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Editor-in-Chief



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Editorial

Provoking fresh thinking is certainly becoming the prime purpose of International Journal of Multidisciplinary Educational Research (IJMER). The new world era we have entered with enormous contradictions is demanding a unique understanding to face challenges. IJMER's contents are overwhelmingly contributor, distinctive and are creating the right balance for its readers with its varied knowledge.

We are happy to inform you that IJMER got the high **Impact Factor 2.735, Index Copernicus Value 5.16** and IJMER is **listed and indexed in 34 popular indexed organizations** in the world. This academic achievement of IJMER is only author's contribution in the past issues. I hope this journey of IJMER more benefit to future academic world.

The current issue deals with Modern hindi epics, Internet usage by manament students, Socio and Economic states of Elected Women Representatives, Electrol Trends in India, Personality among Volleyball players and etc. These applied topics are a fund of knowledge for their utilization.

In the present issue, we have taken up details of multidisciplinary issues discussed in academic circles. There are well written articles covering a wide range of issues that are thought provoking as well as significant in the contemporary research world.

My thanks to the Members of the Editorial Board, to the readers, and in particular I sincerely recognize the efforts of the subscribers of articles. The journal thus receives its recognition from the rich contribution of assorted research papers presented by the experienced scholars and the implied commitment is generating the vision envisaged and that is spreading knowledge. I am happy to note that the readers are benefited.

My personal thanks to one and all.

(Dr.Victor Babu Koppula)



EFFECT OF ANTHROPOMETRIC MEASUREMENTS AND MOTOR FITNESS ON SPORTS PERFORMANCE OF VOLLEYBALL PLAYERS

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INTRODUCTION

The identification of physical characteristics in a sport modality contributes to its success and enables to spot differences among athletes of different modalities, which is of great interest for both sport coaches and scientists. Sports performance is based in a complex and intricate diversity of variables, which include physical (general and specific conditions), psychological (personality and motivation) and body (body morphology, anthropometry and body composition) factors. The relationship between morphological variables and sports performance is the object of study of anthropometry and is an important element to be analyzed. Basketball and volleyball are most popular sports in the world, played practically in every nation at varying levels of competence. Successful participation in these sports requires from each player a high level of technical and tactical skills and suitable anthropometric characteristics. All ball games require not only technical and tactical skills, but also a great deal of comprehensive abilities including physical, technical and mental abilities. Among them, physical abilities of the players are more important as these have marked effects on the skill of players and the tactics of the teams because ball games require repeated maximum exertion such as dashing and jumping (Tsunawake, 2003). To achieve higher levels of performance both volleyball and basketball players need such physical abilities. To evaluate these physical abilities, the anthropometric measurements, parameters of the body



composition such as the percent body fat (% FAT); fat-free mass (FFM) and somatotype components are often used. Studies on the physical characteristics of the human body to-date indicate that the morphological characteristics of athletes successful in a specific sport differ in somatic characteristics from the general population. Basketball and volleyball players are typically taller than the other game players (Rahmawati et al., 2007). Basketball and volleyball require handling the ball above the head; therefore, having a greater height is an advantage in these sports (Kansal et al., 1986). Higher body mass however, is a hurdle

Objectives of the study

The study focused at the following objectives with related to volleyball players. To find out the selected anthropometric measurements on the performance of the volleyball players comparison between selected anthropometric measurement and the motor fitness components on the performance of volleyball players

Hypothesis

1) The present study has formulated the null hypothesis that there is no significant difference between anthropometric and motor on the performance of volleyball players

Sample

The samples of the study consist of 23 volleyball Players drawn randomly from inter university competition.

Tools

- 1 AAHPER - Motor fitness test.
2. Anthropometry measurements tools.
3. Stop watch



Results and interpretation

Table-1

Motor fitness parameters of inter university volleyball players N-23

Particulars	Mean	SD	T-value
Speed	7.65	0.87	2.32
Endurance	1.61	0.33	2.70
Agility	27.80	0.73	2.21
Flexibility	7.80	0.87	2.32
Strength	5.6	0.25	1.52

*Statistically significant difference at 0.05% level.

**Statistically significantly difference at 0.01% level.

Above table shows that although there had been highly significant improvement in 23 players, the t-value is significant to the motor components. But this it is quite slow; Approach jump forward and backward jumps progress are there which are statistically insignificant. Where as in three continuous jumps showed significantly improvement .Physical preparation is an important component in training for any sport and so in volleyball. The improvement in a number of physical fitness parameters of all the characterize volleyball as a sports discipline in which power and speed are combined with an increased explosiveness ,Agility, Coordination and the time of motor reaction .High performance of elite volleyball players mostly depends on explosive power of leg muscles. in that connection the vertical jump is the significant indexes of power (speed force)possibilities.

*High percentage content of fast-shortened fibers in muscles

*Activation and synchronization of motor units, specificity of a moving pattern.



*Primary level of power possibilities, capabilities of utilization of elastic energy of muscles and sinews.

*Efficiency of a high utilization of hand, trunk and head movements.

Blocking is the first line of defense. But the rate of effective blocking is only 20% even in high level matches. Among the small portion of effective blocking in women's game, the 'Saved blocks' account for only 30%, But when this is added of high percentage of unsuccessful blocks, we can see that the backline players have to bear the brunt of attacks. As a matter of the fact, the female backline players on topnotch teams are capable of receiving 60% of the unblocked attacks, as against 40% for the opposite sex consequently, the importance of defense training for male volleyball players can never be overestimated

SL. No	Volleyball sample N-23	Mean	SD	t-Value
1	Height	173.95	36.27	16.85
2	Weight	64.13	13.27	0.67
3	Biceps	34.26	7.14	1.63
4	Triceps	36.56	37.62	4.53
5	Thighs	45.60	9.50	23.01
6	Calf muscles	41.86	8.72	23.02

*Statistically significant difference at 0.05% level.

**Statistically significant difference at 0.01% level.

The table indicates the mean. SD. t-value of the volleyball male players in Anthropometric measurement plays an implement role in volleyball. According characterizes of anthropometric is higher the height and other selected aspect is good for performance. The proportional body mass is more simply obtained and easier to interpret. it answer the question, if a subject was geometrically scales to 170.18 cm in height, how much



would he or she weight? The gold medal winners of two athletes namely: Hernandez-Cuba-Boxing(less than 48 kg category) and Lasse Viren of Finland-5000 and 10000 meters gold medal winner were seen proportional body mass less than 50kg. San-Hong Kin and Amatya. D.L.had reported in their study of Korean and Nepali marathon runners found that no difference between these two countries runners in Age, stature, body weight, but despite of taller height Korean runners had shown lighter proportional body mass(55.7)in compare to Nepali(58.5) Counter parts

CONCLUSION

Spiking and blocking successfully is a crucial feature of winning teams in today's volleyball. Key points for the effectiveness of block spiking are anticipation, decision-making, movement speed and jumping ability. Since we don't have prolonged continuous training system, it is very difficult to develop bio-motor abilities systematically. Since, some of the first six players have less VO2 Max or Endurance capacity and weak in explosive strength and speed qualities, it is suggested for the concern authority and players to concentrate on such factors in future. Team Volleyball, like several other ball games, requires not only technical and tactical skills but also great deal of physical fitness. During a long competitive season, typical of any European League, Team Volleyball coaches' concentrates mainly on technical and tactical drills, reducing the volume of training devoted to strength and conditioning activities. This may lead therefore to unwanted changes in selected aspects of the optimal physical fitness profile Volleyball is a game in which the ball is allowed to touch the player's hand for but a fraction of second. For most of the time, players are engaged in movements without the ball such as starting, running and jumping. Statistics shows that of all the technical movements in game, those with the ball account only for 20.75% for the main spiker,21.72%for the supplementary spiker



and 25.55% for the setter, While those without the ball account of 75-80%.these two kind of technical movements are inter-connected with each other. In technical training therefore, the coach should pay sufficient attention to movements without the ball and connecting skills, without which no counter attacks can be spoken of.

A volleyball match can be played for five sets, which means that the match can last about ninety minutes, during this time a player can perform 250-300 actions dominated by the explosive type strength of the leg muscles. of the total number of actions, jumps take up around 50-60%,high speed movements and changes of direction in space about 30% and falls about 15%,The average height of a modern days volleyball player is greater compared to the one from earlier periods and is between 195 and 200 centimeters.

The average extent of receiver's vertical jump in spike and a middle blocker's is between 345 and 355 centimeters, and in a block from 320 to 335 centimeters. The spike and block actions are dominated by the corresponding explosive type strength which is referred to as the player's vertical jump, which is usually the key to winning points.

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ETHICS AND RITUAL, AND THEIR IMPACTS ON CULTURE OF JAVANESE - SAIVISM

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Introduction

Vast region of South East Asian has been in contact economically and culturally with different foreign culture since time immemorial. Almost all world religions have been accepted by various people as a mode of life in various parts of it. They have been interacting internally and externally in some extents with indigenous culture or traditions; showing spiritual quest and dynamics of its intellectual. Consequently there are various religious and ritual practices as integral parts of its culture. For Java, in the present-day Indonesia, the influence of Indian culture or values on its culture is outstanding, and the imprints can be seen obvious in so many evidences, like literature, temple, social system, art, etc. It is worth to note such human intellectual heritages are still well preserved in a Muslim dominating country. It, in one way, endows a potential on which culture develops enriching the plethora of South East Asian culture, however, on the other hand, it inherits potential of tension even open conflict internally and/or externally.

According to historians, *Saivism* of Java¹ had flourished in Java since in 8th. cen. A.D. or perhaps earlier; and it is still preserved as a living tradition in adjacent Bali and some parts of the archipelago. As religious tradition professed by masses, rituals and temple related activities either of individual or public, small or big, are outstanding features² of it. Ritual is outer layer of a religion, which shows human external expression about



faith. With this ritualistic practices, the existence and role of literature as the source or guide lines are obvious. Holy places, sacred books/treatise, holy days, holy person, etc. are features of religious society.

Java and Bali islands inherit bulk Sanskrit-Old Javanese³ literature and left us imprints of culture covering wide areas of subjects as logical consequence of cultural contact between Indian sub-continent and Java. They were mostly written on palm leaf (called *Iontar*)⁴. Sanskrit-Old Javanese literatures are sources of *Saivism* of Java, which in course of time, is known as Hinduism of Indonesia. They cover wide area of subjects/interests, not only related to philosophy and religion but other fields of study, like health, astronomy/astrology, art, language, literatures, etc. Each interest is relatively formulated in a particular genre of literature, e.g. metaphysics (*tattva*), ethics (*sasana/sila*), ritual (*kalpa-sastra*), hymn (*puja/mantra*), poetry (*kavya/kakavin*), *kidung*, prose (*parva*), medicine (*usadha*), astronomy/astrology (*variga*)⁵, etc. However, these are not clear-cut divisions since some subjects are overlapped in different genre. They were mostly anonymous and were written not in systematic ways in modern sense. What is obvious is that this literary tradition is records of dynamic of intellectuals of Javanese in ancient times.

This paper is a humble discussion on ethics in relation to ritual and metaphysics as very fundamental aspects of spiritual and empirical life based on its literatures. For that matter on ethical (*sasana*) texts are worth to be explored to reveal its message in relation to culture in *Javanese-Saivism*.

Three Pillars

When literature⁶ of this type of *Saivism* is analysed, it reveals that there are three main ideas/principles, viz. metaphysics (*tattva*), ethics



(*sasana/sila / niti-sastra*), and ritual (*kalpa-sastra/dharma*), which are all together termed as *Tri-dharma* or *Tri-yoga*⁷. They are basically forms of *yoga* culminating on oneness (*advaita*) of self with the Supreme Self. Each is means for union with the Supreme Reality. Interestingly, they are interrelated forming three pillars as the backbones of religious and spiritual traditions of this *Saivism*. In other words, a religion as per this tradition is called to be complete when any of these elements/pillars is not missing from the practices. They form a holistic whole of which *Tattwa* is the core of them. *Tattva* or *tutur* texts deal with metaphysical principle/enquiry or metaphysical speculation discussing the highest/supreme reality as the origin of all existences to which all will return ultimately. Further, *Sasana/ Sila / Niti-sastra* texts deal with ethical values/ideas/principles as bases for obtaining knowledge of the reality or highest reality and also foundation for practicing ritual. Whereas ritual (*kalpa-sastra*) is huge group of texts, which deal with rituals and related matters, e.g. almanac/astronomy/astrology (*variga*), medicine (*usadha*), manner to build house/shrine and measuring land for sites of ritual (*astakosala-kosali*), creating offering for *yajna* (*indik/plutuk*)⁸, etc. For the later, it is rather practical and pragmatic in nature, sometimes consists of manual to conduct a ritual. Priests use them as manual officating sacred sacrifice(*yajna*). Amongst the three domains, literature of rituals is the biggest and very elaborate. Due to this fact, spiritual master testimony (*gurutah*) and literary tradition (*sastratah*)⁹ as sources of truth have superior positions in religious life.

These elements are interrelated to each other forming a religious tradition as found in ancient Java¹⁰. Irrespective function each has, *tattva* or *tutur* is considered as the core of all since it contains subtle metaphysical principles from which everything is regulated. From metaphysical principles it pervades all from ethics to ritual. No ethics or ritual is devoid



of metaphysical ideas/ thoughts/ principles. This practices brings subtle metaphysics to masses in forms of rituals. *Javanese-Saivism* has syncretic nature incorporating metaphysical principles, ethics and ritual shaped in local culture. Ritual is an extension of metaphysics showing a process of expansion and absorption of consciousness of the ultimate and absolute principle¹¹.

Ethical Values

Sasana texts¹² are main sources of ethical principles, whereas sources of ritual are *Kalpa Sastra* texts, which cover *Panca-maha-yajna* (five great sacrifices – *Deva*, *Manusya*, *Pitr*, *Rsi*, and *Bhuta*). For the latter they contain manual of conducting *yajna* (ritual) of various types. Each *Sasana* text has a particular topic of discussion, e.g. *Siva-Sasana* discusses ethics of spiritual master (*guru*) and disciple (*sisya*), *Niti-sastra* discusses ethics of ruler and peoples, *Stri-sasana* discusses ethics of wife, *Putra-sasana* discusses ethics of son/daughter, etc. Thus, broadly speaking they can be divided into two categories, viz. ethics for priest/holy person (which variously called as *sadhaka*, *acarya*, *pandita*, *viku*, etc.) and lay person (*valaka*)¹³. It shows that Javanese were quite interested in the problem of ethics. It is basically about values required both mundane and spiritual life.

Some ethical teachings found various *Sasana* texts are: A. *Tri-kaya parisuddha* [three types of purity, viz. mind (*manas*), words (*vak*), and action (*kaya*)]; B. *Subha-asubha-karma* (good/right and bad/wrong action); C. *Yama* and *Niyama* (called *Dasa-sila* – ten ethical principles as the foundation of Yoga practices); D. *Sadanga-yoga* (six limbs of *yoga*, viz. (1) *Pratyahara* (withdrawal of senses from their objects), (2) *Dhyana* (meditation), (3) *Pranayama* (breath control), (4) *Dharana* (breath holding), (5) *Tarka* (reflection), and (6) *Samadhi* (concentration),



E. *Vrata* (vow/fasting), F. *Dana* (donation), G. *Purusartha* (goals of life); H. *Yajna* (sacrifice/ritual), etc. The very core of ethical teachings is to obtain purity of mind and body; not only body (microcosm) but also universe (macrocosm) since by nature they are essentially composed of the same elements called five gross elements (*bhutas*), viz. earth (*prthivi*), water/liquid (*apah*), heat/light (*tejas*), wind (*vayu*), and ether (*akasa*). These all have their quality of five subtle elements (*tan matra*), viz. (1) sound (*śabda*), (2) touch (*sparsa*), (3) form (*rupa*), (4) taste (*rasa*), and (5) odour (*gandha*). Human body consists of three layers/elements, viz. gross body (*sthula-sarira*), subtle body (*sukṣma-sarira*) and self/soul (*antah-karana*). For the first two layers/elements are composed of five gross elements (*Panca-mahabhutas*) originated from *Prakṛti* (matter principle). They undergo permutation in multifarious ways both subtle and gross in nature¹⁴. This state of affairs caused self suffers due to its consciousness covered by *Prakṛti* in its various state and layers. It becomes ignorant of its own real nature. For transcendence of such state, one needs spiritual knowledge, i.e. *Siwa-jana*, but for its acquisition, ethics (i.e. *Siwa Sasana*) plays a very important role. One should practise ethical life first as a prerequisite in spiritual journey.

Impacts on Culture

Why is ritual practised even in elaborate way? What is the impact on culture? There are many motives behind its performance. One thing pertinent is that human spiritual quest cannot be sufficiently satisfied with intellectual pursuit only rather any pursuit should ideally satisfy reason, spiritual, emotion, and action in some degrees. The swift of pursuit to ritual like that happened in Brahmanic religion to metaphysical speculation as seen in Upanishad literature, or the swift from Vedic tradition to Buddhism cannot stand long because by nature emotional or affected



domain of human being needs to be satisfied irrespective the concept of ritual one may perceive. When ritual is excluded or eradicated from life due to some modern ideas of religion, social cohesion, brotherhood will increasingly go down. Religious life will become really individual pursuit to reach the Highest.

Any intellectual pursuit should not only cover logical side, but emotional or psychological as well. In human being they present altogether in multifarious ways. There is obviously a room for emotional quest. In accordance to various Indian philosophical and religious traditions, *Saivism* of Java does not keep blind on metaphysics since both domain aims at the same goal, highest goal of life—*maha-purusartha*, i.e. *moksa* (freedom/released from bondage). Accordingly, literature especially *Tattva/Tutur* of this *Saivism* can be viewed as *moksa-sastra*¹⁵. Religion is not just faith or belief but has its foundation on metaphysics, called *tattva* as per Javanese tradition. In other words, it is a theistic philosophy fostering on the Lord Siva as the highest/supreme reality and *Siva Sasana* is its ethics. Pursuit of truth in a philosophical way will yield a person of great intellect but of weak in emotion and faith. Of such system it can only accommodate a small number of people; whereas *Javanese-Saivism* being a theistic philosophy gives a wide room for ritualistic practices and also for various types of people. Thus, ritual is basically metaphysics in practise.¹⁶.

Not only in terms of philosophical domains, Saiva tradition being opened for provoking ideas has been trying to assimilate or combine different traditions making the external manifestations of its ritual varies from place to place or from time to time. *Javanese-Saivism* as preserved in Bali recognises the concept of *Desa* (place), *Kala* (time), and *Patra* (condition), which cause the appearance of variety in ritual. In addition to it, there exists the concepts of *Kanistha* (least/low), *Madhya* (middle), and



Uttama (high), which provides choices or flexibilities to be opted by devotee with reference to ability, time, place, and other limitations. This concept perhaps can be used to give a solution in modern time in which people has insufficient time to prepare and perform ritual provided that one still wants to accomplished ritual. What obvious is that to express sense of religiosity human being performs ritual. They feel long and missing of contact especially with the worshipped. Through performing ritual one always in tune with the Universal Consciousness; his life is directed under the guidance of the Divinity. Ritual prevents human being not to divert away from faith and put one in religious atmosphere; finding community of the same interest, visiting temple or holy places, come to see holy person for enlighten, etc. Since the time appeared the idea to accomplish ritual, one starts to tune to the worshipped, thinking/concentrating on him, and surrender to him. In such pious atmosphere, wicked or bad or dirty mind, word or action can be discarded. With this manner, through ritual ethical values of purity or mind (*manas*), word (*wak*), and action (*kaya*) – all called *Tri Kaya Parisuddha*¹⁷ altogether can be practised.

Action of ritual is supposed to be extended in daily life without making dichotomy between actions categorised sacred and profane. With reference to ethical values, there are no differences either performed within temple premises or outside of it, i.e. in society. Some people take care of religious action only. Giving donation for building a temple is so generous, but when his fellow country suffers from poverty, he/she does not care at all. It is obvious all ethical values can be implemented to shape human character and action though performing ritual in integrated manner. Moreover, ritual is metaphysics in practice; it is three dimension forms of metaphysics. Ritual is basically an action of mind, speech, and body. Accordingly, religious expressions as a symbol of one's faith and devotion



come into existence at any times from generation to generations in long span of life. They create offerings, arts, dance, architecture, sculpture, etc. in best way as form of one's faith. The new creation is based of purity, sincerity, and devotion. That is perhaps the reason temple or palace is considered as the centre of arts, since devotee or people try to present the best quality of arts with high dedication. Not only is such tangible objects created, the most important the intangible things, which is supposed to give strength to the created ones. Of this dynamic and creativity of the people, custom, tradition, and culture come into existence focusing of the worship to the Lord Siva, as the highest and absolute reality. It is testified by the existence of huge number of literature contain various subjects written in Javanese language, temple, bathing place, cave, arts, social and political system, etc. enriching the culture of Indonesia. Prambanan temple, the biggest temple complex in Central Java, and other sacred monuments scattered in Java, Bali and other islands shows the grandeur of the metaphysical and ethical values of this kind of *Saivism*.

When we look at it in more details, it is found very complex due to materials, manner to make, principles, time, place, etc., and only one who is professional can explain or show how to prepare a certain offering. The technicality of the making can be learned through practice guided by expert in this field. Nonetheless, an offering (called *banten* in Balinese tradition) is basically a *yantra*, means for concentration as well a site to enshrine deity to be worshipped or offered the offerings¹⁸. A *yantra* is usually placed in a *mandala*. The design of it is various but at least it consists of rectangular, triangle, and circle and their combinations in various colours. The material used originated from five elements, like from earth are flower, leaf, wood, fruit, etc. In addition to a *yantra*, a ritual consists of sacred formula (*mantra*) chanted by priest, hand/finger movements/ cereals



(*mudra*), concentric place (*mandala*), and concentration/union (*yoga*). A religious ritual consists of various elements, like ritual (*arcana*), fingers movement/cereal (*mudra*), sacred formula (*mantra*), *kuta-mantra*, and sacred syllable *Om (pranava)*¹⁹. With these all they constitute and generate power required for eradicating impurities of human body (microcosm) and universe (macrocosm) of reality.

Life is viewed as a journey of ritual/action for self-transformation. When *samskaras* from inception to cremation is taken into account, it has transformative function in the life of an individual. Ritual has function to purify as well. Everything is offered to divinity which is inherent in each of us and nature. Traditionally, ritual has constrained a Hindu's life from birth through marriage and death in the life-cycle rites (*samskaras*), a ritual orders social relationship and the relationship with divine, embodied beings, the gods of temple and shrine²⁰. Similar to that of Kashmir Saiva tradition, it is a religion for which ritual is everything²¹. The case is perhaps similar with *Saiva-Siddhanta* tradition in South India as testified by *Agamas* and *padhati* literatures. Domestic as well as public *puja* like that one conducted in temple is really a big festival and gathering. It is a form of religious faith and religiosity of people shaped by local culture. Due to heavy stress put on ritual in its practices, sometimes one is confused the significance of its practice as it overshadows the philosophical imports behind its practices. It has a conception of ritual in relation with ethics which is perhaps different from Vedic traditions.

Ritual functions to connect peoples and divinities on the hope that their wish may be fulfilled in since divinity is the essence of all. Ritual, in this regards, is a religion of masses, which bind all in the spirit of devotion, togetherness and purity. Proper ritual puts aside such bad nature of human



beings and in contrary promotes purity, sincerity, truthfulness, etc. according to ethical teachings, *Dasa-sila*, *Yoga*, etc.

In addition to means to worship god and connecting to others, rituals can function as purifier /neutralizer negative aspects of microcosm and macrocosm. In other words, ritual is power which can demolish bad elements of nature. It is due to elements that compose a ritual endowed with some powers and they are utilized through the chanting of *mantra*, performance of *mudra* and *yoga*. It recharges nature from its exhaustiveness to function in its own right due to the cycle of time may bear undesirable things or imbalance of nature. These undesirable elements come into existence due to permutation of various elements of nature and human behaviours, who do not keep clean, healthy and harmony. Empirical sciences can be utilized for restoration of natural imbalance, but it can only do partially for a limited scope of time and location. Ritual (*yajna*) which is cosmic in nature can be conducted for holistic nature. In this regard, *Bhuta-yajna* is of the utmost important which is performed systematically according to calendar. *Bhuta-yajna* ranges from small to greatest one that is held once in century (called *yajna* of *EkaDasaRudra*) in the biggest temple of Besakih in Bali²². It is basically a *yajna* (sacrifice) for obtaining clean, healthy, balance, and harmony of nature as basis for human happiness as well as worshipping God. When everything is purified, each endows sacredness, which is conducive for divinity. Sacredness is, in turns, foundation for prosperous and happy life. Hence, it is the significance of ethics and rituals in life.

Sum-up

Ritual (*yajna*) as external expression of religiosity is outstanding feature of *Javanese-Saivism*. It is part and parcel of life and its practice has its basis on metaphysics and ethics. They are interrelated and form



pillars of its religious tradition. Ritual is metaphysics in reality, which can be perceived in three dimensions. As metaphysics is mastered by the elite, ritual is religion for masses. Ritual functions as medium to connect with divinities, environment and other human beings showing that each and every of us is connected with others in subtle way. When one self is impure it can have bad effect to others since impurities hamper in self-transformation. Purity is very essential in spiritual life and this is the prerequisite condition happiness in life. Therefore, ethics plays important role in the pursuit of the highest goal of human life.

Due to the performance of ritual, devotees create temple, sculpture, literature, song, arts, drama, theatre, etc. They come into existence as expressions or symbols of religiosity. They behave as medium through which self-transformation may be attempted in the pursuit of the highest reality. In the process of artistic creativity, mind, words and action are blended together in harmonious way.

References

- 1 It has been proven through research that this philosophical tradition is a distinctive Saiva tradition differs from those ones available in Indian sub-continent. For further information, see I.B.P. Suamba, "The Advancement of *Saivism* in Indonesia: A Philosophical Study of *Saiva-Siddhanta* (With Special Reference to Old *Javanese Tattva* Texts)" (*Ph.D.* dissertation), University of Pune, 2011.
- 2 See I.B.P. Suamba, "Ethics, Ritual, Sacredness, and Happiness in Javanese-Saivism of Indonesia (A Study with Reference to Old Javanese Sasana Texts" (*paper*), which was supposed to be read in the 5th *South and Southeast Asian Association for Study of Culture and Religion (SSEASR) Conference* organized by the National Museum of the Philippines and the University of Santo Tomas in Manila from May 16 to 19, 2013, p.2.



- 3 In Bali Old Javanese and Middle Javanese are generally called 'kavi', [See, H. Creese, "Old Javanese Studies: A Review of the Field" in *Bijdeagen*, 2001, No. 1, Leiden, pp. 3-33].
- 4 *Lontar* or *tal* (in Balinese language) is actually a name of palm leaf (Latin: *Borassus flabellifer* and another type is *Coripha utan*), which is used as the medium on which script is inscribed using special knife (known in Balinese as *pengrupak* or *pengutik*). Thus, *lontar* is ancient texts written on palm leaves. This plant is easy to grow in tropical or sub-tropical countries. However, in its development, *lontar* (palm leaf manuscript) becomes name of ancient texts, which are expressed through the medium of palm leaves irrespective of its content and kind. The process of making a *lontar*, from flunking palm leaves to a *lontar* form, which is ready to be written, is quite delicate [See, I.B.P. Suamba, "Balinese *Lontar*: Its Philosophical Background and its Ritual Performance", (*paper*), 2010; I.B. Rai Putra, "*Lontar*; Manuskrip Perekam Peradaban dari Bali", JUMANTARA, Vol. 3, No. 1, Tahun 2012, pp.148-166].
- 5 See I.B.P. Suamba, 2013, *op.cit.* This present paper has its inspiration from the paper mentioned above.
- 6 Attempts to classify Balinese literature done by the *lontar* library of Gedong Kirtya of Singaraja and Pusat Dokumentasi Kebudayaan Bali in Denpasar, Bali, which are commonly used by researchers. Both have some differences despite its similarity. Gedong Kirtya classification is the first attempt done in 1928. Pusedok (1995) seems simpler with reference to various subjects are treated in *lontar*
- 7 *Parisadha Hindu Dharma Indonesia*, the Hindu Board of Indonesia called these trio as *Tri Kerangka Agama Hindu* (three frameworks of Hindu religion) as mentioned in *padesa* (1967), first book contained systematised tenets of Hindu religion of Indonesia. I coined these terms due to the significance of *dharma* or *yoga* in the pursuit of highest truth [Further see, I.B.P. Suamba, *op.cit.*, 2011, p. 93; *op.cit.* 2013., p. 4]



- 8 *Ibid.*, p.4.
- 9 See, I.B.P. Suamba, *Ibid.*, 2011, pp. 144-146; See, *Ibid.*, "Tri-Pramanas and Conflict Resolution in Javanese-Saivism: A Study with Reference to Sanskrit-Old Javanese *Tutur* Texts" in *Eastern and indigenous Perspectives on Conflict Resulation* Y. Pathak (ed.) (Pensylvania: International Centre for Cultural Studies, 2013).
- 10 As Javanese were converted to Islam in 15 cen. AD, no such practice is available in Java nowadays. It is preserved and practised in Bali.
- 11 I.B.P. Suamba, *op. cit.*, 2013, p.5.
- 12 To mention some of them are *Silakrama Aguron-guron*, *Slokantara*, *Sarasamuccaya*, *Niti-sastra*, *Rajapati-gondhala*, *Stri Sasana*, *Putra-sasana*, *Rsi-sasana*, etc.
- 13 I.B.P. Suamba, *op. cit.*, 2013, p 6.
- 14 *Ibid.*
- 15 *Ibid.*, p.8.
- 16 *Ibid.*, pp.8-9.
- 17 *Ibid.*, p. 9; See, I.B.P. Suamba, "Dharma as Ethical Values in *Sarasamuccaya* and Its Relevance to Present-Day in Indonesia" (*paper*) presented in the "International Conference on *Dharma-Dhamma*" held on 21st -23rd September 2012 in Bhopal/Sanchi, Madhya Pradesh, India, pp. 6-7.
- 18 I.B.P. Suamba, "Yoga Tradition in Bali-Hinduism" in *Global Spiritualism*, [B.P. Siddhashrama (ed.), 2007], pp. 286-294.
- 19 *Bhuvana Kosa*, *Patalah VIII*, *sloka* 24.
- 20 Gavin Flood, "Introduction: Establishing the Boundaries" in *The Blackwell Companion to Hinduism*, Gavin Flood (ed.), (Blackwell Publishing: New Delhi, 2008), reprint, p.6.



- 21 Alexis Sanderson, "Ritual for Oneself and Ritual for Others" in *Ritual Dynamics and the Science of Ritual*, Axel Michels (gen. ed.), (Wiesbaden: HarrassowitzVerlag, 2010), p.10.
- 22 When Saka Year closed with two zeros or *rah vindu, tengekvindu* on the month of *Caitra*. The last greatest *EkadasaRudraYajna* (ritual) was performed in black moon (*tilem*) of the month of *Caitra* in Saka Era 1900 or March 1979 [Further see, I.B.G. Agastia, *PancaBalikrama, Padma Mandala dan Sad Kahyangan*(Denpasar: DharmopadesaPusat, 2008), pp.1-3; See I.B.P. Suamba, *op.cit.*, p. 9.



THE PERFORMANCE OF KHADI AND VILLAGE INDUSTRIES (KVIS) IN INDIA-AN ECONOMIC ANALYSIS

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1.Introduction

The Khadi and Village Industries (KVIS) play a significant role in the Indian economy. This sector contribute about one third of the total income of the rural households. The khadi and Village Industries Comission (KVIC) had all along played a commendable role at the grass root level, to provide employment opportunities to the entrepreneurs and unemployed in the rural areas of the country to uplift their socio economic status. The employment in khadi programme has reached to 9.81 lakh persons in the year 2009-10. The production of khadi has also steadily increased to Rs.628.97 crore during the same year. Similarly, village industries programme have also shown remarkable progress by registering production of Rs.17508 crore which created employment to 98.72 lakh person. The sales of khadi has increased to Rs.867.01 crore in 2009-10, whereas for village industries increased to Rs.23254.53 crore. (BIFR, GOI, 2010). The khadi and village industries Comission (KVIC), over the last five decades, have been striving for the noble cause of providing employment opportunities to millions of entrepreneurs in rural sector of India. Again, in the backdrop of declining capacity of agriculture sector in absorbing the ever increasing additional labour force in the rural nonfarm sector, KVI programme stands as one of the most acceptable alternatives. The Government of India continued its whole hearted support to this sector and provided funds worth Rs.919.2 crores under plan fund during the year for the smooth implementation of the programmes. The KVIC has also



created a history in many of its schemes and programmes recently for establishment of micro enterprises.

1.2 Review of Literature

There are lots of studies conducted by scholars relating to the KVIC and its impact on rural industrialisation, employment generation and income. Some of the related literatures are reviewed as follows.

Somayajulu et al (1983) studied the impact of institutional support on rural industrialization with respect to the assistance provided by the state Khadi Village Industries Board (KVIB) through econometric analysis. They analyzed changes in the structure of KVI by way of comparative analysis of growth rates in development indicators and in structural ratios of individual industries in Andhra Pradesh during 1956-80. It was observed that decreasing returns to scale is a normal feature of all the 18 industries under investigation.

Singla S. K et al (1983) attempted to assess the impact of the effort of the State Government in the development and growth of village industries with special reference to Punjab Khadi and Village Industries (PKVI) Board. Seven industries were selected out of the list of village industries approved by KVIC, as they absorbed more than 80 per cent share of the total assistance from the board. Compound growth rate were obtained for production, employment and total assistance for these industries from 1973-74 to 1979-80. It is observed that growth rate were significant for all the industries for the three factors under study except for pottery in the case of employment and assistance and gur and khandsari in the case of production. The regression analysis was also used to study the impact of government assistance on production and employment in these industries using both linear and log linear functional forms. The study revealed that



the impact was more focused on gur and khandsari, fibre and leather industries in terms of production, whereas in the case of employment, highly significant regression coefficients were observed for neo soap, gur and khandsari and fibre industries. The study concludes that PKVIB has significantly helped the development and growth of these industries in the State.

Pushpalata (1999) made empirical study on the role of KVIC in rural industrialization with special reference to promotion, employment generation, and income earned during the plan periods (first five year plan to eight five year plan). She identifies the problems faced by the KVIC in promoting rural development. She studied the rate of increase in the production by applying time series analysis and found an increasing trend but employment generated by KVI shows that, it is not that much significant and appreciable. Thus there is no much significant difference between the production made and the income earned. Regarding problems faced by KVIC, it has been found that there is a wide gap between the allocation and the fund availability. Another problem faced by KVIC is even in that less than 2 per cent of the allocation of KVIC was able to get full grants. It has to be from the fifth plan onwards, the funds disbursed dispersed by the by the Government to KVIC get reduced from 88 per cent to 32.6 per cent in fourth five year plan to eight five year plan respectively.

The study does not attempt to analyse micro or macro level the KVIC's role on Output, employment and sales in India. Therefore, present study attempts to analyse performance of KVIC with respect to output, employment and sales of KVI sector.

1.3 Objectives of the study

The objectives are



- a. To study the performance of KVIs in India for the period 1994-2010.
- b. To highlight the association between the performance variables and
- c. To predict the level of production, employment and sales of KVIs in future?

1.4 Methodology

The study is based on secondary data collected from official publication of the Board of Industrial and Financial Reconstruction (BIFR), Govt. of India, 2010. The authors have used compound growth rate and correlation analysis for answering the first two objectives. Again, least square principle also used for projection of output, employment and sales by 2016. In addition, simple trend line has also fitted.

1.5 Analysis and Interpretation

The performance of the KVIC is examined in respect of three performance variables namely employment, output and sales.

1.5.1 KVIC and Employment generation

To generate employment opportunities both in rural and urban areas of the country through setting up of new micro enterprises, KVIC launched Rural Employment Generation Programme (REGP) in 1994. However, subsequently the Ministry of Micro, Small and Medium Enterprises (MSMEs) launched a new credit linked subsidy scheme called Prime Minister Employment Generation Programme (PMEGP) on 15th August 2008 by merging the Prime Minister Rojgar Yojana (PMRY) and the REGP that were in operation. It is implemented by KVIC as the nodal agency at the national level. At the State level, the scheme is implemented through the



State KVI directorates, State KVIBs and DICs and banks. The scheme brings together widely dispersed traditional rural and urban unemployed youth and provide them self employment opportunities to the extent possible at their place. Due to its immense scope to provide continuous and sustainable employment to a large segment of rural and urban unemployed youth in the country, it helps in arresting migration of rural youth to urban or outside areas. It enhances the wage earning capacity and contributes to increase in growth rate of rural and urban employment.

So far as the macro level employment generation of KVIs in India is concerned it shows a rising trend in the village industries and falling trends in the khadi sector. The status of employment in KVIs sector is shown in Table-1

It reveals that additional employment in the KVIs increases at faster rate due to the implementation of REGP/ PMEGP in the country which lead faster rise in employment opportunities. Again, State wise number of persons benefited through estimated employment generated under REGP and PMEGP in India reveals that estimated employment generated under REGP is 595451 in 2006-07 and rose to 975651 in 2007-08 and 255070 in 2008-09 under the newly introduced PMEGP scheme. The State like Assam placed in rank one in respect of number of project sanctioned as well as in employment in the North Eastern (NE) region. It generated employment to 30912 persons in 2006-07, 48303 persons in 2007-08 under REGP and 12280 persons in 2008-09 under PMEGP (KVIC State office Guwahati)



**Table-1:Employment, Production and Sales in KVIs
in India (1994-95 to 2010-11)**

Year	Total Production (Rs.in crore)	Total Employment (In lakh)	Total Sales (Rs.in crore)
1994-95	3624.06	53.46	4069.19
1995-96	4026.45	56.72	4429.13
1996-97	4416.26	58.35	4814.01
1997-98	4519.31	56.50	5065.28
1998-99	5122.37	58.29	5601.01
1999-00	6165.35	59.23	6769.20
2000-01	6923.26	60.07	7955.10
2001-02	7551.52	62.64	8901.74
2002-03	8569.37	66.45	10193.34
2003-04	9681.77	71.19	11575.21
2004-05	10920.43	76.78	13105.19
2005-06	12383.84	82.77	15276.02
2006-07	14028.71	88.92	17562.40
2007-08	16677.71	99.27	21543.48
2008-09	17338.87	103.91	22748.19
2009-10	18136.98	108.53	24121.54
2010-11	12828.08	111.19	16653.33
Total Value	162914.34	1274.27	200383.4

Source: Board of Industrial and Financial Reconstruction (BIFR), GOI, 2010

1.5.2 KVIC and Production

So far as production is concerned, the KVI sector performed well as evidenced from Table-1. The production of KVIs shows rising trends since 1994-95 to 2009-10, but it drops to 12828.08 crore in 2010-11 is due to the uncertainty over the continuous of the rebate of policy for KVIs, which upset the production schedule and output. Similarly, high stock of unsold khadi and mismatch in khadi production also moulded such decline. Again, the project finance approach adopted in place of existing pattern approach for village industries units took the rural entrepreneurs some time to get used to and there was a shortfall in availing funds from banks and budgetary



resources (Xth five year plan report, 2002-07) to the KVIs. Therefore, the production, employment and sales of the KVIC in 2010-11 have suddenly declines.

1.5.3 KVIC and Sales

The KVIC has also the responsibility for providing organized sales and marketing support. For village industries, sales and marketing is still unorganized. The KVIC has been carried out without any marketing effort or aggressive marketing strategy for the future. At present, KVIC has been providing supporting inputs to its NGOs, institutions for marketing of KVI products. These institutions have been provided funds for opening sales outlets and conducting exhibition-cum-sale to sell their products with an aim to penetrate in the domestic and foreign markets.

The Khadi and Village Industries Review Committee (KVIRC) have suggested the formation of a National Rural Industries Marketing Corporation (NRIMC) with necessary linkages at state, district and village levels. The State level Marketing Corporation and the District Supply and Marketing Societies (DSMS) can go a long way in building up linkages. The DSMS pattern has been developed in a few states marketing of products produced under rural development programmes and this can be extended to KVI sector as well. The States like Karnataka and Orissa where DSMS pattern has been in operation, performance has been found to be good. At the State level, it was tried out only in Gujrat. Thus, separate marketing institutional network for village industries of rural development programmes and KVI sector need to be established in the near future to widen the sale within the country and to facilitate exports, which established linkages with export houses. The main wings of the marketing corporation are commercial operations, marketing services and marketing planning. Marketing information system and development of data bank and research



cells should be opened at the State level to pay adequate attention to the specialties of products of each State. Similarly, sales outlets, infrastructure facilities and common services needed for various industries are also pursued (Nagayya 2001)

In view of the favorable agro-climatic condition the spice board has shown interest for promoting spices processing units in the North Eastern Region jointly with the KVIC for promotion of spices processing units that will be taken up by the Governments or NGOs or individual. The main objective of the scheme is to develop marketing for these produces by establishing units to process the spices produced into value added products. The KVIC will be providing margin money under its margin money scheme for projects with investment up to Rs. 2.20 lakhs. Thus, this spice board-KVIC scheme being implemented in the North East encourages the growth of micro enterprise in the spices processing in the country (Roy,2001)

If we observe the sales of KVIs in India since 1994-95 to 2010-2011 it was found that value of sales of KVIs has increasing trend since 1994-95 to 2009-10 except year 2010-11. The production is high, so employment and sales are also found high in KVIs sector and vice versa.

1.5.4 Estimate of Growth Rate of Khadi and Village Industries (KVIs)

The Growth rates of employment, production and sales of Khadi and Village Industries have been estimated from Table-1, by using simple log lin model as follows

To calculate the growth rate of the parameters under study, simple semi log model i.e, log-lin model has been used. Here, we use the following well-known compound interest formula

$$Y_t = Y_0 (1 + r)^t \text{ —————(1)}$$



Where r is the compound (i.e., over time) rate of growth of Y . Taking natural logarithm in (1) we can write

$$\ln Y_t = \ln Y_0 + t \ln (1+r) \text{ —————(2)}$$

Now, letting ' a ' = $\ln Y_0$ and ' b ' = $\ln (1+r)$

Substituting ' a ' and ' b ' in equation (2)

$$\ln Y_t = a + b t \text{ —————(3)}$$

Adding the disturbance term to equation (3), we obtain

$$\ln Y_t = a + b t + U_t$$

Here parameters ' a ' and ' b ' are linear. The regressand is the logarithm of Y and the regressor is 'time' which will take values of 1, 2, 3, 4, etc. and called it as log lin model.

**Table-2: Growth rate of employment, Production and sales
(1994-95 to 2010-11) of KVIs**

Variables	Instantaneous growth (At a point in time)	Compound growth rate (Over a period of time)
Employment in KVIs	4.90	5.022
Production in KVIs	10.45	11.023
Sales in KVIs	25.35	28.846

Source: Based on Table-1

The Table-2 compares the annual instantaneous and compound growth rate of three variables i.e. production, employment and sales of KVIs. The data during the period 1994-95 to 2010-11, the compound growth rate of employment in the KVIs has recorded positive growth of the order of 5.022 per cent per annum. It implies that numbers of entrepreneurs as well as workers in KVIs sector has been rising. Similarly, the growth rate of production and sales of KVIs sector has recorded 11.023 per cent and 28.846 per cent growth per annum, which is quite impressive growth rate. It is evident that the KVIs sector performs well in respects of all the three



performance variables. If we observe the role of the KVIC in establishing new micro enterprises it reveals that the KVIC implemented PMEGP scheme has created large numbers of new micro enterprises as well contributed in production, employment and sales in entire KVIs sector.

1.6 Comparison between Employment, Output and Sales of KVIs

Correlation analysis is evaluation of the relationship between or among two or more variables. This technique evaluates the association between Employment (E) and Output (Q), Output (Q) and Sales (S), and Employment (E) and Sales (S). The question addressed is: if one variable moves or changes in a certain direction does the second variable also move or changes in a similar direction?

Correlation analysis is defined as the ratio of covariance of the sample populations to the product of their standard deviations:

Correlation coefficient (r) = Covariance of X and Y / (Standard deviation of X) (Standard deviation of Y)

The result of the analysis is presented in Table-3

Table-3: Correlation coefficient (r)

Variables	Employment (E)	Output (Q)	Sales (S)
Employment (E)	1	0.9436**	0.9517**
Output (Q)		1	0.998**
Sales (S)			1

Source: Based on Table-1; Note: ** indicates significance of value at p=0.01

The result of the study indicated a high degree of perfect positive and highly significant association across the variables. It implies that the variables employment and output, employment and sale, and output and sales move in the same direction and relationship is very strong in KVI sector. It is observed that the employment, output and sales highly sensitive and strong integration is persisted. The coefficient of determination is found



by squaring 'r' and it gives an idea as to what proportion of variation of one variable explained by the variation of other. Here, the coefficient of determination (r^2) between employment and output is 0.89 (89 per cent), employment and sales is 0.90 (90 per cent) and output and sales is 0.996 (99.6 per cent) respectively. It only means that out of total variation of output 89 per cent is due to employment, 99.6 per cent is due to sales and total variation of employment 90 per cent due to sales and the rest is due to other factors.

1.7 Projection of Output/Production, Sales and Employment in Khadi and Village Industries (KVIs) for the year 2016

A projection of output, sales and employment in the KVIs sector is made for the year 2016. For the projection of output, sales and employment in KVIs sector in 2016, data are collected from Board of Industrial and Financial Reconstruction (BIFR), Govt. Of India, 2010 as shown in Table-1

On the basis of the time series data (1994-2010), a projection of output is made for the year 2016.

Output in year 'n' is projected using two variable linear regression model given by

$$Y_n = a + bT_n \text{ ----- (1)}$$

Where, T is time.

For Projecting Output in the KVIs sector Table-4 is constructed.



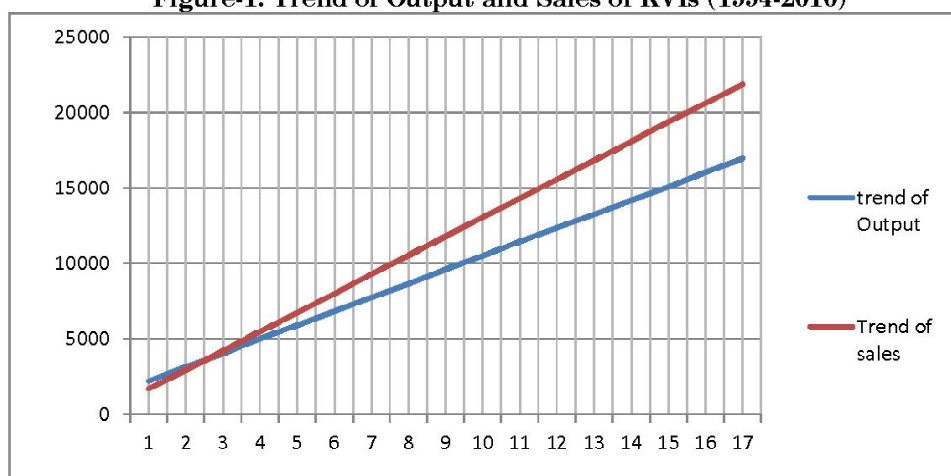
Table-4: Output and Sales in KVI Sector

Year	T (Year-2002)	Value of Output	Value of Sales
1994	-8	2227.531	1692.046
1995	-7	3146.989	2953.947
1996	-6	4066.447	4215.849
1997	-5	4985.905	5477.75
1998	-4	5905.364	6739.651
1999	-3	6824.822	8001.553
2000	-2	7744.28	9263.454
2001	-1	8663.738	10525.36
2002	0	9583.196	11787.26
2003	1	10502.65	13049.16
2004	2	11422.11	14311.06
2005	3	12341.57	15572.96
2006	4	13261.03	16834.86
2007	5	14180.49	18096.76
2008	6	15099.95	19358.66
2009	7	16019.4	20620.57
2010	8	16938.86	21882.47

Source: Based on Table-1

The estimated trend line for the period 1994 to 2010 is presented (for 17 years) in Figure-1

Figure-1: Trend of Output and Sales of KVIs (1994-2010)





1.7.1 Projected Output for the Year 2016

Projection of Khadi and Village Industries (KVIs) for 2016 is presented by equation-(2)

$$Y_{2016} = a + bT \text{ -----(2)}$$

Where, T= Target year: 2002

The coefficients are estimated through regression analysis with the help of MS EXCEL

The coefficients estimated for KVIs sector are

$$a = 9583.194, b = 919.45 \text{ and } T_{2016} = 2016-2002=14$$

Now , substituting 'a' , 'b' and Y_{2016} in equation (2)

$$Y_{2016} = 9583.20 + 919.46 T_{2016} = 9583.20 + 919.46 (14) = 22455.64$$

Thus, the projected output of KVIs sector in 2016 will be Rs 22455.64 crore

1.7.2 Projected Sales for the Year 2016

The coefficients estimated for KVIs sector for sales are as follows

$$a = 11787.26, b = 1261.90 \text{ and } T_{2016} = 2016-2002=14$$

Now , substituting 'a' , 'b' and Y_{2016} in equation (2)

$$Y_{2016}(\text{Sales}) = 11787.26 + 1261.90 T_{2016} = 11787.26 + 1261.90 (14) = 29453.86$$

Thus, the projected sales of KVIs sector in 2016 will be Rs 29453.86 crore

1.7.3 Projected Manpower requirements in 2016

The Labour-Output ratio model (Hinchliffe, 1987) projects manpower requirement on the basis of the estimated labour coefficients as

$$L_n = I Y_n \text{ -----(3)}$$



Where, L_n is the projected labour requirements in year 'n'

Y_n is the projected Output by the Year 'n'

I is the labour coefficient

Where, $I = L_o/Y_o$, where, L_o and Y_o being the current period labour and output respectively.

The manpower requirement in KVIs sector set up in 2016 is projected by $L_{2016} = I Y_{2016}$ where, I is the labour-output ratio and $Y_{2016} = 22455.64$

Where, $I = L_o/Y_o = 111.19/12828.08 = 0.0086677$

$$L_{2016} = 0.0086677 (22455.64) = 194.64 \text{ lakh}$$

The manpower requirements in KVIs sector in 2016 will be approximately 195 lakh

1.8 Conclusion and Suggestion

The study reveals that the KVIC plays a vital role in the Indian economy, as the growth rate of output, employment and sales depicted. The growth rate of all the three performance variables is positive. It is quite impressive and has lots of potentiality for further growth of KVI sector in future. Again, the strong association between variables reflects the uniformly growth of employment, output and sales in the same direction and also high degree of perfect positive correlation. The projected growth rate for 2016 in the KVI sector in respect of all the variables shows positive expectation on more employment generation, output growth and sales in the upcoming years. On the basis of the study, following suggestion has been made



1. The KVIC has to increase numbers of new micro enterprises through assisting new PMEGP units in collaboration with KVIB, DIC and Banks
2. The KVIC requires providing adequate support of finance, marketing and sales at grass root level for the existing as well as first generation entrepreneurs.
3. The disbursement of loans and grants should need to expand in the economy and
4. The KVIC state office or KVIB or DICC requires organising workshop, awareness programmes and exhibition regularly to attract for entrepreneurship development.

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REMOTE CONTROLLED AUTOMATIC WATER PUMPING SYSTEM BASE ON LABVIEW AND WIRELESS SENSOR NETWORK

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I. Introduction

In water distribution systems, two different phenomena can happen: water flow by pumping or water flow by gravitation.

With pumping process, water is fetched from a point of lower altitude to higher altitude point by using a water pumping motor. For second process, water will leave the higher point altitude (which may be a tank) to area which we want to supply (customers 'side). This paper is concentrated on the first process.

In former days, water level inside a tank was controlled by a ball valve connected to an arm as shown below:

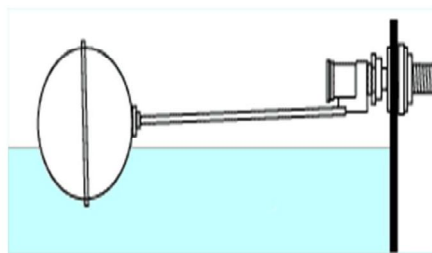


Fig 1: the former water level sensor

As water in tank drops, the arm falls and open the valve to allow water to enter the tank. As water flows in, the water level rises, as the ball thus moving the arm which then closes the valve shutting off the water flow.

When a higher pressure water flow is used for example when the tank is connected to a pumping motor this system will fail. In this case a water level sensor shall be used. Means the ball valve will be replaced by a water detector circuit. LabVIEW[1] Based Remote Controlled Automatic water Pumping System is a system whereby the level of liquid will be controlled, and according to that level of water in the tank , the pumping motor will feed water in the tank or not. In this system the communication between the motor, HMI and the tank is achieved by using IEEE 802.15.4 protocol [2]

The monitoring is done by using a computer through LabVIEW software.

II. System design

This system is wireless Zigbee network [3] with three different nodes which are located at:

- i. Water tank ,
- ii. Pumping motor and,
Control and monitoring side.

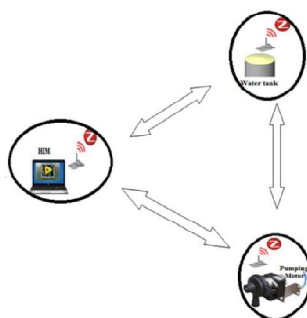


Fig2: System design

II.1 Water tank Node

Inside water tank, a water level is used to keep checking the amount of available in tank. In this system, a sensor based on Infrared has been used. This sensor has an infrared transmitter and infrared receiver as is shown below:



Fig 3: Water tank and Sensor

As we can see from the above figure, the white diode is a transmitter and the black diode (photodiode) is a receiver.

We may think that the received infrared signal will increase with increasing of water level in tank but is not like that because infrared signal are absorbed by OH⁻ ions which are present in water (H₂O).

This means that the output signal will be reducing with increasing in water level in tank. Note that the output voltage from this sensor is proportional to the received infrared signal. This sensor is connected to Arduino microcontroller [\[4\]](#) which will also be connected to ZigBee transceiver [\[5\]](#).

II.2. Pumping motor node

The water pumping motor will fetch water from its source and pump it to the tank. The motor is connected to Zigbee through an interfacing circuit as it is shown below:

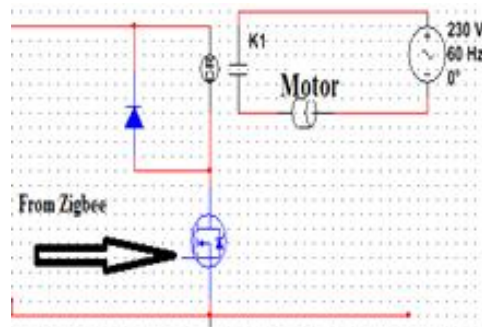


Fig4: Pumping motor and interfacing circuits

When the pumping motor receives a signal from water tank Zigbee side, it will send a signal to the MOSFET's gate which will make the MOSFET to be ON then the relay will be energized and the motor will be switched ON. Otherwise the motor will be in OFF condition.

II.3.Control and Monitoring node

This part will considered as Human Machine Interface it is nothing but a computer with a LabVIEW program which will be communicating with Arduino micro controller through serial communication and Arduino will also be connected to Zigbee transceiver.

II.3.1 HMI User Interface

The control and monitoring will be done from graphical user interface unit which is nothing but LabVIEW front panel.

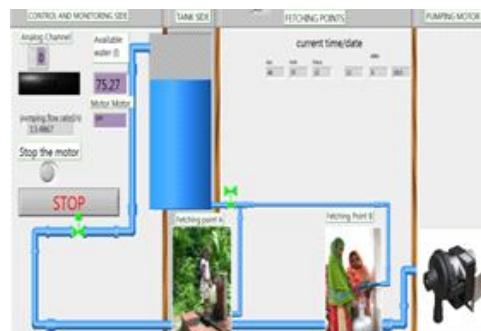


Fig 5: Lab VIEW front panel (HMI)

From this front panel, the user will be able to:

- i. Know the state of pumping motor (ON or OFF);
- ii. Know the instantaneous amount (in Litters) of water available in tank;
- iii. The tank's inlet pipe 's flow rate;
- iv. Suddenly stop the pumping motor;
- v. Know the current date and time.

II .3.2. LabVIEW block diagram

This is where all programming is done.

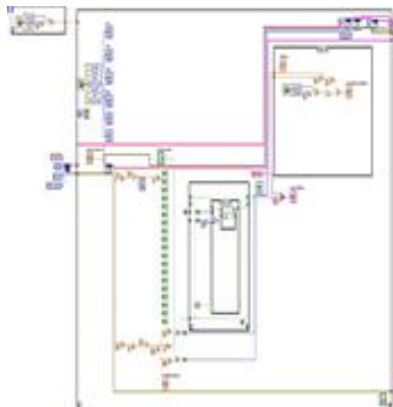


Fig 6: LabVIEW block diagram

From the above block diagram, we can see that it starts with Arduino initialization: defining which COM port the Arduino is connected, defining the baud rate, defining the type of Arduino board and defining the connection type. All other programming are done inside while loop as the system will be running continuously.

III. Zigbee modules Configuration

This system has three nodes. A proper network must be done for achieving a good communication between nodes. Module configuration can



be done by any terminal software. Configuration is done by using AT commands. In this system, trang modules [6] have been used. Module programming is done by using four steps:

- i. Open your terminal software;
- ii. Connect the trang module to serial/USB port;
- iii. Choose the appropriate port and serial parameters in the terminal software;
- iv. Configure the module using terminal software and AT commands.

Some commands which may be used are given below:

Table 1: Some AT commands

AT command	System response
+++	Ok(enter in the command mode)
ATNCH<Enter>	Current value(read the channel)
ATNCHF<Enter>	Ok(modify the channel)
ATGWR<Enter>	Ok (write to the memory)
ATGEX<Enter>	Ok(exit command mode)

The communication between network nodes is done by using peer to peer network as it shown below:

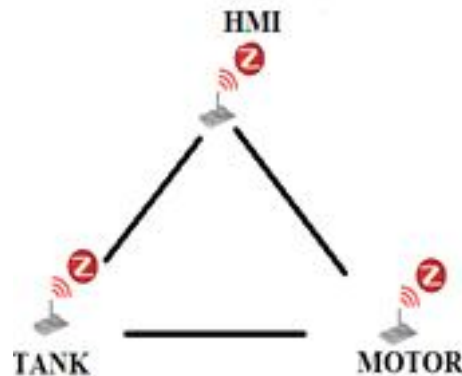


Fig 7: peer-to-peer networking for the system nodes

In peer to peer network, the module in the network communicates with any other module without any restrictions. Each module will share the role of both master and slave and communicate with each other. By default trang modules work in this mode of network

The default configuration is given below and it changes with application:

Table 2: default addressing for Trang ZigBee module

parameter	Module1	Module 2	Module 3
Source address	0xFF	0xFF	0xFF
Destination address	0xFF	0xFF	0xFF

IV. The system working principle

In this system, the water level inside tank will be monitored by using a water level sensor made from IR obstacle detector [7]. If the water level in tank is bellow a pressed value that information will be sent to pumping motor through Zigbee module and the motor will start pumping.



As the motor is pumping, the water level in tank will be growing when it reach maximum pre-set value, another signal shall be sent back to pumping station for stopping the motor. This pumping system is monitored and controlled from other remote place by using LabVIEW software.

From LabVIEW, the user will:

- i. Know the current state of pumping motor;
- ii. Be able to directly stop the motor if is needed;
- iii. Know the amount of water in liters available in tank;

V.Conclusion and Recommendation

V.1. conclusion

This paper has described the design and implementation of wireless network based on Zigbee IEEE 802.15.4 standard. The design and implementation was successful. This system will save electric energy because the pumping motor will pump when pumping is required. With this system, there is no waste of water due to overflow. The system will also reduce the manpower. This system can be used in any water supply and distribution system.

V.2. Recommendation for further work

I recommend if this work is continued, to supply the tank and pumping motor side circuitry with solar energy system.

I also recommend improving the system so that the pumping motor should not be ON when there is no water available for pumping.

I finally recommend that if this work is continued, to put some others circuit so that we can know the level of battery's voltage which



supply the water level sensor circuit because if that supply is expired, there will be no control.

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THE SCIENTIFIC OUTLOOK OF THE REPRESENTATIVE MODERN HINDI EPICS

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The influence of science on various branches of knowledge in this period is quite evident. The scientific outlook has influenced the writers of world literature in a big way. In modern poetry, they have tried to express their feelings not only in an artistic manner, but also they have preferred to express their thoughts in an arguable manner, with the help of knowledge of science. The modern Hindi poets have developed a critical attitude towards the relation of science and literature and they learnt the knowledge of science in various forms. The Hindi epic writers were markedly modest and genial by temperament. They denounced practices like those of suttee (सूती), sectarian exclusiveness and over much emphasis on rituals.

Bharatendu Harish Chandra brought-in an endless chain of new ideas as poetic themes. He enumerated these in one of the issues of 'kavi vachan sudha' as follows –

"The evils of early marriage, slavish adherence to horoscopes, the evil of drink, infanticide, disunity, and mutual animosities, sectarianism and religiosity, love of the mother-land, child education, the ways of rising the country high and the need to buy swadeshi (India-made) goods". Modern period in many ways called 'Modern', but the basis of this modernism is scientific outlook. The modern Hindi poets have denounced the unscientific social customs and rituals. Balakrishna Bhatt, Badri Narayan Choudhari 'Premdhan', Pratap Narayan Mishra, Radhacharan Goswamy, Srinivas Das and Jagmohan Singh were the contemporaries of Bharatendu and they accepted his lead and the scientific approach which, as a poet, he had initiated.

The various social movements based on scientific norms and also intellectualism, have deeply influenced the epic writers of Dwivedi's period. Like Bharatendu, Mahaveer Prasad Dwivedi adopted the scientific approach to review the social conditions and problems, had proved an invaluable guide and leader to give a new direction to Hindi literature for a period of three decades. The poets of this age have selected mythological themes, but they have discussed the contemporary social conditions and problems. In 'Priyapravaas' and 'Saaket' the poets have discussed various issues with the support of scientific arguments. The principles of 'Aarya samaaj' have deeply influenced the age consciousness and also the thoughtful nature of poets, in a big manner. The poets of this era have witnessed the degradation of cultural values and expressed their concern. With the help of scientific knowledge they have made an attempt to re-establish the values in the society through their writings. Hariaudh has presented the character of 'Krishna' in 'Priyapravaas' not in its original mythological form, but as a symbol of intellectualism and modernism.

The branches of Science – Physics, Chemistry, Biology, Medical Sciences, Yoga and other Sciences have influenced the Indian literature. In modern Hindi epics, it is quite evident that the modernism based on logic and science has emerged as a prominent feature. In particular, this scientific outlook appears significantly in 'Priyapravaas', 'Saaket', 'Kaamaayanee', 'Vaidehi vanavaas', 'Krishnaayan', 'Kurukshetra', 'Saaket sant', 'Paarvathi', 'Lokaayatan', 'Shiva charith', 'Agni saagar', and 'Mook maati' in a detailed manner. In 'Priya pravaas' Srikrishna had not made any attempt to uplift the mountain Govardhana with his index finger. This incident has been described as



लख अपार प्रसार गिरीन्द में
बज धराधिप के प्रिय पुत्र का
सकल लोग लगे कहने उसे
रख लिया अंगुली पर श्याम ने। (प्रियप्रवास, पृ.सं. 159)

Krishna, in his childhood influenced by the intellectual ideology and collected medicinal plants in a skillful manner –

वनस्थली में यदि थे विलोकते
किसी परीक्षा-रत-धीर-व्यक्ति को।
सु - बूटियों का उससे मुकुन्द तो
सु -मर्म थे सर्व - रहस्य जानते। (प्रियप्रवास, पृ.सं. 50)

In 'Saaket' Mythili Sharan Gupta has tried to express his modern thoughts successfully. The factors related to gravitation, reflection of light, sources of energy, sound technology are the main features depicted in this epic, are related to the physical sciences. The structure of constituent elements of the body, the evaporation, diffusion, boiling, formation of clouds etc. are related to the chemical science, which are described in 'Saaket'. In the same manner the Darwin's theory of existentialism, a halo and also the hereditary factors were discussed in this epic, which are related to the science of Biology. The elements related to the Medical Sciences were also discussed such as the reasons for diseases and their treatment, prevention of fits, description of Medicinal Plants etc. In this epic writing the poet has discussed the issues related to the science of yoga also.

Jayashankar Prasad is acknowledged by all as the founder of the romantic school of Hindi poetry. His 'Kaamaayane' brings out his mystic and philosophical approach to life. 'Kaamaayane' is a superb poetic work. It is full of music and has artistic imagery and appealing thought context. A procession of vivid images makes the poem highly pictorial and colorful. In this epic writing Jayashankar Prasad has described the materialistic development of 'Saaraswat Nagar' and also foresighted at its bad consequences –

यह सारस्वत नगर पड़ा था, क्षुब्ध मलिन कुछ मोन बना।
जिसके ऊपर विगत कर्म का, विष विषाद आवरण तना। (कामायनी, पृ.सं. 205)

Ayodhya Singh Upadhyay 'Hariaudh' was quite a progressive thinker and a reformer. He was no believer in caste and was highly critical of the treatment meted out by the Hindu community to those placed low in the caste hierarchy. He wrote eight poetic works. In 'Vaidehi vanavaas' he has presented Rama and Seeta as a symbol of modern intellectualism. The scientific outlook of the poet, supported by logic and the elements of intellectualism, has been expressed. Dwaarakaa Prasad Mishra wrote 'Krishnaayan', which is considered as the significant epic belongs to the age of pre - Independent period. In this epic 'Krishna' has been described as a Social reformer, Well wisher of the Human Society, Ideal leader and also as a Scientist. He writes –

संशयहीन पूर्ण मम ज्ञाना, जहिहैं जेहि विधि करहुँ बखाना।
कहहुँ ज्ञान-विज्ञान अशेषा, जानि जाहि कछु ज्ञेय न शेषा। (कृष्णायन, पृ.सं. 319)

In 'Krishnaayan' Arjun declares himself as an armorer, who knows the art of using weapons –



अन्तर्धान - अस्त्र संधाना, भये पार्थ पल अन्तर्धाना।
प्रकटेऊ पल महीं सूक्ष्म स्वरूपा, बहुरि विशाल शैल अनुरूपा।
पल महि पै, पल व्योम पथ, पल स्पन्दन दिखराहिं,
पल समीप, पल दूरि अति, पुनि अदृश्य पल मांहि। (कृष्णायान, पृ.सं. 159)

Dr. Baldev Prasad Mishra wrote 'Saaket sant', in which the scientific outlook has been presented through mythological story. Mishra has denounced the policy of exploitation of capitalists –

निर्धन की कुटिया ढाकर
जो अपना महल बनाते।
आहों की फूँको से ही
वे एक दिवस ढह जाते। (साकेत संत, पृ.सं. 52)

Dr. Mishra believes the discrimination of colour and creed is the main factor, hurdles the development of Human Society. On the basis of logic and scientific temperament he denounces these factors –

कहीं ब्राह्मण क्षत्रिय के बैर -
कहीं क्षत्रिय-क्षत्रिय संगाम -
कहीं है आर्य-अनार्य विरोध -
लुट गये मानवता के धाम।
कभी जो पुण्यश्लोक महान्
विदित था जग में आर्यावर्त।
आज बर्बरता से आक्रान्त,
गिरा वह ही दुखों के गर्त। (साकेत संत, पृ. सं. 21)

As a poet of robust Nationalism, a Thinker and a Historian, there is little doubt that Dinakar occupies the foremost place amongst the Hindi writers of post Independent era. The 'Kurukshetra' made Dinakar, a poet of all India-fame. 'Kurukshetra' is the portrayal of a conflict between the individualistic, personal aspirations on the one hand and man's social and impersonal urges on the other. He admits that in this age, as a result of the scientific outlook and also the experiments, man has become successful in unveiling the hidden secrets of nature –

यह समय विज्ञान का सब भाँति पूर्ण समर्थ,
खुल गये हैं गूढ़ संसृति के अमिट गुरु अर्थ।
चीरता तम को, संभाले बुद्धि की पतवार,
आ गया है ज्योति की नव भूमि में संसार। (कुरुक्षेत्र, पृ.सं.82)

Raamaanand Tiwari's epic 'Paarvathi' is famous for its modern outlook, in which the poet underlines the importance of yoga –

बिना योग के भोग रोग का कारण बनता,
रोग प्रकृति के अन्धवेग को धारण करता। ×××



नव यौवन में योग शक्ति का संचय करता
और परिणय में प्रकृत-विषय में मंगल भरता,
पता-शक्ति कुमार वीर निर्भय निरोगी। (पार्वती, पृ.सं. 271)

Pant's 'Lokaayatan' was hailed as one of the most outstanding poetic works of the post-Independence era. The conflicts of the fast changing values and visible deterioration in the tone of life in all spheres have found vivid expression in it. The influence of scientific outlook on Sumitraa Nandan Pant is quite evident. In the second chapter of this epic 'Lokaayatan', the poet has accepted the contribution of science in the modern world –

जगत् को दे भौतिक विज्ञान, नित्य कर अद्भुत अनुसंधान
वाष्प-विद्युत से ले नव शक्ति, किया जन ने जीवन निर्माण
भाग्य-भय से भव मन कर मुक्त, आधुनिकता का दे वरदान
परिस्थितियों की सीमा लांघ, निकट आये पृथ्वी के छोर
खोलकर देश काल के पाश, देखता युग नर चारों ओर। (लोकायतन, पृ.सं. 373)

Prof. Vidya Shankar has proposed the importance of the protection of earth for the benefit of the existence of human race in 'Mook Maati' epic. He has denounced the destructive nature of science in this poem –

यह लेखनी तुलना कर बैठी
सौर और भूमण्डल की,
ऊपर अणु की शक्ति काम कर रही है
तो इधर नीचे/मनु की शक्ति विद्यमान
ऊपर यंत्र है, घुमड रहा है
नीचे मन्त्र है, गुनगुना रहा है।
एक मारक है, एक तारक,
एक विज्ञान है, जिसे आजीविका तर्कणा है
एक आस्था है, जिसे आजीविका की चिंता नहीं,
एक अधर में लटका है, उसे आधार नहीं पैर टिकाने,
एक को धरती की शरण मिली है।
यही कारण है, ऊपर वाले के पास-केवल दिमाग है, चरण नहीं
नीचे वाला चलता भी है, प्रसंगवश ऊपर भी चढ़ सकता है,
हाँ/ऊपर वाले का दिमाग चढ़ सकता है/
तब वह/विनाश का/पतन का ही पाठ पढ़ सकता है। (मूकमाटी, पृ.सं. 249)

These poets have condemned the pollution in many forms. They have accepted the knowledge of science as a constructive force of Human Society. The outlook of these poets is more scientific in denouncing the social evils.



INTERNET USAGE BY MANAGEMENT STUDENTS IN S K UNIVERSITY, ANANTHAPURAMU: A STUDY

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INTRODUCTION

The role of internet has been acknowledged as an important aspect in their study activities of the graduates. However, it is believed that a better understanding of the internet needs of graduates is fundamental to the achievement. Internet is a technology that is no need to be introduced. It is a very useful technology. Using the internet, we can search for information. It can be use for studies. Today, it help a lot of students to do their job and homework. The internet help student to find information easily and fast. Student just only search on search engine such as Google Search or Yahoo Search. Lots of information can be finding to help the student in studying or do their homework.

Technically, the "internet" is all the computers in the world that are connected, including the technologies routers, servers, etc (which are also computers actually) as well as the wires and antennas that keep all the computers talking to each other. The concepts of the internet make the learning process more interactive and fun. The word multimedia itself means multiple media that can be including such as video, audio, picture, and animation. This combination can be use in education. The students browsing the internet, they will found that the website or web portal that they browse has a multimedia element. Information can be understood easily. It can also be done interactively. The subject or learning material also can be made in a CD format. This will let them to carry it easily everywhere.



The internet also let the students to interact with each other. Using this technology, the students can exchange their idea and knowledge from a different location in a same time. For example, using the video chat, the students in different places can discuss their homework with their friends from other location without leaving their home. So, the studies can be done in a fun way, and yet become easier. The internet also helps the teacher a lot. Free blog such as BlogSpot or Multiply. So if the students are absent in class, he / she can view the teachers blog for today's lesson and homework. If they have any problem or question to ask, they can use the forum column to discuss and exchange ideas. So this will make the learning process will become easier and improve their studies.

The internet also let the students to be creative in studies. If they are having problem in studies or too afraid to ask their teacher about the studies, they can look for the information using the internet. The internet is a large and wide medium. So the students can choose for what they want and what really suited with their studies. This will make them to be more creative and yet improve their studies. The internet is a very useful technology. The students should use this technology wisely. Its capability will let the students to enhance their studies, to be more creative, and expand their knowledge besides letting them to interact with each other. Combining all these benefits will help to improve the students' studies.

Other common responses were that it offered students easier access to information, that it motivated students to perform at a higher level, and that it provided current information. In addition to these high-frequency responses, several other reasons were mentioned. The opportunity for sharing with others around the globe, the fact that students would need Internet skills in the workplace, and the in-service training they had received was all factors that motivated some teachers. Individual teachers



also mentioned that the Internet shifts responsibility for learning to the student, and that it offers access to experts. A special education teacher noted that Internet activities were effective with learners with special needs. While the Internet does a lot for students, there are also benefits for parents and teachers. The growth of the Internet and the increase in the variety of information disseminated via the World Wide Web has implications for how it is used in education.

OBJECTIVES OF THIS STUDY

The followings are the objectives of this study:

1. To identify the frequency of Internet use by management students.
2. To know the place for accessing internet.
3. To explore the purpose of using internet among the students.
4. To list out the problems while using the internet.

REVIEW OF LITERATURE

A handful of studies on patterns of college student Internet use have been published in recent years.

Kaur (2000)¹ surveyed the use of Internet facility at the Guru Nanak Dev. University, Amritsar. The findings revealed that all respondents used search engines to browse the required information and majority faced the problem of slow Internet connectivity. The result of the study further indicated that more than two-third of the respondents confirmed Internet were time saving, easy to use, more informative and more preferred. Staff and students in academic community enjoy Internet as a result of the facilities it offers as noted by Ikoro.



Jagboro (2003)² carried out a study of Internet usage in Nigerian universities where opinion of 73 respondents was sought for. On specific uses of Internet, two-third of the respondents indicated that they used it for e-mail, to get research materials followed while course materials had 39.73%. The recorded low level of utilization of the Internet was attributed to the low level of connectivity and the high cost of cybercafé facilities.

Hanaur et al. (2004)³ surveyed a diverse community college to assess the use of the Internet by the students of health – related information. The surveyed showed that 83% Internet users had access to the Internet at their home and 51% of the respondents accessed Internet at the college or library.

Kumar and Kaur (2005)⁴ conducted a research on Internet and its use in the Engineering Colleges of Punjab, India. Questionnaire was employed to sample opinion of 474 students. It was revealed that 30.8% of the students have 2 – 4 years of experience in using the Internet followed by 1 – 2 years with 27.4%. A majority of the respondents used the Internet located at the college, use internet for education and research purposes, while half of them use it for communication purpose. More than half of the students use the Internet for consulting technical reports. It was further indicated that the major problem faced by the users was slow access speed of the Internet. In comparing Internet with conventional documents, 91.6% of the respondents noted that the Internet is easy to use, 89.1% agreed that it is informative and 88.1% felt it is time saving.

SCOPE OF THE STUDY

The scope of this study is limited to the following:

1. This study was limited to only management 1st and 2nd year students.



2. This study was limited to only management students in S K University, Ananthapuramu, A. P.

RESEARCH METHODOLOGY

Survey research technique was adopted for the study. The population of the study comprised to only department of Management in S K University, Ananthapuramu, used for the study were having students at first and second year, Because of the large population of the participants, stratified sampling technique was adopted. A total of 140 questionnaires were distributed among that 115 were returned which thus represent a response rate of 82.1 percent. The data table was analyzed using simple percentages. Altogether 115 respondents were used for the study. The questionnaires were distributed and administered among male and female participants in the departments of Management.

DATA ANALYSIS

Table 1 reveals that the total of 115 respondents responded against the questionnaire, of which 77 (67.0 %) were male and 38 (33.0 %) were female Management students.

Table-1 Frequency distribution of respondents by Gender wise

S. No.	Gender	1 st Year	2 nd Year	Total No. of Students	Percentage
1.	Male	43	34	77	67.00
2.	Female	13	25	38	33.00
Total		56	59	115	100.00

Table 2 shows that 88 (76.5%) respondents were below 22 years, and 27 (23.5%) were between 23 to 25 years. There is no student between 26 to 28 years and above 29 years.

Table-2 Frequency distribution of respondents by Age

S. No.	Gender	Below 22 years	23 to 25 years	26 to 28 years	Above 29 years
1.	Male	55	22	0	0
2.	Female	33	05	0	0
Total		88 (76.5)	27 (23.5)	0 (0)	0 (0)

Numbers in parentheses is indicated to percentage of respondents



Table 3 shows that Frequency of visits by the respondents' it shows that 35 (30.5%) of respondents had visited occasionally followed by 32 (27.8%) visited every day. 26 (22.6%) respondents considered that they visit twice a week and 22 (19.1%) of respondents had agreed that they visit their university thrice a week.

Table-3 Frequency distribution of respondents by Visiting their University library

S. No.	Gender	Every day	Twice a week	Thrice a week	Occasionally
1.	Male	25	18	20	14
2.	Female	07	08	02	21
Total		32 (27.8)	26 (22.6)	22 (19.1)	35 (30.5)

Numbers in parentheses is indicated to percentage of respondents

Table 4 shows that the question was asked to the respondents that, how many hours you spend in the library. The table shows that the maximum students of management spend less than 3 hours per week 81 (70.4 %) in university library and 30 (26.1 %) of respondents spend 6 to 10 hours per week. only four (3.5 %) of respondents spend 11 to 14 hours per week.

Table-4 Frequency distribution of respondents by Time spent in library

S. No.	Frequency of Time Spent	1 st Year Students	2 nd Year Students	Total
1.	Less than 3 hours/week	35	46	81 (70.4)
2.	6 to 10 hours/week	20	10	30 (26.1)
3.	11 to 15 hours/week	01	03	04 (3.5)
4.	More than 16 hours/week	00	00	00 (0.0)
Total		56	59	115 (100.0)

Numbers in parentheses is indicated to percentage of respondents

Table 5 shows that the location from where the Internet is mostly accessed by the management students. 51 (44.3 %) of the respondents accessed the Internet at cybercafé outside their campus, followed by 50 (43.3 %) access the Internet at the Department. This study shows that 14 (12.2 %) Internet users had access to the Internet at their home. The choice of using the Internet facility located outside the campus more than others may be that it is more functional and reliable compared with those located on campus and at home.



Table-5 Frequency distribution of respondents by Place of availing internet

S. No.	Type of Place	1 st Year Students	2 nd Year Students	Total
1.	Home	04	10	14 (12.2)
2.	Department	32	18	50 (43.5)
3.	Internet Cafe	20	31	51 (44.3)
4.	Library	00	00	00 (0.0)
	Total	56	59	115 (100.0)

Numbers in parentheses is indicated to percentage of respondents

Table 6 shows that the purpose of seeking information by the respondents. To make class assignments has the highest responses of 67 (58.2 %), while preparing for exams is the second highest response of 41 (35.6 %) followed by 37 (32.1 %) gathering information for personal needs. The lowest rate response of 11 (09.5 %) on Internet resources being used for shopping/gathering products information. The result depicts that majority of the students seeking information for class work. But, the low responses recorded may be because the students have not showing interest in on-line shopping and gathering product information.

Table-6 Frequency distribution of respondents by Purpose of seeking information

S. No.	Purpose of Seeking	1 st Year Students	2 nd Year Students	Total
1.	To make Class assignments	44	23	67 (58.2)
2.	To prepare for examinations	17	24	41 (35.6)
3.	Shopping/gathering product information	09	02	11 (09.5)
4.	Entertainment	15	10	25 (21.7)
5.	General information	14	05	19 (16.5)
6.	Communicate with others	15	11	26 (22.6)
7.	Gathering information for personal needs	21	16	37 (32.1)

Numbers in parentheses is indicated to percentage of respondents



Table 7 shows that Respondents were asked to indicate internet sources availing frequently. It was found that 58 (50.4 %) of the respondents use newsgroup information daily. A most of the respondents 39 (33.9 %) reported they consult E-books weekly. 43 (37.4 %) of respondents consult E-journals Monthly once. 57 (49.6 %) of respondents considered that they use reference material once in a wee. Majority of respondents 60 (52.2 %) reported monthly once they search for research reports and 41 (35.7 %) agreed they use online chat group weekly, 46 (40.0 %) of respondents use internet for job searching. The majority of 48 (41.8 %) of respondents considered that they use internet resources for entertainment once in a

Table-7 Frequency distribution of respondents by Types of Internet sources availing

S. No.	Types of Internet Sources	Frequency of Usage			
		Daily	Weekly	Monthly	Never
1.	Newsgroup	58 (50.4)	30 (26.1)	20 (17.4)	07 (06.1)
2.	E-books	12 (10.4)	39 (33.9)	34 (29.6)	30 (26.1)
3.	E-journals	03 (2.6)	30 (26.1)	43 (37.4)	39 (33.9)
4.	Reference materials	18 (15.6)	57 (49.6)	29 (25.2)	11 (09.6)
5.	Research reports	08 (06.9)	25 (21.8)	60 (52.2)	22 (19.1)
6.	Online chat group	18 (15.6)	41 (35.7)	27 (23.5)	29 (25.2)
7.	Job searching	25 (21.7)	43 (37.4)	46 (40.0)	01 (0.9)
8.	Entertainment	24 (20.9)	48 (41.8)	31 (26.9)	12 (10.4)

Numbers in parentheses is indicated to percentage of respondents

Table 8 indicated that 58 (50.4 %) of the respondents revealed that Internet is more informative when compared with conventional documents. While 27 (23.5 %) of respondents felt that internet if time saving as well as it gives most authentic information and only 03 (02.6 %) felt that it's



communicate a far. The findings show that usage of internet is time saving, easy to use, more informative and more preferred.

Table-8 Frequency distribution of respondents by Internet features

S. No.	Types of Internet features	1 st Year Students	2 nd Year Students	Total
1.	Easy of work	19	39	58 (50.4)
2.	Time saving	16	11	27 (23.5)
3.	Authentic of information	18	09	27 (23.5)
4.	Communicate a far	03	00	03 (02.6)

Numbers in parentheses is indicated to percentage of respondents

Table 9 shows that Respondents were asked to provide their assessment of problems faced while using internet. The table reveals 48 (41.7 %) of respondents considered that it takes time to download pages. 38 (33.0 %) considered that internet access is very slow, closely followed by statutes with 36 (31.3 %) agreed that they not able to find the relevant information and 30 (26.1 %) considered that the browsers are not compatible.

It was also noted that 27 (23. 5%) of respondents considered that given links are not working to get the information, 24 (20.9 %) states that it cost too much. 21 (18.2 %) of respondents were mentioned that only registration is required to access and only few 13 (11.3 %) of respondents were mentioned that more advertising banners are taking too time.



Table-9 Frequency distribution of respondents by problems faced while using Internet

S. No.	Problems faced while using web	Frequency of respondents		Total
		1 st Year Students	2 nd Year Students	
1.	Not being able to find the information	23	13	36 (31.3)
2.	It takes too long to view and download pages	26	22	48 (41.7)
3.	It costs too much	14	10	24 (20.9)
4.	Encountering links that do not work	15	12	27 (23.5)
5.	Having problems with slow net access	12	26	38 (33.0)
6.	Sites that are not compatible with all browsers	20	10	30 (26.1)
7.	Sites that require me to register with them	11	10	21 (18.2)
8.	Advertising banners that take too long to load	08	05	13 (11.3)

Numbers in parentheses is indicated to percentage of respondents

CONCLUSION

The study investigates the usage of internet by management students in university. Nowadays internet has impact in many areas including the education. Internet use spreading rapidly into daily life. The Internet enables students to communicate with people around the world. Modern digital libraries, interfaces and web database sources are also important factors contributing a major role to develop students' behaviour. The study was found that respondents used a various types of electronic information sources. It might be due to easy and convenient access to the internet resources. It was also revealed that management students preferred to visit internet cafe located outside the campus to access information on the Internet. The reason for this could be that they are not providing sufficient internet facilities in campus. Students also mentioned that due



to slow access of internet they are not using the internet facilities in their university library. If the university authority can take necessary action to improve the internet access may the students can save their time instead of going net centers to access the internet.

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APPLICATION OF TOTAL QUALITY MANAGEMENT IN UNIVERSITY LIBRARIES WITH RESPECT TO USERS

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1. INTRODUCTION

Libraries have always been committed to provide a high quality of services to its users. In the past, consuming more resources, buying more books, and moving to large premises are considered as improving quality. But that approach is not valid today. One of the good solutions to improve quality is to provide right information to a right user at right time. This requires a thorough change in the approach – an approach based on user requirements and user satisfaction. It is believed that this can be achieved by implementing Total Quality Management. Thus, Total Quality Management approach is slowly getting popular in today's libraries.

Total Quality Management is the art of managing the whole to achieve excellence. The golden rule is a simple but effective way to explain it. ***Total Quality Management is defined as both a philosophy and a set of guiding principles that represent the foundations of a continuously improving organization.*** It is the application of qualitative methods and human resources to improve all the processes within an organization and exceed customer needs now and in the future. TQM integrates fundamental management techniques, existing improvements, and technical tools under a disciplined approach (***Talukder and Ghosh, 2004***).

- TQM PRINCIPLES



TQM is the application of a number of activities with perfect synergy. The various important principles of TQM are:

- ✓ Customer-driven quality;
- ✓ Top management leadership and commitment;
- ✓ Continuous improvement;
- ✓ Fast response;
- ✓ Actions based on facts;
- ✓ Employee participation; and
- ✓ A TQM culture (Crosby, 1979; Deming, 1986; Juran and Gryna, 1995).

- **Relationship between library science and TQM**

Quality, with regard to the products of industries, depends on raw materials, vendor components, and different skills of performance of employees and production processes, and equipment that shows different degrees of performance. Similarly, quality with regard to library and information science or with respect to the processing of information services in the library depends on:

- ✓ The collection of documents in the libraries and information centres and their technical processing by applying certain techniques and methods;
- ✓ The skills of employee working in the libraries and information centres;
- ✓ Equipment and processing;
- ✓ The span of time of service to be rendered; and



- ✓ The attributes of services which are to be rendered.

From the above, it is clear that while quality in respect of industries fulfills the ultimate goal of user satisfaction, the same may be adopted in library and information centers.

Quality in library services is most effective in user-oriented services (*Talukder and Ghosh, 2004*). Talukder and Ghosh (2004) also made a comparison between TQM and library sciences in respect of different attributes as summarized in Table 1

Table 1 Relationships Between Library Science And TQM

Attribute	TQM	Library Sciences
Definition	Customer oriented	User oriented
Priorities	First among equals of service and cost.	User and Service
Decisions	Long Term	Long Term
Emphasis	Prevention	Prevention like anticipation of demand
Errors	System	System/techniques
Responsibility	Everyone	Library personnel
Problem	Solving Teams	Professionals' teams
Procurement	Life cycle costs, partnership	User centric (cost is implicit)
Manager's Role	Delegate, Coach, Facilitate	Delegate Assistance Facilitate and mentor

The concept of total quality management (TQM) is now a management technique used in most disciplines and libraries and information centers are no exception. Its application in service sectors like library and information services (LISs) started in the late 1980s and is an American response aiming at customer satisfaction by way of meeting the requirements and expectations of customers. This concept has become more relevant in the current technological era, especially due to the emergence



of application of information technology in libraries and changes in information consciousness among users (*Raina, 1995*).

- **Pillars Of Total Quality Management**

Creech (1994) listed five pillars of TQM that provide a strong foundation for TQM managed organizations. This can become the focus of improvement in technical and vocational education for their transformation.

The five pillars of TQM are: 1) Product (Service) 2) Process 3) Organization 4) Leadership 5) Commitment.

Keeping the above facts in view, present research study was aimed to "***Application of Total Quality Management in University Libraries with Respect to Users***" is designed to accomplish the following objectives.

- To study the awareness level of users about TQM in libraries of state in Rajasthan
- To review the quality assurance system in providing Quality Information services to the users of state in Rajasthan.
- To study the infrastructural facilities available for implementing TQM in libraries of state in Rajasthan.

2. RESEARCH METHODOLOGY:-

- **Hypothesis:-**

H₁: TQM is implemented effectively in libraries of State Universities of Rajasthan

H₂: Users are satisfied with the quality of collection and services of libraries of State Universities of Rajasthan



The research methodology used for the present study is descriptive research which includes questionnaires and fact-finding enquiries of different kinds of users of State Library of Rajasthan University, and MNIT (Malviya National Institute of Technology) Jaipur. Total No of Respondents was 100 each of Rajasthan University and MNIT Jaipur (N = 200). The questions are closed ended and attached as Annexure to research paper.

3. RESULTS & ANALYSIS:-

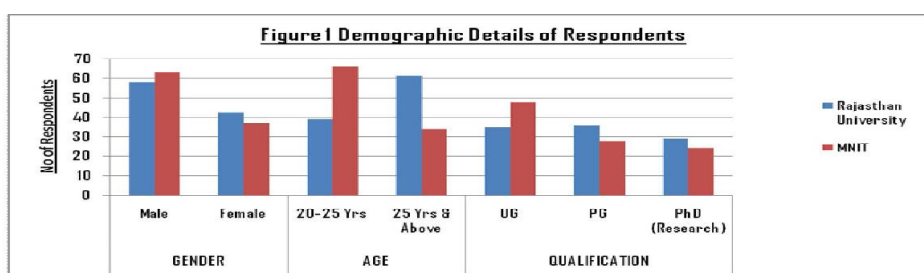
3.1 Demographic Details of Respondents: -

To make the study more relevant and enhance the reliability both gender of respondents users of state Library were analyzed in the current study. The demographic details of respondents are shown in Table 2 below:-

Table 2 Demographic Details of Respondents

DEMOGRAPHIC PARAMETER	GENDER		AGE		QUALIFICATION (Course Pursuing in University)		
NO OF RESPONDENTS	Male	Female	20-25 Yrs	25 Yrs & Above	UG	PG	PhD (Research)
Rajasthan University	58	42	39	61	35	36	29
MNIT	63	37	66	34	48	28	24
TOTAL	121	79	105	95	83	64	53
TOTAL (N)	200		200		200		

Figure 1. Demographic Details of Respondents



3.2 Analysis of Application of Total Quality Management in University Libraries with Respect to Users:-

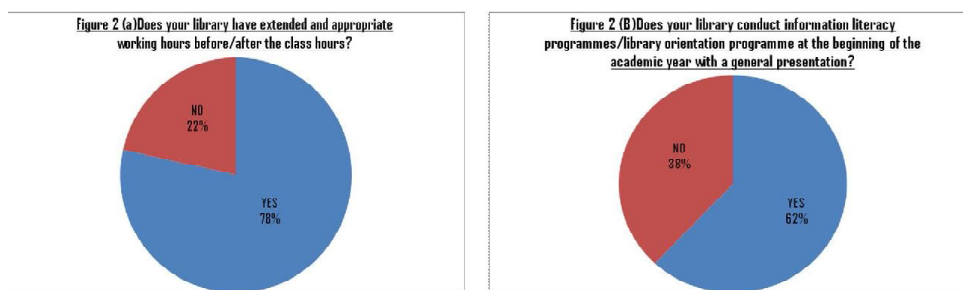
To prove the hypothesis H₁: TQM is implemented effectively in libraries of State Universities various questions were analyzed and discussed below



Table 3 Respondents opinion for Q1 and Q2

S.No	QUESTION	RESPONDENTS OPINION	
		YES	NO
Q1	Does your library have extended and appropriate working hours before/after the class hours?	157	43
Q2	Does your library conduct information literacy programmes/library orientation programme at the beginning of the academic year with a general presentation?	124	76

Figure 2 Respondents opinion for Q1 and Q2



Interpretation- It is observed from above opinion of users of Library that 78% respondents agree with the working hours of library and similarly 62% agree with the library orientation programme adopted by their University library.

Statistical Analysis: On table 3 above Chi Square test was applied and it was found that Chi Square Value was 12.249 and P value was 0.0005 at 95% Confidence Interval and considered significant. The results state that the sample respondent's opinion accepts the hypothesis H_1 .

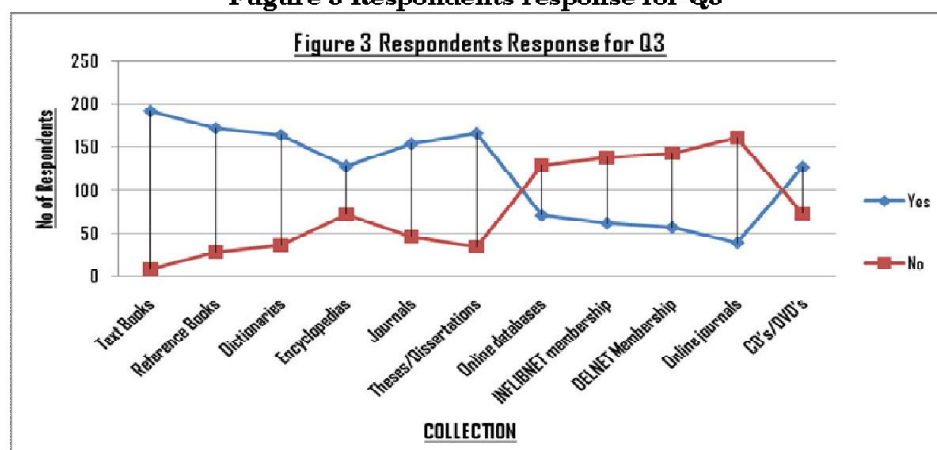


Table 4 Respondents opinion for Q3

Q3 Does your library have adequate resources and does it meet your requirements?

S.No.	COLLECTION	RESPONDENTS OPINION				
		Yes	No	Meet requirements		
1	Text Books	192	08	118	64	10
2	Reference Books	172	28	154	15	03
3	Dictionaries	164	36	51	101	12
4	Encyclopedias	128	72	84	40	04
5	Journals	154	46	53	90	11
6	Theses/Dissertations	166	34	42	77	47
7	Online databases	71	129	24	27	20
8	INFLIBNET membership	62	138	12	32	18
9	DELNET Membership	57	143	16	12	29
10	Online journals	39	161	14	13	12
11	CD's/DVD's	127	73	84	39	04

Figure 3 Respondents response for Q3



Interpretation – When analyzed about the resources available in state university library it was observed that 192 respondents were satisfied with the no of Text Books available and 172 were satisfied with the reference books in their library. Similarly around more than 150 respondents were satisfied with the availability of Journals and Dictionaries.



But on the contrary respondent's student users of library were less satisfied with the requirements of online databases, INFLIBNET and DELNET facilities in University Library.

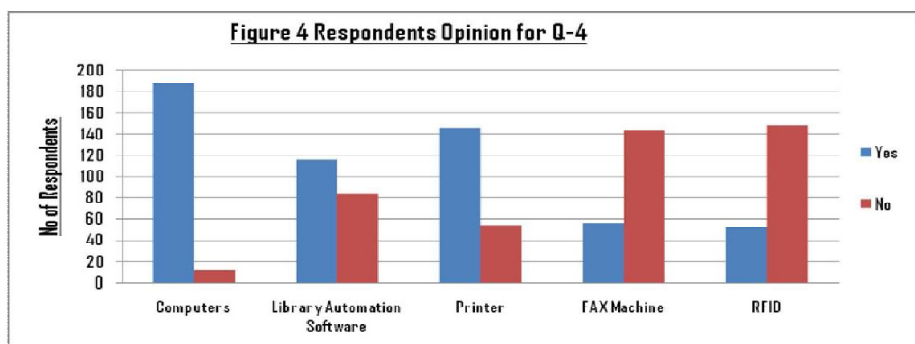
Statistical Analysis:-At 10 degree of Freedom Chi square test (Goodness of Fit) was conducted and results the Chi Square value to 617.28 and P value is < 0.0001 which makes it significant. The results state that the sample respondent's opinion accepts the hypothesis H_1 .

Table 5 Respondents opinion for Q4

Q4 Please mention whether your library possesses the following hardware / software's / equipments?

S. No.	ITEMS	RESPONDENTS OPINION	
		Yes	No
1	Computers	188	12
2	Library Automation Software	116	84
3	Printer	146	54
4	FAX Machine	56	144
5	RFID	52	148
6	Photocopier	185	15

Figure 4 Respondents opinion for Q4





Interpretation- To analyze the minimum software requirements **as per ISO for implementing TQM in Library** various hardware/ software requirements was analyzed in state university library. It was obtained that 188 out of 200 respondents were agree and satisfied with Computer facilities. 116 with Library Automation Software , 146 are satisfied with printer facilities and similarly 185 i.e. 92.5% were satisfied with photocopier facilities in university library, the findings make the results significant.

But on the other hand only 25% respondents were satisfied with FAX and RFID facilities in University library. i.e. to implement TQM more effectively in Library these facilities should be enhanced for users.

Statistical Analysis:- At 5 degree of Freedom Chi square test (Goodness of Fit) was conducted and results the Chi Square value to 385.35 and P value is < 0.0001 which makes it significant. The results state that the sample respondent's opinion accepts the hypothesis H_1 .

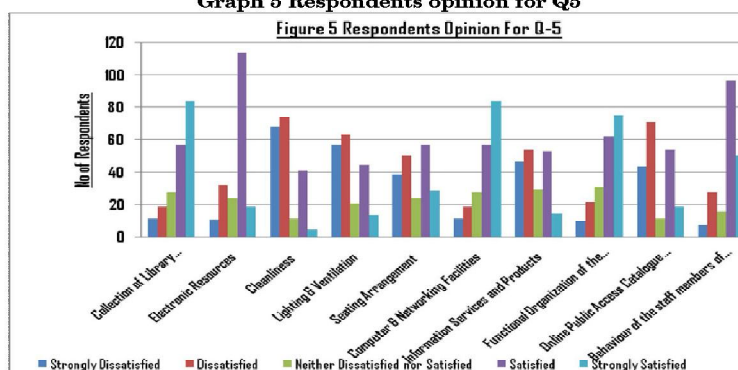
To prove the hypothesis H_2 : Users are satisfied with the quality of collection and services of libraries of State Universities various questions were analyzed and discussed below



Table 6 Respondents opinion for Q5
Q5 Are you satisfied with the functioning of and resources available in the library?

S.No.	Library Services & Resources	Strongly Dissatisfied	Dissatisfied	Neither Dissatisfied nor Satisfied	Satisfied	Strongly Satisfied
	Statistical Scale- Likert's Scale rank (1 is highest and 5 is lowest)	5	4	3	2	1
1.	Collection of Library (Books, Journals etc.)	12	19	28	57	84
2.	Electronic Resources	11	32	24	114	19
3.	Cleanliness	68	74	12	41	05
4.	Lighting & Ventilation	57	63	21	45	14
5.	Seating Arrangement	39	51	24	57	29
6.	Computer & Networking Facilities	12	19	28	57	84
7.	Information Services and Products	47	54	30	53	15
8.	Functional Organization of the library	10	22	31	62	75
9.	Online Public Access Catalogue System (OPAC) for identification of books	44	71	12	54	19
10.	Behaviour of the staff members of the library	08	28	16	97	51

Graph 5 Respondents opinion for Q5





Statistical Analysis:-

One way ANOVA on Likert's Scale data

On the above table Likert scale rank was analyzed and on Likert's scale data, One way Analysis was variance was calculated to find the significance level. **The P value is 0.0002, considered extremely significant.** The significance level of P indicates the acceptance of Hypothesis H_2 . Thus overall it can be said that Users are satisfied with the quality of collection and services of libraries of State Universities in Rajsthan particularly in Rajasthan university and MNIT, Jaipur.

4. CONCLUSION:-

Many libraries have embarked on plans for implementing quality-related philosophies such as TQM. It is well known that TQM is a management method, which libraries can benefit from it in several ways. The main purpose of libraries activities is the continual focusing on users servicing, and the satisfaction of their demand. As an Academic Library, it serves the teaching staff, the students and others. The library's collection includes Monographs, Pamphlets, newspapers, CD-ROM, Microfiches, etc. Libraries are the suitable to implement TQM. Libraries are the service oriented centers dedicated to their users (customers). By formulating a strategic plan, and following it with a commitment to continuous quality improvement, library managers can transform and improve their organizations. We have discussed the Total Quality Management and its applications in Library Services Section. The image of the library has also transformed. The growth of the Academic library is measured by adopting the TQM principles. This study Objects to check the application of TQM to the Library services is in state University of Rajasthan and it was analyzed that the framed hypothesis H_1 : TQM is implemented effectively



in libraries of State Universities of Rajasthan and H_2 : Users are satisfied with the quality of collection and services of libraries of State Universities of Rajasthan was accepted by various statistical analytical tests and overall it can be stated that The requirements and expectations of the user's are changing day by day and their requirements are very high but TQM if implemented in library tries to make academic library of University more beneficial for user as studied in case of Rajasthan University and MNIT Jaipur.

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दक्षिण भारत में हिन्दी के पठन-पाठन की समस्याएँ

-डॉ. ए. सन्यासि राव

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भारत बहु भाषा-भाषी देश है। लगभग 1650 भाषाएँ इस देश में प्रचलित हैं। विभिन्न भाषा-भाषी प्रांतों की संस्कृति अपने आपमें अत्यंत विशिष्ट होती है। अनेकता में एकता भारतीय संस्कृति की विशिष्टता है। देश की एकता का समर्थन करने हेतु राष्ट्रभाषा के रूप में किसी एक भाषा का होना अनिवार्य है। भारतीय संविधान में हिन्दी के साथ-साथ मान्यता प्राप्त भाषाओं की संख्या 22 हैं। उत्तर भारत की संस्कृति और दक्षिण भारत के राज्यों की संस्कृति में कुछ अंतर पाया जाता है। आर्य और द्रविड भाषा परिवारों की प्रतिनिधि भाषाएँ उत्तर और दक्षिण भारत में प्रचलन में हैं।

हिन्दी भारत की राष्ट्रभाषा, संपर्क भाषा और राजभाषा के रूप में भारतीय भाषाओं में विशिष्ट स्थान प्राप्त कर चुकी है। हिन्दी भारत के अधिकांश राज्यों में बोली, समझी व लिखी जाती है। हिन्दी भारत की सामाजिक संस्कृति को प्रतिफलित करती है। हिन्दी में भारत की सांस्कृतिक गरिमा की छवि देखने को मिलती है। हिन्दी अत्यंत प्राचीन और समृद्ध भाषा है। स्वाधीनता आंदोलन के दौरान समस्त देशवासियों में राष्ट्रीय भावनाओं का संचार करने के लिए महात्मा गांधी जी ने हिन्दी भाषा को उपयुक्त साधन माना है। इसी कारण से उन्होंने दक्षिण भारत में हिन्दी के प्रचार प्रसार को महत्व दिया है और दक्षिण भारत हिन्दी प्रचार सभा, मद्रास की स्थापना की है। दक्षिण के राज्यों के नागरिकों को हिन्दी के माध्यम से भारतीय संस्कृति की समग्रता से अवगत कराने हेतु दक्षिण के विद्यालयों में हिन्दी के पठन-पाठन को प्रोत्साहन दिया गया। स्वाधीन भारत में दक्षिण के राज्यों में हिन्दी का पठन-पाठन दृढ़ गति में हुआ है और हो रहा है।

इस वैज्ञानिक युग में समय की माँग के अनुरूप सभी छात्रों को चाहे वे उत्तर भारत के हों या दक्षिण भारत के, अंग्रेजी सीखना अनिवार्य हो गया है। अंग्रेजी भाषा में ज्ञान-विज्ञान की सभी पुस्तकें प्रकाशित हुई हैं। कंप्यूटर तथा अन्य तकनीकी साधनों का उपयोग करने के लिए अंग्रेजी भाषा-ज्ञान को प्राप्त करना अनिवार्य है। इस नेपथ्य में दक्षिण के प्रांतों को अपनी मातृभाषा के साथ अंग्रेजी को भी सीखना पड़ता है। इन दोनों भाषाओं के अतिरिक्त राष्ट्रीय विचारों से प्रेरित होकर हिन्दी का भी अध्ययन करना उनके लिए अतिरिक्त बोझ बन रहा है। मेरा विचार यह नहीं है कि हिन्दी नहीं सीखना चाहिए। लेकिन मैं यह कहना चाहता हूँ कि दक्षिण के छात्र पाठशाला के स्तर पर अन्य विषयों के साथ-साथ मातृभाषा, अंग्रेजी और हिन्दी को सीखने के प्रयत्न में थकान महसूस कर रहे हैं। सरकारी नीति का पालन करते हुए आन्ध्र प्रदेश में हिन्दी, पाठशाला के स्तर से पढाई जा रही है। हिन्दी के अध्ययन में रुचि



रखनेवाले छात्र विशेष विषय के रूप में हिन्दी का अध्ययन भी कर रहे हैं। चिंता की बात यह है कि छात्रों की समस्याओं को दृष्टि में रखकर हिन्दी पाठ्यक्रम नहीं बनाए जा रहे हैं। छटी कक्षा से हिन्दी का अध्ययन सुरू हो रहा है। उसी कक्षा में हिन्दी की वर्णमाला से लेकर क्लिष्ट पद्यांशों तथा गद्यांशों को भी पढ़ाया जा रहा है।

विद्यालयों की समय-सारिणी के अनुसार हफ्ते में केवल तीन घंटे हिन्दी के अध्ययन के लिए आबंटित किए जाते हैं। वास्तव में हिन्दी को उसी समय से पढ़ाना चाहिए, जब से पाठशाला में अंग्रेजी की पढ़ाई शुरू होती है। हिन्दी पाठ्यक्रम को सीमित रखना अनिवार्य है। दसवीं कक्षा में हिन्दी में उत्तीर्णता के लिए केवल बीस अंक निर्धारित किए गए हैं। पाठ्यक्रम को सीमित करके अन्य विषयों के समान हिन्दी के भी उत्तीर्णता अंकों को निर्धारित करना आवश्यक है, ताकि हिन्दी के प्रति छात्रों के मन में उपेक्षा की दृष्टि दूर हो सके। कॉर्पोरेट महाविद्यालयों में संस्कृत के पाठ्यक्रम के समान हिन्दी के पाठ्यक्रम को भी निर्धारित करना उपयुक्त होगा। परीक्षा लिखते समय संस्कृत भाषा पढ़नेवाले छात्रों को जो सुविधाएँ दी जा रही हैं, उन्हें हिन्दी पढ़नेवाले छात्रों को भी देना आवश्यक है। महाविद्यालयों में स्थायी रूप से हिन्दी अध्यापकों की नियुक्ति करनी चाहिए। महाविद्यालयों के गंधालयों में हिन्दी शब्दकोशों, पाठ्य पुस्तकों, समीक्षात्मक रचनाओं और हिन्दी पत्र-पत्रिकाओं को भी उपलब्ध कराना चाहिए।

स्नातक एवं स्नातकोत्तर स्तर पर हिन्दी का अध्ययन करनेवाले छात्रों का भविष्य एक प्रश्न-चिह्न बन गया है। सरकारी संस्थाओं और महाविद्यालयों के संचालकों की हिन्दी के प्रति उपेक्षा-दृष्टि के कारण स्थायी रूप से नियुक्तियाँ नहीं की जा रही हैं। इस दिशा में सरकार को आवश्यक कदम उठाना चाहिए। हिन्दी पढ़नेवाले छात्रों को प्रोत्साहन भत्ता देना चाहिए। हिन्दीतर भाषी हिन्दी छात्रों को सरकार की ओर से पुरस्कार देने की कोई योजना नहीं है। दक्षिण के राज्यों में हिन्दी का अध्ययन करना एक राष्ट्रीय अनुष्ठान माना जाए तो उपयुक्त होगा। जब तक इस अनुष्ठान को सरकार की ओर से प्रोत्साहन नहीं मिलेगा तब तक दक्षिण के राज्यों में हिन्दी के पठन-पाठन की स्थिति संतोषजनक नहीं होगी।



A STUDY ON PARENTAL BEHAVIOUR AND STRESS PERCEPTION OF HIGHER SECONDARY STUDENTS

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INTRODUCTION

Parental behaviour is a psychological construct representing standard strategies that parents use in their child rearing. There are many differing theories and opinions on the best ways to rear children, as well as differing levels of time and effort that parents are willing to invest. Parental investment starts before birth. Many parents create their own style from a combination of factors, and these may evolve over time as the children develop their own personalities and move through life's stages. Parenting style is affected by both the parents' and children's temperaments, and is largely based on the influence of one's own parents and culture. Most parents learn parenting practices from their own parents — some they accept, some they discard.

Adolescence is a transitional development period between childhood and adulthood that is characterized by more physical, psychological, social, and cognitive changes than any other stage of life, except infancy. This period is a dramatic challenge for adolescents as they require adjustment to a variety of stressors and changes in self, family and peer relations. Early adolescence in this respect is the most critical period as they are notably at risk for developing various disorders due to stress that can disrupt their psychosocial functioning. The causes of stress in adolescents include excessive school work, home work, tests, examinations, parental pressures and teachers expectations to perform academically, no time to play, poor



social interactions with peers, relationship difficulties, parents' financial difficulties and marital problems, physical illnesses or disabilities, and mental health problems. Therefore the investigator aims to study parental behaviour and stress perception of higher secondary students in Cuddalore district.

REVIEW OF RELATED LITERATURE

Chaya.A. Heblikar., (2012), tried to find out the relationship between moral judgment and parental behaviour of class IX standard students in Bangalore. The findings revealed that there is significant relationship between moral judgment and parental behaviour of class IX standard students. **S. Manimegalai., (2013)**, conducted a study to analyse the stress and anxiety of higher secondary students. The results showed that the higher secondary students have high level of stress and anxiety.

OBJECTIVES

1. To find out the level of parental behaviour and stress perception of higher secondary students.
2. To infer the difference, if any, in parental behaviour and stress perception scores between boys and girls, and the students of rural and urban schools.
3. To find out the relationship between parental behaviour and stress perception of higher secondary students.

HYPOTHESIS

1. The level of parental behaviour of higher secondary students is high.
2. The stress perception of higher secondary students is high.



3. There is no significant difference between boys and girls, rural and urban higher secondary students in their mean parental behaviour scores.
4. There is no significant difference between boys and girls, rural and urban higher secondary students in their mean stress perception scores.
5. There is a positive relationship between parental behaviour and stress perception of higher secondary students.

METHODOLOGY

SAMPLE

The study was conducted in Cuddalore district in Tamil Nadu and survey method was employed. The sample was divided into different categories on the basis of gender and location of the school. From 19 schools 836 samples were selected. Out of these 836, 425 were boys and 411 were girls, 404 students from rural and 432 students from urban were selected by stratified random sampling technique.

TOOLS

Parental behaviour scale constructed and validated by investigator was used to measure the parental behaviour of higher secondary students. It consists of 44 statements with five point scale. The scores ranged from 1 to 5 per item. The maximum score is 1-220. Higher score indicates high parental behaviour. The stress perception inventory was constructed and validated by Lydia Eric was used for the present study. This tool was developed to measure the degree to which situations in one's life are appraised as stressful. The questionnaire consists of 80 statements. The scores ranged from 0 to 4 per item. The maximum score is 0-320. Higher score indicates more stress.



STATISTICAL TECHNIQUE

For analysing data, mean and standard deviation, 't' test, and Pearson product moment correlation were computed.

ANALYSIS AND INTERPRETATION

DESCRIPTIVE ANALYSIS

Mean and standard deviation for parental behaviour and stress perception of whole sample were analysed and the details are given in Table 1

Table 1
Mean and standard deviation for parental behaviour and stress perception of whole sample

S.No	Group	Variable	M	SD
1.	Entire sample (836)	Parental behaviour	149.98	27.32
2.		Stress perception	72.44	43.83

Parental behaviour mean score of higher secondary students is 149.98 and standard deviation is 27.32, which indicates average level of parental behaviour. Stress perception mean score of higher secondary students is 72.44 and standard deviation is 43.83, which shows average level of stress perception of higher secondary students.

DIFFERENTIAL ANALYSIS

In order to find out the significant difference between the parental behaviour scores of boys and girls, rural and urban higher secondary students, 't' test was applied and the results are given in Table 2



Table 2
‘t’ Value for the Parental Behaviour Mean Score of Boys and Girls, Rural and Urban Higher Secondary Students

Sub variables	N	M	SD	t-value	Level of significance
Boys	425	146.87	26.81	3.370	S at 0.01
Girls	411	153.20	27.51		
Rural school	404	150.95	26.77	0.987	Ns at 0.05
Urban school	432	149.08	27.83		

It is evident from table 2 that boys and girls higher secondary students differ significantly in their parental behaviour scores. Girls have secured greater mean value than boys.

It is clear from table 2 that rural and urban higher secondary students do not differ significantly in their parental behaviour scores.

To find out the significant difference between the stress perception scores of boys and girls, rural and urban higher secondary students, ‘t’ test was computed and the details are given in Table 3

Table 3
‘t’ Value for the Stress Perception Mean Score of Boys and Girls, Rural and Urban Higher Secondary Students

Variables	N	M	SD	t-value	Level of significance
Boys	425	79.81	46.71	5.019	S at 0.01
Girls	411	64.81	39.25		
Rural	404	73.12	42.73	0.437	Ns at 0.05
Urban	432	71.80	44.87		

Table 3 indicates that boys and girls differ significantly in their stress perception scores. Boys have secured greater mean value than girls.

Table 3 indicates that rural and urban higher secondary students do not differ significantly in their stress perception scores.



CORRELATION ANALYSIS

Parental behaviour scores and stress perception scores of higher secondary students were correlated and the results are presented in Table 4

Table 4
Correlation Co-Efficient for Parental Behaviour and Stress Perception

Variables	r- value	Report
Parental behaviour and stress perception of higher secondary students	-0.126	Significant at 0.01

The correlational analysis reveals that there is significantly low correlation and negative relationship exists between parental behaviour and stress perception.

FINDINGS OF THE STUDY

1. Parental behaviour of higher secondary students is average.
2. Stress perception of higher secondary students is average.
3. Boys and girls differ significantly in their mean parental behaviour score.
4. Rural and urban school students do not differ significantly in their mean parental behaviour scores.
5. Boys and girls differ significantly in their mean stress perception scores.
6. Rural and urban higher secondary students do not differ significantly in their mean stress perception scores.



7. There is significantly low correlation and negative relationship exists between parental behaviour and stress perception.

CONCLUSION

It is clear from this study that the parental behaviour of higher secondary students is average. Stress perception of higher secondary students is average. Also it reveals that there is significantly low correlation and negative relationship exists between parental behaviour and stress perception. Parenting is the process of promoting and supporting the physical, emotional, social and intellectual development of a child from infancy to adulthood. Parenting is a very serious social phenomenon as it determines the future of the children. Parents have an enormous influence on their children for several reasons, but most importantly because they are their children's first teachers. Children's brains are like sponges; from the first couple years of their lives they absorb everything around them. Therefore, what they learn from their parents in the first couple years of their lives will impact children for the rest of their lives.

Adolescents' period is a critical age, particularly with the added pressure to fit in to social groups. Therefore parents should take necessary steps to minimize the stress situations of the children in the home environment and make themselves to perfectly rearing their children.

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EXPLORING MECHANISMS IN INDIAN FINANCIAL DERIVATIVE MARKETS

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Definitions of Derivatives

Section 2(ac) of Securities Contract Regulation Act (SCRA) 1956 defines Derivative as

a) "a security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security;

b) "a contract which derives its value from the prices, or index of prices, of underlying securities".

The International Monetary Fund (2001) defines derivatives as "financial instruments that are linked to a specific financial instrument or indicator or commodity and through which specific risks can be traded in financial markets in their own right. The value of a financial derivative derives from the price of an underlying item, such as an asset or index. Unlike debt securities, no principal is advanced to be repaid and no investment income accrues." **Objectives of the Study**

Objectives of the Study is to know the mechanism behind the derivatives of Indian financial market.

The objectives of the study are as follows:

- To have an overview of Indian derivative market.
- To have a look on the evolution of various derivative products.
- To find out the trading mechanism of different derivative products.



- To examine the various issues in the Indian derivative market and future prospects of this market.

Participants in the derivative market

In Indian mechanism there are three broad categories of participants in the derivative market. They are: ***Hedgers, Speculators and Arbitrageurs.***

A ***Hedger*** is a trader who enters the derivative market to reduce a pre-existing risk. In India, most derivatives users describe themselves as hedgers (Fitch Ratings, 2004) and Indian laws generally require the use of derivatives for hedging purposes only.

Speculators, the next participant in the derivative market, buy and sell derivatives to book the profit and not to reduce their risk. They wish to take a position in the market by betting on future price movement of an asset. Speculators are attracted to exchange traded derivative products because of their high liquidity, high leverage, low impact cost, low transaction cost and default risk behavior. Futures and options both add to the potential gain and losses of the speculative venture. It is the speculators who keep the market going because they bear the risks, which no one else is willing to bear.

The third participant, ***Arbitrageur*** is basically risk-averse and enters into the contracts, having the potential to earn riskless profits. It is possible for an arbitrageur to have riskless profits by buying in one market and simultaneously selling in another, when markets are imperfect (long in one market and short in another market). Arbitrageurs always look out for such price differences. Arbitrageurs fetch enormous liquidity to the products which are exchanges traded. The liquidity in-turn results in better price discovery, lesser market manipulation and lesser cost of transaction.



Derivatives include a wide range of financial contracts, including forwards, futures, swaps and options.

A **Forward contract** is an agreement between two parties calling for delivery of, and payment for, a specified quantity and quality of a commodity at a specified future date. The price may be agreed upon in advance, or determined by formula at the time of delivery or other point in time. Just like other instruments, it is used to control and hedge currency exposure risk (e.g. forward contracts on USD or EUR) or commodity prices (e.g. forward contracts on oil). It in simple words and further adds that one of the parties to a forward contract assumes a long position and agrees to buy the underlying asset at a certain future date for a certain price and the other agrees to short it. The specified price is referred to as the delivery price. The parties to the contract mutually agree upon the contract terms like delivery price and quantity. "A **Futures Contract** is a standardized contract, traded on a futures exchange, to buy or sell a certain underlying instrument at a certain date in the future, at a pre-set price. The future date is called the delivery date or final settlement date. The pre-set price is called the futures price. The price of the underlying asset on the delivery date is called the settlement price. The futures price, naturally, converges towards the settlement price on the delivery date". The Types of Futures which are as follows:

- Foreign Exchange Futures
- Currency Futures
- Stock Index Futures
- Commodity Futures

"An **Options Contract** is the right, but not the obligation, to buy (for a call option) or sell (for a put option) a specific amount of a given stock,



commodity, currency, index, or debt, at a specified price (the strike price) during a specified period of time. For stock options, the amount is usually 100 shares. Each option contract has a buyer, called the holder, and a seller, known as the writer. If the option contract is exercised, the writer is responsible for fulfilling the terms of the contract. For the holder, the potential loss is limited to the price paid to acquire the option. When an option is not exercised, it expires. No shares change hands and the money spent to purchase the option is lost. For the buyer/holder, the upside is unlimited. For the writer, the potential loss is unlimited and the profits are just limited to the amount of option premium. Hull (1995) has also talked of call option and put option.

“**A swap** is a derivative product, where two counterparties exchange one stream of cash flows against another stream. These streams are called the legs of the swap. The cash flows are calculated over a notional principal amount. The notional amount typically does not change hands and it is simply used to calculate payments. Swaps are often used to hedge certain risks, for instance interest rate risk. Another use is speculation”. There are two basic kinds of swaps: Currency Swaps and Interest Rate Swaps.

Development of Derivatives Markets in India

Indian Derivatives markets have been in existence in one form or the other for a long time. In the area of commodities, ban on cash settlement and option trading by the Government of India, derivatives trading shifted to informal forwards markets. In recent years, government policy has shifted in favor of an increased role of market-based pricing and less suspicious derivatives trading. The first step towards the introduction of financial derivatives trading in India was the promulgation of the Securities Laws (Amendment) Ordinance, 1995. This provided for withdrawal of prohibition on options in securities. In the last decade, beginning of the



year 2000, ban on futures trading in many commodities was lifted out. During the same period, National Electronic Commodity Exchanges were also set up. Derivatives trading commenced in India in June 2000 after SEBI granted the final approval to this effect in May 2001 on the recommendation of L. C Gupta committee. Securities and Exchange Board of India (SEBI) permitted the derivative segments of two stock exchanges, NSE and BSE, and their clearing house/corporation to commence trading and settlement in approved derivatives contracts. Initially SEBI approved trading in index futures contracts based on various stock market indices such as, S&P CNX, Nifty and Sensex.

Subsequently, index-based trading was permitted in options as well as individual securities.

Table 1: Products Traded in Derivatives Segment of the BSE

S. No	Product	Traded with underlying asset	Introduction Date
1	Index Futures	Sensex	June 9,2000
2	Index Options	Sensex	June 1,2001
3	Individual Stock Option	Concerned Company Stock	July 9, 2001
4	Individual Stock futures	Concerned Company Stock	November 9,2002
5	Weekly Option	4 Stocks	September 13,2004
6	Chhota (mini)	SENSEX	January 1, 2008
7	Currency Futures	US Dollar Rupee	October 1,2008

Source: Compiled from BSE website

NSE started trading in index futures, based on popular S&P CNX Index, on June 12, 2000 as its first derivatives product. Trading in index options was introduced on June 4, 2001. On November 9, 2001, Futures on individual securities started. As stated by the Securities & Exchange Board of India (SEBI), futures contracts are available on 233 securities. Trading in options on individual securities commenced w.e.f. July 2, 2001. The options contracts, available on 233 securities, are of American style and cash settled. Trading in interest rate futures was started on 24 June 2003



but it was closed subsequently due to pricing problem. The NSE achieved another landmark in product introduction by launching Mini Index Futures & Options with a minimum contract size of Rs 1 lac. NSE created history by launching currency futures contract on US Dollar-Rupee on August 29, 2008 in Indian Derivatives market.

Table 2: Products Traded in F&O Segment of NSE

S.no	Product	Traded with underlying asset	Introduction Date
1	Index Futures	S&P CNX Nifty	June 12,2000
2	Index Options	S&P CNX Nifty	June 4,2001
3	Individual Stock Option	Concerned Company Stock	July 2, 2001
4	Individual Stock futures	Concerned Company Stock	November 9,2001
5	Interest Rate Future	T – Bills and 10 Years Bond	June 23,2003
6	IT Futures & Options	CNX IT	August 29,2003
7	Nifty Futures & Options	Bank	June 13,2005
8	Nifty Junior Futures & Options	CNX	June 1,2007
9	Futures & Options	CNX100	June 1,2007
10	Midcap 50 Futures & Options	Nifty	October 5,2007
11	Mini index Futures & Options	S&P CNX Nifty index	January 1, 2008
12	long Term Option contracts	S&P CNX Nifty Index	March 3,2008
13	Currency Future	US Dollar Rupee	August 29,2008

Source: Compiled from NSE website

Table 2 presents a description of the types of products traded at F& O segment of NSE.

Trading Mechanism

The trading system of derivatives at NSE, known as NEAT-F&O trading system, provides a fully automated screen-based trading for all kinds of derivatives products available on NSE on a national wide basis. It supports an anonymous order driven market, which operates on a time priority/strict price basis. It offers great flexibility to users in terms of kinds



of orders that can be placed on the terminal. Various time and price-related conditions like Immediate/Cancel, Limit/Market Price, Stop Loss, etc. can be built into an order. The trading in derivatives is essentially similar to that of trading of securities in the Capital Market segment.

There are four entities in the trading system of a derivative market:

1. **Trading members:** Trading members can trade either on their own account or on behalf of their clients including participants. They are registered as members with NSE and are assigned an exclusive trading member ID.
2. **Clearing members:** Clearing members are members of NSCCL. They carry out confirmation/inquiry of trades and the risk management activities through the trading system. These clearing members are also trading members and clear trade for themselves or/and other.
3. **Professional clearing members:** A clearing member who is not a trading member is known as a professional clearing member (PCM). Typically, banks and custodian become PCMs and clear and settle for their trading members.
4. **Participants:** A participant is a client of trading members like financial institutions. These clients may trade through multiple trading members, but settle their trades through a single clearing member only.

The terminals of trading of futures & options segment are available in 298 cities at the end of March 2006. Besides trading terminals, it can also be accessed through the internet by investors from anywhere.

Contract Specification

The index options and index futures contracts traded on NSE are based on S&P CNX Nifty Index, CNX IT Index and the CNX Bank Index, while stock futures and options are based on individual securities. Presently stock futures and options are available on 119 securities. While stock options



are American Style, Index options are European Style. There are a minimum seven strike prices, three 'out-of-the- money', and one 'at-the-money' and three 'in -the -money'. The price at which the buyer has a right to buy or sell the underlying is the strike price. The number of strikes provided in options on Nifty index is related to the range in which previous day's closing value if Nifty index falls as per the following table: In respect of equity derivatives, at any point the numbers of available contracts with 1 month, 2 months and 3 months to expiry are available for trading. These contracts expire on last Thursday of the expiry month. A new contract is introduced on the next trading day following expiry of the near month contract. All derivatives are never settled on credit but are presently cash settled.

Nifty Index Level	Strike Interval	Scheme of strikes to be introduced (ITM-ATM-OTM)
Up to 1500	10	3-1-3
> 1500 up to 2000	10	5-1-5
> 2000 up to 2500	10	7-1-7
> 2500	10	9-1-9

Trading Value

The F&O segment reported a total trading value (notional) of Rs. 4824250 crores (CF- conversion table) in the previous year 2004-2005. The business growth of F&O segment is presented in Table and Chart. The trading volumes in the F&O segment indicate that futures are more popular than options; contracts on securities are more popular than those on indexes; and call options are more popular than put options. The F&O segment provides a nationwide market. Mumbai accounts for 50% of the total turnover. The share of Mumbai in total turnover has been declining over the years reinforcing nationwide presence of NSE i.e. Mumbai in India



plays a major role as the turnover in November 2001 was an immense rise for the market of India

Transaction Changes The maximum brokerage chargeable by a trading member for the trades affected in the contracts entered on F&O segment is fixed at 2.5% of the contract value in case of index futures and stock futures. In case of index options and stock options, it is 2.5% of the notional value of the contract $[(\text{Strike Price} + \text{Premium}) * \text{Quantity}]$, exclusive of statutory levies. The transaction charges payable to the exchange by the trading member for the trades executed by him on the F&O segment are fixed at the rate of Rs. 2 per lakh of turnover (0.002%) subject to a minimum of Rs.1,00,000 per year. The trading members contribute to Investor Protection Fund of F&O segment at the rate of Rs. 10 per crore of turnover (0.0001%) i.e. to get the contract of NSE, the value is fixed; and the transactional charges are also fixed. The trading members are also required to pay securities transaction tax (STT) on non-delivery transactions at the rate of 0.0133% (payable by the seller) for derivatives w.e.f 1 June 2006.

Clearing and Settlement Mechanism

NSCCL undertakes clearing and settlement of all trades executed on the F&O segment of the NSE. It also acts as legal counterpart to all trades on this segment and guarantees their financial settlement. The clearing and settlement process comprises of three main activities, viz., Clearing, Settlement and Risk Management. **Settlement Mechanism**

"All futures and options contracts are cash settled i.e. through exchange of cash. The underlying for index futures/options of the Nifty index cannot be delivered. The settlement amount for a CM is netted across all their TMs/clients, across various settlements. For the purpose of



settlement, all CMs are required to open a separate bank account with NSCCL designated clearing banks for F&O segment”.

Settlement of Futures Contracts

The future contracts settlements are of two types, the final settlement, which happens on the trading day of the futures contract and the MTM settlement, which happens on continuous basis at the end of each day

Final Settlement for Futures

The day of expiry of the futures contracts, after the hours of closing of the respective futures contract on such day, NSCCL marks all positions of a CM to the final settlement price and the resulting loss/profit is cash settled. Final settlement loss/profit amount is debited/credited to the relevant CM's clearing bank account on the day following expiry day of the contract. **MTM Settlement of Futures Contracts**

For each member, all contracts for futures are marked-to-market (MTM) to the daily settlement price of the relevant futures contract at the end of each day. The losses/profits are computed as the difference between:

- The trade price and the day's settlement price in respect of contracts executed during the day but not squared up.
- The previous day's settlement price and the current day's settlement price in respect of brought forward contracts.
- The selling and the buying price in respect of the contracts executed during the day are squared up.
- That the daily settlement price on a trading day is the closing day of the respective futures contracts on such day. The closing price for a future contract is calculated currently as the last half hour



weighted average price of the contract in the F&O segment of NSE. Final settlement price is the closing price of the relevant underlying index/security in the Capital Market segment of NSE, on the last trading day of the contract. The closing price of the underlying index/security is currently its last half an hour weighted average value in the Capital Market Segment of NSE.

Settlement of Option Contracts

The option contracts settlements are of three types: daily premium settlement, interim exercise settlement in the case of option contracts on securities and final settlement.

Daily Premium Settlement for Options

The seller of the option is entitled to receive the premium for the option sold by him. Similarly, the buyer of an option is obligated to pay the premium towards the options purchased by him. The premium payable amount and the premium receivable amount are netted to compute the net premium payable or receivable amount for each client for each option contract. The pay-in and pay-out of the premium settlement is on T+1 day. Then premium payable amount and premium receivable amount are directly credited/debited to the CMs clearing bank account.

Interim Exercise Settlement

That Interim exercise settlement takes place only for option contracts on individual securities. An investor can exercise his in-the-money options at any time during trading hours, through his trading member. Interim exercise settlement is effected for such options at the close of the trading hours, on the day of exercise. Valid exercised option contracts are assigned to short positions in the option contract with the same series (i.e. having the same underlying, same expiry date and same strike price), on a



random basis, at the client level. The CM who has exercised the option receives the exercise settlement value per unit of the option from the CM who has been assigned the option contract. The interim exercise value is the difference between the strike price and the settlement price of the relevant option contract. Exercise settlement value is credited/debited to the relevant CM's clearing bank account on T+2 day (T=exercise date).

Final Exercise Settlement

That final exercise settlement is effected for option positions at in-the-money strike prices existing at the close of trading hours, on the expiration day of an option contract. All long positions at in-the-money strike prices are automatically assigned to short positions in option contracts with the same series, on a random basis. Final settlement loss/profit amount for option contracts on Index is debited/credited to the relevant CM's clearing bank account on T+1 day. Final settlement loss/profit amount for option contracts on Individual Securities is debited/credited to the relevant CM's clearing bank account on T+2 day. Open positions, in option contracts, cease to exist after their expiration day. **Risk Management Mechanism**

NSCCL has developed a comprehensive risk containment mechanism for future and options (F&O) segment. The salient features of risk containment measures on F&O segment.

- The financial soundness of the members is the key to risk management. Therefore, the requirements for membership in terms of capital adequacy (net worth, security deposits) are quite stringent.
- NSCCL charges an upfront initial margin for all the open positions of a CM. It specifies the initial margin requirements for each future/options contract on a daily basis. It follows Var-based margining



computed through SPAN. The CM in turn collects the initial margin from the TM's and their respective clients.

- The open positions of the members are marked to market based on contract settlement price for each contract. The difference is settled in cash on a T + 1 basis.
- The exposure of a CM cannot exceed 33.3 times the liquid net worth for index options/futures and 20 times the liquid net worth for stock options/futures.

NSCCL's online position monitoring system monitors a CMs open positions on a real-time basis. Limits are set for each CM based on his base capital. The on-line position monitoring system generates alerts whenever a CM reaches a position limit set up by NSCCL. NSCCL monitors the CMs for MTM value violation, while TMs are monitored for contract-wise position limit violation. CMs are provided a trading terminal for the purpose of monitoring the open positions of all TM's clearing and settling through him. A CM may set exposure limits for a TM clearing and settling through him. NSCCL assists the CM to monitor the intra-day exposure limits set up by a CM and whenever a TM exceeds the limits, it stops the particular TM from further trading.

- A member is alerted of his position to enable him to adjust his exposure or bring in additional capital. Position violations result in disablement of trading facility for all TMs of a CM in case of violation by the CM.
- A separate Settlement Guarantee Fund for this segment has been created out of the base capital of members. The fund had a balance of Rs 2500 crore (CF- Conversion Table) at the end of March 2006.



The most critical component of risk containment mechanism for F&O segment is the margining system and on-line positioning monitoring. The actual position monitoring and margining is carried out on-line through Parallel Risk Management System (PRISM) using SPAN(R) (Standard Portfolio Analysis of Risk) (CF – Glossary of terms) system for the purpose of computation of online margins, based on the parameters defined by SEBI.

NSE – SPAN

The objective of SPAN is to identify overall risk in a portfolio of futures and options contracts for each member. The system treats futures and options contracts uniformly, while at the same time recognizing the unique exposure associated with options portfolios like extremely deep out of the money short position, inter-month risk and inter commodity risk.

Because SPAN is used to determine performance bond requirements (margin requirement) its overriding objective is to determine the largest loss that a portfolio might reasonably be expected to suffer from one day to next day based on 99 % VAR methodology.

SPAN considers uniqueness of option portfolios. The following factors affect the value of an option:

- Underlying market price.
- Volatility (variability) of underlying instrument
- Time to expiration
- Interest Rate.
- Strike Price

As these factors change, the value of futures and options maintained within a portfolio also changes. Thus SPAN constructs scenarios of probable



changes in underlying prices and volatilities in order to identify the largest loss a portfolio might suffer from one day to the next. Then it sets the margin requirement at a level sufficient to cover this one-day loss”.

“The complex calculations (e.g. the pricing of options) in SPAN are executed by the Clearing Corporation. The results of these calculations are called Risk arrays. Risk arrays, and other necessary data inputs for margin calculation are then provided to members in a file called the SPAN Risk Parameter file. This file will be provided to members on a daily basis. Members can apply the data contained in the Risk parameter files, to their specific portfolios of futures and options contracts, to determine their SPAN margin requirements. Hence members need not execute complex option pricing calculations, which would be performed by NSCCL. SPAN has the ability to estimate risk for combined futures and options portfolios, and re-value the same under various scenarios of changing market conditions”

Trading Volume and Open Interest Mechanism

The NSE Research Initiative entitled “Informational Content of Trading Volume and Open Interest – An empirical study of Stock Market in India” examines the role of certain non-price variables namely open interest and trading volume from the stock option market in determining the price of underlying shares in the cash market. The study reveals that the open interest for stock options is one of the significant variables in determination of the future spot price of underlying share. The result clearly indicates that open interest predictions are statistically more significant than volume-based predictors in Indian context too.

The results in this study show that the option markets, more specifically the net open interest, are likely to be informative about the future movement of stock prices. Investors who do not possess the specific



information about the future price movement can use these predictors for deciding upon their trading strategies. The study reveals difference in results in US context and India maybe because firstly, the exchange traded stock derivative market in India is of recent origin; and it takes time for the investors to realize the true potential of these instruments. Secondly, the participation of institutional investors in Indian stock derivative market is extremely limited. It can be attributed to the regulatory restrictions where in such investors are allowed to use derivative securities for the purpose of hedging only. The story of mutual funds is not significantly different from this.

Therefore, the investors who have better access to information and can be classified in the category of informed investors are constrained to deal in the derivative securities. Though there are some positive developments taking place in this direction, these securities are yet to gain significance in the portfolio of institutional investors in India. Settlement

Geographical Distribution of Derivative in India

The F&O segment of NSE (CF- Glossary of terms) provides a nation-wide market. In the chart below the city-wise turnover of the F&O segment is presented in the Table. During the month Jan 2005, Mumbai contributed nearly 43.54% of the total turnover. The contribution from Delhi was 21.54% and Kolkata was 12.15%.

Table1 shows the distribution of and the turnover of derivatives by various urban centers as of Jan 2005. This shows that equity derivatives trading is more concentrated in the top five urban centers. Turnover from outside the top five centers amounts to 18.2% only. This difference is likely to be largely owing to gaps in knowledge on the part of employees of brokerage firms, and their customers, in location outside the major urban centers.



Member trading Pattern in the Derivative Segment

Rank	City	Share in NSE turnover	
		Spot	Derivatives
1.	Bombay	42.1	48.9
2.	Delhi	17.9	22.5
3.	Calcutta	12.1	14.3
4.	Madras	3.6	1.9
5.	Hyderabad	3.2	2.0
6.	Bangalore	2.3	0.6
7.	Ahmedabad	2.0	1.7
8.	Jaipur	1.3	0.3
9.	Cochin	1.0	1.6
10.	Chandigarh	1.0	1.0
	Remainder	13.5	5.2
	Total	100.0	100.0

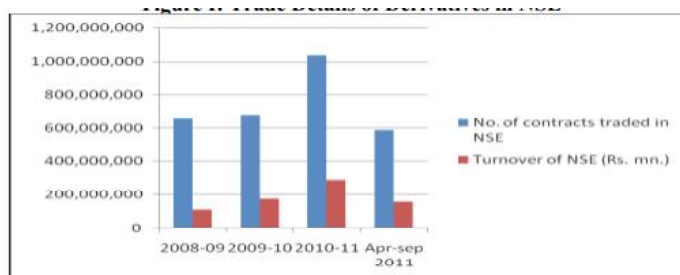
Source: NSE

Trade Details of Derivatives Market

After recording a 60.43 percent growth (2009–2010) in trading volume on year-on-year basis, the NSE's derivatives market continued its momentum in 2010–2011 by having a growth rate of 65.58 percent (Table 3). The NSE further strengthened its dominance in the derivatives segment in 2010–2011 by having a share of 99.99 percent of the total turnover in this segment. The share of the BSE in the total derivatives market turnover fell from 0.0013 percent in 2009–2010 to 0.0005 percent in 2010–2011. The total turnover of the derivatives segment increased by 26.56 percent during the first half of 2011–2012 compared to the turnover in the corresponding period in the previous fiscal year. In terms of product wise turnover of futures and options segment in the NSE, index options segment was the clear leader in 2010–2011 (Figure III).

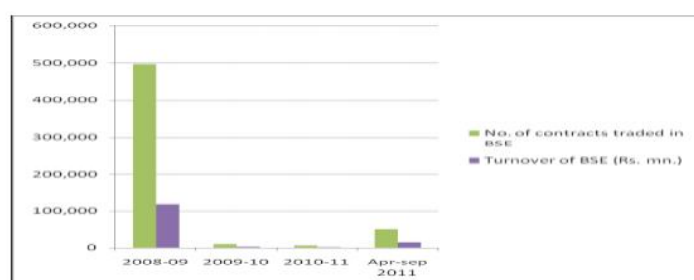


Figure I : Trade Details of Derivatives in NSE



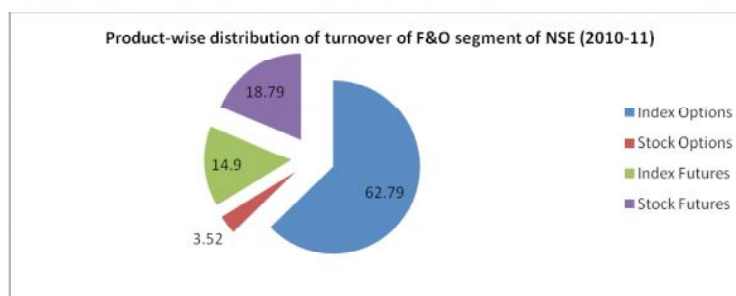
Source: NSE Website

Figure II : Trade Details of Derivatives in BSE



Source: NSE Website

Figure III: Product-wise distribution of turnover of F&O segment of NSE (2010-11)



Source: NSE Website



Table 3 : Trade Details of Derivatives Market

Month/ Year	NSE			BSE			TOTAL		
	No. of Contracts Traded	Turnover (₹ mn.)	Turnover (US\$ million)	No. of Contracts Traded	Turnover (₹ mn.)	Turnover (US\$ million)	No. of Contracts Traded	Turnover (₹ mn.)	Turnover (US\$ million)
2008-09	657,390,497	110,104,822	2,161,037	496,502	117,750	2,311	657,886,999	110,222,572	2,163,348
2009-10	679,293,922	176,636,663	3,913,085	9,026	2,341	52	679,302,948	176,639,004	3,913,137
Apr-10	58,230,570	16,716,200	372,133	54	10	0	58,230,624	16,716,210	372,133
May-10	80,960,515	21,244,957	472,951	158	40	1	80,960,673	21,244,997	472,952
Jun-10	77,078,089	20,355,990	453,161	93	20	0	77,078,182	20,356,010	453,161
Jul-10	67,756,807	18,299,101	407,371	40	10	0	67,756,847	18,299,111	407,371
Aug-10	73,712,025	20,537,276	457,197	114	30	1	73,712,139	20,537,306	457,197
Sep-10	93,089,649	27,363,918	609,170	122	40	1	93,089,771	27,363,958	609,171
Oct-10	90,801,023	28,244,931	632,585	180	60	1	90,801,203	28,244,991	632,587
Nov-10	98,799,250	29,658,462	664,243	37	10	0	98,799,287	29,658,472	664,243
Dec-10	80,242,319	23,571,090	527,908	435	130	3	80,242,754	23,571,220	527,911
Jan-11	98,728,755	28,418,339	636,469	39	10	0	98,728,794	28,418,349	636,469
Feb-11	109,365,434	29,292,946	656,057	3,434	930	21	109,368,868	29,293,876	656,078
Mar-11	105,447,626	28,779,002	644,547	917	250	6	105,448,543	28,779,252	644,552
2010-11	1,034,212,062	292,482,211	6,550,553	5,623	1,540	34	1,034,217,685	292,483,751	6,550,588
Apr-11	81,540,014	23,513,002	480,590	4,925	1,480	30	81,544,939	23,514,482	480,620
May-11	96,041,825	26,051,378	532,473	9,054	2,830	58	96,050,879	26,054,208	532,530
Jun-11	90,744,339	24,381,766	498,347	2,418	720	15	90,746,757	24,382,486	498,362
Jul-11	91,377,746	25,649,648	524,261	1,268	360	7	91,379,014	25,650,008	524,269
Aug-11	116,885,761	29,637,492	605,770	2,164	580	12	116,887,925	29,638,072	605,782
Sep-11	114,305,645	28,352,638	579,509	31,782	8,400	172	114,337,427	28,361,038	579,680
Apr - Sep 2011	590,895,330	157,585,925	3,220,950	51,611	14,370	294	590,946,941	157,600,295	3,221,243

Source: NSE Website

Unresolved Issues and Future Prospects

Even though the derivatives market has shown good progress in the last few years, the real issues facing the future of the market have not yet been resolved. The number of products allowed for derivative trading have increased and the volume and the value of business has zoomed, but the objectives of setting up different derivative exchanges may not be achieved and the growth rates witnessed may not be sustainable unless these real issues are sorted out as soon as possible. Some of the main unresolved issues are as under.

Commodity Options: Trading in commodity options contracts has been stopped since 1952. The market for commodity derivatives is not completed



without the presence of this important derivative. Both futures and options are necessary for the healthy growth of the market. There is an immediate need to bring about the necessary legal and regulatory changes to introduce commodity options trading in the country. The matter is believed to be under the active consideration of the Government and the options trading may be introduced in the near future. Issues for Market Stability and Development: The enormous size and fast growth of the Over the Counter (OTC) derivatives market has attracted the attention of regulators and supervisory bodies. Some OTC derivatives have been viewed as amplifiers of the stress in the present global financial crisis. The more common criticisms relate to the fact that the OTC markets are less transparent and highly leveraged, have weaker capital requirements and contain elements of hidden systemic risk.

The Warehousing and Standardization: For commodity derivatives market to work smoothly, it is necessary to have a sophisticated, cost-effective, reliable and convenient warehousing system in the country. The Habibullah (2003) task force admitted, "A sophisticated warehousing industry has yet to come about". Further, independent labs or quality testing centers should be set up in each region to certify the quality, grade and quantity of commodities so that they are appropriately standardized and there are no shocks waiting for the ultimate buyer who takes the physical delivery.

Cash vs. Physical Settlement: Only about 1% to 5% of the total commodity derivatives trade in the country is settled in physical delivery. It is probably due to the inefficiencies in the present warehousing system. Therefore the warehousing problem obviously has to be handled on a war footing, as a good delivery system is the backbone of any commodity trade.



A major problem in cash settlement of commodity derivative contracts is that at present, under the Forward Contracts (Regulation) Act 1952, cash settlement of outstanding contracts at maturity is disallowed. In other words, all outstanding contracts at maturity should be settled in physical delivery. To avoid this, participants settle their positions before maturity. So, in practice, most contracts are settled in cash but before maturity. There is a need to modify the law to bring it closer to the widespread practice and save the participants from unnecessary hassles. **Increased Off-Balance Sheet Exposure of Indian Banks:** The growth of derivatives as off-balance sheet (OBS) items of Indian Banks has been an area of concern for the RBI. The OBS exposure/risk has increased significantly in recent years. The notional principal amount of OBS exposure increased from Rs.8,42,000 crore at the end of March 2002 (approximately \$181 billion at the exchange rate of Rs.46.6 to a US \$) to Rs.149,69,000 crore (approximately \$321 billion) at the end of March 2008. (RBI, 2009)

The Regulator: As the market activity pick-up and the volumes rise, the market will definitely need a strong and independent regulator; similar to the Securities and Exchange Board of India (SEBI) that regulates the securities markets. Unlike SEBI which is an independent body, the Forwards Markets Commission (FMC) is under the Department of Consumer Affairs (Ministry of Consumer Affairs, Food and Public Distribution) and depends on it for funds. It is imperative that the Government should grant more powers to the FMC to ensure an orderly development of the commodity markets. The SEBI and FMC also need to work closely with each other due to the inter-relationship between the two markets. **Competition of OTC derivatives with the Exchange-traded Derivatives:** A general view emerging after the recent financial crisis is that OTC derivatives trading should be moved to an exchange platform. The proponents of this view



hope that this would increase liquidity and reduce significantly the opacity of the market. They argue that exchanges provide transparent and reliable price formation mechanisms, neutrality, robust and appropriate technology, better regulation and, above all, centralized clearing and settlement system. These arguments are based on the assumption that the existing method of trading in OTC products is all based on telephone trading and there is no clearing system in place.

Lack of Economies of Scale: There are too many (3 national level and 21 regional) commodity exchanges. Though over 80 commodities are allowed for derivatives trading, in practice derivatives are popular for only a few commodities. Again, most of the trade takes place only on a few exchanges. All this splits volumes and makes some exchanges unviable. This problem can possibly be addressed by consolidating some exchanges. Also, the question of convergence of securities and commodities derivatives markets has been debated for a long time now. The Government of India has announced its intention to integrate the two markets. It is felt that convergence of these derivative markets would bring in economies of scale and scope without having to duplicate the efforts, thereby giving a boost to the growth of commodity derivatives market. It would also help in resolving some of the issues concerning regulation of the derivative markets. However, this would necessitate complete coordination among various regulating authorities such as Reserve Bank of India, Forward Markets commission, the Securities and Exchange Board of India, and the Department of Company affairs etc. ***Strengthening the Centralized Clearing Parties:*** CCIL, which started functioning in 2002, is the only centralized clearing party for trade processing and settlement services in India. It currently provides a guaranteed settlement facility for government securities trading, clearing of collateralized borrowing and lending obligations (CBLO),



guaranteed settlement of foreign exchange trading, and settlement of all Indian Revenue Service (IRS). Though the concentration of business relating to money, securities and forex markets with the CCIL helps in pooling risks and reducing the overall transactions costs for the system, the Certified Financial Services Auditor's (CFSA) report opined that the concentration of such a wide spectrum of activities leads to concentration of risks in one entity. Therefore, there is the need to strengthen more and more clearing parties.

Tax and Legal bottlenecks: In India, at present there are tax restrictions on the movement of certain goods from one state to another. These need to be removed so that a truly national market could develop for commodities and derivatives. Also, regulatory changes are required to bring about uniformity in octroi and sales taxes etc. VAT has been introduced in the country in 2005, but has not yet been uniformly implemented by all states.

New Derivatives Products for Credit Risk Transfer (CRT): Credit risk transfer (CRT), in a broad sense (including guarantees, loan syndication, and securitization), has a long history. However, there has been a sustained and rapid growth of new and innovative forms of CRT associated with credit derivatives. The most common credit derivatives are credit default swaps (CDS) on single corporate entity (single-name CDS) and collateralized debt obligations (CDOs). Since 2005, CRT activity became significant for two additional underlying asset classes – asset backed securities (ABS) and leveraged loans. Internationally, banks and financial institutions are able to protect themselves from credit default risk through the mechanism of credit derivatives. However, credit derivatives were not allowed in India until recently. The RBI has made an announcement in its second-quarter monetary policy 2009-10 that it has considered it appropriate to proceed with caution on this issue. To start with 1st December



2011, RBI has introduced guidelines for a basic, over-the-counter, single name CDS for corporate bonds for resident entities, subject to safeguards.

Conclusion

The Indian derivative market has achieved tremendous growth over the years, and also has a long history of trading in various derivatives products. The derivatives market has seen ups and downs. The new and innovative derivative products have emerged over the time to meet the various needs of the different types of investors. Though, the derivative market is burgeoning with its divergent products, yet there are many issues. Among the issues that need to be immediately addressed are those related to, lack of economies of scale, tax and legal bottlenecks, increased off-balance sheet exposure of Indian banks, need for an independent regulator etc. Solution of these issues will definitely lead to boost the investors' confidence in the Indian derivative market and bring an overall development in all the segments of this market

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SOCIO AND ECONOMIC STATUS OF ELECTED WOMEN REPRESENTATIVES OF PANCHAYAT RAJ INSTITUTIONS

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1. Introduction

The principle of gender equality is enshrined in the Indian Constitution in its Preamble, Fundamental Rights, Fundamental Duties and Directive Principles. However, the demand for greater representation of women in political institutions in India was not taken up in a systematic way until the setting up of the Committee on the Status of Women in India (CSWI) which published its report in 1976. The CSWI report suggested women representation in political institutions especially at the grass-roots level is needed. The National Perspective Plan for Women, 1988 also suggested about 30 per cent quota for women is introduced at all levels of elective bodies. The consensus around this demand resulted in the adoption of the 73rd and 74th amendments to the Indian Constitution in 1993 which is the landmarks in the history of the political participation of women. The 73rd Constitutional Amendment Act, 1992 gives formal constitutional recognition to the Panchayati Raj Institutions (PRIs) and reserves 33 per cent of seats for women in PRIs. This helped to the dramatic rise in the number of women in the PRIs by 2007 and brings a sea change in the position of women as they make them participate in the political and social institutions exercising their power of articulation and voting.

2. Women contestants in Parliamentary elections

The number of women contestants in Parliamentary elections has not increased significantly over the years. Political parties are still reluctant to field women candidates at national level. In the early days of the Indian



republic, the number of women representatives was a mere 22, which was a lowly 4.4% of the total seats in the Lok Sabha. The sixth Lok Sabha in the year 1977 saw an all time low of just 19 woman representatives. The twelfth Lok Sabha had 44 women i.e. 8.8% of the total. From the records available over the years, since Independence, it is seen that the strength of women in the political field as reflected in State legislatures remained at an average of 3 % to 5% of those elected. At the level of Parliament, the position of women members has varied between 5 to 7% till recently. The number of women in Lower House in the election year 2004 is 8.1 percent **(44 of 543)**. The Number of Women in Upper House, both elected and appointed, in the election year 2006 is 10.7 percent **(26 of 242)**. **There is no constitutional quota for the Union Parliament in India.** There is political party quota for electoral candidates. For example, the Indian National Congress (INC) has a 15% quota for women candidates. In 1996, the 81st Amendment proposed to reserve one-third of the seats in the House of the People and the State Assembly for women under a constituency-rotation system. The women's reservation bill was introduced by parliament by the United Front Government in 1996 after the major political parties supported it in their election manifestos. However, the bill has not been passed by parliament. Another proposal from 2003 suggested converting 181 of the lower house seats into double-member constituencies to elect one man and one woman from each constituency. This proposal has not been passed.

However, there is Constitutional or Legislative Quota, at the Sub-National Level, that is, 33% of seats in all local bodies (Panchayats and Municipalities) are reserved for women according to the 73rd and 74th Constitutional Amendments. This includes the provision that 33% of the seats reserved for the scheduled classes etc shall be women. There are no legal sanctions for non-compliance.



3. Importance of the study

Meanwhile, there is an immense factual criticism on women involvement in politics and decision making due to lack of self interest, so far monopolized by the men folk, they are sedentary/ unwilling to participation in politics. It is impossible to describe rural women of Indian villages in a single frame because of their heterogeneous character. A large part of rural women lead a sedentary life at the grassroots level. They belong to landless, agricultural labour, marginal farmer, artisan and service caste households (Narayan Banerjee, 1999). Majority of them are socially, economically and politically backward communities and belong to artisan and service castes like potters, blacksmiths, basket makers, oil crushers, washer men, barbers, scavengers etc. Their social, political, literacy and quality levels are low when compared to their male counterparts. These women do not possess skills required for participation in socio-economic and political activity because of their social taboos and customs. In such conditions they naturally do not find time for participation with their differing levels of perception and awareness in grassroots democracy. It is rightly point out that (Friedman 1992), if an alternative development is to advocate the social empowerment of the poor, it must also advocate their political empowerment (This includes work with women in government at national and local level, party politics as well as supporting women's involvement in NGOs and women's movement). Thus, the present study is focused on the participation, perception and awareness of elected women representatives in PRIs.

4. Objectives of the study:

The primary objective of this study is to examine the impact of policy interventions concerned with women in terms of their political empowerment. In this context, the study is tries to examine the socio-



economic background of the elected women representatives of the PRIs, to sketch out their opinions on knowledge, participation and to suggest suitable measures for the political empowerment.

5. Methodology:

The study is taken up in the East Godavari District of Andhra Pradesh. Of the 57 mandals in the district, 4 each in the 4 revenue divisions of Kakinada, Peddapuram, Rajahmundry and Amalapuram, total of 16 mandals was randomly selected (table 1).

Selection of Respondents:

In each revenue division, 2 women ZPTC members and 2 women MPP members represented mandals were selected. Out of these 4 mandals, from each mandal 8 women MPTC members, 8 women surpanches and 16 women ward members have been selected on the basis of the listing method under each category from the lists of members available with the records of the office of the Chief Executive Officer (CEO), Zilla Parishad, East Godavari District, Kakinada. The Panchayat mandals selected for the study and the number of members from each mandal in the 4 revenue divisions under the study has been shown in table 1.



Table 1 Selection of Sample Respondents (N=144)

S.No.	Revenue division	Mandal	Political status/ category *					
			(I)	(II)	(III)	(IV)	(V)	Total
1	Kakinada	Samalkot	-	1	2	2	4	9
		Pedapudi	-	1	2	2	4	9
		Tallarevu	1	-	2	2	4	9
		Karapa	1		2	2	4	9
2	Peddapuram	Peddapuram	1	-	2	2	4	9
		Jaggampeta	1	-	2	2	4	9
		Yeleswaram	-	1	2	2	4	9
		Gandepalli	-	1	2	2	4	9
3	Rajahmundry	Anaparthi	-	1	2	2	4	9
		Kapileswarapuram	1	-	2	2	4	9
		Kadiyam	-	1	2	2	4	9
		Alamuru	1	-	2	2	4	9
4	Amalapuram	Ambajipeta	1	-	2	2	4	9
		Allavaram	1	-	2	2	4	9
		Sakhinetipalli	-	1	2	2	4	9
		I. Polavaram	-	1	2	2	4	9
		Total	8	8	32	32	64	144

*Note: (I). ZPTC; (II). M P P; (III) M P T C; (IV) Sarpanchs; (V) Ward Members

The study has been conducted during June 2005 and April 2006. The study covers the Panchayat representatives elected for 2001 elections. The study makes use of both primary and secondary data Care has been taken while selecting the elected representatives. For the purpose of collecting primary data, the research tools used included a pre-structured interview schedule meant for eliciting information from the sample respondents of women participants of the study, the technique of observation; and Personal discussion. Data analyzed in percentage method.

Women's participation in politics cannot be isolated from their overall socio-economic status (UNDP, 2000). It is essential to look in to the socio-economic and political traits of individuals and hence the study examines these issues.



6. Summary findings of the study

The study analyzed the demographic and socio-economic attributes of the 144 selected women representatives. It considered age, marital status, community, education, family structure and nature of family as some of the important demographic and socio-economic attributes.

1. Demographic features:

(a). Age group:

Majority of the sample belongs to the middle and young age groups, which approximates to 79.00 percent. This may be due to the fact that the political parties are in favour of the youth as the percentage of youth is higher in the Indian political society. The study conclude that some important reasons attributed for the emergence of many young and middle aged women leaders, and the probable reasons for this may be (i) the reduction of age limit of voters from 21 to 18. (ii) Reservation of seats and (iii) aged women don't compete with young women (iv) they are relatively free from the burdens of household chores and childcare and (v) off course greater physical mobility. These emerging women leaders would be predominantly the first generation entrants to public/political life.

(b). Marital status and family structure:

Of the 144 elected women representatives under the study 77.78 percent represent married; approximately 12 percent indicate the unmarried and the remaining (10.42percent) represent the divorced. Large number of respondents (54.86 percent) has joint family structure while the remaining respondents (45.14 percent) have nuclear family structure.

(c) . Social Status and political participation

As per the rules of reservation in Andhra Pradesh, the different communities are given preferential treatment in educational, employment



and political institutions. However, the percentages are differed. Under the study, the respondents belonging to Forward Castes represent 50 constituting 34.72 percent. Of the remaining 94, the persons belonging to backward class, Scheduled Castes and Scheduled Tribes constitute 36.11percent; 25.70 percent; and 3.47 percent respectively. In the PRIs, 34 percent; 15 percent; and 7 percent of reservations are provided in political berths to the Backward Classes, Scheduled Castes and Scheduled Tribes respectively. The study shows that the Backward Classes and Scheduled Castes communities in the PRIs have captured more than the allotted quota of berths.

Table 2: Distribution of respondents on the basis of caste

Sl. No.	Social Status	No. of Respondents					Total
		Ward Members	Sarpanchs	MPTCs	MPPs	ZPTCs	
1	Scheduled Caste	16 (25.00)	9 (28.13)	8 (25.00)	1 (12.50)	3 (37.50)	37 (25.70)
2	Scheduled Tribes	3 (4.69)	-	2 (6.25)	-	-	5 (3.47)
3	Backward Class	24 (37.50)	12 (37.50)	10 (31.25)	4 (50.00)	2 (25.00)	52 (36.11)
4	Forward Castes	21 (32.81)	11 (34.37)	12 (37.50)	3 (37.50)	3 (37.50)	50 (34.72)
	Total.	64 (100.0)	32 (100.0)	32 (100.0)	8 (100.0)	8 (100.0)	144 (100.0)

(d) Educational status:

As no educational qualification has been prescribed for nonofficial, less than half of the respondents have primary education or even less. In the study, most of the respondents have been either Secondary (47.22 percent) or Primary education (36.11 percent). Only a few respondents are with higher education. The illiterates constitute 10.42 percent of the sample. The reality is that rural women normally possess lower educational levels.



(e). Family Structure

'Household' is a generic term that refers to all sorts of families, though all households cannot be classified as family. A household may consist of only one person or a group of unrelated persons, but a family primarily consists of more than one person united by ties of marriage, blood or adoption. Nuclear family is 'a unit consisting of spouses and their dependent children'

Women are the managers of their family. The family size and its composition are influencing much the decision-making capacity of women. This could be found in the case of either voting pattern or contesting and participating in the political arena. If their family size is larger and includes babies and elder people (above 60 years) no women will have enough time to manage the house and participate in either social or political activities. In nuclear families, usually the family members share the decision-making activity. The women members of the family enjoy greater freedom in nuclear family structure when compared to joint family structure. They also enjoy some share in the decision-making matters of their family.

Hence the significance for studying the impact of the family structure on the political life of women. The data on family structure of the respondents is presented in Table 3.

Table -3. Family Structure of the representatives

Sl. No.	Family Structure	No. of Respondents					Total
		Ward Members	Sarpanches	MPTCs	MPPs	ZPTCs	
1	Joint Family	31 (48.44)	21 (65.63)	18 (56.25)	5 (62.50)	4 (50.00)	79 (54.86)
2	Nuclear Family	33 (51.56)	11 (34.37)	14 (43.75)	3 (37.50)	4 (50.00)	65 (45.14)
	Total	64 (100.00)	32 (100.00)	32 (100.00)	8 (100.00)	8 (100.00)	144 (100.00)

Source: Primary Data



The table shows that of the 144 respondents under the study, large number of respondents (54.86 percent) has joint family structure while the remaining respondents (45.14 percent) have nuclear family structure.

(f). Personal conditions

Women participation in PRI's is mainly influenced by the individual family background, the social background and the political background and the like. The elected women representatives under the study have been classified on the basis of their background. They may be house wives, social activists, and political activists and may be members of economic regeneration groups like Self Help Groups.

Table – 4: personal conditions of Elected Women Representatives

Sl. No.	Status	No. of Respondents					Total
		Ward Members	Sarpanches	MPTCs	MPPs	ZPTCs	
1	2	3	4	5	6	7	8
1	A house wife	38 (59.38)	18 (56.25)	14 (43.75)	2 (25.00)	3 (37.50)	75 (52.08)
2	A Social Activist	4 (6.25)	3 (9.37)	2 (6.25)		1 (12.50)	10 (6.94)
3	A Political Activist	10 (15.62)	7 (21.88)	11 (34.38)	4 (50.00)	3 (37.50)	35 (24.31)
4	Others	12 (18.75)	4 (12.50)	5 (15.62)	2 (25.00)	1 (12.50)	24 (16.67)
	Total.	64 (100.00)	32 (100.00)	32 (100.00)	8 (100.00)	8 (100.00)	144 (100.00)

Source: Primary Data

Table 4 shows that more than 50 percent of the elected women representatives are house wives. Of the remaining, 24.31 percent represent political activists and approximately 7 percent represent social activists. The political activists are supporters, primary members or organizational members of the influential political parties. Some of them are from the



families with previous political background. The social activists are the members of mahila mandals, voluntary organization and pressure groups of the locality. The remaining 16.67 percent of the sample is from the members of the women self help groups. The house wives entered the political fray because of the 1/3rd reservation given to the women. The scheme of reservations through 73rd Amendment Act, thus, has brought a 'critical mass' of women to the PRIs.

(g). Family political back ground

About 59.72 percent of the sample under the study has political background. Most of the women elected representatives from the families with political back ground are the wives or daughters, or kith and kin of former male elected representatives. The remaining 40.28 percent of the women elected representatives has no political background. These have the support either by their community leaders or political leaders of the locality.

II. Economic *status*:

(a). Occupation and poverty level:

Majority of representatives are belonging to the agricultural community. As Poverty line for the urban areas at Rs 296 per month and for rural areas Rs 276 per month, most of the elected women representatives under the study belong to Above Poverty Line (APL) constituting approximately 56 percent and remaining women representatives are belonging to Below Poverty Line (BPL). It can be said that women have been drawn to the PRIs irrespective of their financial status.

(b). Individual Economic and Social Status

More than 52 percent of the sample is not economically and socially independent, as they are dependent either on husband or son/daughter or



others like father. Approximately 48 percent of the elected women representatives are independent in their individual and economic status.

(c) Occupation:

Occupation implies trade or profession. It reveals the nature of economic progress of a population. In the study, the elected women representatives belonging to agriculture and agriculture labour constituted 44.44 percent and 28.47 percent respectively. And those belonging to business and artisans constituted 15.28 percent and 11.81 percent respectively. A majority of representatives belong to the agricultural community. This sufficiently indicates that a majority of the women leaders have emerged from agriculture background.

Table -5: Occupation of the representatives

Sl. No.	Occupation	No. of Respondents					Total
		Ward Members	Sarpanches	MPTCs	MPPs	ZPTCs	
1	Agriculture	22 (34.37)	18 (56.25)	15 (46.87)	4 (50.00)	5 (62.50)	64 (44.44)
2	Agricultural Labour	23 (35.94)	7 (21.87)	9 (28.13)	1 (12.50)	1 (12.50)	41 (28.47)
3	Business	9 (14.06)	2 (6.25)	6 (18.75)	3 (37.50)	2 (25.00)	22 (15.28)
4	Artisans	10 (15.63)	5 (15.63)	2 (6.25)	-	-	17 (11.81)
	Total.	64 (100.0)	32 (100.0)	32 (100.0)	8 (100.0)	8 (100.0)	144 (100.0)

7. Conclusions:

The study analyzed the demographic and socio-economic attributes of the 144 selected women representatives. It considered age, marital status, community, education, family structure and nature of family as some of the important demographic and socio-economic attributes. It is found that due to lack of education awareness, the women representatives in Panchayats are not being able to overcome the narrow and conservative ideas on social customs and traditions that have an adverse effect on their



political participation. Therefore, educational facilities must be made wider through special training and refresher courses to women representatives for effective participation.

It is learnt from the study that the training programmes helped women to have a better understanding of the Panchayati Raj Institutions as seen from the study. Therefore, elected women representatives are to be encouraged to undergo orientation-training programmes periodically. The women representatives are to be sensitized on the issues of the society and women as well. Information has to be provided to the women representatives on all vital matters pertaining to improvement in the quality of their life, focusing on issues of decision-making. Women are aware that their strength comes from their knowledge and skills, for example, literacy. Thus, women see training as an important part of their empowerment.

8. Policy implications

Training near the villages with stipends, compensation wages and other incentives would increase their participation. Gender sensitization of elected representatives, administrative machinery at village /ward /block /district level, family and community leaders would strengthen the position of women. The low educational attainment amongst the women elected representatives suggests the need for adult literacy programme for women elected representatives be integrated in the training curricula designed for them. It is only through their education and awareness and not just through their mere presence that their participation can become meaningful within the institution of local self-governance.

When the women leaders respond to the socio-political challenges in society, they are to be supported by organizations and institutions, which



are working for political empowerment of women. Whenever such interventions are made, the achievements of the women leaders are substantial and impressive that strengthens decentralized governance.

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**EFFECT OF VITAMIN B-COMPLEX, L-AMINO ACIDS AND
COMPLEX NUTRIENTS ON L-METHIONINE FERMENTATION
BY A MULTIPLE ANALOGUE RESISTANT MUTANT
CORYNEBACTERIUM GLUTAMICUM X300**

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INTRODUCTION

Successful production of L-methionine largely depends on judicious selection of suitable nutritional ingredients added to the production medium^[1]. Medium composition exerts pivotal impacts on microbial growth and production of different metabolites like carbon, nitrogen, minerals, vitamins and amino acids played a vital role on microbial growth and different enzyme activities. Kase and Nakayama (1974) examined the effect of different amino acids on the production of o-acetyl-L-homoserine, an intermediate of L-methionine biosynthesis^[2]. Ganguly and Banik also investigated the effect of Vitamin B-complex, L-amino acids and complex nutrients on L-glutamic acid fermentation by a mutant *Micrococcus glutamicus* AB₁₀₀^[3-5]. Thus, in the present investigation, we were intended to examine the effect of vitamin B-complex (vitamin B₁₂, folic acid, nicotinic acid, riboflavin, pyridoxine-HCl, thiamine-HCl, inositol, calcium pantothenate and para amino benzoic acid), L-amino acids (L-glycine, L-alanine, L-Valine, L-leucine, L-isoleucine, L-phenylalanine, L-tyrosine, L-tryptophan, L-serine, L-proline, L-threonine, L-cystine, L-asparagine, L-glutamine, L-lysine, L-histidine, L-arginine, L-aspartate, L-glutamic acid, 4-hydroxyproline, 5-hydroxylysine, 6N methyllysine, γ -carboxyglutamate, desmosine and selenocystine) and complex nutrients (paddy soak liquor, wheat bran extract, rice bran extract, malt extract, peptone, beef extract, corn steep liquor, meat extract and yeast extract) on L-methionine fermentation by the mutant *Corynebacterium glutamicum* X300.



MATERIALS AND METHODS

Microorganism: A multiple analogue resistant mutant *Corynebacterium glutamicum*X300 developed in our laboratory from *Corynebacterium glutamicum*X1 was used throughout the study [6].

Composition of basal salt medium for L-methionine fermentation:

L methionine production was carried out using the following basal salt medium (per litre): glucose, 60 g; $(\text{NH}_4)_2\text{SO}_4$, 1.5 g ; K_2HPO_4 , 1.4 g; $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$, 0.9 g; $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, 0.01 g ; biotin, 60 μg [7,8].

Optimum cultural conditions: Volume of medium ,25 ml; initial pH,7.0; shaker's speed ,150 rpm; age of inoculum ,48 hours; optimum cell density ,4.0X10⁸ cells/ml; temperature28°C and period of incubation ,72 hours[9].

Addition of vitamin B-complex to the synthetic medium : Initially, the basal medium contained only biotin as a member of vitamin B-complex. Different members of vitamin B-complex namely vitamin B₁₂, folic acid, thiamine-HCl, riboflavin, nicotinic acid, pyridoxine-HCl, inositol, biotin, Calcium pantothenate, paraaminobenzoic acid and biotin were added separately to the medium at varying concentrations (0.2-0.8 $\mu\text{g}/\text{ml}$) [10].

Addition of amino acids : The effects of different amino acids at varying concentrations (0.5-3.0 mg/ml) on L-methionine accumulation by this mutant were studied [4].

Preparation and addition of complex nutrients :

(a) Preparation of rice bran and wheat bran extract : 40 gm of each material was taken into 250 ml of warm distilled water separately. The suspension was kept at 28°C for 48h. The extracts were filtered separately through cotton and evaporated to dryness under vacuum to recover solid content.

(b) Preparation of corn steep liquor : About 150 gm of corn was taken into 300 ml distilled water and kept it for 24h at 28°C. The extract was



filtered through cotton and evaporated to dryness under vacuum to recover solid content.

(c) Preparation of paddy soak liquor : 100 gm paddy was added to 250 ml of distilled water and kept it at 28°C for 24h. The extract was filtered through cotton and evaporated to dryness under vacuum to recover solid content.

(d) Preparation of soybean extract : 50 gm of soybean was poured into 250 ml of distilled water and allowed to swell for 24h at 28°C. The soaked water was extracted thoroughly and filtered through cotton. It was then dried for determination of solid content.

All the above mentioned complex nutrients were added to the synthetic medium according to their solid content in a sterile condition, but peptone, yeast extract, beef extract, malt extract and tryptone were added directly to the synthetic medium^[5].

Analysis of L-methionine: Descending paper chromatography was employed for detection of L-methionine in culture broth and was run for 18 hours on Whatman No.1 Chromatographic paper. Solvent system used include n-butanol: acetic acid : water (2:1:1). The spot was visualized by spraying with a solution of 0.2 % ninhydrin in acetone and quantitative estimation of L-methionine in the suspension was done using colorimetric method^[7]. All the chemicals used in this study were analytical grade (AR) grade and obtained from E mark. Borosil glass goods and triple distilled water used throughout the study.

Estimation of Dry Cell Weight (DCW): The cell paste was obtained from the fermentation broth by centrifugation and dried in a dried at 100°C until constant cell weight was obtained^[11].

Statistical analysis: All the data were expressed as mean±SEM. Data were analyzed using One Way ANOVA followed by Dunnett's post hoc multiple comparison test using a± soft-ware Prism 4.0.



RESULTS

Table 1: Effect of vitamin B-complex on the L-methionine fermentation

Vitamin (s)	Concentration(s) [$\mu\text{g/ml}$]	L-methionine (mg/ml)	Dry cell weight(mg/ml)
Vitamin B12	0.0(control)	52.1 \pm 1.661	28.5 \pm 0.661
	0.2	52.6 \pm 1.312	28.7 \pm 0.913
	0.4	*53.1 \pm 1.091	28.9 \pm 0.791
	0.6	*53.1 \pm 0.883	28.9 \pm 1.613
	0.8	*53.1 \pm 1.613	28.9 \pm 0.882
Folic acid	0.0(control)	52.1 \pm 1.113	28.5 \pm 0.761
	0.2	52.4 \pm 0.971	28.6 \pm 0.883
	0.4	52.5 \pm 0.991	28.6 \pm 0.661
	0.6	*52.9 \pm 1.871	28.8 \pm 0.913
	0.8	*53.1 \pm 1.901	28.9 \pm 0.881
Nicotinic acid	0.0(control)	52.1 \pm 0.913	28.5 \pm 1.881
	0.2	52.4 \pm 1.361	28.6 \pm 0.917
	0.4	52.7 \pm 1.661	28.7 \pm 0.832
	0.6	52.7 \pm 1.099	28.7 \pm 1.991
	0.8	52.7 \pm 1.788	28.7 \pm 1.311
Riboflavin	0.0(control)	52.1 \pm 0.913	28.5 \pm 0.882
	0.2	52.4 \pm 1.871	28.6 \pm 1.111
	0.4	52.5 \pm 1.993	28.6 \pm 0.668
	0.6	52.5 \pm 0.991	28.6 \pm 0.312
	0.8	52.5 \pm 1.683	28.6 \pm 0.912
Pyridoxine-HCl	o.o(control)	52.1 \pm 1.113	28.5 \pm 0.875
	0.2	52.5 \pm 0.867	28.6 \pm 1.118
	0.4	52.6 \pm 1.181	28.6 \pm 0.993
	0.6	52.9 \pm 1.901	28.8 \pm 0.598
	0.8	52.9 \pm 0.988	28.8 \pm 0.661
Thiamine-HCl	o.o(control)	52.1 \pm 1.688	28.5 \pm 0.881
	0.2	52.4 \pm 1.965	28.6 \pm 0.913
	0.4	52.5 \pm 1.971	28.6 \pm 1.165
	0.6	52.7 \pm 1.553	28.6 \pm 1.887
	0.8	*53.1 \pm 1.911	28.9 \pm 0.991
Inositol	o.o(control)	52.1 \pm 0.871	28.5 \pm 0.687
	0.2	52.3 \pm 1.661	28.6 \pm 1.191
	0.4	52.5 \pm 1.873	28.6 \pm 0.991
	0.6	52.8 \pm 1.119	28.8 \pm 0.883
	0.8	*53.2 \pm 1.065	28.9 \pm 1.917
Calcium Pantothenate	o.o(control)	52.1 \pm 1.776	28.5 \pm 1.683
	0.2	52.6 \pm 0.991	28.6 \pm 0.991
	0.4	52.9 \pm 1.881	28.8 \pm 1.268
	0.6	52.9 \pm 1.913	28.8 \pm 0.913
	0.8	52.9 \pm 0.897	28.8 \pm 0.992
Para Amino Benzoic Acid(PABA)	o.o(control)	52.1 \pm 1.683	28.5 \pm 1.116
	0.2	52.4 \pm 1.993	28.6 \pm 1.881
	0.4	52.7 \pm 1.687	28.8 \pm 1.883
	0.6	*53.0 \pm 1.991	28.9 \pm 0.993
	0.8	*53.0 \pm 0.968	28.9 \pm 1.168

(Values were expressed as mean \pm SEM, where n=6,*p<0.05 when compared to control.)



Table 2: Effect of L-amino acids on the L-methionine fermentation					
L-amino acid (s)	Nature of amino acid(s)	Concentration(s) [mg/ml]	L-methionine (mg/ml)	Dry cell weight (mg /ml)	
1.L-Glycine	Nonpolar aliphatic amino acid	0.0(control)	52.1±1.683	28.5±0.668	
		0.5	52.7±1.661	28.8±0.776	
		1.0	*53.1±1.992	*29.0±0.762	
		1.5	53.4±1.773	*29.2±0.913	
		2.0	53.4±1.918	*29.2±1.002	
		2.5	53.4±0.971	*29.2±0.836	
		3.0	53.4±1.439	*29.2±0.991	
2.L-Alanine	Nonpolar aliphatic amino acid	0.0(control)	52.1±1.663	28.5±1.116	
		0.5	52.4±2.136	28.6±0.871	
		1.0	52.4±1.914	28.6±0.932	
		1.5	52.4±1.773	28.6±0.661	
		2.0	52.4±1.922	28.6±0.591	
		2.5	52.4±1.992	28.6±0.771	
		3.0	52.4±1.683	28.6±0.991	
3.L-Valine		0.0(control)	52.1±1.871	28.5±0.874	
		0.5	52.5±2.136	28.6±0.812	
		1.0	52.9±1.882	28.8±0.882	
		1.5	52.9±0.972	28.8±0.669	
		2.0	52.9±1.113	28.8±0.812	
		2.5	52.9±1.651	28.8±0.782	
4.L-leucine		Nonpolar aliphatic amino acid	3.0	52.9±1.892	28.8±0.892
	0.0(control)		52.1±2.221	28.5±0.771	
	0.5		52.4±1.981	28.9±0.872	
	1.0		52.7±1.411	**29.2±0.861	
	1.5		*53.1±0.883	**29.4±0.992	
	2.0		*53.1±1.612	**29.4±0.831	
	2.5		*53.1±1.913	**29.4±0.812	
	3.0		*53.1±1.118	**29.4±0.971	
5.L-Isoleucine	Nonpolar aliphatic amino acid	0.0(control)	52.1±0.991	28.5±0.861	
		0.5	52.4±1.611	28.9±0.781	
		1.0	52.7±1.562	*29.1±0.882	
		1.5	*53.0±1.381	*29.3±0.885	
		2.0	*53.0±2.168	*29.3±0.912	
		2.5	*53.0±1.221	*29.3±0.692	
		3.0	*53.0±1.919	*29.3±0.881	
6.L-phenylalanine		Aromatic amino acids	0.0(control)	52.1±1.843	28.5±0.871
			0.5	52.5±1.556	28.7±0.791
			1.0	52.7±1.771	*29.0±0.912
			1.5	52.9±1.832	*29.2±0.872
			2.0	53.3±1.961	**29.6±0.923
			2.5	53.6±1.772	**29.7±0.891
			3.0	53.6±1.991	**29.7±0.772
7.L-Tyrosin		Aromatic amino acids	0.0(control)	52.1±1.731	28.5±0.774
	0.5		52.3±1.991	28.5±0.991	
	1.0		52.5±0.833	28.6±0.771	



		1.5	52.8±2.771	28.8±0.913
		2.0	52.8±1.913	28.8±0.692
		2.5	52.8±1.773	28.8±0.719
		3.0	52.8±1.683	28.8±0.913
8. L-Tryptophan		0.0(control)	52.1±1.871	28.5±0.683
		0.5	52.4±1.911	28.6±0.661
		1.0	52.7±0.913	28.8±0.762
		1.5	52.9±1.683	28.8±0.881
		2.0	52.9±1.871	28.8±0.669
		2.5	52.9±1.771	28.8±0.713
		3.0	52.9±0.993	28.8±0.783
9.L-serine	Polar uncharged amino acids	0.0(control)	52.1±1.871	28.5±0.881
		0.5	52.3±1.683	28.6±0.991
		1.0	52.3±1.821	28.6±0.771
		1.5	52.3±1.842	28.6±0.881
		2.0	52.3±1.901	28.6±0.712
		2.5	52.3±1.672	28.6±0.771
		3.0	52.3±1.991	28.6±0.891
10.L-proline		0.0(control)	52.1±1.832	28.5±0.771
		0.5	52.4±1.554	28.6±0.781
		1.0	52.4±1.483	28.6±0.991
		1.5	52.4±0.991	28.6±0.683
		2.0	52.4±1.117	28.6±0.813
		2.5	52.4±1.665	28.6±0.832
		3.0	52.4±1.572	28.6±0.782
11.L-threonine		0.0(control)	52.1±1.383	28.5±0.771
		0.5	52.4±1.991	28.6±0.662
		1.0	52.4±1.882	28.6±0.683
		1.5	52.4±1.602	28.6±0.881
		2.0	52.4±1.882	28.6±0.892
		2.5	52.4±1.281	28.6±0.852
		3.0	52.4±1.008	28.6±0.912
12.L-cystine		0.0(control)	52.1±1.592	28.5±0.771
		0.5	52.4±1.661	28.6±0.875
		1.0	52.5±1.749	28.6±0.590
		1.5	52.7±1.927	28.7±0.812
		2.0	53.0±1.891	28.7±0.881
		2.5	53.0±1.892	28.7±0.912
		3.0	53.0±1.992	28.7±0.712
13.L-asparagine		0.0(control)	52.1±1.901	28.5±0.669
		0.5	52.3±2.832	28.6±0.891
		1.0	52.4±1.942	28.6±0.882
		1.5	52.8±1.991	28.8±0.773
		2.0	52.8±1.882	28.8±0.782
		2.5	52.8±1.792	28.8±0.771
		3.0	52.8±1.882	28.8±0.912
14.L-glutamine		0.0(control)	52.1±1.902	28.5±0.772
		0.5	52.3±1.722	28.6±0.792
		1.0	52.6±1.902	28.8±0.832
		1.5	52.6±1.662	28.8±0.888



		2.0	52.6±0.992	28.8±0.921
		2.5	52.6±1.612	28.8±0.845
		3.0	52.6±1.984	28.8±0.771
15.L-lysine	Positively charged (R)L-amino acids	0.0(control)	52.1±1.002	28.5±0.682
		0.5	52.3±1.912	28.5±0.817
		1.0	52.7±1.883	28.7±0.885
		1.5	*53.1±1.991	*29.0±0.893
		2.0	*53.1±1.892	*29.0±0.891
		2.5	*53.1±1.882	*29.0±0.913
		3.0	*53.1±1.902	*29.0±0.761
16.L-histidine		0.0(control)	52.1±1.832	28.5±0.892
		0.5	52.4±1.990	28.6±0.661
		1.0	52.4±1.771	28.6±0.890
		1.5	52.4±1.203	28.6±0.769
		2.0	52.4±1.006	28.6±0.991
		2.5	52.4±1.913	28.6±0.862
		3.0	52.4±1.221	28.6±0.791
17.L-arginine		0.0(control)	52.1±1.991	28.5±0.992
		0.5	52.3±1.832	28.6±0.963
		1.0	52.3±1.991	28.6±0.832
		1.5	52.3±1.668	28.6±0.918
		2.0	52.3±1.612	28.6±0.871
		2.5	52.3±0.932	28.6±0.662
		3.0	52.3±1.112	28.6±0.782
18.L-aspartate		0.0(control)	52.1±0.991	28.5±0.590
		0.5	52.4±1.992	28.6±0.917
		1.0	52.7±1.212	28.8±0.892
		1.5	*53.2±0.881	*29.0±0.782
		2.0	*53.2±1.112	*29.0±0.881
		2.5	*53.2±0.872	29.0±0.692
		3.0	*53.2±1.981	29.0±0.771
19.L-glutamate		0.0(control)	52.1±1.081	28.5±0.869
		0.5	52.4±1.112	28.6±0.669
		1.0	52.5±2.081	28.7±0.943
		1.5	52.7±1.008	28.7±0.881
		2.0	52.7±0.931	28.7±0.762
		2.5	52.7±0.912	28.7±0.881
		3.0	52.7±1.113	28.7±0.590
20. 4-hydroxyproline	Non-standard amino acid	0.0(control)	52.1±1.089	28.5±0.881
		0.5	52.3±1.097	28.5±0.872
		1.0	52.6±1.007	28.6±0.881
		1.5	*53.1±1.991	28.8±0.991
		2.0	*53.1±1.321	28.8±0.993
		2.5	*53.1±1.009	28.8±0.892
		3.0	*53.1±1.887	28.8±0.771



Other non-standard amino acids studied namely, 5-hydroxylysine, 6N-methyllysine, γ -carboxyglutamate, desmosine and selenocystine showed no effect on L-methionine by this mutant. (Values were expressed as mean \pm SEM, where n=6, *p<0.05, **p<0.01 when compared to control.)

Table 3: Effect of complex nutrients on the L-methionine fermentation			
Complex nutrient(s)	Concentration(s)	L-methionine (mg/ml)	Dry cell weight (mg/ml)
1. Paddy soak liquor	0.0(control)	52.1 \pm 1.991	28.5 \pm 0.662
	1.0	52.7 \pm 1.612	28.7 \pm 0.991
	2.0	53.0 \pm 0.981	28.8 \pm 0.688
	3.0	52.8 \pm 0.991	28.7 \pm 0.662
	4.0	52.4 \pm 0.832	28.6 \pm 0.591
	5.0	52.2 \pm 1.613	28.5 \pm 0.836
2. Wheat bran extract	0.0(control)	52.1 \pm 0.963	28.5 \pm 0.771
	1.0	52.4 \pm 0.882	28.6 \pm 0.913
	2.0	52.2 \pm 0.991	28.5 \pm 0.688
	3.0	51.9 \pm 0.962	28.4 \pm 0.661
	4.0	51.6 \pm 0.893	28.2 \pm 0.917
	5.0	*51.1 \pm 0.911	28.0 \pm 0.772
3. Rice bran extract	0.0(control)	52.1 \pm 1.671	28.5 \pm 0.662
	1.0	52.6 \pm 0.993	28.8 \pm 0.591
	2.0	52.2 \pm 0.791	28.5 \pm 0.662
	3.0	51.8 \pm 1.992	28.3 \pm 0.688
	4.0	51.3 \pm 1.111	*28.0 \pm 0.661
	5.0	*51.0 \pm 0.883	*27.9 \pm 0.613
4. Malt extract	0.0(control)	52.1 \pm 0.912	28.5 \pm 0.531
	1.0	52.4 \pm 0.992	28.7 \pm 0.662
	2.0	52.8 \pm 1.116	28.9 \pm 0.913
	3.0	*53.1 \pm 0.831	*29.0 \pm 0.663
	4.0	*53.4 \pm 0.991	*29.1 \pm 0.688
	5.0	*53.1 \pm 1.683	*29.0 \pm 0.791
5. Peptone	0.0(control)	52.1 \pm 0.992	28.5 \pm 0.591
	1.0	52.4 \pm 0.871	28.6 \pm 0.771
	2.0	52.7 \pm 0.891	28.7 \pm 0.769
	3.0	52.9 \pm 0.991	28.8 \pm 0.613
	4.0	52.6 \pm 0.865	28.7 \pm 0.661
	5.0	52.1 \pm 0.958	28.5 \pm 0.692
6. Beef extract	0.0	52.1 \pm 1.331	28.5 \pm 0.615
	1.0	52.4 \pm 0.983	28.7 \pm 0.661
	2.0	52.8 \pm 0.762	28.9 \pm 0.592
	3.0	*53.4 \pm 0.814	*29.2 \pm 0.615
	4.0	*53.9 \pm 0.972	*29.4 \pm 0.992
	5.0	*53.6 \pm 1.683	*29.3 \pm 0.661
7. Corn steep liquor	0.0	52.1 \pm 0.991	28.5 \pm 0.692
	1.0	52.4 \pm 1.892	28.7 \pm 0.653
	2.0	52.8 \pm 0.992	28.9 \pm 0.773



	3.0	*53.4±0.831	*29.2±0.792
	4.0	*53.9±1.682	*29.6±0.661
	5.0	*53.7±0.991	*29.4±0.661
8.Meat extract	0.0(control)	52.1±1.771	28.5±0.971
	1.0	52.5±0.954	28.7±0.992
	2.0	53.0±0.882	28.9±0.681
	3.0	*53.6±0.862	*29.3±0.662
	4.0	*53.4±0.948	*29.2±0.683
	5.0	*53.1±0.992	*29.1±0.912
9.Yeast extract	0.0(control)	52.1±0.996	28.5±0.661
	1.0	52.4±0.831	28.7±0.691
	2.0	52.7±0.972	28.9±0.662
	3.0	*53.1±1.983	*29.1±0.713
	4.0	*53.6±0.991	*29.4±0.913
	5.0	*53.3±0.884	*29.2±0.991

(Values were expressed as mean±SEM, where n=6,*p<0.05 when compared to control.)

DISCUSSION

Microorganisms change their enzyme activities in response to their growth medium composition and thus ,medium composition should carefully maintained.In our present investigation, Among different vitamins,L- amino acids and complex nutrients (readily available in our country)examined ,all the vitamins, major amino acids and complex nutrients showed positive impacts on L-methionine fermentation by this mutant.Kase and Nakayama(1975) claimed that 100µg/L biotin is essential for a altered strain of *Corynebacterium glutamicum*^[8].Banik and Majumdar (1975)incorporated 1mg/L biotin in the medium for L-methionine biosynthesis by *Micrococcus glutamicus*^[12].Tani *et al.*(1988) used 200 µg/L thiamine-HCl and 2 µg/L biotin for L-methionine biosynthesis by a methylotrophic yeast *Candida boidinii* No.2201 ^[13].

CONCLUSION

From this present study, it can tentatively concluded that the production of L-methionine by the mutant *Corynebacterium glutamicum*



X300 can be increased by incorporating Vitami $\mu\text{g/ml}$; n B-complex, L-amino acid and complex nutrients in the synthetic medium as recommended in the following block:

Vitamin B₁₂, 0.4 $\mu\text{g/ml}$; folic acid, 0.84 $\mu\text{g/ml}$; nicotinic acid, 0.4 $\mu\text{g/ml}$; riboflavin, 0.4 $\mu\text{g/ml}$; pyridoxine-HCl, 0.6 $\mu\text{g/ml}$; $\mu\text{g/ml}$; thiamine-HCl, 0.8 $\mu\text{g/ml}$; inositol, 0.8 $\mu\text{g/ml}$; calcium pantothenate, 0.4 $\mu\text{g/ml}$; paraaminobenzoic acid, 0.6 $\mu\text{g/ml}$; L-glycine, 1.5 mg/ml; L-alanine, 0.5 mg/ml; L-valine, 1.0 mg/ml; L-leucine, 1.5 mg/ml; L-isoleucine, 1.5 mg/ml; L-phenylalanine, 2.5 mg/ml; L-tyrosine, 2.0 mg/ml; L-tryptophan, 1.5 mg/ml; L-serine, 0.5 mg/ml; L-proline, 0.5 mg/ml; L-threonine, 1.0 mg/ml; L-cystine, 2.0 mg/ml; L-asparagine, 1.5 mg/ml; L-glutamine, 1.0 mg/ml; L-lysine, 1.0 mg/ml; L-histidine, 0.5 mg/ml; L-arginine, 0.5 mg/ml; L-aspartate, 1.5 mg/ml; L-glutamate, 1.5 mg/ml; 4-hydroxyproline, 1.5 mg/ml; paddy soak liquor, 2.0%; wheat bran extract, 1.0%; rice bran extract, 1.0%; malt extract, 4.0%; peptone, 3.0%; beef extract, 4.0%; corn steep liquor, 4.0; malt extract, 3.0% and yeast extract, 4.0%.

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IMPACT OF SELF HELP GROUPS ON EMPOWERMENT OF WOMEN- EXPERIENCE FROM CASE STUDIES

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INTRODUCTION

Self help groups are the best example for community based organizations working in the direction of empowering women especially rural women. Various governmental and non-governmental organizations are promoting SHGs in large scale especially of women. The very concept of SHGs is “bringing together, working together and progressing together” which facilitates empowerment of people. It is evident from various studies (Serajul Haque, 2005, 2005, Sunder Raj, 2004) that enrollment to SHGs has helped women to shed out their inhibitions and made them aware about what they are. SHGs are gaining popularity in rural areas. The SHGs are considered as new lease of life for the women in villages for their social and economic empowerment. As the SHGs are a recent phenomenon, the question will arise about their sustainability in future. Though the success of SHGs depends on many factors such as government patronage, the efficiency of NGOs etc., the positive attitude of the members towards their SHGs assumes paramount importance (Krishnamurthy, 2004).

Self help groups- Concept

Self help group is a voluntary association of people number ranging from 10 to 20. It is homogeneous in nature, having common interest, mutual help and sense of belongingness towards their group and they work using the principle of cooperation. SHGs will conduct regular meeting and they do saving on regular basis as per the norms of the group. They maintain



records of all the transactions and discuss various issues and takes democratic decisions.

Empowerment- Concept

The Word 'empowerment' contains the word 'power' which means power to, power over and power within. There are various aspects of empowerment such as psychological, social, political, economic aspects of human behavior. The Dictionary of Social Work defines empowerment as the theory concerned with how people may gain collective control over their lives so as to achieve their interests as a group. The dictionary definition links empowerment with self help: "Empowerment can refer to user participation in services and to the self help movement generally in which groups take action on their own behalf either in co-operation with or independently". The term empowerment refers to a range of activities from individual self-assertion to collective resistance, protest and mobilization that challenge basic power relations. For individuals and groups where class, caste, ethnicity and gender determine their access to resources and power, their empowerment begins when they not only recognize the systemic forces that oppress them, but act to change existing power relationships. Empowerment therefore is a process aimed at changing the nature and the direction of systemic forces, which marginalize women and other disadvantaged sections in a given context. (Manorama, 1996).

Role of self help groups in empowering women

Self help groups particularly of women are effective mechanisms to empower women if organized and managed properly. Self-help groups intermediated by microcredit have been shown to have positive effects on women, with some of these impacts being ripple effects. They have played valuable roles in reducing the vulnerability of the poor, through asset



creation, income and consumption smoothing, provision of emergency assistance, and empowering and emboldening women by giving them control over assets and increased self-esteem and knowledge (Zaman 2001). A study conducted on 'Impact of self help groups (Group processes) on the social empowerment status of women in southern India (MYRADA) (2002) shows that the level of confidence of respondents on several tasks enhanced, the members of older groups expressed a higher level of sense of ease. The older group had substantially larger percentage of respondents reporting increase awareness about health and hygiene. Over 95 percent of the old group members say that they themselves operate their accounts frequently. Older group members have had an important role in popularizing the SHG among the other women. A very high percentage of key family members are willing to support the SHG member as well as any other woman in the family who may like to get involved with a group. Particularly, the husbands have shown a generally positive attitude towards their wives.

Frank, Tesoriero (Unpublished) in his study on 'In India, Women-Led Self-Help Groups Empower Women And Improve Health highlighted the contribution of SHGs in empowering women of K.V Kuppam a rural area in Tamil Nadu Of South India. It was found that every group in the sample was involved in some type of community or social action programme, in addition to its internal lending and savings function. Of all the women in the sample, 72% provided assistance to their village, such as helping separated couples reunite, giving prizes on Indian Independence Day, helping people with education expenses, helping people to access and receive government benefits, and resolving conflicts in the village. Sixty seven percent of the women participated in the Panchayat (the local elected village council and the most local unit of democracy in India) to improve their villages. Around 270 women stood for elections in the 2001 Panchayat



elections, with seventy being successful, including some elected as Panchayat Presidents. Fifty-six percent of the women were involved in social action programmes, such as motivating children and parents to engage in schooling, to allow daughters to complete 10th Standard, action to close down liquor shops, and petitioning the District Collector to make necessary improvements in the village.

The participation of SHGs and their members in community and social action programmes is one of the most significant achievements of the SHG programme. 'Community needs' was one of the top issues discussed in the SHG meetings and decisions about these issues were generally acted upon. SHGs' involvement in village affairs and their capacity to make positive changes has led to wide acceptance and support, including support among the men, which has, in turn, enabled greater participation in SHGs.

METHODS AND MATERIALS

Self help groups are considered as one of the effective mechanisms to empower women. A large number of SHGs are formed in the country by NGOs, GOs and also by some of the religious organizations. Women got avenues to represent themselves in the main stream of the society by enrolling themselves to SHGs. SHGs can be one of the viable means to achieve empowerment of women. With this background, the present study is undertaken to find out the contribution of SHGs in empowering women through case study method. The objective of the study is to find out the contribution of SHGs in empowering women socio-economically and politically. The study has used descriptive research design. The aim is to describe the opinion of woman members of SHGs regarding the changes brought in their life. The researcher made use of semi-structured interview schedule to collect the pertinent data for the case study.



Case studies of woman empowered through SHGs

Case 1

Sharada 45 years old woman belonging to Aletti village of Sulya taluk of Dakshina Kannada district of State of Karnataka, India is a very hard working and active woman member of SHG formed by Department of Women and Child Development of Karnataka State, India. As per her opinion she never took part in any of the public programmes and activities prior to joining SHG. Her world has confined to four walls of her house. After joining SHG she got an opportunity to serve as president of the Sangha and initiated various activities for the benefit of women like health and hygiene, importance of education, significance of participation in grama sabha (village assembly) and so on. Sharada said that her status in the family and community has enhanced after becoming the member of SHG. The family members started respecting her and allowed her to take part in the decision making process of the family such as children's education, purchase of assets, purchase of jewelry, house repair and so on.

Sharada after becoming the member of SHG learned to do bank transaction, loaning and saving procedures in the group, conducting meetings and organizing programmes. She also learned how to meet the government official to avail services for the group and the community. She also got motivation by the group to take part in grama saba and encouraged other women to take part in grama saba. Representation of people from all the categories of the society is inevitable to achieve development. The participation of women is neglected in every sphere of socio-economic and political aspects of the society. The participation of women in grama saba is crucial to attain integrated development of the society. The women can be motivated through their Sanghas to take part in political activities of the community like grama saba.



One of the major contribution of SHG towards Sharada's empowerment is the group motivated her to contest for the grama panchayat election and she won it. By becoming the member of grama panchayat she focused more on the development of the village.

Case study 2

Rajeevi belongs to one of the interior village of Puttur taluk of Dakshina Kannada district of Karnataka State, India. Rajeevi was one of the active volunteers of literacy campaign. Due to this experience, after becoming the member of SHG she taught literacy skill to non-literate members of the Sangha. Though she was active in literacy movements her activities were limited to literacy programmes. After becoming the SHG member she got an opportunity to meet and interact with people of high reputations like officials of government department, executive officers, and commissioners and so on. She also says that she could visit various places and learn from those experiences. Due to her active participation in social activities, she could shed away her inferiority complexes and inhibitions. Rajeevi also expresses that her decision making power in the family has increased after becoming the member of Sangha due to her economic independency and enhanced social status. She had taken loan from the group to start income generating activity and she is successful in that. Now Rajeevi is very confident to interact and meet people and visit any place without any fear. When Rajeevi was asked about whether she is interested to take part in local self government, she mentioned that she is interested and waiting for the right time and opportunity.

Case study 3

Usha Rekha Rai was president of Vanitha Samaj (women's association) and member of Seva Bharathi Women's Association of



Kedambadi village of Sullia taluk of Dakshina Kannada district. When she came to know about self help groups she thought of starting self help group in her village with the help of Shree Kshethra Dharmasthala Rural Development Society (SKDRDP), a religious based voluntary organization. Hence she motivated women to start Sangha and named it as **Sindhoora**. After some time she found the need of starting one more Sangha in her village and she did it and it was named as **Mandara**. Both Sindhoora and Mandhara groups conducts meeting on same day. Both the groups work in the direction of improving the status of women in particular and development of community in general. Usha Rekha shares her experience of women empowerment thorough Sanghas by saying that all the members of Sangha freely interact with people and they have a special programme known as **Jnana Vikas** (an unique programme of SKDRDP to enhance knowledge and skill) where in members get chance to get knowledge about various issues and areas like health, hygiene, law, importance of education, girl child development, environment, AIDS etc. After becoming the member of the Sangha, saving habit started among the women which they were not doing early. They could easily avail loan form consumption and income generating purposes which is not easy to get from banks and co-operative societies. According to Usha Rekha due to these programmes members of the group and villagers could bring lot of changes in their life style, which is a positive impact of SHGs on women and community. After becoming the member of SHG the women of the group do not have inhibitions to talk with any officials and people of high reputation. Usha Rekha proudly says that due to all these changes in the status of women members, the villagers started respecting them and encourages in all of their endeavours.



Case 4

Renuka of Kumbra village of Puttur tauk of Dakshina Kannada district confined herself to household activities before becoming the member of SHG. After becoming SHG member she started do saving. She took loan to three purposes such as consumption, house repair and income generation. She purchased a cow and now getting satisfactory income out of it. Renuka says that she got enough courage now and she take part in any activity of the Sangaha and village. She also mentioned one significant point that after becoming the member of SHG she started taking part in Grama Sabha which is crucial in present scenario. Due to her empowerment in social, economic and political aspects she is been identified by her family. The family members give her due respect and accept her suggestions in family affairs.

People's organization plays important role in motivating the people to take part in decision making activities especially in family and political affairs of the village. SHGs if built and managed properly will definitely play a vital role in enhancing the conditions of the downtrodden sections of the society like women.

Major findings suggestions and conclusion

Community based organizations are the key factors to promote sustainable development. Promotion of more and more community based organizations like SHGs can do wonders if they are managed properly by giving regular training to its members. There are various strategies to empower people but formation of SHGs can work as effective approach in empowering the marginalized sections of the society like women, rural poor, tribes and slum dwellers. SHGs could bring ray of hope to the women belonging to these areas. With this background the study proposes following findings:



- Contributions of self help groups are immense in the empowerment process of women.
- Majority of the women who are enrolled to self help groups could enhance their self confidence.
- Decision making capacity of the women in family and community has increased as for as enrollment of children to school, purchase of assets and at community level organizing the people for *shramadana* (labor exchange) and in availing other basic facilities to the community.
- Received motivation to enter local governance.
- Women have become financially independent and there is decrease in going to money lenders.
- Women started income generating activities with the help of the self help group.
- Some of the SHG women also dared to contest for local politics and also became the member of Panchayath.

The above findings are in line with the study conducted by Joy Deshmukh (2004). He mentions that Social inclusion and participation in the political process are also impacted by SHGs. Gender poverty measured in terms of gender bias with respect to norms of eating, male preference in distribution of food and access to clothing has not declined significantly. But food security of member households improved after participation in groups. The author also identifies that there are improvements in school enrolment, attendance, drainage facilities, toilet facilities and access to electricity and gas. The political process picks up momentum with the SHGs being federated and also establishing links with local self-governing bodies.



Further, SHGs have the capacity to voice the needs of the communities. There is tremendous potential in this endeavor if the vision of SHGs is expanded beyond transacting money to include local concerns about the quality of life. As the social mobilization process matures in a village, communities are encouraged to analyze their livelihood situations, which in turn reveal options for the community to act

Suggestions and conclusion

- More and more women through SHGs should be motivated to enter politics.
- Women who start income generating activities should be linked to market
- Successful women should be identified and honored in the public programmes so that they become role model to other women.

The very concept of self help groups is helping oneself with the effort and support of oneself. The members of the group work in the direction of helping each other and helping oneself to attain empowerment. Empowerment is not possible in overnight, it takes lot of time because it is a process. Organizing people especially women in to self help groups is an effective mechanism to empower the marginalized sections of the society if utilized in an effective way.

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AN ANALYSIS OF ELECTORAL TRENDS IN INDIA

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INTRODUCTION

India is the second most popular and seventh major country in the world. India is a Union of States, according to the Constitution, with state power distributed between a (federal) government at the Centre and the governments of the constituent States. Some of the major States of India are as big as some of the large independent countries of the world. The importance of the States lies not merely in their vast territory or population, but in their distinct social structure, well-developed languages, culture and history. This tremendous diversity is mainly responsible for giving rise to different patterns of politics in different States¹.

India's parliamentary system is based on the Westminster model of constitutional democracy, a legacy of British colonial rule. The Parliament is comprised of a bicameral legislature : the Rajya Sabha, the 250 member upper house, where members are elected by state legislative assemblies (12 members are nominated by the President), and the Lok Sabha, the 543-member lower house directly elected by the people (with two additional seats reserved for Anglo Indians nominated by the President). In the Lok Sabha, voters elect candidates based on the electoral system where the person securing the largest number of votes in each district wins².

Elections have assumed significance as hundreds of millions of voters, living under conditions of illiteracy, poverty, backwardness, pre-modern social relations, religious distinctions, and inequalities based on



caste built over hundreds of years, were repeatedly called upon to exercise their political right to choose their representatives at the Central, State and local levels. Fears that elections in India would either fail because of the awesome structural limitations and unpreparedness of the country to institutionalize parliamentary democracy or that they would have destabilizing consequences, which the political elites cannot control, proved to be wrong. There may be several limitations, deficiencies and failures in the functioning of India's democracy, which need to be overcome, but there are also commendable achievements.

The purpose of this article is to study the electoral process and electoral trends in India. The study examines the pattern of winning of various political parties in general elections in India and observed the selection pattern. The study is based on secondary information also focuses on nature and measurement of elections pattern in India.

METHODOLOGY

The study is based on both primary and secondary sources of the data. The data on the number of parties contested in the elections and the voters participated in the election process and the other statistics on electoral politics are collected from Revenue offices, Assembly office, various political party offices and daily newspapers. The main source of data on electoral trends in India are the various reports from Election Commission of India.

REVIEW OF LITERATURE

There are several studies which deal with the issues of elections including voters behaviour in the west as well as non-west including India. The approach of these studies is mostly confined to the factors relating to those influencing the voting behaviour.



Suseela Kaushik³ (1982) examined the social basis of elections in India asserted that the electoral process in this country should be examined from the perspective of the Country's existing political system. In her opinion the elections has become an inseparable part of the on going politics, which are deeply rooted, in the social fabric of the humanity.

Chopra⁴ (1989) work on Politics of Election Reforms in India examines a vote range of issues relating to the General Elections right from the first General Elections held in 1951 till the Lok Sabha Elections held in 1998. Adopting analytical and comparative approaches he analyses the various Parliamentary Elections from different angles. The study also attempts an in-depth analysis of the structural and functional aspects of the Election Commission of India, the various direct and indirect elections so far held, and also the electoral reforms implemented by the Government of India.

Andrsin Walter⁵ (1990) study on the 1989 Parliamentary Elections revealed that these Elections are different as no single party secured majority in the Parliament and resulted in the formation of a coalition Government for the first time. Further, the popular triggered by national issues, which have characterized the national elections since 1971 were not apparent this time. There was no clear mandate for a person or a party.

Siwach⁶ (1990) examined the factors which influenced the voting behaviour of the Indian voters in several past General Elections stated that the large chunk of voters in India do not understand the significance of the election manifestoes and also the value of their voting right. On the basis of his study of the voting behaviour of electorate in the Ninth Lok Sabha elections he pinpointed that factors such as castism, communalism, linguism etc., strongly influenced the behaviour of voters.



Mahendra Prasad Singh's⁷ (1992) analysis on the Indian party system and elections brings out the fact that the Parliamentary and Party systems in India do not always overlap an old story. The overwhelming Parliamentary predominance of the Congress Party under Nehru and Indira Gandhi had based on only a plurality (around 40%) of votes. He asserted that the Tenth Lok Sabha in comparison with the Ninth Lok Sabha Elections had resulted in a "hung" Parliament which ended the era of one – party government.

Aditya Nigam⁸ (1996) study on the 1996 Lok Sabha Elections explores the fact that the results of these Elections represent a major departure from the earlier Elections, including the previous one held in 1991. He highlights the fact that Lok Sabha Elections held in 1996 and also in 1991 resulted in a hung Parliament in the absence of a clear-cut majority for any single party. However, the results of 1996 Elections for the same trends as projected by the 1991 Lok Sabha Election.

Agarwal and Chowdry⁹ (2000) studied the 1999 Lok Sabha Elections which were marked by several unique features. The study has dealt with the circumstances necessitating elections to the 13th Lok Sabha, emergence of the National Democratic Alliances (NDA) and the near-rout of the Congress Party in these elections under the leadership of Sonia Gandhi who was Projected as the Prime Ministerial candidate and pitched against A.B. Vajpayee whose popularity had achieved new heights in the wake of Kargil War.

Jayesh Kumar¹⁰ (2003) study on Parliamentary Elections and Political Parties discussed the probability of incumbent party's winning the election from the same constituency. He estimates the probability of winning by the ruling party, irrespective of whether that party and formed a coalition and, had been a member of the previous government in the



centre. He estimated the average probability of winning in India's General Elections from 1971-1999, under the existing electoral system, using a panel data and binary choice model.

In Delhi John Harris¹¹ (2005) elicited information from 140 citizens and finds some interesting results. Persons who have good educational level though their income is in low level, their political participation is very much satisfactory. It is observed that the uneducated poor, women and minorities are preferring to solve their problems through political parties, by participating in public meetings, or with the help of big men in the society. But the rich and educated persons are solving their problem through Government organizations, courts or by using their status. The study concludes that educated persons political awareness is also very good.

The study by Suri¹² explains the economy and voting in the 15th Lok Sabha Elections. The study argues that the examination of the effect of both "national" and "personal" conditions in the economy on voting decisions in the 2009 Lok Sabha elections demonstrates the perceptions of people on economic issues do matter in deciding whom they vote for.

Kailash¹³ (2009) analyzed the peculiar nature of alliances in the April-May 2009 Lok Sabha elections and points out that a major change was brought by the Congress opting to abandon its national alliance in favour of state-level agreements.

ELECTIONS AND ELECTORAL PROCESS IN INDIA

Democracy means a form of government, a form of the state and also a way of life. Democracy in India has grown with the history for sharing the ideas for the governance of a state. The earlier Indian Political unit was that of the class. All members of a tribe were equal. The village community had its own assembly, only the king was above this democratic body.



The new constitution came into force on 26th January, 1950 shapes the destiny of democracy in India. By enacting of people's representation Act in 1951 the constitution introduced universal adult franchisee, simple majority and single constituency election system in India. Since 1952, 15 general elections have been conducted for Lok Sabha. Electoral recruitment and participation has been mainly from the elite groups and the middle strata of the society considerations of income, education, property and religion have been distorting and scuttling the popular contest of democracy.

Meaning of Elections

Elections connote many meanings. According to one opinion election is a chain of process filling nominations to the declaration of results¹⁴. Election is a method by which a citizen of a country participates in public affairs, clothing the government with legitimacy and thereby helping in the peaceful transfer of power to a new government. Martin Harrop and William L. Miller defined election as a formal expression of preferences by the governed, which are then aggregated and transformed into a collective decision about who will govern who should stay in office, who should be thrown out, who should replace those who have thrown out. Elections are mechanisms which parties use to maintain their support bases and to establish links between the society, mainly non political, and the political system, in which parties function and of which they are a part¹⁵.

Types of Elections

Broadly speaking, there are three types of elections: i) General Election, ii) Bye-Election, and iii) Mid-Term Election.

(i) General Election:

First General Election in India on the basis of adult franchise was held in 1952. Yet, elections to the Lok Sabha continued to be called 'General Elections'.



(ii) Bye-Election :

Bye-election is held to choose a member of the Lok Sabha or that of State Legislature "to replace a previous member who has resigned suddenly or died."

(iii) Mid-Term Election:

The Lok Sabha or the State Assembly may be dissolved before its term is over. As a result, a mid-term poll is required to constitute a new House.

Electoral Process

Elections are the process through which the nation will form the next Government. Electoral process and electoral system form an essential part of the design of a democratic constitution, which moulds the instruments of power on the anvil of popular approval.

By keeping the sanctity of elections in view, the makers of the constitution of India inserted Part-XV of the Constitution, providing for an indigent. Election Commission is conducting the elections in the country. The chief feature of this part is that the subject 'Elections' has been accorded a constitutional recognition in our political system and necessary arrangements have been made through the representation of the people Acts of 1951, as amended from time to time to ensure free and fair polls in the country. An independent judiciary is also created to examine the disputes between the political parties and the individuals. India has a plural polity with parliamentary system. For conducting elections to the Lok Sabha and State Legislature elections we are following the simple majority system of elections on the basis of universal adult suffrage.



There are four important aspects of the electoral process: i) Preparation for the Elections, ii) The selection of candidates by the political parties and the nomination process, iii) The Campaign and the iv) Actual Voting.

(i) Preparation for Elections

Article 326 of the constitution of Independent India provides elections to the legislative Assembly and for Lok Sabha on the basis of Universal adult suffrage (previously it was 21 years of age and now 18 years of age has been fixed by the Constitution).

This provision determines the basic character of the electoral system. For the allocation of seats in the Lok Sabha and in the State Legislatures, registration of voters and the preparation of electoral roles, representation of the people Act 1950; was passed; and for the qualifications and disqualifications of the candidates and other matters, the representation of the people Act 1951, was enacted. Article 81 lays down the provision of the size of the Lok Sabha, State Legislative Assemblies and Union Territories. For the determination of the boundaries of the States and the formation of the Constituencies, the States Reorganization Act, 1956 and the two delimitation Acts of 1952 and 1962 were passed.

(ii) Election Commission

As per the Article 324 of the Indian Constitution, the Election Commission of India is responsible for supervision, direction and control and conduct of elections to the Parliament, State Legislatures and Offices of President and Vice-President of India. The Commission has also powers to:

- i) Lay down general rules for election.



- ii) Determine constituencies and to prepare electoral rolls.
- iii) Give recognition to the political parties.
- iv) Allot election symbols to political parties and individuals contesting the election and
- v) Advise the Government whether elections can be held in a state under President's rule in order to extend the duration of emergency there after a year.
- vi) Appoint election tribunals to decide dispute and doubts arising as a result of election parliament and state legislatures.

The Election Commission is headed by a Chief Election Commissioner, who is appointed by the President of India subject to the provision of law made by Parliament. The Commission enjoys the status of an autonomous body.

(iii) Scheduling the Elections

When the five year limit is coming to an end, or the Legislature has been dissolved and the new elections have become due, the Election Commission puts into top gear the machinery for holding elections. Holding of elections is the exclusive domain of the Election Commission under Article 324 of the constitution.

In a country as huge and diverse as India, finding a suitable period when elections can be held throughout the country is not simple. The Election Commission, which decides the schedule for elections, has to take account of the weather – during winter constituencies may be snow-bound, and during the monsoon access to remote areas is restricted - the agricultural cycle, so that the planting or harvesting of crops is not disrupted, - exam schedules, as schools are used as polling stations and



teachers employed as election officials, and religious festivals and public holidays. On top of this, there are the logistical difficulties that go with the holding of an election – mobilization and movement of civil and para-military police forces, printing and distribution of hundreds of millions of ballot papers, sending out ballot boxes, setting up polling booths, appointing millions of officials to conduct poll and counting and oversee the elections.

Any Indian citizen, who is registered as a voter and is over 25 years of age, is allowed to contest elections to the Lok Sabha or Vidhan Sabhas. For the Rajya Sabha and Vidhan parishads, the age limit is 30 years. Every candidate has to make a deposit of Rs.10,000/- for Lok Sabha election and Rs.5,000/- for Rajya Sabha or Vidhan Sabha or Vidhan Parishad election, except for candidates from the Scheduled Castes and Scheduled Tribes, who pay half of these amounts.

Under the Indian electoral laws, eight days, including the date on which the election notification is issued, are provided for filing nominations in each constituency. Scrutiny of nominations normally takes place on the day following the last date for making nominations. Thereafter, two days are provided for withdrawal of candidatures. After the completion of withdrawals time, a list of competing candidates is prepared by the returning officer, and ballot papers are printed accordingly. Ballot papers are printed with the names of the candidates and the election symbols allotted to each of them. Candidates of recognized national and state political parties are allotted party symbols. For the 2004 general election, the total number of contestants in the field for 543 parliamentary constituencies was over 5000.

Selection of candidates and issuing of party tickets to the candidates is an important function of political parties. The success and failure of the political parties depends upon the selection of the candidates because it



determines the quality of the electoral input into the political system makes the parties the filtering mechanism in the polity. Therefore candidates selection is considered as litmus test of electoral politics in India¹⁶.

An electoral campaign is a part of the broader strategies of political mobilization, economic development and governance. It becomes intense and condensed around election time and zeros in on the most salient issues personalities and parties in the period of formal campaigning in the legally defined election schedule.

The campaign is the medium through which the political parties put forward their candidates and arguments with which they could convince people to vote for their candidates and parties. Campaigning brings to the surface many aspects of the political process, it provides insights into the inner workings of the political system and into the basic motivating forces in politics of the society. It involves larger number of people in the political process than any other event, spreads information, identifies issues and debates. By using different campaigning techniques such as party symbols, posters and play cards try to influence as many potential supporters as possible. Campaigns help voters make a choice about how the future Government is to be run.

(iv) Election Manifestos and Slogans

Political parties prepare a manifesto before the elections to seek mandate in its favour. Manifestoes spell out the professed aims and objectives of political parties. Manifestoes are very important documents, for they put the parties and candidates on record on various issues and they provide a check list which voters can use comparing the positions of different parties and candidates.



ELECTORAL PERFORMANCE OF VARIOUS POLITICAL PARTIES IN INDIA

In India so far Fifteen General Elections were conducted since independence. These are the major events in the political history of independent India. They were impressive because of their massive scale, the relative peaceful and efficient way in which they were conducted. Elections are contributing enormously to India's growing political maturity and development. The party-wise electoral trends of general elections in India during 1952 to 2009 is presented in Table-1. So far 15 general elections took place for Indian Union. The first general election was conducted in 1952, while the latest took place in 2009. The next general elections for Indian Union is due in 2014. The data reveals that during the last 15 general elections 60 political parties had contested in the election during the above period throughout the country. It includes both national parties as well regional specific parties along with Independents. Indian National Congress party won in general elections conducted in 1952, 1957, 1962, 1967 and in 1971 and ruled the country up to 1977. In 1977 6th general elections were conducted, in which no single party secured simple majority to form Government at centre. But with the combination of Indian Jan Sangh, Lokdal and other parties formed the Government in the name of Janata Party as the first coalition Government under the leadership of Morarji Desai as Prime Minister. However, this Janatha Government could not continue in power after two and half years because of division in the coalition. Sri Chowdary Charan Singh who came out from Janatha Party formed the Government with the support of Congress Party. But he resigned to the Prime Ministership without moving the confidence motion in Loksabha. In 1989 after the 9th general elections, as a result of emergence of no single largest party, the National Front Alliance had formed the



Government under the leadership of V.P. Singh as Prime Minister. The Political Parties such as CPI, CPM, BJP had extended their support to the Government from outside. BJP withdrawn its support consequent on the demolition of Babri Masjid, which caused to the downfall of V.P. Singh Government. Later the Government formed under the leadership of Chandra Sekhar as Prime Minister with the support of Congress Party also could not continue for more than four months. In 11th Loksabha elections held in 1996 no party secured the required seats to form Government. The BJP which secured relatively more number of seats formed the Government and Vajpayee as Prime Minister. But as a result of the failure of the BJP Party to attain the support of other parties, this Government had stepped down after 13 days. The United Front Alliance emerged with 13 parties formed the Government under the leadership of Deva Gowda. In view of political developments after some time Sri I.K. Gujral is elected as Prime Minister in place of Deva Gowda. The Congress Party which had not continued its support for more than two and half years lead to the downfall of the Government. Again in 1998, 12th Lok Sabha elections, since no party bagged the sufficient seats, the National Democratic Alliance (NDA) formed the Government with the support of many parties. However, consequent on the withdrawal of support of AIDMK the Government collapsed after 13 months. Under the leadership of Vajpayee the NDA contested in 13th Lok Sabha elections held in 1996 could form the coalition Government and successfully ruled for entire tenure. Though the coalition era started in 1997, the effect of complete coalition was started in 1990 decade. The mid-term polls were inevitable for India because of collapse of the Governments formed after 1989, 1996 and 1998. During this period the Indian Political System faced many fluctuations. With this experience both BJP, Congress parties fabricated politics to form



Coalition Governments in the name of United Progressive Alliance and National Democratic Alliance. This is how the UPA and NDA are emerged. The UPA which secured the majority seats in 2004 and 2009 held 14th and 15th general elections could form the stable government and continued the administration for full terms. Consequent the failure of Congress and BJP in solving the problems of public, voters are supporting the regional parties which caused to the emergence of coalition culture. Voters are casting their votes to the regional parties which give priority to local problems/issues, that lead to the development of regionalism. Hence the National parties are supported to give priority to solve the local problems, postponing and delaying in national problems/issues.

However the coalition governments are facing many fluctuations to carry out the concept of coalitions. This type of environment could not bring out basic reforms in the Indian Society. The maturity thinking of political parties and voters can alone help the coalition governments to give successful administration.



Table: 1.PARTY-WISE ELECTORAL TREND OF GENERAL ELECTION IN INDIA FROM 1952 TO 2009

Sl.N o.	Name of the Political Party	1 st G.E. 1952	2nd G.E. 1957	3rd G.E. 1962	4 th G.E. 1967	5 th G.E. 1971	6 th G.E. 1977	7 th G.E. 1980	8 th G.E. 1984	9 th G.E. 1989	10 th G.E. 1991	11 th G.E. 1996	12 th G.E. 1998	13 th G.E. 1999	14 th G.E. 2004	15 th G.E. 2009
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1.	INC	362	371	361	283	350	154	351	415	193	---	141	141	114	145	206
2.	CPI	12	29	29	23	23	7	11	6	---	---	---	---	4	---	4
3.	PSP	19	12	13	2	---	---	---	---	---	---	---	---	---	---	---
4.	BJS	4	14	35	22	---	---	---	---	---	---	---	---	---	---	---
5.	JP	7	3	---	---	---	---	---	---	---	---	---	---	---	---	---
6.	SSP	16	3	6	23	3	---	---	---	---	---	---	---	---	---	---
7.	GP	7	4	---	---	---	---	---	---	---	---	---	---	---	---	---
8.	SC. FEDERATION	6	---	---	---	---	---	---	---	---	---	---	---	---	---	---
9.	PWP	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---
10.	JP	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---
11.	F.BLOCK	3	1	---	---	---	---	31	10	---	---	---	---	---	---	---
12.	DMKC	2	7	25	---	---	---	---	---	---	---	---	---	---	16	18
13.	C.R.	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---
14.	LSS	1	1	---	---	---	---	---	---	---	---	---	---	---	---	---
15.	RSP	1	2	---	---	---	---	---	---	---	---	---	---	---	---	---
16.	RRP	---	2	---	---	---	---	---	---	---	---	---	---	---	---	---
17.	SSP	---	---	---	23	---	---	---	---	---	---	---	---	---	---	---
18.	HCL	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---
19.	RPI	---	3	3	1	---	---	---	---	---	---	---	---	---	---	---
20.	HM	1	1	---	---	---	---	---	---	---	---	---	---	---	---	---



Sl.N o.	Name of the Political Party	1 st G.E. 1952	2nd G.E. 1957	3rd G.E. 1962	4 th G.E. 1967	5 th G.E. 1971	6 th G.E. 1977	7 th G.E. 1980	8 th G.E. 1984	9 th G.E. 1989	10 th G.E. 1991	11 th G.E. 1996	12 th G.E. 1998	13 th G.E. 1999	14 th G.E. 2004	15 th G.E. 2009
21.	ML	1	2	---	---	---	---	---	---	---	---	---	---	---	---	---
22.	ETU	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
23.	SWATANTRA	---	18	44	8	---	---	---	---	---	---	---	---	---	---	---
24.	NGJP	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---
25.	AKALI DAL	---	---	3	---	---	---	---	---	---	---	---	---	---	---	---
26.	CPI (MARXIST)	19	25	53	35	33	22	---	---	---	---	---	---	---	---	---
27.	CONGRESS(O)	---	---	---	---	16	---	---	---	---	---	---	---	---	---	---
28.	BLD	---	---	---	---	---	295	---	---	---	---	---	---	---	---	---
29.	NC	---	---	---	---	---	3	---	---	---	---	---	---	---	---	---
30.	CONGRESS(U)	---	---	---	---	---	---	13	---	---	---	---	---	---	---	---
31.	JANATA (S)	---	---	---	---	---	---	33	---	---	---	---	---	---	---	---
32.	J&K P.D.F	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---
33.	LSP	---	---	---	---	---	---	---	---	---	---	---	---	---	3	---
34.	J.DAL (S)	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---
35.	J.DAL (V)	---	---	---	---	---	---	---	---	---	---	---	---	21	8	---
36.	J.DAL (U)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	20
37.	MDMK	---	---	---	---	---	---	---	---	---	---	---	---	---	4	1
38.	T.CONGRESS	---	---	---	---	---	---	---	---	---	---	---	---	---	---	19
39.	JMM	---	---	---	---	---	---	---	---	---	---	---	---	---	5	4



Sl.N o.	Name of the Political Party	1 st G.E. 1952	2 nd G.E. 1957	3 rd G.E. 196	4 th G.E. 196	5 th G.E. 197	6 th G.E. 1977	7 th G.E. 1980	8 th G.E. 1984	9 th G.E. 1989	10 th G.E. 1991	11 th G.E. 1996	12 th G.E. 1998	13 th G.E. 1999	14 th G.E. 2004	15 th G.E. 2009
42.	TRS	----	----	----	----	----	----	----	----	----	----	----	----	----	5	----
43.	SHIVA SENA	----	----	----	----	----	----	----	----	----	----	----	----	----	12	11
44.	BJD	----	----	----	----	----	----	----	----	----	----	----	----	----	11	13
45.	RJD	----	----	----	----	----	----	----	----	----	----	----	----	----	21	4
46.	BSP	----	----	----	----	----	----	----	----	----	----	----	----	14	----	21
47.	PMK	----	----	----	----	----	----	----	----	----	----	----	----	----	6	----
48.	NCP	----	----	----	----	----	----	----	----	----	----	----	----	----	9	9
49.	BJP	----	----	----	----	----	22	----	----	88	120	161	179	182	138	116
50.	RPI(A)	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----
51.	MLKSC	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----
52.	AIADMK	----	----	----	----	----	----	----	----	----	----	----	----	----	1	9
53.	TDP	----	----	----	----	----	----	----	----	----	----	----	----	----	7	6
54.	NPF	----	----	----	----	----	----	----	----	----	----	----	----	----	2	----
55.	NNP	----	----	----	----	----	----	----	----	----	----	----	----	----	5	----
56.	SAMAJAWATI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	22
57.	S DAL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	4
49.	NCP	----	----	----	----	----	----	----	----	----	----	----	----	----	----	9
56.	OTHERS	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
57.	INDEPENDENTS	----	29	23	35	----	9	8	----	----	----	----	----	----	----	9



5. CONCLUSION

The Parliamentary democracy in its true spirit was introduced by the Britishers gradually through the Acts of Parliament viz., 1892, 1909, 1919 and 1935. After Independence the constituent assembly prepared a fresh constitution for India, which came into force from 1950. The Constitution system was designed after west Minister Model. The new constitution established a full pledged democratic system based on multi party system, periodic elections, an independent election commission to conduct elections, an independent judiciary to examine the constitutional and electoral disputes etc.

The first general elections established and confirmed the dominance of opposition parties. In the Lok Sabha and in the State Assemblies, the Congress won more than 70 per cent of all the seats, even though it secured only about 45 per cent of the popular vote.

Most of the ills of electoral politics in India have sprouted out of the curse called illiteracy. Illiteracy has been the biggest obstacle on the way to rational voting. In the early days of independent India, the literacy rate was very low. The illiterate and less informed electorate was obviously misled by a handful of politically motivated minds. Total literacy alone can substantiate rationality into the voting behaviour of our electorate.

The educational and other pre-requisites are to be fixed for aspirant MLAs and MPs. Half of the present strength of politicians will be compelled to stay away from politics. Since population explosion is the root cause of all our miseries, we should not allow such people to contest elections who do not identify with the needs of the nation. Similarly the criminals can be debarred from seeking mandate.



After having framed pre-requisites for aspirant MLAs and MPs we must also chalk out conditions that determine their exit from active politics. Similarly fixing retirement age for politicians and the rational way by fixing a number of innings in Legislative Assembly and the Parliament are also essential.

Though late, good sense has prevailed for raising the limit of expenses by a candidate. However, the financial ledgers of political parties and the candidates must also be made available for audit by an autonomous body. Whereas the candidate should spend on printing of poll literature and publicity material, the rest of the expenses should be borne by the state. The election meetings must be organized by civil authorities in consultation with all the political parties in the fray. Audio-visual media of the Government must chalk out an elaborate programme to provide broadcast/telecast opportunity to the leaders of major political parties. The rallies must be held but not by an exclusive party, they should be in fact a common endeavour. All the candidates in a constituency must be available in such a rally to address the common gathering.

Hence all the contestants in a constituency should have the heart and the courage to spell out their policy alternatives and be in a position to circulate the copies of their manifestos among the crowd. This type of common platform meetings will not only reduce the misuse of money but will also go a long way reducing the difficulties of civil administration that come across for arranging election meetings.

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A REPUTATION BASED ANNOUNCEMENT SCHEME FOR VANET

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INTRODUCTION

We say that a message is reliable if it reflects reality. Unreliable messages may result in various consequences, for example, journey delays or accidents. Unreliable messages may be the result of vehicle hardware malfunction. For example, if a sensor in a vehicle is faulty, then the messages generated based on the information provided by the faulty sensor may be false. Unreliable messages can also be generated intentionally. For example, some vehicles may generate and broadcast false road congestion messages with the intention to deceive other vehicles into avoiding certain routes. In the extreme case, unreliable message may lead to injuries and even deaths. Hence, evaluation of the reliability of vehicle-generated messages is of importance in VANETs.

We address this problem by proposing a novel reputation-based announcement scheme for VANETs. The reliability of a message is evaluated according to the reputation of the vehicle that generates this message. A message is considered reliable if the vehicle that generates the message has a sufficiently high reputation. This reflects the extent to which the vehicle has announced reliable messages in the past. It is computed based on feedback reported by other vehicles.



PROBLEM STATEMENT

Introducing the trust management into a service provision network system has proved to be an effective way to improve the trustworthiness of the vehicle. Thus the trust of a provider is computed in two steps: First, for each pair of vehicle and reputation server, a local trust is computed by aggregating the set of feedback ratings provided by the vehicle who has had transactions with the server. An efficient multi-hop broadcast scheme could hence quickly deliver messages to a higher number of vehicle, also dispersed on a wider portion of road.

INTRODUCTION ABOUT DOMAIN

In the recent years, vehicular networking has gained a lot of popularity among the industry and academic research community and is seen to be the most valuable concept for improving efficiency and safety for future transportations. We classify these applications into two main categories.

Safety Related: Applications like collision alert, road conditions warning, merge assistance, deceleration warning, etc. will be classified under safety related applications where the main emphasis is on timely dissemination of safety critical alerts to nearby vehicles.

Internet Connectivity Related: Accessing emails, web browsing, audio and video streaming are some of the connectivity related applications where the emphasis is on the availability of high bandwidth stable internet connectivity.

While Infostations and 3G/4G primarily provide the vehicle to infrastructure(gateway) communication (V2I) in the context of vehicular communication, VANETs assumes a more generic framework that includes



both the vehicle to vehicle communication (V2V) and limited V2I communication with higher emphasis on the V2V communication. It is important to understand that the V2I communication model in VANETs is not well defined and most of the current proposals assume the presence of limited or intermittent internet connectivity. The main factors that would influence the adoption of VANET architecture for future vehicular applications would be:

- Low latency requirements for safety applications
- Extensive growth of interactive and multimedia applications
- Increasing concerns about privacy and security

While there are strong reasons to adopt the VANET architecture as pointed above, there are also several research challenges that needs to be addressed before VANETs could become widespread.

Vanets Infrastructure

VANETs are a form of mobile ad-hoc networks to provide communications among nearby vehicles and between vehicles and nearby fixed equipment. To this end, special radios and sensors would be embedded within the car. The V2V communication infrastructure assumes the presence of high bandwidth with low latency. The radios typically operate on unlicensed band making the spectrum free. The V2V infrastructure in VANETs can provide low latency data dissemination from the point of impact to the nearby vehicles using short range radios.

Infostations

Infostations is a wireless system concept that can provide isolated pockets of high bandwidth connectivity to the internet for mobile terminals. In the context of vehicular communications, Infostations are the wireless



Access points deployed at specific locations in the road network to support V2I communication.

Security and Privacy

Security is an issue that needs to be carefully assessed and addressed in the design of the vehicular communication system. Several threats potentially exist, including fake messages causing disruption of traffic or even danger, compromising driver's private information, etc. The issues to be addressed include trust (vehicles are able to trust the messages they receive), and efficiency, e.g. real-time message authentication. Privacy is also a major issue that will need to be addressed. Several research efforts are being undertaken to address the privacy concerns at the design stage.

APPLICATION OF THE DOMAIN

- GPS and navigation systems can benefit as they can be integrated with traffic reports to provide the fastest route to work.
- A computer can turn a traffic jam into a productive work time by having his email downloaded and read to him by the on-board computer or if traffic slows to a halt, read it himself.

SYSTEM ANALYSIS

EXISTING SYSTEM

There have been a number of announcement schemes proposed to evaluate the reliability of announcement messages in VANETs. Generally, a message is considered reliable if 1) the integrity of the message is valid, 2) the message was generated and announced by a legitimate vehicle, and 3) there is a means of "measuring" message reliability.



Golle *et al.* proposed the evaluation of message reliability by modeling the network. They present a scheme that allows vehicles to detect and correct malicious messages in VANETs. Vehicles are assumed to maintain a “model” of the VANET, which contains all the knowledge that the vehicles possess about the VANET. A vehicle can then compare the messages received against the model of the VANET. A message that is consistent and agrees with the vehicle’s model is likely to be accepted as valid. Inconsistent messages are addressed using a heuristic approach. A vehicle will search for explanations for the inconsistent messages and rank all possible explanations according to the heuristic approach. However, requiring vehicles to possess a wide knowledge of the network may be infeasible and impractical. In existing work propose a simpler and more practical model. We evaluate messages based on the simple principle of reputation, where the reliability of a message generated by a vehicle is reflected by its reputation score.

Compared with these trust- and reputation-based approaches, existing work features the follows.

- 1) We take advantage of the already-existing centralized infrastructure in a highly dynamic and distributed environment of VANETs. This allows us to design a secure and efficient announcement scheme.
- 2) We design a comprehensive announcement scheme using a reputation system that allows evaluation of message reliability that is practical, efficient, and robust against adversaries. Vehicles may provide feedback for messages received. These feedbacks accumulate to a vehicle’s reputation score. Hence, short-term encounters between vehicles may lead to long-term trust, which is represented by reputation scores.



DISADVANTAGES

- In the current scheme, a message broadcast by a vehicle is only utilized by its neighboring vehicles. Using that schema the number of transmissions and message exchange is high.

PROPOSED SYSTEM:

We propose in this work a position-aware broadcasting scheme that is able to reduce the number of forwarding hops based on the transmission range estimation. With our scheme, broadcast messages are forwarded after a delay that depends on the node distance from the source and, peculiar of our algorithm, on a continuously estimated transmission range.

We present ServiceTrust, an attack resilient trust management scheme for service provision networks. ServiceTrust offers two distinct capabilities for establishing and managing trust in a service provision network. First, with multi-scale service level agreements (SLAs) becoming pervasively employed in evaluating quality of services today, ServiceTrust provides a quality-sensitive aggregation method to encapsulate multi-scale feedback ratings as a generalization of binary feedback rating scheme. Thus, the local trust computed based on multi-scale ratings is more sensitive to quality differentiation and more resilient to colluding attacks. Second, ServiceTrust enhances the attack resilience of global trust computation through two steps: (i) ServiceTrust introduces the pairwise feedback similarity as a measure of feedback quality, aiming at preventing the detrimental effects of dishonest feedbacks and malicious manipulation of feedback ratings on the validity of global trust value of a participant. (ii) ServiceTrust computes the global trust of a participant by utilizing the trust propagation kernel powered with the feedback similarity based propagation control.



ADVANTAGES

- Limited message exchange and reduce number of transmission.
- In the current scheme, a vehicle and its human driver are represented with multiple entities improve the efficiency of finding the vehicle directions.

SYSTEM SPECIFICATION

HARDWARE REQUIREMENTS

Processor	: Pentium IV 2.4 GHz and above
Hard Disk	: 80 GB
RAM	: 4 GB
Video	: 1024 x 768 resolutions

SOFTWARE REQUIREMENTS

Operating System	: Ubuntu Linux
Tool	: NS2.34 simulator
Frontend	: TCL Script (Tool Command Language)
Back End code	: C++

SOFTWARE SPECIFICATION

About NS-2

NS-2 is an open-source simulation tool running on Unix-like operating systems. It is a discrete event simulator targeted at networking research and provides substantial support for simulation of routing, multicast protocols and IP protocols, such as UDP, TCP, RTP and SRM over wired, wireless and satellite networks. It has many advantages that make it a useful tool, such as support for multiple protocols and the



capability of graphically detailing network traffic. Additionally, NS-2 supports several algorithms in routing and queuing. LAN routing and broadcasts are part of routing algorithms. Queuing algorithm includes fair queuing, deficit round robin and FIFO.

Architecture of NS-2

As already mentioned above, ns-2 is an object-oriented, discrete event simulator. There are presently five schedulers available in the simulator each of which is implemented by using a different data structure: a simple linked-list, heap, calendar queue (default) and a special type called "realtime". The scheduler runs by selecting the next earliest event, executing it to completion, and returning to execute the next event. The units of time used by the scheduler are seconds.

In ns-2 network physical activities are translated to events, events are queued and processed in the order of their scheduled occurrences. And the simulation time progresses with the events processed. And also the simulation "time" may not be the real life time as we "inputted". But, why is ns-2 that useful, what kind of work can be done by ns-2, it can model essential network components, traffic models and applications. Typically, it can configure transport layer protocols, routing protocols, interface queues, and also link layer mechanisms.

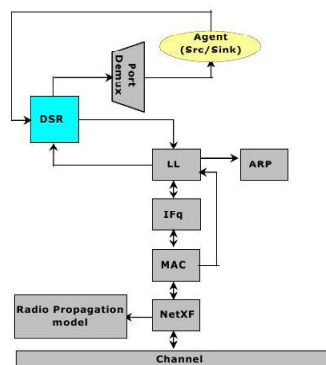


Fig . NS-2 simulate layered structure of networks



As Figure shows, for the data flow of one time simulation in ns-2, the user input an OTcl source file, the OTcl script do the work of initiates an event scheduler, sets up the network topology using the network objects and the plumbing functions in the library, and tells traffic sources when to start and stop transmitting packets through the event scheduler.

And then, this OTcl script file will be passed to ns-2, in this view, we can treat ns-2 as Object-oriented Tcl (OTcl) script interpreter that has a simulation event scheduler and network component object libraries, and network setup module libraries.

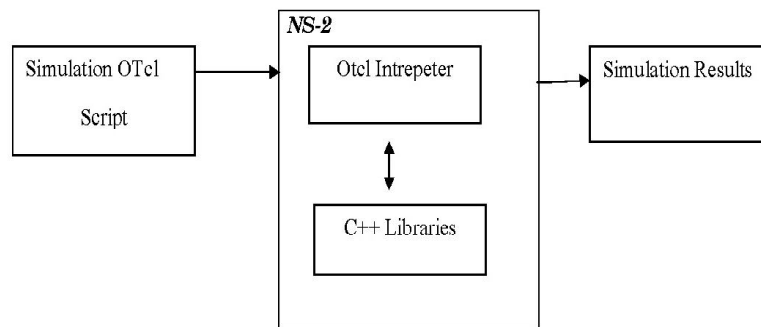


Fig . Data flow for one time simulation

And then the detail network construction and traffic simulation will be actually done in ns-2. After a simulation is finished, NS produces one or more text-based output files that contain detailed simulation data, and the data can be used for simulation.

Trace Files

New Wireless Trace File Format:The structure of the new wireless trace file format is changed to be integrated in the new race file format of the entire simulator. The flags begin with a dash and a letter that specifies the flag type



N	Node Property
I	IP Level Packet Information
H	Next Hop Information
M	Mac Level Packet Information
P	Application Level Packet Information

Flag Types New Wireless Trace Format SYSTEM

IMPLEMENTATION

LIST OF MODULES

- Network Module
- Node Initialization of each entity
- Retrieving Reputation Certificate from server
- Broadcasting message between the entity

DESCRIPTION

Network Module

Our system consists of three types of entity: 1) a reputation server; 2) access points; and 3) vehicles. 1) *Reputation Server*: We rely on a centralized reputation server that we assume is a trusted authority. One role of the reputation server is to maintain the reputation of vehicles. This includes collecting feedback, aggregating feedback to produce reputation, and propagating reputation. The reputation server is also in charge of admitting vehicles into and revoking them from the system. There are several justifications for adopting a centralized architecture. First, it is a common practice that vehicles are regulated and governed by some centralized authority, such as the Driver and Vehicle Licensing Agency in the United Kingdom. Hence, it is natural to adopt a centralized architecture. In addition, a centralized architecture has some advantages over a decentralized system. 2) *Access Points*: Our scheme relies on access points, which are physical wireless communication devices. These are connected with the reputation server, acting as a communication interface between vehicles and the reputation server. 3) *Vehicles*: Vehicles are the end users of the system. They broadcast and receive messages to and from their neighboring vehicles. In our scheme, a vehicle comprises the actual vehicle and its human user. We assume that there is no prior trust between vehicles. Upon receipt of a message, the receiving vehicle needs to evaluate the reliability of the message before considering how to act upon it.



Node Initialization of Each Entity

The initialization of the system includes initialization of the reputation server, new vehicles, and new access points.

1) *Initialization of the Reputation Server*: When a new announcement scheme is set up, the reputation server is initialized as follows.

- 1) It installs the reputation aggregation algorithm Aggr.
- 2) It installs the algorithms $KeyGen_1$, $Sign_1$, $KeyGen_2$, and $Verify_2$.
- 3) It generates its own public and private key pair (pk_s, sk_s) using $KeyGen_1$. The private key sk_s is then kept confidential.
- 4) It installs the server-side protocol VCRPS.
- 5) It regulates its own clock.
- 6) It creates a database that will store the following data for every vehicle in the system: the identity, public key, MAC key, current reputation score, and all feedback reported for the vehicle.

2) *Admission of New Vehicles*: When a new vehicle V chooses to join the system, it is initialized as follows.

- 1) It assigns it a unique identifier, denoted by id_v .
- 2) It generates a public and private key pair, which are denoted by pk_v, sk_v for the vehicle using the algorithm $KeyGen_2$.
- 3) It generates a MAC key mk_v for the vehicle.
- 4) It embeds the private key sk_v , the MAC key mk_v and the algorithm $Sign_2$ into the trusted hardware of the vehicle. It also embeds the vehicle clock regulation algorithm $VCRP_v$ into the trusted hardware. We require that the confidentiality of sk_v and mk_v is protected during the embedding.
- 5) It applies the server-side protocol $VCRP_s$ to send a clock regulation instruction to regulate the clock embedded within the trusted hardware of V .
- 6) It installs the hash function H , the algorithms $Verify_1$ and $Verify_2$, its own public key pk_s and the thresholds Ψ_{rs} and Ψ_t into the OBU of the vehicle. Note that these are not necessarily installed into the trusted hardware of the vehicle.
- 7) It creates a record in its database for vehicle V containing id_v, pk_v , and mk_v . The initial reputation score field is set to 0, and the feedback field is left empty.

3) *Installation of New Access Points*: When a new access point is installed in the system, a communication channel needs to be established between the access point and the reputation server. Subsequently, the access point serves as a communication interface between vehicles and the reputation server.



Retrieving Reputation Certificate From Server

In this phase, a vehicle retrieves its latest reputation certificate from the reputation server. When a vehicle v_b drives into the wireless communication range of an access point, it retrieves its own reputation certificate from the central server via the access point as follows:

- 1) v_b sends its identity id_{v_b} to the server via the access point.
- 2) The reputation server generates a reputation certificate C for the vehicle, where

$$C = (id_{v_b}, pk_{v_b}, t_c, rs_{v_b}, \sigma)$$

in which t_c denotes the time when C is generated, and it is obtained from the reputation server's clock, rs_{v_b} denotes the reputation score of V_b at time t_c and $\sigma = \text{Sign}_1(id_{v_b}, pk_{v_b}, t_c, rs_{v_b})_{sk_s}$ denotes a digital signature using the algorithm Sign_1 and private key sk_s on $(id_{v_b}, pk_{v_b}, t_c, rs_{v_b})$.

- 3) The reputation server sends C to V_b via the access point.
- 4) Once V_b obtains C , it stores the reputation certificate locally.

Broadcasting Message Between the Entity

In this phase, V_b generates a road-related message and broadcasts it to its neighboring vehicles. This is described as follows:

- 1) V_b converts the information obtained, for example, from its sensors or driver, into a message m . The technical detail of how this is done is beyond the scope of this paper. It computes the hash value $H(m)$, which it then submits to its trusted hardware.
- 2) The trusted hardware retrieves the current time t_b from its embedded clock and generates a time-stamped signature θ , where

$$\theta = \text{Sign}_2(t_b, H(m))_{sk_{v_b}}$$

and V_b outputs t_b and θ .

- 3) V_b forms a message tuple M , where

$$M = (m, t_b, \theta, C)$$

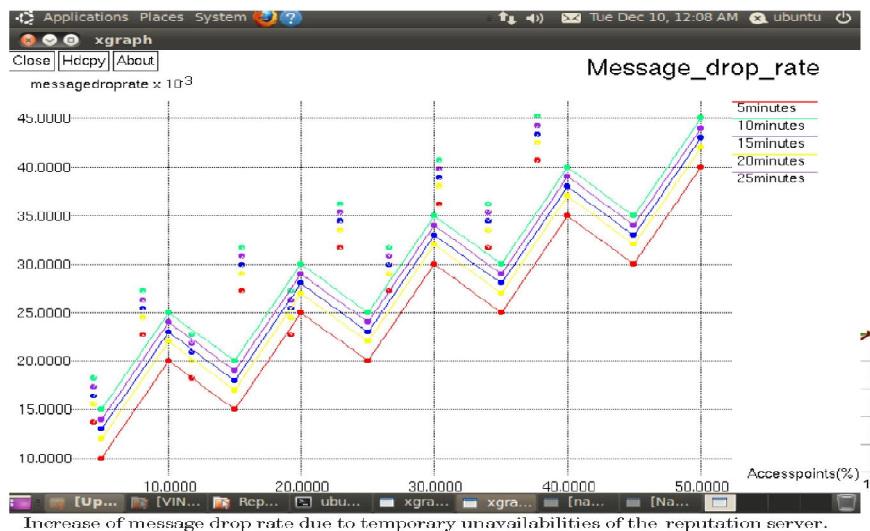
and V_b broadcasts M to its neighboring vehicles.

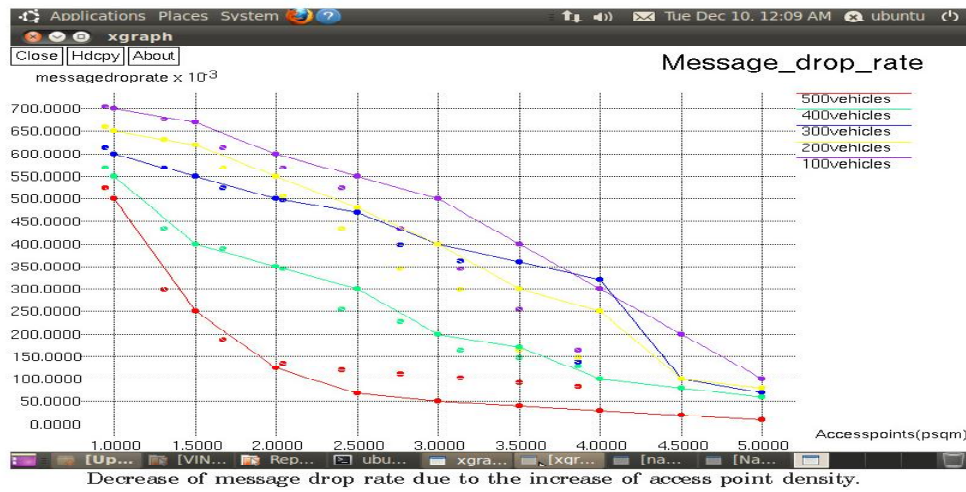


CONCLUSION AND FUTURE WORK

We have presented ServiceTrust, a quality sensitive and attack resilient trust management facility for service provision networks. ServiceTrust offers attack resilience through three novel trust establishment techniques. First, we use multi-scale feedback rating scheme to enable providers offering high quality of services to be rewarded with high local trust values. Second, we incorporate the variances of user's rating behaviors into the local trust algorithm. We show that the pairwise feedback similarity weighted trust propagation can strengthen the robustness of global trust computation against malicious collectives in addition to sparse feedbacks. We designed a multi-hop broadcast protocol (Fast Broadcast) and provided an algorithm to implement it in a realistic inter-vehicular communication (IVC) scenario. Interferences caused by environmental conditions and vehicle mobility are taken into account by dynamically computing cars' transmission ranges, whose estimated actual values are exploited to minimize the number of hops to be traversed, as well as the number of message retransmission, during the broadcast activity.

RESULT AND ANALYSIS





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THE NEED OF LEARNING SANSKRIT

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Introduction

Language is a powerful instrument, which helps the man in exchanging ideas. It enables man to make his life smarter and smarter. Language is a characteristic of civilization, without which no science or technology can be developed. Though there are thousands of languages in the world, most of them have few speakers compared with major tongues, which are around go.

As far as India is concerned is languages were officially recognized since 1992. India never had a common language, which was known to the masses everywhere in India. For many years, Sanskrit remained a common medium. But it was the language of the learned classes and not of the masses.

After Independence, the question of official language came up. The constituent assembly could not arrive at a common agreement. Some members advocated in favour of Sanskrit and others were in favour of Hindi. The question was put to vote and Hindi won on a single vote – the casting vote of the president.

Sanskrit – A dead language:-

Regarding the study of Sanskrit many negative opinions are prevailing in the society. Some of them are as follow.



1. There is no need of learning Sanskrit today.
2. In is an out dated and dead language.
3. The very purpose of language is to best communication. But nobody is communicating through Sanskrit today.
4. It is not the mother tongue of any body. So, it is waste of time and energy to learn Sanskrit.
5. Sanskrit belongs to a particular religion.
6. The knowledge, which Sanskrit provides, does not stand for any rational or scientific values.

Sanskrit – Am Immortal language:-

But the facts are otherwise. On keen observation we can find the actual scenario, which contradicts the views expressed earlier.

1. Learning Sanskrit is a must forever. Because one cannot attain command on any Indian language without the knowledge of Sanskrit.
2. Sanskrit is an immortal language. The language that which has become incapable of communicating ideas can be treated as a dead language. But Sanskrit is not of such kind. It has a good grammatical system, which is more scientific than any other language in the world. It is the reason for which Sanskrit is not getting changes even in the passage of thousands of years.
3. Today more than on lakh people are speaking Sanskrit and more than 50 Lakh students are learning Sanskrit.



4. Though it is not the mother tongue of any body. Sanskrit is giving life to all Indian languages. For instance no native Telugu speaker can speak Telugu without using at least 40% of Sanskrit words.
5. Sanskrit does not belong to a particular religion. It is a treasure of knowledge. We find a lot of information regarding History, Politics, Economics, Mathematics, Physics, Chemistry, Medicine, Astronomy, Psychology and Philosophy.

Apart from this the knowledge pertaining to yoga, meditation, spiritual, thinking, stress management, control over senses etc is prevailing in the literature of Sanskrit. All this knowledge does not relate to any particular religion.

6. The origin of rationalistic and scientific approach is but Sanskrit. Vedas and sastras are the treasure of knowledge, which is useful for us in our day-to-day life.

The need for learning Sanskrit:-

It is the responsibility of the scholars to identify the scientific knowledge hidden in the literature of Sanskrit. They should also bring it to the light of the world for the benefit of the society. In India the research work, in Sanskrit is almost limited to literary values so far. Because many of the Sanskrit scholars are not having sufficient knowledge in sciences, and the scientists are not having Sanskrit knowledge.

So, to overcome this problem interdisciplinary research projects are to be taken up untidily by the scientists and Sanskrit scholars to achieve the goal. Today the government of India is also encouraging this kind of projects.



For example, the Indian Institute of Technology, Kanapur has taken up an interdisciplinary, research project, forming a research committee with some eminent Sanskrit scholars and computer engineers. As a result of it they found that the excellent grammatical system of Sanskrit helps them in developing a perfect computer language.

If we do not move forward to take up necessary steps to bring out the hidden knowledge from Sanskrit, we will have to pay the value for it near future.

Today many foreign countries have recognized the importance of Sanskrit and 35 countries are encouraging the study of Sanskrit. In Germany almost all the universities are having the departments of Sanskrit and are actively involved in research work with a scientific approach to bring out the knowledge from the literature of Sanskrit in general and from Vedic literature in particular.

Conclusion:-

In view of the above facts it is clear that learning Sanskrit it essential for the present society. It is our responsibility to bring the fruits of the Vedic knowledge to the reach of the common man and also to preserve the cultural heritage of India.

If we neglect the study of Sanskrit, the ancient Indian knowledge acquired by our sages for thousands of years will be lost and we may have to beg the foreign countries to teach us Sanskrit in future. So let us learn Sanskrit and enjoy the fruits of knowledge sharing with the emerging international society.



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PHILOSOPHICAL FOUNDATION OF LAW FOR THE DEVELOPMENT OF OBLIGATION

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Introduction

The Philosophical perspective in law explores legal philosophy and jurisprudence which studies basic questions about law and legal systems. Philosophy of law also concerned with normative questions about the relationship between the law and morality. The post ancient Greek philosophers are begins to seeking for the clarifications of legal applications and justice. Chronologically legal contribution starts from ancient Greek philosopher Homer to Aristotle regard law is kind of divine will, final sovereign and is regarded as the command of the God. Legal philosophy in the medieval period starts from Christian theology centred law as divine and man-made. Jurisprudence developed scientific approach of various theories of law and deals with logically, ethically and philosophically. Indian legal contribution scares from pre-historic period, through RigVeda, Upanishads, Gita and Dharmashastra conceive law is the foremost dharma and that fixed in predetermined manner. Philosophy of law act like pathway of lawmakers to protect the basic and prime functions of law to solve the issues of our society with the help these strong inherited concepts.

Indian and western Foundations of Legal philosophy

In India the development of jurisprudence and legal theory owes as much to the ancient Hindu legal thinkers such as great Indian jurist



like Narada, Jamini, Yagnavalkya, Manu, Kane, and Kantilla. Hindu law has the oldest pedigree of any known system of jurisprudence, and even now it shows no sign of decrepitude. In Hindu legal work, the equivalent word for law is Dharma. The literal meaning of term Dharma is that which sustain or hold. To Hindu scriptures Dharma stand of religious rights, fixed principles of rules, conduct and the whole body of religious duties.

Hindu jurisprudence is rooted in Hindu religion and custom. Hindu law is based on religious precepts and ritual. The fundamental truths of Hinduism are Brahma (God) , Dharma (righteousness, that path which is in conformity with a man's inner and true nature, and leads him on to salvation in his own unique ,though also subtly universal ,way) and karma (act accruing merit or demerit according to the test of Dharma). Man has to do Karma, and go along the path of Dharma and attain Brahma which attainment is called Moksha. Dharma or law can never be mere man-made or king-made law, but should be something eternal, unalterable and all-embracing as far as such sources can be got by morals men. As Brahman is the author and regulator of Dharma, His words the Vedas are the supreme foundation of law, and its ultimate source. In the second sense, Dharma stands for duty or Kartavya. The ancient Hindu Dharma dealt with the duty of the king who was supposed to protect his subjects from internal and external dangers.

In the third sense, Dharma connotes essential features of a thing or object for example, the essential characteristic (dharma) of Agni (fire) is to burn everything without discrimination and Dharma of water is to fire. To manusmriti, conduct is the basis of Dharma and it is not what you think but what you do constitutes your dharma". Nonviolence is the essence of Dharma.¹ Upanishads speak the truth, practice (your own dharma) Dharma. It is in this sense, that the Bhagavad-Gita used the



word Dharma in the oft quoted verse "svadharmanidhanamsreyah,". The word is employed in this sense in the dharmashastra literature.²

The Hindu jurists conceived of law as derived from some positive revelation of the deity, the revelation itself being the outcome of divine reason. Law is discoverable by reason because the will of God and human reason coincide. On the basis of the principle several sources of law were laid. Smritikar laid down four sources of law i.e. veda, smriti, sadchar and self-satisfaction. The Dharmasastras are the smritis written in verses. The most ancient legal literature includes the Dharmasutras of Gautama, Baudhayana, Apastamba and Vasishtha and Dharmasastra existed even before B.C. 600 TO 300.³

The concept "Rta" as "order" inclusive of physical as well as legal, social, moral, and ritualistic ones, this is the form or category of understanding and the aspect of the movements of the dynamic reality. The first cosmological creations Rta and Satya are the twin factors. Rta as eternal order or eternal law is mentioned first, as without form no matter of reality can be manifested. The concept of Rta as omnipresence and comprehension of complete cosmos. Indian thinking about law starts from this concept it is said in Rig Veda that Divinity manifests itself through splendour and through law. The all-pervading being is born of eternal law and is eternal law in itself.⁴ Literally meanings of Rta is the course of things. In its primary or physical sense is the path of Zodiac with which apparent motions of Devas are confined and which is dotted by Nakshatras. The devas are said to be born in Rit and are governed by it. In ethics Rit is right ordering of conduct ; and as law is the preservation of order and awarding of punishments to wrong doer when there is a violation of the seven laws by an-ritti (acts).



The most revered of all the Rishis or sage is Manu. His code has always been regarded as of paramount authority. Manus work given to him by Brahma, was communicated by Manu to his ten followers the ten sages .Manu gives eighteen titles of rights and remedies ,as recovery of debit, deposit, sale, relationship of partners and partnership concern, gifts non-payment of wages, agreement and remedies for their branch, rescission of sales and purchase ,dispute between master and servant, dispute regarding boundaries, assaults ,defamation, theft, robbery and violence, adultery, relation between duties of husband and wife, partition and inheritance, gambling and betting. The smritis have a composite character, and these eighteen titles clearly show how even in early society there were adequate provisions of the law to need all the needs of the time, partly the result of experience, partly the wisdom of the rulers and their ministers, and greatly the wisdom of the jurists these composed in Hindu jurisprudence of thee time.

Yajnavalka can be regarded as afterwards to Manu and his great work known as the institutes of yajnavalkya. To the mitakshara (which well-known commentary on his work) .He agrees with Manus teachings and based own manus code. Based his text he regarded as the foundation of the law of inheritance. He first recognised cognates as heirs.⁵Narda was the divine sage who gave his smriti known as Naradasmiriti. In four thousand verses, we have the work based on Manu's smriti. Whereas the early Dharmasastra, were remarkable for their religious and moral bases. Narada was the first to give a work free from crowding of religious and moral principles. He gave a legal code. He distinguished between law and ethics and proclaimed that the laws and ordinances passed by princes and rules could override even the smritis. He thus taught the doctrine of civil law. Narada differed in several respect from what Manu proclaimed



.Narada has been regarded by his commentators as an inspired jurist. He allowed remarriage of widows. He declared that a father had absolute right to distribute or give his property as he wished among his sons, but he did not recognise the widow as an heir. He gave adopted son the ninth rank.

To Vedas, law has divine origin. Rigveda conceives law not merely as an ordering of human conduct and adjustment of human relations but it is something more i.e., ordering of thing in a fixed and pre-determined manner. To legal thinkers, the main purpose was to ensure peace and order in the society. They conceived of duty but scarcely spoke of right. The conduct according to Dharma meant performance of duty towards others and the society in the interest of the community as a whole.⁶ Law morality and religion all were comprised in the Dharma of the ancient Indian legal system. Sadachar has laid stress on morality than on law. The elements of religion were also present in dharma and legal religion as part of dharma meant by what is approved by conscience of virtuous men who are free from sheltered and worldly temptations.⁷ To Hindu thinkers equality before law was inherent, Manu had proclaimed equality but according to him, equality did not mean exact sameness. Each has individually a worth which is equally to be respected in human relations. To him equality of men is the recognition of an equal protection for the worth of each man. He emphasised solidarity through division of labour and this could not fail to produce the desired effect.

Western foundation of legal philosophy

Greek thinkers of fifth century B.C. enduring philosophy of law have taken a leading role in all human institutions. There are two basic needs determined the philosophical thinking about law. First the paramount social interest in peace and order dictated by very beginnings



of law. It gives certain basic order of human action stable and affirms the social order. Second, the immediate social interests it is continually for over hauling legal precepts and refilling unexpected situations demands of the general security. Greek philosopher has works for the formation of legal theories to help actual legal systems and provides the rational account of law. Greek legal thought origin through archaic age poet Homer the first and greatest writer of Greek literary known as epic.⁸ Homer regard law issuing from gods and it realise human beings through revelation of divine will.⁹ Hesiod another Archaic poet pointed out that wild animal, fish and birds devoured each other because law has unknown to them. Heraclitus (530-470) the first Greek philosopher pointed out destiny, order and reason are the three main features of law. Socrates occupied the prominent place among stoic philosophers of the ancient time. To him, like natural physical law, there is a natural moral law. Man has the capacity to distinguish between good and bad and he is able to appreciate moral values.

In Plato's philosophy, gives the clear-cut distinction about justice and law. His theory of justice was the cornerstone of his philosophical edifice. His ideas on law peripheral in his scheme of thought and underwent the substantial change of his latter part of life. Plato defines justice means the man should do his work in the station of life to which he was called by his capacities.¹⁰ Principles of law, he believed, abstractions, over simplifications applied to a state of things which is simply reverse. Hence, 'all things are not full authority of laws but rather full authority for a man who understands the art of kingship and his wisdom'.¹¹ Plato contrasted the picture of the state governed by the free and untrammelled rule of personal intelligence with that of another type of state in which the discretion of the rulers was limited by law. While the non-law state



was still updated by him as the highest and most perfect type of government, be admitted that its effective operation required men of the highest wisdom and infallibility of judgement. Since such men could only rarely be found, he proposed the law state as the second best alternative for the governance of man. The blue print of such state had drawn detail in his last work "The laws".

The Aristotelian theory constituted laws, "should be the final sovereign, these laws should be sovereign in every issue, except that personal (that is executive) rule should be permitted to prevail in those matters on which the law was unable to make a general pronouncement"¹². He who commands that "law should rule may thus be regarded as commanding that God and reason alone should rule, he who commands that a man should rule adds the character, and high spirit, too, perverts the holders of office, even when they are the best of men Law may be able to be defined as reason free from all passion".¹³

Aristotle makes a further important distinction between the part of justice which is natural and that which must be regarded as conventional, A rule of justice is natural that has same validity everywhere, and does not depend on our accepting it or not .A rule is conventional in the first instances may be settled in one way or the other indifferently. "Through after having once been settled it is not indifferent for example, that the ransom for a prisoner shall be a mind that a sacrifice shall consist of a goat and not of two sheep"¹⁴ . While the meaning of the term conventional justice is quite clear rule of the road being a passage immediately following the sentence quoted. Aristotle seems to recognize a changeable part of natural law as well as an immutable one. He may also have meant that natural law is variable in the sense that human effort can to some extent interfere with its operation. He clearly admit



the possibility of an unjust law giving as an example an enactment by a majority dividing among its member the possession of a minority Aristotle also taught as was stated earlier, that rightly constituted laws (rather than laws per se) should be the final sovereign¹⁵. But he does not give us his opinion on whether bad laws must under all circumstances be enforced by the judiciary and observed by the people.

Legal Philosophy in the Medieval Period.

The period from 12th century to mid-fourteenth century is reckoned as the medieval in the European history. It was dominated by the ecclesiastical doctrine which the Christian fathers propagated for establishing the superiority of church over the state. They used natural law theory for propagating Christianity and for establishing a new legal order and political ideology based on morals and theology. According to Christian saints, all laws are based on custom. To Gierke, the medieval period Christian philosopher centred around two fundamental principles: I) Unity derived from God it involving one faith, church and empire is the incarnation of God. II) The supremacy of law both, divine and man-made as a part of unity of universe.

Thomas Aquinas (1225-1274) requires special mention among the theologians of the medieval period. His views about society are similar to those of Aristotle. He defined law as an ordinance of reason for the common good made by him who has the care of the community and promulgated." He divided law in to four categories: 1) Law of God. 2) Natural Law, which is revealed through the reason of man. 3) Law of scriptures or Divine law and Human Laws. Hugo Grotius (1583-1645) the Dutch jurist and influential philosopher of natural law detaching the science of law from theology and religion, he prepared the ground for the secular rationalistic version of modern natural law. Grotius defined "natural law as a dictate



of right reason which points out that an act, according as it or is not in conformity with rational nature has it a quality of morals business or moral necessity"¹⁶. To the law of nature Grotius opposed the volitional law whose rules could not be deduced from immutable principles by a clear process of reasoning and which had their sole source in the will of men .The combination of both forms of law in his opinion existed in the law of nations. To him the nations consisted of those rules which had been their sole source in the will of man. The system of natural law even more elaborated by Samuel Pufendorf the German legal professor in accord with Thomas Hobbes man is strongly motivated by self –love and egotism and that there is a certain amount of malice and in his nature. To him law of nature is an expression of this dual character of human existence.

Modern Approach to Philosophy law

Thomas Hobbes (1588-1679) define everybody has the right to all things and profit is the only measure of lawfulness. Furthermore every individual in this state possesses the natural right to preserve his life and limbs with all the power he has against the aggression of others. "From the law, a number of specific precepts are derived in order to secure peace must to enforce the law of nature"¹⁷. It is the first and most fundamental law of nature according to Hobbes and argued it is necessary for men. To enter in to the compact mutually among them by everyone agrees to transfer all his power. Also strength upon one man, or upon one man, an assemble of men, on condition that everybody else does the same. The sovereign power thus constituted called Leviathan or the moral God by Hobbes should use the combined power and strength of citizens for the purpose of promoting the peace, safety and convenience of all. There should be no penalties imposed upon citizens whom they cannot foresee and every



man should without fear be able to enjoy the rights accorded to him by the laws.

To Benedict Spinoza (1632- 1677) the right of an individual is a state of nature extends as far as his power, " every individual has sovereign right to do all that he can ,in other words the right of an individual extend to the almost limits of his power, as it has been conditioned. Now it is the sovereign law and right of nature that each individual should endeavour to preserve itself as it is without regard to anything but itself. What so ever an individual does by its nature, it has a sovereign right to do in as much as it was conditioned by nature, and cannot act otherwise.

John lock (1632 – 1704) assumed the natural state of man means the state of perfect freedom, in which men were in a position to determine their actions and dispose of their person and possessions as they saw fit and that i.e. was, furthermore a state of equality. "The state of nature was governed by the law of nature which looking towards the peace and preservation of mankind taught men that all, persons being equal and independent no one ought to harm another in his life, health, liberty or possession"¹⁸. As long as the state of nature existed, everybody had the power to execute the law of nature and punish offenses against it with his own hand.

Jean Jacques Rousseau (1712-1778), the native of the Swiss city Geneva, belong the classical tradition of natural law, firmly believed the existence in natural right of the individual. One would except that by alienating all of their natural rights to the community the citizens of the state would deprive themselves of their liberty. Each man said giving himself to all give himself to nobody, and as there is no associate over whom he does not acquire the same an equivalent for everything he loses and an increase for everything he loses and an increase of force for the



preservation of what he has. Law according to Rousseau must be general in character and equally applicable to all the purview of its mandates. It cannot be directed to a particular man or a particular object for particular acts of an authority the community institutes the government commission for the execution of general will.

Immanuel Kant (1724-1804) drew the distinction between natural rights and acquired rights recognised only the first which necessary for the freedom of individual. He propounded his famous theory of categorical imperative entitled in the critique of pure Reason. Kant's theory of categorical Imperative embodies two principles: I) it expects the man to act in such a way that he is guided and dictates of his own conscience. Thus, it is nothing more the freedom to do as one pleases. II) The second principle expounded by Kant was the doctrine of autonomy of the will which mean an action emanating from reason and does not mean the freedom to do as one pleases. To Kant, an action is right only if it co-exists with each and every man's free will according to universal law.

Wilhelm Friedrich Hegel (1770-1831) pronounces law moreover including social manifestations besides the product of evolutionary and dynamic process. This process takes on dialectic and reveals itself in thesis becomes the leading idea of a particular epoch. Towards Hegel law and state play the vital role in historical process. "The systems of law, asserted to realize the ideal of freedom in its external manifestations¹⁹". Hegel admonished men to lead the life governed by reason pointed out one of the cardinal postulates of reason to respect the personality of reason to other human beings. The law has considered as one of the chief instrument devised to reinforce and secure such respect. The famous aphorism found the preface to Hegel's philosophy of law. That which is rational is real and that which is real is rational. Hegel's philosophy contained, the substantial



amount of individualistic statements might appear to exalt the state at the expense of the individual.

Herbert Spencer (1820-1903) the English philosopher and the author of the famous books like *Theory of Law, Justice and Society* are strongly influenced by Charles Darwin's origin of species. Spencer considered civilization and law as product of biological and organic evolution. Karl Marx (1818-1883) observation that law is a reflection of economic conditions is an integral part of the doctrine of dialectical materialism as expounded by Marx and Engels. Law is considered the part of this superstructure, with the consequence that its forms, content and conceptual apparatus constitute reflexes of economic development. Another important doctrine widely associated with the Marxian theory of law is the characterization of law as a form of class rule. One source for this conception of law is an often quoted passage from Marx's *Communist Manifesto*, "which was addressed to the bourgeoisie of his day, your jurisprudence is but the will of your class made into law for all the will is essential character and directions are determined by the economic conditions and existence of your class."²⁰ Uncomplimentary definition of law may serve its purpose in the society those propagandistic apparatus harps on the theme to temporary character of legal institutions and their disappearance early in the classless society.

To Rudolf Stammer (1856- 1938) positive law is an attempt to just law and justice is the harmony of will purposes within the framework of the social life. The harmony of wills or purposes varies according to time and place. Stammer interprets the fundamental principles of just laws are two kinds (a) principle of respect and b) the principle of community participation. To him, law of nature means just law which harmonises the purposes in the society. The purpose of law is to protect the will of one



and to unite the purpose of all. Fuller is the leading supporters of the modern natural law philosophy. According to him, law and morality are necessarily co-related. He thinks that good order is law which corresponds to justice or morality. To Fuller, law is the purposive system, the purpose being to subject human conduct to the guidance of legal rules. He thinks that every workable legal system must comply with eight requirements in order to make the law really effective. The following are these requirements:²¹

a) There should be definite rules. b) These rules must be well publicised. c) There should be no abuse of retrospective legislation. d) The rules must be easily understandable. e) The rules must be practicable and not require a person to do something which is beyond his power or capacity. f) The rules must be contradictory or inconsistent with any other existing rule. g) The rules should not be subjected to frequent change and there must be congruence between the rules promulgated and their actual administration.

Jurisprudence or science of law

Jurisprudence is conceived as a branch of philosophy and such elevation of the idea of legal study were naturally accompanied by a corresponding elevation of its professors²². The word jurisprudence derived from the Latin word *jurisprudential* "juris" means knowledge of law and *prudentia* means skill or knowledge.²³ In France jurisprudence is called "*la philosophie du droit*", that is the philosophy of rights, that is of law – in the abstract sense of the term law. In India we may well have the term *vidhishashtra* that is knowledge of law, in the abstract sense of the term law. Jurisprudence is the study of fundamental legal principles, and is concerned with the normative and not merely the positive; it is concerned not merely with the actual, but also with the ideal. So we may define



jurisprudence as the study of fundamental legal principles, including their philosophical, historical and sociological bases and analysis the legal concepts.

Main schools of jurisprudence

Historical schools in jurisprudence deals with the general principles governing the origin and development of law, which influence that, affect the law, with the origin and development of those legal conceptions and principles which are as essential in their nature as to deserve a place in the philosophy of law. Legal history deals with the factual narration of the development of law and various institution of a community in chronological order. The analytical school is positive in its approach to the legal problems in the society. This school takes for granted the developed legal system and proceeds logically to analyse its basic concepts and classify them so as to bring out their relations to one another.

The philosophical or Ethical school concern itself chiefly with the relation of law to certain ideals which law is means to achieve. It seeks to investigate the purpose for which the particular law has been enacted. It seeks to investigate the purpose for which the particular law has been enacted. It is not concerned with its historical or intellectual content. These jurists regard law neither as the arbitrary command of a ruler nor as the creation of historical necessity. To him law is the product of human reason and its purpose is to elevate and ennoble human personality. The main features of the ethical jurisprudence are as follows: The concept of justice has a philosophical or ethical content and law and justice are closely inter-related concepts. I) Law is only an instrument towards the fulfilment of the objective of justice. II) The ethical school of jurisprudence concerns itself with the manner in which the fulfils its purpose of attainment of



justice. III) The study of difference between the spheres of law and justice.
IV) The ethical concepts of legal conceptions.

Conclusion

Law and philosophy is concomitant relation identified prior to the post ancient period especially in India. Our philosophical background reveals the heritage and richness of law and various legal concepts. It will help our law makers of the development of law and interpretations of various statutes. For example jurisprudence is science of law and conceived the branch of philosophy is the main foundation of legal developments. Philosophy of law handled the issues of concept vies studies and develop those concepts for the well- being of human being. Indian and western approaches reveal the different concepts of law. Above this study we can understand that all laws are made by men for the peace living of men. Issues of our society classified some major heads like violation of human rights, lack of obligation to obey laws, draw backs enforcement powers of our statutory organs. Thinkers and philosophers contribute much more for solving these problems. Through philosophical or ethical school understand law as the means to achieve justice. To these schools the main purpose of law ought to be the attainment of human perfection and securing liberty to individual in the society.

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(Footnotes)

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PRODUCTION OF POWER FOR LIGHTENING THE VEHICLE ELECTRICALS BY APPLYING SEEBECK EFFECT ON EXHAUST MANIFOLD

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1. Introduction

Automobiles are an example of high energy usage with low efficiency. Roughly 75% of the energy produced during combustion is lost in the exhaust or engine coolant in the form of heat. By utilizing a portion of the lost thermal energy to charge the battery instead of using an alternator the overall fuel economy can be increased by about 10%. Depending on the engine load the exhaust temperatures after the catalytic converter reach about 300-500 degrees Centigrade. Thermoelectric generators are ideal for such applications as they are small, with no moving parts, and relatively efficient at these temperatures. Thermoelectric technology can be used to generate electrical power from heat, temperature differences and temperature gradients, and is ideally suited to generate low levels of electrical power in energy harvesting systems. [2, 5]

Thermoelectricity utilizes the Seebeck, Peltier and Thomson effects that were first observed between 1821 and 1851. Practical thermoelectric devices emerged in the 1960's and have developed significantly since then with a number of manufacturers now marketing thermoelectric modules for power generation, heating and cooling applications. Ongoing research and advances in thermoelectric materials and manufacturing techniques, enables the technology to make an increasing contribution to address the growing requirement for low power energy sources typically used in energy harvesting and scavenging systems. Commercial thermoelectric modules



can be used to generate a small amount of electrical power, typically in the mW or μ W range, if a temperature difference is maintained between two terminals of a thermoelectric module. Alternatively, a thermoelectric module can operate as a heat pump, providing heating or cooling of an object connected to one side of a thermoelectric module if a DC current is applied to the module's input terminals. [1, 4]

1.1 Thermoelectric Module Construction

A single thermoelectric couple is constructed from two 'pellets' of semiconductor material usually made from Bismuth Telluride (Bi_2Te_3). One of these pellets is doped with acceptor impurity to create a P-type pellet; the other is doped with donor impurity to produce an N-type pellet. The two pellets are physically linked together on one side, usually with a small strip of copper, and mounted between two ceramic outer plates that provide electrical isolation and structural integrity. For thermoelectric power generation, if a temperature difference is maintained between two sides of the thermoelectric couple, thermal energy will move through the device with this heat and an electrical voltage, called the Seebeck voltage, will be created. If a resistive load is connected across the thermoelectric couple's output terminals, electrical current will flow in the load and a voltage will be generated at the load. Practical thermoelectric modules are constructed with several of these thermoelectric couples connected electrically in series and thermally in parallel. Standard thermoelectric modules typically contain a minimum of three couples, rising to one hundred and twenty seven couples for larger devices. A schematic diagram of a single thermoelectric couple connected for thermoelectric power generation, and a side view of a thermoelectric module is shown in figure 1.1. [1]

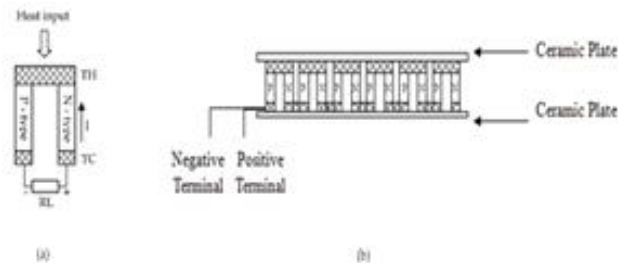


Figure 1.1 (a) Schematic diagram of a single thermoelectric couple (b) Side view of a thermoelectric module.

2. Experimental Setups

2.1 Fabrication of first experimental setup



Figure 2.1 Experimentation on engine exhaust pipe.

2.2 Schematic diagram for first experimental setup

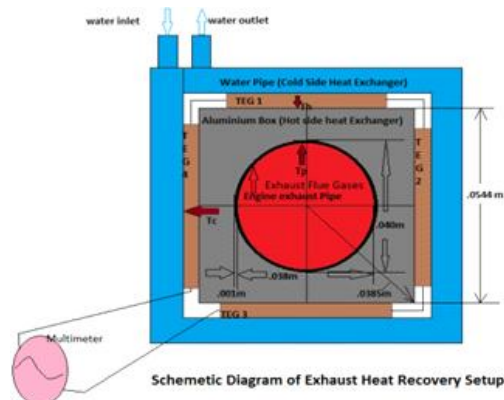


Figure 2.2 schematic diagram for first setup

In first setup exhaust pipe of 4-stroke, 4cylinder, S I engine is used as heat sink. Pipe surface is used to heat one surface of thermoelectric module for this purpose a heat exchanger is made to transfer heat from exhaust pipe surface to thermoelectric module. This heat exchanger is made of aluminium; it is a square box having a cylindrical hole in it, hole diameter is approximately equal to the external diameter of exhaust pipe. Other surface is maintained at lower temperature by a water pipe having hollow rectangular cross section. Fabricated experimental setup, mounted on engine is shown in figure 2.1 and schematic diagram of first setup is shown in figure 2.2.

2.3 Fabrication of second experimental setup



Figure 2.3 Experiment on Separate setup with heater and Dimmerstate.

2.4 Schematic diagram for second experimental setup

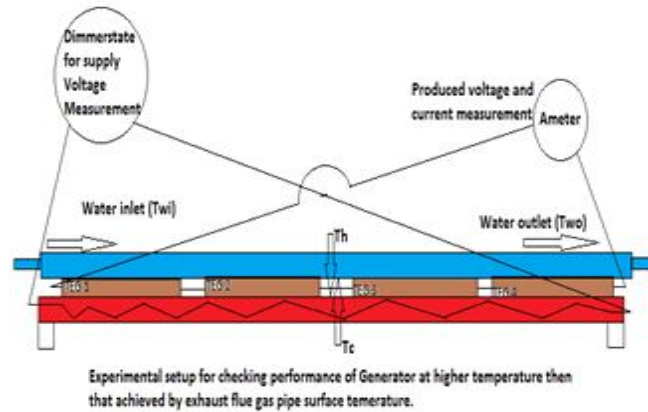


Figure 2.4 Schematic diagram for second setup

In first setup value of hot side temperature was 82C and available module can work upto 180C, so another setup is prepared in which heater is used to provide hot surface with seat for modules and on other side cold temperature is maintained using a water pipe having same material and cross section as used in first setup. Fabricated separate experimental setup is shown in figure 2.3 and schematic diagram of second setup is shown in figure 2.4.

In both the setups the connection of thermoelectric module is in series, so both setup are electrically equivalent.

3. Mathematical Modelling and C programming for Thermoelectric Generator

3.1 Formulation

Heat flowing into hot surface is given by:-

$$Q_h = N\alpha IT_h + (N/R_{th})(T_h - T_c) - 0.5NR_e I^2$$



Heat flowing into cold surface is given by:-

$$Q_c = N\alpha IT_c + (N/R_{th})(T_h - T_c) + 0.5NR_e I^2$$

Applying energy conservation, we get,

$$P_{tem} = VI = Q_h - Q_c = N\alpha I(T_h - T_c) - NR_e I^2$$

So formula obtained after mathematical modelling for four thermoelectric power generator is changed as,

$$P_{s,max} = T^2(N\alpha)^2 / (NR_e)$$

Here, $N\alpha$ = Module level seebeck coefficient (=V/"T Values)

And NR_e = Module level electrical resistance (=3&!) [3]

3.2 C Programming for Above Modelled Power

Here for programming "T is taken as dt, $N\alpha$ is taken as Na and $P_{s,max}$ is taken as Psmax. Programming in C language for the maximum power is as follows:-

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
float Psmax,dt,Na;
const float NRe=3.0;
printf("Enter the value of dt= ");
scanf("%f",&dt);
printf("Enter the value of Na= ");
```

```
scanf("%f",&Na);

Psmax = ((dt*dt)*(Na*Na))/NRe;

printf("Psmax is = %f\n",Psmax);

getch();

}
```

3.3 Comparison of Power Produced by Experiments and Power Calculated by Mathematical Modelling

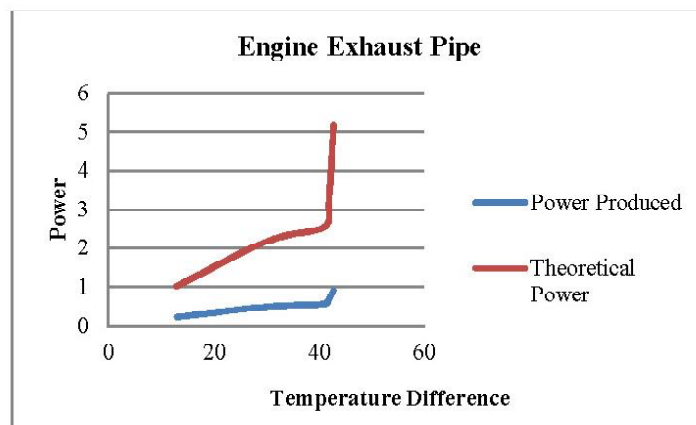


Figure 3.1 Comparison of Powers for first setup

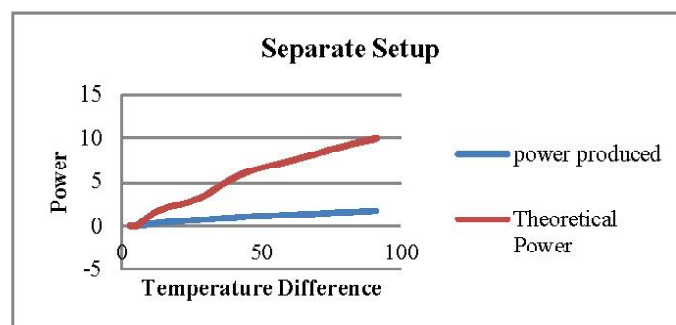


Figure 3.2 Comparison of Powers for second setup



Theoretical power is calculated without considering the losses due to imperfect surface contact, leakage losses, losses due to error in measurements, transmission losses etc... That's why theoretical power or power calculated by mathematical modelling is always higher than experimentally calculated power. In both the figures 3.1 and 3.2 it is shown that trend of produced power and theoretical power is same, but error is increasing as temperature difference increases.

4 Results and Discussion

4.1 Setup mounted on engine exhaust pipe

Max Voltage Produced = 3.94 volt (at $T=42.75^{\circ}\text{C}$, $T_h=83^{\circ}\text{C}$, $T_c=40.25^{\circ}\text{C}$)

Max. Current Produced = 230mA

Max. Power Produced = 0.9062 watts

Max. Carnot Efficiency = 12%

Max. Generating Efficiency = 1.26%

4.2 Separate setup with heater and Dimmerstate

Max. Voltage Produced = 5.38 volt (at $T=91.2^{\circ}\text{C}$, $T_h=178.2^{\circ}\text{C}$, $T_c=87^{\circ}\text{C}$)

Max. Current Produced = 319mA

Max. Power Produced = 1.72 watts

Max. Carnot Efficiency = 20.2%

Max. Generating Efficiency = 2.78%

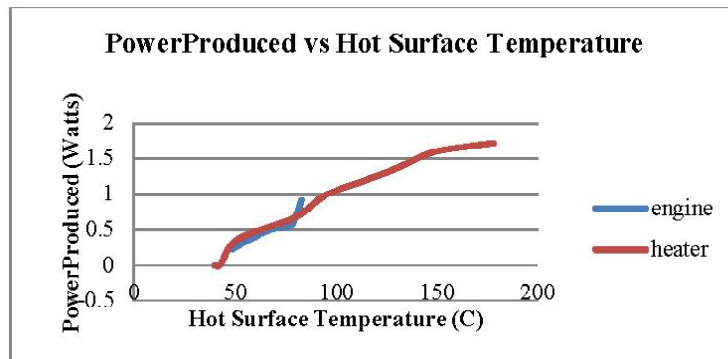


Figure 4.1 Variations in Produced Power with Hot Side Temperature.

Electrical power is given by $P = VI$, according to this relation, if voltage (V) and current (I) both are increasing with increase in hot side surface temperature, so power (P) should also increase. In Figure 4.1 Power is increasing with increase with hot side surface temperature.

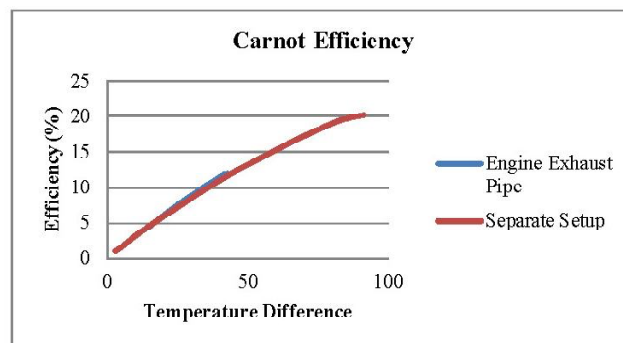


Figure 4.2 Variation in Carnot efficiency with Temperature difference.

Engines producing power have their own Carnot Efficiency depends on hot side and cold side temperatures, as other thermodynamic engines Thermoelectric Generator is also an engine which is producing power as a result of temperature difference, thus Thermoelectric Generators also have their Carnot Efficiency, which is given by

$$\eta_{\text{carnot}} = (1 - T_c/T_h) \times 100\% = [(T_h - T_c)/T_h] \times 100\%$$

Carnot Efficiency is the maximum efficiency on which any engine can work. Carnot Efficiency of TEG mounted on engine exhaust pipe is 12.2% and for TEG of second setup is 20.2%. Carnot Efficiency increases with increase in “T, as shown in Figure 4.2, for both setups.

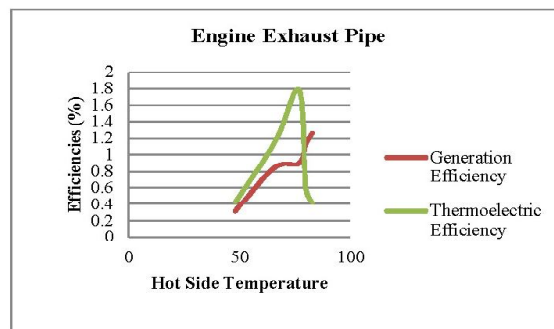


Figure 4.3 Variation in efficiencies with hot side temperature for first setup.

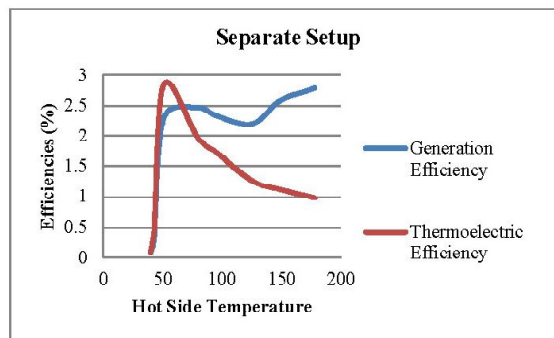


Figure 4.4 Variation in efficiencies with hot side temperature for second setup.

Generating efficiency is the ratio of power produced by thermoelectric generator to the heat supplied to thermoelectric module but, we don't know that how much heat is taken by the modules but, we know how much energy or heat is supplied to the module, so assuming that all heat which is given by heat source is taken by the module, which is



theoretically true but practically impossible, and big amount of heat is lost in leakage and contact resistance, that's why Generating efficiency is very low. One more reason of getting less efficiency is that both the surfaces of thermoelectric modules should be in perfect contact with heating surfaces and cooling surfaces, so that we can't measure the temperatures of both surfaces of thermoelectric modules, if it could be possible it will give higher efficiency than that is got with the heating and cooling surface temperature.

Thermoelectric efficiency is based on Figure of Merit, which is characteristic of thermoelectric material which shows that between what range of T_h and T_c thermoelectric materials give best performance and thus same is shown by thermoelectric efficiency, but it is different for different experimental setup, because in different setups type of contact between module surfaces and heating and cooling surfaces changes, if same contact take place than same thermoelectric efficiency can be achieved.

In Figure 4.3 and 4.4 Generating efficiency is increasing with increase in T_h and it is max as 1.26 in first setup and 2.78 in second setup.

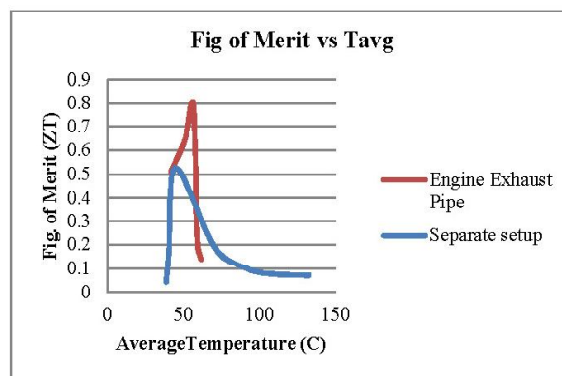


Figure 4.5 Variation in Figure of Merit with Average Temperature.



The Figure of merit (Z) provides a guideline to find out potentially good thermoelectric materials, it is convenient to define dimensionless figure of merit (ZT_{avg}), where T_{avg} is the mean temperature and it shows that between what range of T_h and T_c or T_{avg} thermoelectric materials give best performance and according to experimental observation, measured parameters and result is shown in Figure 4.5 that the range of T_{avg} for the designed Thermoelectric generator is about 40°C to about 75°C and these range can be increased depends upon the values of T_h and T_c .

5 Conclusion

As we know that Engine Power is of order of 8000 watts, and it is too high to compare that how much efficiency of engine can be increased using Thermoelectric Technology, because Thermoelectric material are low efficient material and can produce a few watts of power, when surfaces of Thermoelectric generator are subjected to different temperatures, but within a range, according to thermoelectric material properties.

This project is done by using only 4 thermoelectric modules by maintaining the surface temperatures of these modules at different temperatures. Degree of surface contact with heat transferring surface and heat absorbing surface to the module surfaces is neither checked nor measured. In spite of measuring temperatures of module surfaces, temperatures of heat transferring surface and heat absorbing surface are measured, because there should not be space between module surfaces and heat transferring and heat absorbing surfaces and modules should be packed from both the surfaces so heat transferring and heat absorbing surfaces are extended and their surface temperatures are measured. It was not allowed to modify exhaust pipe of engine, so heat of exhaust gases is not taken directly and two intermediate surfaces are used (Hot Side Heat Exchanger) to transfer heat from the surface of exhaust pipe to the surfaces



of thermoelectric modules. Modules used have very short range of operating temperature which is from -60C to 180C, and these modules are less efficient, high range modules with high efficiency are available but they are more costly and too expensive as economic point of view.

So it will be beneficial to produce small power from thermoelectric generator, from waste heat, because how much power is produced, that will be extra power, from waste heat and if Thermoelectric modules can be fixed directly on engine exhaust pipe without any intermediate surface than contact resistances between hot side surfaces and cold side surfaces will be decreased and generation efficiency can be increased. Moreover this project is done using only 4 Thermoelectric Modules, if no. of thermoelectric modules can be increased more power can be produced, and from the above project result 24 thermoelectric module will be required to produce 10watts of power, if works on same efficiency, and if efficiency of module is higher than more than 10 watts can be produced. So it depends on thermoelectric modules are high efficient or low efficient. It is a direct energy conversion method so power is produced without any pollution, which can be used to lighten the Head light, Tail Light, Fan in car, AC in car and to charge the batteries.

For waste heat recovery from exhaust gases through I C Engine, 4 thermoelectric modules in series are used having operating temperature range of -60C to 180C and experiment is performed on these. When experiment is performed on engine exhaust pipe, this Thermoelectric Generator gives maximum power of 0.9062 watt, this is low because hot side temperature was low and it was 83C. So to get hot side temperature higher, a separate setup is fabricated and connection of modules was in same arrangement that is series arrangement. In second setup max power produced was 1.72 watts with hot side temperature 178.2C. So it is clear



that power can be produced from waste heat of exhaust gases from I C Engine.

We know that Carnot efficiency is the maximum efficiency which can be achieved by any power producing engine and it is 12%, maximum for first setup and 20.2%, maximum, because Carnot efficiency is low then, generating efficiency will be lower and this is 1.26%, maximum for first setup and 2.78%, maximum, for second setup. So to get higher power and higher efficiency, high range thermoelectric module should be used.

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বিশ শতকের কথাসাহিত্য : পেশাভিত্তিক জীবন ও মানুষ

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যুদ্ধ-সভ্যতার গর্ভে বিশ শতকের কথাসাহিত্যের জন্ম। আধুনিক সংশ্লিষ্ট পরিবেশ তার ধাত্রী। আধুনিক জগতের সমস্ত জাগতিক, মানসিক কর্ম ও চিন্তার শিল্পরূপদানের অন্যতম দায়িত্ব বিশ শতকের কথাসাহিত্যের। এজন্যই রমণীমোহন কাহিনীর দিন আজ আর নেই। উনিশ শতকের মধ্যবিন্দু অতিক্রম করার সঙ্গে সঙ্গে গল্প উপন্যাসের চরিত্রাও গেল বদলে। বিশ শতকের কথাসাহিত্যিকরা গভীর জীবন-অন্বেষণের পথে অগ্রসর হলেন। সে জগতে আর বিশুদ্ধ গল্পরস উপভোগের অবসর রইল না। এই শতকের গল্প-উপন্যাসে ফ্রেয়েড, শোপেন হাওয়ার, নীটশে, বের্গস, ইয়ং-এর তত্ত্বই ব্যাপক প্রভাব বিস্তার করল। সমাজতত্ত্ব, দর্শন, মনস্তত্ত্ব, রাজনীতি - সব কিছুই এখানে দারুণভাবে উপস্থিত। মানুষের অস্তিত্বের বিশ্লেষণ, তার মানসিক দ্বিধা-দ্বন্দ্ব, কিংবা তার স্ববিরোধিতা ও আত্ম-প্রতিরণার নির্মম মূল্যায়ণে বিশ শতকের কথাসাহিত্যিকরা আত্মনিয়োগ করলেন। তবে ব্যক্তি মানুষের অস্তিত্বের অন্তঃস্থল অনুসন্ধান করেই একালের কথা-শিল্পীরা ক্ষান্ত থাকেন নি - সর্বমানবিক সত্তার কল্পনাকে পুনর্বিচার ও নবরূপে সৃজন করলেন। স্বদেশ ও স্বভূমির প্রতি তাঁদের নাড়ির টানও গভীরভাবে অনুভূত হল। শেকড়ের সন্ধান করতে গিয়ে তাঁরা সমাজ ও সমকালের মানুষদের পেশা ও নেশার খবর নিলেন।

বিশ শতকের শুরুতেই তির উপনিবেশবাদ ও সাম্রাজ্যবাদ সমকালীন কথাসাহিত্যিকদের রচনাকে দারুণভাবে প্রভাবিত করেছিল। যুদ্ধ, দুর্ভিক্ষ, মহামারী, সাম্প্রদায়িক দাঙ্গা - এসবই ছিল সে-সময়ের গল্প-উপন্যাসের অন্যতম কেন্দ্রীয় বিষয়। তাছাড়া দেশকে বিদেশী শাসন-শোষণ থেকে মুক্ত করার দীপ্ত চেতনাও ছিল তাঁদের রচনাতে। দ্বিতীয় মহাবিশ্বযুদ্ধ এবং ভারতবর্ষের স্বাধীনতার পর কথাসাহিত্যিকদের সেই চেতনা নতুন বিষয় - অন্বেষণে তৎপর হল। পাশাপাশি আর্থিক সংকট থেকে মুক্তির উপায় হিসেবে তাঁরা সুপরিবর্তিতভাবে গ্রাম-বাংলার নানান প্রত্যন্ত প্রদেশে নিজেদের মানসমুক্তি ও বিষয়মুক্তির প্রয়াসে সচেষ্ট ছিলেন। প্রসঙ্গত, স্বাধীনতা উত্তরকালে দ্রুত নগরায়ণ, সেই সঙ্গে পঞ্চাষিকী পরিকল্পনার রূপায়ণ যেমন জনজীবনে কিছুটা স্বাচ্ছন্দ্য আনতে থাকে, তেমনি সাম্যবাদী আন্দোলনের ফলে ট্রেড ইউনিয়ন সংস্থা ও একাধিক জীবিকা ক্ষেত্র প্রস্তুত হয়। শ্রমিক, কৃষক শুধু নয়, অফিস কর্মচারী, শিক্ষা প্রতিষ্ঠান, জেলবন্দী মানুষ, মাঝি, বন্দর শ্রমিক ইত্যাদিও ট্রেড ইউনিয়ন ভিত্তিক আন্দোলন-এর সঙ্গে ক্রমশ যুক্ত হতে থাকে। অর্থাৎ একটি গোষ্ঠীজীবন এবং পেশাভিত্তিক জনজীবন সমবেতভাবে নিজস্ব দাবি দাওয়ার কথা, সুবিধা-অসুবিধা, সুখ-স্বাচ্ছন্দ্য, অর্থনৈতিক-সামাজিক-রাজনৈতিক মুক্তির বাসনায় সোচ্চার হয়ে ওঠে।

প্রসঙ্গত, এমন মানসিকতা যখন দেশীয় জীবন-পরিবেশে নির্দিষ্ট আবহাওয়া তৈরী করতে থাকে, তখন সমকালীন লেখকরাও বিভিন্ন পেশা-নেশার মানুষদের সম্মিহিত হতে গিয়ে নিজেদের প্রত্যক্ষ অভিজ্ঞতার সঙ্গে তাঁদের জীবন-সান্নিধ্যের উভাপ সম্মিলিত করে গল্প-উপন্যাস রচনা করেন। এককথায় পেশাভিত্তিক গোষ্ঠীজীবন লেখকদের কখনো রাজনীতি ভাবনার সূত্রে, কখনো বা রাজনীতি - বিবিধ থেকে তাঁদের রচনা মূর্ত হয়ে ওঠার সুযোগ পায়। এমনকি ভারতবর্ষের স্বাধীনতা উত্তরকালের কথাসাহিত্যে এই ধারার ব্যাপক বিস্তার লক্ষ্য করার মত। প্রসঙ্গত, এগুলির সঙ্গে দ্রুত শিল্পায়ন ও নগরায়ণ প্রয়াসের অন্তর্নিহিত চাপ ও ভাব কতকাংশে নিশ্চয়ই আছে। পাশাপাশি, বাংলা কথাসাহিত্যের ধারায় কেবল সুস্থ পেশা নয়, অসুস্থ, দুর্নীতিগ্রস্ত, বিকৃত পেশা, কিংবা তাকেই পেশা হিসাবে গ্রহণ করা মানুষদের গোষ্ঠীজীবনের পরিচয়ও যথেষ্ট রূপ পেয়েছে।

সমালোচকের মতে কথাসাহিত্যে পেশাভিত্তিক জীবন ও মানুষের চিত্র আঁকতে গেলে উপন্যাসিকদের একটা



কথা অবশ্যই স্মরণে রাখতে হবে - “উপন্যাসিকদের অভিজ্ঞতা যেমন বড় কথা, তেমনি বড় কথা মানস প্রতিমাকে বাস্তব করে তোলা। বাস্তব মানে স্থান কালের মানানসই।” (‘এই শতকের বাংলা উপন্যাসের পটভূমি’- সঞ্জয় ভট্টাচার্য)। আঞ্চলিক পরিবেশ ও বিভিন্ন পেশার মানুষদের নিয়ে বিশ শতকের কথাসাহিত্য রচনা করতে বসে সব কথাসাহিত্যিকই যে ‘বাস্তব’কে ‘স্থান-কালে মানানসই’ করতে পেরেছেন, তা বলা যাবে না, সকলেই নিষ্ঠার সঙ্গে একটি আঞ্চলিক জীবন ও মানুষকে ধরতে সচেষ্ট হয়েছেন। বাস্তব জীবনের আকাশ, বাতাস বড় পঙ্খিল। তবু তাতেই বাস্তবতার সিঁড়ি রেখে পরিচ্ছন্ন আকাশে বা বাতাসে যাওয়ার উপায় উদ্ভাবন করতে হয় কথাসাহিত্যিককে। প্রসঙ্গত, এ ধারায় প্রতিভাবানরা হয়েছেন পথিকৃৎ। আর যে সব লেখক ‘অভিজ্ঞতায় খাটো’ ছিলেন, তাঁরা তাঁদের মত করেই শৈল্পিক বাস্তবতাকে রক্ষা করে গেছেন।

কথাসাহিত্যে পেশাভিত্তিক জীবন হল মানুষগুলির সুস্থ শ্বাস-প্রশ্বাস বা হৃদয় নিহিত চঞ্চল রক্তের মত। যে কোন মানুষ যেমন তার কর্মে - মর্মে - মর্মে একটি পূর্ণ ব্যক্তিত্বের পুরুষ হয়ে ওঠে, তেমন নিজস্ব অভিজ্ঞতা বা বংশানুক্রমিক রক্ত-সম্বন্ধের মানবিকতার সঙ্গে বিশ্ব মানব মনের সংযোগও স্থাপন করে। প্রসঙ্গত বিশ শতকের কথাসাহিত্যে এই মানুষেরাই এক বিশেষ পরিবেশের শক্তি ও সত্তার প্রতীক হয়ে ওঠে এবং তাদের মনস্তাত্ত্বিক ও ঘটনাগত ফ্রিয়া-প্রতিক্রিয়া সেই বিশিষ্ট ভিত্তি-ক্ষেত্রের স্বাভাবিক শস্যরূপে আত্মপ্রকাশ করে। আর স্থানিক সাহিত্য হয়েও রসাস্বাদনে তা দেশকালের সীমা অতিক্রম করে যায়।

বিশ শতকের সমাজে যদি ভাঙন এসে থাকে তাহলে ক্ষুদ্রতর ও বৃহত্তর সামাজিক সম্পর্কেও ভাঙন এসেছে। যুদ্ধ, বিয়াল্লিশের আন্দোলন, দুর্ভিক্ষ, স্বাধীনতা ও সাম্প্রদায়িক দাঙ্গা বিশ শতকে জনমানসে প্রবল আলোড়ন তোলে। সভ্যতা এগিয়ে চলে, মাটির রূপ বদলায়, মানুষই বদল করে। দ্রুত নগরায়ণ, কল-কারখানা স্থাপন প্রভৃতি কর্মকাণ্ড পেশার বৈচিত্র্যতাকে আরও গভীর করে। প্রসঙ্গত তারাক্ষর বন্দ্যোপাধ্যায়ের ‘হাঁসুলী বাঁকের উপকথা’য় সমাজ বদলের ইঙ্গিত পাই ‘পাগল’ চরিত্রের কথায় - “বাবার থানকে কেটে কুটে সমান করে মোটর গাড়ির আস্তানা করছে বনওয়ারী ভাই। কলির শেষ আমাদেরও শেষ।” উক্তিটির মধ্যে কৃষিনির্ভর ভারতবর্ষের এক প্রত্যন্ত কৃষকের চরম হতাশাই প্রতিষ্ঠিত হয়। সেই সঙ্গে নতুন পেশারও হৃদিস মেলে।

বিশ শতকের সমাজে সাধারণ ক্ষেত্রে মজুর, বেদ, বহরুপী, কবিরাজ, তান্ত্রিক, যাত্রা শিল্পী, শিক্ষক, মুচি, তাঁতী, মাঝি, জেলে, পশারিনি, দেহজীবা নারী, সার্কাস শিল্পী, নাবিক ও ডোমদের পেশাভিত্তিক জীবন ছিল বৈচিত্র্যপূর্ণ। পেশাকে কেন্দ্র করে এই সমস্ত মানুষের তাদের জীবনের স্বাদ ও গন্ধ পায়। প্রসঙ্গত পেশা যতই তুচ্ছ হোক না কেন, তার মধ্যে রয়েছে এদের জীবন সংগ্রামের ইতিহাস। এ শতকের সমাজ মানুষের বহিজীবন ও অন্তর্জীবনে অন্ধকারের অন্যতম ভরসা হল পেশা। তারাক্ষর রচিত ‘নাগিনী কন্যার কাহিনী’তে বেদেদের সংগ্রামী জীবনের চিত্র ফুটে উঠেছে। বেদেদের নেশা সাপ ধরা, সাপকে বশ করা। এই সাপকে নিয়েই বেদেরা শহরের ও গ্রামের বিভিন্ন জায়গায় খেলা দেখিয়ে মানুষের মনোরঞ্জন করে বিনিময়ে কিছু টাকা-পয়সাও রোজগার করে। এভাবে নেশা কখন যেন পেশায় পরিবর্তিত হয়ে যায়। যদিও প্রতিনিয়ত এ পেশায় রয়েছে মৃত্যুর হাতছানি। শিরবেদের কথায় - “মিত্যু বহরুপী বাবা। মানুষের ‘ছেষ্ট’ কামনার দব্য অন্নজল, তার মধ্যে দিয়েও সে আসে। বেদের মিত্যু সাপের মুখের মধ্য দিয়ে আসবে, তাতে আর আশ্চর্য কি?।”

যাযাবর বেদেরা গড়ে তোলে একটি অস্থায়ী বসতি। সাধারণ মানুষের বসতির কাছে তারা তাদের অস্থায়ী বাসস্থান গড়ে। এই বাসস্থানকে ঘিরেই তাদের সাধারণ চাওয়া-পাওয়া, প্রেম-ভালোবাসা, ঈর্ষা-ঘৃণা, বিশ্বাস-অবিশ্বাস কিংবা জৈবিক চাহিদার নিবৃত্তি হয়। ধীরে ধীরে মানবিক সত্তার বিকাশে তারা তাদের আদিম সত্তাকে বিসর্জন দেয়। আদিম জীবন, সাপের খোলস ছেড়ে তারা মুক্তির পথে পা বাড়ায়। তারাক্ষরের ‘নাগিনী কন্যার কাহিনী’ উপন্যাসে নাগঠাকুর ও গঙ্গারামের সংঘর্ষ এবং পিণ্ডলার মৃত্যু তারই সাক্ষ্য বহন করে।

সতীনাথ ভাদুড়ীর ‘টোড়ি চরিত মানস’ উপন্যাসে আমরা ভারতবর্ষের এক বিশেষ অঞ্চলের পেশাভিত্তিক



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জীবন ও মানুষের পরিচয় পাই। ধাঙডটলি ও তাংমাটলি - এই দুই সম্প্রদায়ের পুরনো বিশ্বাসের রেঘারেষির মধ্যে টোড়াই-এর বেড়ে ওঠা। তাংমারা মনে করে তারা ধাঙডদের থেকে বংশ মর্যাদায় বড়। সম্প্রদায়গত সংঘর্ষের এই বাতাবরণে টোড়াই-এর চরিত্র কথা বলতে গিয়ে ঔপন্যাসিক একেছেন দেহাতী জীবনের এক নিপুণ চিত্র। তাংমা ও ধাঙডদের জীবন অভাস, আচার-আচরণ, তুফতাক, ঝাড়-ফুক ইত্যাদির মাধ্যমে নানান কু-সংস্কারাচ্ছন্ন পেশাভিত্তিক জীবন ও মানুষের কথাই লেখক তাঁর এই উপন্যাসে উল্লেখ করেছেন। প্রসঙ্গত ফুলমনিয়া, রামিয়া, রাধিয়া, বৌকাবাওয়া প্রভৃতি চরিত্ররা এই উপন্যাসে পেশাভিত্তিক জীবন ও মানুষের একটি সামগ্রিক পরিচয় তুলে ধরেছে।

বিশ শতকের পেশাভিত্তিক জীবন ও মানুষকে নিয়ে ভারতবর্ষে স্বাধীনতা পূর্ব ও উত্তরপর্বে বিচিত্র ধরণের গল্প-উপন্যাস লেখা হয়েছে। প্রাচীন আয়ুর্বেদ চিকিৎসক ও পাশ্চাত্য শিক্ষায় শিক্ষিত ডাক্তারেরাও এ সময়ের কথাসাহিত্যে বিশেষ চরিত্র হয়ে উঠেছিল। প্রাচীন কবিরাজী চিকিৎসা কেবল রোগীদের বাঁচানোর আদর্শেই প্রযুক্ত হত না, এর সঙ্গে ছিল রোগীর সর্বাবয়ব জীবন-কল্যাণ। সেই সঙ্গে দৈহিক সম্পর্কের কিংবা মানসিক ও আধ্যাত্মিক কল্যাণেরও মুক্তি ঘটত কবিরাজী চিকিৎসার ফলে। তারাক্ষর রচিত ‘আরোগ্য নিকেতন’ উপন্যাসের প্রধান চরিত্রগুলি চিকিৎসার দ্বারা মানুষের মৃত্যুকে প্রতিরোধ করার জন্য সচেষ্ট। প্রসঙ্গত মানুষের জীবন ও মৃত্যু কিংবা মৃত্যুর অবধারিত রূপ ও আঘাত এক দার্শনিক ভাবনায় এ উপন্যাসে উপস্থিত। মানুষকে বাঁচানোর প্রয়াসের মধ্য থেকেই কবিরাজ জীবন দত্ত ও ডাক্তার প্রদ্যোত-এর পেশার দায়বদ্ধতা আরও স্পষ্ট হয়ে ওঠে।

অপরদিকে, তারাক্ষর বন্দ্যোপাধ্যায় ‘মঞ্জুরী অপেরা’য় দ্বিতীয় বিশ্বযুদ্ধ সম-সময়ের ও শেষ সময়ের কলকাতার পরিবেশে একেছেন প্রাচীন এবং আধুনিক যাত্রা সমাজের অন্তর্ভুক্ত বেশ কিছু মানুষের ছবি। যাত্রাদলের মানুষদের মধ্যে আছে প্রেম, ঈর্ষা, কলহ, মানস দ্বন্দ্ব, আদর্শবোধ ও নানান দুঃখ-যন্ত্রণা। তবু অভিনয়ই এদের জীবনের একমাত্র নেশা বা পেশা। যাত্রাগোষ্ঠীর মধ্যে যাদের পেশা বাঁধা, তাদের বয়স হলে বা কোন কারণে চাকরী গেলে কি অসহায় করণ অবস্থার সৃষ্টি হয়, তারাক্ষর তাঁর ‘মঞ্জুরী অপেরা’য় তার একটি পরিচয় দিয়েছেন গাইয়ে মানুষ যোগামাস্টার চরিত্রে। এ হেন যোগামাস্টারের বয়সজনিত কারণে যখন অভিনয় জীবন অনিশ্চিত হয়ে পড়ে তখন তার মানসিক যন্ত্রণাকেও লেখক যথেষ্ট শ্রদ্ধা করেন। যোগামাস্টার প্রবল ক্ষেত্রের সহিত জানায় - ‘সব শা বেইমান রে। বলে বুড়ো হয়েছি।... বুঝলি, চাকরিটা গেলে হাড়ির হাল হবে রে। বাড়িতে দুটো পরিবার, তিনটে বুড়ো মেয়ে আর একটা কড়ে রাঁড়ি।’ প্রসঙ্গত সময় বদলের সঙ্গে সঙ্গে যাত্রার গোষ্ঠী জীবনের স্বাভাবিক বদলায়। আসে থিয়েটার ও সিনেমা অভিনেত্রীরা। আবার যাত্রার অভিনেতা-অভিনেত্রীরাও সিনেমায় চলে যায়। সুতরাং লোকজীবনের অন্তর্ভুক্ত অগণন সাধারণ মানুষের চিত্ত বিনোদনের উপযোগী সু-অভিনের আদর্শ ও আবেগকে লক্ষ্য রেখে লেখক বিভিন্ন শ্রেণী ও সম্প্রদায় থেকে আগত যাত্রা-গোষ্ঠীর সভ্যদের যে দুঃখ-আনন্দ-বেদনা, অভাব-অভিযোগের কথা বলেছেন, তা যেমন আমাদের ‘মাটির সম্পদ’ এক লোকসংস্কৃতির সম্যক পরিচয় দেয়, তেমনি পেশাভিত্তিক জীবন ও মানুষেরও একটি সুস্পষ্ট পরিচয় দেয়।

বিশ শতকের শিক্ষিত মানুষের শিক্ষাদান নির্ভর পেশাকে কেন্দ্র করে কথাসাহিত্যের বিষয়ে নতুন স্বাদের সাক্ষ্য রেখে গেছে বুদ্ধদেব বসু রচিত ‘শোণপাংশু’ উপন্যাস। এক আদর্শবান শিক্ষকের বিস্ময় আর ঘৃণা নিয়ে এ উপন্যাসের কাহিনী ও চরিত্র চিত্রিত হয়েছে। যে কোন বিদ্যায়তনের থাকে নিষ্টি নিয়ম-শৃঙ্খলা কিংবা অহিনসাম্মত বিধিব্যবস্থা। কিন্তু প্রায় যন্ত্র হয়ে ওঠা শিক্ষকদের মধ্যে আছে পরস্পরের চরিত্রহননের প্রয়াস, স্বার্থবুদ্ধি, কুটিলতা, ঈর্ষা ও হীন মানসিকতা। এর ফলে শিক্ষায়তনের বাতাস আরও দূষিত হতে থাকে। সুতরাং শিক্ষক সম্পর্কে যে শ্রদ্ধা, যে জাতীয় দায়িত্বের কথা সবচেয়ে আগে মনে পড়ে - ‘শোণপাংশু’ উপন্যাসের চরিত্রগুলির আচার-আচরণ আমাদের স্বাভাবিকভাবেই বিস্মৃত করে। প্রসঙ্গত কথাসাহিত্যিক মনোজ বসু তাঁর ‘মানুষ গড়ার কারিগর’-এ শিক্ষকদের এই অধঃপতনের কারণ অনুসন্ধান সচেষ্ট ছিলেন। শিক্ষকদের আদর্শ যেমন কঠিন, পরোক্ষ পেশাগত অর্থনৈতিক ভিত্তিরূপও বেশ দুর্বল। দীক্ষিত শিক্ষক তাই ক্রমশ জীবন-যাপনের যাতাকলে নিরস শুষ্কপ্রাণ এক সাধারণ মানুষ। তাই তাঁরা স্কুলের যান্ত্রিকতার

সঙ্গে প্রাইভেট পড়ানোর যান্ত্রিক সক্রিয়তাকে সমাজ ও জীবনে মিশিয়ে নৈতিক আদর্শের অবক্ষয়কে আরো মজবুত করে ফেলেছিলেন। তাঁদের রসবোধ স্কুল। সেই সঙ্গে হীনতা, নীচতা, ঈর্ষাপরায়ণতা, পরশ্রীকাতরতা ও লোভ প্রভৃতির মধ্যে তাঁরা সহজেই ভুলে যান অধ্যয়নের প্রধান আদর্শকে। উপন্যাসে শিক্ষকের এই ভুলে যাওয়া আদর্শকে স্মরণ করিয়ে দেয় ‘গঙ্গাপদ’ চরিত্রটি। উত্তরসূরীকে তাঁর সহজ উপদেশ - ‘একটা কথা বলি বাবাজি - বড় পুণ্যকর্ম এটা। হাসিভরা মুখ আর পবিত্র মন নিয়ে ক্লাসে ঢুকবে।’ প্রসঙ্গত, ‘গঙ্গাপদ’ চরিত্রের বিপরীত চরিত্রও এই উপন্যাসে রয়েছে। শিক্ষানির্ভর পেশায় মানুষের চরম ব্যর্থতার সাক্ষ্য হিসাবে এ উপন্যাসে মহিমারঞ্জন সেনও উপস্থিত। যিনি পুত্র পুণ্যকে বিদ্যাসাগরের বর্ণপরিচয় দ্বিতীয় ভাগের ‘সদা সত্য কথা বলিবে’ ও ‘বাল্যকালে মন দিয়া লেখাপড়া শিখিবে’ ইত্যাদি অংশ পড়তে পড়তে নিজ পুত্রের উদ্দেশ্যে বলেন - ‘বানান করে করে পড়। মানে শিখে নে। কিন্তু বিশ্বাস করিসনে। সমস্ত মিছে, সমস্ত ধাঙ্গা।’ আমাদের মনে স্বাভাবিকভাবেই প্রশ্ন জাগে আর্থিক নিরাপত্তার অভাব, না কি অন্য কোন কারণ? যার ফলে মানুষ গড়ার কারিগরের মুখে এমন নির্মম নিরাসক্ত উপদেশ।

কোলবাজানো (ঢোল) পেশাকে অবলম্বন করে অচিন্ত্য কুমার সেনগুপ্ত ‘মুচিবায়ন’ গল্প রচনা করেন। যেখানে লেখক গল্পের নায়ক ভোলানাথের পেশাকে রক্তের সঙ্গে আফিমের নেশা জড়ানোর মত এক গভীর সভার যোগ ঘটিয়েছেন। নিজের পেশা সম্পর্কে ভোলানাথের মনে বড় অহংকার। যদিও সেখানে অর্থের ন্যূনতম নির্ভরতা নেই। সংসারে টাকার অভাব প্রসঙ্গে অত্যন্ত বিরক্ত হয়ে সে তার স্ত্রীর উদ্দেশ্যে বলে - ‘আরে, টাকাই যদি সব, তবে ঢোল ফেলে দিয়ে লাঙল তুলে নিলেই তো হয়। বলি, মানখাতিরটা কিছু কম দুনিয়ায়, শুধু টাকা হলেই কি মন ওঠে? পেট ভরলে কি বুক ভরে? দশটা গাঁয়ের লোক যবে সুখ্যাত করে তার দাম কি টাকায় ধরা যায়?’ এ প্রসঙ্গে মানিক বন্দ্যোপাধ্যায়-এর ‘শিল্পী’ গল্পের কথাও স্মরণ করা যায়। যেখানে মদন তাঁতি শিল্পীর আত্মমর্যদাকে সংসারে টাকার অভাবে ক্ষুণ্ণ হতে দেখেন। সুতরাং এ হল শিল্পীর অহংকার। যেখানে টাকা-পয়সা, ধন-দৌলত সব ন্তান হয়ে যায়।

মাছ ধরা যাদের নেশা ও পেশা সেই সব জেলে বা জলমজুরদের সংগ্রামের ইতিহাস নিয়ে বিশ শতকের বাংলা কথাসাহিত্য সমৃদ্ধ হয়েছে। অদ্বৈত মল্লবর্মণ-এর ‘তিতাস একটি নদীর নাম’ কিংবা সমরেশ বসু’র ‘গঙ্গা’ উপন্যাসে সাধারণ জেলেদের পেশাভিত্তিক জীবনের কথা উল্লেখিত হয়েছে। পূর্ববঙ্গের কুমিল্লা জেলার অন্তর্গত ‘তিতাস’ নদী তীরবর্তী মালো সম্প্রদায়ের জেলেদের জীবন-জীবিকা, শিক্ষা-সংস্কৃতি কিংবা আঞ্চলিক সংস্কারের একটি জীবন্ত চিত্র ওপন্যাসিক তুলে ধরেছেন তাঁর রচনায়। তিতাসের বুকে জেলেজীবনের উদ্দামতা, মাছ ধরার কৌশল ও আনন্দ, জেলে মহাজনদের তৎপরতা কিংবা মাঝিদের সঙ্গে কৃষকদের জীবনকেও লেখক সন্নিহিত করেছেন। অন্যদিকে সমরেশ বসু’র ‘গঙ্গা’ উপন্যাসে জেলেদের যে সক্রিয়তা, উদ্দামতা, জীবনবেগ কেবল পেশার সঙ্গে জড়িত না থেকে নেশায় রূপান্তরিত হয়েছে। মৎস্যজীবীদের মাছ ধরা একটি বিশেষ মরশুমে সীমাবদ্ধ থাকে। মরশুম চলে গেলে এই জেলেদের পেশায়ও বৈচিত্র্যতা আসে। তখন তারা চটকলের শ্রমিক কিংবা সাধারণ কৃষকের ভূমিকা পালন করে।

চুরি করা সমাজ স্বীকৃত পেশা নয়। তবু একে নির্ভর করেই সমাজে এক শ্রেণীর মানুষ তাদের জীবন অতিবাহিত করে। মনোজ বসু চোরদের এই জীবনকথা নিয়েই ‘নিশিকটুম্ব’ উপন্যাস রচনা করেছেন। প্রসঙ্গত, স্মাগলারদের নিয়েও সমরেশ বসু ‘বাঘিনী’ উপন্যাস রচনা করেছেন। উভয়ক্ষেত্রেই লেখকরা তাদের নিজস্ব সমাজ ও শ্রেণী সম্পর্কে সচেতন। এই সচেতনতা সমাজ অন্তর্গত পেটি-বুর্জোয়াদের নিয়ে। পল-এ ব্যারান যাদের বলেছেন ‘লুস্পেন বুর্জোয়া’ - তারাই এ ধরনের উপন্যাসের কেন্দ্রীয় চরিত্র। ১৯৪৭-এর পর দুটি পঞ্চবার্ষিকী পরিকল্পনাতেও দারিদ্র্য না ঘোচায় সমাজে এই শ্রেণীর উত্থানের অন্যতম কারণ।

হকার বা ফেরীওয়ালার জীবনসংগ্রাম বিশ শতকের কথাসাহিত্যের অন্যতম বিষয় হয়ে উঠেছে। সমরেশ বসু তাঁর ‘পশারিনী’ গল্পে ট্রেনে চানচুর, ভিক্স, মরটন, বায়রণের জল ইত্যাদি বিক্রেতা হকারদের মর্মস্বন্দ জীবনচিত্র এঁকেছেন।

ভারতবর্ষের স্বাধীনতাপূর্ব ও উত্তরকালে দেহজীবা নারীদের দুঃসহ যন্ত্রণার কথা নিয়ে বিশ শতকের কথাসাহিত্য



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মুখর হয়েছে। সমাজ অবহেলিত এই নারী সমাজকে বিভিন্ন লেখক বিভিন্ন দৃষ্টিকোণ থেকে বিশ্লেষণ করেছেন তাঁদের রচনায়। এই সমস্ত রচনার মধ্যে উল্লেখযোগ্য শচীন্দ্রনাথ বন্দ্যোপাধ্যায়'এর 'জনপদবধু', প্রেমেন্দ্র মিত্র'এর 'বিকৃত ক্ষুধার ফাঁদে', সুবোধ ঘোষ'এর 'বারবধু', বিমল কর'এর 'আঙুরলতা', 'অশোককানন', সন্দীপন চট্টোপাধ্যায়'এর 'বিজনের রক্তমাংস' প্রভৃতি। মোপাসাঁ, ফ্লবের্যার, জোনস, এ্যালবার্টো মোরাভিয়া প্রমুখ কথাসাহিত্যিকদের রচনায় পতিতারা যে নিখুঁত বাস্তবতা নিয়ে দেখা দেয়। বাংলা কথাসাহিত্যে এমনটি হয়না। এক্ষেত্রে দেশজ সমাজব্যবস্থা, জীবনযাপন পদ্ধতি সর্বোপরি শিক্ষা-সংস্কৃতি বাংলা দেশের পতিতা নারীদের জীবনযাত্রায় ভিন্নমাত্রা দান করে। এদের রয়েছে পরিবারের প্রতি মমতা, সংসারের প্রতি দায়িত্ব। যদিও সংসার তাদের ঘৃণা করে ছুঁড়ে ফেলেছে সমাজের আস্তা কুঁড়ে। কিন্তু সাদরে গ্রহণ করেছে তাদের রোজগারের অর্থ।

সার্কাস শিল্পীদের জীবন-জীবিকা নিয়ে লেখাগুলির মধ্যে অন্যতম নারায়ণ গঙ্গোপাধ্যায়'এর 'বিদূষক', বিমল কর'এর 'ত্রিপদী', মহাপ্রভা দেবী'র 'প্রেমতারা' প্রভৃতি। সার্কাস শিল্পী হলেও তারা সমাজের আর পাঁচজন সাধারণ মানুষের মতই রক্তমাংসে গড়া। তাই সাধারণ মানুষের যে ধরনের চাওয়া-পাওয়া, আনন্দ-বেদনা, নিজদের অনুভূতি প্রকাশ করে তারাও তেমনিভাবে তাদের অনুভূতি প্রকাশ করে।

বিশাল সমুদ্রের বুকে ভেসে বেড়ানো নাবিকদের জীবনকথার পরিচয় পাই অতীন বন্দ্যোপাধ্যায়'এর 'সমুদ্র মানুষ' উপন্যাসে। জাহাজের নাবিক মোবারক আলি-এর জীবনকথাই উপন্যাসের উপজীব্য বিষয়। উপন্যাসটিতে মূলতঃ সমুদ্রের সঙ্গে একাত্ম থেকে মোবারকের যাবতীয় তৎপরতা, দ্বন্দ্ব-সংগ্রামের বাসনায় মূর্ত হয়ে উঠেছে।

মানুষের জীবন-যাপনের প্রধান অবলম্বন পেশা। দীর্ঘ জীবনচর্যার মধ্যে পেশায় আশে ক্লান্তি, অবসাদ, গতানুগতিকতা ও বিরক্তি। জীবন-যাপনের অন্তর্নিহিত আদর্শের সঙ্গে পেশা যখন ওতপ্রোত হয়ে যায়, তখন পেশাই নেশার মত আকর্ষণ করে। সুতরাং পেশার মধ্যেই জীবন ও মানুষের আত্মিক মুক্তি ঘটে। এক রোমান্টিক আদর্শবাদিতা পেশার অর্থনৈতিক উদ্দেশ্য ও সীমাবদ্ধশক্তির মধ্যে মানুষকে বড় জীবিকার দিকে এগিয়ে নিতে যেতে সাহায্য করে। সেই সঙ্গে জীবনের আদর্শ ও পেশার দ্বন্দ্ব মানুষের চরম আত্মিক সংকটও রূপ পায়। এছাড়া পেশা দেশীয় সামাজিক-অর্থনৈতিক সমস্যাকে যেমন তুলে ধরে, তেমনি একই পেশার অন্তর্বর্তী মানুষের গোষ্ঠী-জীবনের ধারণা-ধারণকেও নানান বিশ্লেষণে বিশ্লেষিত করে। তাই পেশার সূত্রে বিভূতিভিত্তিক সামাজিক ও নৈতিক রুচি, সংস্কৃতির বৈচিত্র্যকে বিশ শতকে কথাসাহিত্যে অঙ্কিত করা যায় না।

তথ্যসূত্র :

১. বাংলা কথাসাহিত্য জিজ্ঞাসা - অরুণ কুমার মুখোপাধ্যায়
২. বাংলা কথাসাহিত্যের একাল - বীরেন্দ্র দত্ত



WEIGHT REDUCING INTERVENTIONS VERSUS BLOOD PARAMETERS

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Introduction

Obesity is the abnormal body weight i.e. more than twenty per cent of normal body weight for particular age, height and bone structure⁽¹⁾. There are other parameters also which identifies obesity such as Body Mass Index, percentage of body fat, skin fold thickness, waist circumference ,waist hip ratio etc. The Obese subjects were facing many health problems also so biochemical assessment of the subjects was also done. The blood glucose level, lipid profile and hemoglobin levels were tested. Health professionals are aware of rising trends of obesity among the young generation. Obesity in young adults increase the risk of Morbidity and Mortality

Obesity is evolving as a major nutritional problem in developing countries, affecting substantial number of young population resulting in increased burden of chronic disease⁽⁶⁾. Obesity is associated with increased risk of Metabolic Syndrome, Type 2 Diabetes Mellitus (T2DM), Hypertension, Dyslipidemia, Polycystic Ovarian Syndrome and Coronary Heart Disease(CHD)



Materials and methods

The purpose of this study was to see the association of dietary, physical activity pattern and other factors with obesity, as well as effects of obesity in young adults. Further, experiments were conducted to determine the worth of different methods namely – any cardio exercise (E1), intake of hypo caloric diet (E2), combination of Cardio exercise plus hypo caloric diet (E3) along with other methods adopted in weight loss by the young adults (18 - 25 years).

Locale of the study and selection of the subjects :

The study was conducted on young adults belonging to the cities of Kurukshetra and Delhi (NCR).

Five hundred obese subjects were selected for the study. All the subjects had BMI > 29.9 . Out of the surveyed young adults , 320 subjects were selected randomly from the regions of Kurukshetra and Delhi (NCR) both taken equally from either sex (n= 160 each). The 160 males comprised of Kurukshetra and Delhi (NCR) regions , 80 from each one. This division was also exercised for the females accordingly in the same manner. Further the subsampling of both of the subjects (males and females) into 20 each categorized as Experimental group and control group. The Experimental group consisted of E1, E2 , E3 with the number of subjects as twenty each. While the control group numbered twenty only. The written consent of all the subjects was taken before conducting the study.

Biochemical Analysis of the Blood

The biochemical analysis of fasting serum glucose, hemoglobin levels and lipid profile were done for a subsample of 40, constituted by 10 subjects from each study group, both before and at the end of the experimental period of 3 months using standard methods.



Collection of blood samples : Fasting blood samples (5ml) were obtained by the technician, by vein puncture from the antecubital vein in the morning, into a disposable centrifuge tube. The blood was allowed to clot and then centrifuged at 3000 rpm for 15 minutes to separate the serum. The serum was stored in acid washed mineral free glass vials and was frozen.

Analysis of blood samples: The serum was analyzed for glucose, triglycerides, total cholesterol and high density lipoprotein cholesterol by using standard methods. Low density lipoprotein cholesterol and very low density lipoprotein cholesterol were calculated from triglycerides by using the equation given by Friedewald et al. (1972)⁽³⁾.

Serum glucose: Serum glucose was analysed by BIOTRON BTR 820 Auto Blood Analyser based on GOD/POD method.⁽¹²⁾

Serum total cholesterol: Enzymatic method of Allian et al. (1974) was used to analyse serum total cholesterol with the help of BIOTRON BTR 820 auto blood analyzer

Serum high density lipoprotein cholesterol: Serum high density lipoprotein cholesterol (HDL-C) was measured by using BIOTRON, BTR 820 using Phosphotungstate method ⁽⁵⁾.

Serum low density lipoprotein cholesterol: Its value was calculated with the help of an equation given by Friedewald et al (1972)⁽³⁾.

$$\text{LDL cholesterol (mg/dl)} = \text{Total cholesterol} - \frac{\text{Triglyceride}}{5}$$

Serum very low density lipoprotein cholesterol : The value of serum very low density lipoprotein cholesterol (VLDL-C) was calculated according to Friedewald et al. (1972)⁽³⁾.



$$VLDL = \frac{\text{Triglyceride}}{5}$$

Serum triglycerides: Auto pack reagent kit by Enzymatic DHBS colourimetric method was used to estimate Serum triglycerides⁽²⁾.

Hemoglobin : The hemoglobin was determined by haematocrit method.

Statistical Analysis of the data

The collected data were decoded, tabulated and statistically analysed using standard techniques such as arithmetic mean, standard deviation, frequencies and correlation coefficient. Students t-test was used for testing significance of difference between two groups and one way ANOVA was used for testing the variation among all groups. The post-hoc analysis of the data was done using Duncan test, where the value of 'F' was significant. The statistical analysis was done using SPSS-Version 17.0 computer programme.

Results and Discussion

Blood Parametres of Male and Female subjects before and after the interventions.

Fasting Blood Glucose levels : According to table no. 1 and 2 , in the beginning of the study, the mean fasting glucose in the male subjects of the Kurukshetra and Delhi (NCR) of the experimental groups – E1 , E2 , E3 and control group was – 109.7 \pm 15.9 , 100.2 \pm 10.6 , 131.6 \pm 18.04 , 112 \pm 22.7, 98.9 \pm 6.90 , 120.7 \pm 28.3 , 109.6 \pm 20.2 , 112 \pm 22.7. After three months of weight reducing interventions viz. exercise, hypo caloric diet , exercise plus hypo caloric diet the mean values of fasting glucose reduced to – 84.8 \pm 11.4 , 83.4 \pm 5.94 , 79.2 \pm 38.1 , 93.5 \pm 5.52, 90.5 \pm 2.59 , 83.5 \pm 5.52 , 83.6 \pm 5.62 , 90.8 \pm 6.79. The decrease in fasting sugar



levels was significant ($P \leq 0.01$) in groups E1, E2, E3 in males of Kurukshetra and while in the males of Delhi (NCR) it was non significant. While in the control group the reduction in fasting sugar levels was non significant.

Lipid Profile:

Total Cholesterol: The recommended levels for total cholesterol are < 200 mg/dl. As shown in table no. 1 and 2 the decrease in total cholesterol levels was significant ($P \leq 0.01$) in groups E2, E3 in males of Kurukshetra and was non significant in males of Delhi (NCR). While in the control group the reduction in total cholesterol levels was non significant. The variation in total cholesterol levels among the groups before and after the study in females of Delhi (NCR) and Kurukshetra was highly significant ($P \leq 0.01$). Significant difference existed between the control and experimental groups – E1 ($P \leq 0.01$) in females of Delhi (NCR) and was non significant in other groups. The reduction in total cholesterol levels was maximum in E2, E3 groups after the intervention. Lobstein (2008) supported the fact that hypo caloric diet and exercise resulted in reduction of total cholesterol levels.

High Density Lipoproteins (HDL -C): The average range of HDL-C was < 50 mg/dl (WHO, 2008). In the beginning of the study, HDL -C in the male subjects of the Kurukshetra and Delhi of the experimental groups – E1, E2, E3 was 61.1 ± 2.07 , 51.1 ± 2.07 , 52.4 ± 5.27 , 51.4 ± 14.1 , 57 ± 4.94 , 60.2 ± 5.37 , 43.7 ± 6.25 , 45.3 ± 5.72 . After three months of weight reducing interventions viz. exercise, hypo caloric diet, exercise plus hypocaloric diet the mean values of HDL -C reduced to 61.4 ± 5.27 , 46 ± 6.32 , 43.3 ± 2.31 , 34 ± 3.88 , 51.4 ± 7.91 , 53.7 ± 6.25 , 50.7 ± 7.4 , 49 ± 7.37 . The decrease in HDL-C levels was significant ($P \leq 0.01$) in groups E2, E3 in males of Kurukshetra and while in the males of Delhi



(NCR) it was non significant. While in the control group the reduction in HDL-C was non significant. The variation in HDL-C levels among the groups was non significant before and after the study but was significant ($P \leq 0.01$) after intervention in males of Kurukshetra. The HDL -C is said to be good cholesterol and is healthy if levels are increased in the body. Therefore in the present study the exercise and hypocaloric diet increased and maintained the levels of HDL cholesterol in the body.

Low Density Lipoproteins (LDL-C) : The normal levels of LDL -C were $< 120 \text{ mg/dl}^{(10)}$. The decrease in LDL-C was significant ($P \leq 0.01$) in groups E2 in males of Kurukshetra and while in the males of Delhi (NCR) it was non significant. In case of the control group the reduction in LDL-C was non significant. The variation in LDL-C among the groups was non significant before and after the study. Significant difference existed between the control and experimental groups – E2 ($P \leq 0.01$) and E1, E2 ($P \leq 0.01$) in males of Kurukshetra and Delhi respectively. The reduction in cholesterol levels was maximum in the females of Kurukshetra in E3 (exercise plus hypo caloric diet) group. The decrease in LDL cholesterol level was significant ($P \leq 0.01$) in groups E1, E2 in both females of Kurukshetra and Delhi (NCR). While in the control group the reduction in total cholesterol level was non significant. The variation in LDL cholesterol levels among the groups before and after the study in females of Delhi (NCR) and Kurukshetra was highly significant ($P \leq 0.01$). Significant difference existed between the control and experimental groups – E1 ($P \leq 0.01$) in both females of Delhi (NCR) and Kurukshetra. The reduction in LDL cholesterol levels was maximum in E2, E3 groups after the intervention.

Very Low Density Lipoproteins (VLDL -C) : The recommended levels for VLDL -C are $< 30 \text{ mg/dl}^{(10)}$. The decrease in VLDL -C levels was significant ($P \leq 0.01$) in groups E2, E3 in males of Kurukshetra and was



non significant in males of Delhi (NCR). While in the control group the reduction in VLDL-C levels was non significant. The variation in total cholesterol levels among the groups was non significant before the study in males of Delhi (NCR) but was highly significant ($P \leq 0.01$) after intervention. Significant difference existed between the control and experimental groups – E2, E3 and E1 ($P \leq 0.01$) in males of Kurukshetra and Delhi (NCR) respectively. The reduction in VLDL-C levels was maximum in the males of Kurukshetra in E3 (exercise plus hypo caloric diet) group . The decrease in VLDL cholesterol level was significant ($P \leq 0.01$) in groups E2, E3 and E1 in females of Kurukshetra and Delhi (NCR). While in the control group the reduction in total cholesterol level was non significant. The variation in total cholesterol levels among the groups before and after the study in females of Delhi (NCR) and Kurukshetra was non significant. Significant difference existed between the control and experimental groups – E2 , E3 ($P \leq 0.01$) in females of Kurukshetra and in females of Delhi the results were non significant . The reduction in VLDL cholesterol levels was found in exercise and hypo caloric diet group.

Total Serum Triglycerides : : The desired levels for total serum triglycerides are $< 150 \text{ mg/dl}^{(10)}$. The decrease in total serum triglyceride levels was significant ($P \leq 0.01$) in groups E3 and E1 ,E2 in males of Kurukshetra and Delhi (NCR). Although in the control group the reduction in total serum triglycerides levels was non significant. The variation in total serum triglycerides levels among the groups was non significant before and after the study in males of Kurukshetra and Delhi (NCR). Significant difference existed between the control and experimental groups – E3 and E1, E2 ($P \leq 0.01$) in males of Kurukshetra and Delhi (NCR) respectively. The reduction in total serum triglycerides levels was maximum in the males of Kurukshetra in E3 (exercise plus hypocaloric diet) group. While in the



control group the reduction in serum triglyceride level was non significant. The variation in serum triglyceride level among the groups before and after the study in females of Delhi (NCR) and Kurukshetra was non significant . The reduction of weight among the subjects resulted in reduction of triglycerides. Ogden (2007) reported that calorie reduction or burning of calories through exercise resulted in decrease of serum triglyceride level and increase in HDL cholesterol levels.

Hemoglobin levels: There was negligible effect of weight reducing interventions on hemoglobin level of the obese male and female subjects. The desired levels for Hemoglobin are 13.8 – 17.2 mg/dl in males⁽¹⁰⁾. The decrease in Hemoglobin levels was non significant in groups E1, E2, E3 and control group in males and females of Kurukshetra and Delhi (NCR). The variation in Hemoglobin levels among the groups was non significant before and after the study in males and females of Kurukshetra and Delhi (NCR).

Summary

The present study was conducted to discover the cause of obesity and to find out the remedial strategies to fight this epidemic. The study included to judge the effect of excess weight on the nutritional status of the young adults as well as to assess the efficacy of three common weight reducing interventions i.e E1 (Exercise) ,E2 (Hypo caloric diet) ,E3 (Exercise plus Hypo caloric diet) in the subsamples of the above selected subjects. The present study was carried on young male and female obese adults belonging to regions of Kurukshetra and Delhi. This study resulted in weight loss of subjects with the hypocaloric diets which are necessary to make obese subjects calorie starved. The young generation is attracted to junk , fast or bakery food groups. The causes were modernization, better economic status and change in their environment. Further the youngsters



were working in night shifts and their alcohol consumption was increasing day by day. The nutrition education and dietary counseling was provided and positive reduction in weight was achieved.

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Table No.1: Mean Blood parameters of the young male human adults before(B) and after (A) weight reducing interventions

Blood Parameters	Kurukshetra						Delhi			
	Experimental group(E)			F	Control Group (C)		Experimental Group(E)			F
	Exercise (E1)	Hypocaloric diet (E2)	Exercise & Hypocaloric diet (E3)				Exercise (E1)	Hypocaloric diet (E2)	Exercise & Hypocaloric diet (E3)	
Fasting Glucose	109.7±15.9	100.2±10.6	131.1±18.0	18.2**	112±22.7		98.9±6.90	120.7±28.3	109.6±20.2	NS
t value	84.8±11.4	83.4±5.94	79.2±38.1	NS	83.5±5.52		90.5±2.59	83.5±5.52	83.6±5.62	NS
E vs C(B)	4.017*	4.354**	3.890*	NS	NS		NS	NS	NS	NS
E vs C(A)	4.027**	NS	2.123**	NS	NS		NS	NS	NS	NS
Total CHO	239.2±33.2	256.8±26.0	249.3±10.1	NS	235.3±10.3		297.1±22.1	259.1±32.8	255.4±15.2	NS
t value	221.5±4.60	7	6	12.79**	204.1±22		189±4060	197.9±4.7	218.9±9.5	NS
E vs C(B)	NS	193.8±10.3	198.8±22	NS	NS		NS	NS	NS	NS
E vs C(A)	NS	5.16**	4.29**	NS	NS		NS	NS	NS	NS
HDL-C	61.1±2.07	51.1±5.27	52.4±5.27	NS	51.4±14.1		57±4.94	60.2±5.37	43.7±6.25	NS
t value	61.4±5.27	46±6.32	43.3±2.31	28.5**	34±3.88		51.4±7.91	53.7±6.25	50.7±7.4	NS
E vs C(B)	NS	7.17**	9.339**	NS	NS		NS	NS	NS	NS
E vs C(A)	NS	4.058**	5.212**	NS	NS		NS	NS	NS	NS

** Significance at 1% level

* Significance at 5% level

B – Intake before intervention continued...

A - Intake after intervention

(B)/(A) – Difference between control and each experimental group on basis of Duncan Post HOC Test.



Blood parameters											
Blood Parameters	Kurukshetra					Delhi					
	Exercise (E1)	Experimental group (E) Hypocaloric diet (E2)	Exercise & Hypocaloric diet (E3)	Control Group (C)	F	Exercise (E1)	Hypocaloric diet (E2)	Exercise & Hypocaloric diet (E3)	Control Group (C)	F	Normal Range (mg/dl)
LDL-C B (mg/dl) A t value E vs C(B) E vs C(A)	126.9±15.7 120.6±5.01 NS NS NS	159±19.6 118±12.28 5.58** NS 2.981**	139.3±25.8 122.6±6.55 NS NS NS	143.1± 16.3 134.2±17.9 NS	NS NS NS NS NS	154.6±29.9 105.8±9.9 4.89** NS 3.191**	146.9±25.8 108±9.3 4.471** NS 1.341**	163.6±20.9 102.5±7.21 8.734** NS NS	137.1±17.8 133.1±19.9 NS NS NS	NS NS NS NS NS	<130
VLDL-C B (mg/dl) A t value E vs C(B) E vs C(A)	52±6.26 39.5±3.96 NS NS NS	46.74±4.71 29.8±2.61 9.29** NS 5.023**	57.6±4.80 32.7±7.44 4.71** NS 6.129**	40.8±9.92 35.9±1.26 NS	9.120** 7.854** NS NS NS	59.4±6.30 31.8±2.61 9.683** NS 1.255**	52±12.9 36.2±1.56 NS NS NS	48.1±12.4 38.8±1.35 NS NS NS	43.8±8.16 35.1±1.79 NS NS NS	16.025** NS NS NS NS	<30
Total B Tri.(mg/dl) A t value E vs C(B) E vs C(A)	260±53.3 197.6±14.4 NS NS NS	233.7±56.4 149±23.3 NS NS NS	328.8±156.1 163.7±11.6 6.85** NS 2.002**	204.6±7.3 179.5±36.8 NS	23.1** NS NS NS NS	297.3±25.8 159±55.4 7.146** NS 8.293**	260±41.8 181±12.8 5.70** NS 9.023**	240.7±59.2 194±12.6 NS NS NS	219.2±56.5 177.1±4.06 NS NS NS	NS NS NS NS NS	<150
Haemoglo. B (mg/dl) A t-value E vs C(B) E vs C(A)	13.5±3.3 13.8±2.8 NS NS NS	14±3.8 14.1±3.9 NS NS NS	13.8±4.1 13±3.7 NS NS NS	13.1±2.2 13±2.1 NS	NS NS NS NS NS	13.5±2.8 13.8±3.1 NS NS NS	13.4±1.8 13.9±2.8 NS NS NS	14.1±2.6 14±2.8 NS NS NS	13.2±3.5 13±3.6 NS NS NS	NS NS NS NS NS	13.8 - 17.2

B - Intake before intervention
A - Intake after intervention
(B)/(A) - Difference between control and each experimental group on basis of Duncan Post hoc test.
** Significance at 1% level
* Significance at 5% level



Table No.2: Mean blood parameters of the young female human adults before (B) and after (A) weight reducing interventions

Blood Parameters	Kurukshetra						Delhi					
	Experimental group (E)			Control Group (C)			Experimental Group(E)			Control Group (C)		
	Exercise (E1)	Hypocaloric diet (E2)	Exercise & Hypocaloric diet (E3)	Exercise & Hypocaloric diet (E3)	Control Group (C)	F	Exercise (E1)	Hypocaloric diet (E2)	Exercise & Hypocaloric diet (E3)	Control Group (C)	F	Normal Range (mg/dl)
Fasting B	103±11.59	119.4±12.7	110.7±13.1	94.1±27.8	7.293**	7.293**	97.5±9.40	85.4±10.1	132±15.4	182±15.4	NS	
Glu(mg/dl)	88.1±4.43	85.4±4.19	88.4±4.50	84.1±36.6	NS	NS	87±3.55	77.4±4.24	84.1±3.66	112±6.32	47.2**	60-110
A	NS	8.012**	5.06**	NS	NS	NS	NS	NS	9.515**	NS		
t value	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
E vs C(B)	NS	2.859**	1.213**	NS	NS	NS	NS	NS	1.201**	NS		
E vs C(A)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
Total B	253±21.3	244±17.1	229.2±19.9	247.5±18.3	8.34**	8.34**	258.3±2.90	240.8±14.3	224±24.4	247.2±7.70	7.45**	
CHO(mg/dl)	193.7±11	183.7±12.4	216.3±5.56	236±12.5	198.4**	198.4**	202.6±6.32	215.2±10.5	211.6±5.56	224.4±6.60	21.5**	<200
A	NS	NS	NS	NS	NS	NS	35.2**	19.2**	NS	NS		
t value	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
E vs C	NS	NS	NS	NS	NS	NS	2.018**	NS	NS	NS		
(B)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
E vs C. (A)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
HDL-C B	60.4±4.71	47.5±5.27	30.8±3.45	53.1±10.9	34.9**	34.9**	55.1±4.72	45.3±9.04	45.8±6.48	50.2±9.2	78.8**	<50
(mg/dl) A	55.6±0.51	44.2±2.25	55.6±0.51	48.4±3.91	NS	NS	45.4±2.22	47.9±5.70	44±2.26	47.1±8.98	NS	
t value	NS	NS	22.4**	NS	NS	NS	5.85**	NS	NS	NS		
E vs C (B)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
E vs C(A)	NS	NS	5.018**	NS	NS	NS	4.234**	NS	NS	NS		

** Significance at 1% level

B - Intake before intervention

continued....

A - Intake after intervention

(B)/(A) - Difference between control and each experimental group on basis of Duncan Post hoc Test.



Blood parameters									
Blood Parameters	Kurukshetra					Delhi			
	Exercise (E1)	Hypocaloric diet (E2)	Exercise & Hypocaloric diet (E3)	Control Group (C)	F	Exercise (E1)	Hypocaloric diet (E2)	Exercise & Hypocaloric diet (E3)	Control Group (C)
LIDL-C B (mg/dl)	151±17.91	148±37.3	145±15.09	152±12.0	22.03**	160.1±13.2	142.9±10.3	137.5±25.08	156±16.6
A (mg/dl)	110.3±11.38	113±9.17	135±20.1	148±10.09	35.3**	130±10.2	129±24.2	138±26.7	138.3±10.9
t value	6.063**	5.319**	NS	NS		5.68**	5.26**	NS	
E vs C (B)	NS	NS	NS	NS		NS	NS	NS	
E vs C (A)	4.002**					3.321**	NS	NS	
VLDL-C B (mg/dl)	41.6±10.4	49.3±6.27	53.4±10.7	42.4±13.03	NS	45.2±11.82	52.4±10.21	40.8±10.6	41±7.51
A (mg/dl)	27.8±1.50	26.5±2.36	25.7±1.17	39.6±6.02	NS	27.2±4.20	38.3±9.95	29.6±10.5	39±6.34
t value	NS	10.09**	7.45**	NS		5.64**	NS	NS	NS
E vs C (B)	NS	NS	NS	NS		NS	NS	NS	
E vs C (A)	NS	6.895**	4.989**			NS	NS	NS	
S.Trigly B (mg/dl)	208.46.3	246.9±24.2	267.4±19.9	212±20.1	NS	216±45.7	262±21.6	204±14.9	205±75.1
A (mg/dl)	139±9.36	132.69.35	128.8±11.4	198±79.29	NS	136±10.1	191.9±62.9	148±11.30	195±72.1
t value	NS	13.9**	19.06**	NS		12.13**	4.78**	NS	NS
E vs C (B)	NS	NS	NS	NS		NS	NS	NS	
E vs C (A)	NS	1.498**	2.502**			3.004*	NS	NS	
Haemoglo. B (mg/dl)	10.5±3.3	11±3.8	10.8±4.1	10.1±2.2	NS	11.5±2.8	11.4±1.8	10.1±2.6	11.2±3.5
A (mg/dl)	10.8±2.8	11.1±3.9	10±3.7	10±2.1	NS	11.8±3.1	11.9±2.8	10±2.8	11±3.6
t value	NS	NS	NS	NS		NS	NS	NS	NS
E vs C (B)	NS	NS	NS	NS		NS	NS	NS	
E vs C (A)	NS	NS	NS			NS	NS	NS	

** Significance at 1% level

* Significance at 5% level

A - Intake before intervention
B - Intake after intervention
(B)/(A) - Difference between control and each experimental group on basis of Duncan Post hoc Test.



ATTITUDE OF STUDENTS TOWARDS LEARNING ENGLISH AND ITS IMPACT ON THEIR ACADEMIC ACHIEVEMENT AT SECONDARY LEVEL

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Introduction:

In today's global world the importance of English cannot be denied and ignored since English is the most common language spoken everywhere. English is the language of the Constitution, the Supreme Court, the High Courts and official departments. The high demand of English – both as a language and as a medium has compelled most governments at the state (provincial) level to introduce English as a language from class I. The recent curricular revision at the national level culminated in the framework for **National Curriculum Framework – 2005 (NCF)** records the half a century development very objectively when it says, *"The level of introduction of English has now become a matter of political response to people's aspirations rendering almost irrelevant an academic debate on the merits of very early introduction"* (Position Paper Teaching of English 2005 - p1). The generation of today is highly thoughtful of their future lives, their aspirations, their goals and what they actually want to do after passing school. But, it is not wrong to say that even to see a dream of big life, a minimal skill of English is needed.

In every walk of life, in reading book, watching a program, browsing internet or in communication we need to know and use English. In today's world, in this country or the other something new is being invented every moment, about which we and kids of this generation get to know via books,



internet, TV ads etc. But what if they don't understand what they read? What if they don't understand what they watch or hear?

The researcher has realized that kids of Purulia district are facing problems regarding this. There may be many reasons behind this. But to the researcher the most related problem is these kids' interest and attitude towards the subject, the English language. We know that attitude plays a great role on achieving anything and education especially is very much dependent on it. Hence, it's very relevant and important to measure and analyze the attitude of today's students towards learning English.

Review of Related Literature:

Dr. (Mrs.) Swaleha S. Pathan & Dr. (Mrs.) Shirin Shiakh have conducted a study on "Students attitude in English and vernacular medium in secondary school". The study was limited to IX STD students from secondary high schools. One of the most important objectives of their study was to compare the students' attitude towards self, peers and teachers from English Medium schools with students from Vernacular Medium School and it was found that there is no significant difference in students' Attitude towards Teachers from English and Vernacular Medium of Instruction in schools.

Yu, Yang. (2010) The Ohio State University, has conducted a study on "Attitude of learners towards English: A case of Chinese college students". A major objective of this study was to investigate attitudes of Chinese college students toward the English language and their awareness of the diversity of English and it was found that Chinese college students have positive attitudes toward the English language and are aware of different varieties of English and the majority of them consider nativization of English in China as a manifestation of Chinese culture.



Need or Significance of the Study:

This study holds a lot of significance to the researcher. As there were not many works on this area of interest, the researchers initiated this study to ensure the attitude of the secondary level school students towards learning English. In Purulia district, this area is being studied for the first time as per the researcher's knowledge.

Another soulful reason is that the researchers wanted to contribute to the reconstruction of the curriculum of secondary level. This study will give a brief idea of the attitude the secondary level students bear towards learning English which can be helpful for the reconstruction. It is said that the curriculum should be as per students' interest; this study can reveal to a certain level what interests the students about the English language and or English subject.

The questionnaire constructed for this study is tested and proved to be reliable and valid. Hence, this tool may help fellow researchers for further studies on this area. Also, the standardized tool which has been created and used for the purpose of this study may also inspire other researchers of other states and regions to administer a similar study in their respective area.

This study will help the teachers as well. The teachers, once aware of the students' attitude, can improve or modify their ways of teaching the English subject. This will, on the other hand, will help the students' too, as they might get interested on the subject once taught by other methods. The policy makers of education system will also be helped through this study. Therefore, the significance of the present study is very high in order to take necessary actions to modify the curricula, teaching strategies and methods of the subject English at secondary level.



Objectives of the Study:

1. To study the attitude of students towards learning English at secondary level.
2. To find out the differences between boys and girls students regarding their attitude towards learning English.
3. To find out the differences between urban and rural students regarding their attitude towards learning English.
4. To find out the relationship between the attitude of students towards learning English and their academic achievement in the subject.

Statement of the Problem:

This study attempts to measure the attitude of students towards learning English and tries to find out the relationship between their attitude towards learning English and its impact on their academic achievement. Therefore, the researchers selected the following as their research title: ***“Attitude of Students towards Learning English and Its Impact on Their Academic Achievement at Secondary Level”.***

Hypotheses of the Study:

H₀₁: There is no high level of attitude of students towards learning English at secondary level.

H₀₂: There is no significant difference between Boys' and Girls' attitude towards Learning English.

H₀₃: There is no significant difference between Urban and Rural Students' attitude towards learning English.

H₀₄: There is no significant difference between Rural Boys' and Rural Girls' attitude towards Learning English.



HO₅: There is no significant difference between Urban boys' and Urban Girls' attitude towards learning English.

HO₆: There is no significant difference between Rural and Urban Boys' attitude towards Learning English.

HO₇: There is no significant difference between Rural and Urban Girls' attitude towards learning English.

HO₈: There is no significant relationship between Students' attitude towards learning English and their academic achievement on the same subject.

Delimitation of the Study:

This investigation was delimited to the secondary level schools of Purulia district.

Sample:

The researchers have selected only 200 students (Urban and Rural) of standard IX from the secondary schools (Urban and Rural) of Purulia district.

Area:

The researchers delimited the area and took only 4 schools of the mentioned district due to lack of time period. Three Urban schools and one Rural school were taken.

Statistical Techniques:

The researchers have used Mean, S.D. 't'-Test and Histogram to analyze and represent the collected data in her present study.

Operational Definition of the Terms:

Attitude: In this study, the term 'Attitude' has been used as a state of mind or opinion of the students on how they feel about learning English.



Students: In this study Students mean the pupils who are currently studying in secondary level schools (Standard IX to be precise) of Purulia district.

Learning: In this study the term 'learning' is specified. Here learning means gathering knowledge about English subject in School.

Academic Achievement: Here the term 'Academic Achievement' means the students' scores or marks in the previous English exam at their Respective school.

Methodology of the Study:

Method of the Study:

The present study is Descriptive type in nature. Descriptive type survey method has been used in this study. Therefore, naturally different tools, techniques, strategies and methods of Descriptive survey type research have been used to collect, analyze and interpret the data.

Population and Sample:

The target students' population in this study was all the students who are studying in Standard IX in present academic year i.e. 2013-2014. Although the researchers have drawn a sample of 200 students, including both male and female. Out of 200 sample 49.5% of the sample were male and 50.5% were female.

Sampling Technique:

Simple Random Sampling method was opted to draw the sample in the present study.

Tool used in the Study:

To measure the attitudes of secondary level school students towards learning English, a close ended questionnaire had been prepared. It was



consisted of 40 items or statements in 4 different dimensions. The dimensions were prepared based on the psychological aspects of the students. Every dimension has some positive statements and some negative statements.

For each statement 5 options or choices were provided to choose from. The choices were: 'SA' – Strongly Agree; 'A' - Agree; 'U' – Undecided; 'D' – Disagree; 'SD' – Strongly Disagree. Scoring Method for positive Statements was direct and for negative Statements it was reverse.

Results and Discussion:

H_0 : There is no high level of attitude of students towards learning English at secondary level.

Table-1
Shows the Frequency Distribution and Percentage of Attitude Scores of Total Students

Class Interval of Attitude Scores	Frequencies	% of the Students
111 – 118	19	9.5
119 – 126	12	6
127 – 134	30	15
135 – 142	25	12.5
143 – 150	39	19.5
151 – 158	25	12.5
159 – 166	16	8
167 – 174	14	7
175 – 182	12	6
183 – 190	7	3.5
191 – 198	1	0.5
Total	200	100%

Figure-1
Graphical Representation of Frequency Distribution and Percentage of Attitude Scores of Total Students

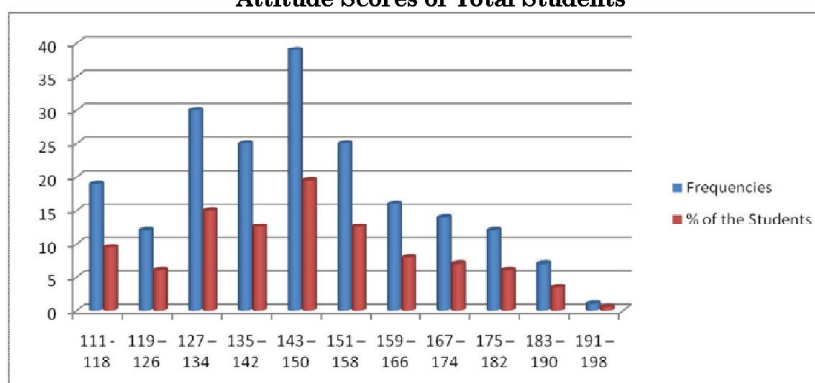




Figure-1 shows that 9.5% students responded between the scores 111-118. Similarly 6% students responded between the scores 119-126, 15% students responded between 127-134, 12.5% responded between 135-142, 19.5% responded between 143-150, 12.5% responded between 151-158, 8% responded between 159-166, 7% responded between 167-174, 6% responded between 175-182, 3.5% responded between 183-190, 0.5% responded between the scores 191-198. It shows that most of the students do not have high favourable attitude towards learning English.

H₀₂: There is no significant difference between Boys' and Girls' attitude towards Learning English.

Table-2
Attitude of Boys and Girls towards Learning English

Groups	N	Mean	S.D	Mean Difference	SE _D	Df	t-value	Level of Significance
Boys	99	143.97	20.21	3.76	2.72	198	1.38	Not Significant
Girls	101	147.73	18.19					

From Table 2, it is observed that the calculated 't' value (1.38) is less than the table value (1.98 at 0.05 level and 2.61 at 0.01 level of significance). So, it is not significant which indicates that the boys and girls have same level of attitude towards learning English.

H₀₃: There is no significant difference between Urban and Rural Students' attitude towards learning English.

Table-3
Attitude of Rural and Urban Students towards Learning English

Groups	N	Mean	S.D	Mean Difference	SE _D	Df	t-value	Level of Significance
Rural Students	70	139.01	14.21	10.55	2.76	198	3.82	Significant
Urban Students	130	149.56	20.62					



From Table 3, it is observed that the calculated 't' value (3.82) is greater than table value (1.98 at 0.05 level and 2.61 at 0.01 level of significance). So, it is significant which indicates that the rural students and urban students have different level of attitude towards learning English.

H₀₄: There is no significant difference between Rural Boys' and Rural Girls' attitude towards Learning English.

Table-4
Attitude of Rural Boys and Rural Girls towards Learning English

Groups	N	Mean	S.D	Mean Difference	SE _D	Df	t-value	Level of Significance
Rural Boys	30	137.47	14.72	2.71	3.44	68	0.79	Not Significant
Rural Girls	40	140.18	13.90					

From Table 4, it is observed that the calculated 't' value (0.79) is less than the table (2.00 at 0.05 level and 2.66 at 0.01 level of significance). So, it is not significant which indicates that rural boys and rural girls have same level of attitude towards learning English.

H₀₅: There is no significant difference between Urban boys' and Urban Girls' attitude towards learning English.

Table-5
Attitude of Urban Boys and Urban Girls towards Learning English

Groups	N	Mean	S.D	Mean Difference	SE _D	Df	t-value	Level of Significance
Urban Boys	69	146.80	21.67	5.89	3.60	128	1.64	Not Significant
Urban Girls	61	152.69	19.05					

From Table 5, it is observed that the calculated 't' value (1.64) is less than the table value (1.98 at 0.05 level and 2.62 at 0.01 level of significance). So, it is not significant which indicates that the urban boys and urban girls have same level of attitude towards learning English.

H₀₆: There is no significant difference between Rural and Urban Boys' attitude towards Learning English.



Table-6
Attitude of Rural and Urban Boys towards learning English

Groups	N	Mean	S.D	Mean Difference	SE _D	Df	t-value	Level of Significance
Rural Boys	30	137.47	14.72	9.33	4.34	97	2.15	Significant
Urban Boys	69	146.80	21.67					

From Table 6, it is observed that the calculated 't' value (2.15) is greater than the table value (1.99 at 0.05 level of significance). Hence, it is significant at the mentioned level which indicates that the rural boys and urban boys have different level of attitude towards learning English.

H₀₇: There is no significant difference between Rural and Urban Girls' attitude towards learning English.

Table-7
Attitude of Rural and Urban Girls towards learning English

Groups	N	Mean	S.D	Mean Difference	SE _D	Df	t-value	Level of Significance
Rural Girls	40	140.18	13.90	12.51	3.50	99	3.58	Significant
Urban Girls	61	152.69	19.05					

From Table 7, it is observed that the calculated 't' value (3.58) is greater than the table value at both 0.01 and 0.05 level (1.99 at 0.05 level and 2.63 at 0.01 level of significance). Hence, it is significant which indicates that the rural girls and urban girls have different level of attitude towards learning English.

H₀₈: There is no significant relationship between Students' attitude towards learning English and their academic achievement on the same subject.

Table-8
Academic Achievement of High and Low Attitude group of Students

Groups	N	Mean	S.D	Mean Difference	SE _D	Df	t-value	Level of Significance
High Attitude Group	54	69.61	12.25	24.52	2.65	106	9.25	Significant
Low Attitude Group	54	45.09	15.10					

From Table 7, it is observed that the calculated 't' value (9.25) is greater than the table value at both 0.05 and 0.01 level (1.98 at 0.05 level and 2.63 at 0.01 level of significance). So, it is significant which indicates that there is significant relationship between students' attitude towards learning English and their academic achievement on the same subject.



Major Findings of the Study:

The following findings came out through this present study:

- i. The students, who are studying in secondary schools (IX Grade Students) of Purulia District, do not possess high favourable attitude towards learning English.
- ii. The boys and girls, who are currently studying in secondary schools (both rural and urban) of Purulia district, possess same level of attitude towards learning English. But yet it was found that girls have comparatively more favourable attitude towards learning English than the boys on the basis of their mean scores.
- iii. The Urban and Rural students (both boys and girls), who are currently studying in secondary schools of Purulia district, possess different level of attitude towards learning English. In this case, it was found that the Urban students have comparatively more favourable attitude towards learning English than the Rural Students on the basis of their mean scores.
- iv. The attitude of Rural boys and girls who are studying in secondary schools (both urban and Rural) of Purulia district do not differ from each other regarding their attitude towards learning English. But yet it was found that rural girls students have comparatively more favourable attitude towards learning English than the rural boys students on the basis of their mean scores.
- v. The attitude of urban boys and girls who are studying in secondary schools of Purulia district do not differ from each other regarding



their attitude towards learning English. But yet it was found that Urban girls students have comparatively more favourable attitude towards learning English than the Urban boys students on the basis of their mean scores.

vi. The attitude of rural and urban boys, who are currently studying in secondary schools (both rural and urban) of Purulia district, is significantly different from each other regarding their attitude towards learning English. In this case, it was found that the Urban boys students have comparatively more favourable attitude towards learning English than the Rural boys students on the basis of their mean scores.

vii. The attitude of rural and urban girls, who are currently studying in secondary schools (both rural and urban) of Purulia district, is significantly different from each other regarding their attitude towards learning English. In this case, it was found that the Urban girls students have comparatively more favourable attitude towards learning English than the Rural girls students on the basis of their mean scores.

viii. Lastly, a significant finding come out through the present study that is the attitude of the students (both rural and urban) of secondary schools (both urban and rural) of Purulia district towards learning English have a significant impact on their academic achievement on the same subject (English).

Conclusion:

After thorough investigation, the researcher found out that most of her hypotheses came out to be true. This not only indicates that the



curriculum of secondary level should be revised but also it points out that the methods of teaching learning of English should be modified.

Though this study shows that the attitude of students does have significant impact on their academic achievement in English, it does not change the fact that most of the students' attitude is not favorable towards learning English. The syllabus of English in the Secondary level has to be modified and according to the students' interest.

Another conclusion to be drawn from this dissertation is that the students interviewed in this class seem to come in contact with English to a lesser extent. The information gathered from the students did not show this, but the interview with the teacher seemed to paint a different picture. The teachers do not exceed their teaching beyond the contents of the English syllabus. Every class provide a special grammar lesson and the teachers follow that only. They do not put efforts to establish a relation with the previous knowledge the students gathered from the previous class. Hence the students fail to follow the teaching most of the time. The teachers need to be a bit more efficient and contributing in order to make the students more interested and knowledgeable.

It is evident that the problem about poor attitude is not to be found in students' achievement in English. Their attitudes are widely negative in comparison to their achievement rates. Explanations must therefore be found in other factors. E.g. methods of teaching, content, interest etc.

This dissertation has two implications: a) the teachers should build a good rapport with their students so that the students feel comfortable to interact with them, so that the teachers get a hint of what interests the students and b) they should encourage the students to interact more with each other in English in and outside of the classroom. Since students pay



little attention to the listening skill, teachers need to find interesting materials catering to the students' level which will help them to improve their listening ability. Moreover, the study shows that students think that their efficiency in English is good as their academic achievement is good in the subject. Such a perception can have many positive effects in the classroom but also it brings a feeling that it is enough as achievement is good. May be the evaluation system also needs revision, the marks shouldn't be granted, students' need to achieve them, that only can bring enough awareness in them.

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STOCK PRICE BEHAVIOUR WITH RESPECT TO BONUS SHARE ANNOUNCEMENT

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INTRODUCTION

A **bonus share** is a free share of stock given to current shareholders in a company, based upon the number of shares that the shareholder already owns. While the issue of bonus shares increases the total number of shares issued and owned, it does not increase the value of the company. Although the total number of issued shares increases, the ratio of number of shares held by each shareholder remains constant.

Bonus shares, as the name suggests, are issued free to existing stockholders in proportion to the number of stocks held by them. It is essentially a book transfer by which a sum of money equal to the value of the bonus shares is transferred from the reserves to the equity capital in the company's books of accounts. The issue of bonus stocks enlarges a stockholder's stockholding without any dilution in his proportionate ownership of the company. These shares are issued in a particular proportion to the existing holding. For example, 1 for 1(written as 1:1) bonus would mean you get one additional shares, without paying anything at all, for the one share you hold in the company. Similarly if the company has declared 2:1 bonus share that means you will get two shares for one share you have. Thus a shareholder holding two shares, post bonus holds three shares of the company. Or, if you hold 100 shares of a company and a 2:1 bonus offer is declared, you get 200 shares free. After the bonus issue,



total number of shares of that company will now be 300 instead of 100 at no extra cost. The company also announces a record date for the issue of bonus shares. The record date is the date on which the bonus takes effect, and shareholders on that date are entitled to the bonus. After the announcement of the bonus but before the record date, the shares are referred to as cum-bonus. After the record date, when the bonus has been given effect, the shares become ex-bonus.

Will the price change after a bonus issue?

Ideally, the stock price should also decrease proportionately to the number of new shares issued. But, in reality, proportionate price changes may not occur. That happens mainly because of increased liquidity and enhanced investor confidence in the company's management. After the bonus issue, the stock becomes more liquid which makes it easier to buy and sell. Also, issuing bonus shares signals that the company is in a position to service its larger equity. A company will not normally issue bonus stocks unless it is confident that its future growth prospects justify an expansion in its equity capital. Therefore, the expectation of a bonus issue by any company normally creates a climate of optimism and cheer in the stock markets and usually results in a rise in the price of a company's stocks just before or upon the announcement by it of a bonus issue.

Why do companies issue bonus shares?

- The issue shares allows the company to declare a dividend without using up the cash that may be used to finance the profitable investment opportunities within the company and thus company can maintain its liquidity position
- When a company faces stringent cash difficulty and is not in a position to distribute dividend in cash, or where certain restrictions to pay dividend



in cash are put under loan agreement, the only way to satisfy the shareholders or to maintain the confidence of the shareholders is the issue of bonus shares.

- By issuing bonus shares, the rate of dividend is lowered down and consequently share price in the market is also brought down to a desired range of activity and thus trading activity would increase in the share market. Now small investors may get an opportunity to invest their funds in low priced shares.
- The cost of issue of bonus shares is the minimum because no underwriting commission, brokerage etc. is to be paid on this type of issue. Existing shareholders are allotted bonus shares in proportion to their present holdings.

LITERATURE REVIEW

Ball, Brown & Finn (1977) examined stock price reaction around the announcement of 'stock capitalization changes' (bonus, stock issues, stock splits & right issues) in Australia for the period between 1960 & 1969 using monthly data. They found 20.2% abnormal return for 13 months up to & including the month of bonus issue announcement. **Foster and Vickery (1978)** were among the earliest to examine the signaling hypothesis using daily returns data and in their examination of the information content of 82 stock dividend announcement over the period 1972-74.. They found significant positive abnormal returns around announcement dates. **Katati (2001)** examined the behaviour of stock price around bonus announcement date and ex bonus date of 115 bonus issues made between January 1995 and March 1999. The study establishes that stock prices rise before the announcement and fall after the announcement. **Malhotra Madhuri (2003)** provided evidence to support signaling hypotheses by examining



the relationship between bonus issue announcement & stock price reaction. The study concluded that there is a negative reaction after the bonus issue announcement conveying that the market under reacts after the announcement. A study done by **Mishra (2005)** on 46 bonus issues (made between June 1988 and August 2004) on companies listed on the NSE, found that in line with the developed markets, Indian capital market exhibited significant abnormal returns for a five day period prior to bonus announcement. The behaviour of the Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR) is found to be in accordance with the expectations, thereby lending support to the hypothesis that Indian stock market is semi-strong efficient.

OBJECTIVE OF THE STUDY

The following major objectives are set for the study.

1. To verify Presence of any abnormal returns on or surrounding bonus issue announcement.
2. To investigate efficiency of the market in absorbing the material information in bonus issue.

SCOPE OF THE STUDY

This study covers the wider range of shares from sectors comprised from BSE 500 index and Investigates the corporate announcement effects with bonus issue actions of 63 companies and the abnormal change in the price. It gives scope for further studies in Indian market on corporate actions like dividend announcements, mergers news, consolidation etc in indexes or other sectors stock.



DESCRIPTION OF THE RESEARCH WORK

Data and Methodology:

1. Data source

As the Corporate announcement data is not published directly in any of the leading business dailies, to find out effective announcement date of the event, data available on moneycontrol.com, economictimes.com Capital line and CMIE s Prowess database has been used.

2. Data sample

To test the above objectives the companies that went for bonus share announcement in year between January 2005 to December 2010 has been taken from a sample frame of current constituents of BSE 500 index. Some companies are eliminated due to simultaneous announcement of bonus shares and dividend announcement and some due to irregular trading.

3. Hypothesis tests of bonus issue

There are several hypothesis put forwarded by previous researchers to explain price behavior and corporate events announcement. To test each hypothesis a window is designed and effect of event is measured.

H0: There are no abnormal returns present in pre event, post event and on announcement day during bonus share announcement

H1: There are abnormal returns present in pre event, post event and on announcement day during bonus share announcement

4.Event Study Methodology

The study used the event study methodology to examine the market reaction to bonus issues on share prices. For this purpose, the study used daily adjusted prices for sample stocks for 30 days before and 30 days after



the event date. In order to carry out an event study, we determine the event window as $t = -30$ to $t = +30$ relative to the event day $t = 0$ (date of announcement of bonus). The return on the market portfolio is proxy by BSE 500. Our aim is to find whether the events have any signaling impact on the share prices. The procedure for using event study is discussed below.

The focus on the abnormal returns of our sample in the period over 30 days prior and 30 days after the event date. Brown and Warner (1980) reported that a simple methodology based on the market model is well-specified and relatively powerful under a wide variety of conditions. Following Brown and Warner, we employ the market model to compute the abnormal returns that are derived from the following equation:

$$R_{j,t} = \alpha_j + \beta_j \cdot R_{mt}$$

Where, $R_{j,t}$ = the daily return security j at day t

R_{mt} = the daily return on Indian stock market at day t

α_j, β_j = OLS intercept and slope coefficient estimators, respectively

The researcher uses the BSE 500 closing index as a proxy for computing market return from -180 day to -31 days.

For each event date t , the cross sectional average abnormal returns for all firms are defined

as: n

$$AAR_t = \frac{1}{n} \sum_{j=1}^n AR_{jt}$$

$$J=1$$

$t = -30$ to $+30$

$n = 63$ for bonus issues



To analyze the price effects, we compute the Cumulative Average Abnormal Returns (CAAR) for the 61 days centered in the announcement dates. The use of CAAR is a common methodology. CAAR for event day's t_i to t_i were obtained as follows:

t_i

$CAAR = \frac{1}{n} \sum_{t_i} AAR_t$

t_i

EMPIRICAL RESULT AND CONCLUSION

Bonus issue has resulted in positive mean return during event window for 29 companies and for 44 companies on announcement date. It is also obvious in the research findings that the bonus issue announcement has a positive average abnormal return of 1.008% on Announcement date and it is significant at 5% level with t value of 2.556. Also observed that in pre window period of -30 to -1 20 days had positive abnormal return and on day -19, -10, -5 and -1 day average abnormal return was significant at 5% with t value 2.12, 2.21 and 2.47 respectively. Information leakage for large group of traders in the market happened to be there. Small investors will have positive wealth change on announcement date as generally they have less access to the corporate insider's information.



Table 1: T-value for Cross sectional AAR for Event Window (Bonus Issue)

	ARR	SE	T Test		ARR	SE	T Test
-30	0.293746	0.422901	0.694597	1	0.649655	0.467206	1.390512
-29	0.370664	0.399313	0.928253	2	-0.15989	0.453252	-0.35275
-28	0.037304	0.324135	0.115087	3	-0.19389	0.34378	-0.56399
-27	-0.519	0.32356	-1.60404	4	-0.11553	0.304054	-0.37997
-26	0.228335	0.348011	0.656112	5	-0.09648	0.272442	-0.35413
-25	-0.3912	0.299917	-1.30438	6	0.162418	0.254101	0.639188
-24	-0.48102	0.309079	-1.55629	7	-1.01317	0.932457	-1.08656
-23	-0.18839	0.2741	-0.68731	8	-0.66102	0.286916	-2.30387
-22	0.450258	0.341611	1.318043	9	0.039993	0.31782	0.125837
-21	0.549213	0.385966	1.422955	10	0.050175	0.260451	0.192645
-20	0.04873	0.300082	0.162389	11	0.0215	0.312378	0.068827
-19	0.869068	0.410496	2.117118b	12	-0.40844	0.31473	-1.29776
-18	0.6662	0.4396	1.515468	13	0.013506	0.246576	0.054774
-17	0.005392	0.312408	0.017258	14	-0.04564	0.242853	-0.18794
-16	-0.23652	0.35502	-0.66622	15	-0.06011	0.259449	-0.23168
-15	-0.31825	0.307148	-1.03614	16	-0.33855	0.327565	-1.03353
-14	1.18285	0.433006	2.731718c	17	-0.33462	0.283114	-1.18193
-13	-0.30559	0.320585	-0.95323	18	-0.29319	0.269519	-1.08783
-12	-0.27625	0.334045	-0.82698	19	-0.09258	0.228885	-0.40447
-11	-0.13812	0.292562	-0.4721	20	-0.38645	0.29821	-1.2959
-10	0.574384	0.258801	2.219404b	21	-0.07375	0.299769	-0.24602
-9	0.611562	0.472048	1.29555	22	-0.40694	0.315474	-1.28993
-8	0.255936	0.278521	0.918911	23	0.075105	0.261485	0.287225
-7	-0.04294	0.325362	-0.13197	24	-1.14218	0.615189	-1.85663a
-6	0.528257	0.37329	1.41514	25	0.081073	0.298416	0.271678
-5	1.347643	0.543895	2.477765b	26	-0.62075	0.743929	-0.83443
-4	0.275274	0.457485	0.601711	27	-0.88169	0.957109	-0.9212
-3	0.483587	0.480299	1.006846	28	-0.69043	0.830012	-0.83183
-2	0.5596	0.359228	1.557784	29	-2.90852	1.726738	-1.6844a
-1	1.394169	0.363737	3.83291c	30	-2.49174	1.862427	-1.3379
0	1.008081	0.39425	2.556958b				

(a. Significant at 10% level, b. Significant at 5% level and c. Significant at 1% level)

In the post event window of 1 to 30 days abnormal return was positive for 9 days whereas other days return were found to be negatives. And return was significant and positive on day 24 with t value of 1.85 and on day 29 abnormal return was negative and significant at 10% level of significance. The information content of the bonus share announcement is so quickly impounded in the daily prices of the stocks in the event window that no scope is there to earn abnormal returns from the stocks. This is in conformity with the semi-strong form of pricing efficiency of the market.



Table 1: T-value for Cross sectional CAAR for Event Window (Bonus Issue)

	CAAR	S.E	T Test		CAAR	S.E	T Test
-30	0.293746	0.422901	0.694597	1	9.492628	3.771182	2.517149
-29	0.664409	0.723671	0.91811	2	9.332742	3.779363	2.469395
-28	0.701713	0.921331	0.76163	3	9.138854	3.931371	2.324597
-27	0.18271	1.12015	0.163112	4	9.023324	3.985463	2.264059
-26	0.411045	1.309378	0.313924	5	8.926844	4.108921	2.172552
-25	0.01984	1.457837	0.013609	6	9.089262	4.167022	2.181237
-24	-0.46118	1.434291	-0.32154	7	8.076087	4.248149	1.901084
-23	-0.64957	1.400537	-0.4638	8	7.41507	4.383426	1.691615
-22	-0.19931	1.401191	-0.14224	9	7.455063	4.454352	1.673658
-21	0.349904	1.414814	0.247315	10	7.505238	4.540149	1.653082
-20	0.398634	1.526895	0.261075	11	7.526738	4.628443	1.626192
-19	1.267703	1.541566	0.822347	12	7.118295	4.780966	1.488882
-18	1.933903	1.69087	1.143733	13	7.131801	4.798603	1.486224
-17	1.939294	1.828447	1.060624	14	7.08616	4.847628	1.461779
-16	1.702773	1.880633	0.905426	15	7.02605	4.755439	1.477477
-15	1.384526	1.946434	0.711314	16	6.6875	4.70499	1.421363
-14	2.567376	2.119045	1.211572	17	6.35288	4.629533	1.372251
-13	2.261783	2.212069	1.022474	18	6.059689	4.556938	1.329772
-12	1.985536	2.331978	0.851439	19	5.967111	4.490576	1.328807
-11	1.847419	2.48738	0.742717	20	5.580659	4.463819	1.250198
-10	2.421803	2.595933	0.932922	21	5.506911	4.37992	1.257309
-9	3.033364	2.742077	1.106229	22	5.099973	4.334002	1.176735
-8	3.289301	2.853551	1.152704	23	5.175078	4.344731	1.191116
-7	3.246362	2.973005	1.091946	24	4.032897	4.356753	0.925666
-6	3.774619	3.023944	1.248244	25	4.11397	4.433127	0.928006
-5	5.122262	3.078187	1.664052	26	3.493216	4.521892	0.772512
-4	5.897536	3.285272	1.642949	27	2.611526	4.580834	0.570098
-3	5.881123	3.450906	1.704226	28	1.9211	4.655464	0.412655
-2	6.440723	3.527509	1.825856	29	-0.98742	5.367988	-0.18395
-1	7.834892	3.573874	2.192268	30	-3.47916	4.883726	-0.7124
0	8.842973	3.66339	2.413877				

Table 2 showing CAAR over the event window. Before the announcement date, there are big upward jumps and after the run up is over, there is no further drift in stock price. The pattern of CAAR of bonus issue was like there was significant AR around announcement date. It is found that on an average sample stocks having bonus announcements, start showing positive return from around -15 to -1 day before the announcement date and 1 to 23 days after the announcement but return is reducing after the bonus announcement and return were even negative on day 29 and 30.

Chart 1 AARs of Bonus Announcements

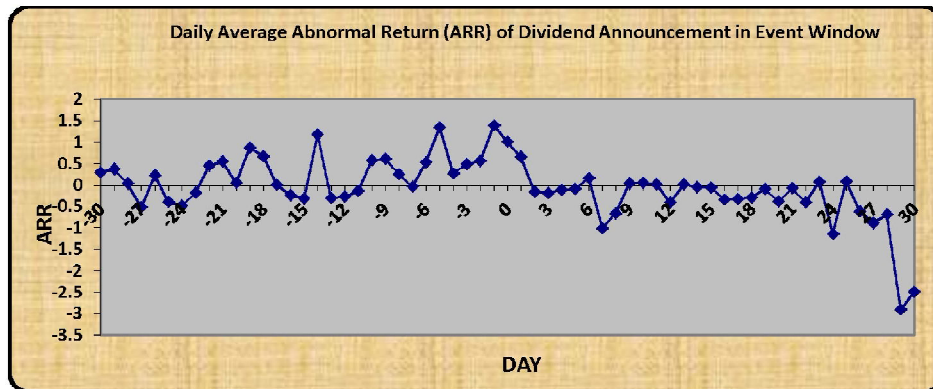
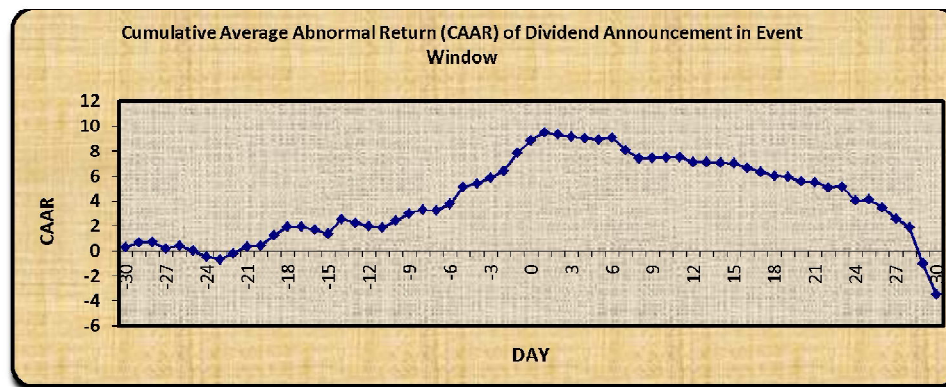


Chart 2 CAARs of Bonus Announcements



Hypothesis Testing:

Hypothesis 1:

H0: There is no significant difference in abnormal returns of stocks post-bonus announcement, when compared with pre-bonus announcement

H1: There is significant difference in abnormal returns of stocks post-bonus announcement, when compared with pre-bonus announcement

To conduct this hypothesis testing AAR for the sample companies has been segregated in two Parts i.e. Pre & Post bonus announcement AAR. Then paired T-Test has been done to the data series. The result of Paired t-Test is shown below.



Table 3: Paired t-Test for Pre & Post Bonus Announcement AAR

t-Test: Paired Two Sample for Means		
	Variable1	Variable2
Mean	0.261163	-0.41074
Variance	0.269112	0.530338
Observations	30	30
Pearson Correlation	-0.28944	
Hypothesized Mean Difference	0	
df	29	
t Stat	3.647222	
P(T<=t) one-tail	0.000516	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.001033	
t Critical two-tail	2.04523	

(Source: Self-made)

T-Statistics: 3.647222

P value (one –tail): 0.000516

Tabular T-value: 1.699 (For 5% significance level)

Interpretation:

As the observed T-statistics is larger than the Tabular T-value, we will reject the null hypothesis. The value of α (significance level) is 5%. P-value (one-tail) is 0.005% which is less than value of α . So we are to reject the null hypothesis.

So we can conclude that there is significant difference in abnormal returns of stocks post-bonus announcement, when compared with pre-bonus announcement i.e. pre & post bonus announcement of BSE 500 companies, investors would be able to gain abnormal returns on stock prices if they get an idea about bonus issue

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Table 4: Bonus Share Issue Companies

Adani Enteprise	Gujarat Mineral	Navneet
Ambuja cement	Guj NRE Coke	ONGC
Bajaj Auto	HCL Tech	Oracle Financ
Bajaj Electric	Info Edge	Orchid Chem
Berger Paints	IOC	Praj Inds
BHEL	Ipcalabs	Rajesh Exports
Cadila Health	ITC	Ranbaxy Labs
Cipla	ITC	Rolta
Container Corp	IVRCL	Sesa Goa
Crompton Greave	Jaicorp	Shipping Corp
Dabur India	Jaiprakash Assoc	Shree Renuka
Dabur India	Jindal Steel	South Ind Bank
Dabur India	Kalptaru Power	STC India
Dr.Reddy	Kansai Nerolac	Sterlite Inds
Edelweiss Cap (Finan Ser)	KPIT Cummins	Sterlite Techno
Elgi Equipments	I&T	Sun TV Network
Engineersind	Lupin	Tilaknagar Inds
Gail	Mah and Mah	Torrent Pharma
Gateway Distric	Mercator	TVs Motors
Glenmark	Motherson Sumi	Unitech
Guj Gas	Mphasis	United Phos



IMPACT OF WATER DEFICIT ON MAIZE YIELDS: A CASE STUDY OF MONGAR DISTRICT, BHUTAN

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Introduction

Bhutan is an agrarian country and about 70 percent of the rural population depend on agriculture for their employment and livelihood. Paddy and maize are the country's two major cereal crops while maize is a major crop in the eastern parts of the country. Among the twenty districts of the country, Mongar is the leading producer of maize and has the largest area under maize cultivation. Mongar produced 10,751 metric tons from 8,793 acres of harvested area in the year 2010. Even though Mongar is ranked first in the production and harvested area of maize, yet it ranks in yield with 1,223 kg/acre. It is a rain fed crop. February to August is the main maize growing season in Mongar.

Like any other crops, yields of maize depend on multiple factors like characteristics of soil, farming method, modern inputs and climate. Many regions in the world have witnessed an increase in crop yields by making use of chemical fertilizers, high yielding varieties of seeds, modern technologies and farming methods. At the same time, the role of climatic factors in agriculture cannot be underestimated. According to Mather (1974), all phonological stages of plant life from germination through growth to maturity, to final yield and to reproduction, are influenced to some degree by the environmental factors of weather and climate.

Precipitation and temperature are the major climatic phenomena which largely controls the soil moisture status, which in turn, is a vital



factor in determining crop yields (Hema Malini, 1986). The precipitation and temperature is largely responsible for the conditions of climatic water deficit or surplus. Hema Malini (1986) defines climatic water deficit as the difference between the amounts of water need (the atmospheric demand for water) and the amount that it is able to obtain through precipitation and the moisture stored in the soil. As deficit increases, crop suffers from a lack of water and yield is generally reduced and vice versa. A steady improvement in farming techniques usually shows a constant increase in the trend of crop yields (Hema Malini, 1986). Therefore, the influence of climate would be represented by the deviations of the individual yearly values of yields from the steady trend line.

Objective

The objectives of the present paper are to analyze the trends of maize yields and seasonal climatic water deficits and determine the influence of climatic water deficit conditions on maize yields.

Study area

Mongar is one of the eastern Districts of the country with an area of about 1,947 sq. km (Fig. I). Its elevation ranges from 400 to 4000 meters above the sea level. The topography is highly rugged with hills and valley slopes. The lower and southern parts of the District are subtropical while northern and higher regions have temperate climatic conditions. Summer can be hot and humid and winter cold (Table 1).



TABLE 1 MEAN MONTHLY RAINFALL AND TEMPERATURE: MONGAR DISTRICT, BHUTAN

	J	F	M	A	M	J	J	A	S	O	N	D
Rainfall (mm)	5.4	10.9	39.6	78.7	94.1	126.1	204.4	146.0	85.5	85.4	3.2	3.3
Temperature (°C)	11.2	12.9	16.2	18.6	20.3	22.0	22.4	22.7	21.7	18.9	15.3	12.3

FIGURE 1 STUDY AREA: MONGAR DISTRICT, BHUTAN



Data and methodology

Data on maize yields for the period of 9 years (2002-2010) was collected from the annual Statistical Year Book of Bhutan published by the National Statistical Bureau, Royal Government of Bhutan and annual Agriculture Statistics published by Department of Agriculture, Ministry of Agriculture and Forests, Royal Government of Bhutan. The monthly precipitation and temperature data for the period of 15 years (1996-2010) were obtained from the records of National Center for Weather, Climate and Water Resources, Department of Hydro-Met Services, Ministry of Economic Affairs, Thimphu. It is the premier institute in the country for



providing weather and climate data for sustainable planning and development.

First, the annual trend of maize yields for the period of 9 years (2002 – 2010) are analyzed using the linear trend line. In a slight variation of the work of Mather (1977), the yearly deviation of the yields from the average yield of the study period (instead of expected yields) were computed. Second, water deficit conditions on a monthly basis for all the years of study (1996-2010) are computed using the water balance technique of Thornthwaite (1955). From the monthly water deficits, only the water deficits of the maize growing season were selected and trends analyzed using the trendline. Finally, Pearson Coefficient of Correlation and the Coefficient of Determination (r^2) were computed to determine the relations between seasonal water deficits and the maize yields.

Pearson Coefficient of Correlations (r):

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{n(\sum x^2) - (\sum x)^2} \sqrt{n(\sum y^2) - (\sum y)^2}}$$

Where;

x is accumulated water deficit during February-August in millimeters

y is annual deviation of maize yields from the average yield, and

n is number of years (i.e. 09)



Results and Discussions

Maize production and yields

Mongar district's average annual production of maize during the study period (2002-2010) was 9,989 metric tons. Compared to 2002, the production increased by 1,917 metric tons in 2010. However, the increase in production has not been uniform in all the years. In the year 2003, 2005 to 2008 and 2010 productions reduced when compared to their preceding years (Table 2). The annual average yield of maize was 1326 kg/acre during the study period. The highest yield of 2120 kg/acre was recorded in the year 2004. The yields increased from 2002 till 2004 and thereafter decreased continuously till 2008. In general, the decreasing trend in the maize yields is noticed during the study period from 2000 (Fig. 2).

TABLE 2 PRODUCTION, YIELD AND AREA UNER MAIZE: MONGAR DISTRICT, BHUTAN

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Avg.
Harvested area (acre)	8741	6802	6116	7026	7382	7229	8518	8855	8793	7718
Production (MT)	8834	7953	12967	10533	10224	8599	8414	11625	10751	9989
Yield (Kg/acre)	1043	1169	2120	1499	1385	1190	988	1313	1223	1326

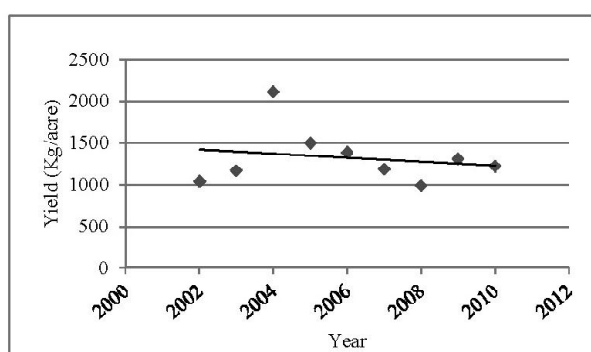


Figure 2 Trend of Maize Yields: Mongar District, Bhutan



Distribution of seasonal normal water deficiency

In some warmer parts of Bhutan, maize is cultivated twice in a year. However, in Mongar district the main growing season of maize is from February to August. The climatic water deficit (Table 3) obtained from the water balance computation shows that water deficit conditions prevail every year in the study area. It also becomes evident that water deficiency is maximum during the months of sowing and germination of maize seeds (February and March) compared to the later months. Water deficit is minimum after march because the district receives rains of the Southwest monsoon during these months. Overall, the decreasing trend of aggregate seasonal water deficits is observed during the study period (Fig. 3).

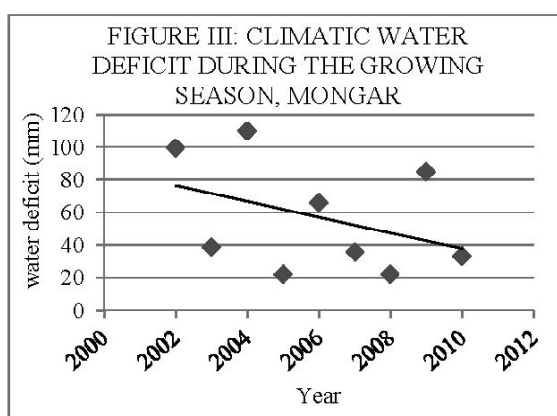




TABLE 3 TRENDS OF NORMAL WATER DEFICIT (mm) DURING MAIZE GROWING SEASON: MONGAR DISTRICT, BHUTAN

Year	F	M	A	M	J	J	A	Total
2002	34	35	0	31	0	0	0	100
2003	16	0	0	21	0	0	2	39
2004	18	30	0	1	22	0	39	110
2005	8	10	0	0	3	0	1	22
2006	17	10	0	9	8	0	22	66
2007	0	9	0	27	0	0	0	36
2008	4	0	0	18	0	0	0	22
2009	21	26	31	0	7	0	0	85
2010	20	1	12	0	0	0	0	33

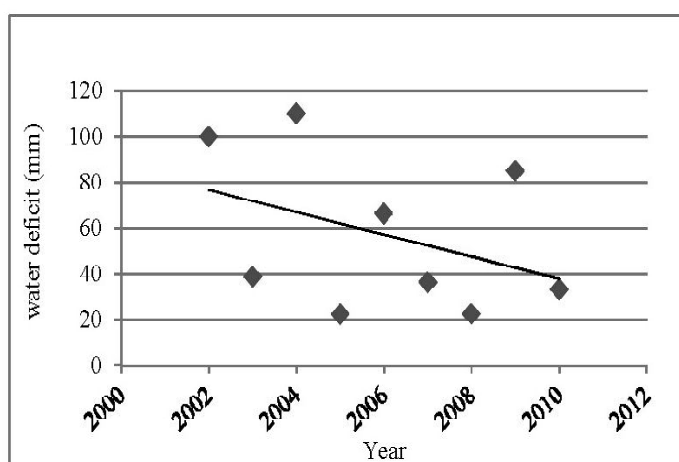


FIGURE 3 TRENDS OF NORMAL WATER DEFICIT DURING MAIZE GROWING SEASON: MONGAR DISTRICT, BHUTAN



Water deficiency and maize yields

The computation of correlation coefficient (r) between water deficits as independent variables and maize yields as dependent variables gave a value of +0.47 indicating a weak positive correlation. The coefficient of determination (r^2) works out to 0.23 which means that only 23 percent of the total variation in maize yields is due to climatic water deficits. Even though soil moisture is an important factor for crop growth and production, its availability seems to be not a major problem in Mongar district. In other words, water deficit is not the primary reason for the fluctuations of the maize yields in Mongar as 77 percent of the variation in maize yields remain unexplained by the regression equation. It is important that these unexplained factors are investigated for improvement of the maize yields in the study area.

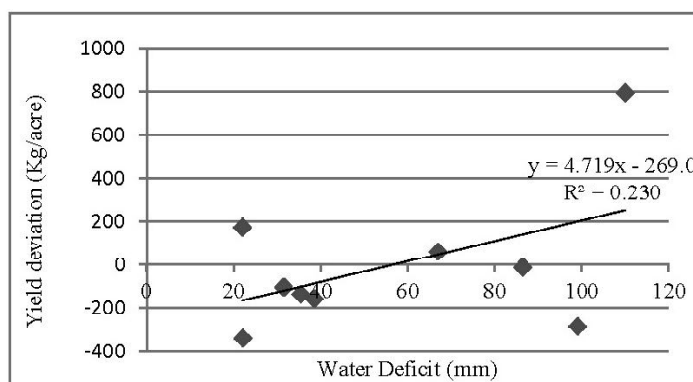


FIGURE 4: CORRELATION BETWEEN WATER DEFICIT AND
MAIZE YIELDS: MONGAR DISTRICT, BHUTAN

Conclusion

The analysis shows that Mongar district is experiencing decreasing trends of both the maize yields and water deficits during the study period. A correlation of water deficit values with deviation values of maize yields



indicate that yield is weakly dependent upon the fluctuations of water deficit conditions. Therefore, there is a need to investigate further and determine other factors affecting the fluctuation in maize yields in the study area. However, in general, this type of study is useful in determining the requirements of supplemental irrigation programs.

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भाषा और संगणक का संबंध

नितीनकुमार जानबाजी रामटेके

पीएच. डी. भाषा प्रौद्योगिकी

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सारांश : आज मशीन से मानव का संवाद होने लगा है। मानव-मशीन अंतरक्रिया के परिप्रेक्ष्य में संगणक प्रणाली से उठने वाली भाषाई समस्याओं के समाधान के लिए भाषिक सिद्धांतों और पद्धतियों को काम में लिया जाता है। इसमें प्राकृतिक भाषा संसाधन के लिए भाषा वैज्ञानिक सिद्धांत, प्रक्रिया और नियमों का अनुप्रयोग होता है। प्राकृतिक भाषा संसाधन (Natural Language Processing) अभिकलनात्मक भाषाविज्ञान का ही एक अंग है। इसका उद्देश्य कंप्यूटर के ऐसे मॉडल और डिज़ाइन तैयार करना है, जिनकी सहायता से मानव-मशीन के बीच संवाद स्थापित हो सके। प्राकृतिक भाषा (मानव भाषा) स्वभावतः 'अस्पष्ट' मानी जाती है अर्थात् द्वि-अर्थकता का गुण प्राकृतिक भाषा की प्रकृति में निहित है। केवल मानव मस्तिष्क ही अपनी विशिष्ट बुद्धि, सांसारिक ज्ञान, संस्कार और पूर्व संदर्भ की जानकारी के कारण भाषा की अभिव्यक्तियों का सही निर्वचन कर उनके अभीष्ट अर्थों को ग्रहण करता है और अन्य अर्थों का परिहार करता है। प्राकृतिक भाषा संसाधन में 'द्वि-अर्थकता' बहुत बड़ी समस्या है जिसको हल करने के लिए प्रयास किए जा रहे हैं।

मानव अपने भावों को व्यक्त करने के लिए जिस सार्थक मौखिक साधन को अपनाता है, वह भाषा है। यद्यपि रंगक आदि के द्वारा भी कुछ भावों की अभिव्यक्ति हो जाती है, परंतु अपने भावों को सूक्ष्म और स्पष्ट रूप में व्यक्त करने का साधन भाषा ही है। भाषा ही है जो एक व्यक्ति का दूसरे व्यक्ति से संबंध स्थापित करती है। मानव के विचार ही उसका समाज से संपर्क स्थापित करते हैं। यह संपर्क भाषा के माध्यम से ही होता है। यदि मनुष्य के पास भाषा जैसा अस्त्र न होता तो मनुष्य भी पशु-पक्षियों के तुल्य अपने भावों को अत्यंत स्पष्ट रूप में प्रकट करने में असमर्थ रहता। विश्व के प्रत्येक देश में कोई न कोई भाषा बोली जाती है और वही उनके विचार-विनिमय का माध्यम है। 'भाषा' इस सृष्टि में केवल मनुष्य मात्र को ही प्राप्त है।



मानव-मशीन अंतरक्रिया के परिप्रेक्ष्य में संगणक प्रणाली से उठने वाली भाषाई समस्याओं के समाधान के लिए भाषिक सिद्धांतों और पद्धतियों को काम में लिया जाता है। इसमें प्राकृतिक भाषा संसाधन के लिए भाषा वैज्ञानिक सिद्धांत, प्रक्रिया और नियमों का अनुप्रयोग होता है। ध्वनि, रूप-रचना, वाक्य-विन्यास, प्रोक्ति संरचना और अर्थ संरचना का संगणक संसाधन करता है, इसको समझने के लिए भाषा और प्रौद्योगिकी (संगणक) के बीच संबंध स्थापित हो गया है।

‘प्राकृतिक भाषा’ मानव का आपस में परस्पर संवाद स्थापित करने और सूचनाओं को लिपिबद्ध करके अभिलिखित करने का एक प्रमुख साधन है। इसके माध्यम से मनुष्य जटिल, सूक्ष्म, गहन और व्यापक विचारों को अभिव्यक्त करने में सफल हो पाता है। भाषाविज्ञान में इसे व्यवस्थाओं की व्यवस्था कहा गया है जिसकी शक्ति को हम सामान्य जीवन में अनदेखा कर देते हैं। अभिकलनात्मक भाषाविज्ञान (संगणिकीय भाषाविज्ञान-Computational Linguistics) इसी शक्ति को आत्मसात करने के लिए प्रयत्नशील है। भाषाविज्ञान की अनुप्रायोगिक शाखा अभिकलनात्मक भाषाविज्ञान है जिसमें मानव भाषा शक्ति के लिए प्रौद्योगिकी के विकास हेतु भाषाविज्ञान के नियमों और प्रक्रिया का अनुप्रयोग होता है। इसी परिप्रेक्ष्य में यह भाषा का वह वैज्ञानिक अध्ययन है जिसमें विभिन्न प्रकार के भाषाई तत्वों के अभिकलनात्मक मॉडल प्रस्तुत किए जाते हैं। अभिकलनात्मक भाषाविज्ञान प्रकृत भाषा के बोधन (Comprehensive) और जनन (Generation) के लिए कंप्यूटर प्रणाली का विकास करता है। इसके अंतर्गत प्रकृत भाषा को संप्रेषण के माध्यम के रूप में देखा जाता है। इस दृष्टि से मानव की मशीन से अंतरक्रिया (Interaction) होती है और मशीन की मानव से। मानव-मशीन की इस अंतरक्रिया का संबंध संप्रेषण से है और अभिकलनात्मक भाषाविज्ञान इसका अनुसंधान और विकास करता है।

प्राकृतिक भाषा संसाधन अभिकलनात्मक भाषाविज्ञान का ही एक अंग है। इसका उद्देश्य कंप्यूटर के ऐसे मॉडल और डिज़ाइन तैयार करना है, जिनकी सहायता से मानव-मशीन के बीच संवाद स्थापित हो सके। अधिकांश मानव संवाद भाषा के लिखित या मौखिक रूप में होता है इसलिए प्राकृतिक भाषा संसाधन का सर्वप्रथम लक्ष्य तो यही है कि इसकी सहायता से मौखिक भाषा या लिखित पाठ का विश्लेषण किया जा सके, किंतु यह विश्लेषण मात्र स्वनिर्मों को पहचानने तक ही सीमित नहीं रह जाता। इसके लिए हमें प्राकृतिक भाषा को समझना होगा।



प्राकृतिक भाषा (मानव भाषा) स्वभावतः 'अस्पष्ट' मानी जाती है अर्थात् द्वि- अर्थकता का गुण प्राकृतिक भाषा की प्रकृति में निहित है। केवल मानव मस्तिष्क ही अपनी विशिष्ट बुद्धि, सांसारिक ज्ञान, संस्कार और पूर्व संदर्भ की जानकारी के कारण भाषा की अभिव्यक्तियों का सही निर्वचन कर उनके अभीष्ट अर्थों को ग्रहण करता है और अन्य अर्थों का परिहार करता है। दूसरे शब्दों में, अभिव्यक्तियों के प्रकट रूप और उनके द्वारा व्यक्त अभीष्ट संदेश के बीच की रिक्तियों की पूर्ति वह अपने पहले से मौजूद संदर्भगत और सांसारिक ज्ञान के आधार पर करता है। दूसरी ओर संगणक उसका केवल वही अर्थ ग्रहण करने की क्षमता रखता है जो उसकी स्मृति में सायास डाला जाता है।

भाषा में शब्दों का व्याकरणिक वर्गीकरण रूपगत न होकर अर्थगत है। ऐसे अनेक शब्द हैं जिनके रूप मात्र से उनके व्याकरणिक वर्ग, वाक्यगत कार्य और अर्थ का पता नहीं चलता। वाक्यगत प्रयोग, प्रसंग और अन्य शब्दों के साथ उनके संबंध ही शब्दों के व्याकरणिक वर्ग को सूचित करते हैं। इतना ही नहीं, एक ही शब्द वाक्यगत अन्य शब्दों के साथ आर्थी संबंध से संज्ञा, विशेषण, क्रिया, क्रिया विशेषण आदि शब्द बन जाता है।

प्रसंग ज्ञात हो तो वाक्यार्थ को ग्रहण करने में न कोई कठिनाई होती है और न ही किसी प्रकार का संशय या भ्रम पैदा होता है। एक शब्द के एक से ज्यादा अर्थ एवं प्रकार्य (संज्ञा, विशेषण, क्रिया, क्रियाविशेषण आदि) होने के कारण मशीन योग्य संदर्भ के लिए योग्य अर्थ का निर्धारण नहीं कर पाती।

प्राकृतिक भाषा संसाधन में संगणक एक मशीन होने के कारण किसी शब्द, पदबंध, वाक्य आदि का संदर्भ और सांसारिक ज्ञान आदि के अभाव में योग्य अर्थ ग्रहण नहीं कर पाती। किसी भाषिक प्रयोग (शब्द, वाक्य आदि) का एक से अधिक अर्थ होना इसी समस्या को संदिग्धार्थकता कहा जाता है। यह प्राकृतिक भाषा संसाधन में बहुत बड़ी समस्या है जिसको हल करने के लिए प्रयास किए जा रहे हैं।

जैसे : मुझे सोना चाहिए - इस एक ही वाक्य से हम आदमी भी सही अर्थ नहीं ले सकते। 'मुझे' कैसे तय करेंगे कि 'मुझे' -सर्वनाम/ नाम है। 'सोना'-नाम है या क्रिया। इसमें 'सोना' शब्द में संदिग्धता है। क्योंकि इसके दो अर्थ हैं - I want a gold or I want to sleep. इस इनपुट वाक्य से हम कैसे तय कर पाएंगे कि इसका कौनसा अर्थ सही है। इसके लिए हमें संदर्भ देखने की आवश्यकता है।



‘मुझे’ कैसे तय कर पाएंगे? मुझे किसके बदले आया है, इसके लिए, हमें इसके पहले का संदर्भ देखने की आवश्यकता है। **राम ने श्याम को कहा कि मुझे सोना चाहिए**

राम ने - (कर्ता ‘ने’ कब लेता है जब क्रिया सकर्मक और भूतकालिक हो) स्पष्ट है राम कर्ता है ।

श्याम को - ‘को’ कारक चिन्ह दर्शाता है कि श्याम कर्म है।

कहा -क्रिया

मुझे - सर्वनाम /नाम क्योंकि संज्ञा ‘राम’ कर्ता के बदले आया है।

सोना - नाम है ? या क्रिया है ? यहाँ संदिग्धार्थकता बनी हुई है (sleep or gold) इस ‘सोना’ शब्द की समस्या को हल करने के लिए हमें फिर से आगे का संदर्भ देखने की आवश्यकता है।

क्योंकि मुझे जंजीर बनवानी है।

क्योंकि - दो वाक्यों को जोड़ता है।

मुझे - सर्वनाम/नाम

जंजीर (गले का हार या कंठहार) - **जंजीर** अगर नाम है तो सोना भी नाम ही होगा। (जंजीर सोने से बनती है) क्योंकि सोना और जंजीर में संबंध है। इसको जिस तरह मनुष्य अपने सांसारिक ज्ञान या पूर्व ज्ञान के आधार समझता है उसी तरह संगणक में भी यह ज्ञान उपलब्ध कराना होगा तभी संगणक संदिग्धार्थकता को दूर कर सकता है।

यहाँ हमें मिलने वाला आउटपुट - I want a gold होगा, I want to sleep नहीं होगा।

निष्कर्ष :

भाषा और संगणक में संबंध है क्योंकि हम अगर प्राकृतिक भाषा के माध्यम संगणक से संप्रेषण करना चाहते हैं, और इन संप्रेषण के बीच उठनेवाली समस्याओं को हम हल करते हैं तो भविष्य में निश्चित ही संगणक से संप्रेषण करेंगे। इसके लिए हमें संगणक में मनुष्य की तरह कृत्रिम बुद्धि (पूर्व-संदर्भगत ज्ञान, सांस्कृतिक ज्ञान और सांसारिक ज्ञान आदि) का विकास करना होगा।



संदर्भ ग्रंथ सूची :

गोस्वामी, कृष्ण कुमार की नोट्स

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PERSONALITY AMONG VOLLEYBALL PLAYERS

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INTRODUCTION:

Personality development is the outcome of a process of interaction between genetic inclinations and environmental conditions. The human being by nature first tries to accommodate himself with the environment around him and then he starts striving to establish his superiority over it. The process of personality development is however, not static. It is a continuous process and prone to natural flexibility. It undergoes many stages of transformation and modification. This, in a way, provides an explanation to the nature of individual differences.

Sports activities affect the process of personality development in ways more than one. Social and environmental pressures, biological factors, frustration and tension in life are to be managed with full attention to develop mature form of personality. The psychological approach of teaching, in this regard, has been suggested as that of a coach who, while training his athletes tries to understand their personal and emotional problems, motivates their behavioral tendencies and inspires the best of their personality to come out. It has been propounded that only an individual centered culture can nurture the utmost level of personality development but such a pre-condition seems rarely possible.



16PF Scale Names and Descriptors

<i>Descriptors of Low Range</i>	<i>Primary Scales</i>	<i>Descriptors of High Range</i>
Reserved, Impersonal, Distant	Warmth (A)	Warm-hearted, Caring, Attentive To Others
Concrete, Lower Mental Capacity	Reasoning (B)	Abstract, Bright, Fast-Learner
Reactive, Affected By Feelings	Emotional Stability (C)	Emotionally Stable, Adaptive, Mature
Deferential, Cooperative, Avoids Conflict	Dominance (E)	Dominant, Forceful, Assertive
Serious, Restrained, Careful	Liveliness (F)	Enthusiastic, Animated, Spontaneous
Expedient, Nonconforming	Rule-Consciousness (G)	Rule-Conscious, Dutiful
Shy, Timid, Threat-Sensitive	Social Boldness (H)	Socially Bold, Venturesome, Thick-Skinned
Tough, Objective, Unsentimental	Sensitivity (I)	Sensitive, Aesthetic, Tender-Minded
Trusting, Unsuspecting, Accepting	Vigilance (L)	Vigilant, Suspicious, Skeptical, Wary
Practical, Grounded, Down-To-Earth	Abstractedness (M)	Abstracted, Imaginative, Idea-Oriented
Forthright, Genuine, Artless	Privateness (N)	Private, Discreet, Non-Disclosing
Self-Assured, Unworried, Complacent	Apprehension (O)	Apprehensive, Self-Doubting, Worried
Traditional, Attached To Familiar	Openness to Change (Q1)	Open To Change, Experimenting
Group-Orientated, Affiliative	Self-Reliance (Q2)	Self-Reliant, Solitary, Individualistic
Tolerates Disorder, Unexacting, Flexible	Perfectionism (Q3)	Perfectionistic, Organized, Self-Disciplined
Relaxed, Placid, Patient	Tension (Q4)	Tense, High Energy, Driven

STATEMENT OF PROBLEM

The problem formulated for the present study was to find out the differences in personality traits, in volleyball players as a differences due to gender and Age level (UG & PG)

Hypothesis

- 1) There is a significant deference in personality traits of Volley Ball players of different status (PG & UG)



- 2) There is significant level gender difference in the personality of Volleyball Players of Gulbarga District.

Sample

The samples of the study consist of 200 Volley Ball players drawn randomly from Gulbarga District. There were an equal numbers of sample categories in two levels (PG & UG) and gender. (Male & Female) The respondents were administered 16 personality Factors scale to determine the extent of personality.

Tools

Following standardized questionnaires were used in the present study to measure personality traits,

- 1) Cattell's 16 PF Questionnaire consist of 105 items.

Comparisons of sample on personality: As per the scale one scored relatively lower in particular factor is said to have relatively specified amount of characteristics of the personality factor in comparison with higher scores on the same factor. Thus , each 16PF study involves low and higher amount of characteristics to describe the relative amount of personality factor of the given sample. Table.1

Mean scores SDs and t-value of personality traits of Volley Ball Players (Male &Female)N=200

** Significant at 0.01 level.

Category		A	B	C	E	F	G	H	I	L	M	N	O	Q1	Q2	Q3	Q4
MALE	M	6.37	4.05	6.14	5.50	4.78	5.86	6.19	5.10	3.84	4.71	6.38	4.62	6.84	6.02	5.35	4.59
	SD	1.88	1.64	1.62	1.69	1.56	1.74	1.48	1.59	2.04	1.76	1.72	1.34	2.02	1.58	1.61	1.63
FEMALE	M	5.54	3.33	5.62	6.31	3.95	6.71	5.41	5.67	4.64	5.24	5.91	5.23	5.95	5.50	4.83	5.02
	SD	1.88	1.83	1.55	1.56	1.64	1.88	1.43	1.63	1.96	1.72	1.93	1.48	1.88	1.70	1.63	1.53
t-value		1.18**	4.80**	4.00**	5.78**	6.38**	5.66**	6.50**	4.38**	4.70**	3.78**	3.13**	5.54**	5.56**	4.00**	3.98**	3.58**

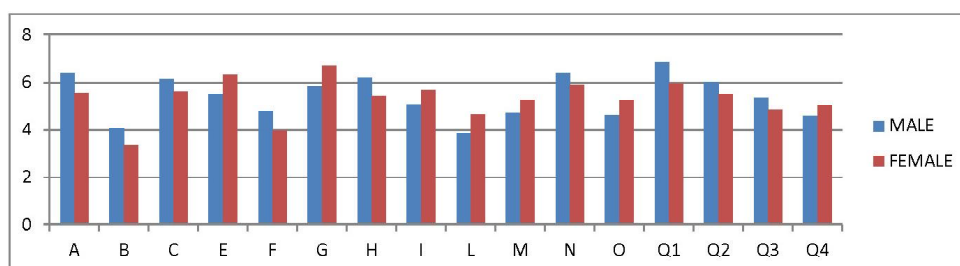


Table 1 presents mean scores, SDs and t-values of personality traits of Male and female Volleyball players. The personality consists of 16 factors ;(Factor A: Reserved V/s Outgoing, Factor B: Low V/s High Intelligence, Factor C: Affected by feelings V/s Emotionally Stable, Factor E: Humble V/ s Assertive, Factor F: Sober V/s Happy-go-lucky, Factor G: Expedient V/s Conscientious, Factor H: Shy V/s Venturesome, Factor I: Tough-Minded V/ s Tender Minded, Factor L: Trusting V/s Suspicious, Factor M: Practical V/ s Imaginative, Factor N: Fortright V/s Shrewd, Factor O :Placid V/s Apprehensive, Factor Q1: Conservative V/s Experimenting, Factor Q2: Group-dependent V/s Self sufficient, Factor Q3: Undisciplined Self conflicts V/s Controlled, Factor Q4: Relaxed V/s Tense). So this graph shows that there is a significant(0.05 level) difference between male & female volleyball players of Gulbarga District.

Mean scores SDs and t-value of personality traits of Volley Ball Players (PG & UG)

** Significant at 0.01 level.

Category		A	B	C	E	F	G	H	I	L	M	N	O	Q1	Q2	Q3	Q4
PG	M	6.78	5.12	6.85	6.53	6.33	6.65	6.55	4.46	4.27	6.16	5.45	4.75	6.17	6.84	4.71	4.79
	S	2.01	1.89	2.66	2.77	2.83	2.94	2.64	1.49	2.05	2.98	1.91	1.81	2.68	2.78	1.65	1.81
UG	M	5.12	4.02	5.31	5.12	5.17	5.89	5.30	5.55	5.13	6.43	5.69	5.69	5.85	5.61	3.23	5.81
	S	1.94	1.74	1.83	1.88	1.76	1.83	1.49	1.75	2.23	2.89	1.84	1.68	1.79	1.63	1.59	1.84
t-value		7.9	5.10	7.0	6.13	5.14	3.16	5.95	6.81	4.09	0.93	1.33	6.7	1.45	5.59	9.25	5.66

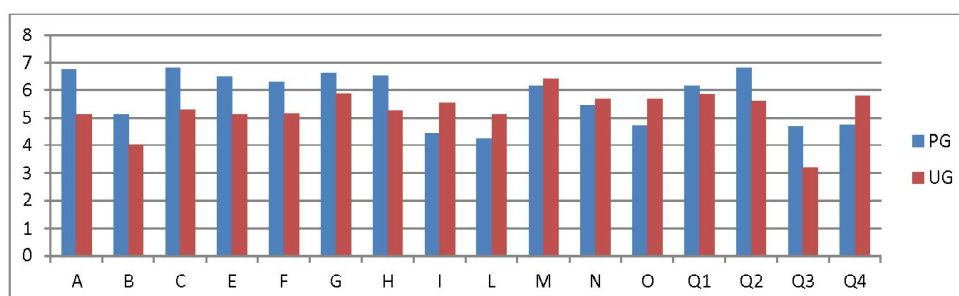


Table 2 presents mean scores, SDs and t-values of personality traits of PG players and UG volleyball players. The personality consists of 16 factors :(Factor A: Reserved V/s Outgoing, Factor B: Low V/s High Intelligence, Factor C: Affected by feelings V/s Emotionally Stable, Factor E: Humble V/s Assertive, Factor F: Sober V/s Happy-go-lucky, Factor G: Expedient V/s Conscientious, Factor H: Shy V/s Venturesome, Factor I: Tough-Minded V/ s Tender Minded, Factor L: Trusting V/s Suspicious, Factor M: Practical V/ s Imaginative, Factor N: Fortright V/s Shrewd, Factor O :Placid V/s Apprehensive, Factor Q1: Conservative V/s Experimenting, Factor Q2: Group-dependent V/s Self sufficient, Factor Q3: Undisciplined Self conflicts V/s Controlled, Factor Q4: Relaxed V/s Tense). This graph shows significance difference (level 0.05) that PG volleyball players having the good score and remains positive in nature but UG players got lower score and remain negative in nature according to 16 factors of personality.

CONCLUSION

The following conclusions are drawn:

1. There is significant difference in the personality traits among male & female Volleyball players of Gulbarga District.
2. There is significance difference among Volleyball players of two levels (PG & UG)



3. There are many factor those influence on personality of a Volleyball player.
4. Age. Gender. Family. Educational level influence on Sportsman personality.

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