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ARTICLE

1

WIRELESS SENSOR NETWORKS WITH TIME SYNCHRONIZATION TECHNIQUES

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Abstract:

This paper is a brief study of wireless sensor networks & the time synchronization techniques employed in those sensors to generate optimum results. Now a day the field of wireless communication has been emerged as one of the challenging sector for research & development purpose. In such a circumstance, adding time synchronization technique will definitely lead towards something which has very innovative perspectives. In this paper the same fact has been highlighted keeping the momentum of this area in severe applications.

Introduction

The term wireless refers to something which is without wire. A wiresensor network (WSN) constist of spatially distributed autonomus sensor to monitoring physical or environmental conditation such as temperature, sound, pressure, etc and to cooperatively pass their data through the network to a main location.The more modern networks are bi-directional, also enabling control of sensor activity.

The development of wireless sensor networks was motivated by military applications such as battlefield surveillance; today such networks are used in many industrial and consumer applications, such as industrial process monitoring and control, machine health monitoring, and so on.

Description:

Clock synchronization is a critical component in the operation of wireless sensor networks (WSNs), as it provides a common time frame to different nodes. It supports functions such as fusing voice and video data from different sensor nodes, time-based channel sharing, and coordinated sleep wake-up node scheduling mechanisms. Early studies on clock synchronization for WSNs mainly focused on protocol design. However, the clock synchronization problem is inherently related to parameter estimation, and, recently, studies on clock synchronization began to emerge by adopting a statistical signal processing framework. In this article, a survey on the latest advances in the field of clock synchronization of WSNs is provided by following a signal processing viewpoint. This article illustrates that many of the proposed clock synchronization protocols can be interpreted and their performance assessed using common statistical signal processing methods. It is also shown that advanced signal processing techniques enable the derivation of optimal clock synchronization algorithms under challenging scenarios.

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The main characteristics of a WSN include

- Power consumption constrains for nodes using batteries or energy harvesting
- Ability to cope with node failures
- Mobility of nodes
- Communication failures
- Heterogeneity of nodes
- Scalability to large scale of deployment
- Ability to withstand harsh environmental conditions
- Ease of use
- Power consumption

Sensor nodes can be imagined as small computers, extremely basic in terms of their interfaces and their components. They usually consist of a processing unit with limited computational power and limited memory, sensors or MEMS (including specific conditioning circuitry), a communication device (usually radio transceivers or alternatively optical), and a power source usually in the form of a battery. Other possible inclusions are energy harvesting modules, secondary ASICs, and possibly secondary communication devices (e.g. RS-232 or USB). The base stations are one or more components of the WSN with much more computational, energy and communication resources. They act as a gateway between sensor nodes and the end user as they typically forward data from the WSN on to a server. Other special components in routing based networks are routers, designed to compute, calculate and distribute the routing tables.

Distributed sensor network

If a centralized architecture is used in a sensor network and the central node fails, then the entire network will collapse, however the reliability of the sensor network can be increased by using distributed control architecture.

Distributed control is used in WSNs for the following reasons:

1. Sensor nodes are prone to failure,
2. For better collection of data
3. To provide nodes with backup in case of failure of the central node

There is also no centralized body to allocate the resources and they have to be self organized.

Data integration and Sensor Web

The data gathered from wireless sensor networks is usually saved in the form of numerical data in a central base station. Additionally, the Open Geospatial Consortium (OGC) is specifying standards for interoperability interfaces and metadata encodings that enable real time integration of heterogeneous sensor webs into the Internet, allowing any individual to monitor or control Wireless Sensor Networks through a Web Browser.

In-network processing

To reduce communication costs some algorithms remove or reduce nodes redundant sensor information and avoid forwarding data that is of no use. As nodes can inspect the data they forward they can measure averages or directionality for example of readings from other nodes. For example, in sensing and monitoring applications, it is generally the case that neighboring sensor nodes monitoring an environmental feature typically register similar values. This kind of data redundancy due to the spatial correlation between sensor observations inspires the techniques for in-network data aggregation and mining.

The WSN is built of "nodes" – from a few to several hundreds or even thousands, where each node is connected to one (or sometimes several) sensors. Each such sensor network node has typically several parts: a radio transceiver with an internal antenna or connection to an external antenna, a microcontroller, an electronic circuit for interfacing with the sensors and an energy source, usually a battery or an embedded form of energy harvesting. A sensor node might vary in size from that of a shoebox down to the size of a grain of dust, although functioning "motes" of genuine microscopic dimensions have yet to be created. The cost of sensor nodes is similarly variable, ranging from a few to hundreds of dollars, depending on the complexity of the individual sensor nodes. Size and cost constraints on sensor nodes result in corresponding constraints on resources such as energy, memory, computational speed and communications bandwidth. The topology of the WSNs can vary from a simple star network to an advanced multi-hop wireless mesh network. The propagation technique between the hops of the network can be routing or flooding.

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Conclusion: Hence it can be a dashing technology to serve the multifarious applications including mankind, defence, civil, medicine etc. WSN with time synchronization can fulfill the essential demands of providing secure network infrastructure & thus verifies its sole existence. Overall we have seen that WSN is a technology of current & future. There exists an immense scope of this technology worldwide. But still there is need to explore this area further. This can be achieved only by innovative scientific steps.

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THE END

ARTICLE

2

SINGLE PHASE HYBRID ACTIVE POWER FILTER FOR ELIMINATING HARMONICS

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Abstract:

Harmonic Pollution and reactive compensation are the important power quality problems. This Paper presents a new approach for harmonic control and its practical implementation by a single phase hybrid active power filter. The combination passive and active power filter allows a better performance compensation of high power nonlinear loads. It is a combination of a series active power filter and a shunt passive filter. The shunt passive filter is connected in parallel with a load and suppresses the harmonic current produced by the load, where as the active filter connected in series to a source acts as a harmonic isolator between the source and load. In this work, the single-switch parallel active power filter is used to reduce switching stress, losses and also the cost. Passive filter is tuned at fifth and seventh order harmonic frequencies. Consequently active filter compensates for third and higher order harmonics unbalance current and reactive power under non-ideal source voltage condition. The passive filter uses simple LC configuration while the parallel active filter use a single-switch topology typically used in boost rectifier circuit. Theoretical, simulation and experimental result are presented to prove the validity of this arrangement.

Introduction

Due to the explosion of nonlinear and switching load from power electronics devices, there is an increasing worry to control and reduce the harmonics component of currents in the power system. In the last couple of decades, the concept of active filters (AF) has been introduced and many publications have appeared on this subject. In AF, the main objective is to maintain sinusoidal unity power-factor supply currents (by shunt AF) to feed active power to the load and to meet the losses in the AF. An Active filter is a device which is connected in parallel to and cancels the reactive power and the harmonics current from a group of nonlinear loads so that the total supply current drawn must be sinusoidal. The function of Active filter depends upon the PWM control method.

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A recent approach is use of Hybrid filters comprising of both the passive filter and the parallel APF. The passive filters generally compensate a bulk amount of harmonics but are unable to eliminate some complex harmonics this complex problems are been completely eliminated by the shunt APF. In the proposed model the uses a current wave shaping technique in order to mitigate the distorted current by injecting an equal and opposite current. The PAPF determines the error by comparing the instantaneous current with a reference current. This error signal is feed to the proportional integral control in order to minimize the error end then feed to the relational operator with a carrier signal to accomplish the shunt APF task as shown in fig: 1

MATERIAL AND METHODS

The designed hybrid active power filter uses a Parallel active power filter and a passive filter. In PAPF a single switch is used in order to reduce the switching stress and to simplify the circuit used for compensation fig: 2. The diagram shown in figure: 3 show the combination of both parallel active power filters and passive filter. This system combines both the benefits of the shunt and series and is often used to achieve the demanding power system requirements. The control of active filters can be complex. A combination of the two provides an even greater complexity. The IGBT is triggered using the PWM technique from the error signal. In the designed model PWM is used as active current wave shaping for switching control. In this technique the instantaneous current is compared with a reference value of current and then this signal is provided into the PI controller in order to reduce the error function in the signal then signal is feed to a relational operator where a carrier signal is also given as input. The output signal of this block is used to trigger the IGBT which is used as a switch as shown in fig 4. In the proposed technique the compensating frequency of the active filter is set to ignore the tuned frequencies of the passive filters. The passive filters are used for supplying reactive power and eliminating 3rd, 5th and 7th harmonics where as the APF eliminates all reaming harmonics.

SIMULATION MODEL

In this work, MATLAB/Simulink was used to analyze the behavior of the proposed system. Fig. 5 shows the Simulation model of the proposed system that consists of a simple LC filter with PAPF shunt-connected with the non-linear load and main supply.

RESULT AND CONCLUSION

Simulations results on the operation of the proposed hybrid active power filter arrangements are presented. The behavior of the supply subject to non-linear load is investigated in four modes of operation; without filter, b) with passive filter c) with APF and d) with hybrid. Fig. 6 show results obtained from simulation on individual components.

From the result, it can be seen that the supply current was pulsating (discontinuous) and not in phase with the supply voltage for uncompensated system due to the capacitive nature of the load. During compensation, current from PAPF was injected into the system in order to mitigate the distorted current by injecting an equal and opposite current. The supply current is converted into a proper sinusoidal form and is now in phase with the supply voltage as in the result. After compensation, the supply current has a sinusoidal waveform. The THD level was reduced to 3.50% with almost unity power factor (0.99 lagging). Behavior of system can be observed from figures 6.

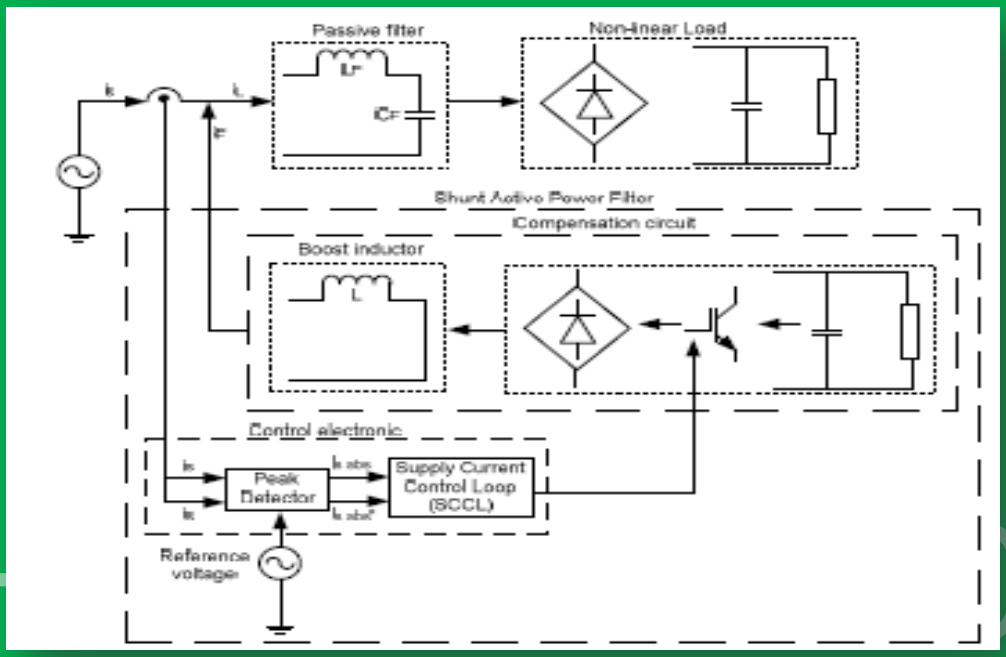


Fig. 1: The Proposed Hybrid APF Arrangement

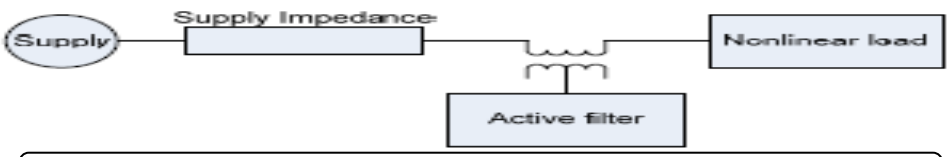


Fig: 2 Parallel Active Power Filters

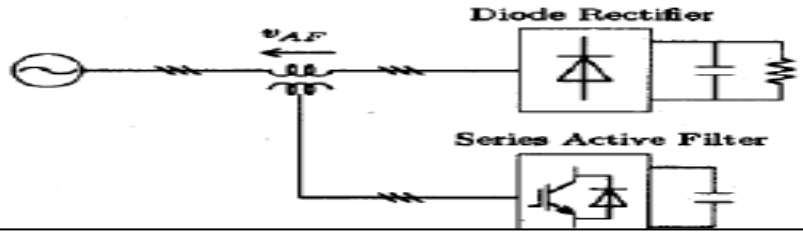


Fig: 3 Combinations of both parallel active power filters and passive filter

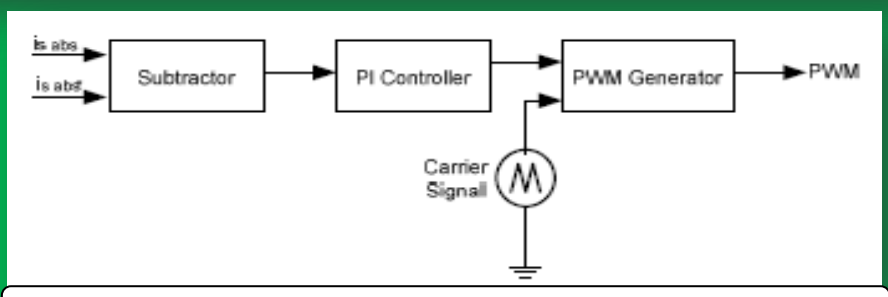


Fig. 4: Control Components of PAPF

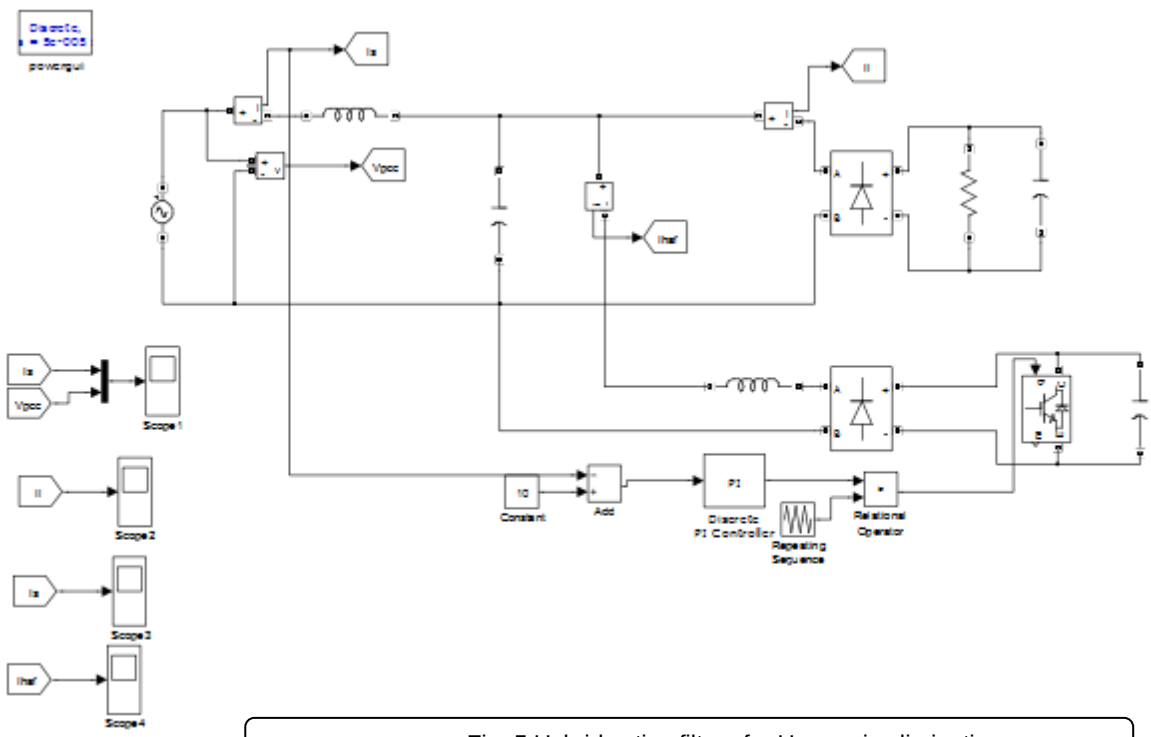
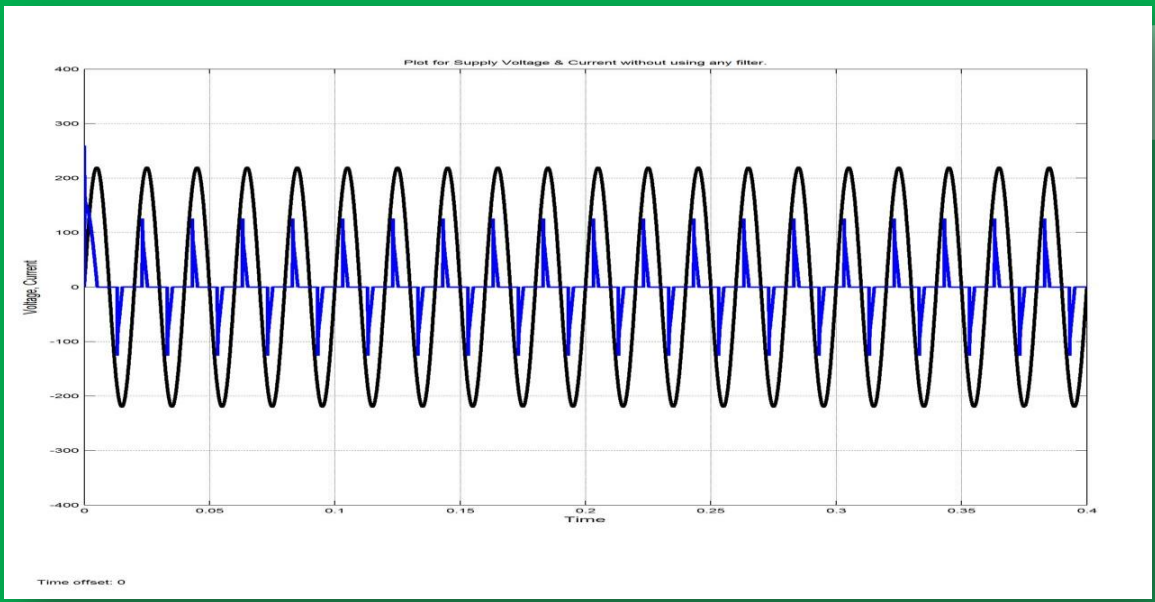


Fig: 5 Hybrid active filters for Harmonic elimination.



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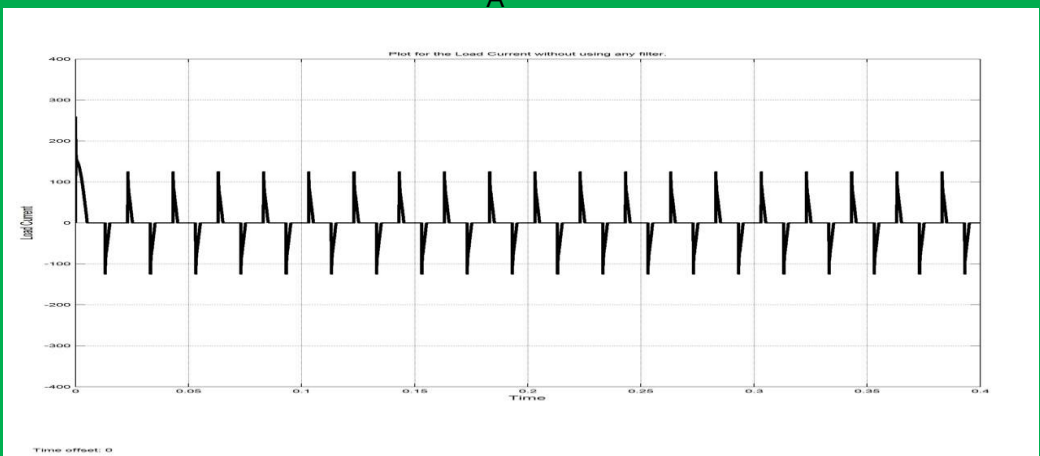
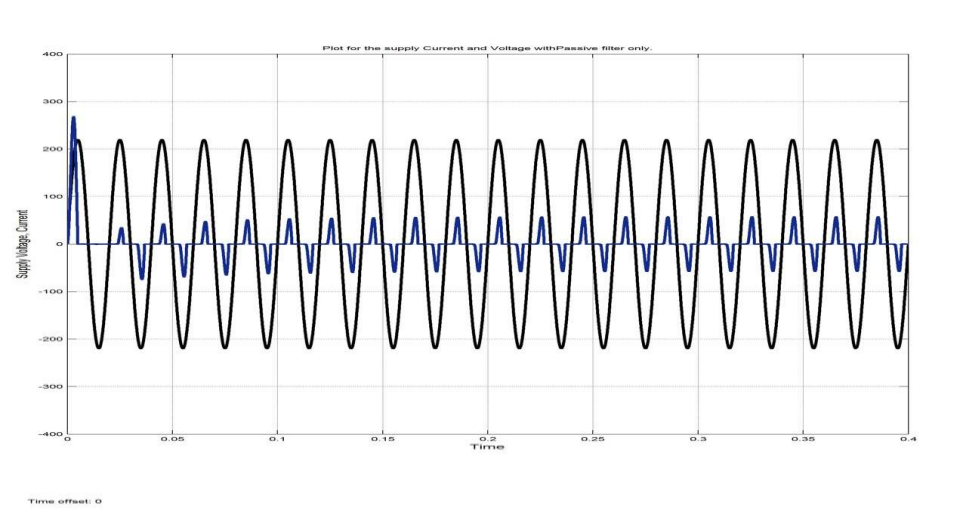
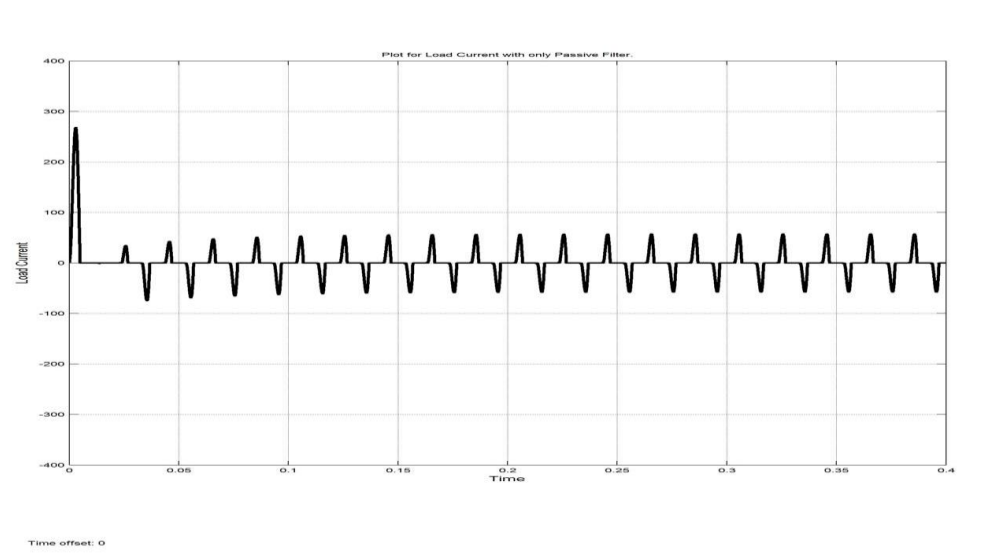
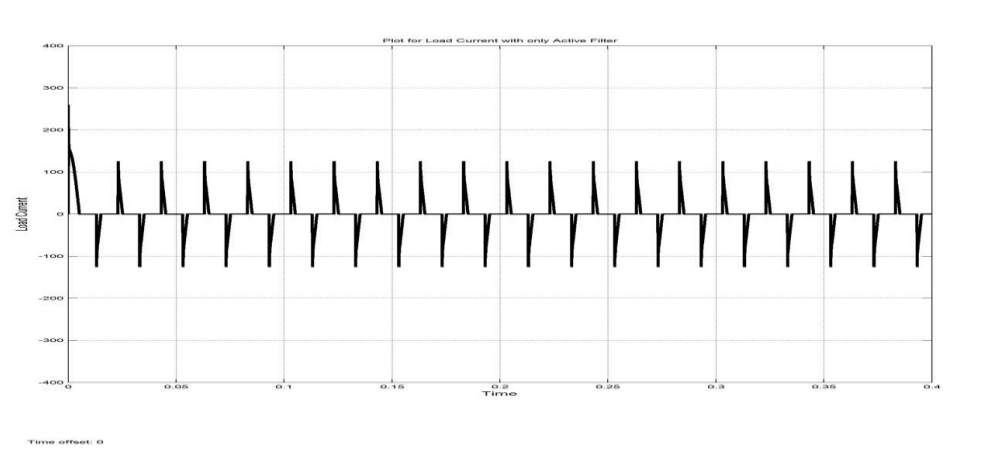


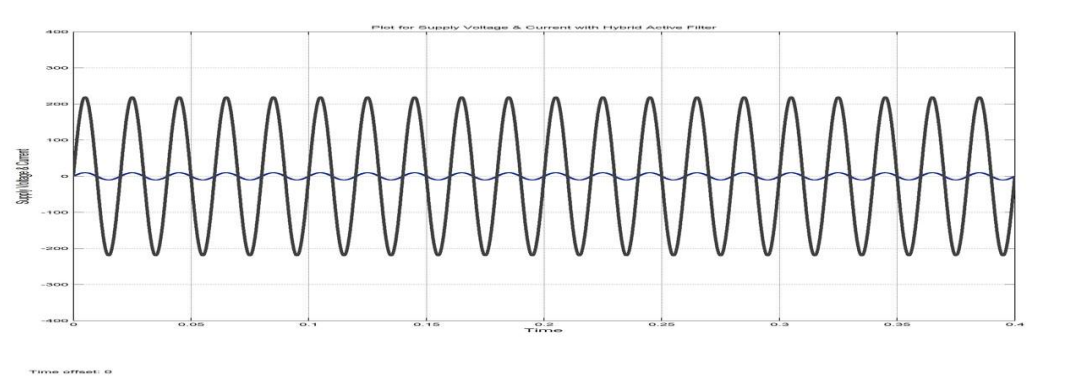

Plot for the supply Current and Voltage withPassive filter only.
Supply Voltage, Current
Time
Time offset: 0

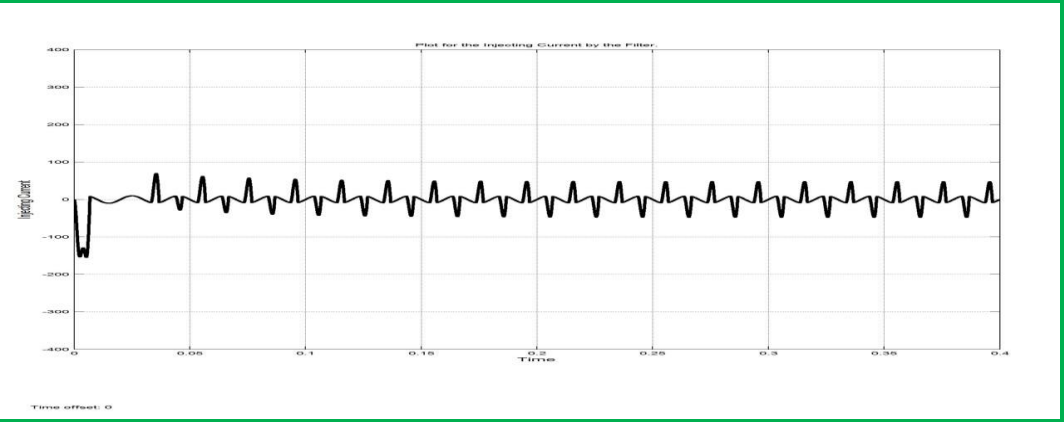
C


Plot for Load Current with only Passive Filter.
Load Current
Time
Time offset: 0

D


Plot for Load Current with only Active Filter
Load Current
Time
Time offset: 0


Plot for Supply Voltage & Current with Hybrid Active Filter
Supply Voltage & Current
Time
Time offset: 0



G

Fig: 6 (a) Supply voltage (black) and supply current (blue) without any filter.
(b) Load current without any filter.
(c) Supply voltage (black) and supply current (blue) with passive filter.
(d) Load Current with passive filter.
(e) Load Current with Active filter.
(f) Supply voltage (black) and supply current (blue) with Hybrid filter.
(g) Injecting current by the PAPF.

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THE END

ARTICLE

3

COMPARATIVE STUDY OF PULSE SHAPING FILTER FOR AIR-INTERFACE NETWORK

Mr. Prashant Kumar Singh *, Dr. T.K. Bandopadhyay[1], Mr. Manish Saxena
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Abstract:
Digital signal processing plays in various research in field of WCDMA. Filtering is an important process in communication.Pulse shaping is benifitial in filtering process.That is called Pulse shaping filter. Pulse shaping is a spectral processing technique by which fractional out of band power is reduced for low cost, reliable , power and spectrally efficient mobile radio communication systems. It is clear that the pulse shaping filter not only reduces inter-symbol interference (ISI), but it also reduces adjacent channel interference. In our work i have compare the resonse of various pulse shaping filter.

Introduction

Third generation cellular systems are being designed to support wideband services like high speed Internet access, video and high quality image transmission with the same quality as the fixed networks. Research efforts have been underway for more than a decade to introduce multimedia capabilities into mobile communications.

Different standard agencies and governing bodies are trying to integrate a wide variety of proposals for third generation cellular systems.One of the most promising approaches to 3G is to combine a Wideband CDMA (WCDMA) air interface with the fixed network of GSM. Several proposal supporting WCDMA were submitted to the International Telecommunication Union (ITU) and its International Mobile Telecommunications for the year 2000 (IMT2000) initiative for 3G.

All these schemes try to take advantage of the WCDMA radio techniques without ignoring the numerous advantages of the already existing GSM networks. The standard that has emerged is based on ETSI's Universal Mobile Telecommunication System (UMTS) and is commonly known as UMTS Terrestrial Radio Access (UTRA). The access scheme for UTRA is Direct Sequence Code Division Multiple Access (DSCDMA). The information is spread over a band of approximately 5 MHz. This wide bandwidth has given rise to the name *Wideband* CDMA or WCDMA.

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The future mobile systems should support multimedia services. WCDMA systems have higher capacity, better properties for combating multipath fading, and greater flexibility in providing multimedia services with defferent transmission rate and different QoS requirements and have been investigate worldwide. CDMA mobile systems are interference limited and therefore reducing interference can directly increase system capacity.

Air-interface network (WCDMA)

The WCDMA air interface, referred also as UMTS terrestrial radio access (UTRA), developed by the third-generation partnership project (3GPP). 3GPP has the goal to harmonize and standardize in detail the similar proposals from ETSI, ARIB, TTC, TTA, and T1. Table 6.1 lists the parameters of WCDMA. WCDMA has two modes characterized by the duplex method: FDD (frequency division duplex) and TDD (time division duplex), for operating with paired and unpaired bands, respectively

The chip rate of the system is 3.84 Mcps. The frame length is 10 ms and each frame is divided into 15 slots (2560 chip/slot at the chip rate 3.84 Mcps). Spreading factors range from 256 to 4 in the uplink and from 512 to 4 in the downlink. Thus, the respective modulation symbol rates vary from 960 k symbols/s to 15 k symbols/s (7.5 ksymbols/s) for FDD uplink. For separating channels from the same source, orthogonal variable spreading factor (OVSF) channelization codes are used. In the downlink, Gold codes with a 10-ms period (38400 chips at 3.84 Mcps) are used to separate different cells, with the actual code itself length 218-1 chips. In the uplink, Gold codes with a 10- ms period, or alternatively short codes with a 256-chip period, are used to separate the different users.

Table 6.1 Parameters of WCDMA

Channel bandwidth	5 MHz
Duplex mode	FDD and TDD
Downlink RF channel structure	Direct spread
Chip rate	3.84 Mbps
Frame length	10 ms
Spreading modulation	Balanced QPSK (downlink) Dual-channel QPSK(uplink) Complex
Data modulation	QPSK (downlink) BPSK (uplink)
Channel coding	Convolutional and turbo codes
Coherent detection	User dedicated time multiplexed pilot (downlink and uplink), common pilot in the downlink
Channel multiplexing in downlink	Data and control channels time multiplexed
Channel multiplexing in uplink	Control and pilot channel time multiplexed I&Q multiplexing for data and control channel
Multirate	Variable spreading and multicode
Spreading factors	4–256 (uplink), 4–512 (uplink)
Power control	Open and fast closed loop (1.6 kHz)
Spreading (downlink)	OVSF sequences for channel separation Gold sequences 2^{18}-1 for cell and user separation (truncated cycle 10 ms)
Spreading (uplink)	OVSF sequences, Gold sequence 2^{41} for user separation (different time shifts in I and Q channel, truncated cycle 10 ms)
Handover	Soft handover Interfrequency handover

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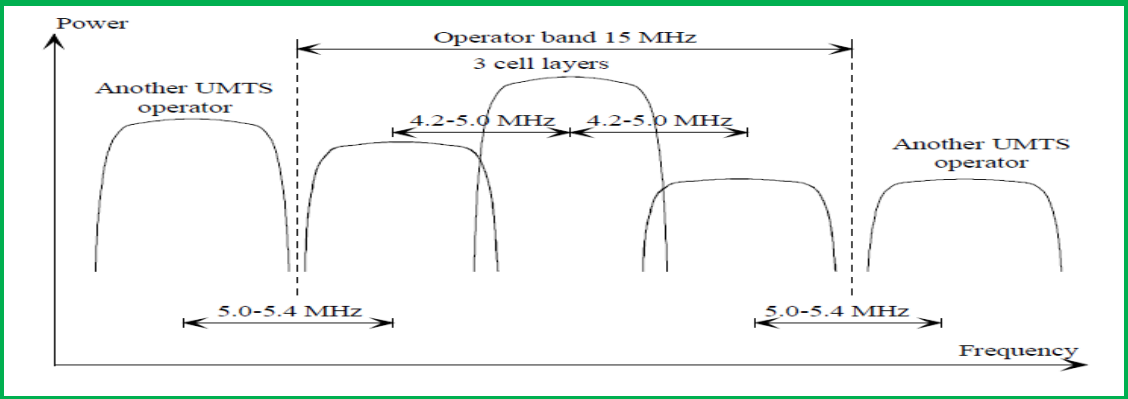

Figure 6.1 Frequency utilization with WCDMA.

For the channel coding three options are supported: convolutional coding, turbo coding, or no channel coding. Channel coding selection is indicated by upper layers. Bit interleaving is used to randomize transmission errors. The modulation scheme is QPSK. The carrier spacing has a raster of 200 kHz and can vary from 4.2 to 5.4 MHz. The different carrier spacings can be used to obtain suitable adjacent channel protections depending on the interference scenario. Figure 6.1 shows an example for the operator bandwidth of 15 MHz with three cell layers. Larger carrier spacing can be applied between operators than within one operator's band in order to avoid interoperator interference. Interfrequency measurements and handovers are supported by WCDMA to utilize several cell layers and carriers.

4. Pulse Shape filtering in Wireless Communication

Linear modulation methods such as QAM,QPSK, OQPSK have received much attention to their inherent high spectral efficiency However for the efficient amplification of transmitted signal, the Radio Frequency Amplifier is normally operated near the saturation region and therefore exhibit non linear behavior. As a result significant spectral spreading occurs, when a signal with large envelope variations propagates through such an amplifier and creates large envelope fluctuations.

To satisfy the ever increasing demands for higher data rates as well as to allow more users to simultaneously access the network, interest has peaked in what has come to be known as wideband code division multiple access (WCDMA).The basic characteristics of WCDMA waveforms that make them attractive for high data rate transmissions are their advantages over other wireless systems. It emphasizes that how the choice of spread bandwidth affects the bit error rate of system.

In communications systems, two important requirements of a wireless communications channel demand the use of a pulse shaping filter. These requirements are:

a) Generating band limited channels, and

b) Reducing Inter Symbol Interference (ISI) arising from multi-path signal reflections.

A. Reducing Channel Bandwidth :

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Fundamentally, modulation of a carrier sinusoid results in constant transitions in its phase and amplitude. Below, figure 3. shows the time domain of a carrier sinusoid with a symbol rate that is half of the carrier. It is clear that phase/amplitude transitions occur at every two periods of the carrier and sharp transitions occur, when filtering is not applied.

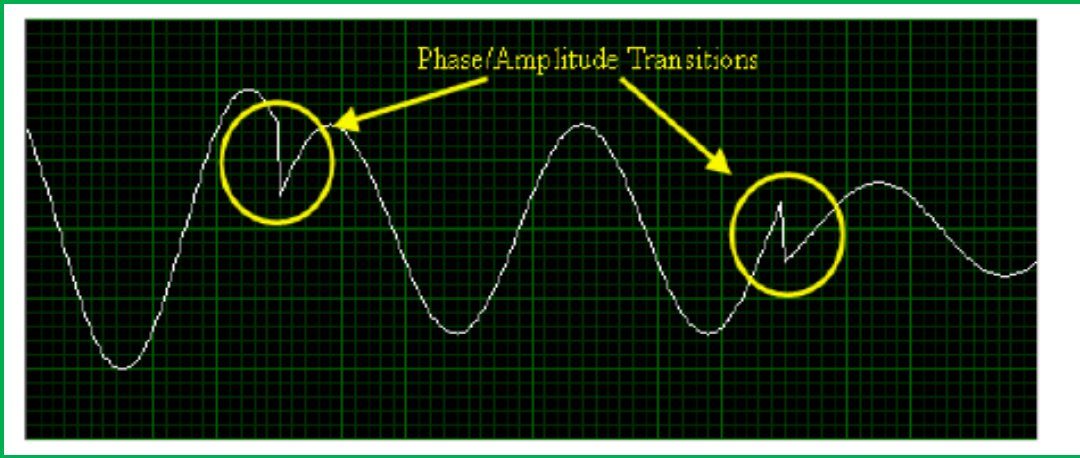

Figure 2. Phase and Amplitude Transitions in an Unfiltered Modulated Signal

The sharp transitions in any signal result in high-frequency components in the frequency domain. By applying a pulse shaping filter to the modulated sinusoid, the sharp transitions are smoothed and the resulting signal is limited to a specific frequency band. Below, it is shown time-domain modulated sinusoid.

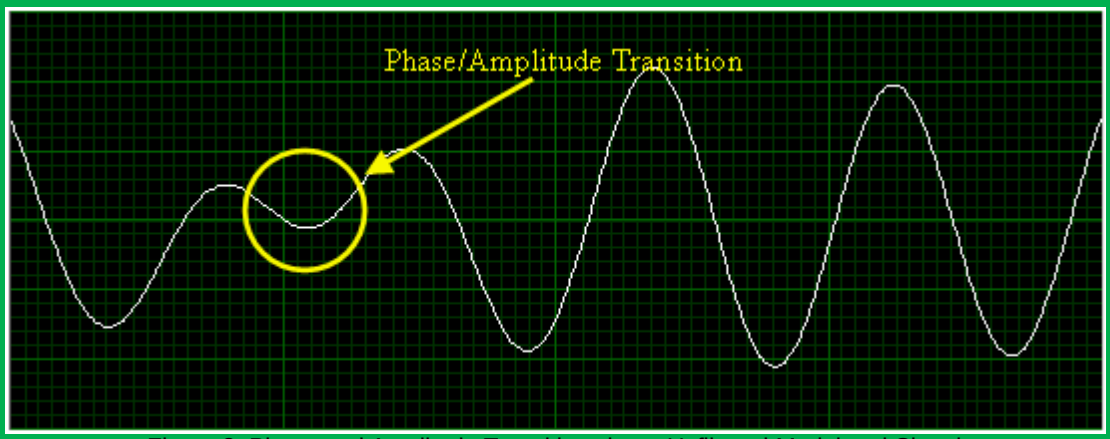

Figure 3. Phase and Amplitude Transitions in an Unfiltered Modulated Signal

Figure 3.2 shows smoothed phase and amplitude transitions in a filtered modulated signal. It happens much more gradually when filtering is implemented. As a result, the frequency information of the sinusoid becomes more concentrated into a specified frequency band.The sharp transitions do cause high frequency components in the frequency domain. Now, once a filter has been applied to the carrier signal, these high frequency components of the signal have been removed. Thus, the majority of the channel power is now limited to a specific defined bandwidth. It is clear that the required bandwidth for a channel is directly related to the symbol rate and is centered at career frequency.

B.Reducing Inter symbol interference

In band limited channels, intersymbol interference (ISI) can be caused by multi-path fading as signals are transmitted over long distances and through various mediums. More specifically, this characteristic of the physical environment causes some symbols to be spread beyond their given time interval. As a result, they can interfere with the following or preceding transmitted symbols. One solution to this problem is the application of the pulse shaping filter. By applying this filter to each symbol that is generated, it is possible to reduce channel bandwidth while reducing ISI. In addition, it is common to apply a match filter on the receiver side to minimize these affects.

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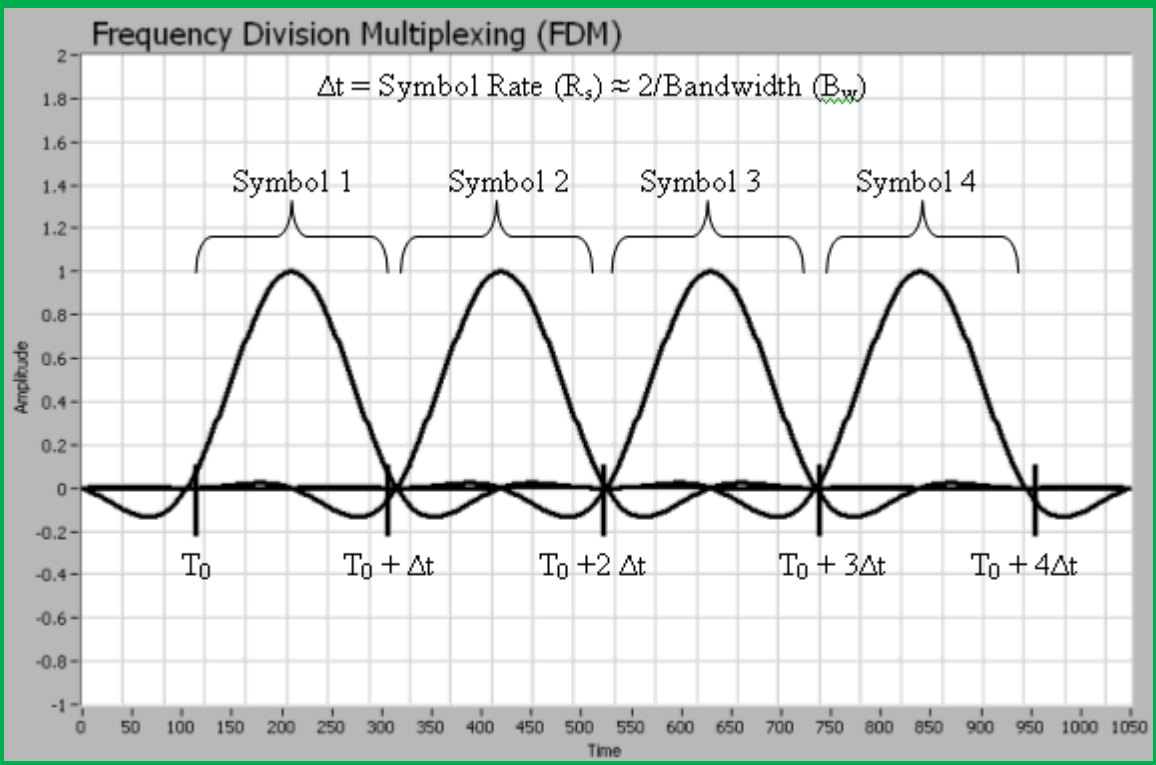


Figure 4. Filter Output in the Time Domain

Fig 4 shows the output in time domain. It is clear that the maximum amplitude of the pulse-shaping filter occurs in the middle of the symbol period. In addition, the beginning and ending portions of the symbol period are attenuated. Thus, ISI is reduced by providing a pseudo-guard interval which attenuates signals from multipath reflections.

Examples of pulse shaping

Examples of pulse shaping filters that are commonly found in communication systems are:

1. Rectangular pulse
2. Raised Cosine Pulse
3. Square root raised cosine filter
4. Gaussian Pulse
5. Flipped Exponential Pulse
6. Flipped Hyperbolic Secant Pulse
7. Flipped Inverse Hyperbolic Secant Pulse

Data transmission systems that must operate in a bandwidth-limited environment must contend with the fact that constraining the bandwidth of the transmitted signal necessarily increases the likelihood of a decoding error at the receiver. Bandwidth limited systems often employ pulse-shaping techniques that allow for bandwidth containment while minimizing the likelihood of errors at the receiver.

6. Comparison of filters through simulation:

A. Magnitude response:

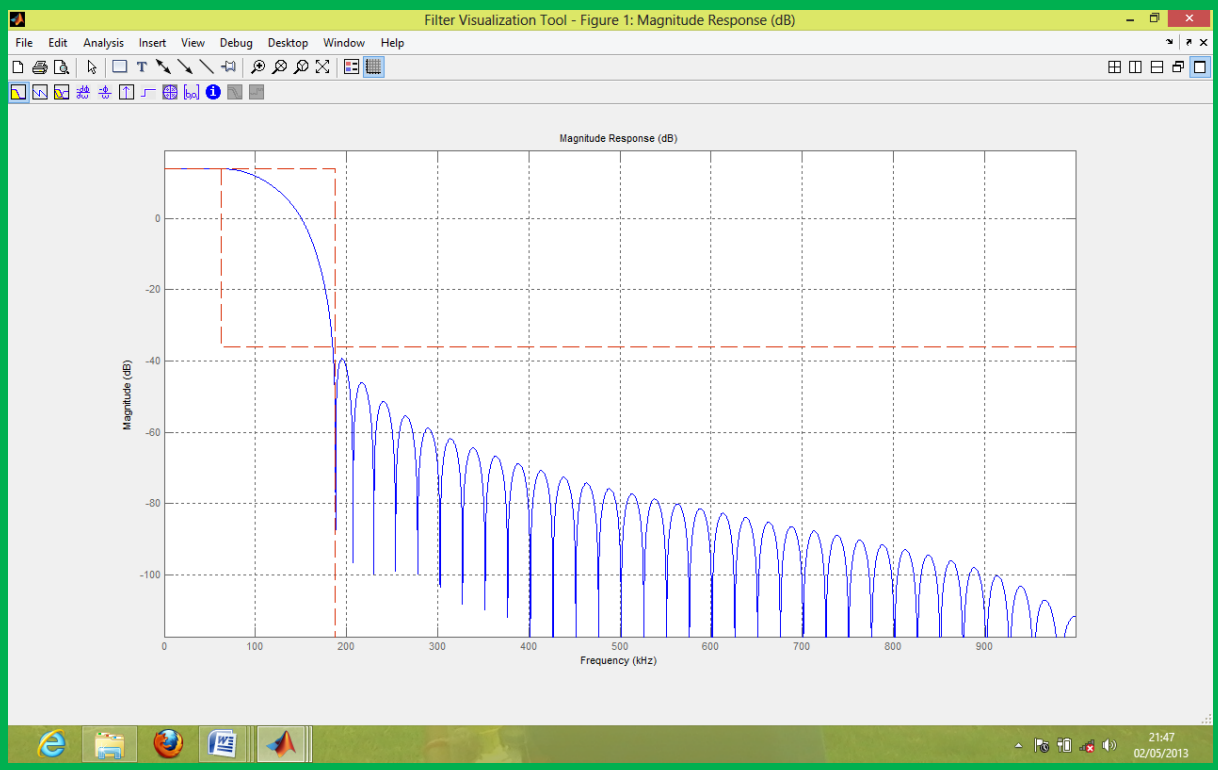


Figure 5. Magnitude response of Raised cosine pulse

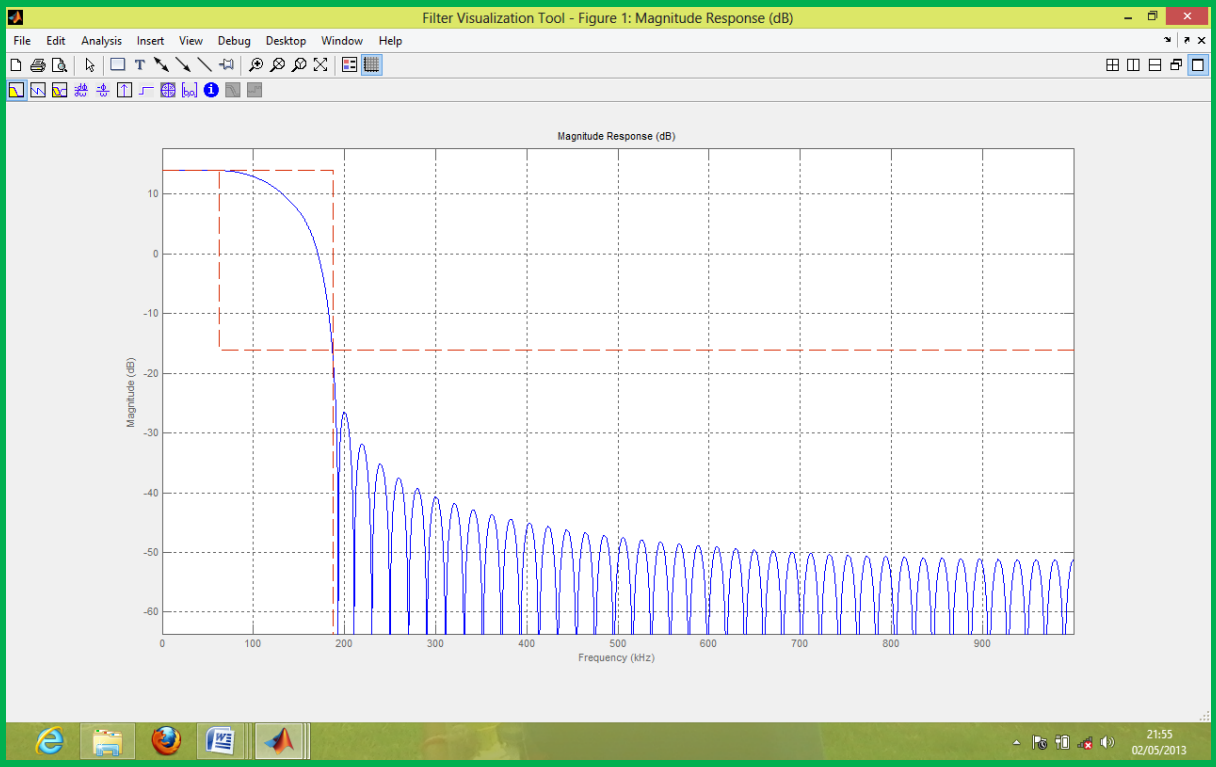


Figure 6. Magnitude response of Square root Raised cosine pulse

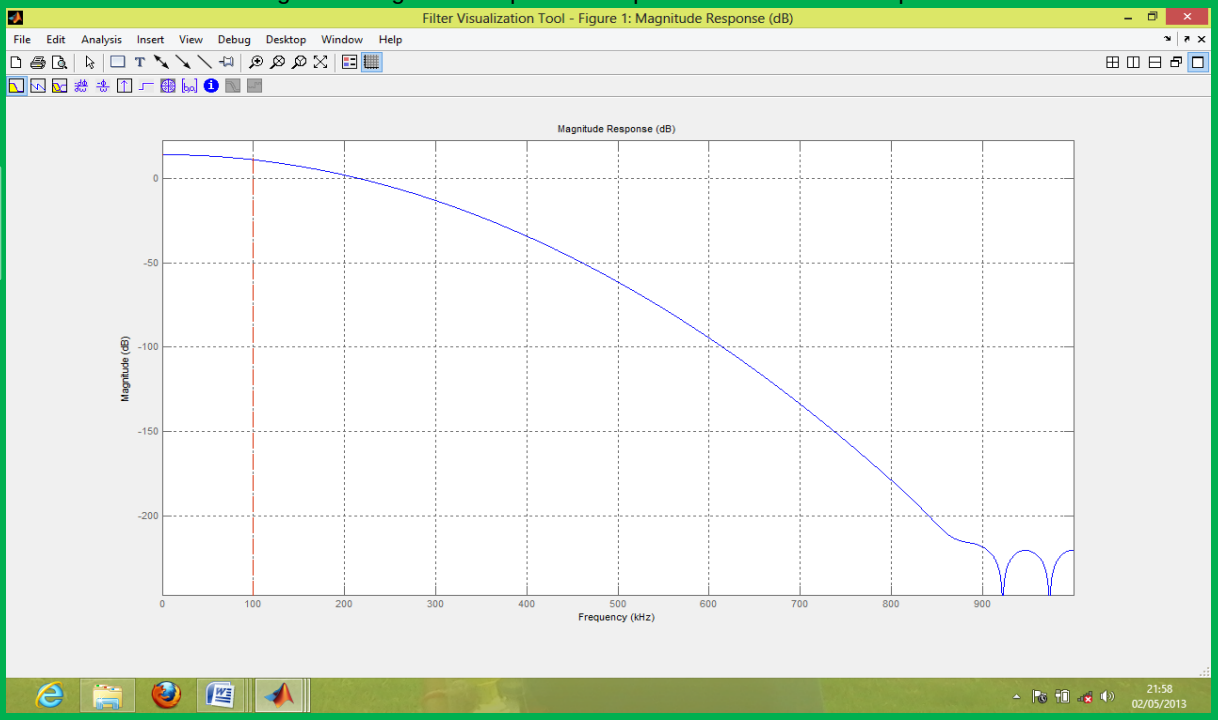
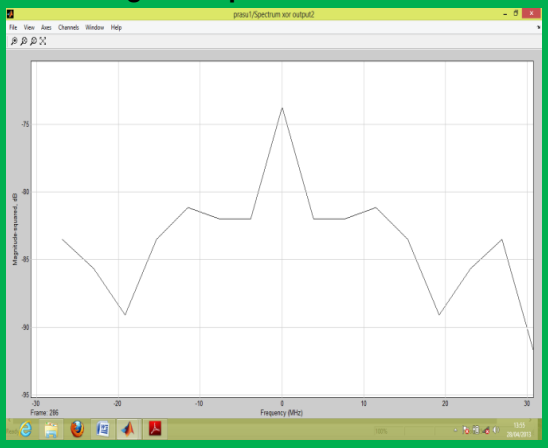
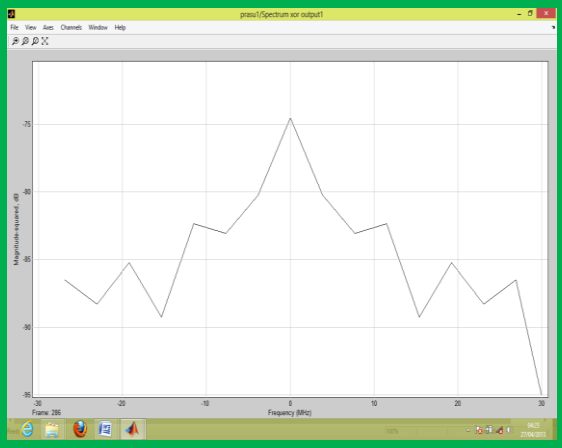


Figure7. Magnitude response of Gaussian pulse

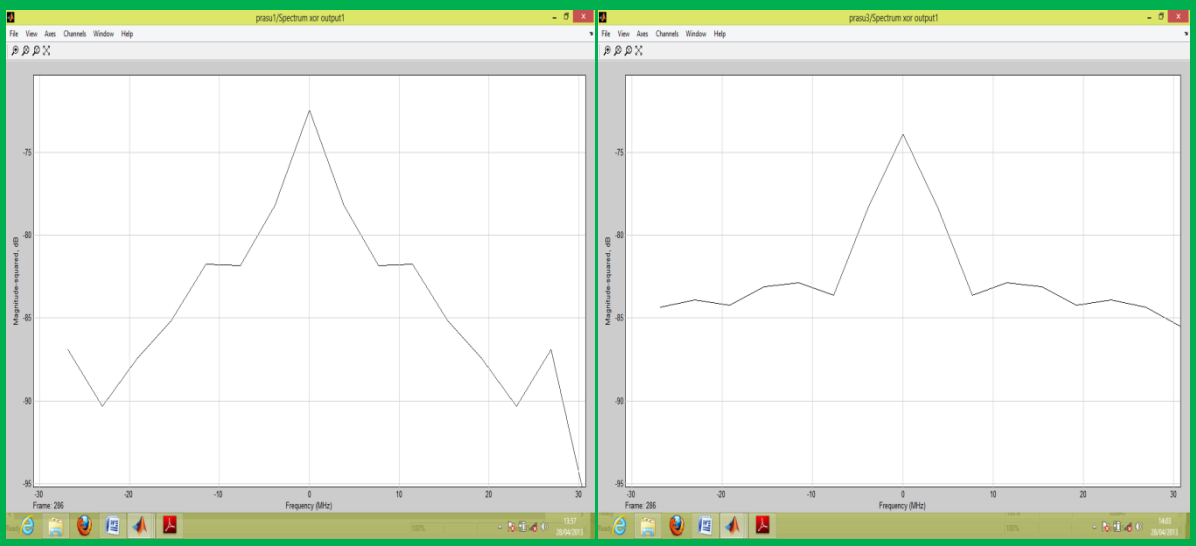
B. Received signal response of filters:



(a)Transmitted signal



(b) Received signal through SRRC



(c) Received signal through RC (d) Received signal through Gaussian filter

Figure 8. Received signal from various filter for given transmitted signal

C.BER response of filters

Table 2. BER response w. r. t. Group delay

Group delay	Raised cosine pulse	SRRC pulse	Gaussian pulse
2	0.51575	.5158	.5042
4	0.51475	.5148	.5000
6	0.49625	.4943	.50025
8	0.50725	.5062	.50025

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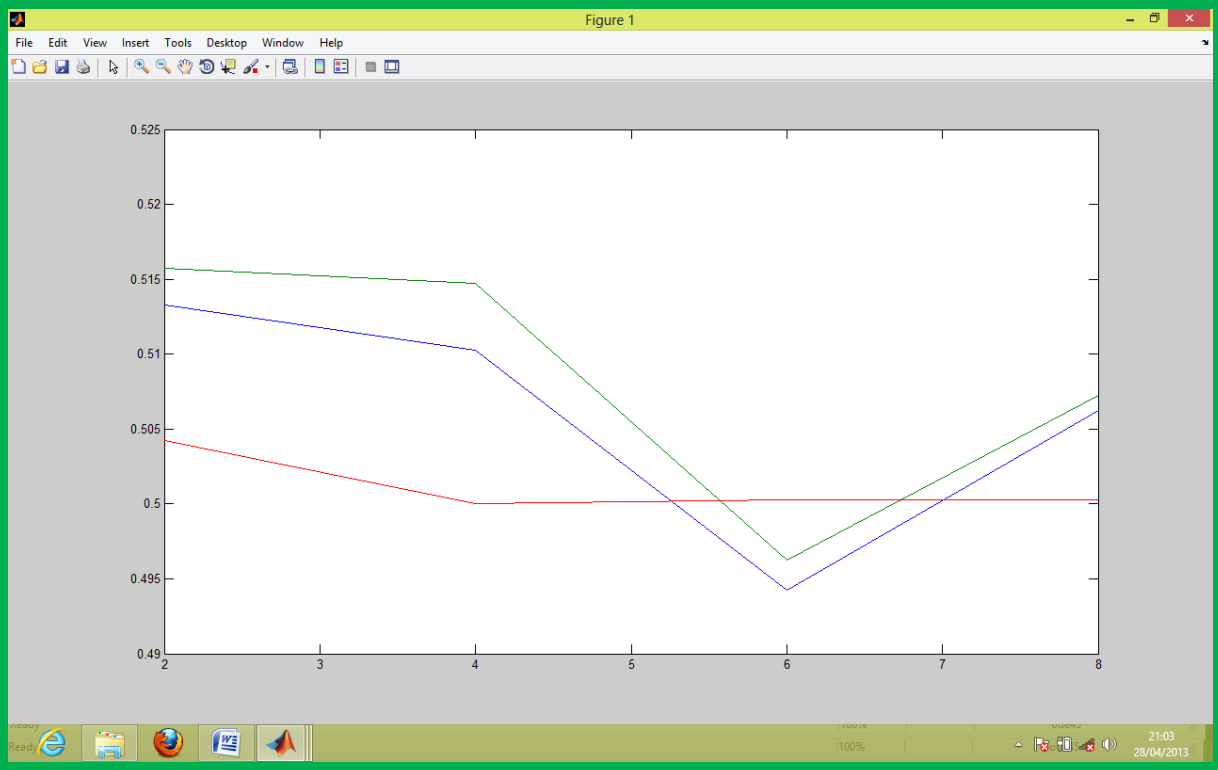

Figure 9. BER response for RRC, RC and Gaussian filter

Conclusion

The pulse shaping filter plays a critical role in WCDMA performance enhancement. The present paper has critically analyzed the pulse shape filtering in wireless communication. The application of signal processing techniques to wireless communications is an emerging area that has recently achieved dramatic improvement in results and holds the potential for even greater results in the future as an increasing number of researchers from the signal processing and communication areas participate in this expanding field.

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THE END

ARTICLE

4

TRANSIENT STABILITY ENHANCEMENT IN POWER SYSTEM WITH DISTRIBUTED SERIES COMPENSATOR (DSSC)

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Abstract:

Stability is a vital problem in long transmission line. In large power system from weakly damped swings occurs between synchronous generators. In this paper we had improved the transient stability of the power system with the use of distributed static series compensator (DSSC). The detailed simulation model of the DSSC has been presented. DSSC has a similar function like static synchronous series compensator (SSSC). It is smaller in size and the price is low along with more other capabilities. A case study had been done comprising two-machine power system. The DSSC has been incorporated in the studied system in different cases. Simulation results shows that the DSSC ability for increasing transient stability of the power system.

Introduction

In a power system the nonlinear system are considered for study of large load disturbances. Although power system stability may be broadly defined according to different operating conditions, the frequency is considered as one of the problem of transient stability. This type of instability occurs due to loss of synchronism between the generators. The wide use of power electronics now a day has introduced the use of Flexible Alternative Current Transmission System (FACTS) controllers in power systems. FACTS controllers are pretty flexible and provide the ability of fast controlling of the network conditions. This salient feature of FACTS can be exploited to improve the stability of a power system. Along the admissible and marvelous merits, FACTS devices have some limitations which have hampered the widespread deployment of them

Some of the main drawbacks regarding the FACTS technology are as follows.

- device complexity and more component requirements lead to a high cost installation;
- Single point of failure will bring about the entire system to shut down;
- Lumped nature of system and initial over-rating of devices to furnish the future growth provides poor return on investment (ROI); and etc.

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Recently a new concept from the family of distributed FACTS (D-FACTS) has been introduced as a way to overcome the most of serious limitations of FACTS devices. D-FACTS devices offer all capabilities of their FACTS counterparts. This newly born technology points the way to a novel approach for achieving power flow control. The distributed nature of the suggested system makes it possible to achieve fine granularity in the system rating. Furthermore, it is possible to expand the system with the growing demand.

The concept of DSSC is on the base of utilizing a low power single-phase inverter, which attaches to the transmission conductor and

Dynamically controls the corresponding transfer impedance. By this way, the active control of power flow on the line is achieved. Quite few papers have attempted the modeling and interrogating of DSSC's capabilities. For instance, offers a graphical simulation model for DSSC and explores a single phase system which comprises only one DSSC and an ideal voltage source instead of generators. Hence, the least available and reported technical papers for DSSC justifies further studies on the other capabilities of this device. This study serves a research where 1400 DSSCs are integrating in a two-area, two-machine system in order to examine the transient stability of the system. With the aim of improving the transient stability, a supplementary controller has been designed and suitably combined to the main control loop of DSSCs. Simulation results exhibit the efficient influence of DSSCs in the transient stability augmentation and justifies its controller performance.

MATERIAL & METHODS

Distributed Static Series Compensator (DSSC)

Recently, a new concept from the family of distributed FACTS (D-FACTS) has been introduced as a way to remove these barriers. The distributed nature of the suggested system makes it possible to achieve fine granularity in the system rating. Moreover, it is possible to expand the system with the growing demand. This gives a salient benefit in planning the system, which allows the planner to have control on available transfer capacity (ATC). It is done in a way that the growing needs in power transfer (equal to 2% for every year) are satisfied by installing new D-FACTS modules in the line for 10 years; this is done in order to meet project growth needs without having to invest all the capital at the start of the project implementation.

The spread nature of the DSS system can overcome such problems by converting the lumped and high power SSSC into a distributed system containing lots of low power compensating modules with the same total amount of compensation. Fig. 1 shows the DSSC distributed units.

DSSC Modeling:

A. Operation Principles of DSSC:

A DSSC unit, which is in series-connected with the transmission line through the coaxial transformer, injects an independent leading or lagging voltage with respect to the line current in order to control the power flow of the line. In this regard, a single DSSC unit behaves like a SSSC. Fig. 2 shows SSSC operation principals. Assume that a compensating unit is attached to bus j and controls the power flow of line j-i. This figure is also identical for a DSSC unit operation and is valid for DSSC modeling.

B. Equivalent circuit and power flow constraints:

DSSC modeling is based on SSSC modeling with two major differences. First, the DSSC units are placed independently on system phases needing a three-phase model and three-phase power flow as depicted in Fig. 3. The second difference is the existence of several modules in a DSSC system distributed uniformly along the line. Considering all of these modules in the model is not practical, therefore, it is assumed that the compensating system consist of three major modules each containing more than one unit. These three modules (per line, per phase) are installed at the beginning, middle and the end of the transmission line. Like a SSSC, a DSSC unit is represented as an independent voltage source in series with transformer impedance. Fig. 4 shows such an equivalent circuit obtained for each phase similarly and independently.

FACTS: Flexible AC Transmission Systems, called FACTS, got in the recent years a well known term for higher controllability in power systems by means of power electronic devices. Several FACTS-devices have been introduced for various applications worldwide. A number of new types of devices are in the stage of being introduced in practice.

In most of the applications the controllability is used to avoid cost intensive or landscape requiring extensions of power systems, for instance like upgrades or additions of substations and power lines. FACTS-devices provide a better adaptation to varying operational conditions and improve the usage of existing installations. The basic applications of FACTS-devices are:

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- Power flow control,
- Increase of transmission capability,
- Voltage control,
- Reactive power compensation,
- Stability improvement,
- Power quality improvement,
- Power conditioning,
- Flicker mitigation,
- Interconnection of renewable and distributed generation and storages.

For the FACTS side the taxonomy in terms of 'dynamic' and 'static' needs some explanation. The term 'dynamic' is used to express the fast controllability of FACTS-devices provided by the power electronics. This is one of the main differentiation factors from the conventional devices. The term 'static' means that the devices have no moving parts like mechanical switches to perform the dynamic controllability. Therefore most of the FACTS-devices can equally be static and dynamic.

SVC of combined TSC and TCR type

When large disturbances occur in a power system due to load rejection, there is a possibility for large voltage transients because of oscillatory interaction between system and the SVC capacitor bank or the parallel. The LC circuit of the SVC in the FC compensator. In the TSC–TCR scheme, due to the flexibility of rapid switching of capacitor banks without appreciable disturbance to the power system, oscillations can be avoided, and hence the transients in the system can also be avoided. The capital cost of this SVC is higher than that of the earlier one due to the increased number of capacitor switches and increased control complexity.

STATCOM:

In 1999 the first SVC with Voltage Source Converter called STATCOM (Static Compensator) went into operation. The STATCOM has a characteristic similar to the synchronous condenser, but as an electronic device it has no inertia and is superior to the synchronous condenser in several ways, such as better dynamics, a lower investment cost and lower operating and maintenance costs.

The advantage of a STATCOM is that the reactive power provision is independent from the actual voltage on the connection point. In the distributed energy sector the usage of Voltage Source Converters for grid interconnection is common practice today. The next step in STATCOM development is the combination with energy storages on the DC-side. The performance for power quality and balanced network operation can be improved much more with the combination of active and reactive power.
A practical STATCOM requires some amount of energy storage to accommodate harmonic power and ac system unbalances, when the instantaneous real power is non-zero. The maximum energy storage required for the STATCOM is much less than for a TCR/TSC type of SVC compensator of comparable rating.

Several different control techniques can be used for the firing control of the STATCOM. Fundamental switching of the GTO/diode once per cycle can be used. This approach will minimize switching losses, but will generally utilize more complex transformer topologies.
As an alternative, Pulse Width Modulated (PWM) techniques, which turn on and off the GTO or IGBT switch more than once per cycle, can be used. This approach allows for simpler transformer topologies at the expense of higher switching losses.
This method can be extended to produce a 24 pulse and a 48 pulse STATCOM, thus eliminating harmonics even further. Another possible approach for harmonic cancellation is a multi-level configuration which allows for more than one switching element per level and therefore more than one switching in each bridge arm. The ac voltage derived has a staircase effect, dependent on the number of levels. This staircase voltage can be controlled to eliminate harmonics.

Unified Power Flow Controller:
The UPFC is a combination of a static compensator and static series compensation. It acts as a shunt compensating and a phase shifting device simultaneously.The UPFC consists of a shunt and a series transformer, which are connected via two voltage source converters with a common DC-capacitor. The DC-circuit allows the active power exchange between shunt and series transformer to control the phase shift of the series voltage. This setup, as shown in Figure 1.21, provides the full controllability for voltage and power flow. The series converter needs to be protected with a Thyristor bridge.
Due to the high efforts for the Voltage Source Converters and the protection, an UPFC is getting quite expensive, which limits the practical applications where the voltage and power flow control is required simultaneously.

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Operating Principle of UPFC
The basic components of the UPFC are two voltage source inverters (VSIs) sharing a common dc storage capacitor, and connected to the power system through coupling transformers. One VSI is connected to in shunt to the transmission system via a shunt transformer, while the other one is connected in series through a series transformer. A basic UPFC functional scheme is shown in fig.1
The series inverter is controlled to inject a symmetrical three phase voltage system (Vse), of controllable magnitude and phase angle in series with the line to control active and reactive power flows on the transmission line. So, this inverter will exchange active and reactive power with the line. The reactive power is electronically provided by the series inverter, and the active power is transmitted to the dc terminals. The shunt inverter is operated in such a way as to demand this dc terminal power (positive or negative) from the line keeping the voltage across the storage capacitor Vdc constant. So, the net real power absorbed from the line by the UPFC is equal only to the losses of the inverters and their transformers.
The remaining capacity of the shunt inverter can be used to exchange reactive power with the line so to provide a voltage regulation at the connection point.
The two VSI's can work independently of each other by separating the dc side. So in that case, the shunt inverter is operating as a STATCOM that generates or absorbs reactive power to regulate the voltage magnitude at the connection point. Instead, the series inverter is operating as SSSC that generates or absorbs reactive power to regulate the current flow, and hence the power low on the transmission line.
The UPFC has many possible operating modes. In particular, the shunt inverter is operating in such a way to inject a controllable current, ish into the transmission line. The shunt inverter can be controlled in two different modes:
VAR Control Mode: The reference input is an inductive or capacitive VAR request. The shunt inverter control translates the var reference into a corresponding shunt current request and adjusts gating of the inverter to establish the desired current. For this mode of control a feedback signal representing the dc bus voltage, Vdc, is also required.

Automatic Voltage Control Mode: The shunt inverter reactive current is automatically regulated to maintain the transmission line voltage at the point of connection to a reference value. For this mode of control, voltage feedback signals are obtained from the sending end bus feeding the shunt coupling transformer.
The series inverter controls the magnitude and angle of the voltage injected in series with the line to influence the power flow on the line. The actual value of the injected voltage can be obtained in several ways.
Direct Voltage Injection Mode: The reference inputs are directly the magnitude and phase angle of the series voltage.
Phase Angle Shifter Emulation mode: The reference input is phase displacement between the sending end voltage and the receiving end voltage. Line Impedance Emulation mode: The reference input is an impedance value to insert in series with the line impedance
Automatic Power Flow Control Mode: The reference inputs are values of P and Q to maintain on the transmission line despite system changes.

Transient Stability Analysis: Transient stability studies provide information related to the capability of a power system to remain in synchronism during major disturbances resulting from either the loss of generating or transmission facilities, sudden or sustained load changes, or momentary faults. Specifically, these studies provide the changes in the voltages, currents, powers, speeds, and torques of the machines of the power system, as well as the changes in system voltages and power flows, during and immediately following a disturbance. The degree of stability of a power system is an important factor in the planning of new facilities. In order to provide the reliability required by the dependence on continuous electric service, it is necessary that power systems be designed to be stable under any conceivable disturbance.

For small disturbance (say gradual loading), the swing equation can be linearized leading to the concept of steady state stability. No generalized criteria are available for determining system stability with large disturbances (called transient stability).
Factors influencing transient stability:

- How heavily the generator is loaded.
- The generator output during the fault, this depends on the fault location and type.
- The fault clearing time.
- The post fault transmission system reactance.
- The generator reactance. A lower reactance increases peak power and reduces initial rotor angle.

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Methods for improving the transient stability limit of a power system:

- Increase of system voltages, use of AVR.
- Use of high speed excitation systems.
- Reduction in system transfer reactance.

The number of differential equations required for a machine depends on the details needed to represent accurately the machine performance.

A transient stability analysis is performed by combining a solution of the algebraic equations describing the network with a numerical solution of the differential equations. The solution of the network equations retains the identity of the system and thereby provides access to system voltages and currents during the transient period.

RESULT AND CONCLUSION

The development of D-FACTS devices has been announced as an effective approach to overwhelm the high cost implementation of FACTS family. The distributed devices are also apt to accomplish some other ancillary duties such as transient stability enhancement, power oscillation damping, etc. This study served a review of graphical-based simulation model for the DSSC which is in fact a smaller counterpart of SSSC. A two-machine power system is put under investigation in order to verify the DSSC capability for increasing the transient stability of the whole system.
Simulation results demonstrate that when the DSSCs are out of service, the rotor angle between the machines. But when the DSSCs are in circuit, they stabilize the system even without a specific controller. In the next, a severe fault is taken to occur in the system. It is shown that for this case, the system even with DSSCs in service becomes totally unstable. Hence, a PID controller is added to the main control loop of DSSC for improving the transient stability margin of the system. Simulation results exhibit that in this case the system will remain stable after the fault removal. Consequently, the ability of distributed devices such as DSSC in the enhancement of the power system operation is certified.

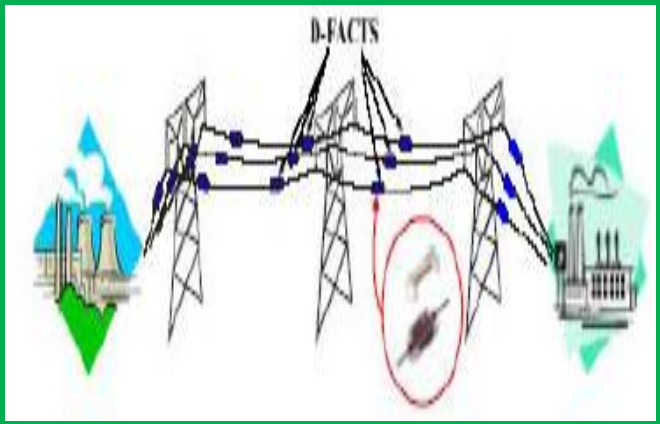

Figure1. Distributed compensation system

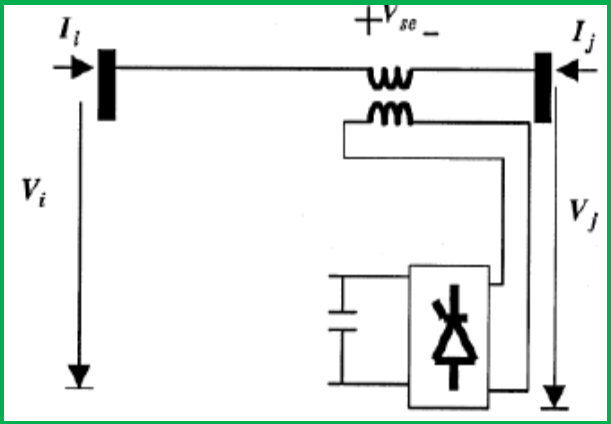

Figure2. SSSC operation principals

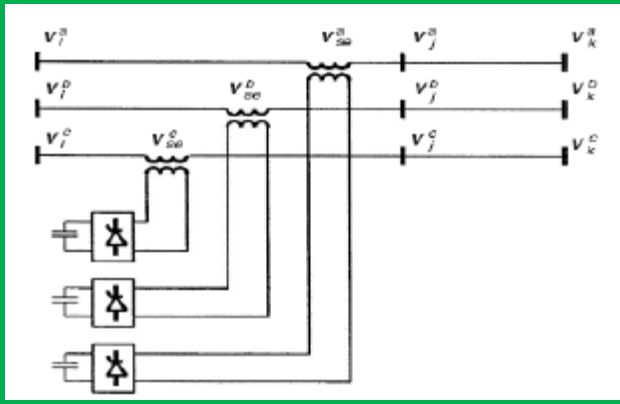

Figure3. Three phase compensation

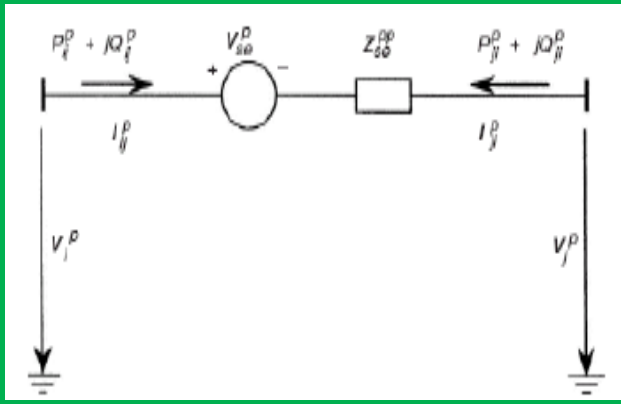

Figure4. Single phase equivalent circuit

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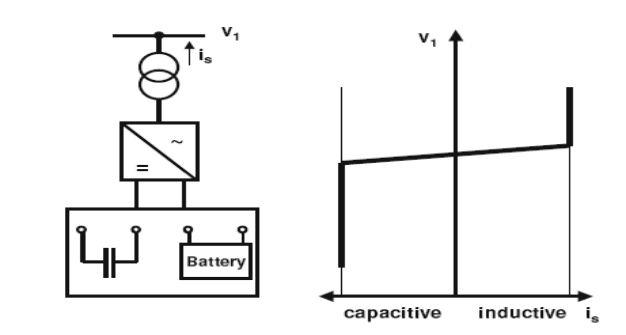

Fig: 5 STATCOM structure and voltage / current characteristic

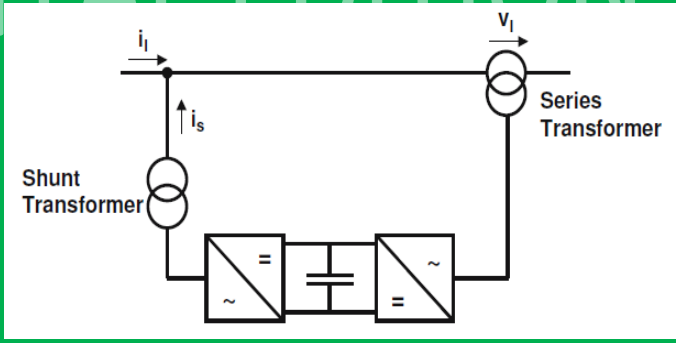

Fig: 7 Principle configuration of an UPFC

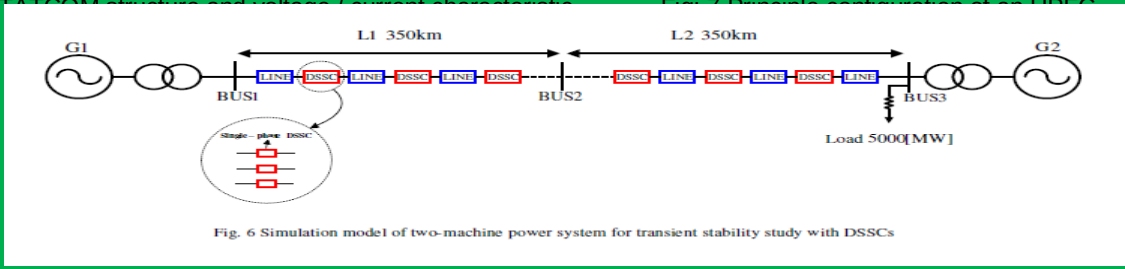

Fig. 6 Simulation model of two-machine power system for transient stability study with DSSCs

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5

IMPLEMENTATION OF AIR INTERFACE NETWORK USING RRC FILTER

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Abstract:

In recent time, there is large research in "Digital signal application". In this there is also a vast research area in wireless communication. In wireless communication recent researches are based on WCDMA (3G). WCDMA network facing problem of ISI (inter symbol interference) and channel bandwidth. This problem should be avoided by using pulse shaping (Root raised cosine filter). It better responds on group delay D=6 and with Roll off factor 0.2.

Introduction

In modern digital communication system, we used the techniques which improve the performance of wireless communication (or 3G system). For that we use Air interface or WCDMA (wideband code division multiple access), that is an advance technique after CDMA(IS-95).WCDMA is generally implemented in 3G system that offers higher data speed to mobile than older. It holds many other features like GPS, Video calling, Mobile internet (speed up to 2 Mbps) etc. In CDMA, users are multiplexed by distinct codes rather than by orthogonal frequency bands, as in frequency-division multiple access. The enhancement in performance is obtained from a Direct Sequence Spread Spectrum (DSSS, PN-Sequence generator) signal through the processing gain and the coding gain can be used to enable many DSSS signals to occupy the same channel bandwidth, provided that each signal has its own pseudorandom (signature) sequence. Thus enable several users to transmit their information over the same channel bandwidth. This is the main concept of a WCDMA communication system. W-CDMA can support mobile/portable voice, images, data, and video communications at up to 2 Mbps (local area access) or 384 Kbps (wide area access).

To recover the signal, at receiver side we have decode the coding sequence. Bandwidth of coded signal is taken larger than information signal for better result. In encoding it spreads over large frequency range. In this problem occurs in Trade-off of bandwidth containment in frequency domain and Ripple attenuation in time domain.

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To achieve WCDMA or Air interface consideration (Data rate up to 2Mbps, chip rate up to 3.8 Mcps), we should have larger bandwidth and no ISI (inter symbol interference). WCDMA also supports high user data rates and increased multipath diversity. Here each user is allocated the frames of 10 ms duration during which the user data is kept constant though data capacity among users can change from frame to frame.

Why Pulse Shaping in Air interface network?

A trade off exists between bandwidth containment in frequency domain and ripple attenuation in time domain in Spread spectrum modulation. It is this trade off of bandwidth containment versus ripple amplitude which must be considered by design engineers, when developing a data transmission system that employs pulse shaping. In spread spectrum modulation, the resulting signal is also called a spread-spectrum signal, and CDMA is often denoted as spread-spectrum multiple access. The processing gain factor is defined as the ratio of the transmitted bandwidth to information bandwidth and is given by:

$$Gp=Bt/Bi. \quad \ldots\ldots\ldots\ldots\ldots(1)$$

Correlating the received signal with a code signal from a certain user will then only despread the signal of this user, while the other spread-spectrum signals will remain spread over a large bandwidth.

In communications systems, two important requirements of a wireless communications channel demand the use of a pulse shaping filter. These requirements are:

1) Generating band limited channels, and
2) Reducing inter symbol interference

(ISI) arising from multi-path signal reflections.

Both requirements can be accomplished by a pulse shaping filter which is applied to each symbol. In fact, the sync pulse, shown below, meets both of these requirements because it efficiently utilizes the frequency domain to utilize a smaller portion of the frequency domain, and because of the windowing affect that it has on each symbol period of a modulated signal.

System model

Figure1 presents the proposed model of Air interface network (WCDMA). In this we have an information signal modulated with PN-sequence to spread the signal. After that, it encoded by Differential encoder. It is modulated by OQPSK modulator. Modulated signal is passed through Pulse shaping filter. We have used 'Transmitting Root raised cosine filter'. It transmit signal over channel merged with 'Gaussian Noise', which shows the noise in Gaussian form. At receiver side it passes through 'Receiving Root raised cosine filter'. After filtering we have demodulated and decoded the signal. It will then despreaded to find actual frequency range. Comparator provides the actual or desired signal. Error counter counts errors in total no. Of bits transmitted. Then we have calculate the BER(Bit error rate).

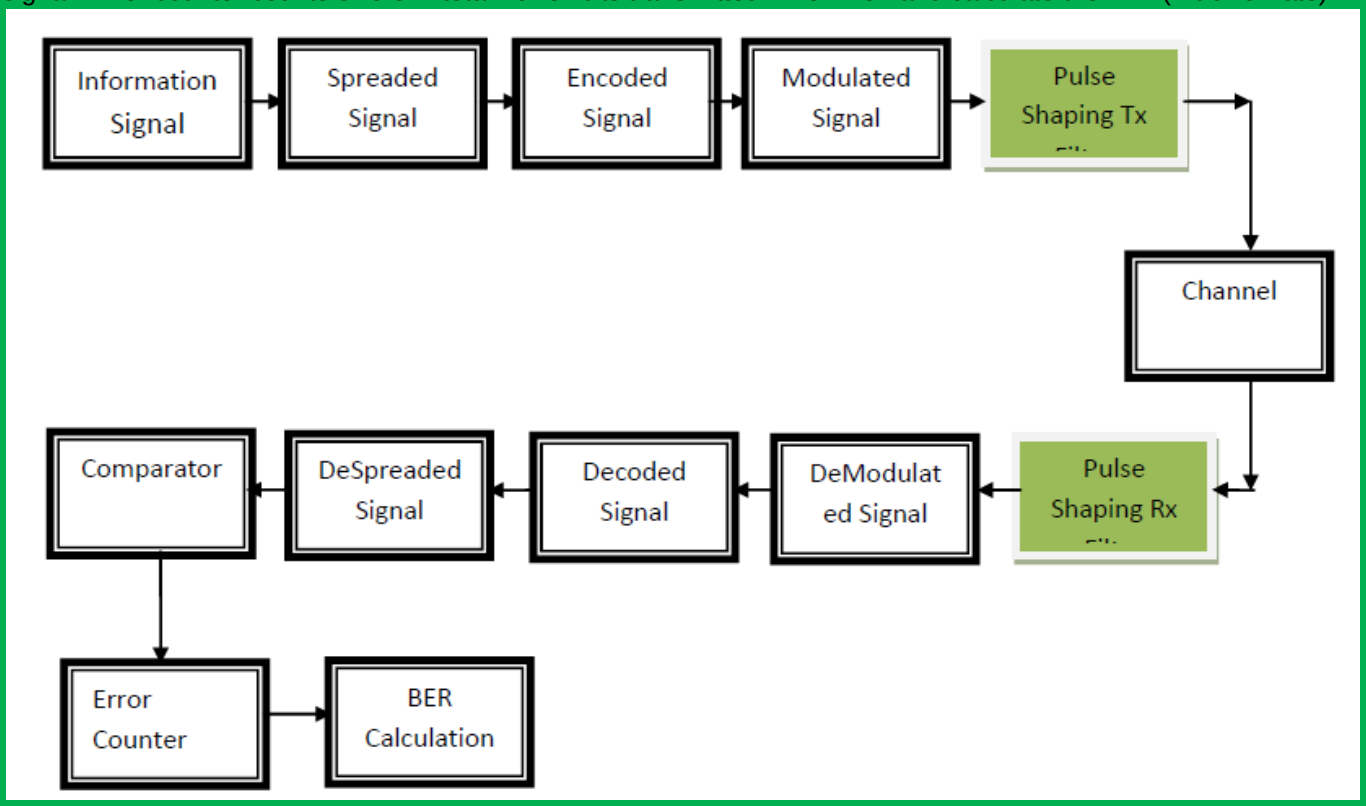

Fig. 1: Block diagram for WCDMA System

Simulation of model

A simulink model based on the Matlab 7.3 version will provide the output. The information signal in wideband CDMA system is generated by Bernoulli Binary Generator and the PN sequence is used for spreading the signal at 5 MHz bandwidth. The signal is passed from different parameters block as shown in figure 3 and at the end BER is calculated by comparing the transmitted data and received data. On the basis of above block diagram, a simulation model has been developed by using' Matlab Simulink Library'.

We have taken Information signal at input sample rate = 1/64Kbps which is modulated with PN-Sequence at sample rate =1/3840Kbps to spread the signal. The simulation results for BER along with the number of errors and number of bits in each frame have been obtained. The readings of the simulation model for number of bits, number of errors and Bit Error Rate at different values of D have been taken at different time instants during the simulation runs. The parameters of the simulation model are given as below:

Eb/No=5dB, PN Sequence Generator Sample time=1/3840kbps, Bernoulli Binary Generator Sample time=1/64kbps (data services), Interpolation Factor M=5, Roll Off Factor =0.22 .

Observations in Air interface model

Response of signal in each step with respect to time and its frequency response and eye-scope diagram is given billow for our simulink model of WCDMA network with given data.

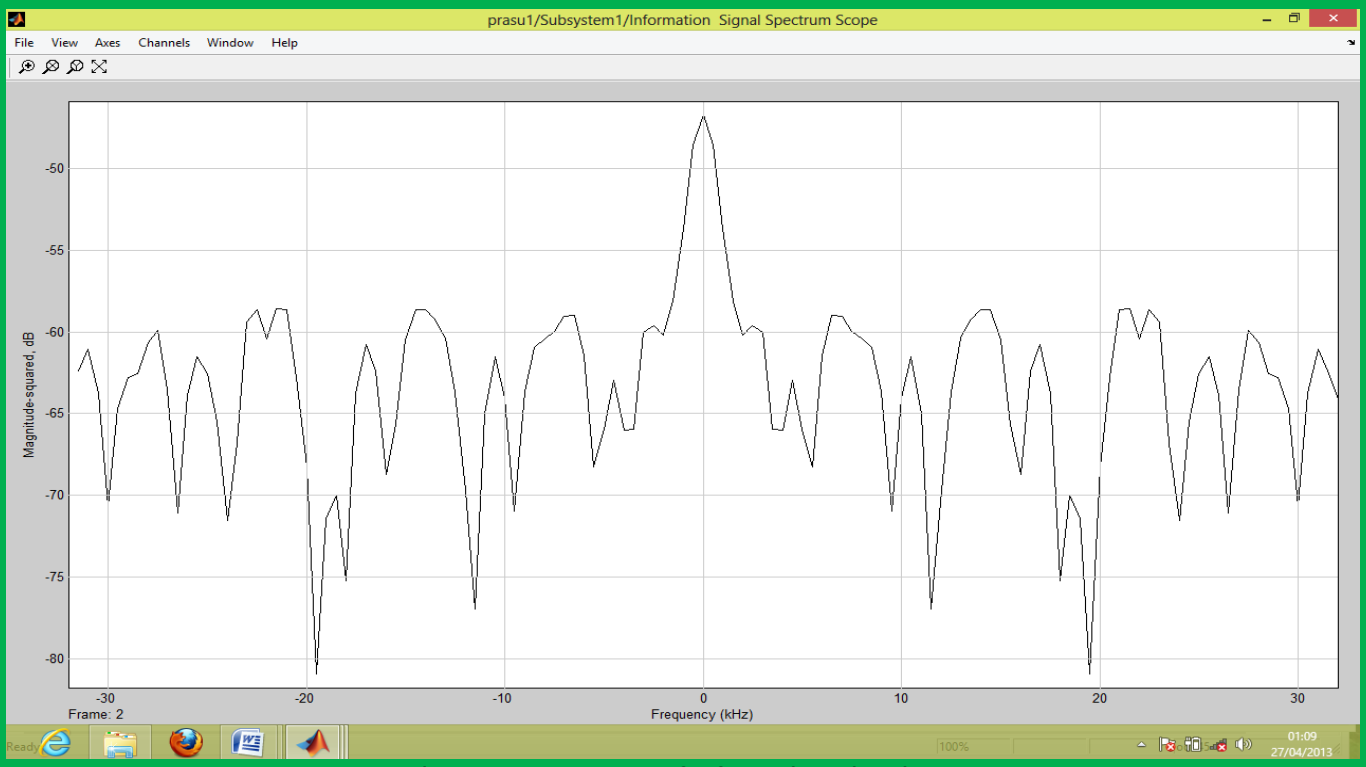

Figure2. BFFT scope of Information Signal

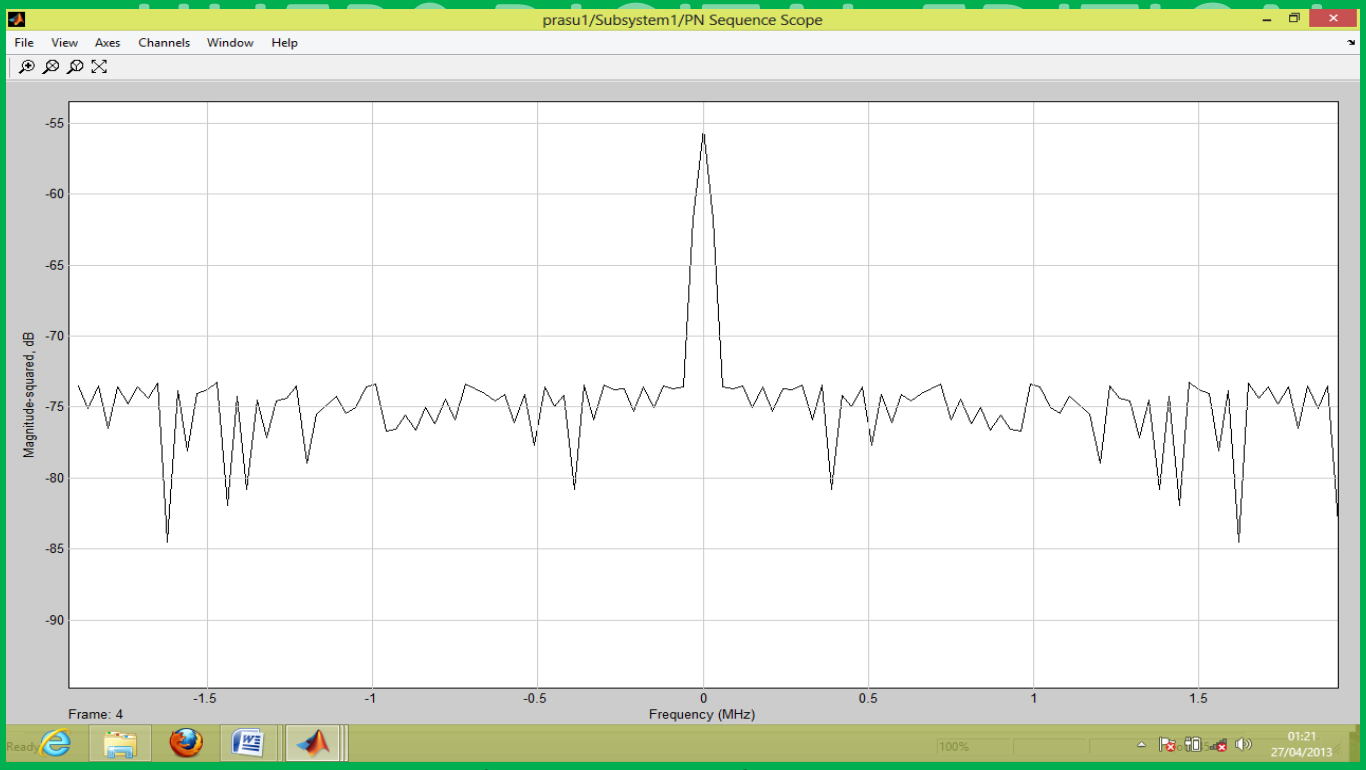

Figure 3.BFFT scope of PN- Sequence

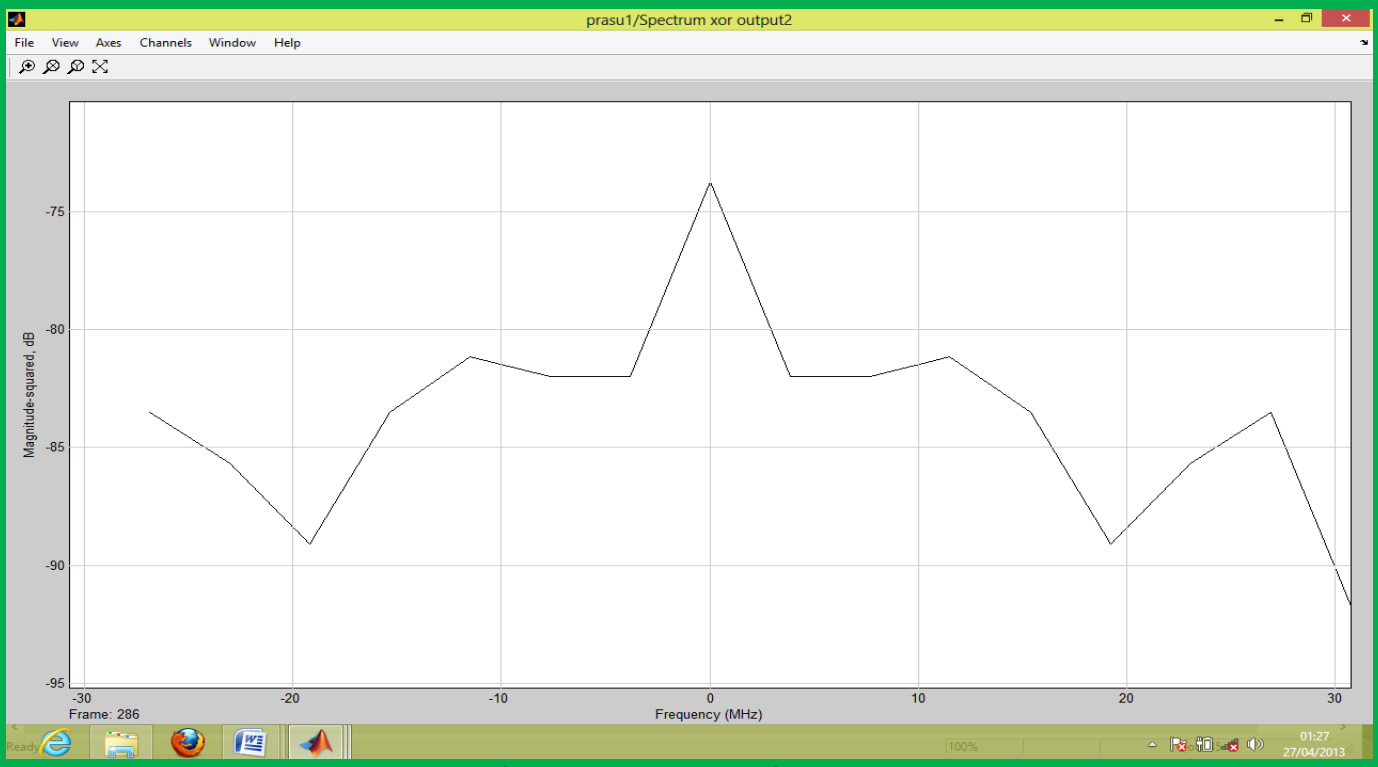

Figure 4. BFFT Scope of X-OR Output

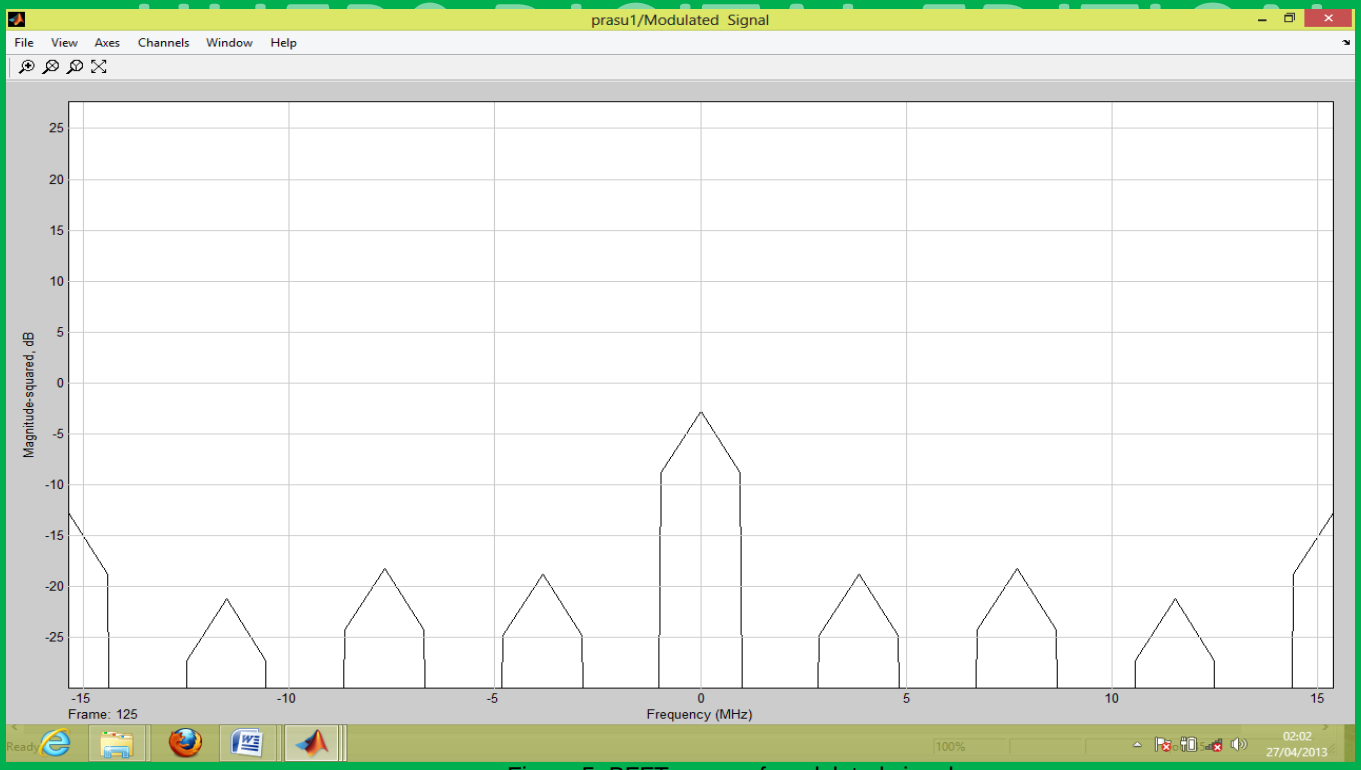

Figure 5. BFFT scope of modulated signal

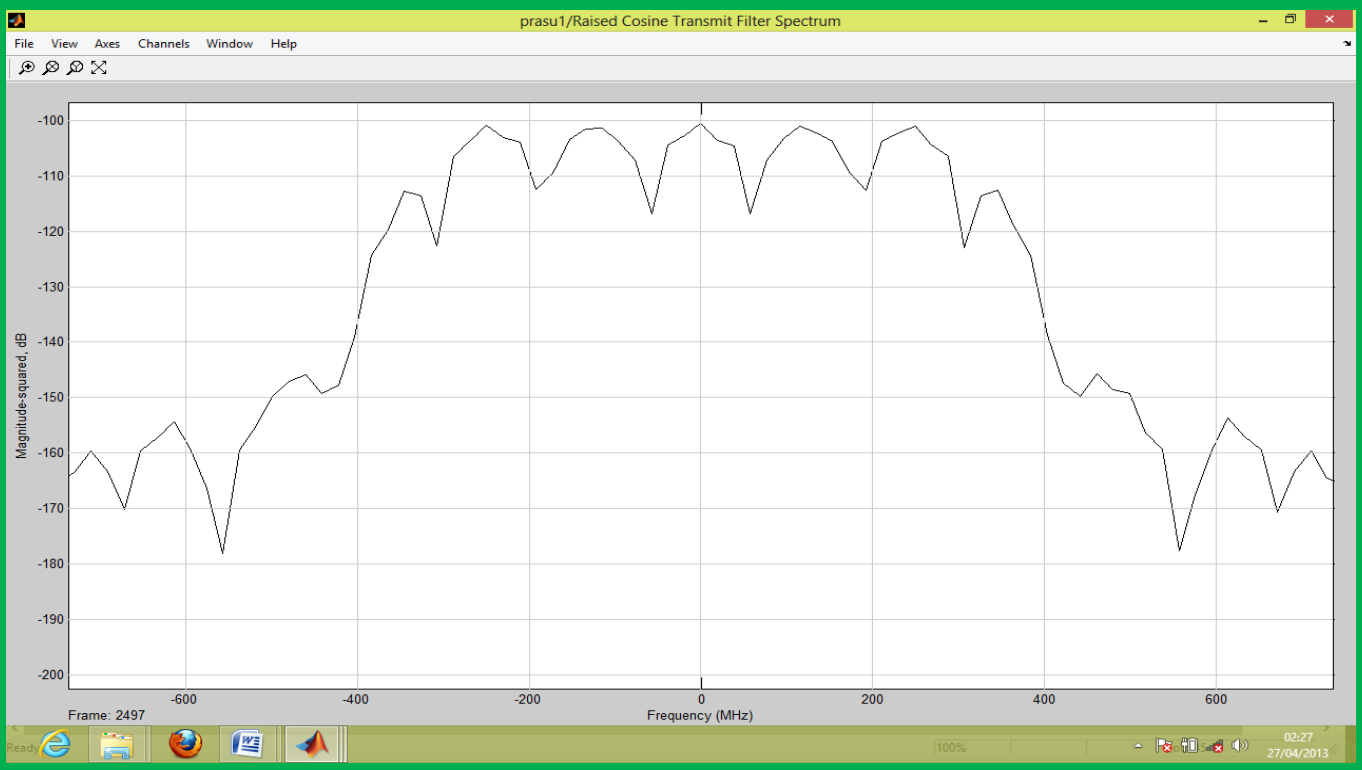

Figure 6. BFFT scope of transmitted signal trough RRC

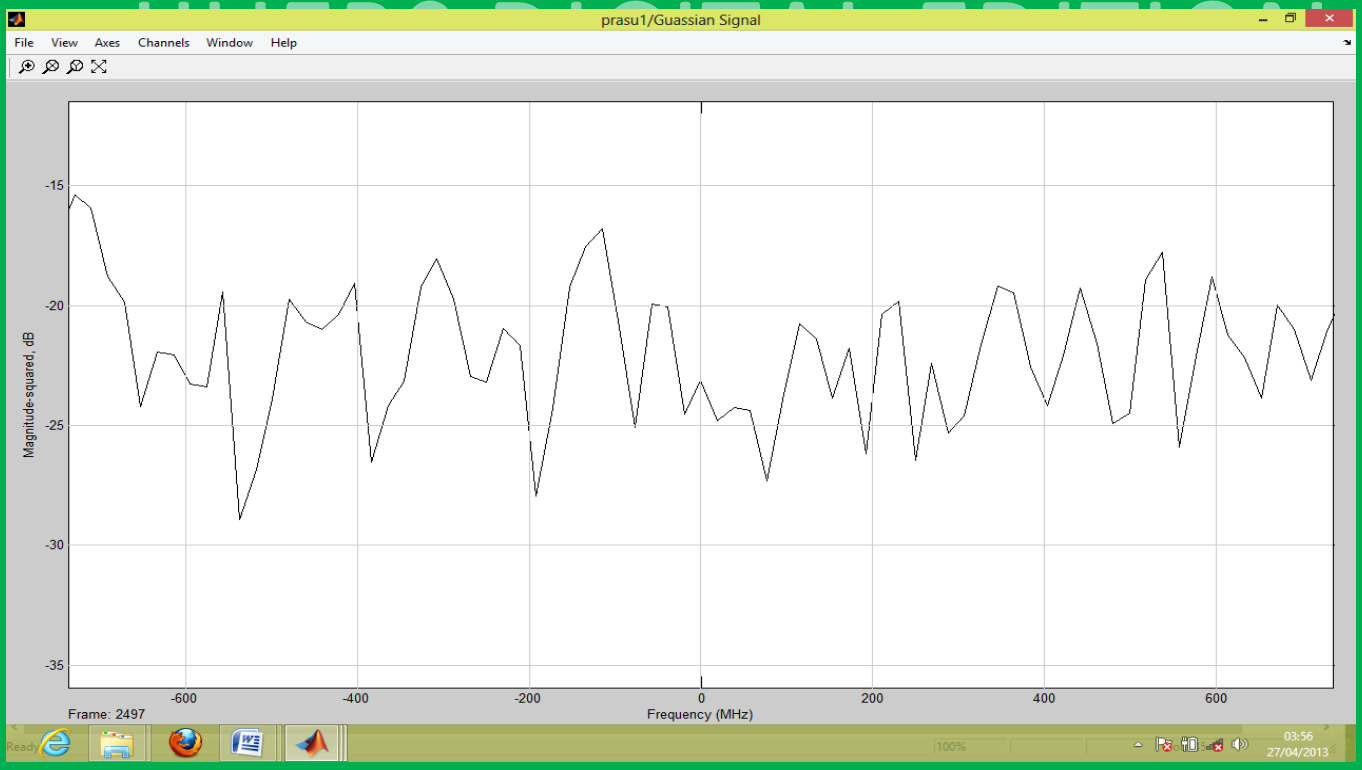

Figure 7. BFFT scope of Guassian signal signal(Noisy signal)

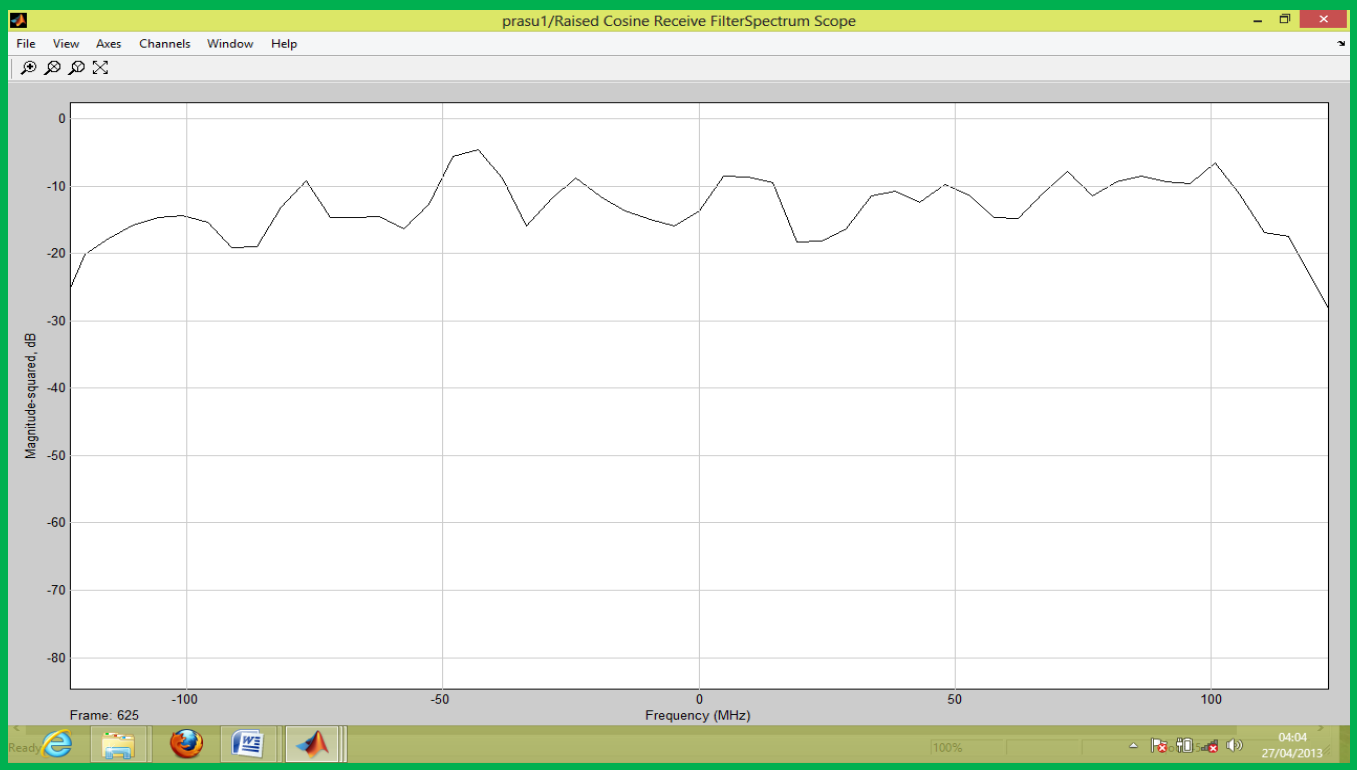

Figure 8. BFFT scope of receivved signal trough RRC

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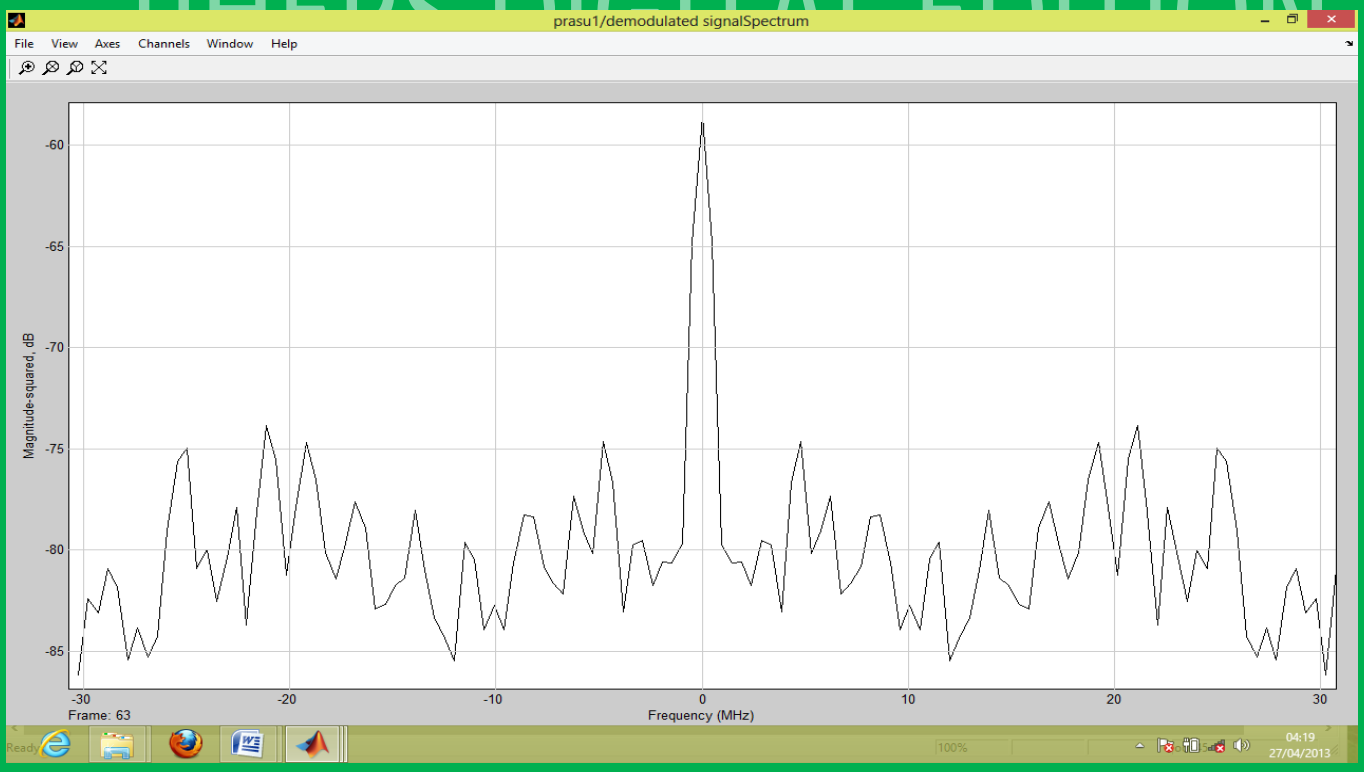

Figure 9. BFFT scope of demodulated signal

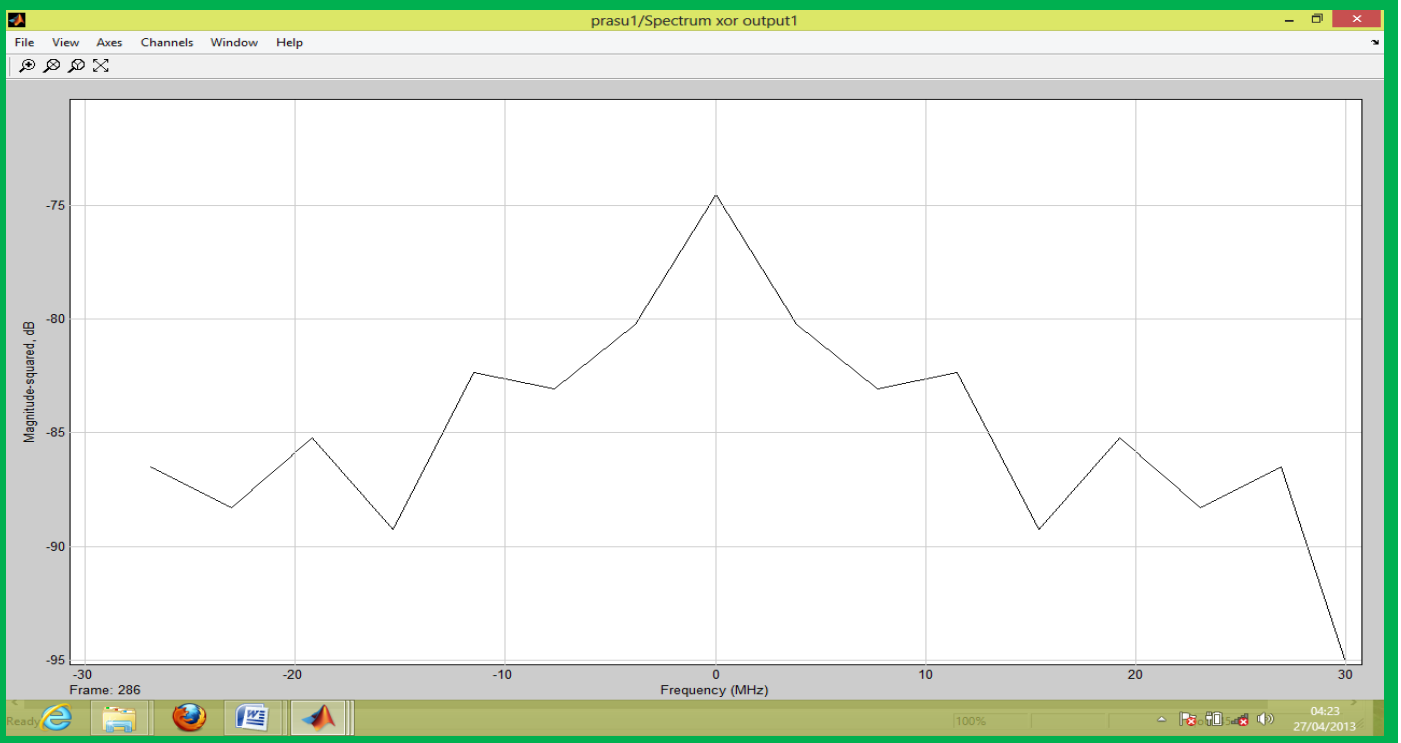

Figure 10. Received signal

Result and discussion

The simulation study has also been carried out for different values of D i.e.2,4,6 and 8. The simulation results for BER along with the number of errors and number of bits in each frame have been obtained and are summarized in tables 1, 2, 3,4.

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Table 1. BER response with respect to group delay

Group delay(D)	Bit error rate(BER)
D=2	0.51325
D=4	0.51025
D=6	0.49425
D=8	0.50625

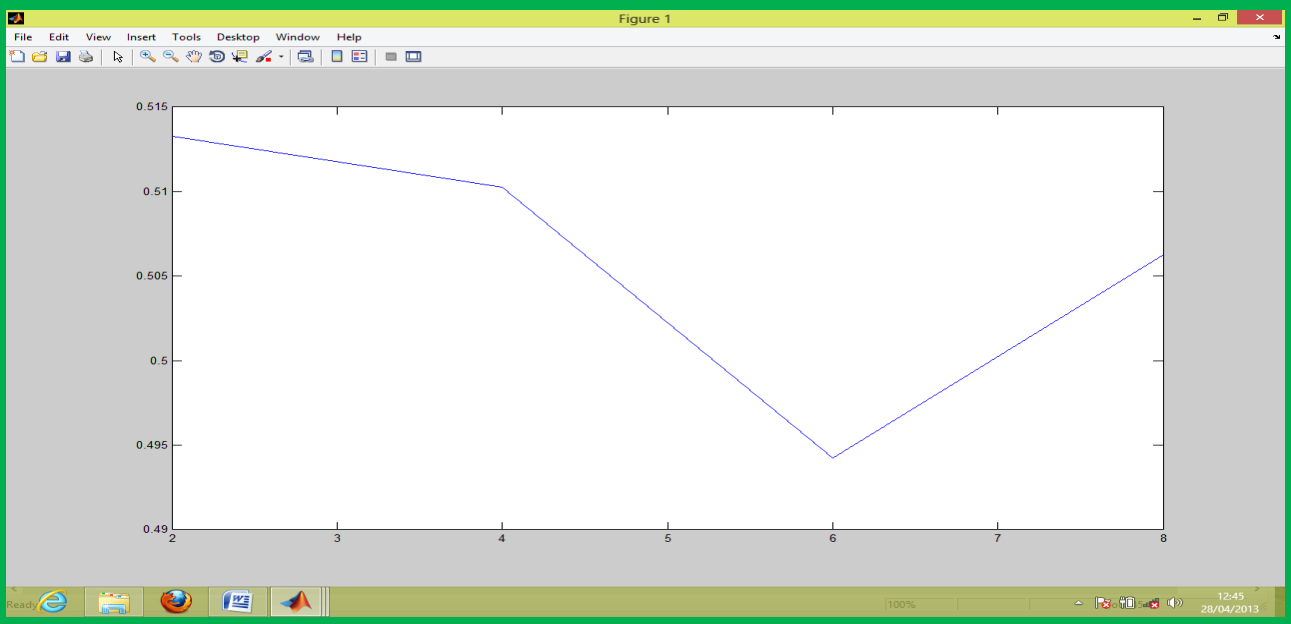

Figure11. BER versus Group delay D for WCDMA at 5Mhz

Eb/No=5dB; PN Sequence Generator Sample time=1/3840kbps,Bernoulli Binary Generator Sample time=1/64kbps(data services) Interpolation Factor M=5,Roll Off Factor =0.22(Optimum). Fig.4.11 shows effect of change of group delay on number of errors in the simulation study.

Conclusion

It reduces the problem of Band limited channel and Inter symbol interference. The present study has proposed the WCDMA communication link using OQPSK based system employing the pulse shaping filters using matlab simulink. The group delay plays a crucial role in pulse shaping digital finite impulse response filter.The value of group delay should be minimum for efficient performance of digital pulse shaping filter.

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6

ACECLOFENAC COCRYSTAL: EFFECT OF WATER SOLUBLE POLYMERS

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Abstract:

The purpose of present research article was to investigate the effect of water soluble polymers like PVPK30, HPMC, sodium starch glycolate (SSG) and sodium carboxy methyl cellulose (NaCMC) on aceclofenac cocrystal. Aceclofenac cocrystals were prepared by using cocrystal former nicotinic Acid , solvent dimethylsulfoxide (DMSO) and 3% water soluble polymers like PVPK30, HPMC, sodium starch glycolate (SSG) and sodium carboxy methyl cellulose (NaCMC) by both solvent evaporation & neat grinding method. Among 1%, 2%, and 3% water soluble polymers, 3% water soluble polymers were used in aceclofenac cocrystal formation on the basis of greater stability constant with aceclofenac in phase solubility study. In phase solubility study 3% sodium carboxy methyl cellulose (NaCMC) had shown maximum stability constant (11.41) with aceclofenac. In vitro drug releases of aceclofenac cocrystals were determined by tablet formed by wet granulation method. Aceclofenac cocrystal containing 3% water soluble polymers had shown greater drug release than those of without water soluble polymers. Aceclofenac cocrystal containing 3% NaCMC and 3% HPMC had shown maximum drug release 95% and 94% respectively which proved the effect of water soluble polymers as a dissolution improving ingredient. Aceclofenac cocrystals were evaluated by FT-IR and SEM which confirmed the formation of aceclofenac cocrystal.

Introduction

Drug with low solubility are discarded during commercial production. Improving the solubility of drug is currently one of the main challenges for the pharmaceutical industry. The techniques for improving solubility are micronisation, salt formation, emulsification, solubilisations using cosolvent, and the use of polymer drug vehicles for delivery of poorly soluble drugs. Cocrystal formation is currently best technique for enhancing the solublity of poorly aqeous soluble drug. Zaworotko research group defined cocrystal as “a cocrystal is a stoichiometric multiple crystal in which all components are solid under ambient conditions when in their pure form. These components consist of a target molecule or ion and a molecular cocrystal former(s) and when in a cocrystal they coexist at the molecular level within a single crystal.In pharmaceutical cocrystals the target molecule or ion is an active pharmaceutical ingredient which bond to cocrystal former by hydrogen bond. A cocrystal former forms hydrogen bond to the target molecule result the formation of cocrystal. The physical state of compound is the main parameter to differentiate the cocrystal from solvate. If one component is a liquid at room temperature, the crystals are designated as solvates; if both components are solids at room temperature, and the crystals are designated as cocrystals. Cambridge Structural Database (CSD) statistics is very important tool for selection of suitable cocrystal former for target molecule. A cocrystal former must be pharmaceutically acceptable, limited to generally regarded as safe (GRAS) and approved by food and drug administration (FDA). Solubility, toxicity, pKa and cost are also important parameters which are considered during the selection of suitable cocrystal former.

Dr. Desiraju in 1989 was given the definition of crystal engineering. “Crystal engineering is the understanding of intermolecular interactions in the context of crystal packing and in the utilization of such understanding in the design of new solids with desired physical and chemical properties. Traditional chemistry focuses on covalent bond while supramolecular chemistry deals with noncovalent interactions like hydrogen bonding, van der Waals force, π-π stacking, electrostatic interactions, and halogen bonding.Term supramolecular synthon was introduced by Dr. Desiraju in 1995. Supramolecular synthons are structural units within supermolecules which can be formed and/or assembled by known or conceivable intermolecular interactions. Supramolecular synthons are spatial arrangements of intermolecular interactions between complementary functional groups and simplifies understanding of a crystal structure. Supramolecular synthons are of two type i.e supramolecular homosynthons and supramolecular heterosynthons. Supramolecular homosynthon are composed of identical self-complementary functionalities e.g. carboxylic acid dimers and amide dimers. Supramolecular heterosynthons are composed of different but complementary functionalities such as carboxylic acid…amide and carboxylic acid…pyridine. Aceclofenac is BCS Class II drug has low solubility and high permeability. Aceclofenac appears to be particularly well tolerated among the NSAIDs, with a lower incidence of gastrointestinal adverse effects. Aceclofenac exhibits very slight solubility in water and as a consequence it exhibits low bioavailability after oral administration.

MATERIALS AND METHODS

Pure drug aceclofenac was received as a gift sample from Zydus Cadila Healthcare Ltd. Cocrystal former nicotinic acid (National Chemical), solvent dimethylsulfoxide (RFCL Limited) , water soluble polymers like PVPK30, HPMC, sodium starch glycolate (SSG) and sodium carboxy methyl cellulose (all from S.D. Fine Chem. Ltd. Mumbai) were obtained from laboratory of Amity Institute of Pharmacy (AIP). All chemical used were of analytical grade.

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Method for phase solubility technique:

Accurately weighed quantity of aceclofenac (10 mg) and 1%, 2%, and 3% water soluble polymers like PVPK30, HPMC, sodium starch glycolate (SSG) and sodium carboxy methyl cellulose (NaCMC) were dissolved separately in 10 ml distil water in a conical flask. All the solutions were agitated in solubility shaker (Reciprocating apparatus) at room temperature for 72 hrs. 1ml sample withdrawn after 24, 48, and 72 hrs respectively were diluted to10 ml with distil water and analyzed spectrophotometrically at 274 nm.

Method of cocrystal formation

1. Solvent evaporation method:

Weighed quantity of drug aceclofenac and cocrystal former nicotinic acid in (1:1 molar ratio) and 3% water soluble polymers were dissolved in 1ml dimethylsulfoxide (DMSO) and left for slow evaporation. After 7 days fine crystal obtained which was collected in a tight container and stored in desiccators. Composition of aceclofenac cocrystal prepared by solvent evaporation method had shown in table 3.

2. Neat grinding method:

Weighed quantity of drug aceclofenac and cocrystal former nicotinic acid in (1:1 molar ratio) and 3% water soluble polymers were ground in a mortar pestle for 1hr, the powder obtain collected in a tight container and stored in desiccators. Composition of aceclofenac cocrystal prepared by neat grinding method had shown in table 4.

Determination of drug content in aceclofenac cocrystal:

Aceclofenac cocrystal sample equivalent to approximately 100 mg of aceclofenac were weighed and dissolved in 100 ml volumetric flask. 1ml sample was withdrawn from solution and diluted to10 ml with distil water and analyzed spectrophotometrically at 274 nm.

Fourier Transform Infrared (FT-IR) Studies:

Pure drug aceclofenac and formulations SE, SE4, & NG2 were subjected to Fourier Transform Infrared (FT-IR) Studies. Potassium bromide pellet method was employed for FT-IR analysis. The prepared samples were scanned over a range of 400 – 4000 cm^{-1}.

Scanning Electron Microscopy (SEM) analysis:

The shape and surface characteristic of pure drug aceclofenac, cocrystal former nicotinic acid and prepared cocrystals (formulations SE, NG, SE4, & NG2) were studied by scanning electron microscopy analysis. Aceclofenac, nicotinic acid and cocrystals powder samples were fixed on aluminium stub using double sided adhesive tape and coated with gold in hummer sputter coater under vacuum before examination. All the images were collected as secondary electron after specimens were scanned by a beam of electrons.

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Preparation of tablet from aceclofenac cocrystal

The tablets were prepared by wet granulation method using hand operated single punching machine. The granules were prepared by using tablet formulating ingredient like diluent lactose, binder 10% PVP, and magnesium stearate and methyl paraben.

In vitro drug release studies:

The prepared tablets were subjected to in vitro dissolution studies by using USP dissolution apparatus (type-I) basket type. In vitro dissolution studies were carried out in 900 ml potassium phosphate buffer P^H – 7.4 with basket speed 100 rpm at a temperature 37 ± 0.5^{o}C.

Sampling was done after every 15 minutes interval. In each sampling 10 ml sample was withdrawn from the dissolution medium and immediately added 10 ml fresh medium into the dissolution medium. The withdrawn samples were analyzed spectrophotometrically at 274 nm.

RESULTS AND DISCUSSION:

Phase solubility technique

Composition of aceclofenac with 1%, 2%, and 3% water soluble polymers in phase solubility studies are shown in table 1. In vitro release profile and stability constant of aceclofenac with 1%, 2%, and 3% water soluble polymers are shown in figures 1, 2, 3 and table 2. Stability constant of aceclofenac with 1%, 2%, and 3% water soluble polymers were calculated by using following formula.

Stability constant (Kc) = slope/intercept (1-slope)

In phase solubility study aceclofenac showed maximum drug release and maximum stability constant with 3% water soluble polymers. Formulations 3%S1, 3%S2, 3%S3 and 3%S4 containing aceclofenac with 3% water soluble polymers like PVPK30, HPMC, SSG and NaCMC had shown maximum drug release 69%, 71.4%, 74% and 74% respectively.

Similarly formulations 3%S1, 3%S2, 3%S3 and 3%S4 showed maximum stability constant 0.9152, 1.48, 1.00, 11.41 respectively. 3% water soluble polymers has maximum drug release and maximum stability constant with aceclofenac hence 3% water soluble polymers were used in aceclofenac cocrystal formation.

Determination of drug content in aceclofenac cocrystal:
Drug content of aceclofenac cocrystal prepared by solvent evaporation and neat grinding method are shown in table 5. Formulations **SE2** and **NG3** had shown maximum % drug content 96.2%, 95% respectively.

Fourier Transform Infrared (FT-IR) Studies:
FTIR spectrum of aceclofenac and formulation SE, SE4, and NG2 are shown in figure 4 and table 6. FTIR spectrum of aceclofenac shows that there was no change in positions of characteristic absorption band of various functional groups present in drug. The drug also remains in normal in all formulation SE, SE4, and NG2.

Table 1: Composition of aceclofenac with 1%, 2%, and 3% water soluble polymers in phase solubility studies

Ingredients	1% S1	1% S2	1% S3	1% S4	2% S1	2% S2	2% S3	2% S4	3% S1	3% S2	3% S3	3% S4
Aceclofenac (mg)	10	10	10	10	10	10	10	10	10	10	10	10
Distil water (ml)	10	10	10	10	10	10	10	10	10	10	10	10
PVPK-30 (mg)	0.1	-	-	-	0.2	-	-	-	0.3	-	-	-
HPMC (mg)	-	0.1	-	-	-	0.2	-	-	-	0.3	-	-
Sodium starch glycolate (mg)	-	-	0.1	-	-	-	0.2	-	-	-	0.3	-
Sodium carboxy methyl cellulose (mg)	-	-	-	0.1	-	-	-	0.2	-	-	-	0.3

Table 2: Stability constant of aceclofenac with 1%, 2%, and 3% water soluble polymers in phase solubility studies

Formulation code	Slope	Intercept	Stability constant (Kc)
1% S1	0.4071	2.87	0.2392
1% S2	0.535	8.04	0.1431
1% S3	0.6679	12.08	0.1664
1% S4	0.9025	13.76	0.6727
2% S1	0.4508	4.22	0.1945
2% S2	0.9921	6.96	0.1715
2% S3	0.587	10.04	0.1415
2% S4	0.8996	10.09	0.888
3% S1	0.9108	11.16	0.9152
3% S2	0.9517	13.29	1.48
3% S3	0.9417	16.13	1.00
3% S4	0.9933	12.99	11.41

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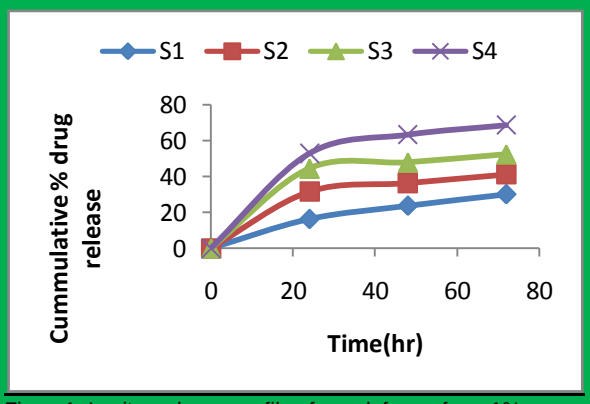

Figure1: In vitro release profile of aceclofenac from 1% water soluble polymers in distil water

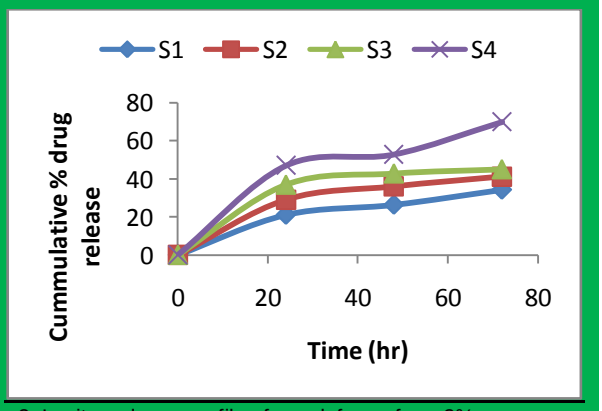

Figure 2: In vitro release profile of aceclofenac from 2% water soluble polymers in distil water

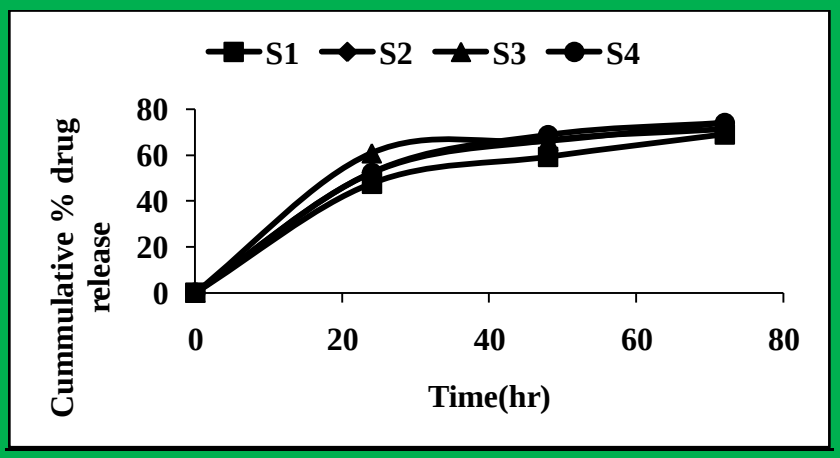

Figure 3: In vitro release profile of aceclofenac from 3% water soluble polymers in distil water

Table 3: Composition of aceclofenac cocrystal prepared by solvent evaporation method

Ingredients	SE	SE1	SE2	SE3	SE4
Aceclofenac (mg)	354.2	354.2	354.2	354.2	354.2
Nicotinic acid (mg)	123.1	123.1	123.1	123.1	123.1
Dimethylsulfoxide (ml)	1	1	1	1	1
3% PVPK-30 (mg)	-	4.773	-	-	-
3% HPMC (mg)	-	-	4.773	-	-
3% Sodium starch glycolate (mg)	-	-	-	4.773	-
3% Sodium carboxy methyl cellulose (mg)	-	-	-	-	4.773

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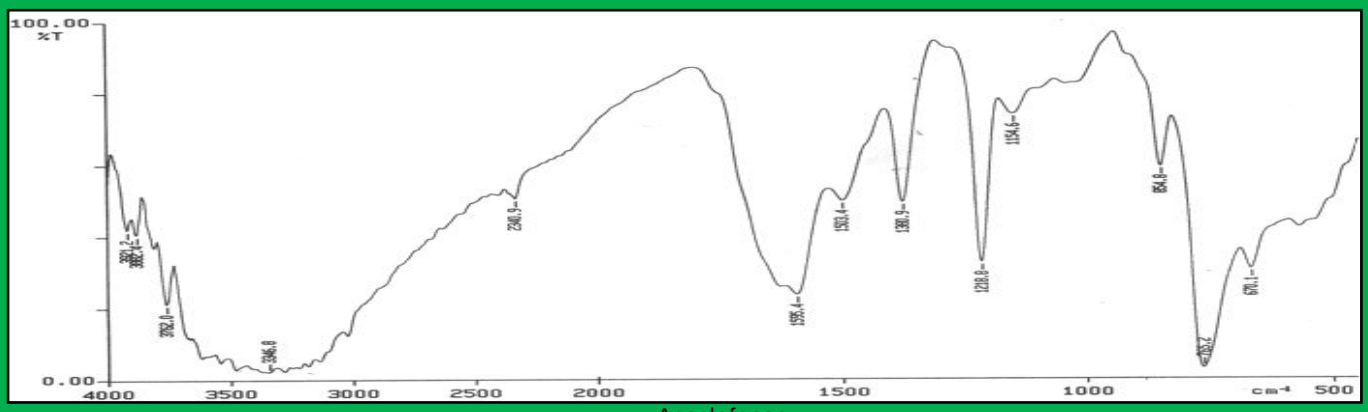
Table 4: Composition of aceclofenac cocrystal prepared by neat grinding method

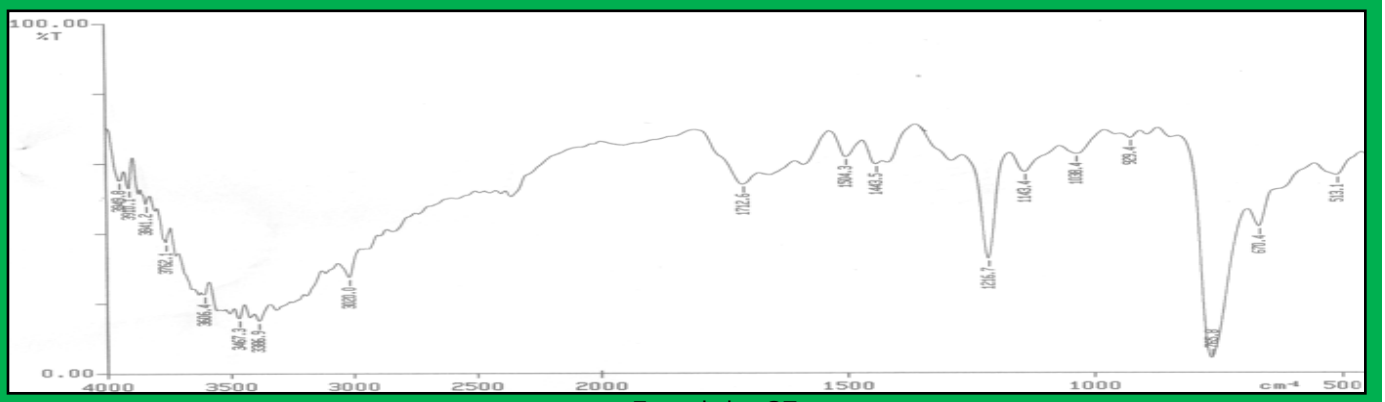
Ingredients	NG	NG1	NG2	NG3	NG4
Aceclofenac (mg)	354.2	354.2	354.2	354.2	354.2
Nicotinic acid (mg)	123.1	123.1	123.1	123.1	123.1
Dimethylsulfoxide (ml)	-	-	-	-	-
3% PVPK-30 (mg)	-	4.773	-	-	-
3% HPMC (mg)	-	-	4.773	-	-
3% Sodium starch glycolate (mg)	-	-	-	4.773	-
3% Sodium carboxy methyl cellulose (mg)	-	-	-	-	4.773

Table 5: Drug content of aceclofenac cocrystal prepared by solvent evaporation and neat grinding method

Formulation code	% Drug content	Formulation code	% Drug content
SE	81.6	NG	94
SE1	88	NG1	94
SE2	96.2	NG2	92
SE3	85	NG3	95
SE4	90.8	NG4	91



Aceclofenac



Formulation SE

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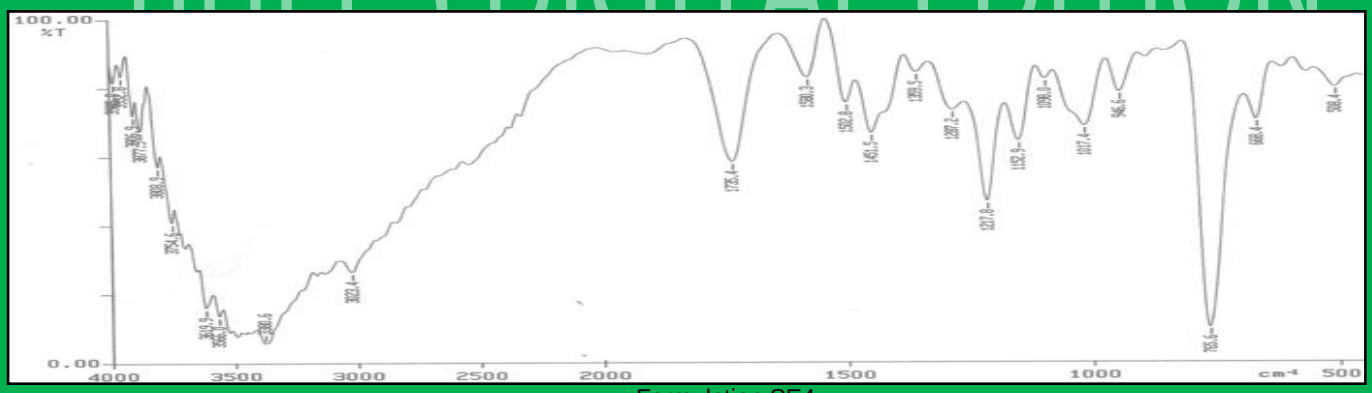
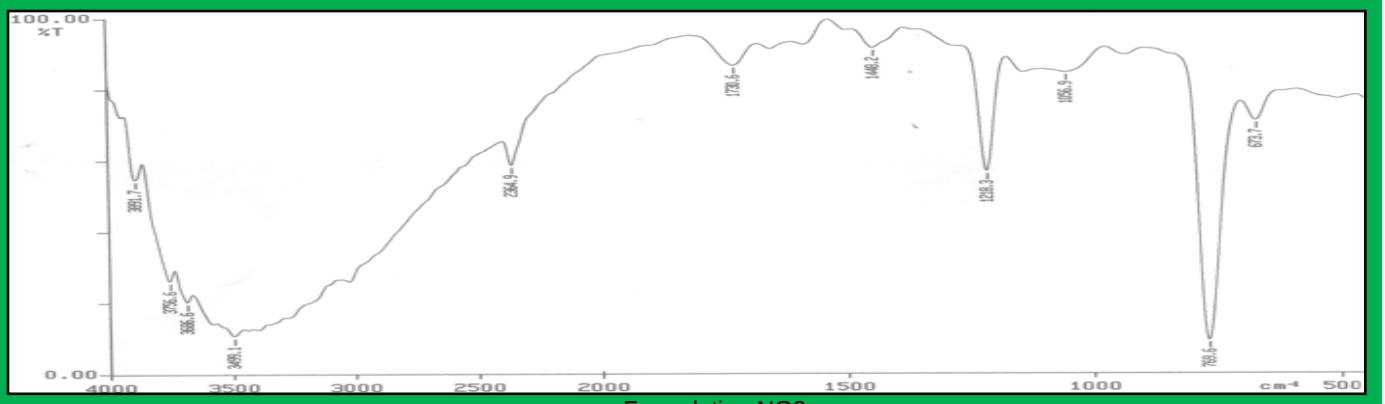


Formulation SE4



Formulation NG2

Figure 4: Comparative FTIR spectrum of aceclofenac and formulations SE, SE4, and NG2

Table: 6 Comparison of interpretation of FTIR spectrum of aceclofenac and formulations SE, SE4, and NG2

Functional group	Aceclofenac	Formulation SE	Formulation SE4	Formulation NG2
C-Cl stretch	765.2	765.8	765.6	769.6
C-O stretch	1218.8	1216.7	1217.8	1218.3
C=C stretch of ring	1503.4, 1595.4	1504.3	1451.5, 1502.8, 1580.3	1448.2
N-H stretch	3346.8	3386.9	3380.6	3499.1

Scanning Electron Microscopy (SEM) analysis

SEM image of aceclofenac, nicotinic acid and cocrystal are shown in figure 5. The pure drug exhibited irregular shape. Cocrystal (formulations SE, NG, SE4, and NG2) also exhibited irregular shape but has different shape those of aceclofenac and nicotinic acid. This difference shows the formation of new crystal structure i.e the formation of cocrystal. SEM image showed that the formulations NG and NG2 have smaller particle size than those of formulations SE and SE4 respectively.

In vitro drug release studies:

In vitro release profile of aceclofenac from aceclofenac cocrystal is shown in Figure 6. Formulations SE and NG without water soluble polymers showed 70% drug release in 60 min. Formulations SE4 and NG2 containing 3%NaCMC and 3%HPMC had shown maximum drug release 95% and 94% respectively in 60 min. Similarly formulations SE1, SE2, and SE3 showed drug release 80.25%, 90% and 77% respectively in 60 min while formulations NG1, NG3 and NG4 showed 80%, 75% and 85% respectively in 60 min. The above result shows that formulations containing 3% water soluble polymers had shown greater drug release than those of without water soluble polymers which proved the effect of water soluble polymers as a dissolution improving ingredient.

CONCLUSION:

Aceclofenac cocrystals were prepared successfully with improved solubility and dissolution rate by both solvent evaporation & neat grinding method. The dissolution rate of Aceclofenac from aceclofenac cocrystals were enhanced due to present of 3% water soluble polymers. This shows the effect of water soluble polymers as a dissolution improving ingredient.

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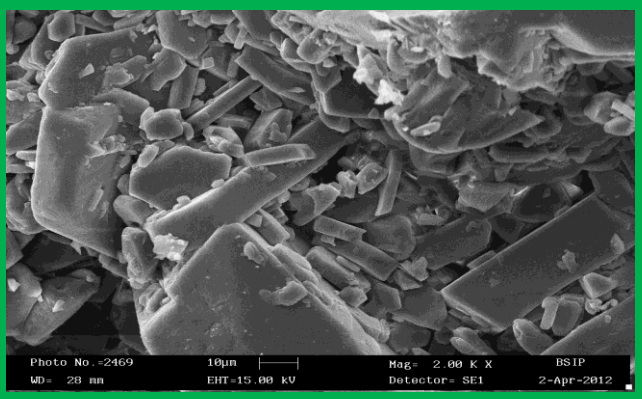
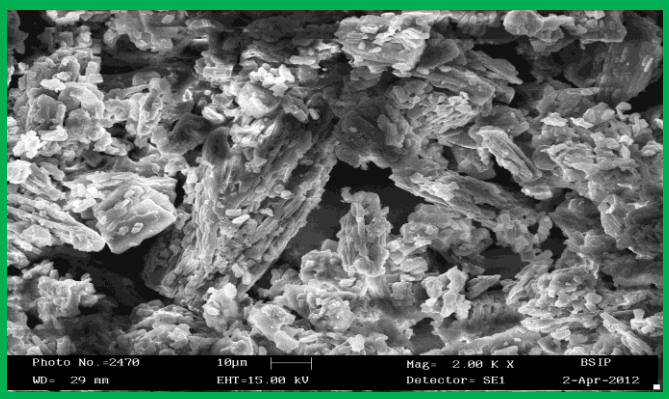
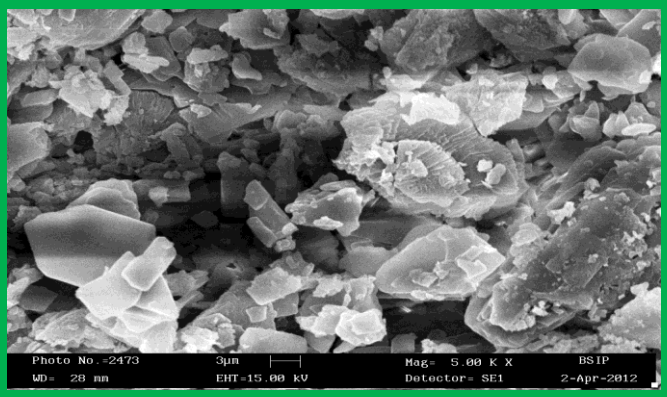


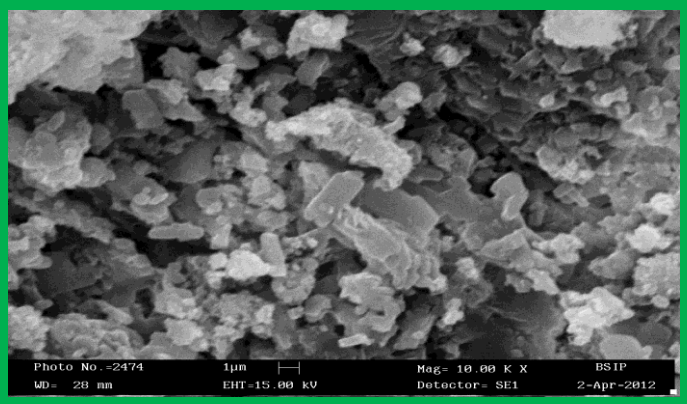
Aceclofenac



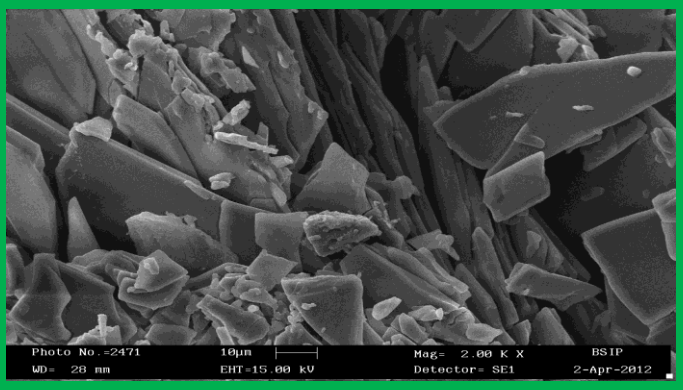
Nicotinic acid



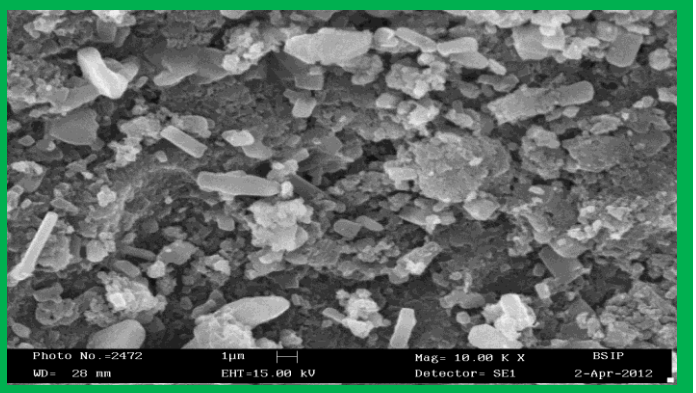
Formulation SE



Formulation NG

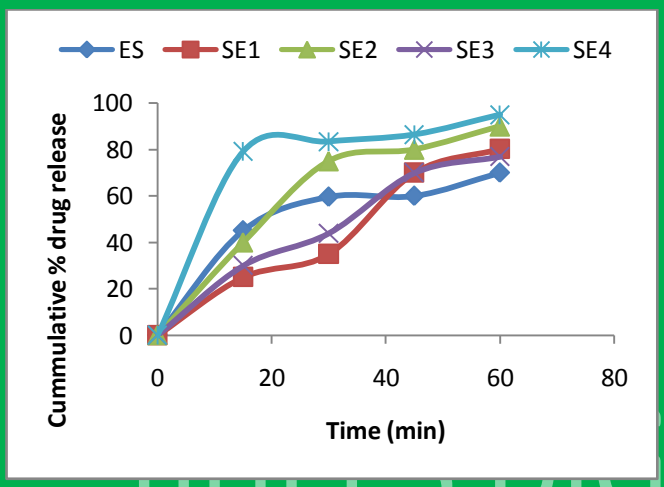


Formulation SE4

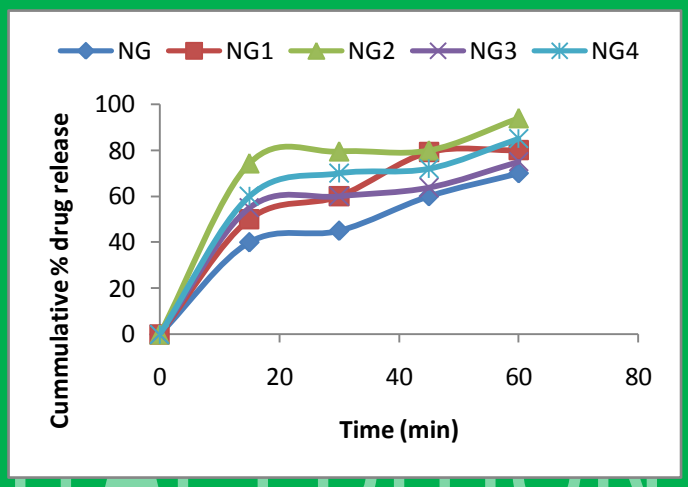


Formulation NG2

Figure 5: SEM image of aceclofenac, nicotinic acid and cocrystal (formulations SE, NG, SE4 and NG2)



(A)



(B)

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Figure 6: In vitro release profile of aceclofenac from aceclofenac cocrystal prepared by (a) solvent evaporation method and (b) neat grinding method

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7

INVESTIGATION OF ANTIBACTERIAL ACTIVITY OF TERMITOMYCES

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Abstract:

Bio products of Mushroom have multi beneficial effects for human welfare. Medicinal mushrooms are widely used as traditional medicinal ingredients for the treatment of various diseases and related health problem. Most of the medicinal extracts from mushroom are different from of polysaccharides which strengthen the immune system with little or no side effect. Medicinal mushroom research has focused on discovery of compounds that can modulate positively or negatively the biological response of immune cells. The mushroom *Termitomyces microcarpus* was selected for in-vitro studies against selected pathogenic micro organism to investigate the efficacy of their different (methanolic, ethanolic, aqueous) extracts. The antibacterial activity of various sovlant extracts of *Termitomyces microcarpus* was tested against five species of bacteria: *Proteus vulgaris, Pseudomonas aeruginosa, Escherichia coli, Staphylococcus aureus, Klebsiella pneumoniae.* The different extracts showed wide spectrum of antibacterial and antifungal activity. The highest antibacterial inhibitory activity (18.15mm) was recorded with the extract of ethanolic extract of *Termitomyces microcarpus against Proteus vulgaris.*

Introduction

Human share 30% of our DNA with the fungal Kingdom, of which the mushrooms are the most visible members. Mushrooms are the macro fungi group which has many valuable properties, like antitumour, anticancerous, antibacterial, antifungal etc. We use these fungi per the treatment of various diseases. Some of the fungi have properties like enhancement of immune system and protect the DNA breakage caused by the hydroxyl and UV radiation during the treatment of the cancer.

Information on in vitro antimicrobial activities of higher fungi (mushrooms) is very scanty. Researchers showed antimicrobial activity of several mushrooms. In recent years, multiple drug resistance in human pathogenic microorganism has developed due to indiscriminate use of commercial antimicrobial drugs commonly used in the treatment of infections disease. Ishikwa et al., (2001)

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Investigated the mycelia extracts from the fungi, *A. mellea* and *F. velutipes* found the extracts to possess antibacterial antimicrobial potentials of selected higher fungi in view of the limited scientific information or their medicinal values.

MATERIALS AND METHODS

Mushroom:

The fungal species of *Termitomyces microcarpus* was collected from chhuiya forest, Rewa from the comb-like structures make from focal pellets, which are made of digested plant material passed quickly through the termite gat. Fruiting bodies were dried and specimen deposited in Research laboratory.

Preparation of Extracts

The fruit bodies of mushroom were cut into bits and dried at 40^{0}C. These dried carpophores were pulverised in a moulinex blender and 50 grams each of the powdered samples were soaked separately in 300 ml of 95% methanol, ethanol and instilled water separately and allowed to stand for 7 days for extraction. It was filtered through what man filter paper no. 1 and Concentrated in a rotary evaporator at 40^{0}C. The methanol and ethanol, was recovered and the extract was collected and dried, The test residues were prepared as stocks using distilled water (40 mg/ml) The methanol and ethanol was recovered and the extract was collected and dried, the test residues were prepare as stocks using instilled water (40mg/ml) and were tested for their antibacterial acuity by filter paper disc diffusion technique.

Micro-arganisms Tested : The bacteria having pathogenic properties are used in the study. Bacteria used were *Proteus vulgaris, Pseuddomonas aeruginosa, E.coli, Staphylococcus aureus, Klebsiella pneumoniae.* The pure culture of each bacterium was inoculated to peptone water for 18 hours. These were seeded into nutrient agar plates (one organism per plate).

Detection of Inhibitory Activities against Bacteria :

The nutrient agar plates were prepared by pounding 10 to 15 ml of sterilized nutrient agar medium in each Petri plate which was previously sterilized. These agar plates were inoculated with the test organisms by adding 5 ml of nutrient broth having test organism. In each plates, sterilized Whattman no.1 filter paper disc saturated separately with extracts and placed on the source of seeded plates of agar and incubated at 37^0C, for 24 hour. The diameter of inhibition zone was measured manually in millimeter for each concentrations of the compound as The diameters of inhibition zone was measured manually in millimeter for each concentrations of the compound as an average of maximum dimensions of the zone around the disc. All the experiments were repeated in triplicate and the average readings were recorded.

Statistical analysis:

All experiments were performing thrice per treatment. The data was subjected to analysis of variance (ANOVA) using statistical software. Means of three observation where compared with P0.≤ 05 for determining the statistical significance.

Results and Discussion :

The various extracts (methanolic, ethanolic and aqueous) of *Termitomyces microcarpus* possessed varying degrees of antibacterial properties against the test bacteria (Table 1). It was noted that *Termitomyces microcarpus* extracts have strong antibacterial activity against bacterial pathogens like *Proteus vulgaris, E.coli, Staphylococcus aureus,* whereas it is inactive against bacterial pathogens like *Pseudomonas aeruginosa, Klebsiella pneumoniae.* The maximum zone of inhibition shown by ethanolic extract of *Termitomyces microcarpus* for *Proteus vulgaris* (18.15 mm) whereas minimum zone of inhibition noted in aqueous extract for *E.coli* (9.00 mm). Oso (1977 and 1981) reported that *T. microcarpus* as powerful medicinal ingredient for the treatment of gonorrhea among the traditional doctors in the south western Nigeria. This medicine which is administered orally is prepared by grinding a large quantity of *T. microcarpus* with the pulp of the fruit of cucurbita peop Linn, the leaves of Cassia alata Linn and some other ingredients.

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Bacterial Pathogens	Controlled	zone of inhibition (mm)			P. value
	ampicillin (2mg/ml)	Milthad	Ethanol	Aqueous	
1. Proteus vulgaris	20 ±0.3	17.35±2.1	18.15 ±2.0	15.00 ±1.9	0.2151
2. Pseudomonas aeruginosa	10±1.5	I	I	I	-
3. Escherichia coli	18 ±1.2	12.15 ±1.8	12.65±1.5	9.00±1.0	0.0829
4. Staphylococcus aureus	14±2.0	15.10±1.9	16.95±2.2	13.00±2.5	0.2820
5. Klebsiella pneumoniae	10±2.2	I	I	I	-

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8

THE COMPATIBLE MODELING OF MULTI-LEVEL USAGES OF ENGLISH SKILLS FOR ENGINEERING STUDENTS: A CONCEPTUAL FRAMEWORK

Dr. Sanjay Shrivastava
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Abstract:

In common understanding Engineering education is considered to get skilled into various technologies enlightening human life, serving us various ways, processing to adept self in multiple mechanical and technological hard skills. But the adhesive which connects these hard skills for various business or social purposes is undoubtedly the soft skills, English skills and the prowess of excellent communication skills. In absence of strong English skills it remains always difficult for engineering students to emerge out as a complete professional. The present research paper suggests various components of communication and attempts to model English skills in such a way that it will be highly useful and result oriented for engineering students. The paper throws light on the need of revision of English skills components provoking thoughts of course facilitators to understand how to jumble the best series at multiple levels for students studying engineering and needing strong communication skills.

Introduction

English has been widely accepted as the most widespread language used in the world as it is the prime means for communication globally (Kitao & Kitao, 1996). The modern companies look for potential human resource because companies today operate in a highly competitive and cut throat environment. While hiring new employees companies strive at their level best to filter out the most appropriate employee with the right skills set. The well-known fact that English is the lingua franca of engineering education and thus an essential prerequisite for gaining employment has been substantiated by several studies across the world as has been mentioned in Bjorkman (2008). In a continuous competition to stay ahead of competitors and out-perform, companies are more focused to recruit candidates who possess the best employability skills set and the communication skills is above all of them.

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Communication skills are amongst the most sought after skills by many employers (Zedeck & Goldstein, 2000). Apart from the presence of effective technical skills, employers do demand to assess communication skills during interviews. Low morale and crest-fallen-confidence further flared by the inaccuracy and inability to puff out few crispy sentences in English might mar the opportunity of being hired as an employee in an organization of repute. Apart from technical skills, the workable communication skills for engineers have been core area of concern. The present paper is an exclusive study to bring out most promising solution for the students of engineering who keep on facing such problems either during the program or during the recruitment process or at a step after, while performing a job in the company. The current research work attempts to model all the important elements of English and communication skills by multi levels programming of the subject to be delivered to students at various level of development or the level of subject elements as per the requirement of growing engineers in technological institutions. Since the problem of communication skills has been widely recognized all across the world and all concerned are seeking out apt solutions to come over the problem of communication in engineering students, it has become now urgently required to revisit the process and revise the curriculum, since the stage of experiment in English has not yet been over. In the accreditation guidelines put forth by the Board of Engineers, Malaysia (BEM), which monitors the engineering curriculum in Malaysia, the ability to communicate effectively is considered one of the attributes required for engineering graduates (Megat Johari et al., 2002). A lot of opportunities at various engineering positions are being floated in the market every year and as has been estimated by government across the world and by private house researchers, lacks of more opportunities are in pipeline to recruit the workforce in engineering realm, but again to emphasize that, as we aspire to be global, the quality of communication should get multiplied in the same quantum to be recognized during process of recruitment or while doing jobs at far flung locations in India and abroad. Through a survey of major engineering firms in Malaysia, Lee (2003) reveals that employers prefer to hire new graduates that not only possess technical competencies but also possess the non-technical skills required for project management. He lists interpersonal communication as one of the six most sought after skill-attributes by employers. The present research paper seeks to bring solution through deciding the delivery of English language or its significant elements like communication and soft skills in compact mode. The paper suggests certain levels of planning of English curriculum for students studying in engineering programs. Each model has been described with the help of framework corresponding to important components of English for Engineers as a whole.

METHODOLOGY

Since the major objectives behind this rigorous research was to investigate the various models related to educational delivery and to measure out the models explaining the delivery methods of English as a professional

course, suggesting an appropriate model which explains communication absolutely. The objective of this paper is to suggest models displaying multi-level of English communication teaching, the model which has the scope of explicitly describing the whole process of selection of subject ingredients. It was necessary to investigate the secondary resources available in the area of English language leaching including ESP (English for Special Purposes). The background of the research already done and published in various journals and books were referred in order to find out the most representative themes on English for the students of Engineering. It was also a necessary part of the research to understand the each element of English as a part of professional course. The secondary resources available describing communication skills theoretically and conceptually were also taken into account of study for this specific conceptual research to weave the multi-level of teaching English and communication skills for engineering student. The scientific nature of communication and as well as its being an event of behavioral activity also forced to study the research papers focusing on communication skills from both the facets. The elements forming communication skills or contributing into the whole travel of learning communication skills from elementary to higher level were also major focus area. To understand these elements making English more feasible for engineering students, ample literature available in the area were consulted and referred. The concepts propounded by various investigators, scientist, philosophers, and researchers were also deeply studied and their major concepts were also studied indepth to fabricate a compatible multi level modeling for English as a professional subject. Thus, the secondary resources are exploited to have the information on the subject of study, investigation and research. The various journals, published research papers, books, research articles and scientific theories were focused upon to have the inputs and ideas to project an impeccable model which has the capacity to structure English and communication skills with its scientific as well as behavioral description.

THE RELEVANCE OF ENGLISH, SOFT SKILLS, COMMUNICATION SKILLS TEACHING TO ENGINEERING STUDENTS

Previous research in the field of engineering showed that English language is of paramount importance in the academic and professional lives of engineering students (Basturkman, 1998; Pendergrass et al., 2001; Pritchard & Nasr, 2004; Joesba & Ardeo, 2005; Sidek et al., 2006; Hui, 2007; Venkatraman & Prema, 2007). The importance of English as a business language, or as the language of technocrats, needs no introduction on the global canvass. Having strong communication skills is not optionable now; rather it has been the first and foremost necessity. Since engineering is the study of various technologies related to innumerable areas of scientific inventions and innovations, and engineering has always been a global issue in terms of multifaceted technological tasking and access, in such situation it becomes highly important for the engineering students to understand the importance of English and its various application based uses. As such in the job market today, people with high self-efficacy in their ability to perform the tasks required and communicate effectively are highly sought after by employers. Communication skills are amongst the most sought after skills by many employers (Zedeck & Goldstein, 2000). Acquiring strong knowledge of English language, and particularly communication skills is highly important element for engineers because the global format of various industries does function in competence dominant endeavors to reach to success peak in today's highly competitive environment. In the redefined recruitment process, companies look out to hire the candidate of high caliber in terms of technical communicational ability to have the suitable workforce to out compete the existing challenges of the modern businesses. Today, to get a good job in terms of brand, package and position, variety of skills are to be developed to fulfill the demands of companies. The comments of Zeigler are aptly quotable; employers have begun to assess communication skills during interviews. Low confidence level and inability to speak well in English can hinder one's chances of being hired as an employee in a company (Zeigler, 2007). In order to gain an edge over other applicants in the job market, graduates are left with no choice but to exhibit their potential stuff adding value to their hard skills with soft skills. Through a survey of major engineering firms in Malaysia, Lee (2003) puts valuable comment that employers prefer to hire new graduates who not only possess technical competencies but also possess the non-technical skills required for project management. He lists interpersonal communication as one of the six most sought after skill-attributes by employers. (Oral Communication Ability in English 109 Fatimah, Noor Raha and Hafizoah (2006) emphasizes oral presentation as an important leverage to professional opportunities in an engineer's career. This new phenomenon of seeking engineering professionals with soft skills has increasingly diminished the conventional belief that an engineer's employability is due solely to his hard skills. This question is important because the skills that are considered to increase a graduate's employability are often downplayed by training programs in favor of technical knowledge (Ziegler, 2007). According to Ziegler, this attitude and practice engenders beliefs and attitudes that "soft skills" are secondary or even unimportant. Globalization has led to a job market that is more competitive than ever. Employers are becoming more selective just as the business environment is becoming more challenging. Producing employable graduates is an important agenda for any higher learning institutions. This is because

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graduates are often believed to be less prepared than industry employers expect them to be (May & Strong, 2006) and lack critical soft skills necessary in today's workplace (Hissey, 2002). Lack of communication skills has been attributed as among the factors that lead to unemployable graduates (Khoo, 2001; Zeigler, 2007).

THE MULTI-LEVEL LEARNING OF ENGLISH AND ITS RELEVANCE FOR ENGINEERING STUDENTS

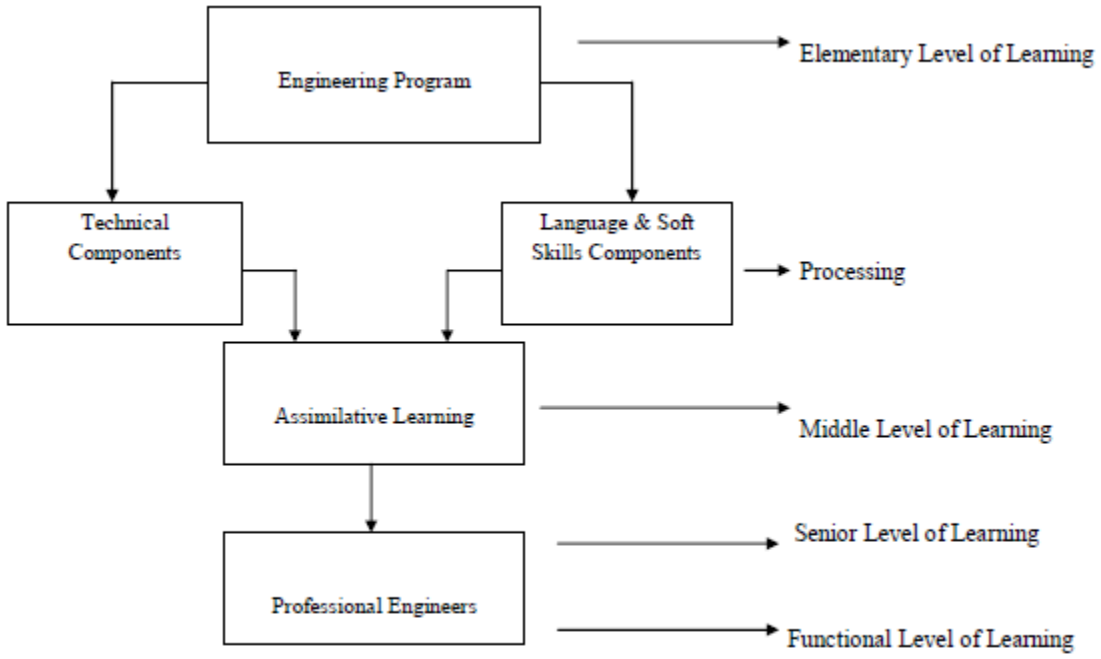

Figure 1.

ENGLISH FROM ENGINEERING PERSPECTIVE

The major English components for engineers are limited to the professional usage of English including the technical description of engineering contents, engineering English is related to various theories in Engineering describing the mechanism of a system. For engineers, technical writing is a permanent course for all occasions across engineering career. Since the technical transcription of various systems and their applications and the detailing part of all these requires a wonderful command on English language, the engineers are bound to understand the quintessence of English language to do it all comfortably, smoothly and accurately. The other major aspects of English language required by the engineering students are like English composition, basic grammar, effective writing, and the most cardinal LSRW skills of English language to become a complete and professional engineer of global demand. English composition involves a variety of topics in it, and it also substantiates the worthiness of an engineer from communicational ability point of view. Knowing Basic grammar and its rigorous practice is also mandatory for efficient engineers because description of anything scientific in nature and aptitude does need wonderful language skills. In absence of grammar fundamentals the pattern of LSRW will never be able to flourish in terms of communication made by an aspirant engineer. There is a long list of items based on effective English writing what an engineer requires in his routine job of KRA performances. English writing, what is intended for engineering students, is entirely different from the various uses of English language for any other professional courses. The following figure 2., clearly mentions the fundamental requirements of English language components for the engineering students. The eight major areas of English have been presented where technical writing and verbal communication skills are at the top from the job requirement point of view.

BASIC ENGLISH COMPONENTS FROM ENGINEERING PERSPECTIVE (Level-I)

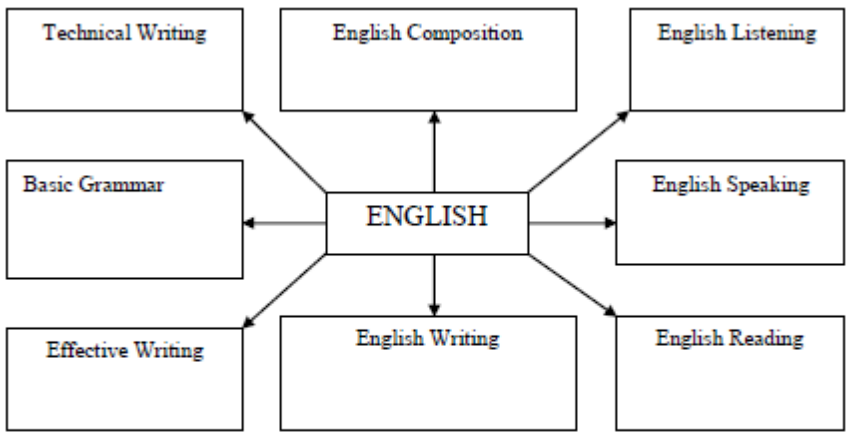

Figure 2.

MAJOR LEARNING ENGLISH ELEMENTS FROM ENGINEERING ANGLE

This section of study majorly focuses on to the broaden canvass of application of English language and its subject relativity with the engineering curriculum. In the next level of exposure of English for engineering students remains on verbal practices of communication skills. The aim and objective of the following model is to display the chosen elements of English from an engineering angle. In this course, the emphasis is laid on speaking skills including speaking more accurately and fluently. So far professional trainings are concerned, students may know English speaking but as far as the accuracy and fluency is concerned, it needs to be separately focused and ensured. At this very stage of engineering courses, the exposure of running effective technical session on various engineering topics and the related technical aspects of it needs to be address from language point of view because students may be well versed in understanding the mechanism of a process but so far the technical description of it is accounted, that too orally during meeting session, a sound English is must. Conducting an effective meeting requires multifarious skills involved into unidirection and honing them all leading to purposive discussion. It is true that having studied the technical components, the students may understand and describe the technical values related to a specific system for the question of making unanimous decisions including the full proof solutions to the existing problem, it may be worked out with a strong communication skills pertaining to the engineering elements in subjective forms of it. The following model also focuses upon improving written communication and its associated importance to facilitate various engineering tasks that a professional is supposed to perform every now and then. Written English comprises of various technical components of English grammar inclusive of all parts of speech leading to sentence formation and finally landing up comfortably into one course of discussion applying contextual vocabs. Each of the elements of written English needs to be rigorously practiced, besides given due importance so far each unit of it is concerned. While passing through engineering program irrespective of the core stream, the bachelors or masters are required to have excellent command over written English. In absence of written English elements, neither the knowledge of engineering stream, nor the particular stream one has obtained will be acknowledged by the professional world, where the things are well understood on communication software only. Next, the element of confidence is a backbone of all contextual learning in terms of the subject itself or the language with which it is expressed to paint our efforts on the canvass of knowledge. It is a very difficult and intricate process to learn the art of confidence getting reflected through our works of arts and science. Understanding confidence in abstract terms has always been easy to internalize in place of giving reflection of the same through the work we do in terms of our own creativity. For example, employers have begun to assess communication skills during interviews. Low confidence level and inability to speak well in English can hinder one's chances of being hired as an employee in a company (Zeigler, 2007). It requires perennial practice to give the glimpse of confidence through our writing or speaking whether in house or out house. The following model also addresses the importance of communication confidence in to the overall journey of engineering program supporting to provide a professional edge. Building vocabulary is our regular work but

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whenever the question is triggered upon professional vocabs or the jargons of a specified industry, most of the professionals who have rich technical knowledge, but feel poor so far the jargons are concerned. The parallel development of jargons along with the subjective understanding of various systems is also to be paid proper attention. To grow in terms of sounding with technical richness requires arts of jugglery of words being used for one particular incident. Some other major issues raising difficulty for engineering graduates are understanding of grammar, socializing and networking and the art and science of working in cross cultures have also been thoroughly displayed in the suggested model to decide the components of English language for budding engineers.

MAJOR LEARNING ENGLISH ELEMENTS FROM ENGINEERING ANGLE (LEVEL-II)

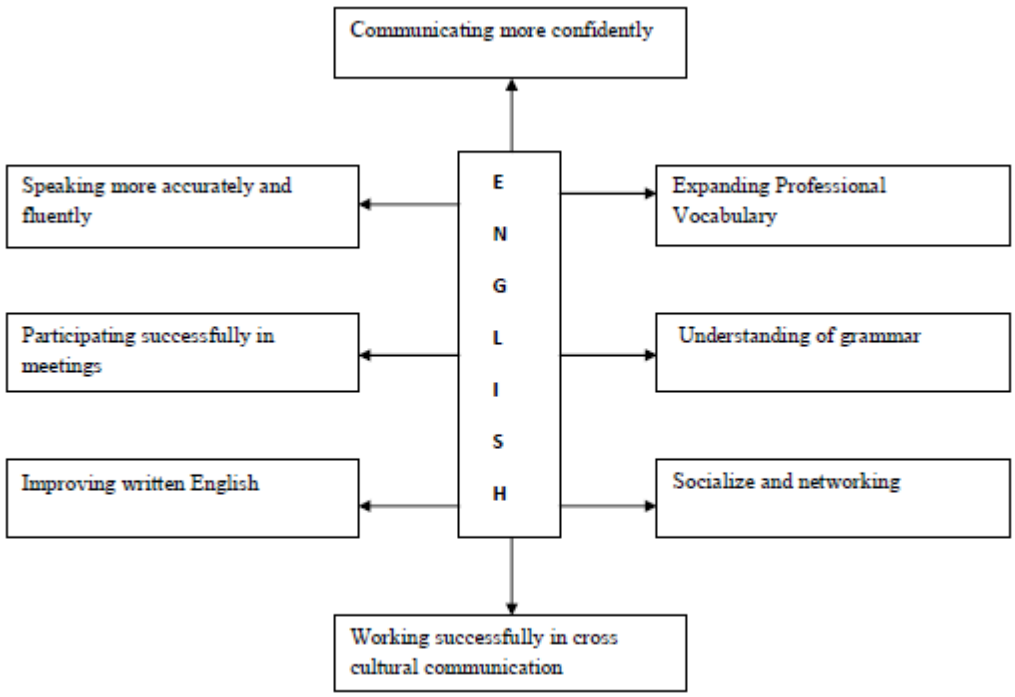

Figure 3.

FRAMEWORK OF ENGLISH LANGUAGE AREAS FOR ENGINEERS

The major recognized areas of English language to be included into the curriculum of engineering have been more explicitly addressed in this section with the help of the following model as displayed in Figure 4. The components need to be addressed in the content formation process for tech students majorly comprising of ability to describe technical data accurately, describing process and procedure of technical systems related to the separate and core streams of engineering education. The reasons and implications of cause and effect, and the ability to define various causes, and its analytical and correlative demonstration in terms of various predicted and un-predicted effects also needs to be incorporated in the course-lets. During various discussion sessions the ability to explain key facts and figures collaborating to the physical data is also a part of communicational skills. Some other important components of communicational aspects of engineering program may include the occasions of demonstrations and clear instructions. Multi level mapping and structuring of project management, costing and budgeting, the affairs needing problem solving, advertising and effective consultancies are integral part of any engineering program across best Indian tech institutions which can be effectively and efficiently demonstrated through strong communication skills supporting, facilitating and having the ability to perform above all task. The significance of blueprints is a highly important term either in machinery making exercise or in describing the huge structures. The inputs of this specific issue are provided to engineering students with the help of subjects-technical drawing and again, even this facet of core engineering is also strongly correlated with language skills so far depiction of various shapes, figures and structures are concerned. The following model incorporates this very important element and its relation with English. The following model, as named model 3, is unique in its kind and category since it provides scope of various elements of engineering programs and their correlation with language so for the description and presentation are concerned. This may simply be understood with an example that an engineer who has prepared a model of

machinery full of numerous technical devices but to correspond the concept and the uses of this device to an individual receiver or to a mass will naturally require a set terminology, sentences to describe all technical values associated with the system, thus the responsibility of a professional engineer, doesn't end with innovations, renovations and scientific inventions rather making it approachable for public, the end users in the simplest definable sentences which is highly required to get appreciated. The following model also focuses on this area of essential understanding, revising and reframing English course contents to meet out the above explained requirements.

FRAMEWORK OF ENGLISH LANGUAGE AREAS FOR ENGINEERS (LEVEL-III)

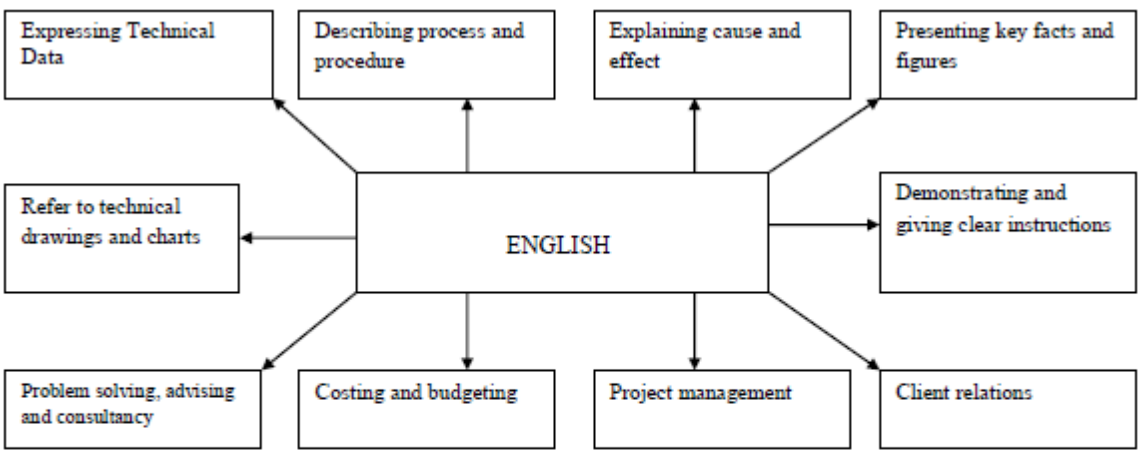

Figure 4.

FRAMEWORK FOR KEY LANGUAGE SKILLS FOR ENGINEERS

The following model visualizes the key language skills for engineering students as the ingredients taken under focus impact valuably on the professional growth of an engineer. If the issues modeled in the figure 5 given due care and importance they will surely contribute a lot in the overall professional development of the engineering students. To determine what students need to achieve through the medium of English accurately, it is imperative to carry out a Needs Analysis (NA) (Hutchinson & Waters, 1987; Robinson, 1991; Hyland, 2006). The identification of the need of English language at various levels for engineering students was especially focused as the substance of the research during the whole course of this research work. The significant language skills model describes the effective communication skills for meeting and negotiation, effective participation in various technical discussions pertaining to the relevant area of engineering study, business technical presentations, the very act of persuading and compromising, various official and technical written communication like emailing, reporting and context related formal or semi-formal business letters on technical issues. The further additions are the abstract art and science of opening and closing meetings, making strong proposals, making suitable offers, and suggesting one's rational opinions. Some other contents taken into consideration are the artifice of hosting visits, socializing, meeting and greeting with professional or technical delegates. One of the most significant skills that the students of engineering generally remain demanding is effective telephoning skills. The model also includes the concept of summarization with all its technical importance in the whole run and rut of engineering practices. Thus, the ten elements depicted as the language aspects as displayed in level IV of figure 5, are really very important from the angle of students growth in terms of language and its applications. It is true that in most of Indian Engineering institutions the presence of English language is there in the syllabus of engineering programs, but the pin point approach on various areas which may really help the students to understand and learn the practical aspects of using English in engineering is not hammered on the nail precisely. If the students of early semesters are focused to develop their language LSRW skills, the above described contents may really give amazing result if exposure on these given to

students in higher semesters and this will naturally flare-up better employment, catering well to the expectation of global employers. For example, employers have begun to assess communication skills during interviews. Low confidence level and inability to speak well in English can hinder one's chances of being hired as an employee in a company (Zeigler, 2007).

FRAMEWORK FOR KEY LANGUAGE SKILLS FOR ENGINEERS (LEVEL-IV)

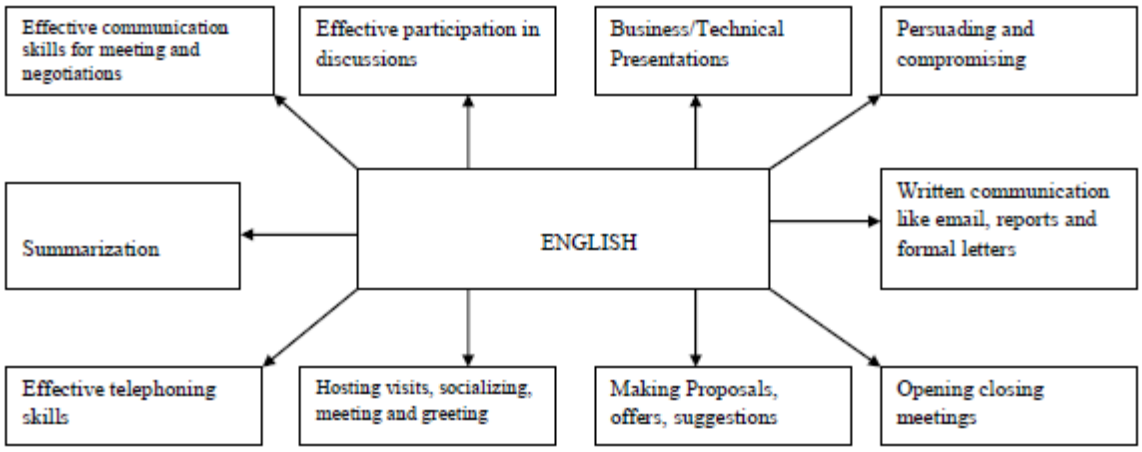

Figure 5.

FRAMEWORK FOR LANGUAGE TOPICAL ISSUES FOR ENGINEERS

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The association of English with the engineering program should comprise of various topical issues as business communication does for management students. The contents and elements of it should strictly encompass multidimensional approach for the overall development in engineering communication skills. If the inputs are to be given on English, it should somewhere be in proper alignment with the future uses of it. Naturally, if we analyze we find the topical issues for a manager stay different when the same is compared with the management program's syllabuses. In the same way, the English which is taught in the other courses cannot cater to the specific demands of engineering students. The model dedicated to the requirements of topical issues is displayed in figure no 6 as level V. The various topics included in the syllabus of English for engineering should necessarily include certain topics giving language exposure on social, political and environmental issues, political systems and developments, current affairs, topics related to communication skills in industry perspective, art of effective call making related to the topical issues, the topics of study and related science of hosting visits, socializing meeting and greetings. The level V model highlights the importance of topical issues to be taken into account for the practice of engineering students to let them have an exposure of various shades of English and its multiple usages. The level –V addresses to the importance of somewhat matured students in engineering education. The students should face this content of English language in their senior semesters. At this level, the combination of socio-cultural-political topics should be introduced and the language practice should be incorporated with these topics. Such topical issues including current affairs can really add flairs to the overall language learning of the of senior level students moving through engineering education. Such attempt will surely make them more thorough professional and confident engineers as required by the more globalized society and industries of the day.

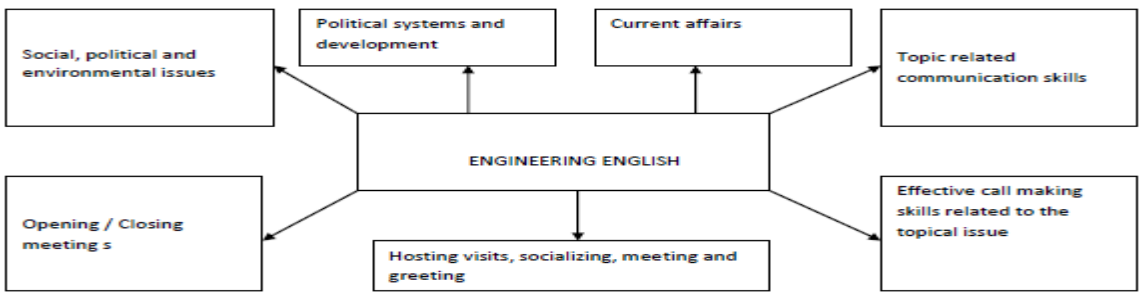

Figure 6.

FRAMEWORK FOR NOURISHING SOCIAL NETWOKING OF ENGINEERS THROUGH LANGUAGE

The level VI, as flashed in the following model, showcases the significance and relevance of elite standard of English required at the senior level functioning of students of engineering where the management and engineering are profusely amalgamated. In engineering education, specific English language skills are needed to enable engineering students to succeed in academic settings (Tan, 1999; Pendergrass et al. 2001; Sidek et al., 2006; Venkatraman & Prema, 2007). Such level of English proficiency pertaining to the combination of various facets is extremely required for higher positioned engineers or business managers. The important ingredients of English composition at this level includes social engagements where arranging and cancelling appointments is a regular feature due to various reasons, regular dealing with various enquiries raised from multiple sections encompassing many functional operations, offering suitable advices, various meetings in restaurants and pubs as a regular course of decision making process or meeting with clients and delegates in the comfortable zones, traveling arrangements, booking and reservations for tours on continuous basis. The other important areas of language study may be giving and understanding direction at a continuous flow, and small purposive talk concerning many ongoing issues. What is important to focus here that all the issues described above sound to be purely engineering issues in terms of nature and approach but it is highly surprising and firmly true on real grounds that in absence of strong and professional English inputs none of them could be done effectively and efficiently. Venkataraman and Krishnamurthy have criticized the English language courses at the tertiary level in India for being excessively knowledge-based instead of being skill-based. They hold the view that despite the focus on communication skills in some of the recent courses introduced in universities and colleges, the courses are handicapped because the objectives are not well defined, and consequently, the teaching methodology, testing and evaluation are sketchy. They point out that engineering graduates produced by Indian universities suffer due to lack of communication skills to study in the world-class institutions or work in a global atmosphere. Only the old practitioners of engineering profession can understand the significance of such issues in day to day engineering and its strong connection, collaboration and compatibility with English language. Engineering students need to practice all these important sections of learning with the strong accompaniment of English languages a whole, and then only they may evoke themselves the globalized engineers of modern professional world.

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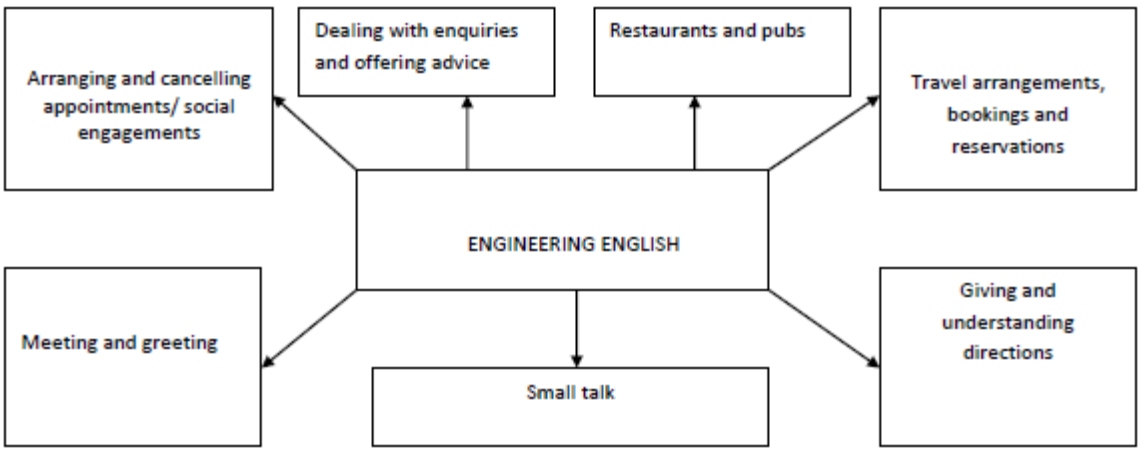

Figure 7.

CONCLUSION

Communication has always been and will always be the life and blood of professional career irrespective of the field we access to decide our career path. Communication becomes more relevant when it is a question of engineering studies in different streams. English skill, as a description of English for special purposes, advocates the same concept. The communication skills or professional communication is a nationwide syllabus of engineering curriculum to make students able to cope up in communicational aspects of this professional program, but most of the times it remains limited to early semesters of engineering courses and at later stages, when the students more rigorously need it, is not supplied to the required quantum to help students develop professionally, at stage when they are supposed to demonstrate their art at global platform. Two types of parities are to be paid much attention from the

English skills point of view, first, at various stages of budding engineers which component is to be introduced and that too at what level of academic maturity. Secondly, it needs to be determined and decided in advance that which model of English skills set will work for them to facilitate them to get smoothly converted into professional tech wizards. If the suggested techniques and models as depicted in this research paper are applied, it will, of course, make the delivery of English skills set easy, smooth, well decided and more fruitful for engineering students. It is for sure that any miss-delivery in such professional skills will lead them nowhere at the international platform irrespective of how much they remain strong on academic front. Strong academic of tech subjects can make them engineers but in absence of strong communication skills, they will never get recognized as brilliant professional of their fields, and this infirmity will keep affecting hem negatively to the whole of their career during doing projects or performing their fix tasks. For smooth and successful inculcation of English skills this research paper will surely work as a composite solution for all language of communication problems that engineering students can come across.

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THE END

ARTICLE

9

A PROMINENT DETERMINANT FOR IMPROVING HUMAN RESOURCE PRODUCTIVITY

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Abstract:

"There is nothing training cannot do; nothing is above its reach; it can turn bad morals to good, it can destroy bad principles and create good ones, it can lift men to angel-ship" - Mark Twain. "Tell me and I forget, teach me and I remember, involve me and I learn" - Benjamin Franklin. An organization is as good as its employees. Human capital is increasingly regarded as one of the major drivers of productivity, economic growth and competitive advantage. As a demand-driven approach to human resource and skills development, the Training and development builds and strengthens relationships with and among workplace partners and better engage employers, unions to respond to the challenges of workplace skills development. Recognizing the importance of human capital, the training manpower sets out to generate: a skilled, adaptable, motivated and resilient workforce; a flexible, efficient labour market; a responsive strategy to meet employers' needs for skilled workers; and a learned employee can retain customers and increase business & market share through proper behaviour and good public relations. In order for an organization to produce professional career minded employees an investment has to be made and that investment is the money spent on training and development of employees. An investment in education, training and development is a sure payoff. Training activities should be aligned with overall objectives of the organization with a meaningful emphasis on value addition to human resources. Research Methodology used while conducting this study includes questionnaires, market survey and personal interviews with HR Managers; Personnel Managers; and Training and Placement Officers. Lastly training and development plays a very important role in improving the productivity of human resources.

Introduction

Training and development is vital part of the human resource development. It is assuming ever important role in wake of the advancement of technology which has resulted in ever increasing competition, rise in customer's expectation of quality and service and a subsequent need to lower costs. It is also become more important globally in order to prepare workers for new jobs. In the current write up, we will focus more on the emerging need of training and development, its implications upon individuals and the employers. Noted management author Peter Drucker said that the fastest growing industry would be training and development as a result of replacement of industrial workers with knowledge workers. In United States, for example, according to one estimate technology is deskilling 75 % of the population. This is true for the developing nations and for those who are on the threshold of development. In Japan for example, with increasing number of women joining traditionally male jobs, training is required not only to impart necessary job skills but also for preparing them for the physically demanding jobs. They are trained in everything from sexual harassment policies to the necessary job skills. Human capital is increasingly regarded as one of the major drivers of productivity, economic growth and competitive advantage. Recognizing the importance of human capital, the training manpower sets out to generate: A skilled, adaptable, motivated and resilient workforce; A flexible, efficient labor market; A responsive strategy to meet employers needs for skilled workers; Alearned employee can retain customers and increase business & market share thro' proper behaviour and good public relations. As a demand-driven approach to human resource and skills development, the Training 274 *2012 International Conference on Management and Education Innovation IPEDR vol.37 (2012) © (2012) IACSIT Press, Singapore* builds and strengthens relationships with and among workplace partners and better engage employers, unions to respond to the challenges of workplace skills development.

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What is Training

It is a learning process that involves the acquisition of knowledge, sharpening of skills, concepts, rules, or changing of attitudes and behaviours to enhance the performance of employees. Training is activity leading to skilled behaviour. It's not what you want in life, but it knows how to reach it. It's not where you want to go, but it's knowing how to get there. It's not how high you want to rise, but it knows how to take off. It may not be quite the outcome you were aiming for, but it will be an outcome. It's not what you dream of doing, but it's having the knowledge to do it. It's not a set of goals, but it's more like a vision. 'It's not the goal you set, but it's what you need to achieve it. Training is about knowing where you stand (no matter how good or bad the current situation looks) at present, and where you will be after some point of time. Training is about the acquisition of knowledge, skills, and abilities (KSA) through professional development.

Need of the Study

Before we say that technology is responsible for increased need of training inputs to employees, it is important to understand that there are other factors too that contribute to the latter. Training is also necessary for the individual development and progress of the employee, which motivates him to work for a certain organization apart from just money. We also require training update employees of the market trends, the change in the employment policies and other things. The two biggest factors that contribute to the increased need to training and development in organizations are: 1st is Change: The word change encapsulates almost everything. It is one of the biggest factors that contribute to the need of training and development. There is in fact a direct relationship between the two. Change leads to the need for training and development and training and development leads to individual and organizational change, and the cycle goes on and on. More specifically it is the technology that is driving the need; changing the way how businesses function, compete and deliver. 2nd is Development: It is again one the strong reasons for training and development becoming all the more important. Money is not the sole motivator at work and this is especially very true for the 21st century. People who work with organizations seek more than just employment out of their work; they look at holistic development of self. Spirituality and self awareness for example are gaining momentum world over. People seek happiness at jobs which may not be possible unless an individual is aware of the self. At ford, for example, an individual can enrol himself / herself in a course on 'self awareness', which apparently seems inconsequential to ones performance at work but contributes to the spiritual well being of an individual which is all the more important. The critical question however remains the implications and the contribution of training and development to the bottom line of organizations performance.

Objectives of the Study

The main objectives of the study are: To explore the importance and benefits of Training and Development in improving HR productivity; To check the awareness and status of Training and Development among the professionals and various employees of various organizations in Punjab; To make the people aware about the role of Training and Development in an organization.

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Research Methodology

The study was conducted through questionnaires, telephonic interactions and personal interviews. The study examines major aspects concerned with the issues and challenges of Human Resource Management (HRM). The data for study was collected from the human resource experts. This study is based on primary as well as secondary data. Specially framed questionnaires and interviews with Personnel Managers and Chief Executive Officers (CEOs) of well established organizations are to be used for survey purpose. Additionally, some support personnel (employees and faculty members of some well established institutes) are to be considered. Originality of this research paper lies in the real work done by conducting interviews and surveys in the real market

Empirical Study:

Case Study of Cadbury: Ensuring Consistency through Innovative Global Training (Induction) Programme: 275 Cadbury is a leading global confectionery company with an outstanding portfolio of chocolate, gum and candy brands. It has the number one or number two position in over 20 of the world's 50 largest confectionery markets. Cadbury also has the largest and most broadly spread emerging markets business among all confectionary companies. With origins stretching back nearly 200 years, Cadbury's brands include many global, regional and local favourites, including Cadbury, Creme Egg, Flake and Green & Black's in chocolate; Trident, Clorets, Dentyne, Hollywood, Bubbaloo and Stimorol in gum; and Halls, Cadbury Eclairs and The Natural Confectionery Company in candy. With a diverse global workforce and an ongoing demand for induction, Cadbury faced a major challenge: *'How can we engage our new colleagues early so they understand what's great about Cadbury and feel part of our global organization?'* Cadbury knew that elearning was an engaging and practical way to progress but with limited past experience and the need to move quickly, it wanted a partner who could develop a creative solution for a demanding audience.

Business Drivers for Global Induction Programme

Being part of a global organization, employees follow the Cadbury ethos and culture of working as one team across geographic and functional boundaries. With a diverse and evolving global workforce, Cadbury faced a key challenge: induction training was inconsistent in content, quality and timing. Having a standardized global induction programme would help leverage the passion colleagues and consumers have for the company and its brands, and ensure consistency in the induction process around the world. In addition, Cadbury wanted to improve line manager

accountability and capability with regard to their people management responsibilities which this initiative could strongly support.
Cadbury identified the following key drivers: Improve the quality of induction training by delivering a clear consistent message; Have something which is easy to use and maintain locally; Have the ability to link to other resources such as the intranet for more information on policies and processes; Be in an engaging format; Include a mechanism for tracking completion of the learning activity; Introduce all new hires to the performance management process (part of People Processes); People Manager Induction: Introduce newly hired and newly promoted managers to their role in people processes such as performance management and development planning at Cadbury.

The Global Induction Programme at Cadbury

The Global Induction Programme consists of four modules: 1st New Colleague Induction Module providing an introduction to Cadbury, its brands and organization structure and an explanation of its core values. 2nd Business Principles on how colleagues are expected to behave while conducting their day-to-day work. 3rd People Processes for all colleagues so they understand the people processes such as performance reviews and development planning. 4th People Management for line managers so they understand their role and what they need to be doing. A major consideration for Cadbury was that the e-learning had to be engaging, interesting and interactive with an element of fun.

Basic LMS with Element K's 'Knowledge Hub' at Cadbury

Once the decision to use e-learning for the Global Induction Programme had been taken Cadbury recognized that it would need the capability to manage, track and report on learning activities across the globe, hence the need for a basic LMS. The level of functionality was a key consideration, but for Cadbury the strength of the relationship and the increased understanding that NIIT were able to demonstrate of the Cadbury organization made the decision an easy one and Cadbury implemented Element K's 'Knowledge Hub' (KHub). While Cadbury currently has a basic LMS, the organization anticipates that the central LMS will be expanded with more functionality over time.

Five Key Lessons Learnt at Cadbury

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The first thing Cadbury stressed as a key 'lesson learnt' was 'talk to IT' and make sure they are involved very early in the process. Don't assume the IT infrastructure will be ok. The second one is – Stakeholder management is also crucial. Third is - A realistic project plan with sufficient time for reviews and capturing responses, and perhaps going round the review process more than once! Fourth is - Allow the internal project team to review each stage of content before review meetings, thus ensuring that conference calls are much more productive. The calls worked best when written feedback from the team was collated before the call, meaning the project team call only needed to cover outstanding issues. Fifth is - Focus on embedding in the organization rather than just the initial launch. Cadbury wanted an e-learning solution that addressed its key requirements of being engaging, global and consistent. It's gone well but it's just the beginning of this e-276 learning journey, and it will be fascinating to see how this evolves in the future. Cadbury knows that the characteristics of a great and growing relationship with NIIT are honesty, openness, trust and communication.

Survey Results

- ✓ 79% of the HR Managers were of the view that Training and Development helps in optimizing the utilization of human resource that further helps the employee to achieve the organizational goals as well as their individual goals.
- ✓ 80% of the respondents opined that Training and Development helps to provide an opportunity and broad structure for the development of human resources' technical and behavioural skills in an organization. It also helps the employees in attaining personal growth.
- ✓ Nearby 78% of the respondents were of the opinion that Training and Development helps in increasing the job knowledge and skills of employees at each level. 70% of the respondents were of the view that it helps to expand the horizons of human intellect and an overall personality of the employees.
- ✓ Only 60% of the respondents believed that Training and Development helps in increasing the productivity of the employees that helps the organization further to achieve its long-term goal.
- ✓ Training and Development helps in inculcating the sense of team work, team spirit, and inter-team collaborations. It helps in inculcating the zeal to learn within the employees.

- ✓ Nearby 70% of the respondents agreed that Training and Development helps to develop and improve the organizational health culture and effectiveness. It helps in creating the learning culture within the organization.
- ✓ Only 58% of the respondents were of the opinion that Training and Development helps building the positive perception and feeling about the organization. The employees get these feelings from leaders, subordinates, and peers.
- ✓ Only 57% of the respondents were of the point that Training and Development helps in improving upon the quality of work and work-life.
- ✓ 60% of the respondents were of the opinion that Training and Development helps in creating the healthy working environment. It helps to build good employee, relationship so that individual goals aligns with organizational goal.
- ✓ 61% of the respondents agreed to the point that Training and Development helps in improving the health and safety of the organization thus preventing obsolescence.
- ✓ Only 55% of the respondents agreed to the point that Training and Development helps in improving the morale of the work force.
- ✓ Nearby 56% of the respondents responded in an effective manner that Training and Development helps in creating a better corporate image.
- ✓ Nearby 56% of the respondents responded in an effective manner that Training and Development leads to improved profitability and more positive attitudes towards profit orientation.
- ✓ Only 58% of the respondents agreed that Training and Development aids in organizational development i.e. Organization gets more effective decision making and problem solving. It helps in understanding and carrying out organizational policies
- ✓ Nearby 59% of the respondents responded that Training and Development helps in developing leadership skills, motivation, loyalty, better attitudes, and other aspects that successful workers and managers usually display.

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Finding of the Study

Training and Development helps in Optimum Utilization of Human Resources; Development of Human Resources; Development of skills of employees; increases the Productivity of the employees that helps the organization further to achieve its long-term goal; inculcates Team spirit; helps to develop and improve the organizational health culture and effectiveness; helps building the positive perception and feeling about the organization; helps in improving upon the quality of work and work-life; helps in creating the healthy working environment; It helps to build good employee, relationship so that individual goals aligns with organizational goal; helps in improving the health and safety of the organization thus preventing obsolescence; helps in improving the morale of the work force; helps in creating a better corporate image; leads to improved profitability and more positive attitudes towards profit orientation; aids in organizational 277development i.e. Organization gets more effective decision making and problem solving; helps in developing leadership skills, motivation, loyalty, better attitudes, and other aspects that successful workers and managers usually display. Training is often neglected due to Urgency of need; Training time; Costs; Employee turnover; Short-term worker; Diversity of worker; Kinds of jobs (simple-complex); and Not knowing exactly what you want your people to do and how.

Conclusions

Training is a learning process that involves the acquisition of knowledge, sharpening of skills, concepts, rules, or changing of attitudes and behaviours to enhance the performance of employees. Training and Development helps in Optimum Utilization of Human Resources; Development of Human Resources; Development of skills of employees; Productivity of the employees; helps building the positive perception; helps in improving upon the quality of work and work-life; healthy working environment; good employee, relationship; helps in improving the health and safety of the organization thus preventing obsolescence; helps in improving the morale of the work force; helps in creating a better corporate image; leads to improved profitability and more positive attitudes towards profit orientation; aids in organizational development; effective decision making and problem solving; developing leadership skills, motivation, loyalty, better attitudes, and other aspects. Training is often neglected due to Urgency of need; Training time; Costs; Employee turnover; Short-term worker; Diversity of worker; Kinds of jobs (simple-complex); and Not knowing exactly what you want your people to do and how.

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ARTICLE

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CLOUD COMPUTING AND LIBRARIS

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Abstract:

Today we are living in the age of information. Information technology plays very vital role in library science. Technological development has brought a dramatic change in every field, and libraries are also affected to it. Information technology impacted positively on library and information system and services provide for users. The libraries have been automated, digitalized, networked and now moving towards paper less or virtual libraries. To gather challenges in the library and information science professionals are also applying different platforms in Library science filed for attaining economy in information handling. This paper introduced the meaning, Impact on libraries, types, advantage and role of cloud computing in the field of library services.

Introduction

Today we are living in the age of information. Information technology plays very vital role in library science i.e. for collection, Storage, organization, processing, and analysis of information. Library filed facing many challenges in the profession due to applications of information technology. New concepts are being added to ease the practices in the libraries is also accepting many new technologies in the profession as they suit the present information handling and they satisfy needs of the knowledge society. With the advent of Information technology, libraries have become automated which is the basic need towards advancement followed by networks and more effort are towards virtual libraries.

The emergence of e-publications, digital libraries, internet usage, web tools applications for libraries, consortium practices leads to the further developments in library profession. The latest technology trend in library science is use of cloud computing for various purposes and for achieving economy in library functions. Since cloud computing is a new and core area the professionals should be aware of it and also the application of cloud computing in library science.

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Cloud computing has evolved through a number of hases which include automatic computing, client-server model, mainframe computing, grid utility computing and application service provision (ASP). But the overarching concept of delivering computing resources through a global network is rooted in the sixties. The idea of an "intergalactic computer network" was introduced in the sixties by J. C. R. Licklider, who was responsible for enabling the development of ARPANET (Advanced Research Projects Agency Network) in 1969. Cloud computing denotes a model on which a computing infrastructure is viewed as a “cloud,” from which businesses and individuals access applications from anywhere in the world on demand. The main principle behind this model is offering computing, storage, and software “as a service.”

MEANING OF CLOUD COMPUTING

According to the National Institute of Standards and Technology (NIST) definition (2009), Cloud computing is a model for enabling ubiquitous, convenient on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. Cloud computing is a model for delivery of resources as a service. The resources are retrieved from the Internet through various web based tools and application. Cloud computing resources includes infrastructure, service and lastly application. Cloud computing is so named because the information being accessed is found in the "clouds", and does not require a user to be in a specific place to gain access to it.

We have used so many of the popular Web 2.0 services over the past few years (e.g. Gmail, Wikipedia, Flickr or Twitter), we already have some experience with cloud computing, since most of these applications are hosted in the large online data centers that are the hallmark of cloud computing. The computing cloud is a communally-shared resource that we lease on a metered basis, paying for as little or as much as we need, when we need it. The Charles Lead beater points out, another helpful analogy is embedded in the phrase “cloud computing” itself. Real clouds are Photo by Basic Gov; Creative Commons share-alike license all made from the same fundamental component (i.e. water droplets), and these atmospheric clouds morph continuously from one type (e.g. cirrus) to another (e.g. stratus or cumulus). Similarly, shared online computing resources are the fundamental common component most modern networked applications and communities run on the same basic mix of IT infrastructure. The flexibility and scalability of cloud computing means that virtual clouds can form and dissipate as often as real clouds, depending on the

interests and demands of end users. Eventually, the cloud computing will probably impact libraries with following factors:

- **Cost savings:** In an era of shrinking budgets, it gets harder with each passing year to justify the purchase and maintenance of servers that are not in use almost all the time. Cloud computing offers price savings due to economies of scale and the fact that we are only paying for the resources we actually use.
- **Flexibility and Innovation :** Organizations can take more risks when it comes to creative, innovative technology ideas when the new application will run on someone else's infrastructure. Libraries don't have to decide between devoting their limited server resources to the OPAC's overflow traffic and a new mobile web application that one of the institutions wants to develop. If they're both hosted in the cloud, the resources devoted to each will shrink and expand as traffic rises and drops. Furthermore, creating and configuring new virtual server instances is fast and easy in the cloud.
- **IT Skills :** Cloud computing increases the pressure on IT professionals to become well-rounded employees with highly-developed managerial skills. Knowing how to configure and network a server is not enough. Systems librarians have to manage complex projects and evaluate competing vendors on a variety of criteria. Holding vendors accountable is especially important when they manage a significant chunk of online data and IT infrastructure. Therefore, as long as cloud security remains a significant concern, techies may be called upon to help write binding, enforceable contracts that hold vendors to certain standards with regards to reliability and security of their services. Furthermore, techies will likely be part of the teams that periodically audit cloud vendors and ensure they're performing up to the contracted standards.
- **Cloud OPAC and Cloud ILS:** Over the past, more and more Integrated Library System (ILS) vendors have started offering cloud-hosted versions of their products. As Online Computer Library Center (OCLC) joined several other vendors began offering a cloud-based ILS tools that complement their existing cataloging tools (e.g. WorldCat and FirstSearch). As individuals and members of organizations, we're already choosing between desktop applications and cloud applications when it comes to e-mail, RSS, file storage, word processing and other simple applications. Sooner or later we'll have to make this choice for mission-critical enterprise applications too.

TYPES OF CLOUD COMPUTING

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Cloud computing can be divided into four types which are **public, private, hybrid and community cloud** and each one has its own characteristics.

- **Public cloud** : In this model the vendor or service provider controls the whole cloud system and offers service on demand over Internet on pay-per-use basis. It is also known as provider cloud. Examples of Public Cloud: Google App Engine, Microsoft Windows Azure, IBM Smart Cloud, Amazon EC2 .
- **Private cloud :** Private clouds are generally built within an organization for the benefit of the particular organization. Private cloud is also known as "internal cloud". Examples of Private Cloud: Eucalyptus, Amazon VPC (Virtual Private Cloud), VMware Cloud Infrastructure Suite, Microsoft ECI data centre.
- **Hybrid cloud** : Hybrid cloud means the compilations of two cloud technology i.e. private and public cloud or internal and external cloud. It is also known as combined cloud. Examples of Hybrid Cloud: Windows Azure (capable of Hybrid Cloud), VMware vCloud (Hybrid Cloud Services)
- **Community cloud** : Community cloud infrastructure is shared by some organizations and supports a specific community that shares concerns (e.g. mission, education and compliance considerations).It may either be managed by the organizations or a third party and may exist on premise or off premise. Examples of Community Cloud: Google Apps for Government, Microsoft Government Community Cloud.

Libraries may soon be building and managing their own data centers. In addition to all the hype and optimism surrounding cloud computing, there are still significant fears and doubts Industry Challenges points out. In particular, the major cloud computing vendors haven't yet fully addressed concerns about security, privacy and reliability. These concerns are leading some companies to build their own private or hybrid clouds. A hybrid cloud is primarily based in a privately-owned and operated data center, but it can shift some of its traffic and data processing requests to public cloud vendors such as Amazon or Rack space on an as needed basis. This hybrid model would let libraries maintain more control over the applications and data stores that contain sensitive, private information about patrons. Moreover, libraries can continually adjust and fine-tune the balance between the tight control of a private IT infrastructure, and the flexibility and savings of cloud-hosted infrastructure. If reliability or security of one vendor becomes a concern, it is not committed to one company or one model of computing services. Moreover, if the thought of "building and managing your own data center" sends chills down your spine, you might consider a community cloud. As the Google plans to launch a government-only cloud to address government concerns about security and privacy. Just as libraries presently cooperate with one another to buy IT equipment, bandwidth and the

services of IT professionals, libraries may soon cooperate in the building and management of data centers. Alternately, if enough libraries express interest, a company such as Google, Amazon, Microsoft or another cloud vendor might create a Library Cloud similar to Google's Government Cloud. Or, a library vendor with deep IT resources (e.g. OCLC or SirsiDynix) might build library-centric cloud services on top of cloud infrastructure leased from one of the more established players.

ADVANTAGE OF CLOUD COMPUTING IN LIBRARIES

With Cloud computing, services of libraries will have a new leap in the future. In fact, services provided by the libraries will become more user-centric, more professional and more effective. This will in turn help the libraries to create more knowledge benefits for the country. Highly automated atmosphere of cloud computing helps the libraries to keep a bay on IT personnel's help for keeping software up-to-date, as maintenance is the job of the service provider on the cloud. Increased storage capacity helps libraries to store more data than on private computer systems. Cloud technology is paid incrementally (you-pay-only-for-what-you-need) saving libraries' money in the short run and then this money saved can be used for other important resources.

ROLE OF CLOUD COMPUTING IN LIBRARIES

Libraries can build their computer system on web technology with cloud technologies so that user can integrate more easily the system. Cloud technology can be applied for backing up of media collections and storing and accessing of bibliographic data. Libraries can also store and maintain much of the same data hundreds and thousands of times. Libraries can use cloud technology like Google Docs to collect responses to web forms, Google Calendar for instruction and meeting rooms, and Google Analytics to collect statistics about their website, catalogue and blogs. With the help of cloud computing technology libraries can host their website. The District of Columbia Public Library is using Amazon's EC2 (Elastic Computing Cloud) service to host their website. Libraries can build digital library, content management system, institutional repository, Inter Library Loan (IIL) system and Integrated Library System (ILS) from locally-managed to vendor-hosted environment, of their own with the help of cloud technology.

Conclusion

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Cloud computing is a new and promising paradigm delivering IT services as computing utilities. Cloud computing bring several benefits for libraries and give them a different future. Cloud computing encourages libraries and their users to participate in a network and community of libraries by enabling them to reuse information and socialize around information. It also creates a powerful, unified presence for libraries on the web and gives users a local, group and global reach. Some problems such as platform security, technical standards, regulatory and other services are not well resolved yet in practice.

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ARTICLE

11

INTENSITY AND MAGNITUDE OF VIOLENCE AGAINST WOMAN- WITH REFERENCE TO DISTT. REWA M.P.

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Abstract:

Violence pervades the lives of many people around the world and touches all of us in some or the other way. To many people staying out of harm's way is a matter of locking doors and windows and avoiding dangerous places. To others escape is not possible. The threat of violence is behind those doors well hidden from the public view. Violence against women persists in myriad form. The Woman suffer not only the direct violence in the form of sexual harassment, the loss of economic and social security, and livelihood, being displaced in traumatic condition; but they are also victimized psychologically due to increased patriarchal control over their life and limb. Violation of woman's human right takes different dimension reinforced by the gender biases in the society. This is not an issue that a woman faces personally. The impact of familial violence is felt by the family, the children the society, the community and the nation at large.

Introduction

The Problem-The manifestation of violence against women in myriad form not only retards women's empowerment and development but also hinders the social mobilization and the development of the state. As a whole it necessitates the need of effective intervention of the state, civil society and legal mechanism to cope with the problem of violence against women. The need is to Probe into the root causes of gendered violence and to prepare a mechanism, through gender sensitization, social awareness programs. The need is to break the barriers of public– private dichotomy giving effect to the laws and making the private discourse a public one. Martin Luther King quotes – **"Law cannot change the hearts but can restrain the heartless."**

The prevailing gender disparity prepares the sound base for violation of women's human rights. In recent years there has been alarming increase in atrocities against women in terms of dowry related murders, assaults, rapes, female infanticide, sex-selective abortions and several other kinds of abuse contributing to gender violence. According to a report of the Asian Age- "every seven minutes 1 women dies in India, Every 26 minutes a women is molested every 24 minutes a rape takes place, every 42 minutes a sexual harassment incident occurs. Every 43 minutes a woman is kidnapped, every 93 minutes a woman is burnt to death for dowry[3]". In all the societies, irrespective of development, literacy, socio-economic advancement the crimes against women pervades some or the other way. It's nature has been changing with the pace of changes in the society. The global campaign for elimination of violence against women in the recent years indicates the enormity as well as seriousness of the atrocities committed against women that are being witnessed the world over. According to a report of NCRB report 2000, -"development along with it is progressive changes in personal life style, living standards, varied economic growth caused by urbanization and changes in social ethos contribute to a violent attitudes and tendencies against women. Some studies reveal that as many as one out of every 4 women has suffered violence at some points in their lives".

The proposed study intends to analyze the problems of the rural women and their basic human rights. The study has to be conducted on the rural women of Rewa District, M.P. A greater population of Women in Rewa district is illiterate and engaged in either household work or in agricultural sector. The rural women of Rewa like other parts of India are victim of social, Psychological, economic and other kinds of abuse that curtails the opportunities of a life with dignity and self reliance for them. Poverty, unemployment, illiteracy, destitute are the common factors responsible for different sort of violence mental, psychological, verbal, economic, physical and other forms of human rights violation of women. Globalization, Modernization, Preventive laws and Legislation has got little to do with the problems of women, whether they are urban or rural. Better to say they have utterly failed in their efforts to check the menace.

This study is proposed to-

- Analyze the myriad forms of violence and the causes contributing to the deprivation of women with special reference to the rural women of Rewa district.
- Level of awareness about the preventive laws and the functioning of legal and remedial institutions for the redressal of the grievances of women in case of their human rights violations.
- The frequency of violence, frequency of cases being registered and level of execution of preventive measures by the officials in cases of violence or violation of their basic rights.
- The approach of police and criminal justice system in dealing with the cases of Women's human rights violation.
- To Investigate of the root causes of the violence in rural areas and also an investigation of the effects and influence of preventive measures in case of violence

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Methodology –

Since the nature of the work is more empirical, primary sources of Data collection has been applied during the study relying basically on the responses of the woman who had been victims of familial violence of some or the other kinds

Sampling- In order to have an adequate result about the problem of the study, a sample of 100 respondents was chosen by the purposing sampling technique; For the purpose of accurate information about the nature of human rights violation, the samples of only those women were purposely chosen, who had been victims of some or other types of violence. The study is based on the sample of 100 woman respondents chosen from the family counselling cells of Distt Rewa and Tehsil Mauganj of Distt Rewa.

A visit to helpline and women counselling cells at Rewa and Mauganj Tehsil of Rewa was made in order to collect the information about the victims of violence. The victim respondents were interviewed to know the kinds, the nature of incidents, frequency of violence, the approach of protective machinery and consequences of such incidents. In the samples collected from the counselling cells the woman victims had reported different kinds of violence as given in the table as under-

Sr. no.	Nature of violence reported	No. of crimes
1.	Unusual torture and threat to life	06
2.	Torture for Dowry	36
3.	Physical battering and snatching away the child	02
4.	Making illicit relation by making fake promises of marriage	01
5.	Mental and Physical Torture	18
6.	Physical torture and abusive behaviour	20
7.	Marrying other women and throwing out of the house and physical battery	09
8.	Physical battery and not giving the maintenance	09
9.	Leaving wife after marriage	01
10.	Keeping wife as captive or illegal confinement	01
11.	Physical torture by In-Laws blaming of infidelity and of loose morals	05
12.	Providing no medical aid because of the birth of a girl child	01
13.	Physical battery after child birth and not adopting the child	01

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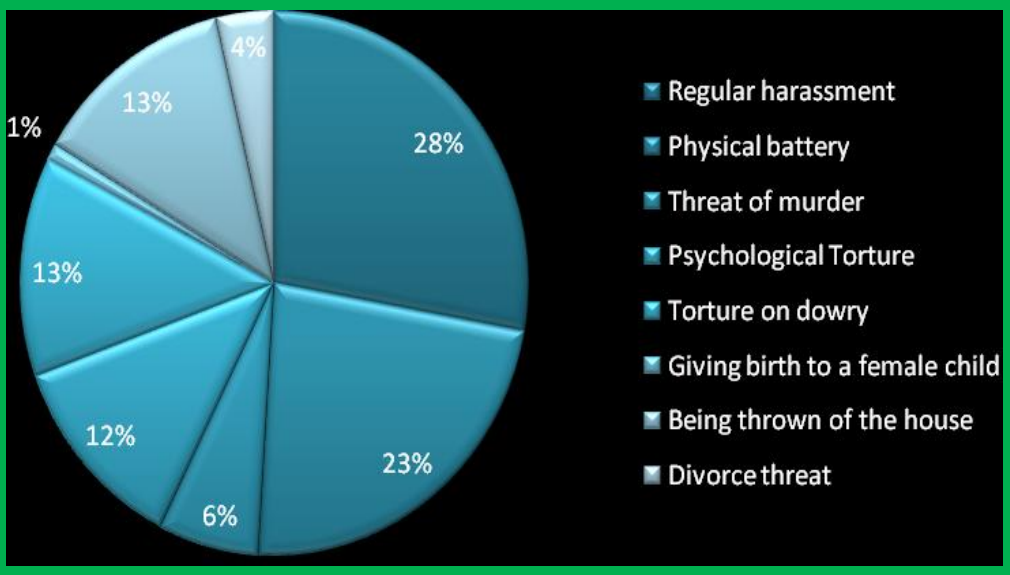
Out of the sample of 100 victims 83% of women interviewed admitted that they had undergone regular and occasional physical harassment and mental torture from their husband and In-Laws family, 69% of the women admitted for being battered by their husband and In-Laws, 19% of the respondents were threatened for murder, 36% psychological torture. The nature of torture was either in the form of keeping them isolated or shouting insults for their parents or other intimate relatives and some other kind of threats, 39% of the aggrieved respondents reported that they were tortured for dowry. It was observed that the dowry is not a major cause for torture to poor rural women. The 3% of the women suffered tortures for giving birth to a female child or being delayed in giving birth to a child. 38% of aggrieved women reported they were often threatened for being thrown out of the

matrimonial house, most of them were already thrown out of the matrimonial house. Only 11% respondents were threatened for divorce. Most of the women has suffered more than one kind of violence from their husbands and In-Laws family. These are the common types of violence the women were inflicted upon. Though the threats of violence are sometimes given only in aggression but sometimes they take serious turns.

Pie- chart Showing

The nature & magnitude of violence (Rewa Distt.)



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Frequency of Incidence of violence –

Violence against women is very common incident of crime that occurs at regular interval in most of the cases. In the study it was found that maximum number of victims suffered the violent behaviour of the husbands and In-Laws most often. 57% respondents reported that they suffered the violence almost every day. 38% of the respondents reported that they had occasional experience of violence occurring in two or three months; whereas 6% told that the incident of violence against them occurred in two or three years.

Where do the women generally become the victim of violence?

In response 96% of women admitted that matrimonial homes are the most violent place, where they were subjected to aggressive behaviour of their In-Laws. 43% respondents admitted that the women are victimized beyond the premises of the household; such places may be the market place, the Bus Stand or other places of public gathering. 6% responded that incidence of violence may occur anywhere.

What is the most common form of violence against women?

In response to this query 98% women responded that domestic violence is the most common form of violence against them, that they are forced to suffer. 39% reported that violence beyond the premises of the house is next to domestic violence. 14% accepted that working places are the violent places, where they were subjected to violent situations of some or the other kinds, a few respondents working as crude labourer reported that 'working places were not safe for their dignity and personal liberty'. The boss and the working colleagues were the reported offenders in the activities of sexual harassment and eve teasing. It was also reported that the application of slang languages and harassment of sexual nature is not taken seriously at the working places until it takes a serious turn.

Nature and frequency of occurrence of crimes

.No.	Nature of crimes	requency of Incidence of violence reported
1.	Domestic violence	98%
2.	Violence outside the premises of house	39%
3.	Working place	14%
4.	Others	5%

Who is the most responsible perpetrator against woman?

80% of victims accepted that their husbands were the main perpetrators against them. 69% blamed their parents In-Laws for violent situations against them in the household. 19% admitted the involvement of the intimate relatives of the In-Laws family for the violent behaviour against married women. 6% respondents held the intimate friends of their husband as responsible for violence in some or the other way. In general the violence takes place when a young bride fails to respond to the expectations of the husbands for their friends who frequently visit at the homes. A housewife was beaten to death by her husband as she was blamed for not cooking good food[5]. 18% reported that external members like, neighbours, the housemaids and others visiting frequently at the husband's house are responsible for violent situations. Their murmuring, indecent representation of the conduct of the wives, the fabricated and engineered complaints about the behaviour and living style of the young brides, the unwanted comments passed by the neighbours regarding the bride in front of their husbands or In-Laws become the potent cause of their violent behaviour against the bride in the family; who is many times unknown and innocent about the episodes. Sometimes these the episodes of poisoning the ears create permanent suspicion in the minds of the husband that results in an incident of henious nature and also causes distress in the family. In a case a man was reluctant to adopt the newly born child as his own due to grave suspicion on his wife's character. The following table shows the % of perpetrators responsible for committing violence against woman in the rural families.

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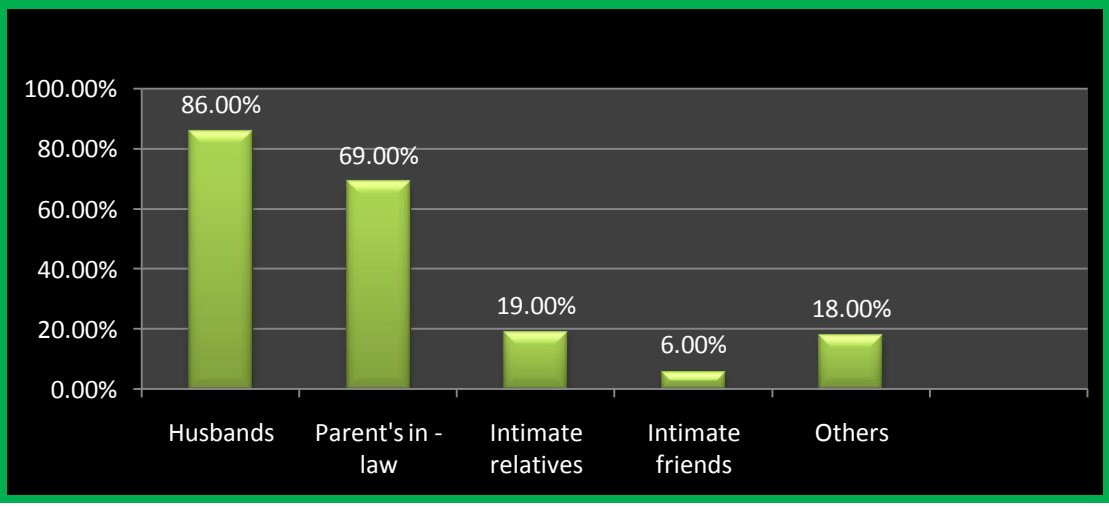
Perpetrators responsible for crimes against women

S.No.	Perpetrators	% of respondents
1.	Husbands	86%
2.	Parents, In-Laws	69%
3.	The intimate relatives (Maternal In-Laws, Sister & Brother In-Laws.)	19%
4.	Intimate friends of husbands	06%
5.	External Members (other than family members)	18%

Graph, showing the perpetrators of violence in Rewa



Forms of torture against married women –

What is the most common form of torture against married women?.

In the study it was revealed that married women are victims of different forms of torture in the familial relations. Some of the tortures occur occasionally and some at the regular intervals. Most of the tortures are considered common accepted social norms in the rural areas & are not given weight. The crimes against woman is noticed when it is very much intensified. The following table shows the nature of crimes as reported by woman respondents in Distt. Rewa.

Frequency and nature of tortures

.No.	Form of torture	of response by the victims
1.	Battering or beating use of abusive and insulting/slang language	85
2.	Threat of murder (by husband)	22
3.	Dowry	34
4.	Failure in giving birth to a male child	01
5.	Psychological torture	45
6.	Name calling (with whose etc.)	35
7.	Shouting insults for	55
8.	Threats to throw out of the house	50
9.	Snatching away the children	12
10.	Attempt to murder	03
11.	Any other form of violence	10

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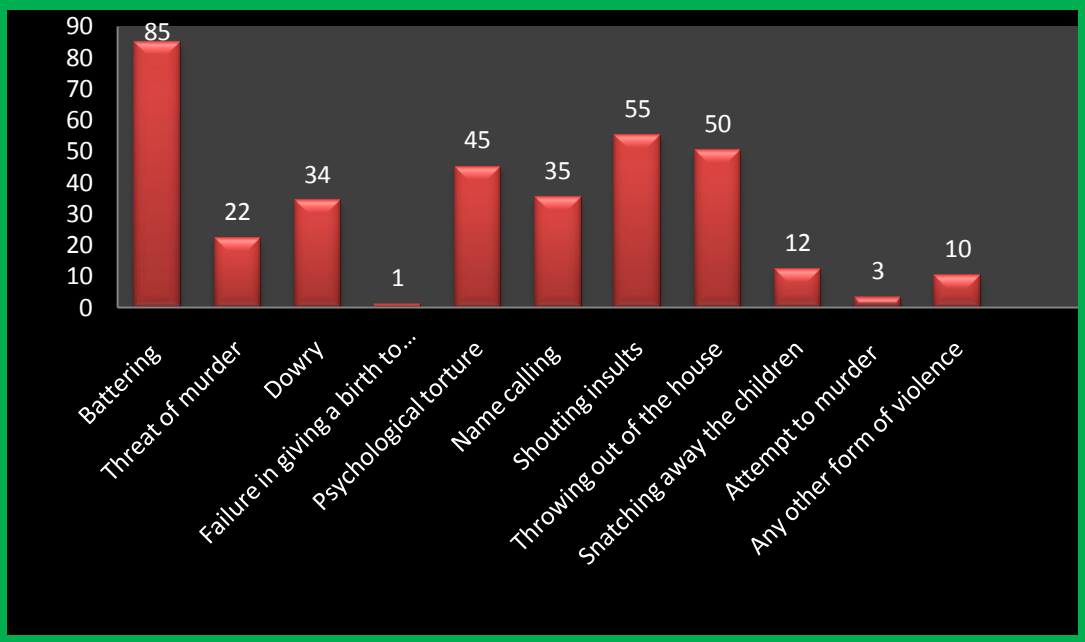
% of Nature and intensity of violence in Rewa



85% of respondents accepted that beating wife or wife battering, use of abusive and insulting or slang language is the most common incidence of torture against women. Most of the women victims had been subjected to ruthless husbands; but they accepted the incidence of battering and abusive behaviour as the most common incidence of violence against women. 22% victims reported that they were threatened for murder by the husbands 34% incidents of violence against women were recorded pertaining to dowry. Only 1% women reported that they were psychologically tortured by their husbands. 35% women reported that their husbands and In-Laws called them by bad names like witch, whore etc. 55% incidents reported, revealed the use of abusive and insulting or slang language for the parents of the bride. In 5% cases they were threatened to be thrown out of the house. In 9% cases the In-Laws family threatened to snatch away the child and throw the wife out of the house. In 3% cases attempt to murder was reported by the respondents. While 10% women reported the application of other methods of violence like second marriage, extra marital relation, not giving maintenance, un-natural sexual behaviour or keeping no marital relations and the like. In one of the cases a young wife was beaten to death by husband when she objected to the illicit relations of her husband with his elder brother's wife[6]. These are some of the instances of the nature of domestic crimes against women, that they are used to suffer.

When did the first instance of crime occur? –

In response to this query 30% women victims reported that they were subjected to violence just after a week of their marriage whereas 32% victims reported the occurance of first incident of violence after one month of their marriage. 24% reported that they were subjected to violence after one year of their marriage, 12% women experienced violence after 3 years of their marriage. 2% women reported that they experienced the first incident of violence after more than 3 years of their marriage.

What was the nature of the first incident? –

When inquired about the nature of first incident 39% women reported that the first case of incident was in the form of ordinary discussion between the spouse. 33% victims reported that they were battered and abused at the first instance of the incident. 60% felt the first incident of violence in the form of slang and abusive language against them. 4% experienced the threat of being beaten and thrown out of the house or the second marriage by their husband.

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How did they respond at the occurrence of the incident for the first time?

68% of the women queried responded that they accepted the first incidence of violence as an ordinary incident and they did not grudge or complain to anybody, 41% of them accepted that they reported the incident of violence to their neighbours, 25% reported the incident to family counselling and helpline centres instead of reporting the incident to their parents. 9% reported in the police station after giving the information to their parents and reporting it to helpline centres. 4% filed complain in the women's police station, 5% agreed to mutual compromise. Most of the women reported the incident to their parents, the counselling cells as well as to the police.

What was the consequence of the steps taken by the victims?

12% of the respondents reported that the frequency of violence against them stopped after the steps taken by them 69% admitted that the incidents of violence continued and there was no change in the nature of violence against them. 15% said that the incidents became more violent after they reported to police and to their parents, 6% of them agreed on voluntary separation, 79% women accepted that there was no positive consequence of their efforts to restrict the violence against them. Whereas 21% reported that they were successful in their effort and the violence didn't occur after it.

It may thus be perceived that a complain to counter the domestic violence by a women aggravates the violence and yields no result. Gender role in society is determined by the social power structure in which male dominates the female and it is considered and offence if a woman complains against violence committed against her in the familial relations. The psychological implication of the situation is that a women lives in a state of fear and insecurity because she is not certain about the frequency of occurrence of violence and consequently she develop an inferiority complex that leads her to commit suicidal attempt. Wife beating is very common not only in rural areas but also in the cities among the highly educated people.

What was the decision of the victims after violent incident against them?

18% victims wanted to get their husbands and In-Laws punished. They asserted that they wanted justice from police and judicial system. 12% women wanted to approach to police and judiciary to get their status back, 74% wanted solution by coming to a compromise. They admitted that they wanted to be with their husband and didn't wish to get them punished. 10% of the women wanted voluntary separation. The socio-economic insecurity, the traditional sex role, socialization leading to submissiveness and subordination are the factors responsible for women to be in a violent situation.

It was revealed that the women coming to counselling centres filed complaints against their husbands but dint want any coercive action against them. They have in anticipation of getting all the things right. 80% women accepted that going to police and judiciary compromise can be a solution to the problems of violence where as 20% women asserted that these are not the solution for the problem of the violence against women.

How did the parents of the victims respond?

80% of the respondent victims reported that they responded positively. They supported their daughters. 02% respondents said that their parents blamed them for violent behaviour by their In-Laws, 30% respondents asserted that blamed their In-Laws family for their violent behaviour, 64% reported that their parents advised them to compromise with mutual understanding, 8% reported that their parents advised for judicial separation.

Have you information about shelter homes for the violent situations?

In response to this query 93% responded negatively. They were not aware about the shelter homes, 7% responded that they knew about the provision of shelter homes in cases of violence against them. The living condition and official response at the shelter home in case a victim approach for help is another question. It has been revealed that the shelter homes are very roughly managed; sometimes the officials at the shelter homes do not respond adequately.

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Can protection of women from domestic violence, Act 2005 be an effective measure to eliminate crimes against women?

30% of the women interviewed responded positively. They agreed that the act for the protection of women can be effective provided it is implemented in it's right course and the victims have awareness about the provisions. 70% admitted that the act or the Laws cannot be an effective tool for the violence against women in the household; family is an institution solely based on faith, trust, mutual understanding of the spouses and other members. Violence is bred in the psyche of the perpetrator. It is a matter more of a process of socialization and family environment.

What should be the level of police or administrative intervention in the household affairs?

63% respondents admitted that police and administration should intervene in family affairs only when the applicant or victim so desires, 37% respondents says that there should be no intervention of police or administration in the family affairs due to its being solely private affair. Most of the respondents denied for intervention driven by fear of becoming the matter worse or the violence more aggressive.

Role of Police in taking actions in the cases of violence against women-

When queried–"what is the role of the police in cases of violence against women?"- Only 15% respondents admitted that police takes an immediate action whereas 28% respondents said that police does nothing and advises to get a solution on mutual understanding or referred the matter to family counselling cell and helpline centres. 71% respondents reported that the police advise to mutual compromise instead of lodging a complaint. 72% victims reported that they were advised to approach to counselling cells and helpline centres.

During a discourse with the police officials it was revealed that the victims coming to police are not often willing to take a coercive action. They file complaints and withdraw when a procedure of a legal action starts. Most of the victims wanted that the perpetrators should be given directives not to be violent and to give due response and care to the victim and her children. Most of the victims gave positive response about the role of the counselling cells. 84% women respondents reported that counselling cells had been much helpful to find a solution for the problems of violence against them. They tried their level best to mutual compromise, 02% reported that counselling

cells advised them to get their matter to the police, in 8% cases counselling cell advised for judicial counselling, in a few cases they helped the victims for voluntary separation of the victims.

Role of the neighbours -

When queried about the approach of the neighbourhood in cases of violence against them, the victims reported that they are least concerned about the familial problems. In most of the cases they remained silent spectators. It was revealed that they were least affected by the violent behaviour or incident of violence in the neighbouring family. 26% respondents admitted that their neighbours intervened with a view to restore mutual trust and understanding. 78% respondents said that their neighbours did not intervene in the cases of violence. 48% reported that they do nothing and remain silent even if wife is beaten or burnt alive.

The perception is **–** The violence against women is purely considered as the family affair and nobody cares or dares to interfere if a man batters his wife. It was also revealed that the perpetrators and the victims do not like the interference of outsiders in their family affairs. "The society so implicitly supports this attitude by leaving the husband-wife to settle their affairs but in the case of a husband battering his wife, the neighbours tend to be mute spectators[7]."

What are the factors mainly responsible for violent behaviour of husband towards their wives?

Most of the women revealed more than one factor responsible for violence against women. The responses of the victims as per preference of their response are being given in the following table –

S.No.	Responsible factors of violence	Response as per preference
1.	Poverty	82
2.	Alcoholism	86
3.	Unemployment	67
4.	Distrust on wife conduct	22
5.	Poisoning the ear of husband by the family members	59
6.	Non cooperation of wife with the husband	26
7.	Conflict on smaller issues	33
8.	Wives threats to go to her parent's house	13
9.	Being out of the house (of the husband) till late hours	16
10.	Other causes	17

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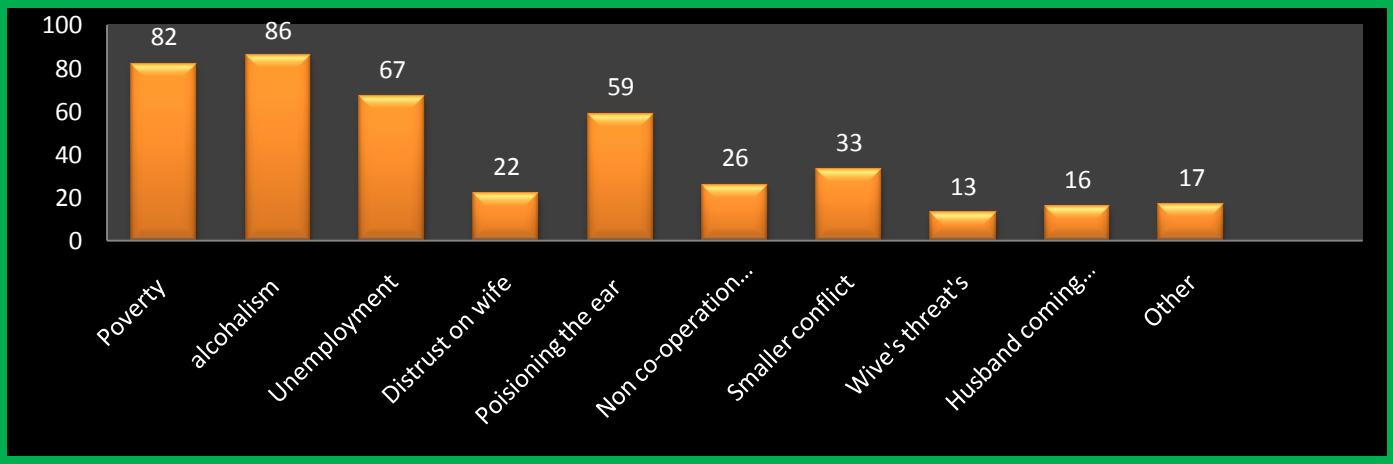
Graph showing the causes of Violence Against Woman



Causes of Familial violence

82% respondents admitted poverty or destitute as the main factor responsible for violence against women, 86% women accepted alcoholism as the main reason for the violent situation in the family. In a case a young women was beaten to death by her husband and In-Laws as she refused to go out in rain to bring, 'Ganja' for her husband[8]. 67% women victims held unemployment of the husband as responsible for violence, 22% reported that distrust on the character of wife as responsible for violence, 59% women respondents reported that family members poison the ears of the husband against them, that causes violence. It was revealed that wife battering is very common in rural as well as urban areas even the working wives who are less dependent on husband also were subjected to torture and beatings by the husbands. The torture takes place when the husband is poisoned by mother In-Laws or other members in intimate relation. As holds S.K. Ghosh – it is common among working wives, as most mother In-Laws who are nonworking and had been under complete dominance feel jealous and frustrated at the sudden independence and freedom of their daughters In-Law. This is countered by poisoning the ears of their son's and antagonizing them against their wives[9].

26% women victims revealed that the violence may occur if the wife does not cooperate with the husband on several occasions. Sometimes wives of object to the decisions taken by husband or have disregard for the members of the family specially the aged ones; 33% women agreed that the minor conflict between the spouses on trivial issues prepares ground for violence against women. 13% accepted that wives repeated threats to go to her parent's house is a ground for wife beating, 16% reported that husband being out of the house till late hours in the night is also a ground for aggressive behaviour of the husband. It takes serious turn if a wife enquires about the episode.

Is Dowry the most prominent factor for violence against women?

In response to this query the 47% respondents agreed fully and accepted the dowry as one of the factors but not the only factor for violence against women. 45% were partially agreed to it. 15% respondent denied that dowry is the prominent factor, 19% reported that many other factors are also responsible for violent behaviour of husbands and In-Laws family. Extra marital relations, second marriage, alcoholism, unemployment, husbands love affairs were the other causes equally important for the violence against women.

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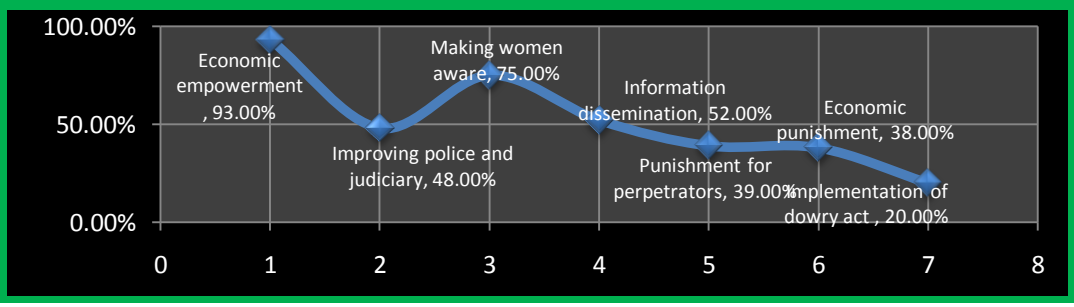
It has been observed in different studies that dowry is not a major factor in rural areas for the violent situations in the family in comparison to urban areas. In the rural areas wife beating on trivial issues are taken as a common phenomenon and it is solely considered as private affair. A Delhi based women's organization Saheli revealed that– Wife beating was common among all social classes as it "is a reflection of power relationship between husband and wife, which mirror's women's secondary social status[10]. Wife beating is generally accepted by women as an ordinary course of household affair till it takes a serious turn. Jejeebhoy 1998 reports in a survey drawn from the study of 1842 rural women stated that 40.9% of women were reported by beaten by their husbands for reasons such as disobedience to his orders, or failing to meet his expectations[11]. The respondent's perceived their beatings as women's dues and husband's right.

How can violence against women be eliminated? –

- Economic empowerment of women – 93%
- Improving police and judicial system – 48%
- Making women aware of their rights – 75%
- Making dissemination of information about women's right – 52%
- Provision of punishment for perpetrators – 39%
- Economic punishment for perpetrators – 38%
- Making dowry prohibition act more effective – 20%

Graph showing Responses for the Measures to eliminate violence



When enquired about it 93% women accepted that economic empowerment of women can be an instrument in eliminating violence against women. 48% women said that by improving and legal system the violence against women can be eliminated. 75% women accepted disseminating information regarding the protective laws and rights of women can be helpful in solving the problems of violence against women, 52% accepted that the provision of rigorous punishment for the perpetrators can be helpful in doing away with the menace of violence against women, 38% respondents favoured for economic punishment for the offenders, whereas only 20% women accepted the implementation dowry act can be helpful in removing violence against women. It was revealed in the study that the women have least awareness about the protective laws. The laws regarding violence against women and the protection of women from domestic violence, ACT 2005 have least impact. Maximum number of respondents were not aware of the protective laws, protection officers or the shelter homes. Only 20% women were aware of the laws regarding the protection of domestic violence against women. 80% respondents were not aware of the laws regarding protection of women from violence, only 6% women knew the provision of protection officers but didn't know who was the protection officer in their locality, 94% had no information about any such agency. The implication is that gender sensitization programs with an intention of making women more and more aware of their rights in violent situation is strictly required.

Conclusion and suggestions-

Domestic violence is considered purely a private discourse hence it is not revealed in most of the cases. Several suggestions can be given to make effective the laws regarding *the violence against woman-*

- Gender sensitization programs to make the woman aware of the laws regarding violation of their human rights.
- To ensure speedy trial in cases of violence against woman.
- Family Socialization process to assure that woman are an integral part of the family.
- Social awareness program to make woman aware of protective laws in cases of violence against woman.
- To ensure the effective implementation of laws regarding human rights violation of woman. It is perceived that in most of the cases the perpetrators escape punishment due to weak enforcement of laws.
- Making the police more sensitive and prompt to provide remedy to the victims.
- Removing the procedural complexities of protective measures.
- Special exclusive courts for woman victims.
- Ensuring economic empowerment of woman and ensuring monetary safeguards to women in cases of familial violence.

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THE END

ARTICLE

12

FACILITATING SUSTAINABLE ECONOMIC GROWTH THROUGH DEVELOPMENT ENTREPRENEURSHIP

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Abstract:

Development economics is facing a new challenge that entrepreneurship scholars may be best equipped to address: what to do about the billion people subsisting on less than Rs.60/day and living in the least developed countries (LDCs)? While four of the five billion people in poverty live in countries that are developing, approximately one billion remain trapped in nations that are falling behind and falling apart (Collier, 2007). Thus, some have argued that failure of the growth process in these societies should be the core concern of development.

Although entrepreneurship should has the planning-oriented strategy to poverty alleviation. To date, development efforts, through inertia, ignorance, and incompetence, have been paltry, standing by and watching as change agents in LDCs were defeated by "the powerful internal forces stacked against them".

This should be more market-based approach for the development ; views various projects as experiments that are initiated by entrepreneurs and retained only when positive feedback is received from the poor.

An study suggested there are three types of actors: social entrepreneurs projects close to poor needs; individuals and institutions with technical and practical knowledge; and Innovative Investors.

"As management scholars we study business. But business involving the poor, whether selling to the poor or businesses among the poor, is a relevant topic for management scholars that should be examined directly."

Introduction

This article proposes a market-based approach to facilitating inclusive eco-nomic growth through institutional change. The proposed theory is consistent with the logic of self-interest and trade that is common to economic theory. But it is not restricted solely or even predominantly to the pursuit of economic returns and is therefore capable of being reconciled with the social entrepreneurship literature's assumption that entrepreneurship can be motivated by charity as well as profit (Baron, 2007). Consequently, I offer an economic theory of social entrepreneurship that focuses on entrepreneurial activity occurring at the nexus of the three scholarly domains shown in Figure 1: business entrepreneurship (BE), social entrepreneurship (SE),and institutional entrepreneurship (IE). This development entrepreneurship (DE) seeks to change directly the formal institutions of economic growth by engaging in IE—the endogenous transformation of institutional environments with the explicit purpose of making further BE easier. The result of this path creation is an institutional environment that makes productive entrepreneurship i.e.

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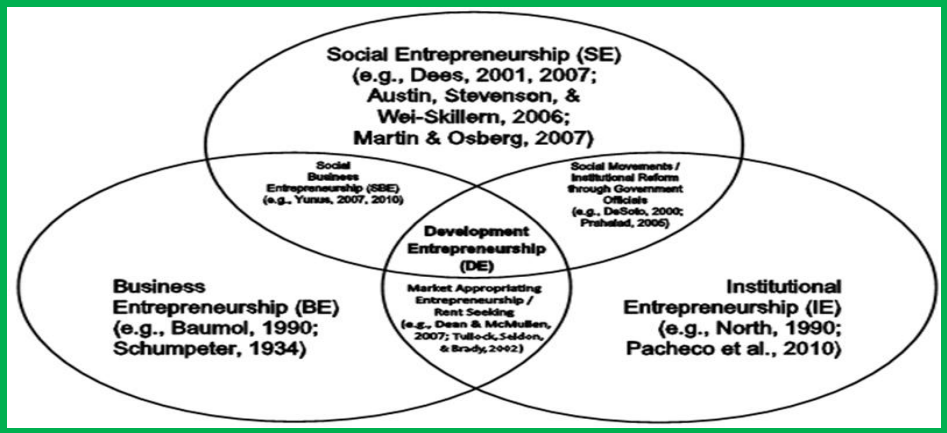

Fig.1

Development Entrepreneurship as Nexus of Social Entrepreneurship, Business Entrepreneurship, and Institutional EntrepreneurshipBE that seeks profit through product innovation as opposed to rent-seeking or crime (Baumol, 1990)—a more efficient and path dependent choice for economic actors seeking to do business in LDCs.

Before delineating DE from related phenomena, however, I articulate the need for a new theory of development by identifying the institutions of economic growth, examining how current development efforts address conditions caused by the absence or impairment of these institutions, and critiquing current explanations of market failure that

argue that profit opportunities exist at the BOP that do not require charity or direct reform of formal institutions. To this end, Section II draws from the new institutional economics and economic growth literatures to explain why formal institutions are necessary for rapid economic growth. Section III examines the shift in development away from top-down, planning-oriented attempts to encourage political reforms and towards bottom-up, market-based strategies that seek to support entrepreneurs in their endogenous change efforts. It then describes some of the most visible efforts at endogenous reform in LDCs, noting that they tend to focus on alleviating the symptoms—i.e., lack of credit—of impaired or missing formal institutions rather than the direct reform of the formal institutions responsible for causing these symptoms. As a result, these efforts, while commendable for easing the suffering of those at the BOP, are unlikely to contribute directly to economic growth and the rise in real incomes necessary to improve standards of living over the long run. Section IV suggests that the focus of development efforts on symptoms rather than the root causes of poverty may be due to a conceptual misunderstanding of market failure. Critiquing the three most commonly offered explanations for the existence of unexploited profit at the BOP, this section concludes that government failure in LDCs, as opposed to some inherent flaw in the institution of the market itself, is a more likely cause of market failure.

To explain how entrepreneurship can help to remove the institutional barriers of government failure so that the poor may benefit from economic growth, Section V returns to Figure 1 and delineates DE from SE, BE, and market-appropriating entrepreneur-ship according to the motive for entrepreneurial action, social business entrepreneur-ship (SBE) according to the nature and source of the opportunity to fulfil this motive, and socio-political activism according to the means employed to recognize and exploit this opportunity. After acknowledging possible scope limitations of the theory in Section VI, the article concludes in Section VII by discussing how the proposed theoretical framework contributes to both the SE and economic development literatures.

Institutional Antecedents of Economic Growth

People from developed nations who are used to the creature comforts it provides may view the extreme poverty seen in LDCs as an anomaly to the norm of wealth, but history tells a different story. For much of the planet's history, poverty has been the norm, inspiring Thomas Hobbes in Leviathan to observe that the life of man is "solitary, poor, nasty, brutish, and short." After millennia of slow economic growth in which the natural resource endowments of geography provided the surplus necessary for the seeds of specialization and the division of labor to grow and give birth to increasingly sophisticated technologies, a breakthrough occurred that enabled a small sub-set of nations to experience an accelerated version of this growth process, and thus, enjoy wealth like never before (Diamond, 1997). This industrial revolution set the stage for early scientific inquiry into the wealth of nations (e.g., Smith, 1991) and the formal institutionalization of the growth process that produced it (e.g., Baumol, 2002).

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Both the new institutional economics and economic growth literatures assume that markets are the most efficient means by which self-interested actors reallocate resources to their highest valued uses, but they recognize that the market is embedded in a matrix of political and socio-cultural institutions Because economic growth is partly determined by the extent of the market, which in turn is highly dependent on entrepreneurs being able to engage in impersonal as well as personal exchanges, property rights must be established and enforced by a third party to reduce transaction costs, but it is also essential that this enforcement is grounded in a rule of law that is impartially administered. When transparency is achieved, entrepreneurship is likely to manifest in productive forms such as product innovation that contribute to rapid economic growth.

Market-Based Approaches to Development

Innovative arrangements that allow for instalment sales or micro-lending are creative and commendable solutions to problems that have been created by missing or impaired formal institutions and may even result in institutional change over time. By defining lack of access to credit as the problem, however, these initiatives take the focus off the root cause of extreme poverty—inefficient legal institutions that encumber TGC and prevent equal access to the formal economy—and focus instead on treating a symptom of poverty that is likely to continue to affect other marginalized or disenfranchised citizens until the deeper structural problem is resolved. Enhancing the efficiency of legal institutions is likely not only to treat the symptom of poverty—the inability to borrow—but also to diminish the need for such treatment—low income—by making the institutional environ-ment of the LDC more attractive to MNCs, thereby encouraging foreign direct investment and opportunities for the poor to increase income through wage labor. Thus, lack of access to credit is a proximate cause but not a root cause of extreme poverty. The root cause is government failure to establish and enforce property rights through a court system that is grounded in the transparent application of the rule of law. This root cause manifests as either an inability by the borrower to ensure the lender of loan repayment, or lack of employment opportunities that allow for savings and wages, making debt unnecessary.

Market Failure and the Need for Institutional Change

If circumventing institutional obstacles is all that stands between entrepreneurs and realizing a profit by serving

the BOP, then business entrepreneurs, according to the efficient market hypothesis, should exploit the opportunity without any additional encouragement by advocates, charity, oraid agencies. In other words, economic returns, if high enough, should provide enoughincentive not only to encourage entrepreneurs (be they MNCs, large domestic firms,or indigenous entrepreneurs) to exploit opportunities but also to initiate the IE required todo so.

Expectations-Based Explanations of Market Failure

Many of the market-based approaches to development discussed so far emphasize expectations in the form of false assumptions about the poor. Both Prahalad and Yunus, for example, claim that entrepreneurs can profit by serving the poor but have failed to do so because they erroneously assumed that the poor would not or could not either repay loans
(Yunus, 2007) or pay for brand names and sophisticated technology (Prahalad, 2005). These assumptions about the poor are, in effect, expectations regarding consumer demand. These expectations assess the poor's willingness and ability to purchase pro-posed product solutions at a price point that the entrepreneur is willing and able to offer. If entrepreneurs consistently underestimate the returns associated with serving the poor, these expectations are likely to undermine their willingness and ability to offer product solutions by creating doubt about whether they can cover operating costs, much less the costs of capital.

Despite increasing awareness about extreme poverty and the rapid dissemination of information made possible by the internet, the extreme poverty problem persists. Moreover, the reductions that have occurred in the last quarter century have resulted more from institutional reform innations such as China and India than entrepreneurial enlightenment about the plight of the poor (Ahlstrom, 2010; Bruton, 2010; Khanna, 2007; The Economist, 2009). Thus, examination of motivation- and ability-based explanations of market failure may be not only beneficial but necessary to reach a better understanding of whether it is reasonable to expect entrepreneurship to be an effective tool in the fight against extreme poverty.

Motivation-Based Explanations of Market Failure

If entrepreneurs choose not to exploit the profit potential of BOP markets despite their ability to do so, then market failure must be the result of an unwillingness to act entrepreneurially. This argument tends to employ socio-cultural explanations that suggest that prejudice from racism or religious intolerance is responsible for precluding a particular group from participation in the market—i.e., India's untouchables (Bornstein, 2004). Thus, the market fails to serve the poor because nonfinancial disincentives in the form of social norms discourage entrepreneurs from acknowledging members of the excluded group as potential customers, regardless of their demand for products (Alvord, Brown, & Letts, 2004; Leadbeater, 1997). Thus,

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Ability-Based Explanations of Market Failure

If expected returns are enough to motivate entrepreneurial action, but entrepreneurial action still fails to occur, then the culprit must be an inability to act. This inability can be attributed to a lack of different types of capital (financial, human, social, political, etc.), but discussion to date has primarily emphasized financial capital (Austin, Stevenson, & Wei-Skillern, 2006). For example, Muhammad Yunus (2007) frequently tells the story of women making bamboo stools in Bangladesh, who, for the want of Rs.27, were trapped in a cycle of poverty because of exploitation by a middle man. Thus,

The concept of entrepreneurship, however, is not exclusively defined in terms of innovation, value creation, or profit-seeking, it has also been conceived as organizational creation (Gartner, 1988). Although this may rescue the use of the term from the a prior financial profit litmus test advocated above, it fails to explain why the concept of SE is needed over and above the notion of charitably funded organizations, such as nonprofits, NGOs, associations, and the like. Often the conception of entrepreneurship as the creation of an organization is comingled with Schumpeter's (1934) understanding of entrepreneur-ship as innovation, except that this innovation is said to produce a new social (as opposed
to economic) equilibrium. SE is often distinguished from the creation of an organization that simply provides social services because the former is considered scalable whereas the latter is not (Martin &Osberg, 2007). Thus, SE is proposed to be the creation of an organization that results in a sustained social equilibrium. As such, the concept focuses
exclusively on value creation, neglecting value capture at the organizational level, and is divorced entirely from any requirements of financial sustainability. I am not arguing that this conception is unhelpful or wrong, only that it is unsatisfactory for making an economic case for SE in which the construct is explicitly tied to notions of financial sustainability, economic growth, and/or development. Instead, it is a purely sociological argument occurring wholly in the social or moral domain and classifiable primarily as philanthropy and/or charity. Although such efforts can provide economic returns on capital, this capital is not "invested" for the purposes of economic return. Instead, it is provided

purely for charitable motives, without the expectation of an economic return on investment.

If the promise of profit is required for an act to qualify economically as entrepreneur- ship, then SE is likely to be a narrower concept than social innovation. Or, if one wishes to treat SE and social innovation as equivalent terms, then it may be necessary to introduce and distinguish the concept of SBE, which requires enough earned income to cover operating costs, from SE, which does not (Yunus, 2007, 2010). However, the expected return from this earned income cannot be too great, otherwise the act becomes the most attractive opportunity to economic agents such that economic incentives will be enough to entice IE, hence making the modifier, "social," meaningless. Thus, for SE to have economic meaning, it must address a space in which profit is deemed possible but insufficient to motivate entrepreneurial action unless supplemented by moral or social incentives in the form of charity. This results in the overlap of SE and BE in Figure 1 that includes both SBE and DE.

Why Development Entrepreneurship May Be Preferable to Government Intervention

Government intervention and SE may be motivated on occasion by a shared misattribution of extreme poverty to market failure, but the fact that SE must compete against other solutions to social problems to receive funding from individuals subjects the persuasiveness of its case to the discipline of competition (e.g., Easterly, 2006). In contrast, government intervention's reliance on coercion allows for a disconnection between the decision maker—a political representative—and the investor—the tax payer, such that investors cannot immediately reallocate their funds from projects they perceive as ineffective without having to become part of a voting block large enough to replace their political representation. Thus, it would appear that SE must demonstrate its efficacy in addressing social problems more frequently and compellingly than government intervention.

Possible Scope Limitations

Before concluding, it is important to note that significant differences may exist between the use of entrepreneurship as a way of making institutions more efficient and the use of entrepreneurship as a means of poverty reduction when no formal institutions are present whatsoever. Recently, Carl Schramm (2010) has advanced the notion of expeditionary economics, which speaks to the latter. While his focus on using entrepreneurship and economic growth as means of ensuring stability and reducing poverty are inspiring and compatible with arguments I have put forth in this article, I echo concerns about the challenges of development in countries regularly plagued by civil war or persistent power struggles and suggest that it may bemore prudent to study and facilitate DE in LDCs where some semblance of social order already exists before experimenting with such intervening techniques in war-torn or disaster-stricken nations.

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Conclusion

Business has the potential to do far more to solve the issues of poverty than any number of government aid programs. But to help business in these domains we need to have an understanding of the relevant issues in such institutional settings.

Many undeveloped nations would like to participate in global markets and enjoy the increased standard of living that economic growth enables, but they are precluded from doing so by institutional barriers to entry.Insome instances, top-down strategies in which policy makers introduce reforms have been successful at reducing levels of extreme poverty e.g., the Asian tigers, China, or India but this has not been the norm, especially in sub-Saharan Africa where most nations have experienced an increase in the level of extreme poverty over the last 30 years .

My purpose has been to demonstrate how SE, in the form of DE, can expand trade by removing institutional barriers that exclude a population from participating as producers or consumers in global markets. Such participation unleashes resources from being geographically bound and allows them to be reallocated to their highest valued use . Political, legal, social, and cultural institutions that constrict economic and political freedom obstruct participation in global markets and prevent the division of labor and the benefits it can convey in terms not only of income potential but also the full development of human capabilities (Sen, 1999). In eachinstance, inefficient institutions contribute to high transaction costs that discourage or preclude productive transactions. By identifying the institutional obstacles to development and the sources of the motive, opportunity, and means needed to address it through entrepreneurship, the resulting theory of DE offered a number of contributions to both the SE and economic development literatures.

First, the proposed theory focused on government failure rather than market failure as the primary obstacle to development.

Second, the proposed theory offered an explanation of the source of entrepreneurial opportunities in LDCs. By denying access to the markets of the global economy, the failure by LDC governments to provide efficient formal

institutions can prevent diffusion of innovations from developed nations to LDCs (Bruton et al., 2010). As a result, profit potential from knowledge arbitrage exists for those entrepreneurs willing and able to engage in IE to exploit the opportunity.

Third, the theory suggested that social entrepreneurs may be more willing than business entrepreneurs to initiate the change needed to reduce the institutional obstacles that give rise to knowledge arbitrage opportunities. Recognition and exploitation of knowledge arbitrage opportunities requires institutional change that tends to be complicated by several problems. This can frustrate top-down reform efforts that rely on sanctions or other exogenous forms of influence that seek to encourage economic and political freedom. In addition, the benefits of institutional change are likely to be dispersed whereas the costs of E are likely to be concentrated.This makes IE a highly uncertain profit opportunity owing to the difficulty associated with capturing the value one creates.

Finally, I hope not only to have provided a clearer understanding of SE's unique role in enabling the institutional change that facilitates inclusive economic growth but also to have demonstrated why a relative increase in SE that targets root institutional causes as opposed to the symptoms of extreme poverty may be a more efficient, effective, and less invasive way to help alleviate poverty at the BOP. Although institutional reform may diminish a nation's autonomy, it also allows indigenous entrepreneurs to access the knowledge that has been accumulated over centuries by the innovation machine known as global capitalism (Baumol, 2002). For agents in developed nations, however, the profit opportunity associated with investment in LDCs is undermined by the uncertainty of those nations' legal systems and political regimes. Consequently, SE is needed to enable the IE required to enable economic growth in LDCs. Although economic return may not be necessary to motivate such reform efforts—e.g., charitable motivations may be adequate—some expected financial return is necessary to make an economic case for SE and explain how its function is distinct from the value treated through the charitable acts of social innovators or creators of NGOs. As reformers of institutions, development entrepreneurs have an economic role to play in preparing the soil of the market for the gardeners to come. Thus, I hope to have shown why, even though profit is possible, development from BE is unlikely to occur without the encouragement of SE. Consequently, DE would appear to be crucial to expediting the broadening of global markets, suggesting that there is indeed room for market advocates under the ever growing tent of SE.

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THE END

ARTICLE

13

HUMAN RESOURCE DEVELOPMENT

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Abstract:

In the organizations, people spend most of their active lives. Hence, it needs to be purposeful. There is every need that employees understand the worth of their lives in the workplace. At the same time, each employee needs to understand his/her own meaning of life and find out what gives them sustained satisfaction and happiness in life. Let them know the potential in them. Know Transform their negativity into positivity. Organizations should try to develop spiritual intelligence of their employees and only those managers can nourish the spirituality of their employees who are themselves nourished. Research studies have indicated that a majority of successful organizations have their own unique organizational cultures. when there exist a great amount of clarity and common understanding about the culture of an organization, it helps in attracting and retaining people who inherently 'share' that basic line of thinking.

Introduction

Employee retention is a process in which the employees are encouraged to remain with the organization for the maximum period of time or until the completion of the project. Employee retention is beneficial for the organization in all ways. Corporate is facing a lot of problems in employee retention these days. Hiring knowledgeable people for the job is essential for an employer. But retention is even more important than hiring. There is no dearth of opportunities for a talented person. There are many organizations which are looking for such employees. If a person is not satisfied by the job he is doing, he may switch over to some another more suitable job. High rate of employee turnover is a warning to the Employer that something is wrong with the health of the organization. In today's environment it becomes very important for organizations to retain their employees. The Employer should try to retain its employees because employee turnover involves huge costs.

The Employer spends money on recruitment, selection, training of new employees. If an employee leaves an organization, the expenditure incurred on his employment, training etc. will go waste. Employees stay and leave organizations for some reasons. The reason may be personal or professional. These reasons should be understood by the employer and should be taken care of. The organizations are becoming aware of these reasons and adopting many strategies of employee retention. The top organizations are on the top because they value their employees and they know how to keep them glued to the organization. It is the responsibility of the employer to retain their best employees. If they don't, they would be left with no good employees. A good employer should know how to attract and retain its employees. Employee retention would require a lot of efforts, energy and resources but the results are worth it.

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SCOPE OF RETENTION

Now a days employee turnover is a universal problem. It is a natural tendency of an employee that they switch over to a new job which is more descent and comfortable and is better paid. This leads to an employee turnover. Up to a certain percentage, employee turnover is tolerable, but beyond this it becomes a serious problem. Employee turnover may prove to be a costly process as it involves –

- High cost of procurement, involving time and efforts for recruitment, interviewing and finding out replacements.
- Training cost, involving time of personnel department and trainer.
- Low employee morale and team spirit.
- Gap in filling the vacancies therefore affecting smooth working of an organization.
- Higher rate of industrial accidents.
- Production equipments are fully utilized.
- Scrap and waste rates increases when new employees are involved.
- Market reputation of the employer is adversely affected if orders are not executed on time or services are not provided efficiently.

IMPORTANCE OF RETENTION

Now that so much is being done by organizations to retain its employees, why is retention is so important? Is it just to reduce the turnover cost? Well, the answer is a definite no. Its not only the cost incurred by a company that emphasizes the need of retaining employees but also the process of employee retention will benefit an organization in the following ways:

The Cost of Turnover: The cost of employee turnover adds hundreds and thousands of money to a company's expenses. While it is difficult to fully calculate the cost of turnover industry experts often quote 25% of the average employee salary as a conservative estimate.

Loss of Company Knowledge: When an employee leaves, he takes with him valuable knowledge about the company, customers, current projects and past history (sometimes to competitors).

Interruption of Customer Service: Customers and clients do business with a company in part because of the people. Relationships are developed and when an employee leaves, the relationships that employee built for the company are severed, which could lead to potential customer loss.

Turnover leads to more Turnovers: When an employee terminates, the effect is felt throughout the organization. Co-workers are often required to pick up the slack. The unspoken negativity often intensifies for the remaining staff.

Goodwill of the Company: The goodwill of a company is maintained when the attrition rates are low. Higher retention rates motivate potential employees to join the organization.

Regaining Efficiency: If an employee resigns, then good amount of time is lost in hiring a new employee and then training him/her and this goes to the loss of the company directly. And even after this you cannot assure us of the same efficiency from the new employee.

STRATEGIES FOR RETENTION

The reason for turnover may be personal or professional. These reasons should be understood by the employer and should be taken care of. Select the right people in the first place through behavior based testing and competency screening. The right person, in the right seat, on the right bus is the starting point. At the same time, don't neglect to hire people with the innate talent, ability, and smarts to work in almost any position even if you don't currently have the "best" match available. Hire the smartest people you can find to reduce employee turnover. Once the right person is recruited efforts should be made to retain them from getting poached. The organizations are becoming aware of the cost involved in employees from getting poached. The organizations are becoming aware of the cost involved in employee turnover and adopting many strategies for employee retention.

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COMPENSATION

Compensation constitutes the largest part of the employee retention process. The employees always have high expectations regarding their compensation packages. Compensation packages vary from industry to industry. So an attractive compensation packages plays a critical role in retaining the employees. While setting up the packages, the following components should be kept in mind:

Salary and Monthly Wage: It is the biggest component of the compensation package. It is also the most common factor of comparison among employees. It includes basic wage, house rent allowance, dearness allowance, city compensatory allowance. Salary and wages represent the level of skill and experience an individual has. Time to time increase in the salaries and wages of employees should be done. And this increase should be based on the employees' performance and his contribution to the organization.

Bonus: Bonuses are usually given to employees at the end of the year or on a festival.

Economic Benefits: It includes paid holidays, leave travel concession etc.

Long-Term Incentives: Long-Term Incentives include stock options or stock grants. These incentives help retain employees in the organization's startup stage.

Health insurance: Health insurance is a great benefit to the employees. It saves employees money as well as gives them a peace of mind that they have somebody to take care of them in bad times.

After Retirement: It includes payments that an employee gets after he retires like EPF (Employee Provident Fund) etc.

Miscellaneous Compensation: It may include employee assistance programs (like psychological counseling, legal assistance etc.), discounts on company products, use of a company cars, etc.

GROWTH AND DEVELOPMENT

Growth and development are the integral part of every individual's career. If an employee cannot foresee his path of career development in his current organization, there are chances that he'll leave the organization as soon as he gets an opportunity. The important factors in employee growth that an employee looks for himself are:

Work Profile: The work profile on which the employee is working should be in sync with his capabilities. The profile should not be too low or too high.

Personal Growth and Dream: Employees responsibilities in the organization should help him achieve his personal goals also. Organizations cannot keep aside the individual goals of employees and foster organizations goals. If he is not satisfied with his growth, he'll not be able to contribute in organization growth.

Training and Development: Employees should be trained and given chance to improve and enhance their skills. Many employers fear that if the employees are well trained, they'll leave the organization for better jobs. Organization should not limit the resources on which organization's success depends.

SUPPORT

Lack of support from Employer can sometimes serve as a reason for employee turnover. Supervisor should support his subordinates in a way so that each one of them is a success. Employer should try to focus on its employees and support them not only in their difficult time at work but also through the times of personal crisis. Employer can support employees by providing them recognition and appreciation.

Employers can also support their employees by creating an environment of trust and inculcating the organizational values into employees. Thus employers can support their employees in a number of ways as follows:

- By providing feedback
- By giving recognition and rewards
- By counselling them
- By providing emotional support

RELATIONSHIP

Sometimes the relationship with the Employer and the peers becomes the reason for an employee to leave the organization. There are times when an employee starts feeling bitterness towards the Employer or peers. This bitterness could be due to many reasons. This decreases employee's interest and he becomes de-motivated. It leads to less satisfaction and eventually attrition.

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To enhance good professional relationships at work, the Employer should keep the following points in mind.

Respect for the individual: Respect for the individual is the must in the organization.

Relationship with the immediate manager: A manger plays the role of a mentor and a Coach. So an organization should hire managers who can make and maintain good relations with their subordinates.

Relationship with colleagues: Promote team work, not only among teams but in different departments as well. This will induce competition as well as improve the relationships among colleagues.

Recruit whole heartedly: An employee should be recruited if there is a proper place and duties for him to perform. Otherwise he'll feel useless and will be dissatisfied.

Promote an employee based culture: Show employees that the organization cares and he'll show the same for the organization. An employee based culture may include decision making authority, availability of resources, open door policy, etc.

Individual development: Create opportunities for their career growth by providing mentorship programs, certifications, educational courses, etc.

Induce loyalty: Organizations should be loyal as well as they should promote loyalty in the employees too. Try to make the current employees stay instead of recruiting new ones.

It is not about managing retention. It is about managing people. If an organization manages people well, employee retention will take care of itself. Organizations should focus on managing the work environment to make better use of the available human assets.

ENVIRONMENT

The organization is second home to the employee. Organization environment includes culture, values, company reputation, and quality of people in the organization, employee development and career growth, risk taking, leading technologies, trust.

Types of environment the employee needs in an organization

- Learning environment: It includes continuous learning and improvement of the individual, certifications and provision for higher studies, etc.
- Support environment: Organization can provide support in the form of work-life balance. Work life balance includes flexible hours, telecommuting, dependent care, alternate work schedules, vacations, and wellness.
- Work environment: It includes efficient managers, supportive co-workers, challenging work, involvement in decision-making, clarity of work and responsibilities, and recognition.

Lack or absence of such environment pushes employees to look for new opportunities. The environment should be such that the employee feels connected to the organization in

OTHER REMEDIAL MEASURES

- According to research by the Gallup organization, encourage employees to have good, even best, friends, at work.
- Provide opportunities for people to share their knowledge via training sessions, presentations, mentoring other and team assignments.
- Demonstrate respect for employees at all times. Listen to them deeply; use their ideas; never ridicule or shame them.
- Offer performance feedback and praise good efforts and results to reduce employee turnover.
- People want to enjoy their work. Make work fun.
- Enable employees to balance work and life. Allow flexible starting times, core business hours and flexible ending times.
- Involve employees in decisions that affect their jobs and the overall direction of the company whenever possible. Involve them in the discussion about company vision, mission, values, and goals.
- Recognize excellent performance, and especially, link pay to performance to reduce employee turnover.
- Base the upside of bonus potential on the success of both the employee and the company and make it limitless within company parameters.
- Staff adequately so overburden is minimized and people don't wear themselves out.
- Nurture and celebrate organization traditions. Have company dinner at a hotel for developing relationships.
- Recognizing professional as well as personal significant events such as birthday gifts, wedding gifts, anniversary gifts etc.
- Provide opportunities within the company for cross-training and career progression.
- Communicate goals, roles and responsibilities so people know what is expected and feel like part of the in-crowd.

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CONCLUSION

"It is very easy to take one eye off retention. The cost of doing this can be very high."

Linda Emery, Head of Talent Employer, Unilever, UK

Retaining best employees is a strictly rational business strategy. In business terms, there is need to calculate the costs of losing and replacing key talent. For those who believe in the "easy come, easy go" philosophy of hiring and turnover, assessing these costs objectively can be eye-opening. Running the numbers can sharpen commitment to keeping most valuable employees.

In these turbulent times, exacerbated by a tight labor market, employers will be continually challenged to locate, attract, optimize and retain the talent they need to serve their customers. The most successful employers will be those who legitimately inspire highly talented workers to join them and stay with them. In today's highly competitive employment world, employers of all kinds are eager to differentiate themselves from other organizations. Their objective is to create a high performance workplace and "high performance workplaces are characterized by their creativity, innovation, flexibility and competitiveness. This can be achieved by the talented committed employees – "high potentials". They are the heart and soul of the organization and competitors want them. In such a situation attention to retention is critical.

Employer should be interested in their employees' interest because satisfied and committed employees have lower rate of turnover. Employer typically makes considerable efforts to retain employees; they get pay raises, praise, recognition, increased promotional opportunities, and so forth. They should realize that high pay alone is unlikely to retain employees. The most important things Employer can do to retain employees is that not a single strategy is enough to retain all the employees.

Employees are unique individuals having their own mind sets and they should be treated accordingly. So instead of using any one strategy for all, a combination of all the strategies should be used. Every strategy goes hand in hand. More important, the strategies used for retention are controllable by Employer.

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ARTICLE

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THE PATHOPHYSIOLOGY OF OSTEOPOROSIS

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Abstract:

The major proximate causes of osteoporotic fractures are decreased bone strength and increased bone trauma. Approximately 70 percent of the strength of bone is due to its mineral density. The remaining strength is accounted for by bone size (larger bones are stronger), bone shape, and the internal architecture of bone. The elderly have more trauma because of an increased propensity to fall and a reduced ability to break the impact of their fall.

Introduction

Bone mineral density (BMD) late in life is determined by the former level of peak bone mass and the amount of bone that has been lost. Some estimate that peak bone mass and bone loss contribute equally to the variance in BMD among the elderly. As much as 70 percent of peak bone mass is genetically determined.

Although associations have been reported between MD and genetic polymorphisms for the vitamin D receptor, estrogen receptor, PTH receptor, Fβ, and SP1 binding site for COLIA1, inconsistent results among studies suggest polygenic determinants. However, the identification of families in which high peak bone mass is inherited as an autosomal dominant trait suggests a role for as yet unidentified genes. The remaining variance in peak bone mass is largely accounted for by differences in nutritional factors, physical activity, onset of puberty and regularity of menses, and, in some persons, exposure to growtharresting diseases or drugs. After menopause, loss of the restraining effect of estrogen on bone cell activity (both osteoblasts and osteoclasts contain estrogen receptors) leads to a phase of accelerated bone loss lasting about 10 years that is associated with isproportionatecancellous bone loss and disrupted microarchitecture. A slow phase of loss of comparable proportions of cancellous and cortical bone then ensues and continues throughout life. This is associated with progressive impairment in intestinal calcium absorption and in renal calcium conservation that, unless compensated for by large increases in dietary calcium intake, leads to progressive secondary hyperparathyroidism.

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However, because of an age-related impairment in osteoblast function, the resultant increase in bone resorption is not offset by a compensatory increase in bone formation. There is now convincing evidence that loss of extraskeletal effects of estrogen on intestinal and renal calcium transport, rather than aging per se, is the major cause of slow bone loss in elderly women. Whether the age-related osteoblast defect is caused by estrogen deficiency, impaired production of growth factors or both still is unclear. Men with mutations of genes that regulate estrogen action have osteopenia. Serum biologically active estrogen (Bio-E) and testosterone (Bio-T) decline in aging men, but Bio-E correlates best with their level of BMD. Thus, estrogen deficiency may also contribute to the development of osteoporosis in men.

Finally, in both genders, sporadic factors affect some, but not other, members of the population and predispose them to additional bone loss and fractures. These factors include

certain diseases, surgical procedures, and use of medications as well as behavioural risk factors such as tobacco use, alcohol abuse, low calcium intake, inactivity, and nutritional vitamin D deficiency, among others.

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ARTICLE

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PROCRASTINATION: AN INVISIBLE EVIL OF PERSONALITY

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Abstract:

To procrastinate is to put off doing something, especially out of habitual carelessness or laziness or to postpone or delay needlessly. In William Shakespeare's tragic play Hamlet, the main character Prince Hamlet has an inner struggle with procrastination throughout the play. It is this tragic flaw of procrastination that eventually brings about Hamlet's downfall. Workplace procrastination can be defined as the habit of procrastinating about work matters. It may result from an inability to organize and allot time procrastinating of lengthy projects and tasks. Procrastination could be both positive and negative depending upon the situation and person. This paper will discuss the types of procrastination, its cause and how to overcome it with some beneficial tips.

Introduction

It's rightly said by Edward Young "Procrastination is the thief of time". In the modern era the most valuable asset anyone can possess is time. Still people don't value their time and fall in the trap of Procrastination. To procrastinate is to put off doing something, especially out of habitual carelessness or laziness or to postpone or delay needlessly.In psychology, procrastination refers to the act of replacing high-priority actions with tasks of lower priority, or doing something from which one derives enjoyment, and thus putting off important tasks to a later time.[1] It simply doesn't mean having poor time management skills, but it has some psychological reasons such as lack of self motivation, perfectionism, academic procrastination etc; in fact, procrastination is often used by students as a self-protection strategy.

Procrastination may result in stress, a sense of guilt and crisis, severe loss of personal productivity, as well as social disapproval for not meeting responsibilities or commitments. These feelings combined may promote further procrastination. While it is regarded as normal for people to procrastinate to some degree, it becomes a problem when it impedes normal functioning. Chronic procrastination may be a sign of an underlying psychological disorder. Such procrastinators may have difficulty seeking support due to social stigma and the belief that task-aversion is caused by laziness, low willpower or low ambition.

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The psychological causes of procrastination are in debate. Drawing on clinical work, there appears to be a connection with issues of anxiety, low sense of self-worth, and a self-defeating mentality. Procrastination is strongly connected with lack of self-confidence (*e.g.*, low self-efficacy, or learned helplessness) or disliking the task (e.g., boredom and apathy). The strongest connection to procrastination, however, is impulsiveness. These characteristics are often used as measures of the personality trait conscientiousness whereas anxiety and irrational beliefs (such as perfectionism) are aspects of the personality trait neuroticism.

Traditionally, procrastination has been associated with perfectionism, a tendency to negatively evaluate outcomes and one's own performance, intense fear and avoidance of evaluation of one's abilities by others, heightened social self-consciousness and anxiety, recurrent low mood, and "work holism".

Another type of procrastination which is common among students is Academic procrastination. More specifically, a 1992 study showed that "52% of surveyed students indicated having a moderate to high need for help concerning procrastination". It is estimated that 80%–95% of college students engage in procrastination, approximately 75% considering themselves procrastinators.[5] Planning fallacy is also one of the forms of procrastination wherein students are not able to estimate the time which is required for gathering material and analysing a research for a term paper. Students are unable to finish their work in the stipulated time because of poor time management skills or they are in dilemma whether the task is possible for them or not. Some students have a tendency of completing the work at the last moment and some believe in cramming when preparing for the examination. Some students begin their work fully just before the deadline, either this deadline is a binding deadline or a self-imposed deadline and finally face difficulties in completing the task on the due date; this refers to a phenomenon called "Student syndrome". The students procrastinate because of reasons such as excessive fear of success and failure, perfectionist expectations and legitimate activities which may take precedence over their school/college work.

Structured procrastination is an art where all procrastinators have the habit of putting off things they have to do and they try to make this trait work for them. This doesn't mean that the procrastinators do absolutely nothing; they do things which are useful and important according to their To-Do List and choice. They are engrossed in their own way of not doing something more important according to them. But they can be motivated to do time bound, significant and difficult task by saying that this task is less important than other tasks. So it can be said that structured procrastination is to structure the shape of the tasks which one has to do in such a way that it fulfils this fact. Workplace procrastination can be defined as the habit of procrastinating about work matters. It may result from an inability to organize and allot time properly. Some people have little concept of time management, which can result in procrastination of lengthy projects and tasks. Procrastination could be both positive and negative depending upon the situation and person. In William Shakespeare's tragic play Hamlet, the main character Prince Hamlet has an

inner struggle with procrastination throughout the play. He had the task of avenging his murdered father, the King of Denmark who was killed by his brother Claudius. Claudius obtains the crown and marries Hamlet's mother, Queen Gertrude. One night Hamlet is accosted by his father's ghost, who asks him to kill Claudius to bring justice to Denmark. Hamlet decides to kills Claudius to fulfill his father's request but procrastinates to such a degree that the audience begins to wonder if Hamlet means to follow through with his plan at all. Another psychological factor that contributes to his procrastination is his suicidal state of depression. Although there are many possible explanations of why Hamlet delays, whether his idealism is to blame, his psychological state or his Oedipus complex, it is apparent that they are all well supported and legitimate theories that prove more likely than not that Hamlet does postpone the avengement of his father; he is, therefore, a procrastinator. This quotation from Hamlet's famous "to be or not to be" soliloquy in Act III Sc.1 encapsulates Hamlet's 'tragic flaw' and his moral dilemma: *Thus conscience does make cowards of us all, And thus the native hue of resolution Is sicklied o'er with the pale cast of thought, And enterprises of great pitch and moment With this regard their currents turn awry, And lose the name of action* Hamlet's 'tragic flaw' of course is **procrastination**. It is this tragic flaw of procrastination that eventually brings about Hamlet's downfall. For many individuals, procrastination is a long term habit and seemingly inescapable personality trait. Procrastination is not limited or attributed to any specific personality type and is a widespread social problem, with an estimated 15-20% of the American adult population and an estimated 80-90% of College students being self-confessed problematic procrastinators. Procrastination is often overlooked as a psychological disorder and simplistically attributed to laziness. However, extensive research over the past few decades has revealed procrastination as a far more psychologically significant condition with complex causes and serious implications. Procrastination has also been identified as a common symptom of a more significant underlying psychological disorder The primary manifestations of self-handicapping through procrastination include excessive sleeping, watching television, playing computer games, social activities and disruptions, alcohol and other drug use, environmental handicaps, music, noise distraction and having a cluttered and disorganized living space One common cause of procrastination is related to its perception as a positive study tool. Adaptive techniques of academic procrastination include cognitive maximisation or "feeling the flow" and peak experience, both induced by the heightened stress and time constraints that procrastination creates. Those who engage in procrastination for this reason believe that it benefits the outcome of their task. People who do not view procrastination as an adaptive technique and who identify no tangible reason to delay action are much less likely to procrastinate. Therefore, for procrastination to be avoided or overcome, one must first recognize procrastination as a negative personality trait that offers little chance of a beneficial outcome and jeopardizes one's goals. One form of procrastination arises from self-regulatory failure attributed to the correlated personality traits of indecision and perfectionism because of which one waits to commit to a task and hopes for more and better information that would provide a better product and outcome. The perfectionist's exhibit "elevated evidence requirements" which is the cause of perfectionism. As Perfectionists have exceedingly high expectations and they are highly critical of their behaviour, so they are unable to act unless they are certain that they satisfy themselves and hence they procrastinate. Perfectionists procrastinate habitually because they have a very high concern over mistakes; they doubt themselves, have excessively high expectations of self and want to avoid social criticism and disappointment. Accept that perfectionism is seldom necessary and is rarely achievable; we are a person and not a robot. Another personality trait that causes procrastination is having a low action identity. This means that despite their often highly specific intentions, procrastinators consistently defer the actualization of their intentions. This is caused by a maladaptive action personality and the absence of a broad perspective on their actions. Having a low action identity provides an important explanation as to why some people do procrastinate, and others do not. To overcome chronic procrastination, one must develop a high action identity through effective self-regulation, more specifically through the development of effective time management and cognitive coping mechanism that would allow procrastinators to actualise their intentions. Another significant cause of procrastination is ones level of intrinsic motivation and the absence of a genuine desire to pursue an outcome. People with innate enthusiasm and a sense of purpose are less likely to procrastinate. The absence of innate genuine motivation identifies why some people procrastinate, while others do not. This also highlights procrastination as a complex motivational problem and provides an explanation for procrastination through self-determination and self-regulation theories. To overcome a lack of motivation, one must treat the closely correlated causes of anxiety and depression to boost one's self-efficacy and develop enthusiasm, a sense of purpose and long term goals that one wished to achieve. Role conflict is another cause of procrastination is that often exists between one's studies and interpersonal relationships. The most significant and complex cause of procrastination is the fear of failure, which is correlated with anxiety, depression and low self-esteem. Procrastination arises from the fear of failure and the possibility of any reflection or assessment of one's abilities. Complicated-task anxiety is another cause of procrastination to overcome it you can break big and complicated tasks into smaller ones. No, matter how small a task is try to complete the starter task first. Indecision is a common cause of procrastination. Develop decision- making ability, set a criteria and deadline and hold yourself accountable for your

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decision. Prioritize your task and distinguish obligations from options, know what you really responsible for and take decision accordingly. Minimize distractions, focus on your work, and avoid checking e-mails and voicemails frequently. Be at a quiet place for work and resist yourself from taking breaks so that you can concentrate on your work. Develop good organisational skills; keep your work area clean. Keep things at proper place so that you can find them when you need them. Avoid laziness, break big task into small and try to complete small task. Reward yourself for task accomplishment. Most importantly take food properly and sleep on time, exercise regularly. Start your day with planning; prepare a To-Do List for each day to overcome procrastination. When we talk about the usage of time we should not just utilize our time effectively but efficiently and when we are not able to manage our time and prioritize our work than we start procrastinating. The Urgent/Important Matrix helps you think about your priorities and determine which activities are important and which activities distract you and how you can use the Urgent/Important Matrix to manage your time effectively and efficiently. We need to know the difference between Important and Urgent activities, Important activities have an outcome that leads to the achievement of your goals, the goals could be professional or personal. Urgent activities demand immediate attention and are often associated with the achievement of someone else's goals. The idea of measuring and combining these two competing elements in a matrix has been attributed to both former US President Eisenhower and Dr Stephen Covey. Eisenhower's quote, "What is important is seldom urgent and what is urgent is seldom important," sums up the concept of the matrix perfectly. This so-called "Eisenhower Principle" is said to be how Eisenhower organized his tasks. As a result, the matrix is sometimes called the Eisenhower Matrix. Covey brought the idea into the mainstream and gave it the name "The Urgent/Important Matrix" in his 1994 business classic, "The 7 Habits of Highly Effective People."

Conclusion

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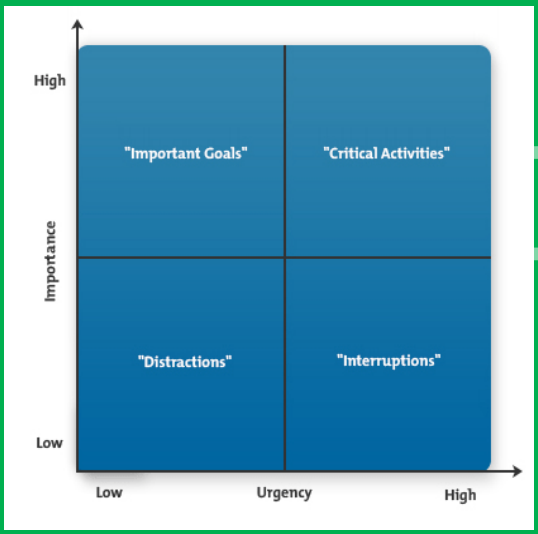

Figure 1: The Urgent/Important Matrix

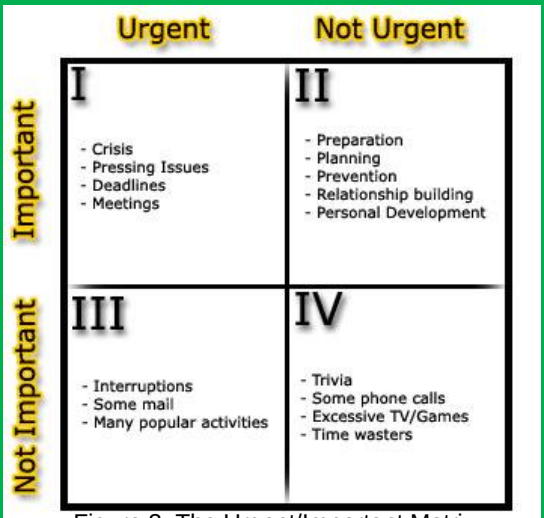

Figure 2: The Urgent/Important Matrix

The Urgent/Important Matrix is a powerful way of thinking about priorities. It helps you overcome the natural tendency to focus on urgent activities, so that you can have enough time to focus on what's really important. Last-minute activities can be kept away by planning ahead and avoiding procrastination. The Urgent/Important Matrix helps you look at your To-Do List and identify the activities you should focus on immediately. By using the Matrix, you can prioritize and deal with urgent activities and at the same time you can keep on working towards important goals. Lord Chesterfield *Letter to his son* wrote: “Never put off till tomorrow what you can do today.” So, it could be concluded that by taking the initiative to understand our own reasons for procrastinating and devoting some time to take the necessary steps to move forward, we can overcome procrastination.

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GROUNDWATER RESOURCE MANAGEMENT OF RAIPURKARCHULIAN AREA, REWA DISTRICT, MADHYA PRADESH, INDIA

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Abstract:

The paper is focused on management issue of groundwater resource management of Raipurkarchulian area Rewa District Madhya Pradesh. Besides receiving sufficient amount of rainfall the area is facing water crises in last few years. The recharge discharge pattern, geological formations, trend of rainfall and water table fluctuation, stage of groundwater development have been worked out. The various artificial recharge structures have been suggested to meet out the water scarcity problem.

Introduction

Groundwater is a natural resource but now days it has become a very precious resource due to its heavy exploitation and huge demand for domestic, agricultural and industrial purposes in our country. About 85% of rural and nearly 35% of urban populations in India depend on groundwater for meeting their drinking, domestic and industrial requirements. The demand of groundwater at present and in near future has drawn attention worldwide towards its beneficial use and other supplement means to recharge towards its beneficial use. The area of the study is facing water crisis due to steep fall in water level. Due to this, assessment of the groundwater potential of the area has been carried out.

The groundwater quality of the Vindhyan region has been carried out by various researchers (Tiwari et al 2010, Tiwari et al 2012, Tiwari and Mishra 2011, 2013). However, the management of groundwater resource of the study area has not been discussed by earlier workers. The aim of the present study is discuss the various aspects of groundwater resource management of the study area.

Study Area :

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The study area is geographically bounded by 24^{0}30' to 24^{0}45' N latitudes and 81^{0}30' to 81^{0}45' E longitudes and easily approach by the road through NH-7. The main crops of the area are Wheat, Jwar, Soyabean, Gram, Paddy etc. and main source of irrigation are borewell and dugwells. Climate of the area is subtropical and temperature varies from 42^{0}C (Summer season)to 03 ^{0}C (Winter season). The average rainfall of the area is about 1000 mm.

The area of investigation is Geologically a part of Vindhyan Supergroup. The main rock types are Ganurgarh shale and Bhander limestone as well as recent alluvium. The intensive karstification of limestone have provided sufficient amount of groundwater. In the shale formation, groundwater occurs through joints and cracks. The groundwater occurs in semi confined to confined conditions. The groundwater fluctuation varies from t 3 to 4 meter is shale whereas 2 to 3 meter in limestone formation .

Groundwater Management

The assessment and management of groundwater is essential to balance the exploitation of the available resources with the increasing demand of water for a broad economic development. The groundwater management implies the extraction of maximum quality of water with a minimum cost (Karanth 1987; Das 2012; WMSD, 2013). The important parameters which are essential for a management of groundwater is discussed below :

In the management of groundwater of a basin it is paramount importance to know quality of water that can be developed. Availability of groundwater in a basin or sub basin can be evaluated with the help of different elements of hydrolygic cycle (Narendra et al 2013) which can be expressed in the form of an equation.

Surface in flow + Subsurface in flow +Precipitation + imported water + Decrease in Surface storage decrease in groundwater storage groundwater = Surface outflow + subsurface outflow+ consumptive use + exported water + increase + in surface storage + increase in Storage **(Todd, 2002)**

Groundwater Balance Equation:

Change in storage of the system (Over a period of time) = (Input to the system) - (outflow from the system)

The groundwater balance equation can be represented as:

$$R_r + R_c + R_i + R_t + S_i + I_g = E_t + T_p + S_e + O_g + \Delta S$$

where,

R_r = recharge from rainfall;

R_c = recharge from canal seepage;

R_i = recharge from field irrigation;

R_t = recharge from tanks;

S_i = influent seepage from rivers;

I_g = inflow from other basins;

E_t = evapotranspiration from groundwater;

T_p = draft from groundwater;

S_e = effluent seepage to rivers;

O_g = outflow to other basins; and

ΔS = change in groundwater storage.

Groundwater Recharge

For correct estimation of groundwater potential of an area, the total draft from all sources as well as total recharge from various sources are taken into consideration. The draft from the area has already been discussed. The important sources of recharging the groundwater are:-

(i) Recharge through rainfall,
(ii) Recharge through seepage from canals,
(iii) Surface water irrigation,
(iv) Groundwater sources used for irrigation,
(v) Tanks and ponds; and
(vi) Water conservation structures.

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Water Table Trends in The Area (2000 – 2011)

The trend of depth to water table below ground level (bgl) during pre monsoon and post-monsoon season in a study area was obtained by the expression:

$$\text{Water table trend (WTt)} = \left[\frac{\{(N \times S_4) - (S_1 \times S_2)\}}{\{(N \times S_3) - (S_1)^2\}}\right]$$

where $$S_1 = \sum_{i=1}^{i=N} X(i)$$

$$S_2 = \sum_{i=1}^{i=N} Y(i)$$

$$S_3 = \sum_{i=1}^{i=N} (Xi)^2$$

$$S_4 = \sum_{i=1}^{i=N} X(i) \times Y(i)$$

Where X (i) = Years from 01 to N

Y(i) = Water table depth for years 01 to N.

The calculated trends of water table in the study area are presented in the Table 1 It is clear from Table 1 that the water table is falling rapidly. In the area cumulative rate of fall is 1.234 m/year during the pre-monsoon interval. The fall of pre-monsoon water table depth indicates a decrease in groundwater storage whereas equal fall in the pre-monsoon water table depth reflects that groundwater outflow for the period also not increased. The reason for such a fall can be attributed to more and more dependence on groundwater not only for domestic use but also for irrigation purposes. The erratic monsoon rains are not sufficient to fill up the existing water collecting structures in the area. The low amount of rainfall in last five years has aggravated this problem. There are various factors that are used in the derivation of water balance equation. The surface water inflow and the surface outflow might have increased resulting in the decreased storage.

Stage of Groundwater Development (SGD)

It is the percentage ratio of the gross draft to recharge of the area and expressed as:

$$\text{SGD} = \frac{\text{Gross Draft}}{\text{Gross Recharge}} \times 100$$

The stage of groundwater development in the study area is given in Table 2. It is apparent from the Table 2 that stage of groundwater development in the study area is 67.2% (Table 2.). There is still enough scope for utilizing the groundwater resources of the area. However , to achieve this , it is necessary to know the variation of the soil cover, the rocks lying below the soil cover, slope of sub surface rocks, drainage systems, the topography etc. The seasonal trends of water table in a groundwater basin are of great importance since these trends give better idea of the impact of continual exploitation of groundwater.

SUGGESTIONS FOR GROUNDWATER RESOURCE MANAGEMENT

The central and state government groundwater authorities have launched many programmes for improving the groundwater balance of different parts of country. For scientific management, utilization and augmentation of groundwater resources of the study area, the following recommendations and suggestions are discussed below:

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1. Groundwater usage is increasing day by day than the surface water. So the lowering down of groundwater table will increase the water scarcity. The over extraction should be controlled by using water conservation techniques with groundwater recharging schemes. Farmers of the study area should be stop the use of chemical fertilisers and pesticides such as Endosulphan also encourage to dig dug wells instead of bore wells. The dug wells would not collect only rain water but have lesser effect in groundwater resource. As for as possible, deep bore wells should be constructed on collective basis. Local panchayats can play significant role in this type of water sharing. There should be some sort of moratorium in digging deeper bore wells. This would help in arresting the declining trends in water levels.

2. About 10% of the area is under the category of moderate slope .So contour bunding may also prove effective in the areas of undulating topography. The soil taken from the trenches may be placed down the hill in the form of a bund. The soil erosion and vegetal cover can be controlled by sowing such seeds of grasses and shrubs on the bunds which are suitable to the area. Check dams may be constructed across meandering stream courses. Such dams would obstruct drainage, reduce the velocity of stream flow and thereby promote infiltration. En–echelon check dams would also prove successful in the area of rain fed streamlets.

3. The conditions of depletion in the area needs to be evaluated and understood urgently so that corrective intervention can be implemented to secure drinking water and irrigational needs vis-à-vis environment. The study of groundwater occurrence and flow should be combining traditional geohydrological surveys with the state of art tools like Remote Sensing, Geographical Information System (GIS), groundwater modelling and improved interpretations of geophysical techniques.

4. Continuous education about the impact of the depletion of water resources, pollution and the need of conservation is given to all stake holders. Role of community participations is vital for watershed development projects and Earth scientists should enrol as facilitators of change. Communities should adopt sound participatory water management techniques and ensure equitable distribution of water resources. Groundwater management policies and practices should transcend from academic echelons to actual field implementation. Besides these NGO's may play vital role in watershed management. All the related departments, publics, stake holders and research institutions should be jointly initiate the sustainable action plan with short term and long term plan strategy.

Table: 1 Water table trend during pre-monsoon interval in study Area. (2000-2012)

S.NO.	Groundwater year	year	Depth of water table below ground level in metre during pre-monsoon interval		
i	ii	iii	iv	v	vi
		(X_1)	(Y_1)	$(X_1)^2$	$(X_1 x Y_1)$
1	2000	1	8.32	1	8.32
2	2001	2	6.46	4	12.92
3	2002	3	12.05	9	36.15
4	2003	4	8.65	16	34.60
5	2004	5	10.50	25	52.50
6	2005	6	9.15	36	54.90
7	2006	7	7.94	49	55.58
8	2007	8	14.35	64	114.80
9	2008	9	15.80	81	142.20
10	2009	10	18.40	100	184.00
11	2010	11	19.01	121	209.11
12	2011	12	20.36	144	244.32
13	2012	13	22.03	169	286.39
N=13		S_1 = 91	S_2= 173.02	S_3 = 819	S_4 = 1435.79

Number of pairs of data considered, N = 13

Depth of water table below ground level during pre-monsoon interval in non-command area :

$$\frac{\{(N \times S_4) - (S \times S_2)\}}{(N \times S_3) - (S_1)^2} = \frac{(1866527 - 1574482)}{2366} = 1.23\text{m/year}$$

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Table: 2 Summary of annual groundwater resources of the Area.

S.N.	Various parameters	Study Area
1.	Total area that can be recharge in hectare meter. (HAM)	92510
2.	Recharge from rain fall during monsoon season. (HAM)	91110
3.	Recharge from rainfall during non-monsoon season. (HAM)	1190
4.	Recharge from other sources during non monsoon season. (HAM)	40
5.	Recharge from other sources during non monsoon season. (HAM)	34
6.	Annual Groundwater recharge (HAM)	140
7.	Unaccounted annual natural discharge (HAM)	40.2
8.	Net annual groundwater availability (HAM)	10520
9.	Current annual gross groundwater draft for 'all uses'(HAM)	9920
10.	Current annual gross groundwater draft for irrigation. (HAM)	2110
11.	Stage of groundwater development as a percentage. (SGD)	67.2%
12.	Pre-monsoon water table trend (m/year)	Falling (1.23)
13.	Main Rock types	Limestone, Shale

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STRATEGY, STRUCTURE AND HRM PRACTICES IN MULTINATIONAL CORPORATIONS

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Abstract:

The paper aims to investigate influence of some important aspects of multinationals (MNCs), i.e., corporate strategies, structures and international policy orientations on subsidiaries HRM practices, specifically on recruitment and selection practices. In-depth case studies on MNCs revealed that HRM practices are guided by the changing nature of strategies, structures and HQ's policy orientation towards the subsidiaries. However, it contradicts the 'born global' hypothesis and revealed that standardization of subsidiaries are not solely depended on parent companies, changing capabilities and importance of subsidiaries determine the subsidiary-HQ relationship and subsequently the standardization of HRM practices at the subsidiary level.

Introduction

Globalization and economic openness/free market economy continuously opening up new market opportunities and multinational corporations (MNCs) are continuously expanding businesses everywhere in the world. As markets in most of the developed countries are already saturated, MNCs are now looking for developing and emerging economies. Triple bottom line thesis further reiterated market opportunities in developing countries. With expansion of MNCs in every corner of the world, far away from home countries, research on subsidiary-headquarter (HQ) relationship also gaining importance and momentum increasingly.

To identify HQ influence on subsidiary management, most of the researchers used mainly four streams or perspectives, i.e., strategy-structure, headquarter-subsidiary relationship, subsidiary roles, and subsidiary development. In present study tried to focus only on three main influencing factors that could have significant impact on subsidiaries HRM practices. However, our study focuses more on changing position of the subsidiaries and their relationship with changes in HRM practices. Further, though MNCs are focusing on developing and emerging economies, research on those countries still appeared to very little. This research will give some insights about MNCs gradual development in a developing country context and subsequent policy shifts of HRM practices to cope with changing need of the subsidiaries. Findings from this study could be used by academicians and HRM practitioners to initiate further research and policy initiative in other developing and emerging economies context.

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Literature Review

Corporate Structural Configuration and Standardization of HRM

Multinationals have several choices in structuring their international operations, i.e., multi-domestic, global, international and transnational organisational models and these structural orientations of MNCs indicate control and co-ordination mechanism between the HQs and the subsidiaries. Almost all studies on HRM practices of MNCs either implicitly or explicitly revealed relevance of those structural configurations and probable effect of structural attributes on subsidiaries HRM practices pioneer study on MNCs in Scotland observed close associations between organisational structures and decentralization of employment relations, and indicated considerable variations of corporate involvement on different functional areas of subsidiaries" HRM practices.

A global structure appeared to have a strongly influence on existence of a world-wide personnel policy committee, regular scheduled international meetings of subsidiary HR managers, and movement of senior managers between sites with long-term international assignments. The study revealed that companies with a global structure have greater parent company control of their HRM activities and the parent companies are more likely to implement Japanese-style HRM practices in those subsidiaries. Harzing"s (1999) study on 208 MNC subsidiaries from 22 countries revealed a higher level of interdependence between the subsidiaries of both global and transnational companies compared to subsidiaries of multi-domestic companies. However, although a global structure seems to have standardization effects on subsidiaries HRM practices, it may be constrained by strategic actions of individual firms, and researchers urged not to be too much deterministic with such „*apriori sense'* at all the time. Sometimes global structure and related standardization policies appear conflicted with local policies and practices, and multinationals followed localization policies in response to the national differences and blend global integration with local responsiveness. In the face of globalization argued that the success of multinationals lies in their balance between global efficiency, local responsiveness and worldwide learning. But globalization raises new strains in employment practices for multi-domestic multinationals as cross-border integration poses questions for local autonomy in the wake of greater integration of production activities. MNCs, whose subsidiaries previously operated in a semi-autonomous manner, now become more integrated The changes in MNCs operational direction may require changes in organizational structures and different modes of control and co-ordination from the HQs. Most of

the research on HRM practices on MNCs was done by survey on real time data and overlooked the changing process. This study through longitudinal case studies looked for retrospective information and closely investigated the changed over time, subsequent control and coordination from HQ, and development of HRM practices in the subsidiaries.

Products and Market Integration, and HRM Practices

Research studies on subsidiary HR policies and practices revealed that the parent company influences are positively related to the resource inter-dependencies of the foreign subsidiaries and this inter-dependency determines control and co-ordination mechanisms of parent-subsidiary relationship, Subsidiaries part of integrated production systems have more interdependence than independent production units, and in such cases, within a single MNC, there exist different levels of interdependence between the parent and its various overseas subsidiaries.

Role of subsidiaries as export platforms or part of international production networks make them integral parts of global operations, and HQs instruct subsidiaries to follow globally consistent HRM practices. Internationally co-ordinate production systems facilitate diffusion of inter-subsidiary innovations by identifying „best practices" in one part of the corporation and promoting those in other parts of the world. A study of 150 Mexican affiliates of US multinationals showed a positive correlation between parent company influences and subsidiaries" resource inter-dependencies for specific HR decisions, especially recruitment and selection process of higher level managers. The interviews indicated that the greater the dependency, the greater the influence exerted by the parent company and the greater its involvement in human resource decisions, especially decisions concerning selection, compensation and benefits of key affiliate managers case study of a Japanese MNC subsidiary in Wales explained how the British managers" expertise in the local market helped them to convince the HQ of their ability to run the business profitably, and they have developed their own HR policies. Sometimes, there might exists a reverse relationship when the parent company relies on the subsidiary to supply necessary resources (Edwards, 1998), and in that case, the parent company also needs to control the behavior of the subsidiary, and consequently, develop subsidiary HR policies that do not create any problem for control and co-ordination mechanisms. Such vertically integrated production systems provide headquarters with the opportunities to follow common systems of work organisation and employment practices in different plants, and to implement standardised HRM practices across the subsidiaries.

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IHRM Policy Orientations and Standardization of HRM Practices

International policy orientations of HQs, i.e., ethnocentric, polycentric and geocentric orientations have a significant influence on configuration of subsidiaries" HRM practices. MNCs with ethnocentric policy orientation usually follow „exportive" HRM approach, where as polycentric and geocentric orientation follows adaptive" and „integrative or best practice" approach respectively. HRM practices i.e. use of higher number of expatriates and export of home country practices in overseas subsidiaries and implemented parent company prescribed practices related to recruitment, compensation, performance appraisal and management development. However, MNCs with an ethnocentric orientation tried to introduce home country HR practices in host countries and were considered as innovators of HRM practices.

Conversely, a polycentric orientation received greater autonomy from HQs and subsidiaries are likely to be adaptors of host country HR practices. Geocentric corporations adopt a more complex approach although they basically remain ethnocentric-innovative. They try to identify global best practices regardless of their nationality or country of operations. Therefore, corporate HRM policy orientations have a direct influence on the behavior of the subsidiaries. Although the headquarters HRM policy orientation provided useful guidelines to assess the transfer vs. adaptation process in the subsidiaries, hardly any multinationals can be found that provide a perfect fit with those orientations in the subsidiaries. The headquarters influences depend on the restrictiveness of employment regulations in the host country, the level of cultural and institutional differences between home and host country, and the role and function of individual subsidiaries. Multinationals may change their HR policy orientations with their stages of internationalization in their study revealed that Irish multinationals developed more formal and pro-active HR policies, and appointed a higher number of expatriates in the overseas subsidiaries with their increased international operations.

Methodology

The research objective, i.e., to investigate the influence of corporate strategy, structure, and HQ policy orientation on subsidiaries on HRM practices and their gradual changes over time guided us towards a qualitative research strategy. Researchers argued that while a quantitative study may identify incidence of different HRM practices on real time information of the subsidiaries, but it would be less useful to understand and explain development process and changing nature of HRM practices with retrospective historical and longitudinal information. This could be due to limited ability of quantitative approaches to investigate the context as a whole. Qualitative methods are suitable in IB

where multiple actors and multiple environment impact are involved viewed quantitative research methods as relatively weaker in providing rich and valid descriptions of HRM development processes, and argued for in-depth qualitative case studies to flesh out the insights of HRM development processes in MNCS. The case study method help to understand behavior of decision makers and unearth the historical processes involve a more complicated process where standalone opinion or simple information cannot provide or explain the whole process. Case studies provide opportunity to follow sequential questions until researchers get the required/desired interpretations.

Four multinational subsidiaries were selected for the study. At data collection stage, we considered equivalence of research methods, research methods and equivalence of research administration to rightfully contrast findings as suggested by other renowned researchers. Retrospective and real-time data were collected on different occasions to capture process dynamics of gradual evolution and subsidiary-HQ relationship. Review of historical materials and records helped us to understand the links between macro-environmental factors, HQ-subsidiary relations and behavior of subsidiary mangers about HRM practice.

Table 1 lists the important interviews in different organisations.

Table 1: Number of interviews in case study organizations

Organisations	Interviews with HRM managers	Interviews with other line managers	Interviews with managerial employees	Interviews with non-managerial employees	Interviews with Trade union leaders	Total interviews
Company A	**4**	**3**	1 key informant, 5 others	1 key informant, 4 others	**4**	**22**
Company B	**3**	**3**	1 key informant, 6 others	1 key informant, 4 others	**3**	**21**
Company C	**2**	**2**	1 key informant, 3 others	1 key informant, 4 others	**2**	**14**
Company D	**3**	**4**	2 key informant, 4 others	1 key informant, 4 others	**4**	**22**
Total						**79**

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Findings and discussions: HQ's influences on Subsidiaries' Recruitment and Selection Practices

As literature review indicated, MNCs parent company influence on subsidiaries" HR practices varied with corporate strategies, HQs structural configurations, subsidiaries" production integration with international operations, and HQs attitudes towards IHRM practices. The parent company influences on different aspects on recruitment and selection practices in our case study subsidiaries are shown in Table 2.

Table 2: Headquarters' influences on different aspects of recruitment and selection activities

Recruitment and selection issues	Company A	Company B	Company C	Company D
Job descriptions	Need to follow HQ provided HR manuals	HQ provided guidelines, specialised subsidiaries provided detailed manuals	Locally determined	Uniform Hay Method, so HQ influence vital
Job specifications	HQ provided manuals, but can only bring changes in educational qualifications	Specialised subsidiaries provided manuals, but local subsidiary can bring changes in educational qualifications	Locally determined	Technical employees HQs specified, others locally determined
Selection criteria	HQ instructions and prescribed selection procedure	HQ instructions, can bring change within regional offices recommendations	Locally determined	HQs specified priority criteria and competencies are judges
Test Materials	UK developed materials supplied by the HQ	Regional office developed within the HQs broad guidelines	Locally developed	Use HQs supplied uniform test materials

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Structural Orientations and Parent Company Influence on Recruitment and Selection Practices

In the initial stage, all our case study MNCs focused on local market and followed multi-domestic structures with minimum control of HQs on HRM practices. Respective regional offices maintained contacts with the subsidiaries and HQs did not show any concern about recruitment and selection activities. But with changes in local operations and subsequent parent-subsidiary relationships, parent companies changed control and co-ordination mechanisms of the subsidiaries" and started to influence on recruitment and selection practices. The parent company usually appointed an expatriate chief executive officer to oversee only the financial matters and instructed to report those financial issues to the regional office. HQ or regional office never inquired about subsidiaries HRM practices.

But now with changed circumstances as they became global outsourcing centre for a few core products, different functional departments of HQ directly contacts with subsidiary, and particularly, corporate HRM department inquires about different aspects of subsidiaries HRM practices. HQ instructed subsidiary HR Director to harmonize work roles and responsibilities of managerial employees, and maintain consistency with other subsidiaries to ensure global standard of skills and competencies among the employees. Now, the HR director always follows HQ-provided HR manuals to standardize job descriptions and job specifications of all managerial employees. The HR Director justified rationale of those directives and narrated that use same machines and technologies around the world, and therefore, HQ became interested in standardizing production process and relevant work organisation in the subsidiary. Direct control and co-ordination of HQ explicitly played a coercive role in the standardization of recruitment and selection activities in the subsidiary. It has also acted as a means of controlling or maintaining employees" quality standards, i.e., competencies required performing standardised jobs in different capacities. The QA Officer maintained:

"In our company, sometimes management receives applications through informal channels, but we are not in a position to honour such requests of friends and relatives. The subsidiary management cannot create any post and cannot develop any job description or job specification without the consent of the HQs. Management also shows extreme cautions in the selection process as employees need to perform specific duties (job descriptions) determined by the HQs."

However, these standardization efforts vary among different categories of employees and depend on the nature and levels of the jobs. The HR Director indicated that technical jobs are more homogenous among the subsidiaries and it is easier to follow HQs prescriptions in determining the job descriptions and job specifications for those jobs. HQ can standardize technical jobs more easily and exert direct control on the recruitment and selection practices. However, subsidiary management can modify some local market sensitive jobs such as employees working in the marketing department, but they need to send an explanation of those changes to headquarter. After moving towards a more transnational model compared to earlier decentralized multi-domestic or regional structure, HQ influences on recruitment and selection practices have increased substantially. Parent company moved towards a more transnational structure and HQ influence increased with these structural changes. Specialized subsidiaries in different countries now become power centre for particular products and try to influence recruitment and selection practices by providing detailed job descriptions for different categories of employees and by supplying various test materials, especially psychometric test materials for the managerial employees. As the HR manager explained:

"After the merger, headquarters and the specialized subsidiaries are showing more interest in our HR activities and increased direct contacts with the HR department. We now follow the similar job descriptions and selection techniques prescribed by the HQs. It provides us important guidelines for newly created departments."

In another company the HR Director denied any influence of HQ in designing or determining job descriptions and job specifications. The subsidiary has no scope to liaise with HQ to consult on HRM issues, because the multi-domestic structure persuaded the subsidiaries to develop their own HR policies related to idiosyncratic circumstances, and we found no evidence of the transfer of HR practices from the HQ to the subsidiary, or vice versa. The Ex-GM Human Resources revisited his own experience and explained the differences and his latest workplace in another American multinational regarding the parent company influences on HR activities. He further explained:

"The parent company was never interested to develop any consistent HRM practices or employees‟ long-term career advancement in the group. They always asked for profit maximization with short-term objectives. The employee turnover is much higher than any other multinational subsidiary. They never asked about our HRM activities."

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In fourth company, whilst the subsidiary followed standardised HRM practices for a long time, recent changes in the corporate structure have increased the parent company influences in all the subsidiaries‟ recruitment and selection practices. Now the subsidiary follows the uniform „Hay Method" in developing job descriptions and job specifications for the managerial employees. The corporate HQ and specialized subsidiary in Australia make direct contacts with the subsidiary to monitor its recruitment and selection practices, and ask the subsidiary to submit a personnel inventory of managerial employees that covers different aspects of their qualifications and competencies. This direct contact of the corporate HQ and specialized subsidiary has compelled to follow strict guidelines in its recruitment and selection activities.

In a few cases, particularly for the Hi-Flyer „Fast-Track‟ employees, the presence of foreign experts in the selection process has obliged the subsidiary to follow the standardised job descriptions and job specifications in recruiting the desired managerial employees. It is observed that the pressure to standardize job descriptions, job specifications, and other recruitment and selection activities is linked with the control and co-ordination process of the multinational headquarters. When the subsidiaries were managed with a multi-domestic orientation, the HQ had little scope to influence the subsidiaries‟ activities. The adoption of a multi-domestic structure, however, had a link with the institutional arrangement of the host and home country, and changes in global economy and other external factors also drove the parent company to change its earlier control and co-ordination mechanisms, and move towards more direct contacts with the subsidiaries. A longitudinal analysis of structural orientations of the subsidiaries reveals their changed influences on recruitment and selection practices and supports our argument to include external factors in explaining the organisational HRM practices in the changing world economic context.

Production Integration and Increased Influence of the Parent Companies on Subsidiaries Recruitment and Selection Activities

The increased production integration of the multinational subsidiaries has changed their role in the international production network, and increased the parent company influences on different aspects of recruitment and selection activities. The degree of multi nationality, i.e., the extent of exports to foreign markets increases the importance of the subsidiaries to the parent companies and the parent companies become more concerned about the subsidiaries‟ HRM practices. "Earlier the parent company showed less concern about our HRM practices. Our market expansion in foreign countries has changed the parent company attitudes and we now receive more attention from the

corporate head quarters than before. Group HR Director is visiting on a regular basis and we are also attending regional and group HR meetings. The parent company wants to see efficient management in the subsidiary and smooth supply of exports to other subsidiaries."

The parent company influences on recruitment and selection activities in Novartis have also increased in recent years, and the subsidiary now receives more attention than its counterpart of Indian and Pakistani subsidiaries. The establishment of a generic product plant increased the visits of foreign HR experts, and management became more cautious about the quality of employee skills and competencies. Managerial employees reveal that recent expansion of the company has attracted more attention from the HQ, and they now face more strict controls by the parent company in HRM issues. It seems that the changing role acted as a turning point for influencing the recruitment of particular employee groups i.e. employees directly related to the production and quality control process. The HR Director describes the increased importance of the quality control process and the need for specific technical expertise among the production officers, to ensure product quality for overseas markets. The HR Director explained the importance of quality recruitment practices as follows:

"Quality is the prime concern for overseas markets. The HQs and other subsidiaries became highly concerned about the employee competencies and directly inquired about employee qualifications and relevant competencies. Foreign experts now provide training to our managerial employees and we need to make sure that employees have the capabilities to receive that training. We feel more pressure to follow group guidelines to select appropriate quality employees."

IHRM Policy Orientation and Parent Company Influences

The parent company influences, and the standardization of different recruitment and selection activities, depended on the headquarters‟ attitude towards subsidiaries‟ HRM practices as well as on the scope of employees‟ mobility among different subsidiaries.

From the very beginning, headquarters followed geocentric HRM policies across the world and tried to standardize most HRM practices. The recent successful operation of the electrode production as well as exports in foreign countries further increased the confidence of the parent company and it now counts the subsidiary as a resource to recruit managerial employees for the entire group. Headquarters‟ attitudes towards the subsidiary as a resource centre and a base for recruiting the „Hi-Flyer‟ employees further encouraged the subsidiary management to follow standardised recruitment and selection activities. The parent company requested periodic review meetings with the HR Directors of other subsidiaries to assess the selection process. The Training Manager voiced similar attitudes as he described:

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"We are recruiting two types of managerial employees, some for working and the others for working in the group on international assignments. The HQs provided Job descriptions and specifications are strictly followed for the international group and they can perform their duties anywhere in the world."

For the routine or general employees working in practical positions, applicants with work-related hands-on experienced are preferred. The IT manager and Training Manager stated that in the selection of an IT officer position, they identified overqualified for the routine IT duties, and saying:

"The overqualified foreign degree holder candidate will feel bored within a few months. We cannot provide him with a career within the limited prescribed job scope of the company. But we are selecting same competent candidates in our ambitious „management trainee‟ positions those have every possibility to develop an international career in the group."

Furthermore, when multinationals use employee mobility among the subsidiaries to develop the managerial cadre, it helps them to train those with high potential in various locations including the HQ. Employee mobility among the subsidiaries, either short-term placements or long-term assignments, was considered an important factor in recruiting managerial employees and the HR director was conscious of this when recruiting the managerial employees. He said:

"Our employees frequently receive overseas assignments. We need to be careful in selecting those employees. Headquarters supplied us the HR manuals providing details of employee tasks and responsibilities. Quality control officers in Bangladesh are doing the same job as their counterpart. Our nominees are working with a very good reputation in different foreign subsidiaries. We never receive any complaints about the working capabilities of our employees in overseas assignments."

Now strictly maintains the HQ‟s prescribed job description for the „Fast-Track‟ employees whom they select after the successful probation period and nominate for further career development in different foreign subsidiaries and HQ. Recruitment of „Fast-Track‟ employees from subsidiary influences the selection criteria, i.e., job specifications of the managerial employees. The subsidiary management now places more emphasis on the HQ‟s or specialized subsidiaries‟ job descriptions and relevant job specifications in the recruitment and selection process. It needs to

identify standardised competencies for the „Fast-Track" employees since they are required to perform overseas duties. Contrary to this, exclusion of the subsidiary from IHRM programme discouraged the local management from searching for unified or consistent HRM practices among the subsidiaries of the parent company. They have virtually no employee mobility among the subsidiaries although previously there was some downward mobility, such as employees from other subsidiaries being posted in Bangladesh to control the business activities. The HR General Service Manager maintained:

"The headquarters has no interest in our HRM activities. We are not looking at our foreign subsidiaries. We face competition from the local companies and we need to know the happenings in those local companies. In the marketing department, it proved to be quite useful to recruit employees from other local companies and we have changed our strategies with those recommendations."

It seems that inclusion of the subsidiary in the IHRM programme and the headquarters" attitudes towards career development of the subsidiary employees have a significant influence on the standardization of the recruitment and selection activities of the multinational subsidiaries. But this standardization is modified or sometimes redefined according to the institutional context of the host countries. With the differentiated institutional contexts, varying types of social institutions emerged to shape nationally distinctive HRM practices.

Tensions between the Parent Company Influences and the Host Country Effects: Multinationals as Role Models

It was observed in the study that multinational subsidiaries face alternatives either to follow local chaotic or disorganized practices, or to adopt the parent company prescribed standardised practices. The pressures or tensions among the alternatives vary among the multinational subsidiaries, depending on the parent-subsidiary relationship and other features relevant to parent company operations, as well as on the relative strength of host country societal institutions. Compared to local organisations, where HRM practices are still hardly at any systematic form, most of the multinational subsidiaries consider it useful to adopt the parent company prescribed standardised recruitment and selection practices. The question of quality standards dominates in the production process and thus the local subsidiary, to some extent, enthusiastically accept the HQs prescriptions to safeguard their responsibility by avoiding uncomfortable situations raised in the production process. The overt parent company influences actually help them to overcome the problems arising from the „ineffective' host country model. The managerial employees pointed out that standardised job description helps the local subsidiary to reject the incompetent employees at the initial stage. Recently the top management fired the IT manager and Project manager after failing to perform the HQ specified duties. Sometimes it appeared that the HQ provided job descriptions and job specifications that are not fully appropriate for all categories of employees since the nature and the duties of the jobs varied among the subsidiaries in different locations. The HR Director explained the duties of sales personnel and justified their attempt at modification to meet the local needs.

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"The Marketing Department is working in totally different ways. Our customers are individual patients and the sales force has to persuade the medical practitioners to engage in sales promotion. In Australia and European countries, institutional buyers like heath authorities and health insurance companies are the main customers. So employees in the marketing department are doing different jobs."

But not all the multinationals responded in the same way when someone modified or even avoided the instructions in order to adjust to their own circumstances because in some cases, the adoption of less standardised job descriptions still may be related to an intention to manipulate the recruitment criteria, as subsidiaries need to recruit applicants with different educational backgrounds to maintain the social networks. The recruitment of a marine science graduate in the quality control department and a biology graduate in the production department may be treated as the outcome of less control on their recruitment practices.

The absence of specific job descriptions and job specifications allowed private sector organisations to consider applications from relatives and friends. In the multinational subsidiaries, although some employees are recruited through informal channels, they are still quite aware of the employee competencies, the QC officer observed. Periodic competency tests, as prescribed by the parent company, helped the subsidiary to find incompetent or disqualified employees and those employees were requested to improve their skills within a stipulated time period. Under-performing employees are placed on probation for one year and if the employees fail to develop the required skills, they are dismissed within the legal framework of the country. The parent company provides guidelines aimed at helping the subsidiaries to find those employees with high ambitions and the right qualifications. Respondents also indicate the presence of expatriates as a control mechanism to check the rampant nepotism and personal biases, as well as to ensure the development of systematic HRM practices in the subsidiaries. Changes in corporate structures and IHRM policy orientations helped the multinationals to maintain direct contacts and control the subsidiary activities with their own specifications.

"The expatriates are doing mainly two things. First, they try to introduce some systematic management practices. You can see that most of the multinational subsidiaries were initially run by the expatriate chief executives. You can observe some distinctive management practices in different companies initiated by the pioneer expatriates. Their ideas and philosophies are reflected in company management practices. Secondly, they are in-charge of developing local management leadership. Headquarters always instructed to develop local expertise as soon as possible."

The case studies revealed that the contents of selection test materials used by the multinationals vary from those of the local organisations, as the private sector still considers testing unnecessary, and the public sector uses simple numerical reasoning and general knowledge related questions.

Conclusions

The findings of study indicate that it is not only the internationalization process of parent companies, but also the internationalization of subsidiaries contributed/influenced the development of standardised HRM practices in the subsidiaries. Subsidiaries internationalization process in somehow sequential and involve a series of stages, HRM standardization processes are related with those stages, the study revealed. The degree of internationalization of parent companies, subsidiaries, and internationalization of markets guided the HRM policies and practices of the subsidiaries. Our study supported the findings that MNCs following multi-domestic, global or transnational should have distinctive IHRM policies and practices. So MNCs need to identify fit or match between corporate strategy, structure and IHRM policies and practices. It seems that in these cases, the born global hypothesis was not working. Rather sometimes, subsidiaries earned the mandate/attention from HQ with their own capabilities or HQ entrusted more responsibilities with the restructuring in the HQ.

In implementing the standardized IHRM policies and practices, MNCs faced very little resistance from societal context. HRM practices of MNCs are treated as an innovation, or a new model due to their pioneer role in the private sector management development. Their influential power of MNCs in the host country context overruled the societal factors, and the parent company's prescribed practices have dominated over the national institutional arrangements. In a developing country, where the unemployment rate is very high and the ability to find a job is a matter of life or death in most cases, multinationals can implement their recruitment and selection practices as they wish, but the case studies also revealed that the development of such practices does not solely depend on the subsidiaries themselves, because external factors such as parent company control and co-ordination mechanisms, international integration and IHRM policy orientations, all have substantial influence on them. It is; therefore, appropriate to consider the factors external to the micro-organisational levels and distinctive national context in the study of multinational organisations.

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INNER FIBRES OF HUMAN EMOTIONS IN ARUNDHATI ROY'S *THE GOD OF SMALL THINGS*

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Abstract:

Arundhati Roy is one of India's noteworthy novelists. She is the first Indian citizen to achieve the prestigious Booker Prize for literature and a million dollar for her debut novel, *The God of Small Things.* She has shown that in all the relationships, love, acceptance, response, yielding or withdrawal, frigidity, aversion, self-hatred and emotional backgrounds are very important. Arundhati Roy engrosses deeply to reveal the inner fibres of human emotions. She relies more on non-verbal language for analysing the emotions of unconscious human mind because non-verbal language exposes the inner person to the outside world. She points out that things can change in a day and if the things can change in a day for worse why not for the better. She emphasizes that the god of small things is there with in oneself.

Introduction

From time immemorial, Indian women, the embodiment of love and affection, hope and patience, have been showing their worth in each and every discipline of knowledge. It is pleasant to perceive that the efforts of woman have been dealing with the consideration of all major Indian contributors in English. Many skilful women of letters have contributed to sustain the true spirit of Indian fiction in English. Numerous Indian novels are commendable for exemplifying woman's complexities. Amar Nath Prasad rightly observes,

Indian Women Novelists in English and in other vernaculars try their best to deal with, apart from many other things, the pathetic plight of forsaken women, who are fated to suffer from birth to death.

Although women writers addresses themselves to the problems of woman, in the recent years they have learnt to articulate with greater confidence in the suppressed and camouflaged for long. However, it has taken them almost half a century to find footage in terms of national and International recognition for their works, which are in no way inferior to their male counterparts. K.R. Srinivas Iyenger says:

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Women writers of Indian English Fiction have significantly contributed to the vitality, variety, humanity and artistic integrity that embellish the contemporary fictional canvas in India. They seem to justify the observation that women are naturally story tellers.

The accession of woman scribblers to the diversity and genuineness of Indo-Anglian fiction is phenomenal. It furnishes the investigating psyche and a massive deal of human frailty. The calibre of human accomplishment can be externalized through writing the novels.

An indelible impact among Indian woman novelists in English has been left by Arundhati Roy. She is the first Indian citizen to achieve the prestigious Booker Prize for literature and a million dollar for her debut novel, *The God of Small Things.* This novel flicked her to international fame and made a tremendous sale globally. There are about forty different languages in which this book has been translated. She has the credit of being the first entirely home grown Indian to have this esteemed prize. According to Robert Pinto,

The novel has tremendous impact because it touches upon the basic needs like love and compassion which transcend all cultural, linguistic and social barriers. It is one of the reasons why the novel is translated and read by people all over the world with much appreciation.

The vision of Arundhati Roy is essentially tragic. Every man and every woman in the novel has his or her own mode of judgement, riddled with ignorance, superstition and genderized views. Convulsions have been testified right from the tender years of infancy by her novel, *The God of Small Things.* As O.P. Budholia observes:

Arundhati Roy basically works on an aura of human relationships and deviates from the established social norms, there comes a movement for breaking the boundaries between parents and children for their relationships.

In all the relationships, love, acceptance, response, yielding or withdrawal, frigidity, aversion, self-hatred and emotional backgrounds are very important. Childhood experiences and memories go a long way towards moulding life, attitude and personal relationships. Children when they are small and innocent, being taught by the parents to despise the untouchables and are warned not to be familiar or mix with them without even thinking about their emotions. But children naturally go where they receive love and affection without being aware of the colour,

creed or cast distinctions which are highlighted in the case of Estha, Rahel and Sophie Mol who go to the hut of Velutha and play with him. Love has its own language and the love and affection, these children get from Velutha is everything for them. Here, Arundhati Roy clearly shows that love is the only factor that prevents everyone from falling apart.

As Arundhati Roy engrosses deeply for revealing the inner fibres of human emotions, she relies more on non-verbal language for analysing the emotions of unconscious human mind because non-verbal language exposes the inner person to the outside world. The main character in the novel Ammu, though intellectually not so accomplished but very sensitive protagonist, has witnessed its pangs right from the tender years of infancy. Being a child, she recollects with dread her childhood in Delhi when her mother was subjected to repeated bouts of beating by her ill-tempered and male chauvinist father: "In her growing years, Ammu had watched her father weave his hideous web….He worked hard on his public profile as a sophisticated, generous, moral man. But alone with his wife and children he turned into a monstrous, suspicious bully, with a streak of vicious cunning. They were beaten, humiliated and then made to suffer the envy of friends and relations."

Her forte is also to visualize moral deviation among men, as a socially accepted norm. Chako's flirting with the factory girls, Ammu's Bengali husband's dissipating ways serve as a testimony of male power sphere. Another character in the novel Mammachi Ammu's mother is a victim of male chauvinism. She adapts herself completely to the conventional scheme of things. Ammu too, as a child submits to the tyranny, "Ammu leaned to live with this cold, calculating cruelty. She developed a lofty sense of injustice and the mulish, reckless streak that develops in someone small who has been building all their lives by someone big. She did exactly nothing to avoid quarrels and confrontation. In fact it could be argued that she sought them out, perhaps even enjoyed them" .

Here Arundhati Roy explores in more psychological depth the oppression of woman by patriarchal society and woman's own complicity in her oppression. Broadly speaking, in Indian Society, the relation between man-woman is never taken to be a relation among two equals. Woman is a non-entity and that has to be her fate. Whatever identity she is supposed to have is conferred on her by man.

On the other hand, the emotional separation between parent and child leads towards pain, rejection and seclusion. It is to escape this tyranny that Ammu agrees for a loveless marriage. The tragedy of marriage is not that,

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....if fails to assure woman the promised happiness- there is no such things as assurance in regard to happiness- but it mutilates her; it dooms her to repetition and routine (Beauvoir).

Ammu marries to a Bengali gentleman but here also she comes across with failure, just after her marriage she realises "the slightly feverish glitter in her bridegroom's eyes". The husband offers Ammu as "a gift" to Mr. Hollick, an English manager, for his service, but she refuses the proposal of her husband and divorces him and comes back to her parental home – Ayememen – with her twins. Ammu is the victim of the circumstances: "Ammu knew that weddings were not something that could be avoided altogether". She wants to break out of her marriage due to the authoritative and dissipated ways of her husband. She finds it difficult to sustain the relationship with her husband. After coming back to Ayememen, Ammu feels that now she is just a woman for the other family members of the house, who consider her a divorcee, an outsider. She realises that she has no right to inherit either money or property because she is a married woman. Ammu is punished severely by the members of her own family. In the first case, when she returns home with her two children after being separated from her first Hindu husband. The members of the family do not feel happy to have her back among them. Baby Kochamma, her aunt, dislikes the twins, "for she considered them doomed fatherless waifs. Worse still, they were Half-Hindu Hybrids whom no self-respecting Syrian Christian would ever marry" . These incidents raise a question mark on the sense of belongingness. It can be easily extracted from above that woman's place is now here. It is neither in her parental home nor in her husband's house.

Ammu is now a helpless divorcee and her twins are like a pair of small bewildered frogs engrossed in each other's company. She is left all alone unaided in the hostile world with baffling physical and emotional changes which in turn gives rise to a confused life. She becomes unable to face life and its realities. There are instances in the novel which clearly reveals that she wants to live a life on her own. She is quick to reprimand her children, but even quicker to take offence on their behalf. She looks tired of her two-egg twins and longs for her physical freedom. The idea most loveable to her is the possession of her body. She does not like to be intervened even by her children in the process of the afternoon mares: "She wanted her body back. It was hers. She shrugged her children off the way a bitch shrugs off her pups when she has enough of them" . In the novel the mother and children are embellished

together with animal images. Thus, the brute inside her mind symbolises her future course of behaviour. The bathroom scene puts forward the mute language of the body. Her body itself becomes a wonderful example of the synchronic and sensory language: "Ammu undresses and puts a red tooth brush under a breast to see if it would stay. It didn't. Where she touched herself her flesh was taut and smooth. Under her hands her nipple wrinkled and hardened like dark nuts, pulling at the soft skin on her breast" . The novelist delineates the inner psyche of Ammu and her emotional turmoil. Here the novelist also points out that the woman who is not a successful and satisfied wife can not be a good mother. Ammu destines to set aside temporarily the morality of motherhood and divorce hood.

She swings between the two polarities – her inhibitions of a touchable family and the emotions of an unfulfilled womanhood. There is no verbal language when Ammu and children sit near the river; but there is a fine rush of human emotions that goes inside the mind of Ammu and her children. It is the emotional battle going inside her. The infinite tenderness of motherhood and the reckless rage of a suicide bomber and grows inside her, and eventually leads her to love the man by the night, her children love by day. To use the boat by night, her children use by day. Emotionally-ridden, Ammu undergoes a rush of negative emotions in her mind. She wants to overcome with this battle inside of her mind. She moves into her free and indulgent ideas and she reads the decorated imagery written on her body. She undergoes the psychosis processes of dreams, desires, feeling fears or strange behaviour, perhaps garbled wishes or memories. She dreams for one armed man on the bank of this river so intensely that it creates the quivering sensation in her mind. She dreams of the God of small things, the God of loss, Velutha not in the night but in the afternoon. Thus, the repressed and the latent desires of the unconscious mind visit the conscious level of human psyche without any verbal communication. Ammu while getting oneness with Velutha understands the meaninglessness in their life. They both realize with their psyche depth a life of oblivion for "there was nowhere to go. They had nothing. No future. So they stuck to the small things", and Velutha is reflected by the novelist as an image of God to these small things. Ammu acknowledges Velutha as a God of small things because he has initiated the creative process for better things to happen in the world. Velutha is considered in the novel as a God because he is not bound by caste or religion. He transcends religion, cast or social status and loves the children naturally and deeply without any distinction. He shares his art and talents – presents them the things which he creates by himself like the wooden spoons. He loves the children not for his sake but for what they are and what they can become by his love. His love also embraces Ammu even though she was rejected by others. He holds her gently in his arms and that short span of time was like an eternity for her. He doesn't remain bound to his family traditions but learns new trades, gets himself educated; serves other people like the Ayemenem household and even fights for the rights of poor people as a member of the communist party and ultimately dies alone as a god of small things. Arundhati Roy points out in the novel that things can change in a day. If the things can change in a day for worse why not for the better. The god of small things is with in oneself.

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Now, with the incident of Ammu's infatuation for Velutha, she is forced by Chacko, her brother, to pack her things and go away from the house. As this was the matter of disgrace for their family. Mammachi also punishes Velutha by dismissing him from the job. In anger she shouts at him, "If I find you on my property I'll have you killed!" Baby Kochamma also doesn't want to have Ammu at home so she urges Chacko to send her away. She also goes to the Police Station to complain against Velutha for his immoral act. The police arrests him, treats him inhumanly and he dies in the police custody. In the novel, one gets the shock at the outburst of violence and cruelty. Today, police who is supposed to control violence maintain law and order is found breaking the law and becoming very cruel as is evidenced in their treatment of Velutha: "His skull was fractured in three places. His nose and both his cheekbones were smashed, leaving his face pulpy, undefined. The blow to his mouth had split open his upper lip and broken six teeth …. His spine was damaged in two places; the concussion had paralysed his right arm and resulted in the loss of control over his bladder and rectum. Both his knee caps were shattered". Due to this cruel and inhuman treatment he dies in the police custody. The police, the sentinels of man's freedom, is supposed to maintain law and order and also educate people in this direction and impart a good lesson to Estha and Rahel in their torture to Velutha? Arundhati says, "What Esthappen and Rahel witnessed that morning… was a clinical demonstration in the controlled conditions (this was not war at all, or genocide) of human nature's pursuit of ascendancy. Structure. Order. Complete monopoly. It was human history, masquerading as God's Purpose, revealing herself to an under-age audience… This was an era imprinting itself on those who lived in it".

On the other hand, Rahel and Estha come closer to their incestuous behest by breaking the love laws. It is not any immediacy that arrests them to this immoral perversion, but the conduct of their mother creates in them a kind of frustration. This frustration leads them for the release of adrenalin by which they withdraw themselves from the rest of the world and create their own world for such things. When Rahel analyses the causes for the original sin and finds the meaning of the word – depravity as perverted quality and she thus feels: "Both the elect and non-

elect come into the world in a state of total alienation from God, and can, of themselves do nothing but sin". It indicates towards the total loss of their reason and the development of the frustration from the rest of the world.

In the end, we may say that the Indian writing in English has now become a reality which can not be ignored. Sometimes one begins to wonder in the midst of all barriers, sufferings and evil, where is God in it? However, the urge to know him can never die as long as man lives on this earth. The earlier one finds him the better will one become; and there is every possibility that one will begin to shape himself of god of small things.

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ARTICLE

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OSTEOPOROSIS IN 2009

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Abstract:

Osteoporosis has been operationally defined as a bone mineral density (BMD) level more than 2.5 standard deviations (SD) below the mean for young normal white women (Kanis, Melton, Christiansen, et al., 1994). Because hip fractures represent the most important complication of osteoporosis and because proximal femur BMD has the strongest association with hip fracture risk, the focus has been on hip BMD. Data from the third National Health and Nutrition Examination Survey (NHANES III) reveal that 17 percent of postmenopausal white women have osteoporosis of the total hip (Looker, Orwoll, Johnston, et al., 1997). BMD measurements at other skeletal sites also predict fracture risk, as do ultrasound measurements, but the estimated prevalence of osteoporosis varies widely from one skeletal site or technology to another (Varney, Parker, Vincelette, et al., 1999). This relates partly to wider SD for less precise techniques but also to divergent patterns of age-related bone loss at different skeletal sites. An estimated 35 percent of postmenopausal white women have osteoporosis at either the hip, spine, or distal forearm, rising from 8 percent of women ages 50 to 59 to 82 percent of women age 80 and older (Melton, Atkinson, O'Connor, et al., 1998).

There is no consensus definition for osteoporosis in men or nonwhite women. However, NHANES data suggest that 12 percent of Mexican American and 8 percent of African American women in the United States have osteoporosis of the total hip, using the cutoff value for white women (Looker, Orwoll, Johnson, et al., 1997). Use of the same absolute cutoff value fordefining osteoporosis in men produces an unrealistically low prevalence estimate, but sexspecific normal values result in an estimated 19 percent prevalence of any osteoporosis in men in Rochester, Minnesota (16 percent for total hip alone), which is consistent with the lifetime risk of osteoporotic fractures in men of approximately 13 percent (Melton, Atkinson, O'Connor, et al., 1998). Due to the lower young-normal mean and greater SD in NHANES, the prevalence of osteoporosis of the total hip was only 7 percent for non-Hispanic white men and even less for Hispanic and African American men (3 percent and 5 percent, respectively) (Looker, Orwoll, Johnson, et al., 1997). These discrepancies indicate a need for more robust normative data. It has become clear, however, that greater bone density in men compared with women, and in white women compared with Asian women, is partly an artifact of areal BMD (g/cm2), since adjusting for scanned area does not account for wider bones also being deeper (Seeman, 1998). Body size adjustments reduce apparent differences in BMD among women of different races (Marcus, Greendale, Blunt, et al., 1994). Similarly, differences in bone density between men and women are reduced when overestimation of BMD in larger skeletons is corrected by assessing bone mineral apparent density (g/cm3), although effects on osteoporosis prevalence vary.

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Although we have a great deal of evidence about the size and identity of the population affected by osteoporosis, it is not altogether certain what these data mean. It is indisputable that almost all segments of the population are affected by osteoporosis to some degree and that the numbers affected will increase dramatically in the future as the population ages. What is needed is a more complete understanding of the bone density parameters that best represent skeletal fragility and increased fracture risk (Genant, Gordon, Jiang, et al., 1999). This would provide a 23 more appropriate basis for patient management and better estimates of the magnitude of the problem of involutional osteoporosis.

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ARTICLE

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"सतना जिले की अनुसूचित जातियों की आर्थिक स्थिति का विश्लषणात्मक अध्ययन"

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सारांश

अनुसूचित जाति के लोगों की आर्थिक स्थिति सुधारने एवं आर्थिक रूप से सुदृढ़ बनाने हेतु जिले में विभिन्न योजनाएँ क्रियान्वित की जा रही है। इस शोध पत्र का उद्देश्य विभिन्न योजनाओं से लाभान्वित हितग्राहियों की आर्थिक जीवन की मौलिक समस्याओं का संकलन करना हे। भारतीय संविधान के अनुच्छेद 341 ने सूचीबद्ध जातियाँ अनुसूचित जातियाँ कहलाती हैं। इस जाति के अन्तर्गत अन्य उपजातियाँ है। सतना जिले में अनुसूचित जाति की कुल जनसंख्या 6,08,334 है। इनमें से कुल 3,04,217 व्यक्ति साक्षर है। इन वर्गों के विकास के लिए सतना जिले में विभिन्न प्रकार की योजनाएँ संचालित की जा रही है। ताकि की देश कीउन्नति के क्षेत्र में भी सहायक हो सके। इस शोध पत्र हेतु मेरे द्वारा व्यक्तिगत प्रत्यक्ष सम्पर्क करके प्राथमिक संमको का संकलन किया गया है। तथा शोध में न्यादर्श. निर्देशक पद्धति को अपमान गया है।

प्रस्तावना

अनुसूचित जाति के लोगों की आर्थिक स्थिति सुधारने एवं आर्थिक रूप से मुदृढ़ बनाने हेतु स्वर्ण जयंती ग्राम स्वरोजगार योजना 1 अप्रैल 1929 में लागू की गई। इस योजना छः योजनाओं को मिलाकर, IRJP, TRYSEM, JULERA, SITRA, KGY, MWS. को सम्मिलित करके बनाई गई है। जिसमें 10 व्यक्तियों के समूह गठित करके स्वरोजगार योजना से लाभान्वित करना है और इन्दिरा आवास योजना के अन्तर्गत गरीबों को आवास उपलब्ध कराये जाते हैं जिससे उनकी आर्थिक स्थिति में सधार लाना है।

उद्देश्य :–

इस शोध पत्र का मुख्य उद्देश्य अनुसूचित जाति के विकास के विभिन्न योजनाओं से लाभान्वित हितग्राहियों की आर्थिक जीवन की आर्थिक समस्याओं का अध्ययन करना है। इस प्रविधि एवं अध्ययन क्षेत्र से सम्बन्धित प्राथमिक समंक का संकललन मैंने स्वपत्र अनुसूचित जाति के लोगों से सम्पर्क करके एकत्रित किया है एवं द्वितीयक समंक का संकललन शोध से सम्बन्धित पुस्तके, पत्र, पत्रिकाएँ एवं समाचार पत्रों के माध्यम से जानकारी एकत्रित की है और निदर्शन पद्धति को इस शोध पत्र में अपनाया गया है। इस शोध पत्र में शोध पत्र सतना जिले के अनुसूचित जाति की आर्थिक स्थिति अध्ययन करने में मैंने पाया कि आज की अनुसूचित जाति के लोग अधिकांश अशिक्षित, बेरोजगार निर्धन या गरीबी की समस्याओं से जूझ रहे हैं। यहाँ तक कि गरीबी के कारण उनके जीवन की मूलभूत आवश्यकता की पूर्ति से वंचित रह जाते हैं। मध्यप्रदेश सरकार के द्वारा सतना में विकास की योजनाओं का क्रियान्वयन होता है। किन्तु इस योजनाओं के लाभ वंचित रह जाते हैं।

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भारतीय संविधान अनुच्छेद 341 में सूचीबद्ध जातियाँ अनुसूचित जातियाँ कहलाती हैं। इस जाति के अन्तर्गत अन्य उपजातियाँ हैं। इन्हें निआ जाति के नाम से भी जाना जाता है।

जनसंख्या :–

मध्यप्रदेश की कुल जनसंख्या 72597567 है। जिनमें 37611370 पुरूष और 34,984645 स्त्रियाँ सम्मिलित है। राज्य में जनसंख्या का घनतव 236 व्यक्ति प्रतिवर्ग किमी. है और लिंगानुपात (स्त्री–पुरूष) 930 है। अर्थात् राज्य में 91000 पुरूषों पर स्त्रियों की संख्या 930 है। 1991 से 2011 के ग्यारह वर्षो ने राज्यों की राज्य की जनसंख्या 20.3 प्रतिशत की दर से बढ़ी हैं। सतनना जिलले की कुल जनसंख्या 2228619 है। जिसमें 1156734 पुरूष और 1071885 स्त्रियाँ सम्मिलित है। जिले में लिंगानुपात (स्त्री–पुरूष) 927 है अर्थात् सतना जिले मे 1000 पुरूषों पर स्त्रिया की संख्या 927 है। जनसंख्या का घनत्व 297 प्रति वर्ग कि.मी. है। 1991 से 2011 के ग्यारह वर्षों में सतना जिले की जनसंख्या 19.02 प्रतिशत की दर से नहीं है। अनुसूचित जाति की कुल जनसंख्या 608334 व्यक्ति है। जिसमें 814050 पुरूष और 294384 स्त्रियाँ सम्मिलित हैं। सतना में जनसंख्या का घनत्व 266 व्यक्ति प्रतिवर्ग किमी. है और लिंगानुपात (स्त्री–पुरूष) अनुपात 936 है। अर्थात् जिले में 1000 पुरूषों पर स्त्रियों की संख्या 936 है। कुल जनसंख्या का लगभग 27 प्रतिशत अनुसूचित जाति निवास करती हैं।

शिक्षा :–मध्यप्रदेश में 43827193 व्यक्तिसाक्षर हैं। जिसमें 2588137 पुरूष और 17799056 स्त्रियाँ सम्मिलित है। कुल साक्षरता 70.6 प्रतिशत है। जिसमें 865 प्रतिशत पुरूष और 60.0 प्रतिशत स्त्रियाँ साक्षर है। सतना जिले में 9848331 व्यक्ति साक्षर है जिनमें 61158 पुरूष और 375675 स्त्रियाँ साक्षर सम्मिलित हैं। साक्षरता दर 64.61 प्रतिशत है। सतना में अनुसूचित जाति की कुल 3011217 व्यक्ति साक्षर है। जिसमें 157025 पुरूष और 147192 स्त्रियाँ साक्षर सम्मिलित है। सतना में अनुसूचित जाति की कुल जनसंख्या दर 28.62 है। ग्रामीण कुल साक्षरता दर 61.00 प्रतिशत है और नगरीय कुल साक्षरता 77.99 प्रतिशत है। तालिका क्रमांक–1 में उल्लेखनीय है।

तालिका क्रमांक–1
साक्षरता प्रतिशत
शिक्षा एवं समाज

वर्ष/जिला/तहसील/विकासखण्ड	ग्रामीण साक्षरता प्रतिशत			नगरीय साक्षरता प्रतिशत			कुल साक्षरता प्रतिशत		
	पुरूष	स्त्री	कुल	पुरूष	स्त्री	कुल	पुरूष	स्त्री	कुल
1991 जिला सतना	26.05	6.29	18.00	57.06	30.02	44.74	32.24	10.51	20.68
1981 जिला सतना	35.04	9.51	22.77	59.91	33.82	47.90	39.55	13.26	26.84
1991 जिला सतना	43.46	17.38	31.03	62.12	40.36	51.97	47.47	21.80	35.17
2001 जिला सतना	75.21	47.01	61.00	87.21	68.17	77.90	77.10	51.00	64.60
रघुराजनगर	74.40	46.31	60.95	87.56	69.32	79.10	8.22	56.15	68.86
रामपुर बघेलान	78.73	51.92	65.62	82.80	67.58	70.60	79.06	52.36	66.01
नागौद	75.62	50.25	63.45	90.68	70.41	81.04	777.15	52.27	65.23
उचेहरा	72.08	43.87	58.51	88.27	64.46	76.85	73.83	46.09	60.49
अमरपाटन	79.02	51.19	65.40	85.07	65.38	75.80	79.57	52.40	59.26
मैहर	72.95	72.85	58.04	84.96	66.33	76.02	76.42	43.14	60.23

स्त्रोत जिला सांख्यिकी पुस्तिका सतना 2001

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योजनाओं का लाभ :–

अनुसूचित जाति के लोगों में व्याप्त, गरीबी, निर्धनता, अश्पृष्टा, भूखमारी एवं बेरोजगारी की जड़ से खत्म करने के लिए सरकार द्वारा विभिन्न प्रकार की योजनाएँ का क्रियान्वित करके राज्य को अनुसूचित जाति के आर्थिक स्थिति को सुदृढ़ बनाने के लिए प्रयासरत है। वर्तमान में हर जिले में स्वर्ण जयंती ग्राम स्वरोजगार योजना संचालित है। जिसके अन्तर्गत जिला सतना के स्वरोजगार के लाभान्वित हितग्राहियों की आर्थिक स्थिति निम्न प्रकार है। वर्ष 2003–2004 में लाभान्वित हितग्राहियों की कुल संख्या 962 है जिसमें हितग्राहिया को 115.56 लाख रूपये ऋण प्रदान किया गया है। लाभान्वित हितग्राहियों को 82.14 लाख रूपये अनुदान राशि से प्रोत्साहित किया गया है। वर्ष 2004–2005 में लाभान्वित हितग्राहियों की कुल जनसंख्या 1378 है। जिसमें हितग्राहियों को 366.71 लाख रूपये ऋण उपलब्ध कराया गया है और लाभान्वित हितग्राहियों को 128.28 लाख रूपये की अनुदान राशि से प्रोत्साहित किया गया है। वर्ष 2005–2006 के लाभान्वित हितग्राहियों की कुल जनसंख्या 11069 है। जिसके हितग्राहियों को 364.08 लाख रूपये ऋण प्रदान किया गया है। लाभान्वित हितग्राहियों को 18.07.69 लाख रूपये अनुदान राशि से प्रोत्साहित किया गया है। वर्ष 2006–07 में लाभान्वित हितग्राहियों की कुलसंख्या 63240 है। जिसमें हितग्राहियों को 364.08 लाख रूपये ऋण प्रदान किया गया है और लाभान्वित हितग्राहियों को 366.71 लाख रूपये अनुदान राशि के रूप में प्रोत्साहित किया गया है। वर्ष 2007–08 में हितग्राहियों की कुल जनसंख्या 57304 है। जिसमें हितग्राहियों को बैंकों से 364.08 लाभ रूपये ऋण प्रदान किया गया है और लाभान्वित हितग्राहियों को 209.65 लाख रूपये अनुदान राशि से लाभान्वित किया गया है।

इन्दिरा आवास योजना के अन्तर्गत वर्ष 2006–07 में 641 आवास उपलब्ध कराये गये जिसमें महिला हितग्राहियों को 211 और अनुसूचित जाति के हितग्राहियों को 227 उपलब्ध कराये गये हैं और उन्हें 160.25 लाख रूपये अनुदान राशि से लाभान्वित किया गया है। वर्ष 2007–08 में 791 आवास उपलब्ध कराये गये हैं जिसमें महाविद्यालय को 317 और अनुसूचित जाति को 244 मकान उपलब्ध की गए हैं उन्हें 160.25 लाख रूपये अनुदान राशि से प्रोत्साहित किया जा चुका है।

रोजगार की आर्थिक स्थिति :–

सतना जिले के अनुसूचित जाति के लोगों की आर्थिक स्थिति अच्छी नहीं है। उद्योग क्षेत्र में कुल कार्यरत श्रमिकों की कुलसंख्या 607 है। शासकीय क्षेत्र में कार्यरत श्रमिकों को कुछ संख्या 4798 है और नगरीय क्षेत्र में कार्यभारित श्रमिकों की कुछ संख्या 1585 है। खदानों एवं चूना पत्थर में कार्यरत श्रमिकों की कुछ संख्या 646 हैं। जिनमें 616 पुरूष एवं 36 स्त्रियाँ सम्मिलित है। बाक्साइट नियोजन म कार्यरत श्रमिकों की कुछ संख्या 209 है और वाणिज्यिक क्षेत्र में कार्यरत श्रमिकों की कुछ संख्या 223 है अनुसूचित जाति के अधिकांश लोग ग्रामीण क्षेत्रों में निवास करते हैं। वे शारीरिक श्रमिक का कार्य करते हैं। क्योंकि ग्रामीण क्षेत्रों में निवास करते हैं। वे शारीरिक श्रमिक का कार्य करते हैं। क्योंकि ग्रामीण क्षेत्रों मे रोजगार के अवसरों की कमी है। जिन्हें प्रतिदिन रोजगार उपलब्ध नहीं हो पाता है। जिसमें उनकी आर्थिक स्थिति दैयनीय है। इन्हीं कारणों से अनुसूचित जाति के वर्गों के लोगों की आर्थिक स्थिति दैयनीय है।

आर्थिक विकास के लिए सुझाव :–

शोध क्षेत्र में अध्ययन के दौरान शोधार्थी ने यह महसूस किया है कि यदि आर्थिक विकास में तीव्रगति लाना है। तो देश से निर्धनता गरीबी, भूखमरी, बेरोजगारी जैसी कुरीतियों को दूर करके आर्थिक विकास के लिए विभिन्न प्रकार की योजनाओं को संचालित करना चाहिए, और नई–नई योजनाआ को लागू करना चाहिए। अनुसूचित जाति के वर्गो कि आर्थिक विकास के लिए निम्नलिखित सुझाव एवं उपाय हैं।

1. शिक्षा :–

वर्तमान की शिक्षा प्रणाली शिक्षित बेरोजगारों की संख्या में वृद्धि की है शिक्षा प्रणाली में सैद्धांतिक के स्थान पर व्यावसायिक पाठ्यक्रमों को अपनाया जाना चाहिए जिससे छात्र शिक्षा प्राप्त करके व्यवसाय स्थापित कर सके।

2. जनसंख्या नियंत्रण :–

आर्थिक विकास में बढ़ती हुई जनसंख्या का प्रतिकूल प्रभाव पड़ता है। जनसंख्या नियंत्रण के उपाय जैसे, परिवार नियोजन एवं अन्य तरीकों को अपनाया जाना चाहिए। जनसंख्या वृद्धि को गरीबी, बेरोजगारी का मुख्य कारण है।

3. विनियोग दर में वृद्धि :–

रोजगार की सुविधाओं में वृद्धि करने के लिए घरेलू बचतों को प्रोत्साहन दिया जाना चाहिए जिससे की पूँजी निर्माण की दर में वृद्धि होगी और लोगों की निवियोग दर में वृद्धि होगी जिससे रोजगार के अवसर में वृद्धि होगी।

4. कुटीर एवं लघु उद्योगों को प्रोत्साहन :–

कुटीर उद्योगों को सरकार द्वारा वित्तीय सहायता उपलब्ध कराके उनकी आर्थिक विकास की तीव्रगति देना चाहिए, जिससे वह अपने कुटीर एवं लघु उद्योगों को संचालित रख सकें और रोजगार के अवसरों मे वृद्धि की जा सके।

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5. निर्धनता उन्मूलन :–

वर्तमान में भी देश में निर्धनता एवं गरीबी की जंजीर में लोग जकड़े हुए है। उनके विकास के लिए योजनाओं को संचालित करके जड़ से गरीबी एवं निर्धनता को खत्म कर देना चाहिए।

निष्कर्ष :–

सतना जिले में अनुसूचित जाति के वर्गों की आर्थिक विकास की स्थिति दयनीय है, क्योंकि अधिकांश जनसंख्या ग्रामीण क्षेत्र में कार्यरत है। जहाँ रोजगार के अवसरों की अभाव है। चूना पत्थर में कार्यरत श्रमिकों की कुछ संख्या 585 है। इस तरह बाक्साइड की खदानों में कुल 110 श्रमिक कार्यरत है और अन्य क्षेत्र में भी श्रमिक कार्य कर रहें हैं। वे रोजगार करते दिखाई देते हैं। किन्तु उनकी आर्थिक स्थिति पहले ही जैसे ही बनी है।

सरकार के द्वारा अनुसूचित जाति के उत्थान के लिए स्वर्ण जयंती ग्राम स्वरोजगार योजना, इन्दिरा आवास योजना एवं मजदूर सुरक्षा योजना आदि अनेक प्रकार की योजनाओं को संचालित कर रही है। किन्तु अनुसूचित जाति के लोगों को उनका पूरा–पूरा लाभ नहीं मिल पाया है। उनकी आथ्रिक स्थिति दयनीय बनी हुई है।

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समाप्त

ARTICLE

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भारत में आपदा प्रबंधन

डॉ. ऋतुराज गौतम
अतिथि विद्वान, वाणिज्य, शहडोल

सारांश

भारत में प्राकृतिक आपदाओं के साथ–साथ मानव जनित आपदायें भी हमारे देश में कम नहीं है। सूखा, भूकंप, महामारी, बाढ़, कीट–संक्रमण, तूफान, चक्रवात, ज्वालामुखी, आतंकवाद, नक्शलवाद, सड़क दुर्घटना, रेल दुर्घटना, रासायनिक व परमाणु प्रकोप, भगदड़, सुनामी, भू–स्खलन आदि आपदाओं से भौतिक क्षति एवं मानवीय क्षति से अनेकों घर बिखर जाते हैं व बेसहारा होकर उन्हें दर–दर की ठोकरें खानी पड़ती है। अतः हमारे देश में आपदा से संबंधित प्रशिक्षण, पूर्वानुमान, पुर्नवास व पुर्ननिर्माण आदि की और अधिक आवश्यकता है जिससे कि आपदा का प्रबंधन उचित रूप से किया जा सके।

प्रस्तावना

''आपदा'' शब्द को सुनते ही हम चौंक जाते हैं जबकि हम सभी अनिश्चितता या आकस्मिकता रूपी भयावह राक्षस के चंगुल में कब, कहॉ, कैसे व किस स्थान पर फंस जाए इसका कोई ठिकाना नहीं होता है। अधिकतर आपदाओं से केवल भौतिक क्षति होती है, जिसमें भवन, मशीन उद्योग–धन्धे, कृषि व अर्थव्यवस्था का भारी नुकसान होता है। जिसे मनुष्य द्वारा कुछ ही वर्षों में पूर्ण किया जा सकता है, लेकिन कई बार ऐसी आपदायें आती हैं जिसमें भौतिक क्षति के साथ–साथ जान माल की भी क्षति हो जाती है, (यादव–2011)। जिसकी पूर्ति करना संभव नहीं है। आपदाओं में पहले मुख्यतः प्राकृतिक समस्याओं से क्षति होती थी किन्तु विकास की वृद्धि से मनुष्य के सामने अनेको समस्यायें पैदा हो गई हैं जो अब आपदा का रूप ले चुकी हैं जिनमें सबसे गंभीर आतंकवाद व नक्सलवाद हैं जिसमें मनुष्य स्वयं ही मनुष्य की जान का दुश्मन बन गया है, (खर–2011)। इसीलिए यह कहा जाता है कि लोहा ही लोहे को काटता है। औद्योगिकीकरण व नगरीयकरण के कारण रासायनिक, परमाणु प्रदूषण व रेल एवं सड़क दुर्घटनाएं भी आपदा का रूप ले चुके हैं, इन आपदाओं को यद्यपि रोकने से अधिक सकारात्मक परिणाम/सफलता जन–जागरूकता व आपसी भाईचारे से पूर्णतः अंत करना कठिन है तथापि बहुत अंशों तक सफलता प्राप्त की जा सकती है तथा इनमें बचाव हेतु प्रबंधन करके भी आपदाओं को कम किया जा सकता है।

द टाइम्स आफ इंडिया का कहना है कि पूरे विश्व की 10 सड़क दुर्घटना में मृत्यु पर प्रत्येक 6वीं रोड दुर्घटना भारत की होती है। विश्व स्वस्थ्य संगठन (WHO) सरकार को बताते हैं कि सड़क दुर्घटना का शिकार लोग प्रति घंटे होत हैं जिन्हें 50% तक कम किया जा सकता है, 2010 में यह आकड़ा 1.32 लाख था जो 2011 में बढ़कर 1.4 लाख हो गया, (द टाईम्स आफ इंडिया, 09 अक्टूबर 2012, पेज–1)। अहमदाबाद शहर में स्कूल वैन में आग से झुलस कर 2 बच्चों की मौत हो गयी, (दैनिक भारती शहडोल, 10 अक्टूबर 2012, पेज–1)। पाताल कोट एक्सप्रेस ट्रेन और पानी टैंकर की दुर्घटना में 3 लोग मौत के मुह में समा गये, (नवभारत जबलपुर, 10 अक्टूबर 2012, पेज–1)। मोरी गांव जिले के दो अलग–अलग स्थानों पर नौका दुर्घटना में 6 विद्यार्थियों की मौत हो गयी, (नवभारत जबलपर, 10 अक्टूबर 2012, पेज–1)। सूडान की सेना का एक विमान हादसे का शिकार हुआ जिसमें 20 जवान सवार थे, 1 अगस्त 2012 में 32 लोगों की मौत, दिसम्बर 2011 में विमान उत्तरी राज्य कोर दोफान में दुर्घटनाग्रस्त हो गया जिससे 6 लोगों की मृत्यु हो गयो, (दैनिक भास्कर जबलपुर, 08 अक्टूबर 2012, पेज–16)। उत्तर प्रदेश में एटा जिले के नयागॉव क्षेत्र में मिट्टी के धकसने से 3 लड़कियों की मौत हो गयी, (दैनिक भास्कर जबलपुर, 08 अक्टूबर 2012, पेज–16) हिमाचल प्रदेश के जनजातीय इलाकों में सोमवार को करीब 11.16 बजे किन्नौर में 4.7 रिक्टर भूकम्प का था जिसका केन्द्र बिन्दु किन्नौर व तिब्बत पठार की सीमा थी, (दैनिक भास्कर जबलपुर, 11 अक्टूबर 2012, पेज–13)। भोपाल में यूनियन कार्बाइड का जहरीला कचरा 350 टन नहीं हटा जिससे पर्यावरण प्रदूषित हो रहा है,

(दैनिक भास्कर जबलपुर, 12 सितम्बर 2012, पेज–10) इस तरह से आपदाएं या तो प्राकृतिक होती हैं या फिर मानवीय होती हैं। जिसका हम पूर्वनुमान लगाकर होने वाली भौतिक व मानवीय क्षति को कम कर सकते हैं जिसे हम आपदा प्रबंधन कहते हैं ।

शोध का उद्देश्य :– इस शोध पत्र का मुख्य उद्देश्य यह है कि भारत में प्रति वष कोई न कोई आपदा या हादसा के शिकार से कितने लोग बेघर व बेसहारा हो जाते हैं उनके लिए सरकार व समाज द्वारा प्रबंधन के लिए किये गये उपायों का अध्ययन करना है।

शोध समस्या :– इस विषय का चुनाव करने का कारण शोधार्थी द्वारा सड़क दुर्घटनाओं को देखना, रेल दुर्घटना में घुनघुटी स्टेशन के पास रेल्वे क्रासिंग में ट्रेन व बस की दुर्घटना में करीबन 45 लोगों की मृत्यु देखकर रोगटे खड़े हो गये थे। इसी तरह बाढ़, सूखा, नक्शलवाद, आतंकवाद, भूकंप, ज्वालामुखी आदि से संबंधित घटनाओं की खबरों का समाचार पत्र रेडियो व टी.वी. में प्रमुख रहती है।

चर :– शोध कार्य में

स्वतंत्र चर :– राष्ट्रमें होने वाले आपदाओं में भूकंप, ज्वालामुखी, बाढ़, सूखा, भू–स्खलन चक्रवात, आतंकवाद, आर्थिक घोटाले, भगदड़, महामारी आदि ।

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परतंत्र चर :– अत्यधिक जोखिम व आपदाओं के क्षेत्रों को चिन्हित करना आपदा प्रबन्धन अधिनियम, 2005 की व्यवस्थाओं का आकलन करना, राहत व बचावतंत्र को मजबूत बनाना, लोगों को आपदा से बचने व बचाने हेतु प्रशिक्षित करना आदि।

परिकल्पना :–

1– देश के लोगों को आपदा से बचने हेतु प्रशिक्षण दिया जाता है ।
2– **राष्ट्र**में केवल प्राकृतिक आपदायें ही हैं ।
3– **राष्ट्र**में होने वाली आपदाओं हेतु पूर्वानुमान की उचित तकनीक है ।

सांख्यकीय विधि :– इस शोध पत्र में अधिकांशतः द्वितीयक समंकों को संकलित किया गया है तथा आवश्यकतानुसार विश्लेषण कर परिणामों को प्राप्त किया गया है।

सांख्यकीय विश्लेषण :– आपदाओं का सांख्यकीय विश्लेषण करने के पूर्व यह निर्धारित करना आवश्यक है कि आपदाएं कितनी प्रकार की हो सकती हैं जिससे कि यह स्थिति स्पश्ट हो सके कि कौन सी आपदायें प्राकृतिक है या नहीं के आधार पर आपदाओं का वर्गीकरण निम्नानुसार है –

आपदाओं का वर्गीकरण

A प्राकृतिक		B मानवजनित	C अन्य	
गंभीर आपदायें	सामान्य आपदयें		मुख्य	सामान्य
भूकंप	भू–स्खलन	साम्प्रदायिक दंगे	महामारी	भगदड़
बाढ़	हिमानी पहाड़	वर्ण एवं रंग भेद	औद्योगिक दुर्घटना	यातायात दुर्घटना
समुद्री तूफान	गर्म हवाएं	आतंकवाद		तकनीकी खराबी
चक्रवात	शीत लहर	आगजनी	टिड्डी दल	विषाक्त भोजन
अकाल	ऑधी तूफान	शरणार्थी समस्यायें	जैविक प्रकोप	शराब सेवन
ज्वालामुखी	बादल बिजली	आर्थिक घोटाले	रसायनिक व परमाणु	अन्य लापरवाही
सुनामी	पवन चक्रवात	वायु, रेल व सड़क	प्रकोप	
नरगिस	मरूथलीकरण	दुघटनाएं		

(मिश्रा–2010)

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तालिका क्र0–1

वर्ष 2005–06 के दौरान क्षति प्रथम 10 राज्य

मानव जीवन			पशुधन		मकान		फसल क्षेत्र	
क्र.	शीष 10 राज्य	संख्या	शीष 10 राज्य	संख्या	शीष 10 राज्य	संख्या	शीष 10 राज्य	लाख हेक्टेयर
1	हिमाचल प्रदेश	379	असम	11,659	गुजरात	2,21,664	ओडिशा	12.36
2	उत्तराखण्ड	488	हिमाचल	13,551	राजस्थान	2,69,252	गुजरात	12.85
3	महा**राष्ट्र**	749	गुजरात	19,365	ओडिशा	4,75,618	राजस्थान	17.36
4	केरल	763	बिहार	20,474	असम	4,93,228	बिहार	21.36
5	आंध्र प्रदेश	770	कर्नाटक	23,020	उत्तर प्रदेश	5,17,198	महा**राष्ट्र**	21.52
6	प.बंगाल	921	अरूणाचल	28,409	महा**राष्ट्र**	7,23,325	उत्तर प्रदेश	22.87
7	कर्नाटक	990	महा**राष्ट्र**	46,586	आंध्र प्रदेश	8,57,027	तमिलनाडु	23.34
8	गुजरात	1,199	प.बंगाल	47,526	बिहार	10,89,679	आंध्र प्रदेश	29.21
9	बिहार	1,684	राजस्थान	50,894	कर्नाटक	11,34,080	प.बंगाल	31.38
10	उत्तर प्रदेश	2,340	आंध्र प्रदेश	4,81960	प.बंगाल	20,96,665	कर्नाटक	32.46
	अन्य	2,340	अन्य	42,668	अन्य	9,21314	अन्य	34.43
	योग	**13,043**	**योग**	**7,86,112**	**योग**	**87,99,047**	**योग**	**259.15**

(योजना–2012)

उपरोक्त सारणी क्र0–1 से स्पश्ट होता है कि उत्तर प्रदेश में सबसे अधिक मानव जीवन की क्षति हुई, आंध्रप्रदेश में पशुधन प.बंगाल में मकान तथा कर्नाटक में फसल क्षेत्र की सर्वाधिक हानि हुई है। हमारे देश के कई राज्य आपदाओं से प्रभावित हुये हैं जिससे यह निश्कष निकलता है कि **राष्ट्र**में लोगों को आपदा से बचने हेतु प्रशिक्षण नहीं दिया जाता है ।

तालिका क्र0–2

भारत में संसूचित आपदाओं का विवरण (1980 से 2010 तक के दौरान)

क्र0	आपदा का नाम	संख्या
1	सूखा	7
2	भूकंप	16
3	महामारी	56
4	अत्यधिक गर्मी	38
5	बाढ़	184
6	कीट संक्रमण	1
7	बड़े पैमाने पर सूख	34
8	तूफान	92
9	ज्वालमुखी	2

(योजना–2012)

तालिका क्र0–3

भारत में नक्सली हिंसा में मारे गये लोगों की संख्या

क्र0	वष	संख्या
1	2005	1952
2	2006	1999
3	2007	1737
4	2008	1769
5	2009	2372

(प्रतियोगिता दर्पण–2010)

उपरोक्त सरणी क्र0–2 व 3 से स्पश्ट है कि भारत में अधिकांश आपदाएँ प्राकृतिक होती हैं कुछ आपदायें मानव जनित भी होती हैं तथा कुछ अन्य आपदायें भी घटित होती रहती हैं। जिससे यह परिणाम निकलता है कि हमारा देश कई प्रकार की आपदाओं से ग्रसित है ।

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तालिका क्र0–4

भारत में प्रमुख आपदाएं, वषं और स्थान

क्र0	आपदा का नाम	वषं	स्थान
1	सूखा	1972	देश का अधिकांश भाग
2	समुद्री तूफान	1977	आंध्र प्रदेश
3	सूखा	1987	15 राज्य
4	लातूर भूकंप	1993	लातूर, महाराष्ट्रका मराठवाड़ा क्षेत्र
5	ओडिशा में समुद्री तूफान	1999	ओडिशा
6	गुजरात भूकंप	2001	रापर, भुज, भचाउ, अंजर, अहमदाबाद और सूरत
7	सुनामी	2004	तमिलनाडु, केरल, आंध्र प्रदेश, पुडुचेरी और अंडमान एवं निकोबार द्वीप समूह के तटवर्ती इलाके
8	महाराष्ट्रमें बाढ़	2005	महाराष्ट्र
9	कश्मीर भूकंप	2005	अधिकांश पाकिस्तान, अंशतः कश्मीर
10	कोसी में बाढ़	2008	उत्तर बिहार
11	समुद्री तूफान निशा	2008	तमिलनाडु
12	सूखा	2009	252 जिले (10 राज्य)
13	लेह में बादल फटे	2010	जम्मू–कश्मीर में लेह, लद्दाख
14	सिक्किम भूकंप	2011	भारत के पूर्वोत्तर इलाके, मुख्य केन्द्र नेपाल और सिक्किम सीमा के पास
15	समुद्री तूफान	2011	तमिलनाडु पुडुचेरी

(योजना–2012)

उपरोक्त सारणी क्र0–4 के अध्ययन से स्पश्ट होता है कि भारत लगातार आपदाओं के चक्रव्यूह से ग्रसित है जिससे यह परिणाम निकलता है कि हमारे देश में होने वाली आपदाओं हेतु पूर्वानुमान की व्यवस्था उचित नहीं है ।

परिकल्पनाओं का सत्यापन :–

1– देश के लोगों को आपदा से बचने हेतु प्रशिक्षण दिया जाता है। यह परिकल्पना असत्य है। सारणी क्रमांक–1 से ।

2– राष्ट्रमें केवल प्राकृतिक आपदायें ही हैं। यह परिकल्पना असत्य है। सारणी क्रमांक–2 एवं 3 से ।

3– **राष्ट्र**में होने वाली आपदाओं हेतु पूर्वानुमान की उचित तकनीक है। यह परिकल्पना असत्य है। सारणी क्रमांक–4 से ।

सुझाव :–

आपदा प्रबंधन हेतु निम्नलिखित उपाय किये जा सकते हैं –

1– आपदा से पूर्व तैयारी के लिए पूर्वानुमान की वैज्ञानिक रीतियों को और अधिक विकसित किया जाना चाहिए ।

2– अत्यधिक जोखिम व आपदाओं के क्षेत्रों को चिन्हित करके आपदा के अनुसार आवश्यक प्रबंध किया जाना चाहिए जैसे–बाढ़ क्षेत्र में नदी पर बांध और अधिक बनाये जाने चाहिए, भूकंप क्षेत्र में भूकंपरोधी मकान का निर्माण किया जाना चाहिए आदि ।

3– मानवजनित आपदाओं को कम करने हेतु आपसी भाईचारा बढ़ाना चाहिए ।

4– आपदा प्रभावित क्षेत्र में तुरंत बचाव व राहत की व्यवस्था हेतु पूर्व तैयारी करना व अलग विभाग की स्थापना करनी चाहिए ।

5– देश के लोगों को आपदा से बचाव हेतु समय–समय प्रशिक्षण दिया जाना चाहिए।

6– पुर्नवास व पुर्ननिर्माण की पर्याप्त व्यवस्था केन्द्र, राज्य व स्थानीय स्तर पर की जानी चाहिए ।

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3– मिश्रा, डॉ. सुरेन्द्र कुमार, आतंकवाद व आपदा प्रबंधन राधा पब्लिकेशन्स 2010, पेज–23

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समाप्त

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ARTICLE

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सूर्योपासना के साहित्यिक स्वरूप का ऐतिहासिक संदर्भ

डॉ. (श्रीमती) शाहेदा सिद्दीकी
सहायक प्राध्यापक, समाजशास्त्र, शासकीय ठाकुर रणमत सिंह उत्कृष्ठ महाविद्यालय, रीवा

सारांश

जन्म से मृत्यु तक मानवीय जीवन शारीरिक विकास की एक प्रक्रिया है। ये चरण हैं – शैशव अवस्था, बाल्यावस्था, किशोरावस्था, युवावस्था, प्रौढ़ावस्था तथा वृद्धावस्था। वृद्धावस्था जीवन प्रक्रिया का अंतिम चरण है। यह शारीरिक एवं सामाजिक दृष्टि से ह्रास का दौर है, जिसमें व्यक्ति न केवल सामाजिक व आर्थिक दृष्टि से कमजोर हो जाता है, अपितु सामाजिक, आर्थिक दृष्टि से शक्तिहीन व संदर्भहीन भी होता जाता है। इन सबका परिणाम यह होता है कि उसके सामने अनेक प्रकार की समस्याएं विकसित हो जाती हैं। भारत में 60 वर्ष से अधिक उम्र वालों की आबादी विश्व में चौथे स्थान पर है। आज विश्व के प्रत्येक 10 वृद्ध नागरिकों में से एक भारत में है। 1991 में वृद्धों की आबादी 5,67,00,000/– थी, लेकिन 2001 तक 7,60,00,000/– से भी अधिक हो गयी है तथा 2021 तक 13,70,00,000/– तक वृद्धों की आबादी हो जाने की संभावना है। प्रस्तुत शोधपत्र में वृद्ध भिक्षुकों की विभिन्न समस्याओं को जानने का प्रयास किया गया है। यह अध्ययन रीवा नगर के वद्ध भिक्षुकों पर आधारित एक समाजशास्त्रीय विश्लेषण है।

मुख्य शब्द – वृद्ध भिक्षुक, भिक्षावृत्ति, उपेक्षा, अपेक्षा आदि।

भारत में 60 वर्ष के अधिक उम्र वालों की आबादी विश्व में चौथे स्थान पर है। आज विश्व के प्रत्येक 10 वृद्ध नागरिकों में से एक भारत में है। 1991 में वृद्धों की आबादी 5,67,00,000/– थी, लेकिन 2001 तक 7,60,00,000/– से भी अधिक हो गयी है तथा 2021 तक 13,70,00,000/– तक वृद्धों की आबादी हो जाने की संभावना है। **मातृ देवो भवः** की उद्घोषणा करने वाले भारत का सामाजिक ढाँचा ऐसे वृद्धों की तादाद बढ़ने से आज चरमरा रहा है। जिन्हें उनकी संतानों ने उपेक्षा के गर्त में ढकेल दिया है। भारत में वृद्ध लोगों को अब **वरिष्ठ नागरिक** अथवा **सीनियर सिटिजन** (Senior Citizens) कहा जाने लगा है।

भारत में एक ओर जहां वृद्धों की संख्या तेजी से बढ़ रही है वहीं दूसरी ओर औद्योगीकरण, नगरीकरण, आधुनिकीकरण एवं पश्चिमीकरण से बच्चों में माँ–बाप से जोड़े रखने वाले पुराने संस्कारों की बजाय नई सोच उभरने के कारण वृद्धों की स्थिति दयनीय होती जा रही है। इसलिए आए दिन की बीमारी से अनेक वृद्ध इतना ऊब जाते हैं कि वे जीवित रहना ही नहीं चाहते। इसीलिए अनेक देशों में **'मृत्यु के अधिकार'** की मांग की जाने लगी है। यद्यपि किसी भी देश में इस प्रकार का अधिकार नहीं दिया गया है और न ही इस प्रकार की मांगों को उचित माना गया है, तथापि यह सोचने का विषय है कि वृद्धजन इस प्रकार का अधिकार क्यों माग रहे हैं।

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पारिवारिक उपेक्षा एवं प्रताड़ना उनकी सबसे बड़ी त्रासदी है। आज बड़े–बुजर्गों के साथ लोग घर में रहना नहीं चाहते, क्योंकि लोग चाहते हैं कि हमारे बुजुर्ग ठीक उसी तरह व्यवहार करें जैसा कि उनसे हमारी अपेक्षा है। उनमें स्वाभाविक मानवीय इच्छाएं नहीं होनी चाहिए।

अध्ययन की समस्या –

आज के भौतिक युग में लगभग 60 प्रतिशत परिवारों म वृद्धों के साथ भेदभाव किया जाता है। परिवार में बुजुर्गों को उपेक्षित माना जाता है, उन्हें तिरस्कृत एवं हिकारत की नज़रों से देखा जाता है। वृद्धजनों की सबसे दयनीय, विकराल एवं सोचनीय अवस्था तब होती है, जब ये आर्थिक रूप से दूसरों पर आश्रित हो जाते हैं। वृद्ध व्यक्ति को विपन्नता की स्थिति में उसे परिवार पर बोझ मान लिया जाता है या उन्हें बेकार, फालतू, निरर्थक मान लिया जाता है। गरीब परिवारों में जो कि आर्थिक रूप से पिछड़े हुए हैं, माता–पिता को अपन हाल पर छोड़ दिया जाता है जिससे वे भिक्षावृत्ति करने पर मजबूर हो जाते हैं।

रीवा नगर व्यापार का प्रमुख केन्द्र है। नगर का संजय गांधी अस्पताल विन्ध्य प्रदेश का सबसे बड़ा अस्पताल है। कोठी कम्पाउण्ड स्थित शिव मंदिर धार्मिक आस्था का प्रमुख केन्द्र है, जहां पर आस–पास के ग्रामीण क्षेत्रों के साथ–साथ स्थानीय समस्याग्रस्त एवं परित्यक्त वृद्ध अपना बसेरा बना लेते हैं। धार्मिक स्थल होने तथा नगर के मध्य में स्थित होने के कारण भिक्षा प्राप्त होने के अवसर बढ़ जाते हैं, साथ ही रोगग्रस्त वृद्धों के लिए अस्पताल भी आकर्षण का केन्द्र है। फलस्वरूप वृद्ध भिक्षुकों की संख्या निरन्तर बढ़ रही है।

अतः प्रस्तत शोध का विषय **वृद्ध भिक्षुकों की समस्याएं : रीवा नगर के संदर्भ में** सैद्धांतिक एवं व्यवहारिक दृष्टिकोण से महत्वपूर्ण है।

अध्ययन से संबंधित शोध कार्य – इस विषय के संबंध में निम्न शोधकर्त्ताओं ने अपना उल्लेखनीय योगदान दिया है –

वंदनारानी द्वारा 1988 मे **वृद्धजन समस्याएं तथा प्रत्याशाएं : समाजशास्त्रीय परिप्रेक्ष्य** में जनपद बिजनौर का अध्ययन विभिन्न प्रकार के मानसिक रोगों से पीड़ित वृद्धजनों की स्थिति से संबंधित है। उन्होंने अपने अध्ययन में पाया कि मात्र 22.29 प्रतिशत वृद्धों की सामाजिक–सांस्कृतिक संगठनों में सहभागिता है।

सुमनरानी सिन्हा ने 2007 में **वृद्धजनों का समाजशास्त्रीय अध्ययन** इलाहाबाद के सेवानिवृत्त वृद्धजनों की समस्याओं पर अपना शोध कार्य किया था। उनके अनुसार 18.34 प्रतिशत वृद्ध नींद कम आने के शिकार हैं तथा 16.66 प्रतिशत वृद्धजनों की स्मरण शक्ति कमजोर हो गई ह।

डॉ. अंजु शुक्ला का शोध कार्य **वृद्धाओं की समस्याएं एक समाजशास्त्रीय अध्ययन** बिलासपुर नगर के विशेष संदर्भ में है। जिसमें उन्होंने पाया कि परिवार के सदस्यों द्वारा सम्मान में कमी तथा उपेक्षापूर्ण रवैया आदि उनकी प्रमुख समस्याएं थीं।

अध्ययन के उद्देश्य –

प्रस्तुत शोधपत्र निम्न उद्देश्यों की प्राप्ति हेतु सम्पादित किया गया है –

1. अध्ययन में सम्मिलित सूचनादाताओं के जीवन की स्थितियों तथा समस्याओं के बारे में पता लगाना।
2. वृद्धजनों द्वारा भिक्षावृत्ति अपनाने के कारणों का अध्ययन करना।
3. उत्तरदाताओं की स्वास्थ्य संबंधी व मानसिक स्थिति का अध्ययन करना।
4. इन समस्याओं, दुर्बलताओं एवं बाधाओं के निराकरण हेतु व्यवहारिक सुझाव प्रस्तुत करना।

अध्ययन क्षेत्र –

यूँ तो सम्पूर्ण भारत और मध्यप्रदेश के विभिन्न नगरों में वृद्ध भिक्षुकों की समस्या है, परन्तु अध्ययन क्षेत्र के रूप में म.प्र. के रीवा नगर को ही प्रमुख रूप से चुना गया है। रीवा नगर उत्तर–पूर्वी मध्य प्रदेश का सर्वप्रमुख शैक्षणिक एवं प्रशासकीय नगर है। रीवा नगर, संभाग रीवा एवं तहसील का मुख्यालय है जिसकी सीमाएं जिले के उत्तर में उत्तर प्रदेश के इलाहाबाद तथा बांदा जिला, पूर्व–उत्तर की ओर मिर्जापुर, दक्षिण में मध्यप्रदेश का सीधी, शहडोल जिला, पश्चिम की ओर सतना जिले से जुड़ी है।

उपकल्पना –

रीवा नगर के वृद्ध भिक्षुकों में पारिवारिक सामंजस्य का अभाव, उपेक्षा, तिरस्कार, समुचित देखभाल व संरक्षण तथा पोषण का अभाव, स्वास्थ्य संबंधी समस्याएं और आर्थिक समस्याएं उनके द्वारा घर से पलायन करने एवं उनमें बढ़ती हुई भिक्षावृत्ति के लिए जिम्मेदार है।

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निदर्शन का चुनाव –

अध्ययन क्षेत्र में लगभग 500 भिक्षुक हैं जो कि अध्ययन का समग्र हैं। ये भिक्षुक शहर के मंदिर, मस्जिद, दरगाह, रेलवे स्टेशन, बस स्टैण्ड पर व घूम–फिर कर भिक्षावृत्ति करने वाले भिक्षुक हैं। समय एवं साधनों के अभाव में अध्ययन हेतु 50 ऐसे भिक्षुकों को न्यादर्श के रूप में चुना गया है जो 60 वर्ष व उससे अधिक आयु वर्ग के महिला एवं पुरुष हैं।

तथ्य संकलन की प्रविधियां –

प्रस्तुत शोध पत्र के लिए तथ्यों का संकलन प्राथमिक एवं द्वितीयक स्त्रोतों के माध्यम से प्राप्त किया गया है, जिसमें वस्तुनिष्ठ जानकारी प्राप्त हो सके। प्राथमिक तथ्यों का संकलन साक्षात्कार अनुसूची, अवलोकन के आधार पर किया गया है। इसके लिए अध्ययन क्षेत्र में जाकर विषय से संबंधित परिस्थितियों, कारणों को निष्पक्ष रूप से देखा गया तथा वस्तुनिष्ठता के साथ उनका अवलोकन किया गया। साक्षात्कार अनुसूची के माध्यम से सूचनादाताओं के विचारों, अनुभवों व समस्याओं के बारे में जानकारी प्राप्त की गई।

तथ्यों का विश्लेषण –

प्रस्तुत अध्ययन में तथ्यों के संकलन के पश्चात् प्राप्त तथ्यों को समानता एवं भिन्नता के आधार पर वर्गीकृत, सारणीयन कर कुछ महत्वपूर्ण निष्कर्षों का विश्लेषण किया गया है। वृद्धजनों में महिला एवं पुरुष दोनो ही पाए जाते हैं। सारणी क्रमांक 01 में सूचनादाताओं की लैंगिक स्थिति को प्रदर्शित किया गया है –

सारणी क्रमांक 01

सूचनादाताओं की लैंगिक स्थिति

क्र.	लैंगिक स्थिति	संख्या	प्रतिशत
1	पुरुष	35	70
2	महिला	15	30
	योग	50	100

अध्ययन में पुरुष सूचनादाताओं की संख्या 35 है, जो कि कुल सूचनादाताओं का 70 प्रतिशत है, वहीं महिला उत्तरदाताओं की संख्या 15 है जो कुल सूचनादाताओं का 30 प्रतिशत है। वृद्ध भिक्षुकों में महिलाओं की संख्या का 30 प्रतिशत पाया जाना यह सिद्ध करता

है कि आज भी महिलाएं प्रताड़ना के बावजूद घर से कदम बाहर निकालने में पुरुषों से पीछे हैं। यह उनके समायोजन की सोच का परिचायक है। साथ ही जो वृद्ध महिलाएं घर के कामकाज में अपने आपको थोड़ा बहुत व्यस्त रखती हैं, उनकी तो परिजन देखरेख करते हैं, परन्तु वृद्ध पुरुषों की परिवार में कोई विशेष भूमिका न होने के कारण उनकी उपेक्षा में काफी वृद्धि हुई है।

परिवार ही वह स्थान है जहां मनुष्य अपने अमूल्य जीवन को बिताना चाहता है। किन्तु परिवार का शान्तिपूर्ण या कलहपूर्ण वातावरण ही मनुष्य को परिवार में रहने या पलायन करने के लिए विवश करता है। सारणी क्रमांक 02 में सूचनादाताओं के पारिवारिक वातावरण को बताने का प्रयास किया गया है –

सारणी क्रमांक 02

सूचनादाताओं के पारिवारिक वातावरण का विवरण

क्र.	परिवार के वातावरण की स्थिति	संख्या	प्रतिशत
1	शांतिपूर्ण	10	20
2	कलहपूर्ण	40	80
	योग	50	100

तालिका क्रमांक 02 से पता चलता है कि 10 सूचनादाताओं के परिवार का वातावरण शान्तिपूर्ण है जो कि कुछ न्यादर्शों का 20 प्रतिशत है। यह एक सुखद पक्ष है। गहराई से पूछने पर ज्ञात हुआ कि निम्न आर्थिक स्थिति, निम्नतर स्वास्थ्य सुविधाएं, छोटे घर आदि उन्हें परिवार छोड़कर स्वैच्छिक रूप से भिक्षावृत्ति के लिए बाध्य करते हैं। 40 उत्तरदाताओं के अनुसार घर का वातावरण कलहपूर्ण था, यानि 80 प्रतिशत उत्तरदाताओं ने स्वीकार किया कि परिवार के सदस्यों द्वारा उपेक्षापूर्ण रवैया, खाना न देना, अपशब्दों का प्रयोग करना, स्वास्थ्य पर ध्यान न देना आदि कारणों से घर का वातावरण कलहपूर्ण बना रहता था। इस पारिवारिक अशान्ति से बचने के लिए वे घर त्यागकर अपनी समस्याओं से स्वयं जूझने लगे।

वृद्धावस्था में जहां व्यक्ति की शारीरिक क्षमताएं घटती हैं वहीं बीमारी आदि का खर्च भी बढ़ जाता है, यानि उनके आर्थिक स्तर का वर्तमान स्थिति पर पूरा प्रभाव पड़ता है। उनकी आर्थिक स्थिति को सारणी क्र. 03 में प्रदर्शित किया गया है।

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सारणी क्रमांक 03

सूचनादाताओं की आर्थिक स्थिति

क्र.	आर्थिक स्थिति	संख्या	प्रतिशत
1	बहुत अच्छी	2	4
2	अच्छी	8	16
3	सामान्य	6	12
4	निम्न	34	68
	योग	50	100

उत्तरदाताओं से उनकी आर्थिक स्थिति के बारे में जानकारी लेने पर पता चला कि 2 अर्थात 4 प्रतिशत सूचनादाताओं की आर्थिक स्थिति बहुत अच्छी थी किन्तु कष्टकारक पारिवारिक वातावरण के कारण वे सब कुछ छोड़कर भिक्षा मांगने लगे। 8 उत्तरदाता यानि 16 प्रतिशत उत्तरदाताओं ने भी अपनी आर्थिक स्थिति को अच्छी बताया जबकि 6 अर्थात 12 प्रतिशत सूचनादाताओं ने सामान्य आर्थिक स्थिति यानि कि दो जून की रोटी का जुगाड़ हो जाता था को स्वीकार किया है जबकि सर्वाधिक 34 उत्तरदाता जो कि कुल का 68 प्रतिशत है ने अपनी निम्न आर्थिक स्थिति के बारे में स्वीकृति बताई है जो उनकी भिक्षावृत्ति के लिए प्रमुख रूप से जिम्मेदार है।

पश्चिमीकरण, आधुनिकीकरण, औद्योगीकरण एवं नगरीकरण जैसी बहुआयामी प्रक्रियाओं ने संयुक्त परिवार परिवार की संरचना को छिन्न–भिन्न कर दिया है। फलस्वरूप परिवार तथा समाज के ढांचे में वृद्धजन अवांछनीय हो गए हैं। भिक्षावृत्ति के माध्यम से आजीविका चलाने के लिए वृद्ध क्यों उद्यत्त हुए हैं, यह उत्तर सारणी क्र. 04 के माध्यम से दर्शाया गया है।

सारणी क्रमांक 04

भिक्षावृत्ति के लिए जिम्मेदार कारणों का विवरण

क्र.	आर्थिक स्थिति	संख्या	प्रतिशत
1	आत्मसम्मान की कमी	5	10
2	अकेलपन का भय	10	20
3	सामाजिक असुरक्षा की भावना	5	10
4	स्वयं की बीमारी	30	60
	योग	50	100

उपरोक्त सारणी से स्पष्ट होता है कि आत्मसम्मान की कमी को 05 अर्थात 10 प्रतिशत उत्तरदाता भिक्षावृत्ति के लिए जिम्मेदार ठहराते हैं। उनके अनुसार परिजनों द्वारा डांटना, धमकाना, गालियाँ देना, निंदा करना, उपहास करना, अपमान करना तथा मानसिक पीड़ा देना आदि असम्मानजनक स्थितियों के कारण वे भिक्षावृत्ति के माध्यम से जीवनयापन करने को उपयुक्त मानने लगे। अकेलेपन का भय 10 उत्तरदाता अर्थात 20 प्रतिशत न्यादर्शों में व्याप्त था। मित्र या परिजनों के अन्यत्र चले जाने, जीवनसाथी की मृत्यु हो जाने अथवा परिजनों के पास बुजुर्गों के लिए समय न होने के कारणों को प्रमुख रूप से उत्तरदाताओं ने स्वीकार किया। 10 प्रतिशत उत्तरदाताओं का मानना था कि वृद्धावस्था के विविध कारण तथा पारिवारिक वातावरण उनमें सामाजिक असुरक्षा की भावना पैदा करते थे। अतः वे ऐसे लोगों के मध्य आ गए जो उन्हीं के समान अकेल, उपेक्षित एवं प्रताड़ित थे। 30 उत्तरदाता अर्थात 60 प्रतिशत न्यादर्श स्वयं की बीमारी के कारण स्वास्थ्य संबंधी सुविधाओं के लिए शहर आकर भिक्षावृत्ति करने लगे हैं। यहां पर अन्य वृद्ध रोगियों के साथ उन्हें मानसिक संतोष प्राप्त होता है।

वृद्धावस्था की एक प्रमुख समस्या स्वास्थ्य संबंधी है। हम यह जानते हैं कि भारत में रहन–सहन, खाने–पीने की स्थिति का स्तर बहुत अच्छा नहीं है। इसके परिणामस्वरूप वृद्धावस्था में अधिकांश वृद्धों का स्वास्थ्य बहुत अच्छा नहीं रहता है। वृद्ध भिक्षुकों के स्वास्थ्य की स्थिति का अध्ययन करने के लिए उनसे प्रश्न पूछा गया कि – ''आपका स्वास्थ्य कैसा है ? प्राप्त उत्तरों को सारणी क्र. 05 में दर्शाया गया है –

सारणी क्रमांक 05

उत्तरदाताओं की स्वास्थ्य की स्थिति का विवरण

क्र.	स्वास्थ्य की स्थिति	संख्या	प्रतिशत
1	स्वस्थ	05	10
2	अस्वस्थ	45	90
	योग	50	100

तालिका क्र. 05 के अनुसार हमारे 10 प्रतिशत उत्तरदाता ही स्वस्थ होने की बात कहते हैं, यद्यपि छोटी–मोटी बीमारी को भी वे स्वीकार करते हैं। 45 उत्तरदाता अर्थात 90 प्रतिशत ने अस्वस्थ होने की बात कही है।

उत्तरदाताओं के अस्वस्थता के कारणों को जानने के लिए जो उत्तरदाता अस्वस्थ थे, उनसे प्रश्न पूछा गया। उनके अनुसार बीमारी के जो कारण सामने आए, उन्हें सारणी क्र. 06 में प्रदर्शित किया गया है –

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सारणी क्रमांक 06

अस्वस्थता के कारणों का विवरण

क्र.	बीमारी का कारण	संख्या	प्रतिशत
1	मानसिक दबाव	9	20
2	अधिक शारीरिक श्रम	9	20
3	उचित तथा भरपेट आहार का अभाव	12	24
4	परिजनों द्वारा उपेक्षा व देखभाल न होना	15	34
	योग	45	100

उपरोक्त सारणी का विश्लेषण करने से स्पष्ट होता है कि 9 उत्तरदाता अर्थात 20 प्रतिशत न्यादर्श ने विविध कारणों से परिवार में सामंजस्य न होने पर मानसिक दबाव को अपनी बीमारी का कारण बताया। 9 सूचनादाता अर्थात 20 प्रतिशत न्यादर्शों ने जीवन संध्या की ढलती शारीरिक क्षमताओं में अधिक परिश्रम को अपनी अस्वस्थता का जिम्मेदार माना। 12 उत्तरदाताओं ने अर्थात 24 प्रतिशत उत्तरदाताओं ने भरपेट भोजन तथा उचित आहार न प्राप्त होने को अपनी अस्वस्थता का कारण बताया। 15 न्यादर्श अर्थात 34 प्रतिशत उत्तरदाताओं ने परिजनों की अपेक्षा अर्थात उनके द्वारा डांटना, धमकाना, गालियां देना, निंदा करना, उपहास करना, अपमान करना आदि के कारण होने वाले बर्ताव से स्वयं के स्वास्थ्य में गिरावट को स्वीकार किया है। ये निष्कर्ष आहत करने वाले हैं। यही कारण है कि वे अपनी अस्वस्थ काया के साथ भिक्षाटन हेतु रीवा नगर में आकर रहने लगे।

उपकल्पना का परीक्षण –

हमारे उत्तरदाताओं में से 40 अर्थात 80 प्रतिशत उत्तरदाताओं द्वारा घर के कलहपूर्ण वातावरण के कारण पारिवारिक सामंजस्य का न होना, 15 अर्थात 30 प्रतिशत उत्तरदाताओं की परिजनों द्वारा समुचित देखभाल न होना तथा 18 प्रतिशत उत्तरदाताओं द्वारा मानसिक दबाव को स्वीकार करना यानि 48 प्रतिशत न्यादर्शों को संरक्षण का अभाव होना, 45 उत्तरदाता अर्थात 90 प्रतिशत न्यादर्शों का स्वास्थ संबंधी समस्याओं को स्वीकार करना तथा 80 प्रतिशत उत्तरदाताओं द्वारा समान्य व निम्न आर्थिक स्थिति में रहने के प्रति सहमति जताना

आदि के द्वारा हमारी यह उपकल्पना परीक्षण के पश्चात् सत्य साबित होती है कि रीवा नगर के वृद्ध भिक्षुकों में पारिवारिक सामंजस्य का अभाव, उपेक्षा, तिरस्कार, समुचित देखभाल व संरक्षण तथा पोषण का अभाव, स्वास्थ्य संबंधी समस्याएं और आर्थिक समस्याएं उनके द्वारा घर से पलायन करने एवं उनमें बढ़ती हुई भिक्षावृत्ति के लिये जिम्मेदार है।

सुझाव –

1. वृद्ध भिक्षुकों के लिए पेंशन सुविधा सरकार की नीतियों में सम्मिलित होना चाहिए।
2. नैतिक शिक्षा के प्रचार–प्रसार की अधिक आवश्यकता है, जिससे परिजनों द्वारा किये जाने वाले तिरस्कार व उपेक्षा में कमी आएगी।
3. मानसिक अकेलापन व अवसाद से ग्रसित वृद्धजनों को समाज एवं परिवार द्वारा प्यार और सहानुभूति से पेश आना चाहिए।
4. शारीरिक रूप से दुर्बल एवं रोगग्रस्त वृद्धों के लिए मुफ्त इलाज अस्पताल, वृद्धाश्रम, सेवासदन, डे केयर सेंटर जैसे संस्थानों द्वारा सहायता दी जानी चाहिए।
5. नगर में वृद्ध भिक्षुकों के प्रमुख ठिकानों यथा – कोठी कम्पाउण्ड स्थित साईं मंदिर और शिव मंदिर एवं शिव मंदिर के आस–पास, चिरहुला मंदिर के पास व अन्य स्थाना पर सरकार द्वारा मुफ्त चिकित्सा सुविधाएं तथा दवाओं को उपलब्ध कराया जाना चाहिए।
6. निगम प्रशासन को चाहिए कि वृद्ध भिक्षुकों को रैन बसेरा में स्थान दिया जाए जिससे वे सर्दी, गर्मी तथा बारिश से स्वयं को बचा सकें।

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समाप्त

ARTICLE

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पाठकवादी आलोचना : भारतीय एवं पाश्चात्य अवधारणा के परिप्रेक्ष्य में

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सारांश

विश्व साहित्य के फलक पर सातवें दशक का उत्तरार्द्ध आलोचना की एक सर्वथा नव्यतम पद्धति के लिए विख्यात है जिसे पाठकवादी आलोचना (Reader Oriented Criticism) कहा जाता है। इस पद्धति में एकरूपता न होने के कारण सैद्धांतिक तौर पर यह दावा नहीं किया जा सकता कि अपनी पूर्ववर्ती समीक्षा पद्धतियों से यह कितना साम्य या वैषम्य रखती है, कितना अनुरोध–विरोध करती है अथवा उनकी उपेक्षा कितनी नई और मौलिक है। इस प्रकार का दावा न करने या करने के पूर्व यह जान लेना आवश्यक है कि अपने प्रस्थान काल से ही आलोचना की प्रकृति और संस्कृति क्या रही है। काव्य–मीमांसाकार राजशेखर ने इस संदर्भ में परस्पर विरोधी दो बातें कही हैं। उन्होंने 'काव्य–मीमांसा' में किसी पुराने आचार्य का मत उद्धृत किया है कि कवि और भावक में भेद नहीं है, क्योंकि दोनों ही कवि हैं। दूसरी तरफ कालिदास ने यह भी कहा है कि कवित्व से भावकत्व पृथक है। अर्थात् कवि अलग है, सहृदय या समीक्षक अलग। 'अंग्रेजी के महानतम अध्येता जानसन ने तो यहाँ तक कह दिया – To judge of poets is only the faculty of poets and not of all poets, but the best. (अर्थात् कवियों की परख कर सकने में कवि ही सक्षम हो सकते हैं और सभी नहीं; वही जो श्रेष्ठतम है।)

प्रस्तावना

भारतीय मत

भारतीय साहित्य में विश्लेषण व समालोचन की दृष्टि से भरतमुनि का नाट्यशास्त्र सबसे प्राचीन माना जाता है। ईसवी सन के काफी पूर्व भरतमुनि ने नाटक में प्रदर्शित विभिन्न क्रियाकलापों के दर्शकों के चित्त पर पड़ने वाले प्रभावों का बड़ा ही तार्किक एवं युक्तिसंगत विवेचन किया है। इसी विवेचन से भारतीय काव्यशास्त्र में रस सिद्धांत की शुरूआत मानी जाती है। रस उत्पत्ति के संबंध में उनके द्वारा प्रतिपादित सूत्र की अनेक आचार्यों ने नाना प्रकार की व्याख्याएँ प्रस्तुत कीं, फिर भी ऐसा प्रतीत होता है कि उससे कुछ और आशय लिये जाने की संभावनाएँ मौजूद हैं। भरत मुनि का रस सूत्र इस प्रकार है :

''विभावानुभावव्यभिचारी संयोगाद्स निष्पत्तिः।''

(अर्थात् विभाव, अनुभाव और संचारी भावों के संयोग से रस की उत्पत्ति होती है।)

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प्रश्न यह उठता है कि तीनो यानी विभाव, अनुभाव और संचारी भाव क्या आपस में ही संयोग करते हैं अथवा तीनों मिलकर किसी अन्य के साथ। अगर किसी अन्य के साथ इनका संयोग होता है कि तो वह अन्य क्या है? इतना तो निश्चित है कि विभाव यानी आलंबन उद्दीपन, अनुभाव अथवा चेष्टाएँ तथा संचारी भाव अर्थात् प्रदर्शित क्षणिक आवेग ये सभी रस के बाह्य घटक ही हैं। इन सबका संबंध नाटक में प्रदर्शित अभिनेता, अभिनेत्री, वातावरण, अभिनेयता आदि से है, फिर जिन दर्शकों पर इनका प्रभाव अंकित होता है, उनकी भूमिका क्या है? क्या उनमें भी रस की कुछ पूर्व संभावनाएँ होती हैं? अगर नहीं होती हैं तो फिर आनन्द किसे मिलता है? भरतमुनि के सूत्र से निःस्तृत इस चिरन्तन सत्य को लेकर भट्टलोलट, शंकुक, भट्टनायक व अभिनव गुप्त जैसे परवर्ती आचार्यों ने मीमांसा न्याय, सांख्य और वेदान्त दर्शन के सहयोग से सिर्फ इतना बताने का प्रयास किया कि 'रस' वास्तव में होता कहाँ है? भट्ट लोलट का आरोपवाद (उत्पत्तिवाद), शंकुक का अनुमितिवाद, भट्टनायक द्वारा प्रवर्तित भुक्तिवाद और अभिनव गुप्त द्वारा प्रचलित अभिव्यक्तिवाद की अनन्त व्याख्याओं से संस्कृत का काव्य शास्त्र भरा पड़ा है। 'रस' की प्रतीति यदि मूलपात्र एवं अभिनेता पर आरोप द्वारा होती है तो औचित्य का प्रश्न उपस्थित होता है। मूल पात्र की अनुपस्थिति में उसकी भावभंगिमाओं का अनुकरण करने वाला अभिनेता स्वयं भी रस का अनुभव करता है अथवा नहीं, इसे निश्चित तौर पर नहीं कहा जा सकता। फिर अनुमान द्वारा रस बोध की प्रक्रिया इसलिए संभव नहीं है क्योंकि मिठाई का अनुमान करके मुँह मीठा नहीं किया जा सकता। वास्तव में 'रस' अनुभव की वस्तु है न कि मानने की।

रस को परिभाषित करते हुए दशरूपककार धनंजय ने कहा है :–

''विभावैरनुभावैश्च सात्विकैर्व्यभिचारिभिः
आनोयमानः स्वाद्यत्वं स्थायी भावो रसः स्मृतः''

(अर्थात् विभाव, अनुभाव और व्यभिचारी भावों के द्वारा (चर्वणा द्वारा) आस्वादन के योग्य प्राप्त कराया गया (रति आदि) स्थायी भाव ही रस कहलाते हैं)

धनंजय द्वारा प्रतिपादित रस–निरूपण भट्टनायक के विचारों के अनुकूल है। भरत रससूत्र के तृतीय व्याख्याकार आचार्य भट्टनायक ने रस–प्रक्रिया की तीन स्थितियाँ मानी हैं – अभिधा, भावकत्व एवं भोजकत्व। इनमें द्वितीय स्थिति यानी भावकत्व के कारण ही साधारणीकरण होता है और दर्शक, श्रोता अथवा पाठक अपनी वैयक्तिक सत्ता को तिरोहित करके आत्मानंद स्वरूप रस का अनुभव करता है। यहाँ ध्यान देने की बात है कि भारतीय आचार्यों ने काव्यकार के समानान्तर ही सहृदय, दर्शक, पाठक, श्रोता अथवा भावक के अस्तित्व को स्वीकार

किया है। जिस प्रकार सर्जक में कारयियत्री प्रतिभा की प्रमुखता होती है, उसी प्रकार सहृदय अथवा भावक में भावयित्री प्रतिभा का उन्मेष होता है। गोया दोनों ही प्रतिभावान होते हैं। इसीलिए संस्कृत के किसी कवि ने कहा है कि हे विधाता, मेरे भाग्य में ऐसा मत लिखना कि मुझे अरसिकों के बीच काव्यपाठ करना पड़े।

''पाठकवादी आलोचना के क्रम में संस्कृत काव्य शास्त्र की 'सहृदय की अवधारणा'' भी विचार योग्य है। लगभग सभी चिन्तकों ने इसका उल्लेख किया है। शाब्दिक रूप से इससे ऐसा पाठक अभिप्रेत है जिसे उर्दू में 'साहिबे ज़ौक या ''सुखनफहम'' से अभिहित करते हैं, लेकिन उर्दू के पारिभाषिक शब्दों में 'समझ' के तत्व की अधिक भूमिका है, जबकि संस्कृत काव्यशास्त्र में सौंदर्यपरक अनुभूति हावी है। सहृदय को प्रतिभा से सम्पन्न भी कहा गया है। प्रतिभा के बिना न कोई काव्य रच सकता है और न ही पाठक उससे रस ग्रहण कर सकता है। नई पाश्चात्य थ्यौरी में ''इंप्लायड रीडर'' और ''इंफॉर्म्ड रीडर'' की बहसें सहृदय की अवधारणा से अधिक दूर नहीं है।) बहरहाल संस्कृत में भी इसकी परिभाषा प्रभाववादी या व्यक्तिपरक है।

भारतीय काव्य–चिन्तन में प्रभाववादी अथवा व्यक्तिपरक आलोचना का स्वरूप पश्चिम से कुछ भिन्न है। भाववादी सृजन और प्रभाववादी आलोचना में प्रथमतः व्यक्तिपरकता रहती ही है। भारतीय व्यक्तिपरकता एवं पाश्चात्य इंडिविजुअलिज्म में भी साहित्य के सापेक्ष बहुत सूक्ष्म अंतर है। रस–सिद्धांत और ध्वनि सिद्धांत यह मानते हैं कि व्यक्ति के माध्यम से ही निर्वैयक्तिकता को हासिल किया जा सकता है। काव्य में प्रामाणिक अनुभूति ही पाठक की सहृदयता का आधार होती है। यह प्रामाणिक अनुभूति क्या है? काव्य के परिप्रेक्ष्य में पहले इसे समझने का प्रयास करें। भावदशा, रसदशा और अनुभव की दशा में एक क्रमिक सम्बन्ध है। भावदशा कवि के संस्कारों से, रस दशा सम्बन्धों से और अनुभव की दशा काव्यानन्द के साक्षात्कार से सम्बद्ध है। भाव बोध अर्जन, रस बोध सृजन और अनुभूति अभिव्यक्ति।

कदाचित भट्टनायक का भावकत्व और भोजकत्व व्यापार रस–सम्बन्धों और अभिव्यक्ति के परिणामों की ही पुष्टि करता है। कोई भी सृजन विशुद्ध आत्मगत नहीं हो सकता अथवा कोई भी रचना सिर्फ रचनाकार के ही सापेक्ष हो, यह असंभव है। अज्ञेय जी का यह कथन कि मैं स्वान्तः सुखाय नहीं लिखता, केवल इसी बात की तरफ संकेत करता है कि रचना का मुख्य लक्ष्य पाठक ही होता है। कृतिकार के अन्तःकरण की संतुष्टि यही प्रमाणित करती है कि उसने जिसके लिए और जो मन में इच्छा कर सृजन कार्य किया है निःसन्देह वह संतुष्ट होगा। यही संतुष्टि भाव भावक को रचनाकार के समकक्ष खड़ा कर देता है। भारतीय काव्य चिन्तन में यह सत्य कभी ओझल नहीं होता कि रचनाकार को सदैव ऐसे पाठक या श्रोता की तलाश रहती है जो उसे व्यक्तिगत तौर पर महत्व भले ही न दे लेकिन उसकी कृति की निष्पक्ष समीक्षा करे। यही कारण है कि संस्कृत के आचार्यों ने सहृदय को कवि के समान धर्मा समीक्षक की संज्ञा प्रदान की है।

जिस प्रकार संस्कृत काव्य शास्त्र में कवियों की तीन कोटियों की चर्चा की गई है। उसी प्रकार सहृदय (पाठक) की भी तीन कोटियाँ होती हैं – अधम, मध्यम और उत्तम। 'अधम पाठक' से तात्पर्य ऐसे पाठक से है जो काव्य के धर्म को नहीं समझता सिर्फ उसकी शाब्दिक अभिव्यक्तियों से ही संतुष्ट हो जाया करता है। मध्यम श्रेणी के पाठक प्रथम श्रेणी की अपेक्षा कुछ अधिक चतुर होते हैं। अनुमान क्षमता के जरिये अथवा लक्षणा–वृत्ति के सहारे काव्य के मर्म तक पहुँचने का प्रयास करते हैं। उत्तम श्रेणी के पाठक ही दरअसल सहृदय होते हैं। आनन्द वर्धन ने इसी श्रेणी के पाठकों को कवि का समानधर्मा कहा है।

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पाश्चात्य मत

एलिजावेथ फ्रॉउंड का विचार है कि पाठकवादी आलोचना का बीज एंग्लो–सेक्शन आलोचना परम्परा, विशेषतया नई आलोचना में मौजूद था, जो अनंतर कलाकृति की वस्तुनिष्ठता और स्वायत्तता पर आग्रह के कारण दब गया। इस प्रसंग में उसने आरंभिक काल के आई.ए. रिचर्ड्स के विचारों से विशेष रूप से बहस की है, और बताया है कि रिचर्ड्स के यहाँ सारे वादानुवादों का प्रस्थान–बिन्दु पढ़ने की प्रक्रिया है। वह आई.ए. रिचर्ड्स को 'सेमिनल रीडर' रिस्पांस क्रिटिक बताती है, हालांकि 'प्रिंसिपल ऑफ लिटरेरी क्रिटिसिज्म (1924) के पश्चात् यह स्थिति न रही। यानी जब रिचर्ड्स के अनुसार –

'It is never what a poem says which matters, but what it is, या जब । Poem Should not mean but be का पड़ाव आया तो काव्यकृति, काव्यकृति ही रह गई और 'पढ़त की प्रक्रिया बीच से लुप्त हो गई।'

उपर्युक्त उद्धरण के परिप्रेक्ष्य में हम यह देखने का प्रयास करेंगे कि पाठकवादी आलोचना के सरोकार किन किन स्रोतों के मुखापेक्षी हैं। इस आलोचना के स्रोत बहुआयामी हैं। जर्मन काव्यचिन्तन के अंतर्गत दृश्य प्रपंच विज्ञान और अर्थमीमांसा को समझे बगैर निश्चित तौर पर इसका ज्ञान अधूरा होगा। सन् 60 और 70 के दशक में अमरीका और जर्मनी के कुछ नये साहित्यालोचकों ने यह अनुभव किया कि रचनाकार की दृष्टि ही रचना में पर्याप्त नहीं होती। किसी भी कृति के अनेक मूल्यांकन कर्ताओं के चिन्तन–वैभिन्य के कारण उसके बहुआयामी निष्कर्ष निकाले जा सकते हैं। दरअसल सन् 1929 ई. में आई.ए. रिचर्ड्स के द्वारा कैम्ब्रिज विश्वविद्यालय के कुछ स्नातक छात्रों पर एक प्रयोग किया गया। एक ही कविता को अनेक छात्रों के बीच समीक्षार्थ वितरित किया गया। इससे अलग तरह के परिणाम हासिल हुए। यह माना गया कि साहित्य के शिक्षक को किसी भी कृति के संबंध में पूर्व धारणाओं से अलग होना चाहिए। रिचर्ड्स से प्रेरित होकर सी.एस. लीविस ने सन् 1961 ई. में श।द मगचमतपमउमदज पद ब्तपजपबपेउश नामक ग्रंथ की रचना की।

पश्चिम में रूपवादी नई आलोचना पद्धति पाठ अथवा कृति में निहित विचारों को प्रमुखता देने वाली एक ऐसी प्रवृत्ति थी जिसमें रचनाकार और पाठक–दोनों ही महज एक माध्यम थे। पाठकवादी आलोचना में पाठक के महत्व को केन्द में रखते हुए यह स्थापित करने का प्रयास किया गया कि पाठकवादी आलोचना में वैयक्तिक अनुभव, प्रायोगिक तर्कशक्ति और साधारणीकरण (न्दपवितउपजल) की महत्वपूर्ण भूमिकाएं होती हैं। मनोविश्लेषणवादी प्रभावपरकता के फलस्वरूप अधिसंख्य पाठक समुदाय को एक ही भावभूमि पर अवस्थित कर देना न तो संभव है, न तो औचित्यपूर्ण।

पाठकवादी आलोचना की नव्यतम खोजों में प्रायः इसे सिद्ध किया जा चुका है कि किसी काव्य अथवा कथाकृति को पढ़ते अथवा सुनते हुए पाठक के मस्तिष्क में जो प्रतिक्रियाएँ होती हैं वे बहुत हद तक कोशिकाओं में कंपन पैदा करती है। इन कंपनों का अध्ययन मनोविज्ञान, मनोभाषिकी, न्यूरों साइंस और न्यूरोसाइकोनल्सिस के अंतर्गत किया जा सकता है। In 2011 Researcher found that during listening to emotionally intense parts of a story, readers respond with changes in heart rate variability, indicative of increased activation of the sympathetic nervous system. Intense parts of a story were also accompanied by increased brain activity in a network of regions known to be involved in the processing of fear, including amygdala'

उपसंहार

उपर्युक्त विवेचन इस बात की पुष्टि के लिए पर्याप्त है कि पाठकवादी आलोचना का परिप्रेक्ष्य काफी विस्तृत है। भारतीय रस–सिद्धांत की अवधारणा के अंतर्गत सहृदय की परिकल्पना का ही प्रायोगिक एवं तर्कसंगत प्रारूप हमें नव्यालोचना के पश्चात् पाश्चात्य पाठकवादी आलोचना में उपलब्ध होता है। भारतीय परिप्रेक्ष्य जहाँ पाठक के लिए 'सहृदय', साधारणीकरण और भावकत्व व्यापार की चर्चा करता है, वहीं पाश्चात्य समालोचना में मनोभाषिकी एवं मनोचिकित्सा के माध्यम से मस्तिष्क की परस्पर विरोधी हलचलों और मनोविकारा के सामंजस्य पर बल देता है। भारतीय चिन्तक रचनाकार और पाठक को एक सामान्य भावभूमि पर प्रतिष्ठित करता है, पाश्चात्य विचारक दोनों की मस्तिष्कीय कोशिकाओं के कंपनों का अध्ययन करते हुए इस निष्कर्ष पर पहुँचते हैं कि रचनाकार और पाठक की क्षमताएँ यद्यपि समान हैं, केवल कहने और सुनने की प्रणालियों में अंतर है। इतना अवश्य है कि साहित्यालोचना के क्षेत्र में पाठकवादी आलोचना के अनेक उत्स हैं जिनमें अधिकांश उपेक्षित हैं और भविष्य में नई–नई खोजों की संभावनाएँ शेष हैं।

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समाप्त

ARTICLE

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पानी प्रबंधन की सामाजिक उपादेयता

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सारांश

जल जीवन का आधार है। चाहे प्राणियों का जीवन हो या वनस्पतियों का पानी के बिना सब शून्य है। आज पूरी दुनिया पानी के प्रबंधन को लेकर बेचैन हैं, क्योंकि आने वाले समय में इसके गंभीर परिणाम भुगतने होंगे। अगर समय रहते हम पानी के प्रबंधन को लेकर जागरुक नहीं होते तो आगामी सदी का स्वरूप काफी त्रासद और भयानक होगा।

दुनिया का जनांकिकीय परिवेश जिस तेजी के साथ बदल रहा है, उससे हमारी आवश्यकताओं में बाढ़ सी आ गयी है। भौतिक आवश्यकताओं की पूर्ति के लिये प्राकृतिक संसाधनों का तेजी के साथ दोहन हो रहा है। जनसंख्या के बढ़ते दबाव ने पूरी दुनिया को बेचैन कर दिया है। इस बेचैनी में सबसे ज्यादा छटपटाहट पानी को लेकर ही है। आद्योगीकरण, नगरीकरण के विस्तार ने पानी के संकट को और गहरा कर दिया है। नदियों पर बनते बांध भले ही बिजली और सिंचाई की आवश्यकताओं की पूर्ति करें लेकिन इनसे नदी की सांस टूटने लगी है। बांध के निचले तपके की नदी की धार बंद होने के कगार पर है। अनगिनत ट्यूब बेलों की खुदाई ने जीवन की आवश्यकताओं और सिंचाई के संसाधनों को भले ही नया जामा पहनाया हो लेकिन धरती के अंदर की परत सूखने लगी है। जिस तेजी के साथ हम धरती के नीचे से पानी का दोहन कर रहे हैं,उस तेजी के साथ पानी को अंदर ''रिचार्ज नहीं होने दे रहे हैं, जिसके कारण आज दोहन और रिचार्ज के बीच पानी के असंतुलन का खतरा पैदा हो गया है।

प्रस्तावना

भारत में पानी को लेकर पंचायतें होने लगी है, कारण यहां भी पानी का संकट पैदा हो गया है। आज 125 करोड़ जनता के लिये आवश्यकतानुसार पानी मुहैया कराना एक चुनौती बनती जा रही है। ऐसे समय में लोगों का पानी प्रबंधन को लेकर जागरुक होना एक सुखद पहल है।

पानी का प्रबंधन क्यों?अमरीकी वैज्ञानिक ''***लेस्टर ब्राउन*** ने भारत में गंभीर जल संकट की चेतावनी दी है। उनका कहना है कि भारत में जिस तरह से पानी का दोहन हो रहा है, वह आने वाले समय में एक गंभीर संकट को पैदा करेगा। पानी पर कार्य कर रहें '***फ्रेड पियर्स*** के मुताबिक भारत में निम्न जल स्तर वाले क्षेत्रों में पानी की किल्लत बढ़ती जा रही है। यहां 200 से लेकर 1000 फिट की गहराई वाले ट्यूब बेल लगाये जा रहे हैं लेकिन सफलता नहीं मिल पा रही है। इन क्षेत्रों में वाटर लेबल 2 से 6 मीटर तक नीचे जा रहा है।

दुनिया की तस्वीर म जनसंख्या के क्षेत्र में हमारें देश का 16 प्रतिशत हिस्सा है लेकिन वैश्विक जल भण्डार में हमारी हिस्सेदारी महज 4 प्रतिशत ही है। भूजल का 92 प्रतिशत और सतह पर मिलने वाले 89 प्रतिशत पानी कृषि के लिये इस्तेमाल हो रहा है। 4 से 5 प्रतिशत पानी उद्योगों में जा रहा है। ऐसे में घरेलू उपयोग के लिये पानी की हिस्सेदारी कितनी होगी यह सोचने वाली बात है। वैज्ञानिकों की चिंता है कि जिस तेजी के साथ भारतीय जनसंख्या बढ़ रही है उससे 2020 तक घरेलू उपयोग के लिये पानी का संकट गंभीर होगा।

IJHEPS DIGITAL EDITION

केन्द्रीय मौसम विज्ञान के मुताबिक भारत में औसतन 1,170 मि.मी. वारिश होती है, लेकिन इस पानी का इस्तेमाल 20 प्रतिशत ही हो पाता है 80 प्रतिशत बिना इस्तेमाल का बह जाता है, अगर इस बहते पानी का 25 प्रतिशत हिस्सा भी हम संरक्षित कर लें तो कई वर्षों तक पानी की किल्लत से बचा जा सकता है। भारत के **उड़ीसा, बुन्देलखण्ड, राजस्थान, असम, म.प्र., उत्तरप्रदेश, हरियाणा, आन्ध्रप्रदेश, कर्नाटक** और **छत्तीसगढ** जैसे राज्यों में पर्याप्त बारिश न होने के कारण काफी समस्यायें बढ़ रही है। देश में पानी के संकट का एक और कारण सामने आ रहा है, वह है, बहुराष्ट्रीय कंपनिया का पानी के लिये लायसेंस देना। बोतल बंद पानी की बेतहासा बिक्री और ठण्डे पेय पदार्थो ने पानी की खपत और बढ़ा दिया है। **गुजरात, असम, पश्चिमी उ.प्र., झारखण्ड** और **कर्नाटक** के तमाम इलाके जहां पानी की कभी किल्लत नहीं महसूस हुयी वहां बहुराष्ट्रीय कंपनियों के माया जाल के कारण कुयें सूखने लगे हैं। पानी का प्रपंच बढ़ गया हैं। दिल्ली देश की राजधानी है लेकिन मानव विकास रिपोर्ट ने यहां की समस्याओं में पानी की समस्या को महत्वपूर्ण माना है। राज्य की 84 प्रतिशत जनता मानती है कि उसे जलापूर्ति सामान्य तरीके से नहीं होती 30 पतिशत लोगों को शुध्द पानी न मिलने की शिकायत है।

देश में पानी की किल्लत की एक वजह और है वह है वाहनों की सफाई में पानी की बर्बादी। देश में प्रतिदिन 5 करोड़ लीटर पानी कार, बस, टैक्सी और दो पहिया वाहनों की सफाई में बर्बाद होता है। अकेले मुम्बई में प्रतिदिन 50 लाख लीटर पानी का इस्तेमाल वाहन धोने में होता है। अमरीका में भारत की तुलना में ज्यादा वाहन हैं लेकिन वाहन धोने के लिये वे पानी का इस्तेमाल कम करते है। हमारे यहां पानी का उचित रख रखाव का न होना भी एक समस्या है। **दिल्ली, मुम्बई, चेन्नई** जैसे महानगरों में पाइप लाइन के बाल्ब की खराबी के कारण 17 से 44 प्रतिशत पानी बेकार में बह जाता है।

पृथ्वी पर एक अरब 40 घन किलो लीटर पानी है। इसमें 97.7 प्रतिशत पानी समुद्र में है जो खारा है, शेष 1.5 प्रतिशत पानी बर्फ के रूप में ध्रुव प्रदेशों में है। इसमें से बचा 1 प्रतिशत पानी नदी सरोवर, कुआं, झरनों और झीलों में है जिनका इस्तेमाल पीने के लिये कर सकते है। यह भी एक लक्ष्य है कि इस 1 प्रतिशत पानी का 60वां हिस्सा खेती और उद्योग में खपत हो रहा है बाकी 40वें हिस्से का उपयोग हम पीने, भोजन, नहाने, कपड़े धाने एवं अन्य साफ सफाई में खर्च कर रहे है। दुनियां में 10 व्यक्तियों में से 4 व्यक्तियों को पीने का शुद्ध पानी नहीं मिल पाता यही कारण है कि पानी जन्य रोगों से हर वर्ष 22 लाख लोगों की मौत होती है। प्रति वर्ष 6 अरब लीटर बोतल पैक पानी का इस्तेमाल मनुष्य पोने के लिये करता है। 1 लीटर गाय का दूध प्राप्त करने के लिये 800 लीटर पानी खर्च करना पड़ता है, 1 किलो

गेहू उगाने के लिये 1 हजार लीटर और एक किलो चावल उगाने के लिये 4 हजार लीटर पानी की जरूरत होती है। एक मनुष्य को प्रतिदिन पीने के लिये 2 से 3 लीटर और पशुओं के लिये 35 से 50 लीटर पानी की आवश्यकता पड़ती है।

उपरोक्त तथ्यों से पानी के महत्व और उसके प्रबंधन की बात स्पष्ट हो जाती है कि हमारे लिये पानी कितना उपयोगी है। अगर हम समय रहते इसके प्रबंधन के प्रति सचेत न हुये तो कितनी भीषण समस्या हमारे सामने खड़ी हागी यह आंकलन करने वाली बात है।

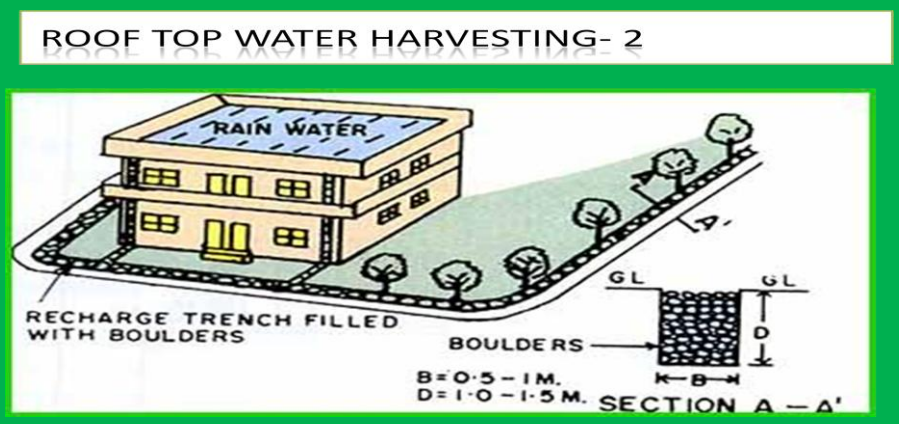
पानी प्रबंधन की आवश्यकता

आज देश में पानी की पंचायत चल रही है। पिछले 50 वर्षों में पानी को लेकर देश में 37 भीषण हत्याकाण्ड हो चुके हैं, अगर समय रहते हमारा ध्यान पानी के संरक्षण और प्रबंधन की ओर नहीं गया तो यह देश और समाज के लिये सबसे बड़ी चुनौती होगी।

प्रश्न उठता है कि किस पानी का संरक्षण और प्रबंधन किया जाये। हमारी नदियां पानी के सबसे बड़े स्रोत हैं, लेकिन आज प्रबंधन के नाम पर उन पर बड़े–बड़े बांध बनायें जा रहे हैं। बांध के निचले हिस्से की नदी की धारा खतम हो रही है। उत्तराखण्ड में कोई नदी बची ही नहीं है जिस पर बांध न बना दिया गया हो या उसे प्रोजेक्ट में शामिल न किया गया हो। बांध बनाने के पीछे जल प्रबंधन का उद्देश्य पीने के पानी को लेकर नहीं है बल्कि बड़ी बड़ी जल विद्युत परियोजनाओं को संचालित करना ह। बांधों के पानी का उपयोग विद्युत परियोजना या सिंचाई के लिये ही किया जा रहा है।

IJHEP ITION

जल प्रबंधन की अगर हमें ठोस शुरुआत करनी है तो सबसे पहले वर्षा के जल का संरक्षण करना होगा। समय आ गया है कि बारिश की एक–एक बूंद को बचाया जाये। वर्षा का 80 प्रतिशत, जो पानी बह जाता है उसमें से अगर 25 प्रतिशत हम संरक्षित कर लें तो पानी को लेकर बेचैनी और छटपटाहट खतम हो जायेगी। वर्षा जल संरक्षण के लिये सबसे उत्तम उपाय ''वर्षा जल संरक्षण संयंत्र'' (Roof top rain water harvesting system) का लगाना है। शहरों में ता इस संयंत्र को लगाने की अनिवार्यता करनी होगी क्योंकि वर्षा जल का सबसे ज्यादा अपव्यय यहीं होता है। वर्षा जल को संरक्षित न करने के कारण भू–जल उपयोग एवं उपलब्धतता के बीच असंतुलन पैदा हो जाता है यह असंतुलन भी जल संकट का कारण है।



तमिलनाडू का नाम वर्षा जल संरक्षण में बड़े गर्व के साथ लिया जाता है। कहने को तो चेन्नई में 1200 मि.मी. बारिश होती है लेकिन शहर में पानी की किल्लत बनी रहती है। चेन्नई में यह आवश्यकता महसूस की गयी कि वर्षा के जल का संरक्षण किया जाये। तमिलनाडू सरकार ने एक आदेश निकाल कर शहरों में 'वर्षा जल संरक्षण संयंत्र' लगाने के लिये अनिवार्य कर दिया। सरकारी गैर सरकारी, निजी

भवनों में भी इस अनिवार्यता से जोड़ा गया, नौकरशाहों को चेतावनी दी गयी है कि पूरे राज्य में इसका प्रचार प्रसार किया जाये। चेन्नई का आई.आई.टी. संस्थान जो 650 एकड़ मे फैला है यहां पानी की समस्या आम थी। एक समय ऐसा भी आया कि पानी की समस्या के कारण संस्थान को दो माह के लिये बंद भी करना पड़ा लेकिन आज वो स्थिति नहीं हं यहां के भवनों में भी वर्षा जल संरक्षण संयत्र लग जाने के कारण यहां के कुओं में पानी का स्तर बढ़ गया अब संस्थान को पानी खरीदना नहीं पड़ता। आज चेन्नई में वर्षा जल संरक्षण एक **सामाजिक प्रकिया** बन गयी है। वास्तव में इस दृढ़ इच्छा शक्ति के पीछे अमेरिका में भौतिक विज्ञान के प्रोफेसर ***डॉ. राघवन*** का हाथ है जिन्होंने चेन्नई में जल संकट के हल के लिये वर्षा जल संरक्षण संयंत्र के बारे में सोचा। सबसे पहले उन्होंने अपने घर में इसे लगाया, फिर पड़ोसियों को इसके महत्व को बताया धीरे–धीरे यह एक आंदोलन का रूप ले लिया। उनके इस काम से प्रभावित होकर चेन्नई में पैदा हुये आई.आई.टी. के पूर्व छात्र रामकृष्णन ने राघवन से सम्पर्क कर ***आकाश गंगा*** नामक संस्था को बनाया जिसका उद्देश्य लोगों को वर्षा जल संरक्षण के बारे में जागरुक बनाना था। आज चेन्नई एवं आसपास के शहर इस आंदोलन के प्रतीक बन गये है।

वास्तव में पानी संरक्षण के लिये सामूहिकता का होना जरूरी है। वर्षा के जल का रोकना अकेले की बात नहीं है जब तक यह एक सामाजिक प्रकिया नहीं बनेगी, लोग इससे जुड़ेगें नहीं तब तक इस आंदोलन को सफल नहीं बनाया जा सकता। पानी बचाओं अभियान के पुरोधा राजेन्द्र सिंह जी का मानना है कि पानी संरक्षण के लिये जन सहभागिता जरूरी है। जन सहभागिता के अभाव में जन आंदोलन कैसे होगा? जन आंदोलन का सबसे अच्छा उदाहरण हमें म.प्र. के झाबुआ जिले में देखने को मिलता है। झाबुआ स्थिति हाथीपावा की पहाड़ों पर श्रम की गंगा बहाकर महज चार घन्टे में करीब तीन हजार रनिंग वाटर कंटूर और दो छोटी तलैयों का निर्माण कर दिया गया। ***''शिव गंगा''*** नामक संस्था के संचालक महेश शर्मा ने हलमा नामक प्राचीन आदिवासी पंरपरा को आधुनिक रूप दिया। वास्तव में 'हलमा' एक आदिवासी पंरपरा है जिसमें गांव के किसी व्यक्तियों को सहयोग देने के लिये गांव के सभी लोग सहयोग करते हैं। बस महेश शर्मा ने इस आदिवासी संस्कृति को जिन्दा रखते इसका उपयोग पानी संरक्षण के लिये किया। 28 फरवरी 2012 को हजारो आदिवासियों और जन समूह ने **''हाथी पावा''** की पहाड़ी पर **रनिंग वाटर कंटूर** का निर्माण कर इस पहाड़ी का भाग्य ही बदल दिया। इस श्रमदान में इंदार, रतलाम, उज्जैन आदि क्षेत्रों से भी काफी लोग आये थे। आज ''शिव गंगा'' के इस प्रयास का पूरी दुनिया में चर्चा है। पहाड़ों का सीना चीर वर्षा का पानी सहेजने का जो अद्भुत प्रयास यहां के आदिवासियों ने किया वह काबिले तारीफ है। आज इन बंजर पहाड़ियों पर पानो के साथ हरियाली भी नज़र आती है।

पानी संरक्षण के ऐसे सामूहिक प्रयासों का फलीभूत होना सामाजिक सरोकारों को जिन्दा रखना है। ये सामाजिक सरोकार ही भारतीय संस्कृति की पहचान है। आज देश में पानी प्रबंधन को लेकर जागरुकता बढ़ी है कई लोग तो पानी की समस्या को लेकर अकेले ही प्रयास शुरू कर दिये। बिहार गया जिले के ***दशरथ मांझी*** एक ऐसे इतिहास को रचने वाले रहे हैं जिन्होंने अकेले पहाड़ का सीना काटकर सड़क बनाई थी। पत्नी के इलाज में रोड़ा बने पहाड़ को अदम्य साहस और उर्जा के बल पर तोड़कर सड़क का निर्माण किया था आज बिहार के स्कूलों के पाठ्यक्रम में उन्हें पढ़ाया जाता है ***''पहाड़ से ऊंचा आदमी''*** शीर्षक में उनके अद्भुत साहस और लगन का बखान किया गया है जिसे स्कूली बच्चे बड़े चाव से पढ़ते है।

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जल संरक्षण के क्षेत्र में एक ऐसा ही उदाहरण है झारखण्ड के किसान ***''श्यामल चौधरी''*** का। श्यामल चौधरी ने अकेले अथक प्रयास से तालाब का निर्माण कर डाला। दुमका जिले के जरमुंडी ब्लाक के **विशुनपुर करुआ** गांव के किसानों के लिये वे आदर्श बन चुके हैं। उन्होंने पानी से जूझ रहे इस गांव के लिये तालाब खोदने की बात की जब कोई तैयार नहीं हुआ तो अकेले ही गैंती और फावड़ा लेकर निकल पड़े 14 वर्ष के अथक परिश्रम के बाद 100 **X** 100 का 22 फिट गहरा तालाब खोद डाला। आज श्यामल चौधरी की उम्र 66 वर्ष की हो गयी है लेकिन उनके लगन और मेहनत के किस्से पूरी दुनिया की जुबान पर है। चौधरी ने अधिकारियों स अपनी जमीन पर एक तालाब की मांग की थी जिसे अधिकारियों ने नकार दिया फिर क्या धुन के पक्के श्यामल चौधरी प्रतिदिन तालाब के लिये मेहनत करने लगे । 1997 में श्यामल ने यह कार्य प्रारंभ किया जो 2011 में पूरा हुआ। गांव वाले कितनी बार ताने मारे, उनके हौंसले को तोड़ने का प्रयास किया.... कई बार स्वास्थ्य ने भी साथ नहीं दिया लेकिन धुन और लगन के पक्के श्यामल चौधरी आज उन्हीं गांव वालों और नक्कारा अधिकारियों के लिये एक मिशाल बन गये है। उनके संकल्प, मेहनत और लगन ने एक नई इबारत लिखी। पिछले गणतंत्र दिवस को रांची में झारखण्ड के मुख्यमंत्री ने सार्वजनिक रूप से सम्मानित किया।

कई ऐसे उदाहरण भरे पड़े हैं जो जीवन की सच्चाईयों का बयान करती है। आज राजेन्द्र सिंह, दशरथ मांझी ,श्यामल चौधरी, डॉ. राघवन, रामकृष्णन, महेश शर्मा हमारे हौंसलों के प्रतीक बन गये हैं। हमें इन हौंसलों को प्रतीक बनाकर पूरे देश में इस बात का प्रचार करना होगा कि अकेले पानी के संकट से नही उबरा जा सकता। जब तक सामाजिकता और सामूहिकता की धारणा नहीं बलवती होगी तब तक पानी समस्या के बुनियादी हल नहीं निकल सकेगें।

आज आवश्यकता है पानी के प्रबंधन की, उसे सहेजने की। यदि समय रहते पानी को नहीं सहेजा गया तो संभव है कि पानी केवल हमारी आंखों में ही शेष रह जाये.....। नदियां सूखने लगी है जो बची हैं वे प्रदूषित हो रही है। परम्परागत तालाब पटने लगे हैं, ऐसे समय में पानी का प्रबंधन जरूरी है नहीं ता सिर्फ पानी पर पंचायत होगी, झगड़े होगे, लाठियां चलेगी और हम कहते नज़र आयेगें **''पानी रे पानी तेरा रंग कैसा।''**

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समाप्त

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ARTICLE

25

A CASE STUDY OF SATNA DISTRICT: RURAL POOR'S LIVELIHOOD SUSTENANCE OF COMMON PROPERTY RESOURCES

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Abstract:

The common property resources in rural India have not only fulfilled poor people's necessities to some extent, they also helps in maintaining the rural environment. But in recent limes, common property resources have come under attack by contemporary development processes. Even though, people increasingly outlook the common property resources of potential source for enhanced livelihood opportunities. Inadequate rural employment opportunities especially in the off-season imply that the local commons can make considerable contributions to household's incomes.

Introduction

Common property resources are important sources of livelihood of the rural poor in particular and local people in general in the country. A considerable number of poor people depend on common property resources for their livelihood sustenance. The Common property resources in rural India have not only fulfilled poor people's necessities to some extant, they also helps in maintaining the rural environment. But in recent times, Common property resources have come under attack by contemporary development processes. There has been shrinkage Common property resources which resulted into marginalization of the poor people, artisans, women and children along with other socioeconomic and ecological problems like poverty, migration, unemployment and environmental pollution or degradation.

The CPRs come within both biotic and a biotic components of environments. Biotic components such as snails, fish, wildfood, kucho and water cress vegetables are available in land and ponds controlled by rich farmers and government institutions. But the poor Village people enjoy customary rights to collect and use them for their sustenance. So, common property resources should be viewed in relation to other components of the environment such as land, water, plants and animals because any change or exploitation of any component of the environment like common property resources affects others including man and society.

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The past studies on Common property resource in Satna have committed considerable concentration to documenting the flows of benefits from such resources. Micro as well as macro survey advocate that these flows from an important part of local people's resource use patterns, as well as contributing to household income and providing off-season employment opportunities and spreading risk associated with the use of private resources. Subsistence use of Common property resource may be affected by changing social, economic and ecological dynamics. This paper attempts to assess the deteriorating condition of Common property resource and its impact on poor people's livelihood in two wet and dry different blocks of Satna District (M.P.)

Methods and materials

The study has chosen two one under wet, and another in dry category towards realizing the stated objectives. Census method has been adopted to collect data from both the block to comprehend the behaviour of block in its totality. A prepared interview schedule containing relevant questions has been administered to the selected new products. Significant too, is the informal discussions with the households. The study pins its hope on informal discussions with the cross section of the native dwellers. This is due to the fact that respondents seldom divulge information through formal enquiry on encroachment of lands and commercialization of Common property resource. This method facilitates an intensive and in depth analysis of the select block.

The behaviour of households, across different castes and income groups in relation with Common property resource were observed. Research on Common property resource related issues need to depend largely on qualitative information as nitty-gritty aspects in this context were assessed- only through qualitative inputs. Therefore, both qualitative and quantitative information have been given equal importance in this study.

Results and discussion

Common property resource play a vital role in the economies of the rural poor, who have a very low access to remunerative opportunities. Despite the monitoring and measurement complexities, the contributions of Common property resource are quantified particularly in terms of fuel and fodder supplies as well as, income and employment generation activities to the rural households.

Table No. 1

Percentage distribution of household energy use pattern

Name of Blocks	Category of House Hold	Fuel wood	Kerosene	Gas	Total
Majhigawan	Landless	49.0	0	0	49.0
	Landholders	51.00	0	0	51.00
	Total	100	0	0	100
Rampur Baghelan	Landless	34.0	1	2.3	36.4
	Landholders	58.5	0	5.1	63.6
	Total	92.5	1	7.4	100
Total	Landless	37.9	1	1.7	39.7
	Landholders	56.5	0	3.8	60.3
	Total	94.4	1	5.5	100

Force: Filed Survey

The most widespread use of Common property resource was for collection of fuel wood 'for household needs. However, dependence of Common property resource for fuel wood was highly significant in all study block. The percentage distribution of household by energy use pattern is presented in table-1. Even though, other resources also contributed 5.5 percent, less than 1 percent were used for gas and kerosene. Exclusive use of fuel wood was highest (100 percent) in Majhigawan block followed by Rampur Baghelan (92.5) percent. According to the survey, wherever there was lack of fuel wood, gas and kerosene had beer used to meet energy requirement Fuel wood had been collected from the Common property resource free of cost.

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Table No. 2

Percentage distribution of household source of fuel collection

Name of Blocks	Category of House Hold	CRPs	Private	Both	Market	Total
Majhigawan	Landless	42.5	0	6.2	0.1	48.8
	Landholders	32.0	1.2	13.5	4.2	50.9
	Total	74.5	1.2	19.7	4.6	100
Rampur Baghelan	Landless	21.9	0.1	1.5	13.0	36.5
	Landholders	39.3	1.1	13.2	10.0	63.6
	Total	61.1	1.2	14.7	23.0	100
Total	Landless	27.2	0.1	2.7	9.7	39.7
	Landholders	37.4	1.1	13.3	8.5	60.3
	Total	64.6	1.20	16.0	18.2	100

Force : Filed Survey

Sources of fuel wood collectior held by the respondent are explainer in Table-2. It has observed from the table is that contribution from is highly significant (64.6 percent) in all block followed by market sources (18.2 percent). Private sources held low responsibility for fuel wood collection in the study block.

There is much difference between collection of fuel from common property resource in Majhigawan (74.5 percent) and Rampur Baghelan (61.1 percent) and also between landless and landholder was 42.5 and 32 percent and 22 and 39.3 percent respectively. Interesting observation in Majhigawan block is that, landless households depends much on common property resource than the landholder's dependent on common property resource while Rampur

Baghelan block landholders depends much on common property resource than landless people for fuel wood purposes.

Common property resources, as a major source of fuel wood supply to the block and its play an important part in meeting the energy needs of the local population in general and the rural poor in particular. On average, the landless households used 1348 kilogram of fuel, the landholders used 1389 and all households used 1373 Kg per annum. Between the block the household consumption of fuel wood per annum varies from 121 Kg in Majhigawan block to 1428.50 Kg in Rampur Baghelan blcok commonly households in the study block regularly went for fuel wood collection. But in summer, they collected more intensively, to be stored for rainy season, when fuel wood collection would be very difficult task.

Table No. 3

Reasons for declining

Name of Blocks	1	2	3	4	5	6	Tpta;
Majhigawan	Landless	**2.7**	**39.8**	**1.9**	**3.5**	**1.2**	**49.1**
	Landholders	**1.2**	**44.0**	**1.2**	**3.5**	**1.2**	**51.1**
	Total	**3.9**	**83.8**	**3.1**	**6.9**	**2.3**	**100**
Rampur Baghelan	Landless	**13.8**	**22.7**	**0**	**0**	**0**	**36.5**
	Landholders	**5.5**	**58.1**	**0**	**0**	**0**	**63.6**
	Total	**19.2**	**80.8**	**0**	**0**	**0**	**100**
Total	Landless	**10.9**	**27.1**	**0.5**	**0.9**	**0.3**	**39.7**
	Landholders	**4.4**	**54.5**	**0.3**	**0.9**	**0.3**	**60.4**
	Total	**15.3**	**81.5**	**0.8**	**1.8**	**0.6**	**100**

Note : 1. Catagory of House Holds 2. No response 3. Govt. Scheme 4. Encroachment 5. Both 6. Increase in population.

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Force : Filed Survey

Table No.4

Responsibility of Block behind CPRs management

Name of Blocks	Catagory of HHs	Block Managing CPR's		Income form CPRs to blocks	
		Yes	No.	1	2
Majhigawan	Landless	0	49.0	49.0	N.A.
	Landholders	0.4	50.6	51.0	
	Total	0.4	99.6	100	
Rampur Baghelan	Landless	34.7	1.7	N.A.	36.4
	Landholders	55.1	8.4		63.6
	Total	89.9	10.1		100
Total	Landless	25.8	13.9	12.6	27.1
	Landholders	41.1	19.2	13.1	47.2
	Total	66.9	33.1	25.7	743

Note : 1. Govt. cooperative colony society. 2. Auction of trees and fish in local level.

Force : Filed Survey

Table 3 reveals that the reasons hind the declining the nature of common property resource in the study block. Acording to 54.5 percent of land holding households and 27.1 percent of landless households, implementation of the Government scheme is the main cause for common property resource degradation. The second major reason behind this is encroachment. Most of the landholding households hass encroached the common land for the purpose of cultivation and housing, but they won't tell the true. Finally, over population is also another important cause behind the decline of common property resource. With the result, the pressure on common property resource went up which in turn leads to excessive use of common property resource by the local people in general and rural poor in particular.

Traditional rural institutions were reportedly managed the common property resource well. Such a system involved very effective collective management of Common Property Resources. The state intervention changed the whole scenario, the sense of oneness and collective responsibility eroded slowly. As of now, block and Revenue Administrative officials are in charge of managing and controlling locally available common property resource. But the local people felt the block and revenue officials adopt incompetent methods towards common property resource. The common property resource management policies need to be reformulated in such way that collective management is given due recognition and such an empowerment is an ideal solution for the common property resource management.

According to the survey, 26 percent of landless households and 41.1 percent of landholding household's opinion is that, at present the common property resource management is going well. And also, block is getting a considerable proportion of income from common property resource in the way of government co-operative colony society scheme and auction of trees and fish in local level. In recent times, management practice of blocks has eroded slowly due to state intervention towards common property resource management in the local level Table- 3·

It has resulted in not evolving a focused institutional mechanism to maintain natural resources in a sustainable way. Since blocks are representative in nature, they can mediate between different users or user groups. At the same time, the autonomy of the user society should not be affected by the powers of blocks. There needs to be an enmeshing of different institutions with blocks at the helm synchronizing different interests with the final objective of conservation and using common resources in a sustainable way. Acting locally by strengthening local institutions is the first and firm step In conserving resources at the local, state and national level.

Conclusion

Since time immemorial, the Common Property Resources have been contributing a lot to the blocks economies. The local communities in general and the poor in particular survive on these resources to the large extent. There is dearth of awareness over their rights and consequently, there will be encroachment of resources ultimately degrading the common property resource and depriving the rural poor. Currently, the common property resources are vulnerable to host of stresses owing to human intervention. In modern times, privatization and commercialization are the processes though which common property resource, as well as other rural resources enters into the market. The market oriented exploitation of common property resource results in economic development in the short-run out leave many socio-economic and ecotoqlcal consequences in the longrun.

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It has argued that products and services that are derived from such resources will depend on social and economic changes, but also importantly on policy choices and the nature of political negotiation that takes place between key stakeholders in this sector. Pattern of resource use are inextricably linked with a complex set of wider economic, and social factors, so any precise prediction about the nature of future common property resources use is insensitive. The state intervention changed the whole scenario, the sense of oneness and collective responsibility eroded slowly. The administrative and legal rights of Block over natural resources are weak in both villages.

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