident from the case of *Rural Litigation and Entitlement Kendra, Dehradun v. State of U.P.*³⁸ that the Rural Litigation and Entitlement Kendra, Dehradun and a group of citizens wrote to the Supreme Court against the progressive mining which denuded the Mussoori Hills of trees and forests cover and accelerated soil erosion resulting in landslides and blockage of underground water channels which fed many rivers and springs in the valley. The Court ordered the registry to treat this letter as writ petition under Article 32 of the Constitution. Initially the Court appointed an expert committee to advise the bench on technical issues. On the basis of the report of the committee, the Court ordered the closure of the lime- stone quarries.

The Court observed: *"This is the first case of its kind in the country involving issues relating to environment and ecological balance and the questions arising for consideration are of great moment and significance not only to the people residing in the Missouri Hill range but also in their implications to the welfare of the generality of people, living in the country."*³⁹

It is also stated that, the disturbance of ecology and pollution of water, air and environment by reason of quarrying operation definitely affects the life of the person and thus involves the violation of right to life and personal liberty under Article-21 of the Constitution.

In *Virender Gaur v. State of Haryana*⁴⁰ the Supreme Court observed:

"Enjoyment of life and its attainment including their right to live with human dignity encompasses within its ambit, the protection and preservation of environment, ecological balance free from pollution of air and water, sanitation without which the life cannot be enjoyed. Environmental,

³⁵ Right to livelihood, *Olga Tellis v. Bombay Municipal Corp.* ALR 1986 SC 180, the right to roads in remote areas *State of Himachal Pradesh v. Umed Ram* AIR 1986 SC 847; the right to carry non-prohibited firearms, *Ganesh Chandra Bhatt v. Dist. Magistrate, Almora* AIR 193 A1 291; and the right to potable water *AttkoyaThangal v. Union of India* 1990 (1) KLT 580

³⁶ AIR 1987 AP 171.

³⁷ *Ibid.*

³⁸ (Allahabad Law Agency: Haryana, 3rd Edn., 2009). 52 AIR 1985 SC 652 (popularly known as Doon Valley Case). 53 AIR 1985 SC 653.

³⁹ AIR 1985 SC 653.

⁴⁰ (1995) 2 SCC 577.

ecological, air and water pollution etc., should be regarded as amounting to violation of Article 21. Therefore hygienic environment is an integral facet of right to healthy life and it would be impossible to live with human dignity without a human and healthy environment.”

Right to Development an Integral Part of Article 21: The most remarkable contribution of the Supreme Court has been the adoption of the right to sustainable development as a hard core principle of environmental law in India. In a series of cases which may not be large in number but which have much economic significance, the supreme Court had to consider the application of the principle of sustainable development. All these cases involved industries generating sizeable revenues and significantly contributing to the industrial development of the country. However, these also show that the industries hardly cared for the environment and which were not only significant polluters but were also persistent. Repeatedly the environmental agencies implored upon them to rectify their pollutant emissions and effluents but the industries hardly cared. Even directions issued by the High Courts and Supreme Court were ignored. In a sense, the behavioural pattern of the industry was irresponsible. The situation seemed to be destined for doom for the industry hardly cared and the environmental agencies could not really bring their weight to bear upon the industries. The industries classically represent the case of too powerful defendants who continue to flex their muscles totally ignoring the degradation of environment caused by the industries. Such muscle flexing is common in soft states where the majesty of law is often compromised by Considerations of state and wealth.

Right to clean environment is a guaranteed fundamental right, the right to development is also declared as a component of Article 21 in cases like *Madhu Kishore v. State of Bihar*⁴¹

In *N.D. Jayal v. Union of India*⁴² the Court observed that: *“It is a settled law that the balance between environmental protection and developmental activities could only be maintained by strictly following the principle of “sustainable development”. This is a development strategy that caters to the needs of the present without negotiating the ability of upcoming generations to satisfy their needs. The strict observance of sustainable development will put us on a path that ensures development while protecting the environment, a path that works for all peoples and for all generations. It is a guarantee to the present and a bequeath to the future. All environment-related developmental activities should benefit more people while maintaining the environmental balance. This could be ensured only by strict adherence to sustainable development without which life of the coming generations will be in jeopardy. The adherence to sustainable development principle is a sine qua non for the maintenance of the symbiotic balance between the rights to environment and development. Right to environment is a fundamental right. On the other hand, right to development is also one. Here the right to sustainable development cannot be singled out. Therefore, the concept of sustainable development is to be treated as an integral part of life under Article 21. Weighty concepts like intergenerational equity, public trust doctrine and precautionary principle, which have been declared as inseparable ingredients of our environmental jurisprudence, could only be nurtured by ensuring sustainable development. To ensure sustainable development is one of the goals of the Environment (Protection) Act, 1986 and this is quite necessary to guarantee the right to life under Article 21. If the Act is not armed with the powers to ensure sustainable development, it will become a barren shell. In other words, sustainable development is one of the means to achieve the object and purpose of the Act as well as the protection of life under Article 21. Acknowledgment of this principle will breathe new life into our environmental jurisprudence and constitutional resolve. Sustainable development could be achieved only by strict compliance with the directions under the Act. The object and purpose of the Act: “to provide for the protection and*

⁴¹ AIR1996SC1864

⁴² 1999 (1) SCALE 463

improvement of environment” could only be achieved by ensuring strict compliance with its directions. The authorities concerned by exercising their powers under the Act will have to ensure the acquiescence of sustainable development. Therefore, the directions or conditions put forward by the Act need to be strictly complied with. Thus the power under the Act cannot be treated as a power simpliciter, but it is a power coupled with duty. It is the duty of the State to make sure the fulfillment of conditions or direction under the Act. Without strict compliance, right to environment under Article 21 could not be guaranteed and the purpose of the Act will also be defeated. The commitment to the conditions thereof is an obligation both under Article 21 and under the Act.”⁴³

Conclusion: The constitutional provisions and the related cases have been presented. It demonstrates the active role of the Supreme Court and the High Courts. In fact, during the last decade, the court has exhibited its legal scholarship in the development of environmental jurisprudence. The role of higher judiciary as is witnessed from majority of the cases decided by it has been worth appreciating. The Court has successfully done its job, fulfilled its obligation and performed its duty. It is our submission, that judiciary is not the only effective form to resolve environmental problem which can be effectively solved only through public awareness and political will rather than judicial will. Thus, judiciary can and does play a role of catalyst and thereby speed up and gear up the process, but it has to be initiated by and from the public.

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⁴³ (2004)9SCC362.

DAL LAKE: PROFILE AND ENVIRONMENTAL STATUS OF THE LAKE

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Abstract: Kashmir, officially referred to as Jammu and Kashmir, is an 86,000-square-mile region in northwest India and northeast Pakistan. The region has been violently disputed by India and Pakistan since their 1947 partition. China, too, which borders the region to the north and east, has been involved in these conflicts. The Indian portion of Kashmir is called Jammu and Kashmir and its capital is Srinagar. The Pakistan controlled part of the region is called Azad Kashmir and its capital is Muzaffarabad.

Introduction:

Dal Lake: Located on the right bank of river Jhelum between 34°04' to 34°11' N latitude and 74°48' to 74°53' E longitude. The word "Dal" in Kashmiri language signifies "a lake". It is also a Tibetan word which means "still". It was a vast meadow called "Vitalamarg". Later due to massive earthquake, water gushed into the meadow and took the shape of a lake. This lake is one of the important tourist destinations of the city. It attracts people from all over the world.

Area of the Lake: Regarding the dimensions of the lake, number of workers has submitted the reports from time to time. "According to Drew (1875) the Dal Lake measured five miles from north to south and two miles from east to west. Hussan (1833) described that the Dal Lake measured approximately three miles long from Gagribal to Telbal and nearly two miles wide from Khawjayarbal to NishatBagh and it may again approximately be ten miles in circumference. Lawrence (1895) estimated the length of the lake to be four miles and its width two and a half mile. The author reported that the lake was becoming shallower. Stein (1899) confirmed the dimensions reported earlier by Lawrence and gave maximum depth of the lake as thirty feet".²

In 1931 Mukerjee reported the deepest part of Dal Lake about twenty feet. "As per the Enx Consortium New Zealand (1978) the total area of the lake was twenty one square kilometers, out of which open water area was 12.1 sq.km Vass and Zutshi (1979) reported that the total open water area of the lake 11.75 sq.km. and estimated total volume of the four basins of the lake as $9.83 \times 10^6 \text{ m}^3$. Nigeen was found to be the deepest part with maximum depth of 6 metres. Kango and Fotedar (1982) reported that the area of Dal Lake shrunk from 23.4 sq.km. to 13.82 sq.km". during 118 years. Zutshi and Kundangar (1983) on the basis of maps and surveys of the lake by Montogmerie (1856-60) and comparing the same with the latest dimensions reported that the open water area of the Dal Lake as 10.56 sq.km. According to latest surveys carried out by the J & K Revenue Department the Total area of the Dal and Nigeenlake are estimated to be 50432 Kanals of which 3922 Kanals are open waters and 10206 Kanals land mass.⁴

¹ "Dal Lake".National Informatics Centre.Archived from the original on 25 July 2009.Retrieved 3 April 2010. The world famous water body has been described as Lake Par-Excellence by Sir Walter Lawrence. It is the Jewel in the crown of the Kashmir and is eulogised by poets and praised abundantly by the tourists.

² <http://www.greaterkashmir.com/news/gk-magazine/thirty-years-of-dal-lake-pollution/76656.html>.

³ Singh, Sarina (2005). India. Lonely Planet.,p. 344.ISBN 978-1-74059-694-7.Retrieved 3 April 2010.peaceful Dal Lake is Srinagar's Jewel.

⁴ Squeezing Dal Lake Historical Perspective by Prof. (Dr) M.R.D Kundangar.

Therefore the earlier size of the dal lake is not clear⁵, after conducting extensive surveys to measure the area of Dal Lake, the Government sought response from public to ascertain actual size of the water body.

On the directions of High Court monitoring the Dal Lake, the Government has conducted several surveys including using satellite images to ascertain the area of the water body—which is bedeviled by encroachments.

Amid conflicting figures about the actual area of Dal Lake, the Government has taken the settlement record of in 1895 by then settlement Commissioner Sir Walter Lawrence as yardstick. In his settlement record, Lawrence had recorded total area of the lake as 9.9846 sq. miles (25.86 sq.km.) comprising water surface is 7.0346 sq. miles 18.21 sq.km. and 2.96 sq. miles (7.65 sq.km.) as Land Mass, fixed cultivation, habitation dembsetc⁶.

Pertinently, “Lawrence served in the Indian Civil Service in British India during which he was appointed as a first Settlement Commissioner of Kashmir. He authored *The Valley of Kashmir* (1895), a travel book on his visit to Kashmir. In the book, Lawrence describes geography, culture in brief and the hardships faced by the Kashmiri under the Dogras regime. The book according to Wikipedia is recognized “as the masterpiece of the history of Kashmir Valley.”

The Deputy Commissioner of Srinagar has conducted a survey which shows the total area of the lake as 25 sq.km, consisting land of 5.17 sq.km which includes water, fixed cultivation, habitation dembsetc and water surface of 19.83 sq.km. Satellite imagery in 2009 revealed that total area of the lake is 25.76 sq.km. comprising 20.21 sq.km. as water surface and 5.55 sq.km. as Land Mass, fixed cultivation, habitation, dembs respectively.

The area of the lake is being continuously quoted by several people and organizations at various forums without making any reference to the authenticity of the figures and also is being published in newspapers thus creating confusion about the size of the lake. The only recorded reference to the area of the lake is the settlement record of 1895 AD by Sir Walter Lawrence.⁷

“As per the orders of the Hon’ble High Court in PIL titled *Syed Tahir Iqbal Geelani v. State*⁸ and others satellite images of the lake using Quick Bird Resolution were taken by the Remote Sensing Department of the State for the year 2009. On the directions of the Hon’ble High Court, the Deputy Commissioner, Srinagar conducted afresh comprehensive settlement/measurement of the lake area in the year 2009 using Electronic Total Stations (ETS) as the equipment of measurement. The National Environmental Engineering Research Institute (NEERI), Nagpur did the measurement of the lake using GPS techniques in 2012 and their findings also match with the 2009 results. Till now the Authority has not come across any authentic record, other than as mentioned above, suggesting the area of the lake to be more than 50 Sq.Kms. There is not much difference between the total area since 1885. However, during past several years, the water expanse of the lake has considerably increased due to removal of habitations, land mass and vegetation in the water body”.

⁵ Zutshi, D.P., Subla, B.A., Khan, M.A. and Wanganeo, A. (1980): Comparative limnology of nine lakes of Jammu and Kashmir Himalayas *Hydrobiologia* 72, 101-112.

⁶ Lake Ecology Overview, chapter 1, Horne, A.J. and C.R. Goldman. 1994. *Limnology*. 2nd edition, McGraw-Hillco., NewYork, USA. Source: (<http://www.lakeaccess.org/ecology/lakeecologyprim5.html>).

⁷ Valley of Kashmir ,by Sir Walter Lawrence, 1895.

⁸ *Syed Tahir Iqbal Geelani v. State* PIL-159/.

The lake is fed by the river flowing from north through a dark and deep channel called Tailbal or river of oil. Dal Lake has been divided into three parts

- a) Gagribal
- b) Lokut Dal
- c) Bud Dal

The lake has an average depth of 7-10 feet. Within the lake are two islands, i.e., Sona Lanka (Gold Island) and Rupa Lanka (Silver Island) which are decorated with four (4) Chinar (*Platanusorientalis*) trees, and hence are also known as Char Chinar.

History of Dal Lake: Dal Lake is mentioned as Mahasarit in ancient Sanskrit texts. Ancient history records mention that a village named Isabar to the east of Dal Lake was the residence of goddess Durga. This place was known as Sureshwari on the bank of the lake, which was sourced by a spring called the Satadhara.⁹

During the Mughal period, the Mughal rulers of India designated Kashmir, Srinagar in particular, as their summer resort. They developed the precincts of the Dal Lake in Srinagar with sprawling Mughal-type gardens and pavilions as pleasure resorts to enjoy the salubrious cool climate. After the death of Aurangzeb in 1707, which led to the disintegration of the Mughal Empire, Pashtun tribes in the area around the lake and city increased, and the Durrani Empire ruled the city for several decades. In 1814 a significant part of the Kashmir valley, including Srinagar, was annexed by Raja Ranjit Singh to his kingdom, and the Sikhs grew in influence in the region for 27 years.

During the British Raj, the British also made Srinagar their capital during the summer months, attracted by the cool climate of the Kashmir valley, amidst the back drop of the majestic snow covered Himalayan ranges. The lake precincts experience temperatures in the range of 1–11 °C (34–52 °F) during winter and 12–30 °C (54–86 °F) during the summer season. The lake freezes when temperatures drop to about –11 °C (12 °F) during severe winter. Although the Dogra Maharaja of Kashmir restricted the building of houses in the valley, the British circumvented this rule by commissioning lavish houseboats to be built on the Dal Lake. The houseboats have been referred to as, “each one a little piece of England afloat on Dal Lake.

After the independence of India, the Kashmiri Hanji people have built, owned and maintained these houseboats, cultivating floating gardens and producing commodities for the market, making them the centre of their livelihoods. The houseboats, closely associated with Dal Lake also provide accommodation in Srinagar. Following the Mughal and British rule, the place has become a haven for tourists and earned the epithet, “Jewel in the tourist crown”.

Present Position of the Dal Lake: Dal Lake is in imminent danger of being transformed into a swampy marshland. The botanical study, financed jointly by the University Grants Commission and the Council of Scientific and Industrial Research, warns that “if the present state of affairs continues, the lakes will be lost within the next 80 years and what remains will be a small spring in the lakes surrounded by vegetable farms and swamps.”¹⁰

⁹ Bharat dekho blog, available at: <http://bhaaratdekho.blogspot.in/p/dal-lake.html> (visited on March 29th 2017).

¹⁰ <https://thediplomat.com/2017/07/the-slow-death-of-kashmirs-dal-lake/>

If that happens, one of the great splendours of the Kashmir valley will be lost forever. It is the natural flora of the region - and in particular the plant life in and around the lake - that is responsible for the Dal's decay.

The lake is infested with weeds the growth of which has caused irreparable damage; and together with this, the expanding tourist traffic to Srinagar has been causing concern since the early '60s when the disturbances in the ecological balance of the city and its lakes first became noticeable.

But the worst threat to the lake is posed by the chemicals from surrounding fields and orchards. The lake itself has several floating gardens and aquatic plants which grow indiscriminately and clog the waterways.¹¹

The lake draws its supply of water from neighboring streams and springs. It also collects the rain water of the monsoon and releases it into the Jhelum River through the Dal gate which acts as a barrier against the rushing river waters in times of flood.

Another cause of river and lake pollution is a complete lack of any underground sewage system in the city. The result is that much of the city's refuse finds its way into the lake or river waters. The picturesque houseboats moored on the edges of the lake are another major nuisance.

The garbage dumped into the lake increases the density of weeds and water plants resulting in poor visibility of the lake's bed. Constant dewatering is one of the necessities for the lake's survival. Yet it is rarely, if ever at all, pursued.

Rising public concern has been voiced more than once in meetings of the state assembly. The state government has pledged itself to the cause of preserving the lakes but little has been done so far. At one time it was considering seeking the help of a UN agency. The recommendations of the latest study however, need to be seriously considered. The study claims that the major construction to salvage the lake would be of a concrete ring-like drain to prevent "wash-off" waters from flowing into the lake. The study also suggests the setting up of a permanent limnological laboratory to measure the rate of pollution. But the most important action taken so far has been the visit in October of a team of foreign consultants from the Commonwealth Fund for Technical Cooperation (CFTC) which has started work to rid the Dal Lake of decades of pollution.

The state government has also initiated a plan to de-weed the lake and seek a solution for sewage disposal. But a concerted plan of action is required to clean the lake, the study suggests. If that does not happen soon, and time is running out, the legendary lake of Kashmir will disappear for ever¹².

Environmental Problems which the Dal Lake is Facing

1. Loss of Biological Diversity: Biodiversity boosts ecosystem productivity where each species, no matter how small, all have an important role to play. Rapid environmental changes typically

¹¹ Dal Lake in Srinagar, also known as the "jewel in the crown of Kashmir," is slowly "dying," warns filmmaker Dr. Abdul Rashid Bhat in his documentary, "The Bitter Truth – Dal Losing Battle Between Locals & the Authorities."

¹² Srinagar's Dal Lake in imminent danger of being transformed into a swampy marshland, available at: <https://www.indiatoday.in/magazine/environment/story/19771130-srinagars-dal-lake-in-imminent-danger-of-being-transformed-into-a-swampy-marshland-823503-2014-09-12> (last visited on 12th December 2017).

cause mass extinctions. More than 99.9 percent of all species that ever lived on Earth, amounting to over five billion species are estimated to be extinct.

1.1 Algal Blooms: Although the algal blooms are natural to freshwater lakes but In the Dal Lake it is with the advent of time and due to increased and unabated human incursions within and lake peripheries have witnessed frequent algal blooms. Recurrence of such blooms has become a regular phenomenon in the various basins of the lake. In 1991 the reddening of the lake waters due to Euglenoid bloom was first of its kind. The lack of water flushing, nutrient enrichment and accumulation of free carbon dioxide are the possible causes of the euglenoid bloom in Dal Lake.¹³ Weeds and red algal bloom have engulfed the larger portion of lake. The stretch from Hazratbal to Boulevard is the worst affected. It has defaced the lake. The introduction of machines for weeding has failed to yield any desired results. These machines cut the upper portions of weeds, leaving roots untouched. Within few days, the weeds regrow, the depth of lake ranges from eight feet to thirty feet. the length of cutter of the machine is four to five feet only. It is not able to go down to the root of weed. The authorities always try to clean the portion of Dal at and around SKICC¹⁴. "This is the place frequently visited by VIPs. It is being kept de-weeded, cleaned from other pollutants, to mislead VIPs and give an impression Dal is clean. The weeds have also affected the movement of Shikaras. Virtually, the area has become a wet land for boat ride. The presence of large number of weeds has also affected fish growth. The fish production in the lake goes down every. Annually, over one lakh cubic meters of weeds are removed from the lake¹⁵.

Due to excess of fertilizing nutrients available in Dal and Nigeen lake there is a prolific spread of mats of green algae. As temperature start rising, even the emergent weeds start showing their growth. The entire water expanse shows large patches of these prolific floating and emergent weeds which spoils the aesthetics of water surface, to maintain a clean lake from aesthetic considerations and nutrient expose mechanism, there is urgent need to resort to de-weeding and skimming operations. "These operations are normally done simultaneously by mechanical or manual means much before the floating mats of same settle down to the bottom. There is need to have under vegetal cover of lake to be optimum and conducive. This will help in affording Dissolved Oxygen to the shallow lake waters through photosynthesis rather than allowing the weed mats to cut off penetrative of sunlight.¹⁶

1.2 Aquatic Weeds: Peculiar changes have occurred in this basin over a period of time arising out of human incursions. Not only the floating gardens are being expanded unabatedly but 1/3 of the lake area towards Saderbal¹⁷ side has been turned in to marsh supported by thick mats of Typha and Phragmites and subsequently into land mass.

¹³ A Review on Monitoring Water Quality in Dal Lake, available at [http://ijcrar.com/5-3 2017/Shariqa%20Maryam.pdf](http://ijcrar.com/5-3%202017/Shariqa%20Maryam.pdf) (last visited on 15th Jan 2018).

¹⁴ Sher-i-Kashmir International Conference Centre, SKICC is a state managed convention centre of international standard, within easy access from the Srinagar international airport & central city of Srinagar it is multifunctional venue with variety of conference halls & exhibition spaces.

¹⁵ Fresh algae blooms threaten the Dal Lake, available at: <http://www.tehelka.com/2016/09/fresh-algae-blooms-threaten-the-dal-lake/> (last visited on 14th December 2017).

¹⁶ AHEC, "Detailed Project Report On Conservation And Management Plan For Dal-Nagin Lake", Alternate Hydro Energy Centre (AHEC), University of Roorke, (2000).

¹⁷ One of the sides of nigeen lake.

Euryale ferox, abundantly found macrophytes has almost vanished and hardly scattered plants could be seen interspersed with *Nelumbo* plants¹⁸. *Chara* an alga of which eleven (11) species were recorded by Mukerjee (1934) is on the verge of extinction and hardly few plants could be recorded in undisturbed pockets of the lake¹⁹. *Azolla* sp. the exotic species are now the new invaders to the lake and assumed the greater dimensions. The significant changes in the vegetational pattern of the Dal Lake and their prolific growth in the open areas are attributed to unabated inflow of effluents channels, drains, raw sewage and enrichment of the lake sediments particularly due to heavy load of organic nitrogen and phosphates.²⁰

1.3 Decline in Native Fish Population: Fisheries form an important component of the economy of Jammu and Kashmir, which along with agriculture, contributes a significant 23% to its GSDP²¹. Besides being an important allied activity to agriculture, it contributes significantly to the agricultural economy and also generates self-employment. The present day fish catch of Dal Lake comprises more than 80% of the carp. The decline in fish diversity and yield is attributed to the changes in hydrological regime and loss of critical habitats. The changes in the species richness can also be attributed to heavy loads of incoming sewage thereby leading to increased eutrophication²² which has adverse impact on the growth and development of sensitive fish species like *Schizothorax*.²³ The increased pollution levels are favourable for the prolific growth of aquatic vegetation, which seem to be more favourable for hardy species thereby altering the balance of species richness.²⁴

2. Flow of Large Quantities of Waste: The mouth of the city's 15 major drains open into the Dal Lake, polluting its waters on a daily basis. Here the Dal dwellers are not responsible; it is the J-K Government which has turned this water body into a sewage dump. Contrary to the popular notion, the 1200 houseboats floating on the Dal waters are responsible for just three per cent of the lake's pollution. The continuous flow of sewage into the lake from the neighborhoods in and around it, however, is the bigger culprit thus the fifteen drains releasing sewage into the Dal Lake are:

1. Nishat Pipe line bund (2 sites):
 - Lower Brein village
 - Sheikh Mohalla, Brein
2. Drain at Karpura
 - Laam village exit; Pump station,
3. Hotel Heemal; Dalgate Mohalla
4. Jogilanker, Rainawari
5. Hassanabad, Saidakadal

¹⁸ A.M. Kak, "Aquatic and Marsh Plants of Kashmir Valley", Kashmir University Research Journal, vol. 3, (1989), pp. 31- 42.

¹⁹ V. Kaul and D. P. Zutshi, "A study of aquatic and Marshland Vegetation of Srinagar", Proceedings National Institute of science, (1967); India.

²⁰ *Ibid.*

²¹ Gross State Domestic Product.

²² Eutrophication (from Greek *eutrophos*, "well-nourished" or hypertrophication, is when a body of water becomes overly enriched with minerals and nutrients that induce excessive growth of plants and algae. This process may result in oxygen depletion of the water body. One example is the "bloom" or great increase of phytoplankton in a water body as a response to increased levels of nutrients. Eutrophication is almost always induced by the discharge of nitrate or phosphate-containing detergents, fertilizers, or sewage into an aquatic system.

²³ The Valley's native fish.

²⁴ Fresh algae blooms threaten the Dal Lake, available at: <http://www.tehelka.com/2016/09/fresh-algae-blooms-threaten-the-dal-lake/> (last visited on 14th December 2017).

6. KhwajaYarbal,Saidakadal
7. Hazratbal (2 sites)
8. Pump station, Habak
9. Suderbal (2)
10. Umer Colony, Lal Bazar
11. Brarinambal drain (3 sites)

Water Inlets

- TelbalNallah
- BotKol and others
- Meerak Shah
- Pishpav streamlets

Water Outlets

- Dalgate
- Nalla Amir Khan
- Drinking water supply pipe, Nishat.

According to the Detailed Project Report prepared by the University of Roorkee's Alternate Hydro Energy Centre, the sewage brings with it nitrogen and phosphorus which has changed physical and chemical properties of Dal waters. "There are various point – tributaries and sewage drains – and non-point sources – seepage and diffuse runoff from catchment area – that bring these nutrients to the lake," the report says.

The report explains that:

The total phosphorus inflow into the lake is about 156.62 tons, of which 4.50 tons are from nonpoint sources within the lake and the rest comes from peripheral areas, mainly through well recognized entry points.

A total of 80.62 tons of total phosphorus leave the lake, mainly through two outlets.²⁵

3. Inefficient STPs: The Dal Lake has been damaged extensively due to the part played by the local population. Nearly 7,500 people live in the houseboats that populate the Dal's surface. More than 50,000 people populate the small islands nearby and household waste from them is inevitably dumped into the Dal. Continuous disposal of waste has severely depleted the lake's water quality. Oxygen density in the water has come down from 10.2 mg/litre to 6.8 mg/litre. Dissolved solids such as phosphorus and nitrogen have increased, taking their levels from 30.2 mg/litre to 200 mg/litre. In certain parts of the lake, algae growth has made the water green.

Sewage Treatment Plants (STPs), necessary to treat sewage have sadly not been of much help in treating the Dal Lake's pollution problem. In July 2017 estimation by Srinagar's Lakes and Waterways Development Authorities (LWDA) said that nearly 50 million litres of sewage flows into the Dal Lake daily, of which 20 million litres is untreated. There are a total of five STPs in Srinagar of which three have become exhausted. The STPs' inability to treat more than 30 million litres daily (MLD) of sewage is hampering the lake largely. The near the lake STP was built in 2006 but in 11 years, has nearly exhausted its capacity. A High Court order in July 2017

²⁵ Dal Lake = Srinagar's sewage dump?, available at: <http://archive.indianexpress.com/news/dal-lake---srinagars-sewage-dump-/442665/> (last visited on 13th December 2017).

directed the state government to install an additional STP to treat the inflow of sewage into the lake.²⁶

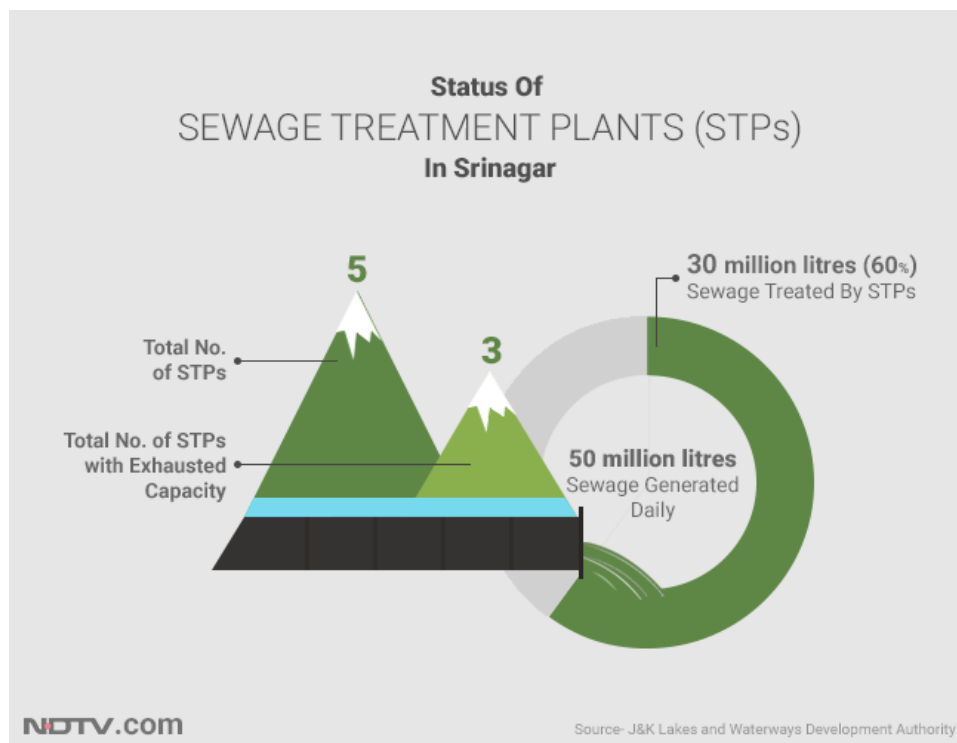


Fig. 2.4: Sewage Treatment Plants are finding it difficult to treat the Sewage Inflow

4. Water Quality Deterioration: The progressive deterioration in the water quality around the Houseboat areas, a high bacterial population growth besides serious weed infestations can result in high risk of infection especially among the foreign Visitors. Since there is no protection against the spread of Cholera, Typhoid, Hepatitis which all are water borne diseases²⁷. The effect on the Tourism Industry would be catastrophic and tourism would suffer long term damage. The tremendous load of tourist inflow & craze for living in the houseboats besides signs of deterioration in water quality of the lake & increasing bacterial population; serious weed infestation in & around the houseboat areas, Beside this everyone in Kashmir says save Dal Lake but the matter of the fact is that water quality of the lake has deteriorated and the lake can't be saved unless its water is safe. Its water is safe²⁸ Underscoring that nutrients and other unwanted ingredients percolating into Dal Lake deteriorate its water quality, "Nitrates, phosphates and other nutrients are out of required permissible limits. Ph value is higher which means water is alkaline. Sewerage adds nutrients in the form of nitrates and phosphates to the Dal waters and none of the STPs is working with the desired results. Polythene and plastic and its littering in and around Dal Lake has also deteriorated the water quality of lake.²⁹

²⁶ Srinagar's Iconic Dal Lake Is Battling Pollution From Untreated Sewage, available at: <http://swachhindia.ndtv.com/srinagars-iconic-dal-lake-is-battling-pollution-from-untreated-sewage-12231/> (last visited on 14th December 2017).

²⁷ Abbasi and Abbasi, Water Quality Indices, (2002) Volume1, e-book ISBN: 9780444543059.

²⁸ Nutrients deteriorating water quality of Dal Lake: HC", *Greater Kashmir*, June 7th, 2017.

²⁹ "Nutrients deteriorating water quality of Dal Lake: HC", *Greater Kashmir*, June 7th, 2017.

5. Conversion of Water into Floating Gardens: Floating gardens, locally known as Raads are made for cultivation but are later solidified to create land masses. Floating gardens are a part of the habitat of the lake. They are said to act as natural filters and help in maintaining ecological balance in the lake. However, these natural floating gardens have now become tools for encroachment by the lake dwellers.³⁰

“The floating gardens are potential threat to the lake. They can be used as a major tool for filling the lake and the caving in on the shore lines. The dwellers have proprietary rights on the lake, but are not permitted to fill the lake.”³¹

6. Impact of House Boats: Since Houseboats are luxury mobile hotels on the serene waters most of the times they remain with full occupancy particularly during the Tourist season when most of the tropical places in India are under scorching heat.³² Eventually the generation of Solid wastes, Garbage and the disposal of the waste waters including the grey waters are posing a threat to the lake and its dwellers.

Sanitary conditions of these Houseboats being poor because of their discharge of all effluents including the Sewage and Toilet waste directly into the lake, which has seriously affected the water quality of the lake besides weed infestation and loss of biodiversity.³³

Presently there are more than 1094 house boats³⁴ inside the Dal Lake. Although there have been significant efforts and arrangements to sanitized and treatment of generated wastes before dumping it in to lake (as there is no possibility of collection and dumping any where else). But phenomenal increase in number of house boats, tourists and extended peak tourist season all contributes to huge amount of waste generation and dumping in the lake. This waste is far beyond the carrying capacity of Dal Lake resulting in deterioration in the water quality of lake. The sample survey estimates that the existing 1200 houseboats inside the Dal Lake generate approximately 9000 metric tons of waste annually which is dumped into Dal Lake. This dumping of wastes in lake is aggravating and accelerating the sedimentation and weed growth processes³⁵.

7. Sanitation and Drainage Problems: The increase in population and tourists inflow were also generating increased wastes.³⁶ With the limited infrastructure, the locality around Dal Lake is also subject to sanitation and drainage problems. The efforts of government and NGO's to maintain clean are grossly inadequate. The sample survey finds that the estimated waste generation in the Lokut and Bud Dal wards is about 97000 Kg/day. The capacity and efforts of Srinagar Municipal Corporation were found to be inadequate resulting in heaps garbage and clogged sewage. This becomes alarming because it ultimately spills in to Dal Lake contaminating the lake water. Obstruction and blockade in natural drains: In addition to the increase in population, tourist inflow, their increased waste generation and inadequate removal, there was also obstruction and blockade of inner water channels. These natural channels networked to

³⁰ M. R. D. Kundangar and A. Abubakar, “Thirty years of Ecological Research on Dal Lake Kashmir”, Journal of Research and Development, vol. 4, (2004), pp. 45-57

³¹ <http://www.greaterkashmir.com/news/gk-magazine/save-dal-lake/11236.html>

³² N. Ishrat, “Pollution in Dal Lake by Donga Population”, Ph.D Thesis, University of Kashmir, (1985).

³³ Management of Houseboat Sanitation in Dal Lake Kashmir India, available at: <http://www.ijtre.com/images/scripts/2017041150.pdf>(last visited on 18th December 2017).

³⁴ Including donga house boats, these are the residential house boats for the living of hanji community of the lake.

³⁵ Barki, D.N., Singa, P.K., (2014) “Water Quality Assessment In Terms of Water Quality Index” Global Journal of Biology, Agriculture and Health Sciences ISSN 2319:5584, Volume 3(3), pp 69-71.

³⁶ Wills, M., Kim .N, “Application of the National Sanitation Foundation Water Quality Index in the Cazenova Creek, NY, Pilot Watershed Management Project” Irvine Middle State Geographer, 1996, pp 95-104.

circulate and distribute the wastes. The sample survey found that in the absence of it the incidences of diseases and epidemics have increased alarmingly. Especially, during summer months patients with diseases like malaria, dengue as well as water borne diseases like cholera were common.

8. Shrinkage in the Lake Area: The shrinking of the lake on the one hand, and its senescence and drying up on the other, are fast destroying the beauty of the lake. The depth of the lake's open water has reduced from 10 feet to 4 feet. At Char Chinar, the depth has reduced from 18 feet to 6 feet over the last two decades. Vast areas of Dal have turned into cesspools, marshes, grass fields and grazing grounds. A major source of drinking water, the Dal Lake fulfils the needs of over a billion inhabitants of Srinagar, besides the people living in the outskirts. The water is lifted at Pokhribal and Nishat before it is pumped into pipelines. Not many are aware that dirt, filth, rags, discarded materials, rusted metal - in short, everything obnoxious - finds its way into the lake. Dal Lake contributes 40 per cent of the drinking water for the city's population; the rest is supplied by four supply plants - Rangil plant, Aulustabang plant, Dodgganga plant and Nishat canal flowing from Ganderbal. Dal is fast turning into a wasteland with little hope of revival or redemption.³⁷

9. Continuing Encroachments on the Lake Area: Even though Lakes and waterways Development Authority (LAWDA) and Srinagar Municipal authority (SMC) has demolished dozens of illegal structures in Dalgate and other areas of Srinagar, scores of illegal structures are rampant at many places including SaidaKadal and inner areas of Dal Lake. Local residents alleged that some people resort to stone pelting in a day to ensure that area remain disturbed and authorities are unable to visit area "The construction work starts every night at around 10 pm. These structures go unnoticed as authorities are unable to visit the area due to prevailing circumstances. Jammu and Kashmir High Court has also directed authorities to issue contempt notices against people who have started illegal construction in and around Dal Lake.

A little less than three-fourth of Dal Lake, located on the foot of the Zabarwan hills and bounded by the Shankaracharya hill (TakharSuliman) and Hari Parbat, has already been lost during last few decades due to illegal construction and encroachments. Encroachers are also constructing houses, shops and walls on the encroached land. Land filling of the lake is also going on at various places, The Deputy Chief Minister who is also the housing minister of the state stated that he has called upon the officers to act tough against the encroachers and implement the court directions in letter and spirit with regard to the encroachments around the Dal Lake and other places³⁸.

Impact of Pollution of Dal Lake on the Lives of People of Srinagar: The summer capital of Jammu & Kashmir state although surrounded by lakes, streams, rivers and mountains faces shortage of a clean drinking water supply for domestic use. An appallingly high infant mortality of 1 in 5 due to common water borne infectious diseases is directly related to unclean water supplies throughout the valley. Forty percent of all illnesses are related to polluted water

³⁷ Save Dal Lake from becoming 'Dull Lake', available at: <https://www.thefreelibrary.com/Save+Dal+Lake+from+becoming+%27Dull+Lake%27.-a0274086465> (last visited on 18th December 2017).

³⁸ Despite anti-encroachment drive, Illegal structures continue to come up in Srinagar, available at: <https://kashmirobsrver.net/2016/city-news/despite-anti-encroachment-driveillegal-structures-continue-come-srinagar-11154> (last visited on 19th December 2017).

supplies, resulting into frequent outbreaks of ineffective hepatitis, gastroenteritis, poliomyelitis, typhoid and cholera.³⁹

Conclusion: On the basis of recommendations of the various consultants from time to time, the measures taken by the concerned authorities include partial commissioning of settling basin at the mouth of lake to arrest the tremendous silt load from Telbalnallah (a perennial source of water), marginal dredging along the lake shore, retrieving of land masses including that of sediment and slush, improving of the water circulation by way of cut and conduit at Brarinambal, revamping of the exit gates, removal of illegal floating gardens and some hamlets within the lake, deweeding along the specified lake areas, aeration of the lake water at selected places, laying of sewers around the lake and setting up of few Sewage treatment plants. Yet the lake does not show any sign of improvement either in its water quality or overall lake ecology. The fact remains that the condition of the lake is deteriorating at an alarming rate and creating hue and cry among the people of all walks of life.

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³⁹ Dal Lake pollution - Daily Excelsior, available at: <http://www.dailyexcelsior.com/dal-lake-pollution/> (last visited on 18th December 2017).

THE BAULINI - SHE SINGS OF THE DIVINE STRENGTH

PROF. SHAMALI GUPTA

Abstract: Different types of folk music have developed across the world with separate techniques and grammar, and each school of music represents the progress of a particular cultural pattern which is part of the total life of the community along with its religion, social life and customs. Indian folk music is all about celebrating life and people.

In course of time, an oral grammar and tradition emerged. Then the art became a life-study profession rather than an accomplishment and created for itself a tradition/community or "Sampradaya". The Baul community has made immense contribution in the social upliftment of Gram Bangla. Besides messages of peaceful co-existence, the Bauls have also revolted against the conventional socio-religious structures.

Bauls have given immense importance to their Sadhan-sangini and women in general.

This paper attempts to study the role of women in the Baulsampradaya. An attempt is made to relate Sacred feminism to the thoughts of the Baul composers.

Further, the paper also looks at some of the songs that reveal the role women play in the lives of these wandering folk singers. This paper is based on the ethnographic study in Birbhum district of West Bengal.

Keywords: Folk Music, Baul, SadhanSangini, Women Singers, Composers, Society.

Introduction: It is usually said that music has a universal appeal and that even the beasts and children in the cradle are acquiescent to its comforting influence. To isolate music from life is to detach and intellectualize an experience which is in fact integrated with living. Hence the association of music with the rhythm of transplanting rice or pounding grain, in the higher spheres, with prayer and praise of the Divine.

This is the main reason why the music of one's own people moves one to tears and encloses one in ecstasy.

Music is the soul of Bengal and the traditional folk music mirrors the image of rural Bengal.

The folk music has its origin as early as the 4th century with the advent of the invaders in Bengal and other provinces of colonial India. Bengali folk music has poetry, drama, epic, folktales, ballads and proverbs etc. The ethnic folk music forms the soul of Bengali culture. Folk music can be categorized in terms of love, devotion, livelihood, labour, ritual and philosophy.

The Bauls are an ancient group of wandering songsters from Bengal who can sing of life, love, spirituality and divinity in an utmost spontaneous and earthly style on a one-string musical instrument called Ektara. Contrary to the casual attire, attitude and appearance of the Baul singers there looms a deep philosophy of life.

In Baul philosophy the human body is accorded the highest value. According to them, the human body is the microcosm of the universe. They consider the human body as a temple where the Supreme Lord resides. The human body is composed of Pancha-bhuta (air, water, sky, earth and fire) and is the dwelling place of God.

Like the Sufi, the Baul searches for the divine beloved that resides in a human body.

According to famous anthropologist and theologian Prof. Shashibhushan Dasgupta, (S.B, 1995)– “In the conception of the ‘Man of the Heart’ of the Bauls we find a happy blend of the concept of the paramatma of the Upanishad, the sahaja of the Sahajiyas and the Sufi concept of the beloved” all rolled in one. It is also here that the women ‘sadhan-sanginis’ of the Bauls play an important role.

Bauls conceive Sahaja path as their process of Sadhana. He mentioned that “Sahaja was conceived as supreme love which could be realized by the union of Krishna and Radha who resided in the corporal form of man and woman”. (Atis, 1994)

Krishna and Radha are the God and Goddess of Hindu pantheon, frequently, Radha is the consort who completes Krishna.

Bauls believe that the monermanush dwells in the jnyan-chakra (the lotus-shaped discus on top of the head). Sexual activity makes it swim down in the form of a fish (meen-roop) towards mool-dhara-chakra on the perineum, where it is empowered by the female energy (Kundalini Shakti).

Many say, that is why women are treated as Sadhan- sangini (Partner or means of Sadhana)

Many Baul songs also advocate equality and liberation of women:

‘Kulerbouhoyemonekoto din thakbighore Ghomtafelecholna re mon shad-bajare...’

which discourages women to confine herself within the home and encourages her to go out and explore her land on her own will.

Further Tuntun Fakir, one of the famous sadhak-baul singer says *‘narihoyenaribhojo, nariholocheton-guru..’* worship a woman by converting yourself into a woman because Women are spiritual gurus).

According to Nobel laureate Gurudev Rabindranath Tagore, “The human body, despised by most other religions, is for the Bauls, the holy of holies, wherein the Divine is intimately enshrined as the Man of the Heart (MonerManush)... The Bauls do not believe in aloofness from or renunciation of, any person or thing; their central idea is yoga, attachment to and communion with the divine and its manifestations, as the means of realization.

We fail to recognize the temple of God in the bodily life of man, because its lamp is not alight. The true vision must be attained in which this temple will become manifest in each and every human body.” (Rabindranath, 1931)

One of the extremely popular baul song is *‘milonhobekoto dine, aamarmonermanushersone...’* “When shall I meet him, the Man of my Heart?” This phrase, ‘the Man of my Heart,’ is not peculiar to this song, but is typical with the Baul sect. It means that, for every human being, the ultimate truth of all existence is in the revelation of the Infinite in our own inherent humanity, that which we wish to unite with ultimately. In an informal meeting with Parvathy Baul, she narrated to me her Guru's response to her question: “who is really the MonerManush?”.

Her Guru told her, “Look deep into my eyes for a few moments and tell me what you see there?” She replied, “I see myself in your eyes”.

'The Man of my Heart,' (MonerManush) to the Baul, is like an impeccably tuned heavenly instrument. And the longing for the truth which is in us, which we have not yet comprehended, breaks out in every other baul song and in the music of their life.

Sacred feminism takes us beyond the association of femininity with gender, and indicates to us that the very life-force of the Universe is the feminine aspect of the spirit. To be a Sacred Feminist is to be a lover of the feminine Shakti as she appears in the world, in culture and also in our own psyche and soul- while acknowledging that she can never be separated from her masculine other half.

So, in the Hindu pantheon, Brahma's role of bringing worlds into manifestation is done through his Shakti – Saraswati, who is also the energy behind creative communication. Vishnu sustains and defends the worlds, empowered by his Shakti, Lakshmi, the energy of sustenance and abundance.

On the other hand Shiva's power is personified in robust warrior goddesses like Durga, Kali and Parvati.

Sacred feminism wants to embrace everything that is beautiful in the feminine, as well as everything that is terrifying. It wants every human being, whether man or woman, to learn, see and embody all the qualities within oneself.

In Divine madness, the spirituality is about here and now. The here and the now is all about gender parity: appreciation of the Purush and Prakriti within each individual to make one complete. There are male baul composers whose writing and composing about women's experience are replete with images from women's day-to-day life – from the kitchen, to the shringar (the sequence of adorning oneself up for the beloved), to the torment of waiting for union with the beloved – it's all evident. Even the male baul singers become women. Do male baul singers then write this kind of songs to fill some kind of emptiness, some kind of void?

Parvathy Baul re-iterates to me – “**In the Baul path, we have to find the man within**” -

Mon tumipurushkinari

Bhebepelamnakichu

Shuntepelamshaudhurmukhe

Purushernirgundekhe

Prakritiaponhotesrijinobromhando..

Roughly translated, the song means – ‘Oh mind, tell me are you man or woman?

I have heard from the learned One

That looking at the lack of worthiness in Man

Prakriti took it upon herself to decorate the World!

It is this Perfectionist Prakriti, the Creator and the nurturer, that the Baul practitioner is seeking!

For a practitioner, the question is who is within me?

Amar bhetoramike ta

Khoborrakhlina?

‘Who is this ‘me’ within me

You have not yet understood!

. You are always on an ego-trip

Talking only of 'me, me, me' all the while!
You may be a jailor or barrister
A worker or a labourer.
But who is it who lies within?'
Piritnagore, bashotikoribo
Piritebadhiboghar
'In the town of love, I shall build my house
Doors and windows of love
In the kitchen too dwells love,
Pillow and bolster of love,
A garland made of love too
A mirror of love, a neighborhood of love
Without love, everything is empty
The house of love, if you burn it like
You burn the incense, you get fragrance
You burn the candle, you get light
If you burn yourself, you get compassion'

**The culmination is total submission to love to discover compassion within self.
Bauls have also sung the words of surrender in the male voice –**

Kanukohe Rai...

Again roughly translated – "Krishna tells Radha

O Rai, I am a simple cowherd

And I am so fearful of your love

You know love like no other

You know me like no other.

I am forever indebted to you for showing me the true meaning of unconditional love."

Here the words of surrender are so different from the words of submission – because the surrender is to power of Love itself. The surrender is to the Reality larger than self. The thought is 'You are, therefore I am'.

Baulini Rina, is the voice of modern day women baul composers. During the few visits, she sang many of her own compositions – all of which talk about the inner strength of women.

One such composition is:

Einari r je kotoshokti, nor e janena...

A brief translation-

Nari (woman) is Shakti. She holds power within herself and powers the world.

But the ignorant man does not understand the powers within the woman

Lord Shiva though understood Her powers

And took shelter at Her feet!

She stresses the need for the uninformed man to explore the powers within a woman to be complete with Shakti Chetana (perception of Shakti)!

Another song composed by Rina Das Baul has tremendous inspiration to young girls of today's generation;

Jaago, jaagolokkhimeyerdol

Tomranajagle, ma-go, desher o-mangal...

Roughly translated –

'Awaken, o my sweet girls

If you keep sleeping it is inauspicious for the entire world

Be alert, be educated
And understand your potentials...'

Conclusion: Give up the love of power and practice the power of love. Challenge patriarchy and all hierarchies. Hegemonic masculinity threatens solidarity, and plunders Nature and is behind all forms of terrorism and behind all forms of fundamentalism. Love, harmony and inter-dependence is what Baul philosophy is all about. In Baul community, Prakriti and women are emblems of this form of all-embodying, selfless love and power.

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SCIENCES

IMPLICATIVE AND POSITIVE IMPLICATIVE FILTERS OF RESIDUATED LATTICES IN MULTISSET CONTEXT

VIMALA J, ANUSUYA ILAMATHI VS

Abstract: In this paper, we introduce the concept of multiset implicative filter and multiset positive implicative filter of residuated lattices. Also, we discuss their characterizations and we show that M is a multiset implicative filter of X if and only if the quotient residuated lattice X/M is a Heyting algebra.

Keywords: Multiset Filter, Multiset Implicative Filter, Multiset Positive Implicative Filter.

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COMBINATORIAL RESULTS IN PARTIAL TRANSFORMATION SEMIGROUP

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Abstract: In this paper we studied the semigroup of partial transformation and investigated the elements of collapse given by

$$c(\alpha) = |C(\alpha)| = \left| \bigcup_{t \in \text{Im} \alpha} \{t\alpha^{-1} \geq 2\} \right|$$

we obtain formular for the total number of collapsible elements for $|t\alpha^{-1}| = 2$ and $|t\alpha^{-1}| = 3$ in P_n

Keyword: Collapse, Idempotent, Nilpotent, Partial transformation, Semigroup.

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GENERAL CODING ASSESSMENT FRAMEWORK

ALBERT SAHAKYAN, TIGRAN SLOYAN

Abstract: In 2019, US-based universities will issue more than 50,000 computer science degrees, and only a small fraction of those degrees are issued from “top tier” CS programs. However, given the lack of standardized technical assessments and certifications, many companies hiring for technical talent still use pedigree as the main proxy for skill. This means that most companies are fighting over the same small set of candidates from top schools and most qualified developers struggle to get a single interview at any of these companies.

In this paper, we introduce a framework for creating a General Coding Assessment (GCA) and a scoring system (Coding Score) that maps programming skills to a score from 600 to 850, combining information about problem solving and code-writing skills as well as speed and code quality. GCA aims to be a foundational assessment for all developers. We provide data-driven results on the performance of GCA certifications thus far, and we dive into the logic behind the choice of the topics and questions.

Acknowledgements: We are very thankful to the engineering advisory board of the **#GoBeyondResumes** [17] movement, including Anima Anandkumar - Director of ML Research @ NVIDIA and Bren - professor at Caltech, Chris Kanaan - SVP of Eng @ Ripple, Jessica McKellar - CTO @ Pilot, Kah Seng Tay - VP of Eng @ Drive.ai, Lei Yang - VP of Eng @ Quora, Nate Kupp - Director of Eng @ Thumbtack, Nimrod Hoofien - Director of Eng @ Facebook, Surabhi Gupta - Director of Eng @ Airbnb, Yoann Roman - Director of Eng @ Yelp for kindly reviewing and providing their comments and feedback on the GCA framework. Also Aram Shatakhtsyan - CTO @ CodeSignal, Eduard Piliposyan - Director of Assessments @ CodeSignal and Michael Newman - Director of Engineering @ CodeSignal for their detailed review and feedback on this paper.

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HEAT TRANSFER FLOW IN A CHANNEL BOUNDED BY STRETCHING WALLS WITH HALL CURRENTS, THERMAL RADIATION, DISSIPATION AND NON-UNIFORM HEAT SOURCES

DR. P. GAYATHRI

Abstract: We discuss the effect of thermal radiation and Hall currents on convective heat transfer flow of an electrically conducting, viscous fluid in a vertical channel bounded by stretching walls in the presence of non-uniform heat sources. The non-linear equations have been solved by Runge-Kutta method along Shooting technique. It is found that an increase in Hall Parameter (m) reduces the skin friction and enhances the Nusselt number at the walls. Higher the thermal radiation smaller Nu at the left wall and larger at the right wall. An increase in Ec increases Nu at $\eta = \pm 1$.

Keywords: Thermal Radiation, Hall Effects, Dissipation, Non-Uniform Heat Sources, Stretching Walls.

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INSILICO PREDICTION OF THIAZOLIDINE-2, 4-DIONE DERIVATIVES: NOVEL THERAPEUTIC TARGETS TOWARDS TYPE-2 DIABETES MELLITUS

PRADEEP TIWARI, RENUKA SURAVAJHALA, BABITA MALIK

Abstract: Type 2 diabetes mellitus (T2DM) is a leading endocrine disorder that affects millions of people worldwide. It is characterized by hyperglycemia and high insulin resistance. The commonly prescribed oral therapeutic for insulin resistance in T2DM is Thiazolidine-2, 4-diones (TZDs). TZDs are a class of oral hypoglycemic agents that act on Peroxisome proliferator activating receptor- γ (PPAR- γ) receptors and are mainly expressed in the adipose tissues. In this work, we have designed computationally novel classes of TZDs and predict the nature of structural affinity using molecular docking studies against the PPAR- γ .

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NANOPARTICLES SYNTHESIS AND BIOFUEL PRODUCTION FROM ALGAL BIOMASS

MEENU AGARWAL, AYUSHI VERMA

Abstract: Algae can be considered as the most effective source for the production of biofuel. Biofuels may be considered as an alternative fuel for reducing greenhouse gas emission, diversifying fuel supply and thus have the potential to reduce fossil fuels. In this study, *Spirulina platensis* (microalgae) and *Chlorella vulgaris* (cyanobacterium) were used for the extracellular synthesis of gold and silver nanoparticles. It was achieved by maintaining these cultures at optimum process conditions. Further, harvested cells were collected in order to synthesize the nanoparticles using several physical and chemical methods. The characterization analysis of obtained nanoparticles was done by UV-visible spectroscopy and Fourier transform infrared spectroscopy (FTIR). Further, the antimicrobial activity of synthesized gold and silver nanoparticles was performed by using agar well diffusion method. The algal biomass obtained was further utilized for the production of algae-based biofuel using thermochemical and biochemical conversion. The thermochemical conversion process including direct combustion, gasification, liquefaction, and pyrolysis. While biochemical conversion including anaerobic digestion, alcoholic fermentation, photo-biological hydrogen production, transesterification and in-situ transesterification. The microalgae *C. vulgaris* was found to be a good source of bioethanol, due to its high starch content (37 % dry wt.). The bioethanol conversion efficiency for this study was obtained as 60 %. The highly stable gold and silver nanoparticles were successfully synthesized by *Spirulina platensis* and *Chlorella vulgaris*. These synthesized antimicrobial nanoparticles showed a high removal efficiency of dye from industrial waste water. Thus, it makes them the particle of choice in many fields including remediation of environmental pollutants, degrading pollutants like pesticides, dyes, hydrocarbons. The motivation behind the production of algae-based biofuel will revolutionize the energy industry and will also play a leading role in fight against greenhouse gas emissions, and climate change.

Keywords: Algae, Nanoparticles, Biofuel, Antimicrobial Activity.

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DENSITY, DIVERSITY, AND DISTRIBUTION PATTERN OF GASTROPOD IN LITORAL ZONE OF PANGUMBAHAN BEACH, UJUNG GENTENG, SOUTH SUKABUMI

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Abstract: Research about density, diversity, and distribution pattern of Gastropod in Litoral Zone of Pangumbahan Beach, Ujung Genteng, South Sukabumi has been conducted. Belt transect was used as the sampling method. There were 5 plots of belt transect model. The data were taken from November 27th to 28th 2017. Gastropods were being captured by hand sorting technique. There were 221 individu of Gastropods from the sampling. Density of Gastropods was from 5 to 78 ind/m². Meanwhile, all Gastropods distribution patterns of 5 plots was clumped. Moreover, Shannon-Wiener diversity index indicated moderate to high. This index's result was supported by conducive abiotic parameter like temperature around 27—28 °C, dry humidity, and 7—7,5 of pH. Based on this data result, Litoral Zone of Pangumbahan Beach is still a suitable habitat for various Gastropods. Therefore, this area has also a low contamination and pollution.

Keywords: Gastropod, Pangumbahan Beach, Litoral Zone, *Belt Transect*, Density.

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CONDITION OF GREEN SEA TURTLE'S (*Cheloniemydas*) LAY EGG HABITAT IN PANGUMBAHAN BEACH, UJUNG GENTENG, SOUTH SUKABUMI

MEILISHA PUTRI PERTIWI, SUCI SITI LATHIFAH

Abstract: Research about condition of green sea turtle's (*Cheloniemydas*) lay egg habitat in Pangumbahan Beach, Ujung Genteng, South Sukabumi has been conducted. Data sampling was done 6 times for 2 days on November 27th—28th 2017. There were 3 sites. Abiotic parameter consisted of surface temperature and humidity, 50 cm down from surface temperature and humidity, beach width, beach leaning, and sand size were measured. Meanwhile, biotic parameters were solidness, relative solidness, frequency, and distribution pattern of *Pandanus tectorius* (sea pandan). Based on data analysis, biophysics condition of Pangumbahan Beach is still suitable for green sea turtle laying egg. Furthermore, researchers also saw a lot of green sea turtle landed on Pangumbahan Beach for laying eggs. So, it could be also a strong proof for our research result.

Keywords: Laying Egg Habitat, *CheloniaMydas*, *Pandanus Tectorius*, Pangumbahan Beach, Ujung Genteng.

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A COMPARATIVE STUDY OF DYE REMOVAL FROM TEXTILE INDUSTRY WASTEWATER USING BROWN, RED AND GREEN ALGAE

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Abstract: The biosorption capacity and efficiency of dye from textile industry wastewater using brown (*Sargassum sp.*), red (*Kappaphycus sp.*) and green (*Spirulina*) algae was examined. The motivation behind choosing these three algae for this study as they are capable of treating inexpensively, waste waters polluted by pollutants like metals and dyes. The central composite design under response surface methodology was used to design the experimental runs and to investigate the interaction effects of variables. The biosorbent was characterized by using Field Emission Scanning Electron Microscopy (FESEM) and Fourier transform infrared spectroscopy (FTIR) techniques. FTIR analysis revealed the involvement of different functional groups, mainly hydroxyl, carboxylic aliphatic groups during the biosorption process. The morphology of algae surface was characterized by FESEM. The effect of three independent variables, pH (3-6), biosorbent dosage (1.0-2.0 g/L), and temperature (25-40 °C) on removal of dye was examined. Optimum values of three variables were obtained as pH (5.0, 6.0, 4.5 for brown alga, red alga and green alga, respectively), temperature (25 °C), and biosorbent dosage (0.5 g/L of brown alga; 1.0 g/L of red and green alga) with 99.0 %, 92 %, 80 % removal efficiency of dye using brown, red and green alga, respectively. The experimental data of textile dye biosorption were fitted to six kinetic models. The biosorption of dye followed the pseudo second order kinetics for all the three algae. It confirms that chemisorption was the rate limiting step. Equilibrium data were fitted to five different isotherm models (Langmuir, Freundlich, Fritz, Redlich-Peterson, and Radke-Prausnitz). It was found that the removal of dye was best described by Fritz for brown and red alga while Radke-Prausnitz isotherm model for green alga. Thermodynamic study shows that dye biosorption process on all the three algae was feasible, spontaneous and endothermic in nature. This study demonstrated the potential utility of algae to treat textile industrial wastewater.

Keywords: Textile Dye, *Sargassum Sp.*, *Kappaphycus Sp.*, *Spirulina*, Isotherm, Kinetic Study.

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PLANT ANTIMICROBIAL PEPTIDES AN EFFECTIVE WEAPON AGAINST SUPERBUGS

DR. MOHAMMED A. M. AL SAIQALI

Abstract: Plant antimicrobial peptides (AMPs) are part of the innate immunity, establishing a first line of defense against pathogens. PlantAMPs are oligopeptides with a varying number of amino acids from 5-100 AAs. AMPs have a broad spectrum of targeted organisms ranging from viruses to parasites. Plant AMPs are a component of barrier defense system of plants, they have been isolated from different parts of the plant species like, roots, seeds, flowers, stems, and leaves. All plant organs express AMPs constitutively or in response to microbial attack. Plant AMPs are structurally and functionally diverse. Plant AMPs are grouped into six classes and share general features such as positive charge and the presence of disulfide bonds which stabilize the structure. Plant AMPs are classified into thionins, defensins, lipid transfer proteins (LTPs), snakins, knottins, cyclotides and hevein-like AMPs. Besides targeting fungal, bacterial, and oomycete pathogens, certain AMPs can be directed against other organisms, like insects. They have anticancer and antiviral activities. The biological activity of plant AMPs primarily depends on interactions with membrane lipids, using different mechanisms to kill the targeted pathogens, but other modes of action do exist as in the case of defensins. In our current research we could successfully extract and isolate peptides and low molecular weight polypeptides from *A. Indica* leaves with excellent antimicrobial and anticancer activities. Plant AMPs are considered as promising natural antibiotic compounds with important pharmaceutical, agricultural and biotechnological applications. Therefore, AMPs have a high potential for therapeutic application in healthcare that can be used as natural antibiotics as alternative for their chemical counterparts, for protection of human being, plants, and animals against microbial infection due to their selectivity and mode of action.

Microbial Classification: Three domain system of classification, Phylogenetic Relationships, Code for bacterial nomenclature and taxonomy, Criteria for microbial classification-morphological, staining techniques, biochemical methods, serological techniques, phage typing, fatty acid profiles, Flow cytometry, DNA base composition, DNA fingerprinting, rRNA sequence, Nucleic acid hybridization, Numerical Taxonomy, Chemotaxonomy, Classification of bacteria according to Bergey's Manual of systematic Bacteriology, Dichotomous keys, Cladograms, dendrograms, universal phylogenetic tree.

12 Hours

Unit 2

Prokaryotic Microorganism- General Properties, Structure, and Reproduction: Domain Bacteria: Proteobacteria (Alpha, Beta, Gamma, Delta and Epsilon Proteobacteria), Cyanobacteria, Chlorobium, Firmicutes, Actinobacteria, Chlamydiae, Spirochaetes, Bacteroidetes, Fusobacteria. Domain Archaea: Crenarchaeota, Euryarchaeota

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SHAPING THE SENSE OF MATERIALISM

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Abstract: For over so many years, earth has been used as an important material for construction purposes. But where the world started developing other materials the earthen structures have taken a roundabout in the field of architecture to prevent exceeding environmental disruption and building more economically. Earth architecture showcases the beauty and simplicity of one of humankind's most evolved and sophisticated building technologies. Architectures and times now have been evolved with convoluted forms and components, to establish their individualism and uniqueness. But that doesn't make nation understand how they are beneficial to compassion, functionality and perceive how they reflect nature. And here how the path to humanity made simpler for everyone in this world, by practicing elementary approaches in shaping the sense of materialism.

This study reveals the flexibility of designing a proposed school project in a simple and innovative practice of alternative building materials and resulting sustainability in the habitat. This is achieved by devising new geometries and shapes in which we will discover the flexibilities. This project has experimented the custom-designed compressed stabilized earth blocks which are ideal in dimensions, interlocking systems and use of reinforcement. Various techniques were experimented in this project to make changes in the standard ways to construct the building using these materials so that the designing becomes easy and close to the standards of the conventional materials. It takes the advantages of Green-rated design, reaching greater elevations, inclined structures, mutant to meteorological factors, seismic resistant, safety and aesthetics. It has the ability to respond both climate and society. This study will support in constructing usual spaces with CSEB as material, creating sustainable nations.

Keywords: Devising, Earth Block, Interlocking, Sustainability.

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INVESTIGATING WINDOW CHARACTERISTICS FOR THERMAL COMFORT IN RESIDENTIAL BUILDINGS: A CASE OF GOVERNMENT HOUSING ESTATES IN NIGERIA

**AYENI CONQUEROR AYOARIYO,
ODUNJO OLURONKE OMOLOLA, AJANI JOEL AKINSANYA**

Abstract: The purpose of ventilation is to provide fresh air for comfort and to ensure healthy indoor air quality by diluting contaminants. The study aimed at investigating window characteristics in selected residential buildings of government housing estate in south-west Nigeria. The study identifies the characteristics of existing housing types with the use of systematic random sampling. Based on the survey result, 31% of windows used were louver type, 10.5% were sliding window, while 36.5% were casement type. The investigation further demonstrated that 35.0 % of the inhabitants preferred casement window type because it gives the most astounding characteristic ventilation. The study also resulted that 47.2 of the windows in the living room were 1.2x1.4m, while 38.7% windows in the living room were 1.2x1.5m and just 14.1% of windows in the living room having 1.2x1.8m. In case of bedroom, it was also revealed that 66.9% of bedroom's windows were 1.2x1.4m, while 20.2% windows in the bedroom were 1.2x1.5m, 12.9% of bedroom's windows having 1.2x1.8m as their sizes. The implication is that, both living rooms and bedrooms of houses in the estate were not properly ventilated. The investigation concluded that with sufficient and satisfactory utilization of louver or casement window types with adequate sizes and numbers, ventilation can be enhanced in residential buildings.

Keywords: Casement, Louvre, Window Sizes, Residential Buildings, Thermal Comfort, South-West Nigeria.

Introduction: Housing is one of the basic needs of man in addition to food and clothing. It embraces all social services and utilities such as good road networks, electricity and potable water supply among others that make an environment conducive for living. Housing has a profound influence on the welfare of mankind and it is used to measure the physical, economic and historic evidence of civilization all over the world (Abumere, 1989). The United Nation (2000) described housing as a physical environment in which the family as the society's basic unit develops. This definition of housing is in agreement with that developed by the World Health Organization cited by Omole (2010) which considered residential environment to be one that includes the physical structure used for shelter as well as all necessary social wellbeing facilities for the family and individual. However, as important as housing is, the incidence of urban population increase has created severe housing problems, resulting in overcrowding and inadequate dwellings, and in a situation in which 60% of Nigerians can be said to be homeless (Olotuah and Ajenifujah, 2009). Rapid population growth creates problems toward adequate and efficient supply and distribution of basic utilities and services for the city inhabitants. The situation has become so pathetic such that, overcrowding, slum and substandard housing as well as unhealthy and poor environmental conditions are expressions of this problem. Thus, access to decent housing has become a challenge worldwide, especially in developing countries (Abotutu, 2006). Housing provision in most nations of the world is made through a blend of public and private sector initiatives; Nigeria is not an exemption to this development. For instance, it has been observed that about 80% of the available housing stocks in Nigeria are provided by private sector initiatives, while only

20% of them are public sector housing (Ademuliyi, 2010). As a package of shelter and services, housing is a veritable tool for macro-economic development. The purpose of ventilation is to provide fresh (or at least outdoor) air for comfort and to ensure healthy indoor air quality by diluting contaminants. Historically, people have ventilated buildings to provide source control for both combustion products and objectionable odours (Sherman, 2004). While the majority of naturally ventilated residential buildings are in Europe, few have recently been constructed in the U.S. This may be because, methods for integrating natural ventilation in residential buildings are not well known. Unfortunately in Nigeria, though we are blessed with good climatic condition yet, natural ventilation system is currently underutilized in some residential buildings. As a result, there is an urgent need for sustainable housing development towards naturally ventilated residential buildings which are environmental friendly in order to give good and positive impact to its inhabitants against prevailing problems of mechanical ventilation system, such as: need for space, increase rate of energy consumption, noise generation within and outside of buildings and difficulties in cleaning and maintaining. These among others are the focus of this study, to investigate natural ventilation in residential buildings in Owode Estate, Apata, Ibadan with a view to specifying widow characteristics for use in subsequent residential building designs. However, there has not been much research work on windows characteristics for thermal comfort in this warm humid climatic region like Nigeria. With this view, the study aims at investigating window characteristics for thermal comfort in residential buildings in Government Housing Estate, Apata, Ibadan. Therefore in addressing the thermal comfort sin the offices of the study area to support the research the following research questions addresses the window conditions:

1. What are the types of windows in use in Government housing estate in the study area?
2. What are the sizes of windows in use in the residential building in the study Area?
3. How many windows are situated in spaces in residential buildings in the Study Area?

Literature Review: Increased focus on sustainability and the environmental impact of energy used has resulted in natural ventilation becoming an attractive option for many buildings.(Awbi, 2003).Historically, natural ventilation in buildings relies on wind and thermal buoyancy as driving forces. Mankind has used these driving forces throughout history to create the desired thermal environment and to transport away undesired contaminants. From the first primitive living quarters with the fireplace in the centre of a tent or a cabin, the technique we take advantage of to control and adjust indoor climate has grown ever more sophisticated. This technique has in the 20th century, been dominated by mechanical ventilation and air conditioning. These technologies have developed into systems of great complexity with an increasing number of components, need for space, and use of energy. Despite this, many of the mechanical systems do not manage to deliver the desired indoor climate. Because of this contradiction, the focus has again been put on simpler, more robust and less energy consuming solutions.Thus, the building itself, with its envelope, rooms, corridors and stairways, rather than the ducts familiar from mechanical ventilation systems, is used as air path. A natural ventilation concept is therefore, highly integrated in the building body and will consequently have influence on building design and architecture.

Thermal Comfort: According to Olufowobi&Adenuga, (2006), a building is required to perform many functions and provision of thermal comfort is one of them. Energy consumed in buildings to provide thermal comfort is related to the climate in which the buildings are located as well as the thermal properties of the fabrics. In the course of providing thermal comfort for building occupants, it is essential to consider the influence of prevailing climatic conditions on the thermal performance of such buildings. Particularly for residential buildings,

thermal comfort and mental ability are important and are related to each other. It is known that ventilation has the following three major functions:

- (i.) Replacement of stale air with fresh air from outside to promote good health
- (ii.) Cooling of indoor air and cooling of building structures
- (iii.) Body cooling for comfort.

Thus (ii) and (iii) above are related to the use of natural ventilation to provide relief from thermal discomfort. The supply of fresh air for good health is required in all buildings throughout the world. Whereas, health ventilation is all that may be required in buildings located in temperate and cold climates, this is not so in low-energy buildings in warm climates, where the need goes beyond fresh air supply; there is additional requirement for natural ventilation to offer relief from warm discomfort by way of physiological cooling. Natural ventilation is created by pressure differences between the outside and the inside of the building; this pressure difference may be wind-driven, or due to air temperature differences (buoyancy effect). In general, wind-driven natural ventilation is easier to achieve in a warm-humid climate as that of Nigeria; it merely requires a low outdoor wind speed to create adequate indoor air speeds. The air temperature differences are usually not high enough to generate any effective air movement.

Classification of Natural Ventilation: Natural ventilation may be classified into two; these are wind driven ventilation and stack ventilation.

1. **Wind Driven Ventilation:** Wind driven ventilation or roof mounted ventilation design in buildings provides ventilation to occupants using the least amount of resources. Drawbacks include the use of equipment that is high in embodied energy and the consumption of energy during operation. By utilizing the design of the building, Wind driven ventilation takes advantage of the natural passage of air without the need for high energy consuming equipment. Wind catchers are able to aid Wind driven ventilation by directing air in and out of buildings.
2. **Stack Driven Ventilation:** Buoyancy ventilation can be induced by temperature (known as Stack ventilation) or by humidity (known as cool tower). Most commonly used is the stack driven ventilation. For stack ventilation to work properly, there must be a temperature difference. However, stack driven ventilation is limited to a lower magnitude than wind driven ventilation. It is also very dependent on the inside and outside temperature differences.

Research Methodology: This research is descriptive and analytical in nature and therefore relies on field survey. Reconnaissance survey was carried out in order to get acquainted with the existing situation in the study area. It also examined physical attributes and characteristics of building such as window openings. Questionnaire were used to obtain information on house types, peoples' perception on the mechanisms provided as well as efficiency of natural ventilation within the living room and bedroom of the houses. Also the field survey approach was used to obtain information on the physical characteristics of the building, such as number, sizes, types and percentage area of openings (windows) and orientation of building and sizes of rooms or spaces to be investigated. Relevant information from published and unpublished literatures such as textbooks, journals, seminar paper, past project and internet materials among others were sourced. These provided the background information on conceptual and theoretical frame work of the study. The sample frame is Owode Estate Apata, Ibadan and using the road network of the estate, the choice of zones was based on the sizes of the estate: since the estate was basically characterized by less dense development, in order to achieve a good and reliable sample frame, notable area in which their boundaries were obvious was used

as a criterion for the selection. A total of six (6) estate zones were sampled altogether and they include: first gate, second gate, northern side, southern side, central and Anglican church side of the estate. Systematic random sampling was used for the study. The first building was chosen at random, while others were chosen at interval of five (5) buildings along each street. In all, a total of one hundred and sixty-three (163) residents of the area were chosen for questionnaire administration thereby, representing 5% of the population. This is shown in Table 1

Table 1: Sample Size

Zone	No. of Buildings	No. of Questionnaires Administered
First gate	357	18
Second gate	752	38
Northern side	430	22
Southern side	400	20
Central	632	32
Anglican church side	689	34
Total	3260	163

Source: Author's Fieldwork (2018).

Case Study Figure 1:2 bedroom bungalow



PARROT as 2 bedroom bungalow with the followings:

Lounge -19sqm
Dinning -9sqm
kitchen -7sqm
bedroom(ensuite) -12sqm
toilet -2.7sqm.

Source: Author's Fieldwork, (2018).

Figure 2: 3 Bedroom Floor Plan



DUCK as 3 bedroom bungalow with the followings:

Lounge / Dinning -22sqm,
kitchen/Store-10sqm,
Master's bedroom & Toilet-16sqm, bedroom & toilet-14sqm.

Source: Author's Fieldwork, (2018).

Figure 2: 4 Bedroom Floor Plan



HAWK as 4 bedroom bungalow with the followings:

- Ante Room -6.5sqm
- Lounge & Dinning-34sqm
- kitchen & Store-11sqm
- Master's bedroom & Toilet -24sqm
- bedroom & toilet (average) -18sqm
- Car port -15sqm

Source: Author's Fieldwork, (2018).

Figure 4: Ground & First Floor Plan of 3Bedroom Terrace Apartment.



Source: Author's Fieldwork, (2018).

Figure 5: Ground & First Floor Plan of 4Bedroom Duplex.



Source: Author's Fieldwork, (2018).

Data Analysis: The data obtained from the study were analysed with frequency counts and percentages.

Objective: To investigate window characteristics on thermal comfort in the study area.

Table 2: Window Type

Type	Frequency (N)	Percentage (%)
Louver	51	31.0
sliding	17	10.5
Casement	59	36.5
Projected	36	22.0
Total	163	100

Source: Author's Fieldwork, (2018).

Out of the respondents that utilized window, casement window constituted (36.5%) while louver blade was (31.0%). Also, projected window type was (22.0%), with sliding window being (10.5%) as shown in table 2.

Table 3: Number of window(s) in the Living room and Bedroom

Number of Window(s)	Living room		Bedroom	
	F (N)	(%)	F (N)	(%)
1	77	47.2	116	71.2
2	36	22.1	47	28.8
3	23	14.1	-----	-----
4	27	16.6	-----	-----
Total	163	100	163	100

Source: Author's Fieldwork, (2018)

Table 4: Window Size in the Living room and Bedroom

Window size	Living room		Bedroom	
	F (N)	(%)	F (N)	(%)
(1.2x1.4)m	77	47.2	109	66.9
(1.2x1.5)m	63	38.7	33	20.2
(1.2x1.8)m	23	14.1	21	12.9
Total	163	100	163	100

Source: Author's Fieldwork, (2018).

Number of window in the living room varies from 1-4 windows while in bedroom; it was 1-2 windows. 47.2% of living rooms had 1 window while 22.1% living rooms had 2 windows. Also, 14.1% living rooms had 3 windows, with 16.6% living rooms having 4 windows. Furthermore, 71.2% of bedrooms had 1 window, while 28.8% bedrooms had 2 windows. The implication of this is that, the bulk of the houses in the estate had 1 bedroom which may be due to the sizes of the family living in them (Table 3). In terms of window's sizes it was shown that, 3 different sizes of window were used in both the living room and bedroom. According to table 4. 47.2% of the windows in the living room were 1.2x1.4m, while 38.7% windows in the living room were 1.2x1.5m, with 14.1% of windows in the living room having 1.2x1.8 m. In case of bedroom, it was also revealed that 66.9% of bedroom's windows were 1.2x1.4m, while 20.2% windows in the bedroom were 1.2x1.5m, with 12.9% of bedroom's windows having 1.2x1.8m as their sizes. The implication is that, both living rooms and bedrooms of houses in the estate were not properly ventilated according to Chand (1976) recommendation and also reviewed by Ayinla (2011) that window openings should be between 30-50% of the exposed wall area.

Conclusion: The study found out that the means of achieving natural ventilation were through windows and courtyard in buildings: 41.0% of windows were of louver type, 10.5% were sliding, 47.5% were of casement type. The study further disclosed that, majority of residents preferred louver and casement window types because they both give the highest natural ventilation. The study also resulted that 47.2 of the windows in the living room were 1.2x1.4m, while 38.7% windows in the living room were 1.2x1.5m and just 14.1% of windows in the living room having 1.2x1.8m. In case of bedroom, it was also revealed that 66.9% of bedroom's windows were 1.2x1.4m, while 20.2% windows in the bedroom were 1.2x1.5m, 12.9% of bedroom's windows having 1.2x1.8m as their sizes. The implication is that, both living rooms and bedrooms of houses in the estate were not properly ventilated.

Recommendations: The study hereby recommends that the designers must be aware that the occupant's views must be put into consideration so as to allow for thermal comfort in the residential buildings. The study further recommends that with sufficient and satisfactory utilization of louver or casement window types with adequate sizes and numbers, ventilation can be enhanced in residential buildings.

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