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IMPACT OF THE BRITISH EMPIRICAL THOUGHT ON ENGLISH ROMANTICISM

DR RUCHI MALAVIYA*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Ruchi Malaviya* the author of the research paper entitled IMPACT OF THE BRITISH EMPIRICAL THOUGHT ON ENGLISH ROMANTICISM declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

The British Empirical thought is the most vital fact of the eighteenth century philosophical thought. It is the Empirical philosophy which set the stage for the reception of the foreign influences. There are two under-currents of this tradition Rationalism and Idealism. Empirical philosophy is basically based on observation and experience. All the philosophers both rationalists and idealists tried to prove their points in their own way. Therefore they are all distinct in themselves. In order to be aware of their views we have to go back to the history of Empirical philosophy.

The theory of rationalism started with Thomas Hobbes during the closing years of the seventeenth century. This theory was based on reason; that is to say in this theory a reasonable explanation of the things was given. Before the rationalistic forces came into existence the Renaissance art put emphasis on writing poems with one's heart. The Renaissance people adhered to the divine analogy - that is, nature is the manifestation of the divine. They could easily link up the macrocosm with microcosm, but under the influence of rationalistic views it was not possible. Therefore it has been said that the poetry between the Renaissance and the Romantic movement is an effort to mend the divorce of head and heart, and this divorce was caused by breaking up of the Renaissance culture under the rationalistic influences which followed the Renaissance. Hobbes was the first person who in the first and second chapters of *Leviathan* stated the simple epistemological grounds of his rationalistic view of the world. He says :

The cause of Sense, is the External Body or Object, which presseth the organ proper to each sense, either immediately as in the Taste and Touch; or immediately, as in Seeing, Hearing and Smelling.....All which qualities called Sensible are in the object that causeth them but so many several motions of the matter, by which it presseth our organs diversely.

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Neither in us that are pressed, are they anything else, but divers motionBut their appearance to us is Fancy, the same waking, that dreaming.....sense in all cases, in nothing else but original fancy.¹

What is then imagination? Hobbes says :

.....after the object is removed, or the eye shut, we still retain an image of the thing seen, though more obscure than when we see it, And this is it, the Latines call Imagination, from the image made in seeing; and apply the same, though improperly, to all the other senses. But the Greeks call it Fancy.....Imagination therefore is nothing but decaying sense; and is found in men, and many other living creatures, as well as sleeping as waking.²

Hobbes concludes :

.....when we would express the decay and signifie that the sense is fading old and past, it is called Memory. So that Imagination and Memory are but one thing, which for divers considerations hath divers names.³

Thus, Hobbes' ideal is based on the theory of sensation. According to him imagination should not cross the bounds of sense impressions. He feels that sensations and ideas are bound up with physical causes. Hence the moment poetry breaks loose from its physical basis, it loses its reason and becomes indiscriminate.

In the beginning of eighteenth century John Locke furthered Hobbes' sensationalism and gave a new dimension to it. Locke published his *Essay Concerning Human Understanding* in 1690. Whitehead calls him "one of the great minds who laid the foundations of our modern mentality."⁴ He borrowed his philosophical views from Aristotle and Plato. However, he furthered Hobbes' sensationalism by distinguishing primary qualities of our sensory experience from its secondary qualities. Professor Abrams finds an interesting aspect in Locke's or Hobbes' doctrine. Implicitly, he says, "Locke gave the mind a partnership in sense perception"⁵, something which Hobbes denied. Some ideas, according to Locke, are 'resemblances' of primary qualities which "are in the things themselves" but secondary qualities (colour, taste, sound, smell) have no resemblances in the external world. It is easy to see in his dualism the seeds of the theory of creative imagination.

There is much in Locke which persists in Wordsworth and Coleridge. Critics like Arthur Beatty are not willing to see Wordsworth outside the Lockean tradition. But in fact there is much more in Wordsworth which directly contradicts the Lockean tradition. Coleridge, on the authority of German metaphysicians, rejects not only Locke but also Hartley whose influence is so dominant in Wordsworth.

The Lockean theory of association, derived originally from the Hobbesian premise, was later on fully developed by Hume and Hartley. With their emergence the theory covers the whole range of human knowledge, not merely an accidental way of connecting things but the fundamental theory of connections. The specialty of this new tradition was that the earlier limitations of the Lockean theory were finally removed and certain errors were corrected. Hume based his theory on certain Aristotelian suggestions. He said :

The qualities, from which this association arises and by which the mind is after this manner conveyed from one idea to another, are three viz Resemblance, Contiguity in time or place and Cause and effect.⁶

This theory of association had a Newtonian foundation. His theory of ideas has a parallel in Newton's theory of the particles of matter. Newton's law of gravitation becomes in Hume the law of association. The simple Lockean sensations and reflections become complex impressions and ideas. On this solid foundation Hume evolved a new philosophic method.

After Hume came Hartley who developed the psychological suggestions of Hume more logically and scientifically. He had a tremendous knowledge of human mind which inspired first Coleridge and later on James Mill. Hartley

"set out to demonstrate rigorously that all the complex contents and processes of mind are derived from the elements of simple sensations, combined by the single blink of contiguity in original

experience.....In Hartley's system of psycho... physiological parallelism, the association of ideas frankly becomes the introspective co-relate to the operations of the mechanical laws of notion in the nervous system."⁷

The new theory of association propounded by Hume and Hartley has been praised by Wimsatt and Brooks. They observe :

The new concept of 'association' the Humean and Hartleyan in effect washed out the earlier Lockean kind of association by making it no different from any other connection between things. If fire and cooking, heart and blood, sunlight and leaves are only associations, then association in the sense of a kind of accidentally pertinacious cohesion of ideas is no longer distinguishable. By the submission of a special into a more generic sense, a distinction has been levelled off, a certain flattening of experience and vocabulary has been at least attempted.⁸

However, the theory of association as it developed in the eighteenth century had two different axes - association as accidental connections and the principle behind such connections. Throughout the eighteenth century the theory moves between these two axes of the same theory. In any case, the theory was commonly discussed subject in learned circles and affected not only art and literature but also theology and metaphysics.

The whole theory of association as it developed in the eighteenth century was, in spite of its occasional lapses, essentially rationalistic in its origins and developed, for the most part, along rationalistic lines. Even Pope, the unchallenged master of his time was the product of rationalism. However, nothing purely rationalistic was ever accepted without raising a violent controversy. Therefore Pope had to face the controversy. The fact is that he indulged in petty sort of character assassination which did not suggest the mute acceptance of rationalistic philosophy.

The tenets of rationalism never remained unchallenged. Certain tendencies, call them what you may, associated with the idea of that word of the eighteenth century - 'enthusiasm' - always lurked behind Augustan placidity. Basically enthusiasm was anti-rationalistic in its essence, but certainly it did not belong to romanticism, though much nearer to it.

The strain of enthusiasm can be felt in the idealism of Berkeley, Shaftesbury and in those thinkers who were more or less influenced by the naturalism of Rousseau. This idealism was a sort of revival of certain aspects of the Renaissance culture, particularly in its Platonic overtones. The vogue of Plato once more, allied at a later date with German transcendentalism, fully explains the English Romanticism of the early nineteenth century, at least in poetry, if not in criticism.

The history of the eighteenth century 'romanticism' must be traced particularly from the point of view of its Platonic slant, whether or not derived directly from Plato. Even Blake's Swedenborgianism is a mystical aspect of the Platonic philosophy. Blake's importance lies in the fact that he challenges the rationalistic fervour of Lockean philosophy. Besides Blake, the origins of new idealistic philosophy may be traced in such philosophers as Berkeley and Shaftesbury.

Berkeley, against the Lockean tradition, proclaims the absolute supremacy of the mind over the phenomenal world. The Lockean dichotomy of mind and matter is dismissed as a fallacy. The ideas are the things and *vice-versa*. The mind is the creator of the phenomena. The phenomenal world, irrespective of the mind, does not exist. Thus Berkeley's idealism is the theory of ideals, denying the existence of matter. His proofs are grounded in metaphysics and not in rationalism. He thus enunciates a new theory of vision on the basis of which he writes his treatise on the *Principles of Human Knowledge*. He repulsed from the mechanic phases of association-theory because it was, to his mind, not only lopsided but also essentially erroneous. The physical world on which sensations depend can not be used to explain the complex working of the human mind. Thus in Berkeley, as Wimsatt and Brooks point out, "overnight sensationalism was inverted into idealism."⁹ However the 'converted' world be perhaps

more appropriate than 'inverted'. The metaphysical rallying points of Berkeley move towards a kind of mystical pantheism. On his part, there is, to be sure, a conscious attempt to avoid the irrational, but the spirit of a distant future age somehow enters into his personality. The proof may be found in his *Siris*, containing metaphysical dialogues. Berkeley's claim that we see God exactly as we see men added a new dimension to the eighteenth century knowledge of the human mind. Berkeley's idealism puts it thus :

It is plain that we do not see a man - if by man is meant that which lives, moves, perceives and thinks as we do-but only such a collection of ideas as directs us to think there is a distinct principle of thought and motion, like to ourselves accompanying and repressed by it. And after the same manner we see God : all the difference is that, whereas one finite and narrow assemblage of ideas denotes a particular human mind, whither so-ever we direct our view, we do at all times see manifest tokens of the divinity everything we see, hear, feel or otherwise perceive by sense, leaving a sign or effect of the power of God; as in our perception of those very notions which are produced by men.¹⁰

This passage can safely be used to prove the fact that Wordsworth also bears the influence of Berkeley. Like Berkeley, he also believes in the existence of God in the external world of nature. Berkeley conceived his ideas regarding the "immaterial hypothesis" long before it actually came to be known much later. He influenced the whole European thought is undeniable. Berkeley in a way improved Lockean theory of sensation. Locke discovered the physical basis of abstract ideas but could not defend the claims of this physical basis. Berkeley solved the problem by denying distinction between things and ideas. The ideas are the things. Thus Berkeley's influence in preparing the ground for nineteenth century romanticism is undeniable. He prepared England to receive Rousseau's revolutionary ideas. But in certain respects, even more than Berkeley, it was Shaftesbury who "announces Rousseau"¹¹ His *Characteristics of Men, Manners, Opinions Times (1711)* is a vigorous defense of enthusiasm, harmony and sublimity in life as well as in arts. His "spiritual idealism and his analysis of social manners remarkably anticipated Rousseau's passionate indictment of the social order"¹². Much he learnt from Locke but much more he reacted against him. He evolved, on the basis of Lockean principles, a moral-sense-theory which has an aesthetic interest, for he lays emphasis not on reason but on imagination. Wordsworth really admired him. It is for this reason that many of his poems echo Shaftesburian voice.

Rader thinks that Wordsworth's 'inward eye' is an echo of Shaftesbury's "moral sense"¹³ Shaftesbury's contention that "the mind has its own eye and ear"¹⁴ can explain Wordsworth's habit of reading a spiritual meaning in his sensuous perceptions much more clearly than Hartley's associationism. Shaftesbury's insistence on the unity of the universe has its likeness in Wordsworth. In the second chapter of his *Characteristics* he declares :

All things in this world are united. For as the branch is united with the tree so is the tree as immediately with the earth, air and water, which feed it Thus in contemplating all on earth we must of necessity view all in one, as holding to one common stock.¹⁵

This sense of oneness and unity is clearly Platonic. It was through the Platonic that the English mind received foreign ideas. In this context Shaftesbury's significance can hardly be dismissed.

Thus under the native influences the impact of empirical tradition both rationalistic and idealistic cannot be denied

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⁸WIMSATT & BROOKS, *Ibid*, PP. 301-302.

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¹²TUUESON, *Ibid*, P. 275.

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¹⁵SHAFTESBURY, *Ibid*, P. 287.

PORTRAYAL OF CHILD CHARACTERS IN THE NOVELS OF CHARLES DICKENS: A CRITICAL STUDY

DR. RITU PANDEY*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Ritu Pandey* the author of the research paper entitled PORTRAYAL OF CHILD CHARACTERS IN THE NOVELS OF CHARLES DICKENS: A CRITICAL STUDY declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Charles Dickens embarked upon the writing career as he was acutely and honorably conscious of “the condition of England question”. He endeavoured to expose the cruelties and grim realities of the contemporary society. His works served as an eye-opener for many, those who saw only the greener side of the Victorian society. . . . Dickens devoted considerable space to the exposure of oppression and injustice. Yet, living in the age of melodrama, he sometimes introduced ‘lesser’ figures who inhabit the dim greenish light of melodramatic gloom and never enter the real world. The common charge of sentimentalism and pathos affects a very small quantity of Dickens’s work and we can safely dismiss these ‘excesses’. The writer’s sincerity and sensitivity that strike us as ‘mawkish’ was certainly appreciated by our forebears.

A work of art may contain a ‘body of thought’ but it is not mandatory. The primary requirement for art to survive is ‘a spirit of life’. There is almost no mention or indication of inhibition or introversion or perversion. In Dickens, we find an unusual combination of humour and pathos, the streak of seriousness and an accompanying endeavour to appease ‘popular’ sentiments. At all times, Dickens’s child characters exude an extraordinary gift for hope. Despite the squalor and grim reality reveal a heightened sensitivity to the promises of life.

The purpose of Dickens was to expose the flaws of the system. Alongwith bookish education children need cultivation of human imagination, feelings and affections. Being devoid of these natural instincts they fail to develop a good personality. Thus, we see Charles Dickens was a writer with a purpose. The cruelties of the world were apparent to him and he wanted to remove them. Being a close observer and a very imaginative person, he was able to portray a realistic picture of the Victorian Society against the

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backdrop of his own experiences. Numerous incidents and characters in his novels are based on the real experiences and people.

Dickens's novels mainly belonged to the humanitarian movement of the Victorian era. The age was struck between the two worlds. With the progress of science and the old faiths were shaken and new ones yet to be established. There was a constant conflict between reason and faith. While most of the Victorian writers were pessimistic, Charles Dickens was optimistic in his perspective. He was a writer of high spirits and therefore successful.

If one tries to comprehend the essence of a writer's vision as portrayed in his works, it is essential to understand his emotional complexities and personality. The writers are considered as extremely sensitive and no matter how hard one tries they unintentionally depict their surrounding conditions and internal complexities. Authors use their keen observation and experiences in formulating the piece of work. They draw the characters from the people they have known in real life. Charles Dickens, used his writing as a mode of self-expression and targeted the drawbacks of the contemporary Victorian society.

The distress and anguish he underwent caused great trauma to the young child, which lasted long in his life. The agony of the heart-rending experiences stayed with him forever and even after gaining success in life he could not dissociate himself from them.

Dickens's education was disrupted due to regular deterioration of his father's financial condition. The crisis was at its peak when John Dickens was sent to Marshalsea Debtor's Prison. The unbending rigidities of the Victorian society, enforced upon the common man, pushed the debtors and their family in the prison. Young Charles, 11 years old, was sent to work in Warren's Blacking Warehouse. The Industrialized society did not spare even children from entrapping them, they easily fell prey to the ill practice of child-labour. Dickens worked in the factory from morning to night nearly eight to ten hours a day for just six or seven shillings-a week.

He suffered while working but the biggest irony of his fate was that those who were instrumental in shattering his world remained indifferent. His sufferings were beyond the imagination of people around him. The trauma of neglect from parents and his shattered dreams filled the days of Dickens with disgust and gloom. He could foresee the roads to success coming to an end. Hopelessness engulfed young Dickens and the saddest part was there was no ray of hope at this point.

Dickens's Journalism which primarily comprised of reporting of Parliamentary debates, coverage of election campaign, for which he traveled across Britain, for the *Morning Chronicle*. Later his collection of journalism formed his first independent work, *Sketches by Boz*. Boz was the nick name which was adopted by Dickens. From here there was no looking back for Dickens. Charles Dickens could never dissociate himself from the remembrances of the heart-rending experiences of his childhood.

Dickens began his career as political journalist therefore used his novels to examine the problems he saw in the society. The early novels of Dickens were an attack on the harsh Victorian society. He portrayed a realistic picture of the brutalities prevalent during the era. The later novels on the other hand were subjective in tone. Even though Dickens's own experiences provided the necessary information for the plots of his works, yet the two most autobiographical novels are *David Copperfield* and *Great Expectations*.

Although all his books contain some elements of Dickens's own life, *David Copperfield* is considered the most autobiographical of all. Dickens recreated his own childhood in parts and presented a story whose central character not only symbolized his own conflicts and traumas, but made a moving commentary on the ill-practices of his time. The child characters of Dickens have at all times, been presented with warmth and compassion but David remains "Special".

The Victorian era was an age of rapid flux and baffling complexity. It was an age of faith and an age of doubt; an age of morality and of hypocrisy, of prosperity and poverty; of idealism and materialism, of

progress and decline, of splendor and squalor. It was a solemn age yet it produced more humorous writers than any other single period: it was advanced in intellect yet immature in emotion. And though as an historical period it lasted for more than sixty years, disintegrating forces were in action forty years or more in advance of Queen Victoria's death in 1901. The literature of the age reflects this complexity and is also influenced by it.

The rapid development of physical science in the Victorian age transformed the material environment of the people and both directly as well as indirectly made itself felt in the literature of the age. The age witnessed a great outpouring of scientific literature.

The development of science, naturally enough, led the people of the age to adopt a materialistic creed. In spite of the desperate efforts of some intellectuals to reconcile religion and morality with science, the two drifted inevitably apart. Materialism and commercialism led the people to hectic activity and restlessness. The rising wave of materialism which came in the wake of the development of science dismayed a number of sensitive writers such as Carlyle, Arnold and Ruskin, who directed their strokes at the very foundation of Victorian materialistic values, making readers aware of the higher values of life, rejecting the cult of Mammon-worship. The function of literature remains incomplete unless it makes the reader aware.

In *Hard Times* Charles Dickens gives a vivid description of Coketown (fictional name) an industrialized town. It represented the mechanical world of factories of the nineteenth century. Industrialization can be defined as the transformation of agricultural society into an industrial one. Pre-industrialized society was primarily dependent on agriculture. Advent of new technologies and scientific inventions gave a boost to farming. In the eighteenth and nineteenth centuries there was a massive growth in agricultural productivity in Britain. The new mechanized farming enabled a single peasant to do the work of numerous workers. The arable land being limited could not support the increased numbers of workers who became jobless and redundant. The railroads encouraged industrial growth in Europe as the transportation became faster than before. More and more farmers were allured by the better payments made to their industrial counterparts Agriculture no more remained the prime occupation of people.

The worst consequence of uneven and unplanned industrial development was 'child labour', Children being the weakest and most vulnerable were targets of the fast advancing world. Children are representatives of innocence were misused by factory owners to satisfy their greed and lust. Children were the prey to the ambitions of the rich business class as they could not put up resistance against their selfish motives. They were available from the orphanages, workhouses and a good number were sent by their guardians, to combat the cost of living, which was very high and ascended with the passing years. Labourers were forced to send their wives and children to work, since single wage-earner found making both ends meet very difficult.

The rich upper classes of Victorian society remained unaware of the ordeals of the poor and were often responsible for it as well. Along with the basic facilities the poor were deprived of humane treatment that involved the qualities of emotion, affection, compassion. They desperately needed attention which was rarely, or rather never provided. Human relationships were contaminated by economic statistics. Family life was often indirectly affected by altercations/arguments which grew from strife in Trade Union, an outcome of industrial development.

Dickens's famous attack on the Yorkshire schools in *Nicholas Nickleby* includes similar arguments, resonating with and participating in such wider discussions about the appropriate personal as well as practical care of children, both in institutions and in the family.

Industrialization not only changed the social structure but caused considerable damage to the mindset of people. Their priorities of life changed completely. Materialistic pleasure started taking the place of

emotions and spirituality. The Industrial Revolution had also upset the old concepts of life and combined or extended family. Nuclear families came into existence. The workers being unable to support a big family preferred staying with wife and children. The breakdown of old values added misery as dignity and sharing was replaced with practical self-centered behaviour.

The *Hard Times* emphasizes on the essentiality of imagination in the education of children. Fact is not the 'be all and end all' for an individual. The spiritual and emotional longings of nature should never be neglected or suppressed. The philosophy of the Victorian age was utilitarianism, which deprived children of a healthy atmosphere. The education was based on facts and only facts.

In certain aspects, *Hard Times* and *Great Expectations* are similar. In both the underclass have been exploited. London life changed Pip and made him a snob, full of contempt for poor people and humble background. He was always provided with love and affection by Joe, his sister's husband, but Pip's transformation from a village boy of smithy to a Londoner made him look down upon his former friends and well-wishers. The urban setting and the materialistic behaviour of the metropolis contaminated Pip's soul and bred ingratitude and arrogance.

Since religious zeal suffered a great setback, ethical principles had no place in 'fast-growing' modern society. The acceptance of Utilitarian philosophy spread negativity as it largely depended upon 'facts.' The attitude of the followers of this order was devoid of sentiment and empathy. For them morality meant taking up causes inspired by self-love and making the most out of each deed.

Children learn what they see around them. Environment at school, home and society teach them their basic lessons about life. An age which was marked by religious turmoil saw at its wake children with disturbed minds. Snobbery and self-acclaim had become the order of the day. Young hearts and minds were exposed to the mercenary attitude which encroached upon human kindness and morality. Children frequently imbibe morality, aesthetic values by reading fairy-tales, literature and also by listening to religious stories. The utilitarian method of teaching deprived children from the pleasure one gets from reading, and setting the mind free for imagination.

Child is the conventional representative that pristine state which disapproves the greed, lust, affectation of the world of money, made and benefited by the adult. Children being the weakest section of the society fail to cast any influence on the adult world, and therefore become victims. They get suppressed in the constant conflict between the world of love and world of money.

Child Abuse and *Social Crime* are inter-related as the former is the consequence of the latter. Society is largely responsible for the condition of its members. In the nineteenth century industrialization and progress, the conflict between money and love eventually took its toll on the welfare of children. The situation was grim, particularly for those who were orphan, poor, destitute and downtrodden.

Charles Dickens exposed numerous social drawbacks in his novels. *Oliver Twist* is regarded as a Victorian Era text book of Child Abuse. As the novel progresses the drawbacks, of the workhouses and the underworld of the nineteenth century Victorian society, are exposed. The child protagonist experienced an extremely harsh life under very difficult conditions until he finally found a benefactor, (who later adopts him). Right from the time of his birth Oliver Twist encountered starvation, suppression, corruption and violence.

The harsh Victorian society inflicted immense pressure upon the waifs, which eventually converted the young boys into juvenile delinquents. Survival is the biggest challenge which the outcasts of the society faced. The poor, orphans, destitute and such outcasts of the society were treated with contempt and their anguish was heartlessly disregarded as 'trivial'. They were not just left alone to face their destiny rather taken into so called shelter homes and workhouses and treated inhumanly. The waifs and abandoned souls were not granted freedom or space. Often they were caught up between two evils —

freedom and starvation on the one hand and confinement and meagre ration on the other. In the dark world of Victorian society, survival became, thus, more and more difficult. Gaining a position was quite a distant dream as the basic question was meeting the two ends. The abuse inflicted upon the outcasts was of several kinds and extremely intense. Disowned by society, looked down upon by their well-off counterparts, unloved, uncared and ill-treated, the outcasts had to endure the emotional trauma and the challenge to survive. Oliver encountered hardships quite early in life but his inherent courage inspired him, rather, protected him through every adversity.

Nancy is one character in *Oliver Twist* which is capable of being both good and evil. Her character is quite prominent in the novel and yet is not drawn elaborately. Through her character, Dickens paints a realistic picture of the consequence of 'Child Abuse' prevalent during his age. Nancy's moral lapses are in direct contrast to the abiding purity and goodness of Nell (*The Old Curiosity Shop*) yet both girls are presented as unfortunate victims of social discrimination— on account of their gender, and on account of their vulnerability Nell's virtuous, painful and lonely path to the grave is no less an indictment of the insensitive nineteenth century than Nancy's wilful plunge to her fate. Both women are victims, both deserve the readers' empathy and both are attempts (on the part of Dickens) to jolt the (philanthropist and utterly *unimaginative*) upper class out of their complacency.

Dickens was a towering figure who dominated English literature for forty years. Andy Ford looks at the early life and times of the celebrated British author and discloses that Dickens's impact was keenly felt by European and American writers. Special impact of Dickens's works can be seen in the novels of Nikolai Gogol, Fyodor Dostoevsky, Leo Tolstoy, and in the films of Sergei Eisenstein. Dickens influenced a benevolent process of reform and his legacy has been claimed by many.

On the other hand, Dickens felt anger and despair at the callous indifference of the official body. Thus, while the readers were being increasingly sensitized to the grim realities, Dickens suffered anguish at the virtual inaction of the state. The sale of pauper boys as chimney sweeps was finally banned in 1875, nearly five years after the novelist's death. Dickens's works are depiction of the precarious existence of the unfortunate and destitute — workhouse, child abuse, persons, bureaucratic incompetence of the state, the cold inhumanity of factory owners — the list seems endless, unerringly sketching the working class and their constant, desperate battle.

Dickens explores the mindless chase after wealth and the accompanying insensitivity of individuals who hold important position in society (Victorian England). His novels portray the rich who are distorted and stultified by their love of money. The emotional deadness of Miss Havisham (*Great Expectation*) Mr. Dombey (*Dombey and Son*), Lady Deadlock (*Bleak House*) and Scrooge (*A Christmas Carol*) are unflattering eye-openers. Generally regarded as the greatest English novelist, Charles Dickens was fortunate to enjoy celebrity status during his lifetime. His works covered a variety of events, some epoch making, others related to simple, every-day life. Consequently his novels could appeal to the simple and sophisticated and the readers empathized with his characters. Although there was fluctuations in the 'acclaim' of his novels among his reading public, none of Dickens' works were disregarded.

Thus, Charles Dickens was not only one of the great urban novelists in England, but also an important social commentator who used fiction effectively to criticize economic, social, and moral abuses in the Victorian Era. He showed compassion and empathy towards the vulnerable disadvantaged section of the society, and contributed to various important social reforms. Although his fiction was not politically subversive, he sought to remedy acute social abuses. His novels held up a mirror to the Victorian bourgeoisie and showed to the world the brutal realities of their flawed system.

Dickens's works were spun around social issues, — issues which caused intolerable pain to its victims. However, though he dealt with serious issues, yet his novels were devoid of pessimistic tone,

and they impart a lesson to the readers and evokes thoughtfulness and sympathy of the common man. He believed in the ethical and political potential of literature, on the novel in particular, and he treated his fiction as a springboard social analysis, and thus Dickens became an outspoken critic of unjust economic and social conditions. His deeply-felt social commentaries helped in raising the collective awareness of the reading-public. Dickens contributed significantly to the emergence of public opinion which was gaining an increasing influence on the decisions of the authorities.

In Dickens's works Dostoevsky found the idea about what Dickens in *Hard Times* (1854) described as the "wisdom of the heart" (the so-called "principal mind"), and leads to a spiritual resurrection for those characters such as Thomas Gradgrind and Ebenezer Scrooge (*A Christmas Carol*), whose callous hearts and hard souls are softened by the influence of love and compassion. The attitude both writers express towards the social issues of crime and punishment is an important indicator of a socio-cultural consciousness they shared.

The destruction of the moral aspect of the personality wrought by guilt, and the perpetration of criminal acts, particularly murder, are frequent subjects in Dostoevsky's and in Dickens's later novels. Dickens's presentation of the criminal psychology in his revelation of Headstone's (*Our Mutual Friend*) thoughts resembles Dostoevsky's presentation on Rasholnikor (*Crime and Punishment*).

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SILENCE AT THE HEART OF THE DOME : AN UNDERSTANDING OF MRS RAMSAY IN TO THE LIGHT HOUSE

DR. GOPA BHATTACHARYYA*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Gopa Bhattacharyya* the author of the research paper entitled SILENCE AT THE HEART OF THE DOME : AN UNDERSTANDING OF MRS RAMSAY IN TO THE LIGHT HOUSE declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

“Often nothing tangible remains of a woman’s day. The/ food that has been cooked is eaten; the children that/ have been nursed have gone out into the world. Where does the accent fall? What is the salient point/ for the novelist to seize upon? It is difficult to say .Her/ life has an anonymous character which is baffling and/ puzzling in the extreme.”¹

Terence Hewet in *The Voyage Out* avers to his fiancée Rachel, his desire to write a novel on silence.² Since conjectures cannot lead one anywhere, it is useless to think whether Terence would have used Rachel as his premise. Silence however is common to women and culturally induced, “ Let the woman learn in silence and in all subjection”³ were maxims that had to be internalized by women as Virginia Woolf’s untiring analysis in her different essays on women reveal. What was uncommon was its portrayal in fiction as the manifestations of women’s marginality and repression as well as its source of strength. “ The garrulous sex, against common repute, is not the female but the male”⁴ far from being a facetious remark strikingly relates to her own need to represent the reality of “silence” that marks women’s appearances and lends an aura of enigma to Mrs. Ramsay as much as to Mrs Brown who in “Mr Bennet and Mrs Brown” foregrounds Woolf’s concern with the treatment of silence and the artistic but faithful presentation of reality in the novels. Virginia Woolf elaborates in *A Room of One’s Own* the difference of value that constructs women’s thoughts and hence its consequences on women’s writing :

But it is obvious that the values of women differ very/ often from the values which have been made by the/ other sex; naturally, this is so. Yet it is the masculine/ values that prevail. Speaking crudely, football and/ sport are ‘important’; the worship of fashion, the/ buying of clothes ‘trivial’. And these values are/ inevitably transferred from life to

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fiction. This is an important book, the critic assumes, because it deals with war. This is an insignificant book because it deals with the feelings of women in a drawing – room. A scene in a battlefield is more important than a scene in a shop – everywhere and much more subtly the difference of value persists.⁵

Subverting this ongoing trend in fiction writing and in criticism, for, “everything is the proper stuff of fiction,”⁶ Woolf attempts to concentrate on the “minutiae of the mind”,⁷ especially on the thoughts and sensibilities of woman inhabiting her little space in a world that is largely populated by men.

To the Lighthouse generally regarded as Virginia Woolf’s masterpieces has at the heart of the novel a middle aged upper-middle class lady who performs the pivotal role of knitting together with candour and sentimentality the family ties along with its close circuit of friends. She is in many ways a typical representative of her time, sheltering within her encompassment with love, affection, goodwill, charm and complete self-effacement, the lives of other people. A wedge shaped core of darkness in what Lily sees when she tries to paint Mrs. Ramsay with her brush: a wedge, like a roof, a shelter, the crest of a wave, and finally the shape of a dome:” an august shape’.⁸ In fact, in *To the Lighthouse*, with Mrs. Ramsay’s death, the cohesiveness of the family loosens, and only her memory brings to connectivity the various strands of life’s meaningful purportiveness in the minds of Lily, Mr. Ramsay and Mr. Carmichael.

Point of view plays a very important role in the novel. The insights provided by the narrator is the most important point of view but equally important are the multiple points of view provided by the other characters in the novel, but while Mrs. Ramsay is greatly commented upon, she speaks very little, and seldom about herself. Silence and incommunicability is emphasized in *To the Lighthouse* where repression and silence go almost hand in hand. Self – expression and voice are given to Charles Tansely, who is always asserting, rather painfully asserting his ‘I’⁹, and to Mr. Ramsay when he craves for importance and attention.

To the Lighthouse is an exquisite example of Woolf’s attempt to capture in language that vast space of intangibility that comprises a woman’s life and her domestic career. Mrs. Ramsay is highly worried about the Baeuf in Daube, as if her entire worth depended upon the success of the dish that she would be serving her guests. Since the women have no part in the man’s world of meetings and lectures, domestic trifles takes the position of paramount importance in their lives. So immense is the pressure on her ministering faculties that Mrs. Ramsay fears lest her dinner is not a success.

This contrast between aridity and fecundity, man’s need to be replenished, and woman’s duty to replenish, the men ceaselessly demanding, and the women tirelessly pandering to their ego, is often brought out in *To the Lighthouse*, especially in the bitter thoughts and memories of James. The first part of the tripartite structured novel, brilliantly illustrates this instinctual power of Mrs. Ramsay who is shown to be rather unduly straining herself for the smooth sailing of her monumental family. Lily, in her moment of rapt admiration for Mrs. Ramsay wonders what secret chambers of wisdom are withheld in the unobtrusive and quiet person of Mrs. Ramsay. Mrs. Ramsay, a representative Victorian lady, does not contest for power, but in relinquishing her authority she makes herself more admirable in the minds of people like William Bankes and Lily Briscoe, who although they cannot understand her completely are awed by her inner sapience. Even Mr. Ramsay has never been able to penetrate into that inscrutable depth of her mind that lies beneath her sweet countenance. During her walk with Charles Tansely she tolerates his “ugly academic jargon” until she feels, or rather intuits that “he had got back entire self-confidence.”¹⁰

“Feminity is not the lack of mind, but its concealment”¹¹ says Rachel Bowlby discussing Woolf’s famous decapitation of the Victorian mother’s image of cherubic innocence. Mrs. Ramsay knows too the assumed role that she has to play but does not allow her mind to be infiltrated by anarchic thoughts of rights, equality and wisdom. Happily she keeps up and “knits”¹² the illusion of happiness and

contentment within her family. In her untiring service- stimulating, goading, invigorating her husband many a times falsely perhaps, in bringing up her children, lies her chief contribution to her family. Gently, unassumingly, she is always beside her husband, assuring him with her gestures, with her kind sympathetic words that he is a genius, that he is not a failure, and that he is a proud possessor of a large family, brimming with life. Mrs. Ramsay knows the limitations of her husband, she knows his agony at not being able to reach beyond Q. She tries to intervene when the talk at the dinner table moves towards the topic of lasting fame. More than anything, she feels exposed when people can see writ large on his face, the need for praise and stimulation that he openly expects from his wife. She has a hunch that people think her to be finer than her husband, while the truth she forcefully reminds herself, literally pushing back an obdurate consciousness that would like to break her delusion, that he is the finer of the two and she is not good enough even to tie his shoe strings. Even long after her death, James' memory of his mother is that of a receptacle brimming forth with energy and optimism, always inebriating his father in moments of frustration and aridity.

Mrs. Ramsay, does not ever bring to the surface those closed aspirations of her that she would have loved to pursue had she not been encumbered by the various roles that she has to play in the house. Yet unknown to herself she struggles against this anonymity, to procure some recognition, not everlasting fame, but some importance without crossing the bounds of patriarchal limits. That explains Mrs. Ramsay's unusual preoccupation with marriage, her wish to be permanently lodged in the memory of the Rayley's:

They would, she thought . . . come back to/ this night; this moon; this wind; this house:/ and to her too. It flattered her . . . to think/ how, wound about in their hearts, however/ long they lived she would be woven too.¹³

We can see the different shades of silence that subtly play in the novel. Mrs Ramsay is always silent. Lily Briscoe tries to defy the patriarchal law- makers by confidently giving her name to her creations on the canvas. The Ramsay daughters , unable to openly affront their mother's role pledge to themselves in silence of a life different from her , but it was only in silence. Although the novel ends with Lily Briscoe celebrating the beauty of Mrs Ramsay, in the abstract shape of a bright wedge, we are made to understand that repression has taken its toll on her happiness .The mother of eight children and the burden of running a big household left her with little time for herself, and it is only after her children had retired to their rooms that she could unwind the involute recesses of her mind, be alone with herself and think. In the privacy to her thoughts life seemed to take on a sinister bearing remorselessly contending to get the better of her: "she must admit that she felt this thing that she called life terrible, hostile, and quick to pounce on you if you gave it a chance".¹⁴ These thoughts of her were extremely private and while executing the daily affairs of life, doing acts of courtesy and being affable, she held a part of herself in reserve which was inaccessible to her children and her husband. When she is alone and withdrawn even Mr Ramsay is uneasy about her inscrutable self, but very quickly she stoops down to provide succour and enrich him. In her acts of giving she has established herself as a powerful women and in her death she fades away from the gaze of men who were always at the receiving end of her self-effaced mercy.

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NEED FOR NUMERICAL METHODS

MANOJ KR. AGNIHOTRI*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Manoj Kr. Agnihotri* the author of the research paper entitled NEED FOR NUMERICAL METHODS declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Numerical methods are methods for solving problems on (Large/Small) computers or on calculators (if problems is simple).

Numerical methods are very important tools to provide practical methods for calculating the solution of problems to applied mathematics to a desire degree of accuracy.

The aim of numerical methods is to provide efficient methods for obtaining numerical answers for such problem which can not be solved easily by ordinary analytic methods.

In solving problems related to every day life, numerical data used are usually approximate. The numbers which are being used, are true to two or three or more digits. Some times, the method used for computation are also approximate, therefore the error in computed result may be either due to the error in data (input) or the error in method used or both. In these case numerical methods provides us some basis ideas about concerning error and error analysis.

The rapid development of high-speed digital computers and the increasing desire for numerical answers to applied problems have led to enhanced demand in the courses dealing with the methods and techniques of numerical Analysis. Although numerical method have always been useful, their role in the present day scientific research is of fundamental importance.

Numerical methods are needed to solve following types of problems up to certain degree of a accuracy.

1. If $f(x)$ is an algebraic expression them algebraic formulae are available for lower degree only, But for higher degree of an expression confining transcendental functions, algebraic methods are not available. To solve such problems we use numerical methods – Bisection method, fixed point iteration method, Regular falsi method and Newton Repulsion methods etc.

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2. If one or more values of $f(x)$ exists corresponding to every value of x in the given range. We can compute the value/values of $f(x)$ corresponding to some given values of x . Inflect the calculus of finite differences deals with the changes in the value of function (dependent variable) due to change in the dependent variable.
3. The problem of numerical differentiation can be solved by use of suitable interpolating formula as Newton-Gregory's forward backward formula, Newton or Lagrange's divided difference formula, and Bessel's /sterling formula.
4. The numerical value of complicated definite integrals can be obtained by numerical methods (Trapezoidal rule, Simpson's $\frac{1}{3}$ and $\frac{3}{8}$ Rule & Weddle's rule).
5. By use of numerical methods numerical solution of ordinary differential equation numerical solution of system of equation Eigen value & eigen vector of matrices can be obtained easily.

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S.S. SASTRI; *Introduction methods of Numerical Analysis*

E-COMMERCE: VARIOUS FACTORS FOR FUTURE GROWTH

DR. MANORAMA*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Manorama* the author of the research paper entitled E-COMMERCE: VARIOUS FACTORS FOR FUTURE GROWTH declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Abstract

E-commerce is widely considered the buying and selling of products over the internet. E-commerce is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network without using any paper documents. This paper gives an overview of the future of E-Commerce in India and discusses the future growth segments in India's E-Commerce. Also find out various factors that would essential for future growth of Indian E-commerce.

Key Words: E-commerce, information and communications technology (ICT), E-tailing, International Data Corp (IDC).

Introduction

In the emerging global economy, e-commerce and e-business have increasingly become a necessary component of business strategy and a strong catalyst for economic development. The integration of information and communications technology (ICT) in business has revolutionized relationships within organizations and those between and among organizations and individuals. Specifically, the use of ICT in business has enhanced productivity, encouraged greater customer participation, and enabled mass customization, besides reducing costs. Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also pertains to “any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact

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Relevance of the study

In this paper my study focuses on an overview of the future of E-Commerce in India and most influential aspect of eCommerce in India. Also find out various things the eCommerce companies need to do to accelerate growth Indian E-commerce.

Objective of the Study

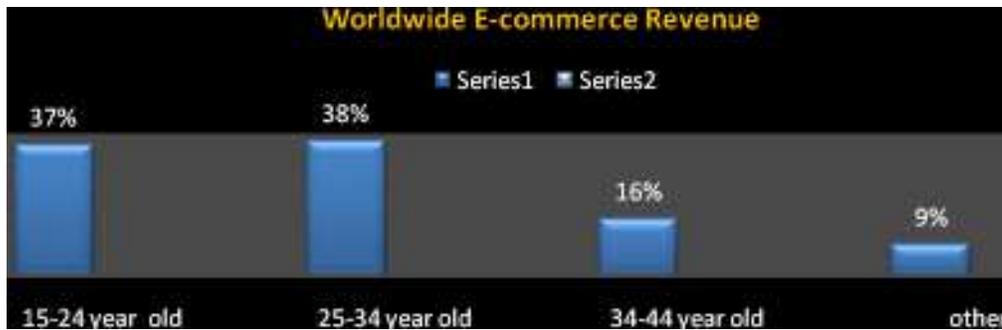
1. To study the benefits, challenges and success factors of e-commerce.
2. To study the growth trend and status of ecommerce in India.

Research Methodology; From the literature a theoretical framework was developed, following three tables describe the benefits, challenges and success factors as they relate to e-commerce.

Concept; Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also pertains to “any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact. E-commerce is usually associated with buying and selling over the Internet, or conducting any transaction involving the transfer of ownership or rights to use goods or services through a computer-mediated network.

Growth of E-commerce

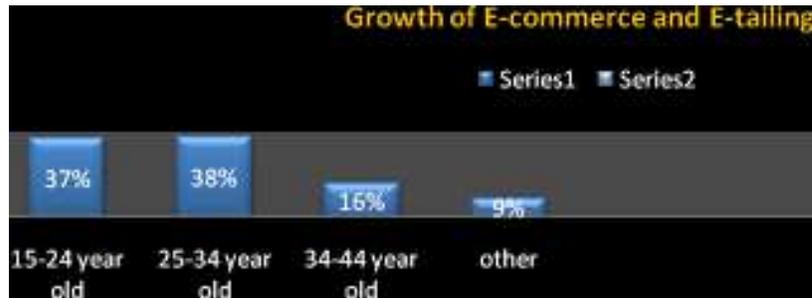
International Data Corp (IDC) estimates the value of global e-commerce in 2011 at US\$350.38 billion. This is projected to climb to as high as US\$3.14 trillion by 2015. IDC also predicts an increase in Asia’s percentage share in worldwide e-commerce revenue from 5% in 2011 to 10% in 2015.



Worldwide E-Commerce Revenue, 2011 to 2015(as a % share of each country/region)

The rapid growth of e-commerce in India: Over the last two decades, rising internet and mobile phone penetration has the way we communicate and do business. While in countries such as the US and China, e-commerce has taken significant strides to achieve sales of over 150 billion USD in revenue, the industry in India is, still at its infancy. However over the past few years, the sector has grown by almost 35% CAGR from 3.8 billion USD in 2009 to an estimated 12.6 billion USD in 2013. Industry studies that online travel dominates the e-commerce industry with an estimated 70% of the market share. However, e-retail in both its forms; online retail and market place, has become the fastest-growing segment, increasing its share from 10% in 2009 to an estimated 18% in 2013. Calculations based on industry benchmarks estimate that the number of parcel check-outs in e-commerce portals exceeded 100 million in 2013. However, this share represents a miniscule proportion (less than 1%) of India’s total retail market, but is poised for continued growth in the coming years. If this robust growth continues

over the next few years, the size of the e-retail industry is poised to be 10 to 20 billion USD by 2017-2020. This growth is expected to be led by increased consumer-led purchases in durables and electronics, apparels and accessories, besides traditional products such as books and audio-visuals.

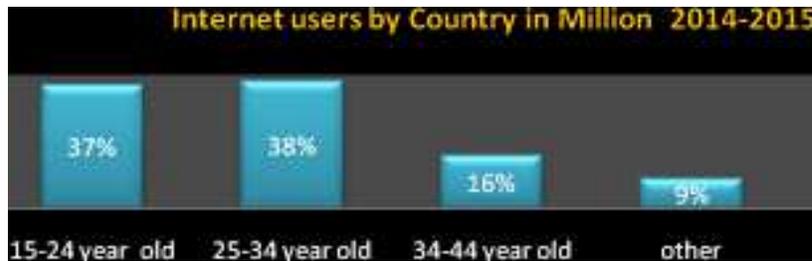


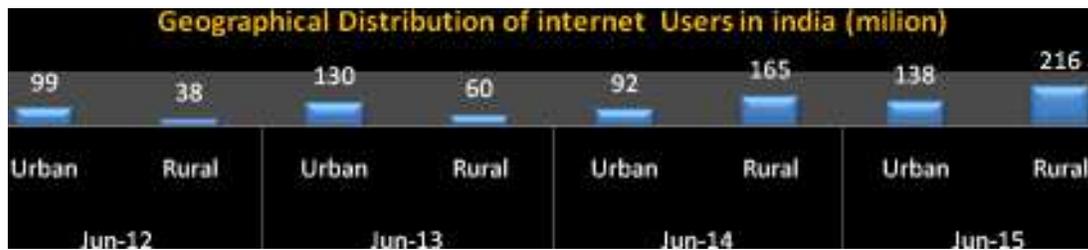
Benefits of E-commerce

The benefits of e-commerce identified from the current literature are classified in two main categories - tangible and intangible. The tangible benefits like business efficiency, increased automation process, transformation of traditional market chain, retained and expanded customer base, reduced operation costs and acquisition of a niche market. Intangible benefits like enhancing well being and education of customers, customers’ loyalty, competitive advantage and convenient shopping.

Factors that will fuel growth

A significantly low (19%) but fast-growing internet population of 243 million in 2014to 2015 is an indicator of the sector’s huge growth potential in India. Different factors are found in following charts.





It is evident that in absolute terms India's internet users are short by only 36 million as compared with 279 million in the US and higher than that in Japan, Brazil and Russia. However, in relation with its population, only 19% Indians use the internet. This indicates the potential of internet use in India and as internet penetration increases, the potential of growth for the eCommerce industry will also increase. An analysis of the demographic profile of internet users further testifies that eCommerce will rise rapidly in India in coming years. Around 75% of Indian internet users are in the age group of 15 to 34 years.

Challenges of E-commerce

E-commerce challenges identified from the literature are classified as - technological, managerial, and business related. The technological challenges include security, web site issues and issues including costs, software, infrastructure etc. The managerial challenges are related to people and organizational issues and obtaining senior management backing. The business challenges are customer service, customers' old habits and other legal issues.

Data Interpretation

To establish the figure number wise with internet users and penetration by population in various countries, demographic profile of India online users and geographical distribution of internet user. The percentage was computed.

Implications of the Study; For the study the complete information, data, true picture about e-commerce are not easily available.

Findings of the Study

The major benefits of e-commerce adoption not anticipated by the sector are business Efficiency, improved image, competitive advantage, increased automation of processes and increased business turnover. The key challenges identified for the sector are the costs of technology, the lack of knowledge of e-commerce, managing the change, budgeting and issues associated with linking back end systems.

Conclusion

With the development of computer technology, the World Wide Web has become the connection medium for the networked world. Computers from locations that are geographically dispersed can talk with each other through the Internet. As with any new technology, there are positives and negatives associated with its use and adoption. This study has identified and confirmed the key factors that the mobile, internet, and social media penetration growth can be quantified and describing the changes in social values and lifestyles that have accompanied those trends is far more challenging indicated important role in maximizing the potential of e-commerce.

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A STUDY ON RELATIONSHIP BETWEEN PARTITION AND AN EQUIVALENCE RELATION ON A SET

MANOJ KR. AGNIHOTRI*

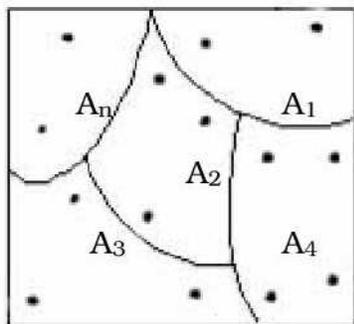
Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Manoj Kr. Agnihotri* the author of the research paper entitled A STUDY ON RELATIONSHIP BETWEEN PARTITION AND AN EQUIVALENCE RELATION ON A SET declare that, I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal, This research paper is my original work and no part of it or its similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Partition of a set:

If X is a non empty set then a set P of non empty subsets of X i.e. $P = \{A_1, A_2, \dots, A_n\}$ is called a partition of set X if

- i) $X = A_1 \cup A_2 \cup \dots \cup A_n$
- ii) A_1, A_2, \dots, A_n are pair wise disjoint.



Further if $X = \phi$ then $P = \{\phi\}$ is only the partition of set X .

In General, if X contains n elements then total no. of partition of set X is denoted by P_n and defined as

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$$P_n = \sum_{r=0}^{n-1} n_{c_r} P_r$$

In particular, if $X = \phi$ (i.e. $n = 0$) then

$$P_0 = 1 \quad [\{ \phi \} \text{ is only the partition of } X = \phi]$$

Again if $X = \{ a \}$ i.e. X is singleton set i.e. $n = 1$

$$\text{than } \boxed{P_1 = 1} \quad [\{ \{ a \} \} \text{ is only the partition of } X]$$

If $X = \{ a, b \}$ i.e. $n = 2$ then

$$\boxed{P_2 = 2} \quad [\{ \{ a \}, \{ b \} \} \& \{ \{ a, b \} \} \text{ are two partitions of } X]$$

if $X = \{ a, b, c \}$ i.e. $n = 3$ then

$$\boxed{P_3 = 5} \quad [\{ \{ a \}, \{ b \}, \{ c \} \}, \{ \{ a, b \}, \{ c \} \}, \{ \{ a, c \}, \{ b \} \} \\ \{ \{ b, c \}, \{ a \} \}, \{ \{ a, b, c \} \} \text{ are 5 partitions of set } X]$$

if $X = \{ a, b, c, d \}$ i.e. $n = 4$ then

$$\boxed{P_4 = 15}$$

$$\begin{aligned} \text{As } P_4 &= \sum_{r=0}^3 3_{c_r} P_r = 3_{c_0} P_0 + 3_{c_1} P_1 + 3_{c_2} P_2 + 3_{c_3} P_3 \\ &= (3_{c_0} \times 1) + (3_{c_1} \times 1) + (3_{c_2} \times 2) + (3_{c_3} \times 5) \\ &= 15 \end{aligned}$$

if $X = \{ a, b, c, d \}$ i.e. $n = 5$ then

$$\begin{aligned} P_5 &= \sum_{r=0}^4 4_{c_r} P_r = 4_{c_0} P_0 + 4_{c_1} P_1 + 4_{c_2} P_2 + 4_{c_3} P_3 + 4_{c_4} P_4 \\ &= 52 \end{aligned}$$

Equivalence relation on a set –

A relation R on set X is called equivalence if R is reflexive, symmetric and transitive.

Now it can be proved that

“An equivalence relation R on a non empty set X gives a partition of set X and conversely a partition of set X defines an equivalence relation on set X ”

For,

If R is an equivalence relation on set X

Then equivalence class of each element of set X can be made.

Let $\bar{a}_1, \bar{a}_2, \dots, \bar{a}_n$ be distinct equivalence classes of elements of X then $P = \{ \bar{a}_1, \bar{a}_2, \dots, \bar{a}_n \}$ will be a partition of X

Because

$$x \in [\bar{a}_1, \cup \bar{a}_2 \cup \dots \cup \bar{a}_n] \Leftrightarrow x \in \bar{a}_i \text{ for some } i$$

$$\Leftrightarrow x \in X \quad [\bar{a}_i \subseteq X]$$

$$\therefore X = \bar{a}_1, \cup \bar{a}_2 \cup \dots \cup \bar{a}_n$$

and $\bar{a}_1, \bar{a}_2, \dots, \bar{a}_n$ are distinct equivalence classes of elements of X so will be pairwise disjoint [being two equivalence classes are either identical or disjoint]

Thus P is a partition of set X .

Conversely if $P = \{ A_1, A_2, \dots, A_m \}$ is a partition of set X . Then $X = A_1 \cup A_2 \cup \dots \cup A_m$ and A_1, A_2, \dots, A_m are pairwise disjoint,

Now if R is a relation, defined on set X as $aRb \Leftrightarrow a, b \in A_i$ (for fixed i), $1 < i < m$ then R is reflexive

$$\forall a \in X, a \in (A_1 \cup A_2 \cup \dots \cup A_m)$$

$$\Rightarrow a \in A_i \text{ (For fix } i)$$

$$\Rightarrow aRa$$

R is symmetric –

$$aRb \Rightarrow a, b \in A_i$$

$$\Rightarrow b, a \in A_i$$

$$\Rightarrow bRa$$

R is Transitive – $aRb, bRa \Rightarrow a, b \in A_i$

$$\Rightarrow a, c \in A_i$$

$$\Rightarrow aRc$$

Hence R is an equivalence relation on set X

Thus a partition of set X , defines an equivalence relation set X .

So there is a faithful relation between a partition of set X and an equivalence relation on that set X .

CONCEPTUAL DEVELOPMENT OF BUFFER ZONE: ITS TYPES, IMPORTANCE, BENEFITS AND ADOPTED POLICIES IN NEPAL

NARAYAN PRASAD PAUDYAL*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Narayan Prasad Paudyal* the author of the research paper entitled CONCEPTUAL DEVELOPMENT OF BUFFER ZONE: ITS TYPES, IMPORTANCE, BENEFITS AND ADOPTED POLICIES IN NEPAL declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Abstract

This paper deals with the concept of theoretical and conceptual base of Buffer Zone. It is based on secondary information of data. A Buffer Zone is an area adjacent to a park area designed to give protection to the park and provide valuable benefits to local people. Protection of threatened species, resources, safe wildlife movement and access for local peoples are the main importance of Buffer Zone area. The Buffer Zone area covers 3.88 percent (5708.61 sq.km) and the conservation area including Buffer Zone covers 23.39 percent (34430.61 sq. km) of total geographical area of Nepal.

Key words : Buffer zone, conservation, core area, benefit, national park, importance

Historical Background

Many authors agree that the term Buffer Zone (BZ) was widely used with the Man and the Biosphere (MAB) program and the Biosphere Reserves (BRs) in the 1970s. UNESCO's MAB program launched the concept of BRs in 1976 by mid-2000, it included 368 reserves in 91 countries. The first 57 BRs designated in 1976 were selected mainly for their role in conservation. Through the years the criteria for selection has been shifting. During the first years BRs had similar objectives to those of National Parks and other Protected Areas designed with the main purpose of preserving biodiversity. Many of these BRs were, in fact, created in areas where National Parks already existed or the National Park was used as the Core Area of the BRs, which consisted generally of three concentric rings. The inner ring

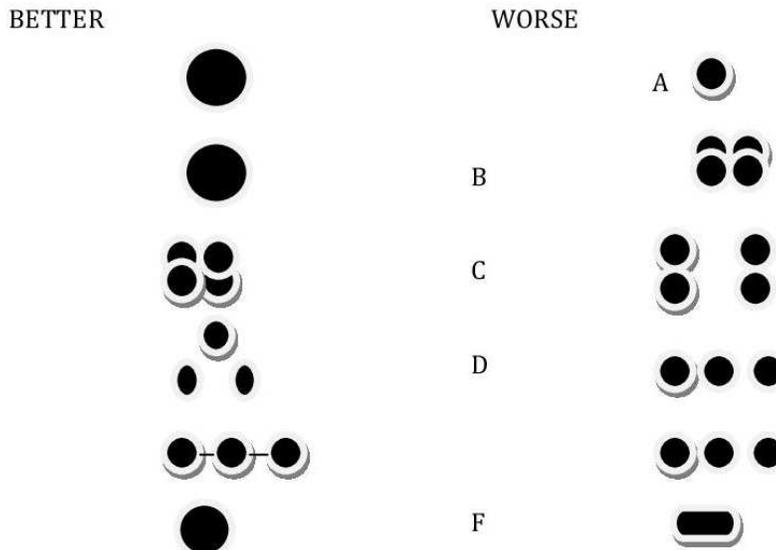
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was the Core Area, the second ring a Buffer Zone, and the third ring a Transition Zone. Shafer (1990) found that the need of Buffer Zones was being discussed in 1933 in the United States under the term 'Buffer Zone,' which by 1941 had become 'Buffer Zone' (Dewan, 2006).

The key feature of the Integrated Conservation and Development Projects (ICDPs) paradigm is that there is an indirect link between the habitats and the surrounding human populations. The ICDPs tried to focus efforts in the Buffer Zone Area or in an alternative income generating strategy in order to protect the interior natural areas. There are, however, a number of theoretical and practical problems with this model. First, it assumes that local people will not both plant their coffee or work in the shoe factory and still continue the internal threats such as hunting or expansion of farms that are harming biodiversity in the core reserve. Second, it has the problem of creating an incentive for expanding the Buffer Zones into the Core Area. For example, if I'm making money growing coffee in the Buffer Zone, I will probably expand my coffee garden at the expense of the forest. Finally, the model does not take into account external threats to the biodiversity. The problem may not be just the local people hunting or expanding their farms, but also a large logging company that is coming in to clear-cut the forest from the other side of the reserve. Unfortunately under the ICDPs model, there is no local constituency to monitor the development of these threats and take action on behalf of the forest (as cited in Dewan, 2006).

In the late 1980s, when these problems with ICDPs started to become more and more apparent, a third paradigm was developed where the key feature is that there was no longer an attempt to divide the landscape into areas for biodiversity and areas for humans only. Instead, conservations began to look at the entire landscape as an integrated whole. The goal here is to try to develop direct links between the biodiversity and the surrounding human populations. The theory is that if humans can directly benefit from biodiversity, they will then have the incentive to identify and take action against both internal and external threats to the biodiversity.

Fig. 1: Suggested Geometric Principles for the Design of Nature Reserves and Buffer Zones



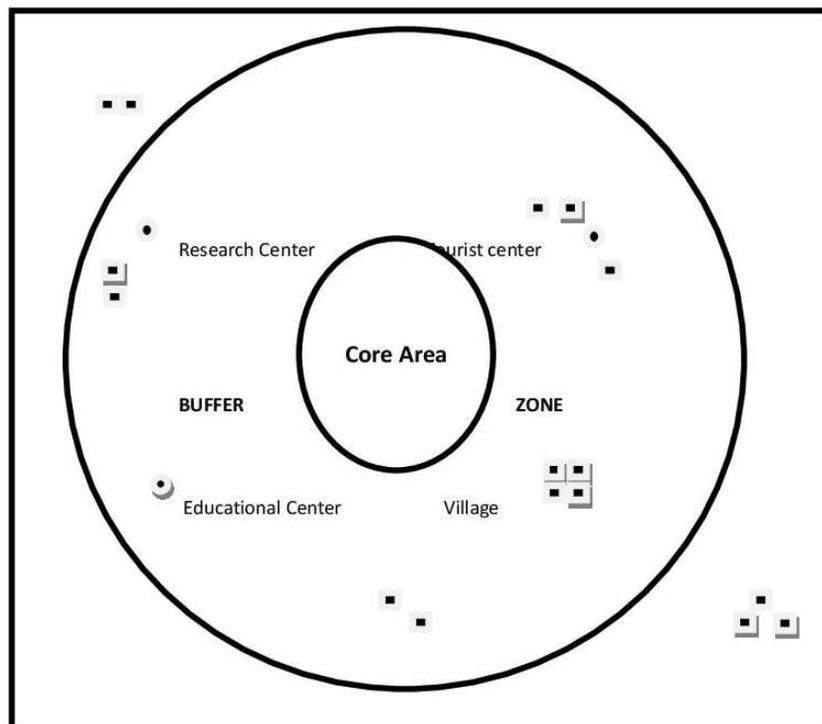
Source: Diamond (1975). *The island dilemma: Lesson of modern biogeographic studies for the design of natural reserves.*

The emergence of the concept of the Buffer Zone was not only a philosophical idea emerged through the long-term experiences with the need of time. The successful designation of a Buffer Zone requires

considerable theoretical and practical attention. The concept of “Island Biogeography” is presented by Diamond (1975) and is used often to design characteristics of nature reserve or Buffer Zone (Orsdol, 1987). The geometric principles for an area selection for nature reserve, a Buffer Zone or a protected area are shown in Figure 1.

- ▲ A large area is better than a small area. This is because the larger the area the larger the number of species and the lower the extinction rate. Similarly, a large area of Buffer Zone will produce a higher level of products and managing demand and supply is less likely to cause adverse effects in the ecosystem.
- ▲ A single large area is superior to several small areas to allow animals to migrate between habitats
- ▲ If a single large area is not available, many separated areas should be designed as close as possible to assist in wildlife movement and seed dispersal.
- ▲ The geometric arrangement of an area should enhance migration and movement between protected areas or Buffer Zones.
- ▲ Corridors should be maintained between Buffer Zones and connect major protected areas.
- ▲ Any area should be as nearly circular in shape to minimize the amount of edge effect which will limit the influence of external pressures.
- ▲ These principles are much more suitable where homogenous habitats exist in the region. The destination of areas for Buffer Zones needs to consider the biological, social and geographical aspects. The following diagram is an ideal schematic organization of Buffer Zones.

Fig. 2: Schematic Organization of Buffer Zones



Source: Orsdol (1987). Buffer Zone agro forestry in tropical forest region.

A Buffer Zone is a land area outside the boundaries of core area within which the sustainable use of natural resources will be permitted. A core area is an area within the boundaries of national park or protected area possessing some outstanding or representative ecosystems, containing the wildlife populations and unique scene areas and/or geological features. The core area would be strictly protected

or available primarily for scientific research. The activities allowed in Buffer Zones usually include hunting or fishing using traditional methods, collecting fallen timber, fruit collection, seasonal grazing of livestock and cutting bamboo, rattan or grasses. Some activities which are not permitted in the Buffer Zones are burning vegetation, cutting green trees, constructing buildings and the planting of exotic species (IUCN/UNEP, 1986).

Methods and Materials

This paper deals with the concept of theoretical and conceptual base in a research with specific reference to conceptual development of Buffer Zone and its benefits. It is based on secondary information of data. For the secondary information from a number of published and unpublished research documents, reports and theses and project reports on National Park and Buffer Zone were consulted.

The Concept of Buffer Zone

The buffer zone management concept as first envisioned by United Nations Educational, Scientific and Cultural Organization (UNESCO) consists of a series of concentric areas surrounding a protected area. UNESCO describes Buffer Zone systems as a means of conserving unique areas of plant and animal diversity (Orsdol, 1987). The primary objectives of the Buffer Zone concept are:

- ▲ To address the needs of local people for firewood, fodder, pasture and recreation,
- ▲ To establish the conservation of an ecosystem, species and genetic diversity in an area of particular scientific, biological and cultural importance,
- ▲ To provide opportunities for research, monitoring and training, and
- ▲ To promote sustainable development surrounding protected areas.

Buffer zones have been defined as “... *areas peripheral to national parks or reserves which have restrictions placed on their use to give an added layer of protection to the nature reserve itself and to compensate villagers for the loss of access to strict reserve areas*” (Mackinnon as cited in Orsdol, 1987). Buffer zone as a term is used to include a wide range of conservation and development activities which can take place on the lands surrounding protected areas to ‘Buffer’ them against external pressures and deliver benefits to local people.

A definition of a Buffer Zone proposed by Sayer (1991) is “... *a zone, peripheral to a national park or equivalent reserve, where restrictions are placed upon resource use or special development measures are undertaken to enhance the conservation value of the area*”. This definition of a Buffer Zone emphasizes conservation of resources and enhancement of resources for local people thus creating a balance between conservation and use.

According to the Black’s Law Dictionary Buffer Zone means “*An area separating to different types of zones or classes/areas, which could blend with each other more easily. It is the area or border adjacent to Protected Areas on which land use is partially restricted to give an added layer of protection to the Protected Areas itself, which providing valued benefits to the neighboring rural communities*” (Black,1990).

World National Parks Conference at Bali in 1982 focused on the relationship between protected areas and human needs and stressed the relevance of integrating protected areas with other major development issues (Mishra, 1991). The message is that the protected areas should respond to the needs of local people (Sayer, 1991). The involvement of local people in the management of the protected areas for mutual benefits is widely accepted today (Oldfield, 1988).

Types of Buffer Zone

The main types of Buffer Zones for protected areas are as following:

Forest Buffer Zones; For most natural forests or plantations maintained outside the protected areas, particular emphasis is on maximizing sustained yield of fuel wood or timber for local villagers. Forest buffers basically do not include privately owned cultivated lands. These buffers are useful in protecting against soil loss. "The encouragement of plantation forests in Buffer Zones is probably the single most effective resource management strategy for ensuring long-term integrity of protected areas themselves" (IUCN/UNEP, 1986).

Economic Buffer Zones; These may also be called productive buffers. They aim to lessen the need for people to take resources from National Parks or Reserves and create opportunities to earn income. To this end, maintaining an economic Buffer Zone can play an important role in generating income through improving and introducing cash crops. This will give direct returns to local farmers. In addition, wildlife cropping outside protected area boundaries meets the needs of villagers for recreation and meat. The emphasis should be given to maximizing cash returns to benefit local people. Economic Buffer Zones could be developed on public land around parks. However, the management authority must regulate hunting wildlife within the economic buffers.

Physical Buffer Zones; Physical buffers are those structures which are either naturally or artificially present on the border of a protected area. Mountain ridges and rivers may act as good physical buffers if they are located on the park boundaries. Physical Buffer Zones create barriers for people and animals trying to pass through them. It is useful where no land is available for Buffer Zone development and the boundary itself serves as a buffer. Examples of physical Buffer Zones include: fences, ditches, canals, walls or thorny hedges. Physical buffering helps discourage wildlife from leaving the reserve and deters people and livestock from entering. Where there are large animals, the use of electric fencing may be an effective Physical Buffer.

Traditional use systems inside and adjacent to National Parks or Reserves are often not suitable to maintain sustainability. As a result, forests are rapidly degraded mainly because of over grazing by livestock and illegal cutting of trees (Sharma, 1991). Where cultivations exist on the border of parks, there are no adequate forest lands left which can act as forest buffers. Economic Buffer Zones can be established if farmers can be motivated to change from traditional land use to planting cash crops. A lot of research is needed and technical assistance should be given to farmers by the park staff. In addition, there should be suitable markets for cash crops. Physical Buffer Zones are less beneficial in comparison to Economic Buffer Zones. However, they can act as a barrier against the movement of wildlife onto cultivated areas.

Importance of Buffer Zone; One of the main objectives of establishing Buffer Zones is to meet the natural resources needs of local communities as well as minimizing human impact on protected areas so as to avoid a contentious situation between the Park Management and the people. The other objectives are to improve the lives of these communities and to support them to organize themselves into strong, self-governed institutions capable of undertaking pro-conservation and pro-development activities in and around the areas that they inhabit. The importance of Buffer Zone can be best described as given below :

Protection of Threatened Species; National Parks and Protected Areas are the only places left where threatened species can be preserved. But where dense human settlements occur within or close to protected areas, there exist problems of agricultural encroachment, poaching and illegal harvesting of forest products (Sayer, 1991). These activities force many plants and wildlife species towards the verge of extinction. This situation is apparent in Sagarmatha National Park, Nepal. Former park wardens Mr Surya Pandey and Mr Barna Thapa (1995) said that they have not seen red panda within the National Park area since 1989. This indicates that this species may be no longer reside in their habitats in this area. Some protected areas are not extensive enough to preserve threatened wildlife such as rhinoceros, elephants and tigers. In Nepal, Koshi Tappu Wildlife Reserve can be taken as an example where wildlife such as elephants and wild buffalo move outside the reserve boundaries (Heinen & Kattel, 1992). Agricultural crops raided by wildlife also exemplifies this situation (Sharma, 1991; Nepal and Webber, 1995). Thus, to compensate for this, Buffer Zones need to be maintained as an additional layer of habitat outside the core area boundaries.

Protection of Resources; Forest, soil and water resources should be preserved in and adjacent to protected areas for both wildlife and people. Forest resources are fragmented all over the country and are affected by the intensive activities of the ever growing populations (FOA/World Bank, 1978). Because of the loss of forest cover, flooding and soil erosion are occurring every year, dramatically destroying properties.

Safe Wildlife Movement; If for some reason wildlife moves out from the protected areas, they can use Buffer Zones as wildlife corridors. Therefore, there is an important need for the Buffer Zones which can provide a safer shelter for transient wildlife.

Access for Local People; Buffer Zone products utilized by local communities can provide them with some level of compensation for their loss of traditional harvesting rights from the establishment of National Parks and Protected areas in their region. Managed Buffer Zones promote the sustainable use of wild plant and animal species by local communities. Hunting of wild animals and gathering of forest products such as leaf litters, grasses, etc., by local people can increase their income.

Benefits of Buffer Zone; There are many ways in which Buffer Zones can bring valuable benefits to local communities. Some of them are discussed in the following section.

Stabilization of Hydrological Functions; Natural vegetation or any other plantation forest cover acts like a sponge which regulates and stabilizes water run-off. A well-established root system helps to maintain permeability in the soil. The result is that there is decreased run-off compared to bare soil. Development of Buffer Zones minimizes floods during the rainy season and prevents soil loss.

Protection of Soils; Planting trees in Buffer Zones prevents soil degradation due to the leaching of nutrients, burning of humus, laterisation of minerals and erosion. Vegetation cover and litter protects soil and preserves the productive capacity of the area itself. In addition, Buffer Zone Management may prevent dangerous landslides, costly and damaging siltation of fields, irrigation canals, hydroelectric dams and safeguards river bank (IUCN/UNEP, 1986).

Conservation of Renewable Harvestable Resources; One of the major functions of Buffer Zone Management is to regulate harvestable resources such as plant and game species in the region. "Biological productivity under natural conditions is 'cost free' and generally higher than for any form of artificially planted alternative" (IUCN/UNEP, 1986). Both natural and plantation forest resources can be harvested on a sustainable basis. Material substances which are essential for daily needs can be produced on and extracted from hunting areas, natural forests and woodlots.

Preservation of Breeding Stocks; Buffer Zones are extended areas which provide suitable room for wildlife breeding. For this to happen, a large tract of forest should be maintained outside the National Park boundaries. Then the buffer area may protect important life cycle stages of populations which are faced with competition in protected areas and/or are harvested outside these areas. Natural and artificial forest can act as seed sources, where wildlife will feel sufficiently secure to breed, nest and roost.

Tourism Services; Tourists will also benefit in that they can achieve their objectives of viewing wildlife in Buffer Zones. Entertainment, photography and spiritual enjoyment may contribute to maximum satisfaction levels for visitors on the one hand. On the other hand, local economics and benefit increase considerably where Buffer Zones are developed. Tourism is a source of foreign exchange and "at the local level it stimulates profitable domestic industries...." (IUCN/UNEP, 1986). These industries incorporate hotels, transport systems, tourist guide services and so on. The park agencies need to develop Buffer Zones which can focus tourists away from the core area of the park. This will relieve pressure in the National Park.

Employment Opportunities; Development and maintenance of Buffer Zones needs expertise in different aspects such as forestry, agroforestry and agriculture. In addition, the need for tourist development, road, trails, nature guides, etc. all create employment opportunities in the region.

Conventional National Parks and Protected Areas provide employment opportunities for people who are engaged in management, guiding and pottering. Whereas Buffer Zone Management needs to employ a person who is well qualified in ecological management, a forestry expert and an agricultural expert. Assistant staff such as rangers, nature guides and tourist guides can be selected from local people if available. Laborers are needed to develop and to maintain Buffer Zone areas. Developing nurseries, growing plants and planting and harvesting all demand a sizeable local work force.

Research options; Protected areas act as excellent living laboratories for many studies including social, cultural and ecological effects. Managers or private land owners can make decisions for land use based on these studies. An adequate fund should be allocated in the annual budget of protected areas in order to carry out ecological and socio-economic research.

Provision of Education Facilities; Buffer Zones and protected areas provide important sites for school classes and university students to achieve practical knowledge in the fields of biology, ecology, geology and geography. Besides these, Buffer Zones are good places to get firsthand knowledge for all interested people. There are many opportunities for researchers to gain knowledge about the plant, crop and animal relationships. This type of education may not be appropriate in protected areas where disturbance of animal and plant communities is discouraged.

Maintenance of Quality Living Environment; The villagers who are living close to/or within the Buffer Zones or Protected Areas are often privileged to enjoy a quality living environment. These places generally have cleaner, more beautiful and more peaceful environments than elsewhere. Ecologically rich environments in protected areas enhance the quality of life within them. Some local people have the additional economic advantage of involvement in tourism.

Preservation of Traditional and Cultural Values; Buffer Zones and National Parks can play a crucial role in the preservation of locally important cultural sites and traditional practices which may otherwise be destroyed. These areas preserve

many shrines which are highly appreciated by indigenous people. Buffer Zones include human communities and their traditional culture. Programmes can be launched in the partnership of local communities to conserve cultural values.

Existing Buffer Zone in Nepal; Nepal has established the network of protected areas throughout the country which are identified as ten National Parks (10940 sq. Km.), three Wildlife Reserves (1117 sq. km.), six Conservation Areas (15416 sq. km.) and one Hunting Reserve (1325 sq. km.) including thirteen Buffer Zones (5708.61 sq. km.) around the parks reserves. The protected area networks covers 34430.61 sq.km. (23.39 %) of the total geographical area of the country (DNPWC, 2016). The name of Buffer Zones, establishment year and area are given in Table 1.

TABLE 1 *Conservation Areas and its Buffer Zone*

Buffer Zone	Establishment	Area (in sq. km.)
Chitawan National Park	1996	750
Bardiya National Park	1996	507
Langtang National Park	1998	420
She-Phoksundo National Park	1998	1349
Makalu Barun National Park	1999	830
Shagarmatha National Park	2002	275
Shuklaphanta Wildlife Conservation	2004	243.5
Koshitappu Wildlife Conservation	2004	173
Parsha Wildlife Conservation	2005	285
Rara National Park	2006	198
Khaptad National Park	2006	216
Banke National Park	2010	343
Shivapuri Nagarjun National Park	2016	118.61
Total Buffer Zone Area	-	5708.61

Source: DNPWC, 2016

Policies and Strategies of Buffer Zone in Nepal; There is no such state policy which has addressed directly to protect or manage BZs but there are environmental policies and strategies on conservation of natural resources and biodiversity, which are directly related to BZs.

The Tenth Plan (2002-2007) gives importance to biodiversity conservation as a means of poverty alleviation through sustainable use of its components and broader participation of the local people. As a policy continuation of the Eighth and Ninth Plans, the Tenth plan has envisaged expediting poverty alleviation by giving priority to high economic growth, good governance, and social justice.

In this context, strategies are directed towards participatory development process together with establishing the effective role of women in the national economic and social development, mainstreaming the down-trodden and ethnicities in the development process, and clearly defining the role of government, local bodies, the private sector, non-governmental organizations and the civil societies.

The Tenth Plan has recognized the need for encouraging the involvement of private sector in farming of valuable Non-Timber Forest Products (NTFPs), wild animals and birds through the formulation of necessary laws. As adopted in the Tenth Plan, special attention has to be given on how forest and wildlife conservation can contribute to human welfare and sustainable development of the country as a whole through public participation.

The main programmes in biodiversity conservation that are planned in the 10th Plan include biodiversity conservation including forest, flora and fauna; scientific forest management; participatory forest management; research in forests and fauna; conservation of natural and cultural heritage; and agricultural development through technological improvements, agro-biodiversity and environmental conservation.

The Buffer Zone Management Regulations 1996 was formulated following fourth amendment of the National Parks and Wildlife Conservation(NPWC) Act. The Government of Nepal(GoN) has made this Regulation under the power conferred by the section 33 of the NPWC Act 1973. The purposes of the Regulation and the Guideline are to ensure development and implementation of programmes in compatible with the National Park Management and to facilitate public participation in the conservation, design and management of BZs. Under the present system, the revenue is distributed through a Buffer Zone Management Committee and a User's Committee. Buffer Zone Management Regulations and Guidelines provide detailed mechanisms to mobilize people's participation in community development:

- ▲ The households in a distinct settlement (called unit) are mobilized to form the user group.
- ▲ User group or several small user groups form user committee. The UC has a minimum of nine members elected by user group members of their representatives.

- ▲ The user committees perform coordinating and supporting roles between UGs and Buffer Zone Office to mobilize resources and to design and implement programmes.
- ▲ The user committees facilitate the flow of the share of government revenue committed for community development to fund proposals submitted by user group.
- ▲ The BZ Warden is the point of official contact for various UC offices spread over the Buffer Zone.
- ▲ The chairperson of the UCs are the members of the BZ development council of which the BZ Warden is the ex-officio member secretary.

The Buffer Zone Management Regulations are the sole regulations to promote community forestry programmes in the Buffer Zone and to improve the stocking of forests by community management. The provisions of community forests and other forestry operations described in the Forest Act are not applicable in the BZ. The committees formed under the Buffer Zone Management Regulations can also be entrusted with the management of fallen trees grassed, and driftwood inside the Protected Areas.

The role of the Buffer Zone warden to facilitate formation of UGs/ UCs and to coordinate the activities of various line agencies operating in the Buffer Zone is crucial. His/her active role is seeking cooperation of the government line agencies and NGOs to promote a growth pattern consistent with the protected area's objectives is equally important.

A major discrepancy in the Buffer Zone Management Regulations is that it has made no provision of granting government owned land to groups of poor households (below poverty line) for leasehold forestry purpose. The original drafts of the legislation had made this provision, but it could not make to the final version. Leasehold Forestry Programme for poor is an innovative mechanism of intensifying land use by involving local people. It would be desirable to include this provision in the Buffer Zone Management Regulations because this mechanism not only benefits poor but also target a group heavily dependent upon park resources for their livelihood. Engaging them in economic activities in the Buffer Zone would greatly help reduce pressure on the Park.

The Ministry of Forest and Soil Conservation has formulated Buffer Zone Management Guidelines 1999. The main objectives of the Guidelines are assisting the implementation of the Act and Regulation by making arrangements concerning the BZ by providing assistance to community development of rural people living in such areas. The Guidelines have been provided with provisions to facilitate public participation in the conservation, design and management of BZs. It also provides detailed provision and procedures for the formation of User Groups, User Committees and their management.

Conclusion

Yellowstone National Park established in 1872 A.D. became the milestone to set up other National Parks and wildlife conservations all over the world. Along with the establishment of National Parks, people dwelling adjacent to the protected areas, began to feel the impact of such areas on their livelihood. As a result, the concept of Buffer Zone emerged in 1970s. However, it was not provisioned until the conference of National Park Congress in Bali (1982) declared the Buffer Zone concept. The conservationist brought the integrated approach and opined that natural resources cannot be locked away from surrounding population. In fact, this approach tries to minimize and/or eliminate the effects of National Parks, by fulfilling the customary needs of Buffer Zone people. On the other hand, it seeks the ways of keeping the protected areas intact. In other words, the main objective of Buffer Zone declaration is to facilitate Buffer Zone people developing Buffer Zone area along with the protection of flora and fauna. To accomplish this mission, the concerned authorities should rigorously work keeping both the parks and Buffer Zone intact.

Management of Buffer Areas offers socio-economic and biological benefits. Biological benefits resulting from Buffer Zone systems include the maintenance of natural environments and plant and animal species diversity. Protection of watershed areas retention of soil quality and preservation of wildlife corridors are also important benefits of Buffer Zone. In Nepal, the Buffer Zone people could be highly benefited if the concerned authority of the park and the people themselves try to implement the Acts and Regulations from their respective areas.

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SOME OPERATIONS ON SETS

MANOJ KR. AGNIHOTRI*

Declaration

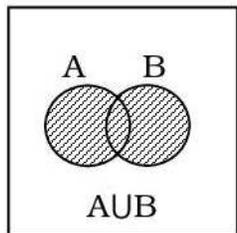
The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Manoj Kr. Agnihotri* the author of the research paper entitled SOME OPERATIONS ON SETS declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Union of sets

If A and B are two sets then union of A and B is denoted by $(A \cup B)$ and defined as

$$A \cup B = \{ x : x \in A \text{ or } x \in B \}$$

i.e. $x \in (A \cup B) \Leftrightarrow x \in A \text{ or } x \in B$



Clearly

i) $x \notin (A \cup B) \Leftrightarrow x \notin A \text{ and } x \notin B$

ii) $X \subseteq (A \cup B) \not\Rightarrow X \subseteq A \text{ or } X \subseteq B$
need

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For if $A = \{ 1, 2 \}$, $B = \{ 3, 4 \}$ $X = \{ 2, 3 \}$

Then $A \cup B = \{ 1, 2, 3, 4 \}$

Clearly $X \subseteq (A \cup B)$ but $X \not\subseteq A$, $X \not\subseteq B$

iii) $A \cup B = A \cup C \stackrel{\text{need}}{\neq} B = C$

For if $A = \{ 1, 2, 3, 4 \}$ $B = \{ 1, 2 \}$, $C = \{ 3, 4 \}$

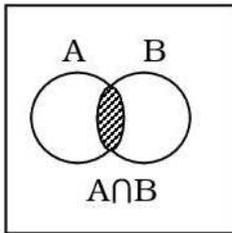
Then $A \cup B = \{ 1, 2, 3, 4 \} = A \cup C$ but $B \neq C$

Intersection of Sets

If A and B are two sets then intersection of A and B is denoted by $(A \cap B)$ and defined as

$A \cap B = \{ x : x \in A \text{ and } x \in B \}$

i.e. $A \cap B \Leftrightarrow x \in A \text{ and } x \in B$



Clearly

i) $x \notin (A \cap B) \Leftrightarrow x \notin A \text{ or } x \notin B$

ii) $X \subseteq (A \cap B) \Leftrightarrow X \subseteq A \text{ and } X \subseteq B$

iii) $A \cap B = A \cap C \stackrel{\text{need}}{\neq} B = C$

For exa, if $A = \{ 1 \}$, $B = \{ 1, 2 \}$ $C = \{ 1, 3 \}$

Clearly $A \cap B = \{ 1 \} = A \cap C$

but $B \neq C$

Difference of Sets

If A & B are two sets then $A - B = \{ x : x \in A, x \notin B \}$

i.e. $x \in (A - B) \Leftrightarrow x \in A, x \notin B$

Clearly

i) $x \in (A - B) \Leftrightarrow x \in A \text{ or } x \in B$

ii) $A - B = A - C \stackrel{\text{need}}{\neq} B = C$

For Exa $A = \{ 1, 2, 3 \}$ $B = \{ 4, 5 \}$, $C = \{ 6, 7 \}$

Then $A - B = \{ 1, 2, 3 \} = A - C$ but $B \neq C$

Symmetric difference of Sets

If A and B are two sets then Symmetric difference of A and B is denoted by $(A \oplus B)$ or $(A \Delta B)$ and defined as

$$A \oplus B = (A - B) \cup (B - A)$$

Clearly

- i) $A \oplus B = B \oplus A$
- ii) $(A \oplus B) \oplus C = A \oplus (B \oplus C)$
- iii) $A \oplus \phi = A$
- iv) $A \oplus A = \phi$
- v) $A \oplus B = A \oplus C \Rightarrow B = C$

$$\begin{aligned} \text{For, } A \oplus B = A \oplus C &\Rightarrow A \oplus (A \oplus B) = A \oplus (A \oplus C) \\ &\Rightarrow (A \oplus A) \oplus B = (A \oplus A) \oplus C \\ &\Rightarrow \phi \oplus B = \phi \oplus C \\ &\Rightarrow B = C \end{aligned}$$

Some Laws on sets

- i) $A \cup B = B \cup A$ & $A \cap B = B \cap A$ [Commutative Law]
- ii) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ and $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ [Associative Law]
- iii) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ [Distributive Law]
- iv) $A \cup A = A$ & $A \cap A = A$ [Idempotent Law]
- v) $A - (B \cap C) = (A - B) \cap (A - C)$ [Demorgan's Law]
- & $A - (B \cup C) = (A - B) \cap (A - C)$
- vi) $A \cup \phi = A$, $A \cap \phi = \phi$
- vii) $A \subseteq (A \cup B)$, $B \subseteq (A \cup B)$
- viii) $(A \cap B) \subseteq A$, $(A \cap B) \subseteq B$
- ix) $A \subseteq B$, $B \subseteq C \Rightarrow A \subseteq C$ [Transitivity]
- x) $A \subseteq B$, $B \subseteq A \Leftrightarrow A = B$ [Equality]
- xi) $A - (A - B) = A \cap B$

Cartesian product of Sets

If A and B are two sets then Cartesian product of A and B is denoted by $(A \times B)$ and defined as

$$A \times B = \{ \text{order pair } (a, b) : a \in A, b \in B \}$$

Clearly

- i) If R is the set of real numbers then

$\mathbb{R}^2 = \mathbb{R} \times \mathbb{R} = \{ x, y : x \in \mathbb{R} \}$ is called Euclidean plane.

$\mathbb{R}^3 = \mathbb{R} \times \mathbb{R} \times \mathbb{R} = \{ x, y, z : x, y, z \in \mathbb{R} \}$ is called
Euclidean space of dimension – 3

$\mathbb{R}^n = \mathbb{R} \times \mathbb{R} \times \dots \times \mathbb{R}$ (ntimes)

$= \{ (x_1, x_2, \dots, x_n) : x_1, x_2, \dots, x_n \in \mathbb{R} \}$

is called Euclidean space of dimension – n.

ii) If A has n elements and B has m elements than $A \times B$ has (m.n) elements.

iii) If $A = \phi$ or $B = \phi$ then $A \times B = \phi$

iv) If A is an infinite set and B is a finite/infinite set then $(A \times B)$ has infinite no of elements,

v) $A \times B \neq B \times A$ if $A \neq B$

vi) $A \times (B \cup C) = (A \times B) \cup (A \times C)$

vii) $A \times (B \cap C) = (A \times B) \cap (A \times C)$

EDUCATION FOR TRIBALS OF INDIA

DR. PUSHPANJALI*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Pushpanjali* the author of the research paper entitled EDUCATION FOR TRIBALS OF INDIA declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Introduction

Education has generally been regarded as a social service. Its role as a direct investment for economic development has been began to be appreciated only recently particularly after the Second World War.¹ The spectacular recovery of the war – torn economy of Europe and Japan emphasized to contribution of human element in the economic development. The constitution of India, under Article 244(2) and 275(1) refers tribal area within the states of Assam ,Meghalaya ,Tripura & Mizoram ,i.e areas specified in part I ,II, IIA & III of the paragraph 20 of the sixth schedule.²

Defination; The term ‘Scheduled Tribes ‘refers to specific indigenous people whose status is acknowledge to some formal degree by national legislation. A collective term in use locally to describe most of these people is “upajati”³.the constitution of india ,which came into existence on 26 jan 1950, prohibits discrimination on ground of religion, race, caste ,sex or place of birth (Article 15) and it provides the right to equality (Article 14) ,to freedom of religion (Article 25-28), to culture & education (Article 29-30). Schedule tribals are supposedly addressed by as many as 209 Articles and 2 special schedules of the constitution.⁴

Scheduled tribal’s is an administrative term used for purposes of administering”, certain specific constitutional privilege, protection and benefits for specific section of peoples considered historically disadvantaged and “backward”.

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HISTORY of tribal's in India

The 67.7 million people belonging to “scheduled tribes” in india are generally considered to be “ADIVASI”,literally meaning “indigenous people” or “original inhabitants , though the term “scheduled tribes” is not coterminous with the term “adivasi”.⁵ However, this Administrative term doesn't exactly match all the peoples called adivasi. Out of the 5653 distinct communities in India, 635 are considered to be ‘tribes’ or ‘adivasi’.

Total no. of tribe's district is 645, according to list of scheduled tribes in India. There is mentioned states, tribe's name and places in chart following way :

State	Tribes	Place	Amendment act
Bihar	Bathuthi, Bedia Banjara, Baiga Asur,	Deogahr, Sahebganj,	Sc/ St act 1976
Jharkhand	Mahli, Asur, Sauria, Gorait, Kharwar, Santhal	Gumla, Palamu, Sawar, Pargahas, Ranchi	Act 1976, insterted by act 30 of 2000.
Chhattisgarh	Agariya, Baiga, Bharia, Pando	Bastar, Dontewara, Raigarh, Surguja,	SC / SC act 1976 inserted 28 of 2000
Gujarat	Barda, Bavacha, Paradhi, Cholivala, Nayaka,	Rajkot, Kachch, Junagadh, Jamnagar	Act 1976
Assam	Garo, hajong, Kachari, Uibah	Rangkhol, Saurhem, Khelma, Dhemaji, Leng Thang,	Act 1974
Himanchal Pradesh	Gujjar, Bhat, Bodh guddai	Kangra, Hamirpur, Kullu, Shimla	Sc/ St act 1976 excluded sub section 5 of the Punjab reorganisation act 1966
Jammu & Kashmir	Shin, Changpa, Gorra, Shippi, Mon	Bakarwal, Drokpa, Dard,Changpo	ST amendment act (j&k)1989 and constitution amdnd act 1991
Madhya Pradesh	Kawar, Bopchi, Kaur, Nahul, Bodhi, Mina	Sonjhari, Dhurwa, Agariya, Dhoba, Kandra	Act 1976

Note: Khasi tribes is mainly found in the khasi, jaintia hill in Meghalaya and the states of Punjab,U.P, Manipur, west bangal, j&k etc.

Angami tribes belongs to Bhils,are popularly known the extreme north eastern as the bow men part of the country.

Chenchu mostly inhabits in Andhra Pradesh.

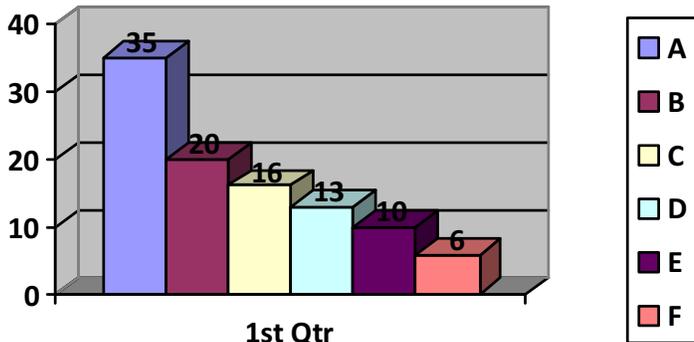
Assami tribes speaks Lakher (tai), Any mizo (Lushai), pawl (syntheng).etc

Note:

- A-Tripura, kerala.
- B-himachal Pradesh, Sikkim
- C- Chattisgarh, maharastra, W.B, uttarakhand
- D-jharkhand, U.P, Rajsthan, A.P
- E-Bihar

Above data says that lowest literacy is of bihar & highest is of kerala, Tripura.

Tribes of different states



- A- Arunachal pradesh
- B- Chattisgarh, Manipur, Sikkim, Tripura
- C- jharkhand, Orissa, M.P, Gujrat, Srinagar
- D- Karnataka, Andhra Pradesh
- E- Bihar, U.P, Tamilnadu
- F- Punjab, Haryana

Note : Highest population is in Aruanchal Pradesh, while Punjab & Harayana have lowest population.

In these areas autonomous district council have been set up. Their fast reconstruction was based largely on the skill-capital in these nations. The attention of educationists sociologists and philosophers was also gradually drawn the process of change in the developing countries with greater emphasis on extension method.

1. In the process of change communication of ideas assumes a vital role. Not only can the potential of communication through the written symbol , cab be exploited with the spread of education but it can also be appreciated that even for effective oral communication the symbol has to be understood,

equally and in the same spirit, on the both sides , Extension of education through different media, therefore, becomes an important element in the strategy.

Education is the most important element in the development of any community, particularly in the tribal areas where new development programmes are being taken up. The educational problems of the tribal people had its inception with the attainment of freedom of the country.

2. It was at this time that the compulsory education laws were passed by some of the states and central government and began to be enforced as such. Since then the problem has steadily increased in intensity and seriousness as the nation has moved from a rural to more or less an urban society and a higher premium has been placed upon education.

The tribal people can be benefited from education.

3. They can learn, but they can derive little value from programmes designed for the average and superior children. They can derive little benefits from programmes that are based upon the general mass or for non-tribal pupils who come from the middle and the upper middle class socio-economic status.

Education disseminates knowledge. Knowledge gives inner strength which is very essential for the tribal's for attaining freedom from

Exploitation and poverty. Due to ignorance arising out of illiteracy, the tribal's have not been able to take advantage of new economic opportunities.

CAUSES OF SLOW PROGRESS of Tribal's Education:

- *Poverty Of Parents* : For the poverty ridden parents, education of their children is a luxury which they can hardly afford. The children assist their livelihood grown-up children also look after the younger ones when the parents go out for work either as cultivators or as labourers. Absence of child care centres, crèches, Bawdies etc.in the remote tribal areas, also has to share the blame for depriving the children of the poor parents of the facility of education.
- *Contents Of Education* : The curriculum of education for the tribals has to be carefully involved it has to take into consideration the socio- cultural milieu of the scheduled Tribes.
- 4. Presently, the general contents of education have been extended to the tribal areas which in many cases are not relevant particularly at the primary stage.
- *Inadequate Education Institutions And Supporting Services*: The tribal areas suffer from inadequacy of education institutions, boarding and lodging facilities. Even where centres have been opened, about 40 percent of them are without buildings. The supporting services, such as the incentives in terms of scholarships, book banks, etc are very insignificant and generally do not attract the children.
- *Absenteeism* : In the tribal areas the problem of absenteeism of the teachers is one of the important factors affecting the education. The teachers generally remain absent for days together due to absence of supervision over them and also due to lack of dedication to the cause of education of the tribals. The children and also the parents cannot afford to waste their time and generally opt to drop out from the schools.
- *Medium Of Instruction* : For the tribals the medium of instruction in the school is a difficult problem given after 40 years of Independence we have not been able to provide the tribals education in their mother tongue. The tribal children are not generally able to follow the lesson given to them in the school in the language which is totally strange to them. The tribals, undoubtedly, from linguistic minority groups and are entitled to facility of instruction in their mother tongue at the primary school stage. Article 650{A} of the constitution specifically provides for adequate facilities for instruction in mother tongue at primary stage of education to children belonging to linguistic minority

groups.⁶ The president has also been vested with the power of issuing directives to any state for this purpose.

Education Policy : So far there is no clear educational policy for the tribal area. In spite of the recommendation and suggestions of various commotions some states the schools in tribal areas has been evolved. In some states the schools in tribal areas are under the control of Education Department and in some under the social welfare apartment. Lack of administrative policy regarding the education institutions and tribal areas adversely affect the education of the tribals.

Suggestion

1. The contents of education should take into consideration the needs and as privations of the tribal people. The choice of subject the primary level should be carefully made. Education should be job-oriented. There should be proper arrangements for vocational education.
2. The curriculum should keep in view of the traditional local skills and crafts. with their rights and duties.
3. Due to priority should be given for opening of educational institutions in the tribal areas and construction of school buildings should be undertaken under the national rural Employment programme. In these areas more and more residential facilities like hostels should be provided to all those who walk more than 4kms to attend the schools.
4. The curriculum should take into consideration the socio-cultural me lien of the tribals.
5. The teacher should be related from the tribals themselves even by relaxing the educational qualification, in care sufficient number of qualified teachers is not available. The non-tribal language may relected.
6. Steps should be taken for setting up of more and more Bawdies crèches and child care centres in the tribal areas. Suitable nutrition programmes should also be carried on in such centres to create among them awareness about health and balanced diet.
7. Post training care should also be part of training programme.
8. It empowers the state to make any special provision for advancement scheduled castes or scheduled tribes. Article 46 contains a directive to the state government to promotes with a special care the educational and economic interests of the weaker sections of the people and in particular, of the scheduled castes and scheduled tribes
9. Admistration should give special atteintion on tribals ,related to their all types of problems and boost up to study giving award time to time to tribal children.
10. there should be some schemes to aware them for education and take support of the involvement of NGO's ,nukkad Natak ,seminar ,sports etc.
11. Article 341 & 342 provides for classification of scheduled castes and scheduled tribes, while Article 330,332 & 334 provided for reservation of seats in parliament and assemblies. it should not be only on pages.⁷
12. For purposes of specific focus on the development of scheduled tribes , the government has adopted a package of programmes, which is administered in specific geographical areas with considerable scheduled caste population, it covers 69% of the tribal population. programme must be implemented practically.

Conclusion

Education should not provide bookish knowledge alone. It should also create interest for better life. The tribals equipped with knowledge will not only protect themselves from exploitation but will also be able to take advantage of various development programmes. The tribals have inherent talent for sports. Their talent in their field should be harnessed. Thus, education plays a key role in the development of the tribals and therefore as laid down in the Directive principles of state policy it should be promoted with special care. Recognizing the importance of education the framers of the constitution have made specific provisions in Article 15(1). Non-formal and vocational education centres are very successful and should be able to provide academic educations as well as vocational training to meet the needs of various industries and other projects set up in the tribals areas. Industrial training institutes should take into consideration the tribals needs. In my context I would like to say; "India is mother of all/ Either tribal or others. Tribals are one the colour/ Of seven...../ So save tribals, save nation.."

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- ⁸*Inernate and different special site.*

BHAJAN TREE CRAFT IN VISAKHAPATNAM DISTRICT OF ANDHRA PRADESH, INDIA: A STUDY

KARAKA VENKATA RAO* AND PROF. M. ADINARAYANA**

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Karaka Venkata Rao and M. Adinarayana* the authors of the research paper entitled BHAJAN TREE CRAFT IN VISAKHAPATNAM DISTRICT OF ANDHRA PRADESH, INDIA: A STUDY declare that, We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal, This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else. We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Bhajan Tree is one of the most well-known craft in Ancient India. For last several decades the Bhajan Tree craft was neglected. This paper aimed at to study the history, making process; Tools used for Making, Manpower requirement and discusses problems of Bhajan Tree Craft and find out solution to protect the craft in Visakhapatnam District of Andhra Pradesh.

Key Words: Bhajan Tree Craft, Ancient India, Problems, Solutions

Introduction

India has a rich and diverse heritage of traditional arts and craft. From wood, brass, beeswax to bamboo and marble — the phenomenal variety of crafts in India are in a beautiful and often divine way, testament to the geographic origin, the materials and the means available, weather patterns and cultural norms of the place it was born in. The craft sector is also the second largest employer after the agricultural sector, providing livelihood to several thousand craftsmen carrying on an ancient legacy in a fast changing world.

Bhajan Tree Craft: Of the many materials used in the craft sector, brass was a popular choice but has over a period of time, lost its lustre as a medium.

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The Bhajan Tree craft is a lamp made out of brass. Lord Krishna playing his flute and his consort Radha are shown in a traditional pose under a tree spawning beautiful leaves adorned by birds sitting on branches.

Symbolic of the versatility of the medium, this craft is also representative of the beauty of the traditional craft as also the fact that it is dying craft in a modern world.



Bhajan Chettu (Bhajan Tree)

In order to understand the Bhajan Tree craft this paper strives to:

- Understand brass as a medium.
- Understand the historical background of Bhajan Tree craft in Vishakhapatnam district of Andhra Pradesh, India.
- Understand the making process of this craft.
- Understand the problems faced by Bhajan Tree craftsmen.
- Suggest policy measures for improvement at micro and macro a level.

1. Brass As A Material

1.1 Properties

1.1.1 Alloy; Brass is the generic term for a range of copper-zinc alloys with differing combinations of properties including strength, machinability, ductility, wear-resistance, hardness, colour, antimicrobial, electrical, thermal conductivity, and corrosion resistance. Copper is the main component and brass is usually classified as an alloy of copper.

1.1.2 Types of brass; The malleability of brass depends on its zinc content. The proportions of zinc and copper can be varied to create a range of brass which has unique properties:

- Brass with more than 45 per cent zinc are not workable.
- Alpha brass contain less than 40 per cent zinc.
- Beta brass containing 40 to 45 per cent zinc are less ductile than alpha brass but stronger.
- A third group includes brass with additional elements. Among these are lead brass, which are more easily machined.

- Naval admiralty brass, in which a small amount of tin improves resistance to corrosion by sea water, and
- Aluminium brass, which provide strength and corrosion resistance where the naval brass may fail.

1.1.3 Colour; The colour of brass varies from dark reddish brown to light silvery yellow, depending on the percentage of zinc present. More amount of zinc present, the lighter the colour. When predominantly yellow in colour, is very similar in appearance to gold and lends a visual richness and a royal character to the products it is used for.

1.1.4 Advantages & Uses; Brass sets the standard by which the durability of other materials is judged. It is available in a very wide variety of product forms and sizes to allow minimum machining to finished dimensions. Brass does not become brittle at low temperatures like mild steel. Brass also has excellent thermal conductivity, making it a first choice for heat exchangers (radiators). Its electrical conductivity ranges from 23 to 44 per cent of that of pure copper¹.

Brass is usually the main-choice material for many of the components for equipment made in the general, electrical and precision engineering industries. It is relatively resistant to tarnishing and is often used as decoration, for coins, plumbing, rifle, pistol and cartridge casings for firearms, and is also extensively preferred in the making of musical instruments. Being stronger and harder than copper, but not as strong or hard as steel, brass is used to make pipes, tubes, weather stripping and other architectural trim pieces, and screws. It lends itself to various shapes easily because of its unique properties making itself an unmatched and indispensable material where a long, durable and cost effective service life is required.

1.2 Recycled Brass; The brass industry throughout the world is well organized and equipped to recycle products at the end of their long lives and processed scrap can be well utilized (swarf and off-cuts). Making brass from new (virgin) copper and zinc would be uneconomical and wasteful. Hence a variety of new brass products are made from recycled scrap, illustrating the sustainable nature of this material. In the UK almost 100% of brass manufacturers use brass scrap².

1.3 Brass and Hygiene; Copper and brass are playing a leading role in the fight against hospital-acquired infections such as MRSA and Clostridium difficile. It has been shown that these pathogens, which can be contagious, will die in a few hours on copper /brass surfaces. This does not happen on stainless steel or plastic.

2. History, Process and Analysis

2.1 Bhajan Tree Craft: The Concept and Origin of the Craft; The Bhajan Tree Craft is very popular in South India but the craft is still relatively unknown in the northern parts of India. The main purpose is to keep it in the temples so that they spread light and positive energy. The craft has been made in a wide variety of sizes and used in temples and domestic purpose.

The Bhajan Tree Crafts are usually traditional in essence. The inspiration for the forms and motifs used in the products are basically derived from nature. A tree with branches in various directions is the basic form on which birds are also depicted to be perched upon. A Swan is shown at the highest point of the tree.

2.2 History; Bhajan Tree Craft is a form of innovative craft prepared using brass. These products are popularly used in performing Puja in Rama Temples and Festivals. Discussions and survey respondents claim that this has been a traditional form of craft since the ‘Satyuga’ an era in ancient mythology. Another story described by one of the respondents Mr. Srinivas is that Bhajan Tree craft is usually kept at Bhajan hall in front of Garbha Gudi of the Rama temple. In the village there was no judiciary facility hence they depended on the village headman’s decision for justice. Anybody who committed

a mistake was questioned by the head of the village, before which he demanded that the flame of the Bhajan Tree must be stopped. Most individuals were hence afraid of committing mistakes due to the auspicious belief that the flame must not stop.

Another respondent claimed that this Bhajan Tree is usually used in the Puja of Lord Satyanarayana Swamy Vratam and other hindu festivals.



Bhajan Tree in Rama Temple in Thandrangi village (AP).



Devotee is lighting Bhajan Tree in Rama Temple During Pooja.

2.3 *Brass as a Raw Material for Bhajan Tree Craft;* The raw material for the brass lamps is basically brass metal sheet of thickness varying from 6 to 60 mm. Other materials used during the process are beeswax, lead and sulphuric acid.

2.4 *Size of Bhajan Tree;* Usually Bhajan Tree craft is made in six sizes. It varies from one feet to six feet, all the respondents claim that it is usually made in these sizes. One respondent said that these can be made up to eight feet tall but in his 27 years experience he has never made one of that size. The details of each size of Bhajan Tree craft, making time, required metal, required manpower and finished product weight are described in the Table – 1 below.

2.4.1 TABLE 1

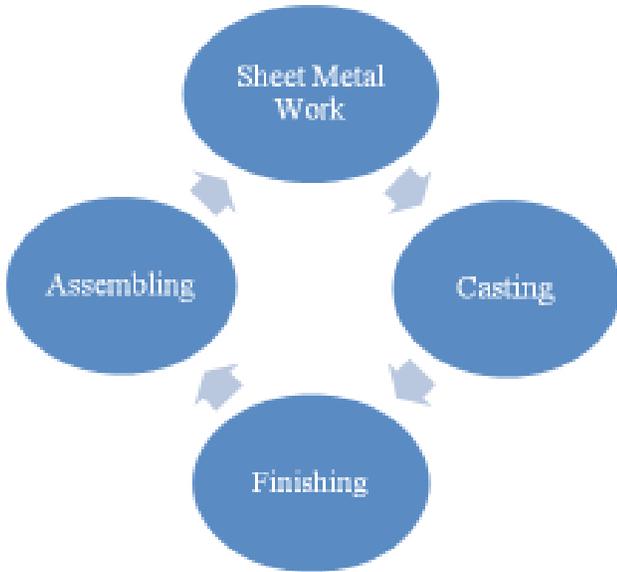
Size of Bhajan Tree	Making Duration (In days)	Required Metal (In Kgs)	Required Manpower	Finished Product (In Kgs)	Amount (In Rupees)
1'	10	15	2	10	10000
2'	20	25	2	20	20000
3'	30	35	2	30	30000
4'	30	45	2	40	40000
5'	45	55	2	50	50000
6'	60	60	2	60	60000

The cost of 1 Kg brass is @ 500/- Rupees this year.

The table explains that five kgs of extra metal are required for making this product. The cost is around Rupees 2500/-. All sized products require one semi-skilled helper.

2.5 Making of Bhajan Tree; There are numerous processes involved in the making of the lamps. The craftsmen use just hand tools to make these magnificent pieces of art.

2.5.1 Process Flow



2.5.2 Sheet Metal Work:

Making of the Cylinder (Trunk pot of Bhajan Tree)



Figure 1

Measuring & marking the sheet according to the size for making cylinder.

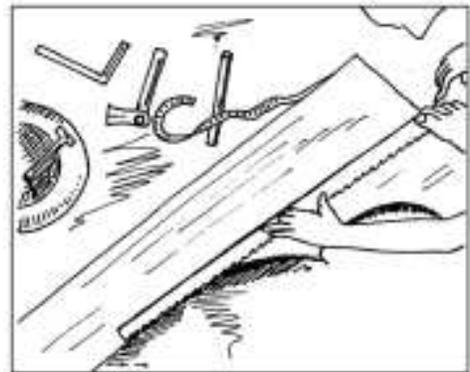


Figure 2



Figure 3

The pattern is then cut using a chisel & hammer.

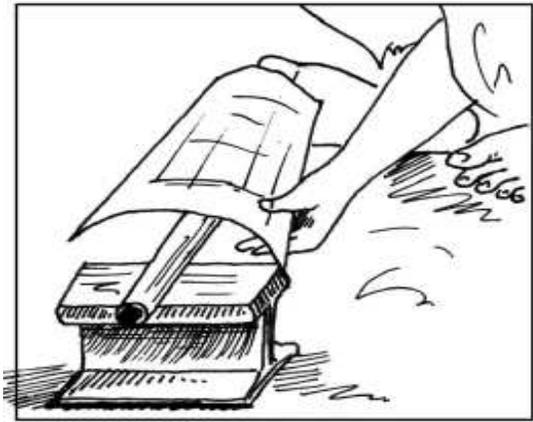


Figure 4

The pattern is then getting shape of cylinder using hammer & supportive tools.

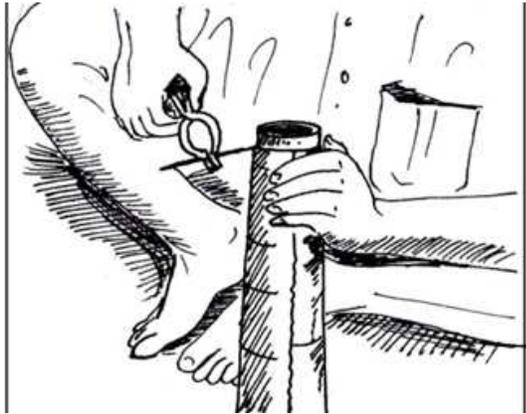


Figure 5

The sheet is then rolled into a cylinder & hold together with a Galvanized wire while heating.

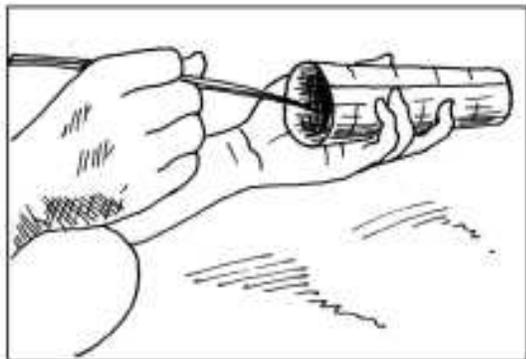


Figure 6

Applying Eligaram (joining material) for joining of two edges.

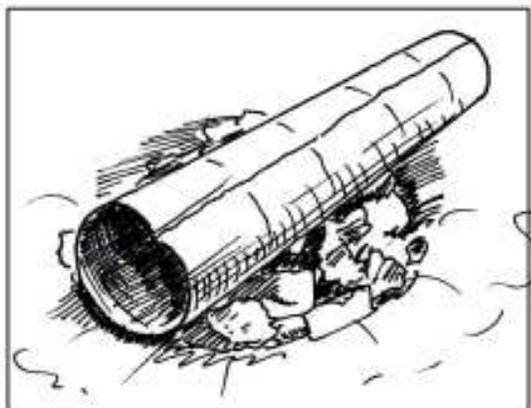


Figure 7

The cylinder is then heated to joint both the edges.

Making of the Base

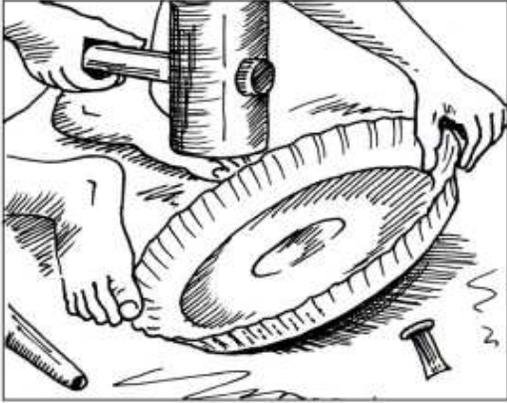


Figure 8

The top part of the base is shaped with the help of hammer & other supportive tools.

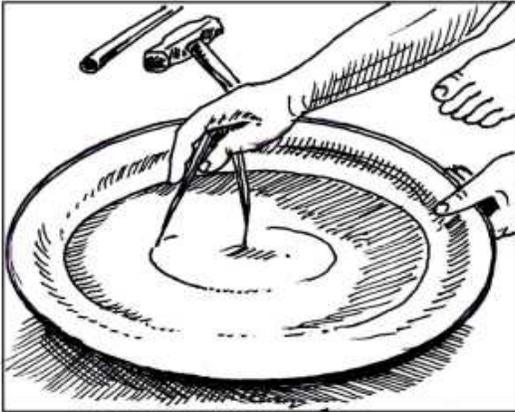


Figure 9

Marking the circle at the centre of the top part of the base for joining the cylinder.

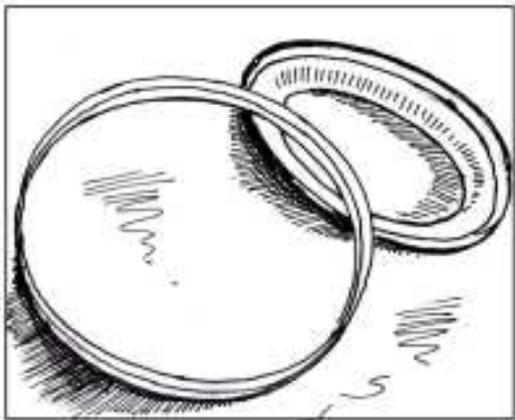


Figure 10

The sheet is then rolled into circles to make bottom part of the base.

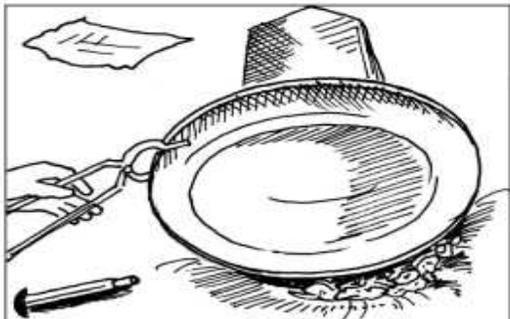


Figure 11

The individual parts then heating to join.

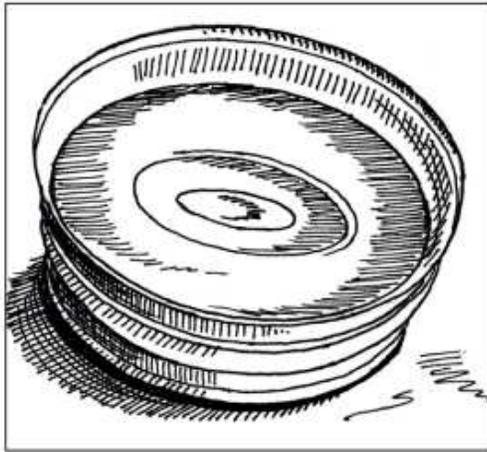


Figure 12

The final form of base after joining and welding.

2.5.3 Casting :

Moulds made out of different local clays



Figure 13

The moulds are getting heated with the help of blow torch for de-waxing.



Figure 14

Moulds of accessories are fixed in a box of mud to pour the molten metal.

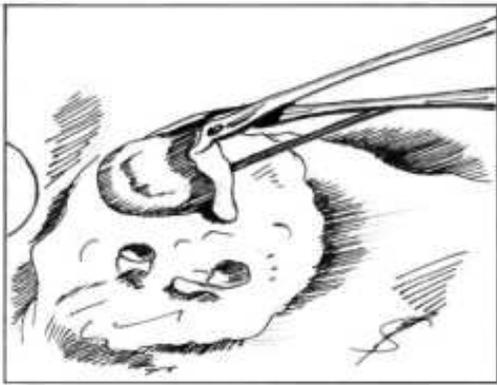


Figure 15

Molten brass is now poured through these moulds.



Figure 16

After cooling the moulds are broken to reveal the brass accessories.



Figure 17

The brass accessories ready for finishing.

2.5.4 Finishing:



Figure 18

Diluted sulphuric acid is applied on the surface for cleaning.



Figure 19

Loose sand is then scrubbed on to the surface for cleaning.



Figure 20

Diluted sulphuric acid is then applied again to remove dirt and the product is washed with water.

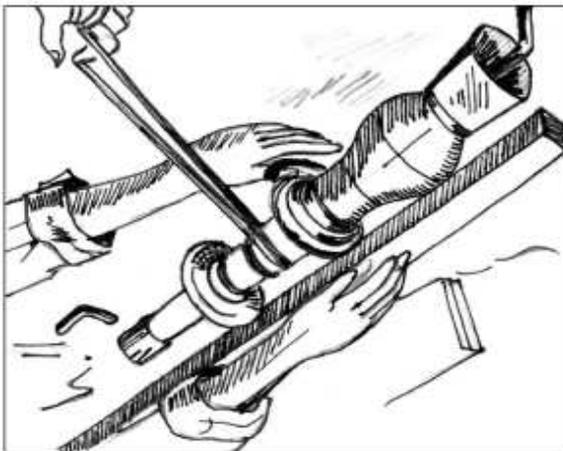


Figure 21

The final finishing will be done through turning with the help of lathe.

2.5.5 Assembling:

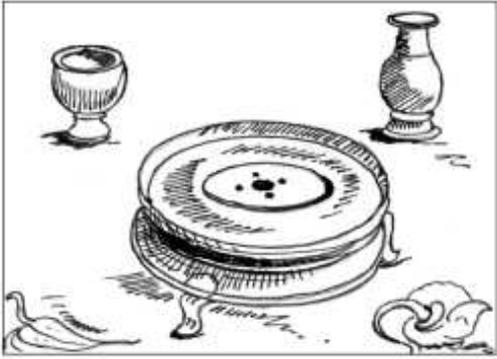


Figure 22

The bottom part is assembled first.



Figure 23

The cap is then fixed.

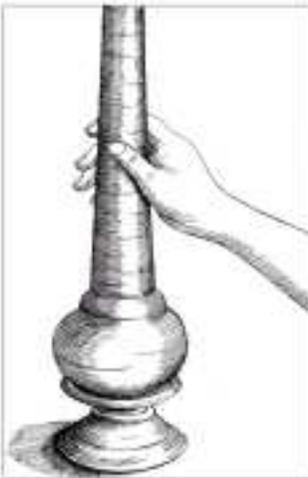


Figure 24

The cylinder part is assembled.



Figure 25

The casted accessories are then fixed.

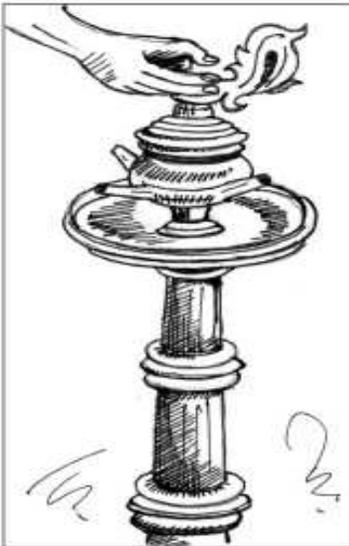


Figure 26

The cylindrical body of the lamp is fixed & the Swan fixed on top of the lamp.



Figure 27

The branches are then fixed to the main body.

2.5.6 Tools Used for Making Bhajan Tree:

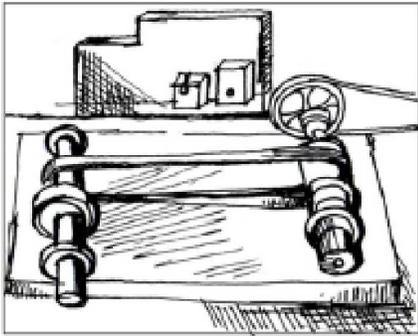


Figure 28. Lathe

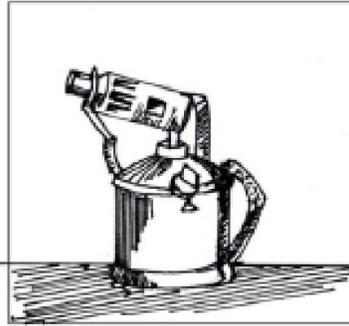


Figure 29. Blow

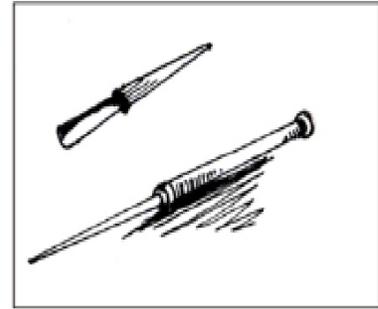


Figure 30. Filers



Figure 31. Scrapper

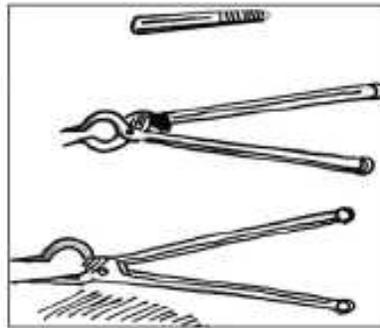
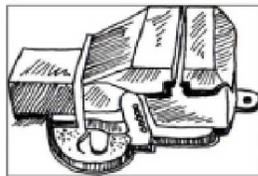


Figure 32. Tongs

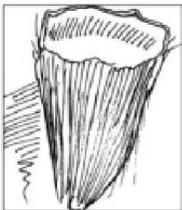


Figure 33. Divider

2.5.7 Finishing Tools & Materials:



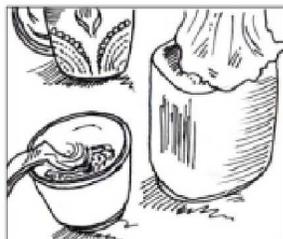
1. Bench vice



2. Coconut husk



3. Brass colour powder



4. Concentrated sulphuric acid

3. Case Studies

3.1 Case Study – I : A craftsman named Manepalli Srinivas from Makavanipalem, Visakhapatnam District of Andhra Pradesh is one of the pioneers who makes Bhajan Trees. He completed his tenth class from the same village and helped his father since the age of 12 years and trained under him. After his father's death he took charge of the workshop at the age of 17. He has experience of nearly 27 years in this field.

In his view Bhajan tree craft has good demand. He supplies to several big handicraft stores like Lepakshi, Kalanjali and others. He shared his experience about the making of Bhajan tree craft from sheet metal work to a finished product. He expressed that day by day manpower cost is increasing and this is the reason he is not able to make sufficient profits.

Srinivas suggested that technological intervention will reduce the importance and dependency on manpower (helpers). He explained the problems of capital investment. Due to lack of investment he is not able to supply according to the demand in the market. He pointed out that the government is developing a lot of technologies for the benefit of the craftsmen but awareness is not there. There is an urgent need to support craftsmen in general, Bhajan Tree craft in particular. In his opinion Bhajan Tree craft is one of the ancient crafts which exists in only a few places (Makavanipalem, Kotapadu, Tumpala) in Andhra Pradesh and urgently requires government attention.

3.2 Case Study – II : Kintada Krishna Rao Achary, a 45 years old brass craftsman, who is a specialist in making divine idols, is from Budithi, Srikakulam District of Andhra Pradesh.

Krishna Rao shared details about the origin and history of Bhajan Tree craft. According to him Bhajan Tree is usually kept in Rama Temples in villages. The branches of these Bhajan trees depend on the size like 5, 15 and 20 numbers. It is usually used on special occasions, like continuous singing of devotional bhajans during *Ekaham and Saptaham* for 12 hours, 24 hours and 168 hours without any break. Each branch has a lamp, and all the lamps will be lit with 108 lights at that time of Bhajan.

Krishna Rao also shared how the Bhajan Tree, on special devotional occasions is kept in one central place with the devotees chanting and singing bhajans around it. "The philosophy behind this activity", says Krishna Rao, "is to make people participate in devotional activities as a group and also to create an ambience which helps them feel the presence of the divine in the warm glow of the 'golden' tree, sheltering the Lord and his consort lost in divine music".

Krishna Rao worries though that there are very few people making Bhajan Trees and this craft is declining. If this situation continues, the future generation will not know about this craft and the tradition, customs and culture.

4. Major Findings And Policy Suggestions

4.1 Problems and Perspectives : Due to several problems, craftsmen are not able to perform up to their capabilities. The paper tries to identify the problems faced by the craftsmen. Based on field observations and interaction with the craftsmen the following problems have been identified:

4.2 Lack of Financial Support : The analysis of the Table – 1 explains that nearly Rs. 2500/- investment is required on each piece and the customers only pay 25 per cent of the cost of the product as an advance. Craftsmen are not able to make two or three items at a time because of lack of financial sources. Banks and other financial institutions are lending loans on surety but the craftsmen do not have sufficient assets to show surety to the financial institutions.

- 4.3 *Lack of Technology* : After the introduction of liberalization, globalization and privatization policies of the government, competition and professionalism in the market plays a key role. Presently, the craftsmen depend on cutting of sheets, drilling and molding by hand. It requires double the time. Introduction of appropriate technology will help make the craftsmen's lives easier.
- 4.4 *Lack of Manpower* : Diversification of occupations and urbanization gives people more opportunities. Now, villages have become less stagnant and people are getting more opportunities and prefer taking the urban route. The wage rates in the villages are increasing day by day. It is difficult to find manpower in villages and this adds more pressure to the craftsmen.
- 4.5 *Lack of Government Support* : There are several programmes initiated for the development of craftsmen. However, there exists a lack of awareness among craftsmen and a lack of specific policy support on procurement of raw material & financial support.

5. Recommendations

- 5.1 *Policy Recommendations* : The following measures need to be addressed through the Development Commissioner of Handicraft DCH. They can provide raw material on loan basis based on the craftsmen's performance. Semi-technology will help them become independent. DCH can organize technology workshops for Bhajan Tree craftsmen to build confidence and sustain the Bhajan Tree craft skill.
- 5.2 *Training and Capacity Building*: It is suggested that training and capacity building workshops should be arranged for the craftsman about new technologies available in the market, ways to use these technologies and new methods of marketing. These kinds of programmes will enhance capacity of craftsman.
- 5.3 *Marketing*: Craftsmen are facing lot of difficulties with regard to marketing of their articles. In this article it is pointed out that craftsmen depend on organisations and other agencies for marketing their articles. After globalization marketing articles became very easy through e-marketing. It is suggested that cluster villages should be identified and craftsmen trained to market their produce through on-line mode.
- 5.4 *Opening Outlets at Prominent Tourist Places*: Bhajan Trees are used for the religious purposes. To sustain Bhajan Trees craft it is suggested that retail outlets should be created at prominent religious and tourist places. The DCH can take appropriate measure to start outlets.
- 5.5 *Publicity*: Nowadays publicity is very important to market any product. Bhajan Tree Craft use is declining because of marketing awareness. The new generation people do not know about the craft and if anyone wants to purchase, they do not where they will get. In the perspective of consumer the craft is neglected in publicity. The DCH will take care of neglected/languishing crafts in general, Bhajan Tree Craft in particular and make publicity plan through pamphlets, brochure and short films in electronic and social media.

Conclusion

These craftsmen have been connected to their respective occupations for a long time. They saw the prosperity of the particular craft years ago. Globalization, privatization and rural to urban migration for employment of people are one of the reasons for lack of manpower in making of Bhajan Tree craft. Low wages in making of this craft is another reason. If semi-technology is introduced in the making of this craft, it will help craftsmen earn good wages and continue carrying a tradition forward. The demand for Bhajan Trees is very high and these craftsmen are not able to meet the demand of the market because of manpower, which demands higher wages.

Acknowledgement

I thank Prof. L. K. Mohana Rao, School of Economics, Andhra University for his pertinent suggestions. I also thanks to Dr. Srikrishna P. Sudheer, Assistant Professor and Ms. Sasmita Swain, Assistant Professor, TISS, Tuljapur for their valuable support.

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FOOTNOTES

- ¹PAUL T. CRADDOCK, *Journal of Archaeological Science*, Volume 5, Issue 1, March 1978, Pages 1-16
- ²JOHN ZRONIK, “Metals Shaping our World”, Published By Crabtree Publishing Company, Canada, 2005, page 7

LONG TERM SOLVENCY ANALYSIS OF LEADING FMCG COMPANY IN INDIA: A CASE STUDY OF I.T.C. LIMITED

DR. VINEET SINGH*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Vineet Singh* the author of the research paper entitled LONG TERM SOLVENCY ANALYSIS OF LEADING FMCG COMPANY IN INDIA: A CASE STUDY OF I.T.C. LIMITED declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Abstract

This study is primarily conducted to study the dependence of ITC (one of the leading FMCG company in India) on owned funds and borrowed funds. For this purpose "Proprietary Ratio" and "Debt to Total Fund Ratio" of ITC has been calculated from 2006-2007 to 2015-2016.

Keywords: ITC, Proprietary Ratio, Debt Equity Ratio.

Introduction

ITC (one of the leading FMCG company in India) was incorporated in the year 1910 under the name (Imperial Tobacco Company of India Limited). In the year 1970 the name of the company was changed to Indian Tobacco Company Limited and further, to I.T.C Limited in 1974. Today, I.T.C. Limited is engaged in manufacturing of variety of FMCG products in India such as foods, cigars and cigarettes, personal care, stationary products along with hotels, packaging, agri-business etc. This paper is a modest attempt to know the dependence of I.T.C. Limited on owned and borrowed funds. A company can raise funds through two major sources i.e. internal (from equity) and external (from long-term loans). Excessive dependence on borrowed funds can be dangerous as it can force a firm to pay regular interest regardless of profits. Dependence level of a firm on owned funds can be known with the help of "Proprietary Ratio" where Shareholder's Funds are divided by sum total of Shareholder's Fund and Long term

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Loans. In addition “Debt to Total Fund Ratio” of I.T.C. has also been calculated in order to know the dependence of I.T.C. limited on borrowed sources of finance.

Objectives of the Study

- To find out the amount of Shareholder’s Funds in I.T.C. from 2006-2007 to 2015-2016.
- To find out amount of Long-term Loan Funds in I.T.C. from 2006-2007 to 2015-2016.
- To calculate “Proprietary Ratio” of I.T.C. from 2006-2007 to 2015-2016.
- To calculate “Debt to Total Fund Ratio” of I.T.C. Limited from 2006-2007 to 2015-2016.

Research Methodology

In order to estimate “proprietary ratio” and “debt to total fund ratio” of I.T.C. Limited, secondary data has been used and the relevant data in this aspect has been assembled from annual reports of HUL, websites etc. Further, the collected data has been infused in different tables and figures and relevant statistical tools have been applied to give meaningful conclusion to the study.

Analysis and Interpretation

With the objective of calculating proprietary ratio and debt to total fund ratio of I.T.C. Limited, certain tables and figures have been constructed which are demonstrated as below:

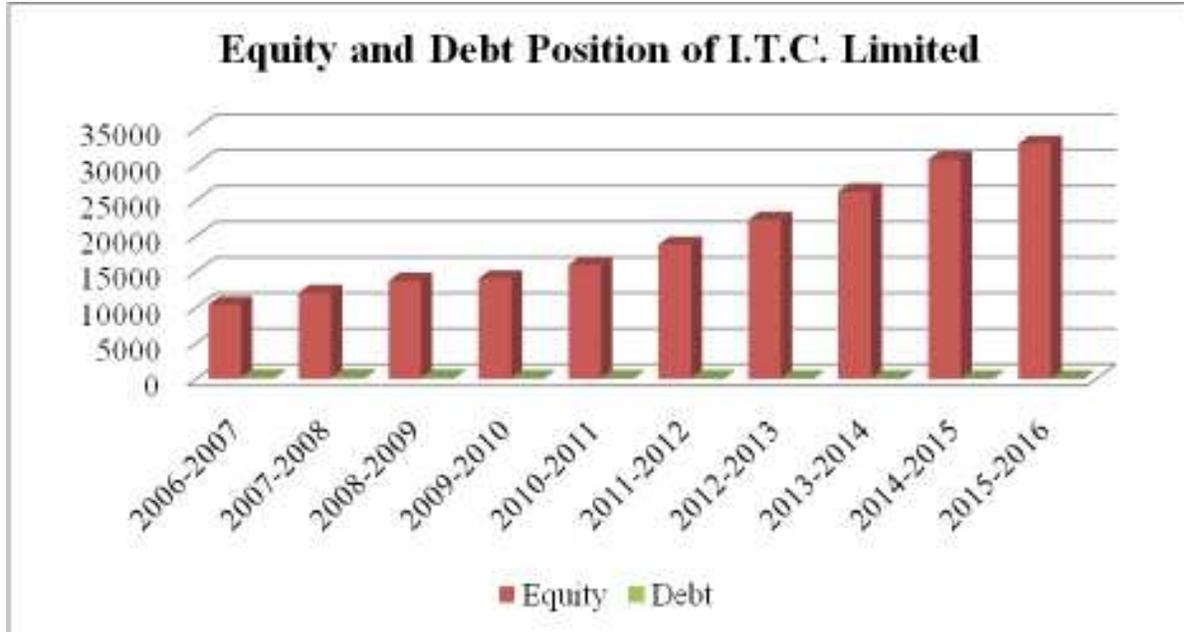
T A B L E 1 *Equity and Debt Position of I.T.C. Limited*

Years	Equity (Rs. in Crores)	Debt (Rs. in Crores)
2006-2007	10437	200.88
2007-2008	12058	214.43
2008-2009	13735	177.55
2009-2010	14064	107.71
2010-2011	15953	99.20
2011-2012	18792	92.84
2012-2013	22288	69.50
2013-2014	26262	56.09
2014-2015	30736	45.74
2015-2016	32929	40.96
Average	19725.4	110.49

Source: I.T.C. Limited Annual Reports

Table 1 and figure 1 clearly reveals the fact that I.T.C. is mainly dependent on owned funds. Owned funds of the company stood at an average of Rs. 19725.40 crores and borrowed funds of the company stood at an average of Rs. 110.49 crores. Borrowed funds roughly stood at an average of 0.56% of the average of total funds employed by I.T.C. during the study period. Owned funds in I.T.C. were highest in the year 2015-2016 where as borrowed funds stood at its highest figures in 2007-2008.

Figure 1: Equity and Debt Position of I.T.C. Limited



X Axis: Years

Y Axis: Rs. in Crores

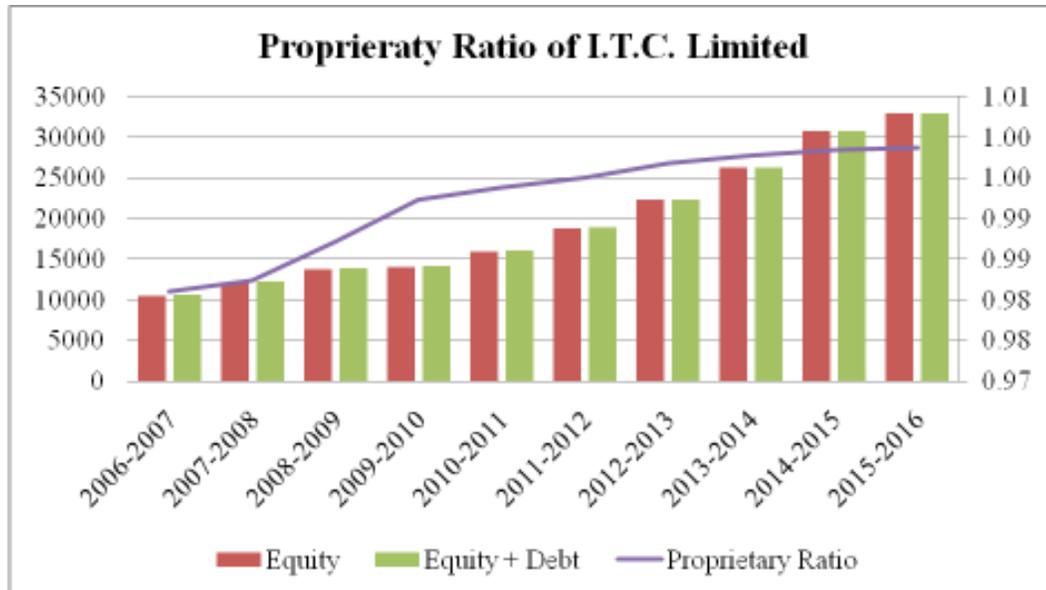
TABLE 2 Proprietary Ratio of I.T.C. Limited

Years	Equity (Rs. in Crores)	Equity + Debt (Rs. in Crores)	Proprietary Ratio
2006-2007	10437	10637.88	0.98
2007-2008	12058	12272.43	0.98
2008-2009	13735	13912.55	0.99
2009-2010	14064	14171.71	0.99
2010-2011	15953	16052.20	0.99
2011-2012	18792	18884.84	1.00
2012-2013	22288	22357.50	1.00
2013-2014	26262	26318.09	1.00
2014-2015	30736	30781.74	1.00
2015-2016	32929	32969.96	1.00
Average	19725.40	19835.89	0.99

Source: I.T.C. Limited Annual Reports

The above table and figure reveals proprietary ratio of I.T.C. Limited which goes on increasing from 2006-2007 to 2015-2016. Proprietary ratio of I.T.C. stood at an average of 0.99:1 which categorise I.T.C. under the category of debt free companies. A proprietary ratio of 0.33:1 is considered to be satisfactory as it reveals that, debt are not more than 66% of total capital employed in the company. The current study reveals that 99% of capital employed in I.T.C. is by the way of owned funds.

Figure 2: Proprietary Ratio of I.T.C. Limited



X Axis: Years

Y Axis Primary: Rs. in Crores

Y Axis Secondary: Proprietary Ratio

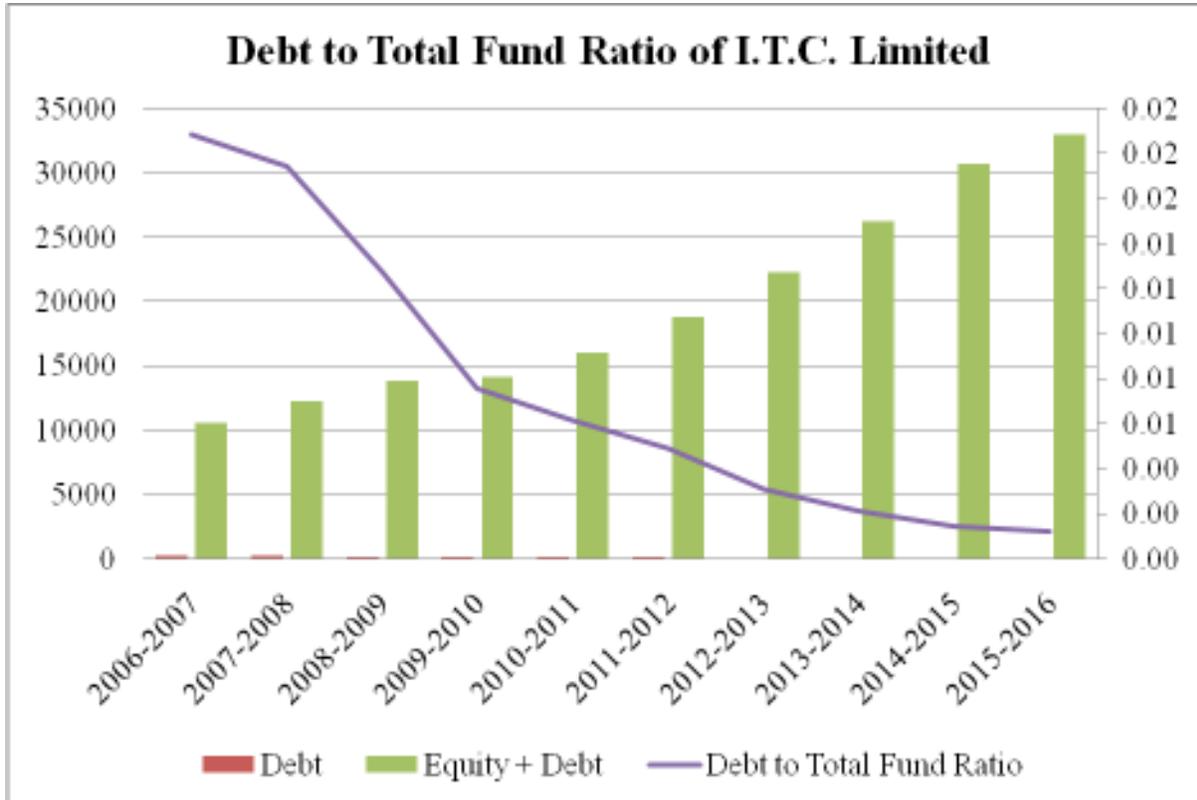
T A B L E 3 Debt to Total Fund Ratio of I.T.C. Limited

Years	Debt (Rs. in Crores)	Equity + Debt (Rs. in Crores)	Debt to Total Fund Ratio
2006-2007	200.88	10637.88	0.02
2007-2008	214.43	12272.43	0.02
2008-2009	177.55	13912.55	0.01
2009-2010	107.71	14171.71	0.01
2010-2011	99.2	16052.20	0.01
2011-2012	92.84	18884.84	0.00
2012-2013	69.5	22357.50	0.00
2013-2014	56.09	26318.09	0.00
2014-2015	45.74	30781.74	0.00
2015-2016	40.96	32969.96	0.00
Average	110.49	19835.89	0.01

Source: I.T.C. Limited Annual Reports

Table 3 and figure 3 demonstrates debt equity ratio of I.T.C. Limited which shows a decreasing trend from 2006-2007 to 2015-2016. Debt equity ratio of I.T.C. stood at an average of 0.01:1 which divulge the fact that that I.T.C. is least dependent on borrowed funds.

Figure 3: Debt to Total Fund Ratio of I.T.C. Limited



X Axis: Years

Y Axis Primary: Rs. in Crores

Y Axis Secondary: Debt to Total Fund Ratio

Conclusion

ITC incorporated in the year 1910 is one of the leading FMCG company in India and is engaged in manufacturing variety of FMCG products such as foods, cigars and cigarettes, personal care, stationary products along with hotels, packaging, agri-business etc. A company can use owned as well as borrowed funds for its establishment as well as for financing its activities. Excessive dependence of a firm on borrowed funds can bring severe risk by excessive and regular payment of interest. In the years of insufficient profits a debt laden company may find it very difficult to pay a huge amount of interest which can hamper its goodwill and in worst situations it can even lead to dissolution of the company. As per standard it is advisable for a company to have, not more than 66% of debt in its capital structure. As far as current study is concerned the following conclusions can be drawn :

- Proprietary ratio of I.T.C. stood at an average of 99% during the study period of 2006-2007 to 2015-2016.
- Debt Equity ratio of I.T.C. stood at an average of 01% during the study period.
- I.T.C. can be put under the category of debt free company as out of total funds employed in the company only 01% is financed by the way of borrowed funds.
- I.T.C. will not face any difficulty in meeting its fixed commitments in time.

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