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An Enlightening Print and Online Open Access Refereed & Indexed Journal of Multidisciplinary Research

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<td>जय शर्मा * शोधाध्यक्ष, भारतीय विश्वविद्यालय, इंडिया</td>
<td>148-151</td>
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<td>27.</td>
<td>Environmental Accounting in India</td>
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<td>152-159</td>
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<td>Commerce</td>
<td>Ved Prakash, * Asst. Lecturer, Dept. of Commerce, Govt. College for Women, Mahendergarh, HR Dr. Sudhir Lamba ** Assistant Lecturer, Govt. College, Nahar, (Rewari) Haryana</td>
<td>160-165</td>
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<td>Eco Industrial Development in India</td>
<td>Commerce</td>
<td>Dr. Anurag Mittal * Saharanpur, Uttar Pradesh</td>
<td>166-171</td>
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<tr>
<td>30.</td>
<td>Various Applications of differential equations in different fields</td>
<td>Math</td>
<td>Dr. Sharmila Kumari * Assistant Prof. in Mathematics, Mahila Mahavidyalaya Jhojhu Kalan, Bhiwani, HR</td>
<td>172-175</td>
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</tbody>
</table>
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10.) Meaning and concept
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Chemistry

STUDIES OF PHOTOELECTROCHEMICAL EFFECT IN DYE SENSITIZED SOLAR CELL: CETYLTRIMETHYLAMMONIUM BROMIDE–BROMOTHYMOL BLUE–OXALIC ACID SYSTEM

Veer Singh * Rajendra Singh** Mahaveer Genwa***

Abstract

Efficient conversion of solar energy and its storage is needed to meet the human energy requirement. Solar cells are devices that can convert solar energy into electrical energy. The aim of solar cell research is to increase the solar energy conversion efficiency at low cost to provide a cost-effective sustainable energy source. For this purpose the photogalvanic effect in photoelectrochemical cells, using Cetyl ammonium bromide as surfactant, Bromothymol blue as photosensitizer, and Oxalic acid as electron donor, was experimentally investigated. Five different standard H-cell configurations were set-up by varying the electrolyte. Long-term open-circuit voltage measurements were conducted in order to check the constancy of the cells. Light on-off reproducibility investigates were also carried out throughout prolonged cell operations. The photopotential and photocurrent generated by this cell were 615.0mV and 142µA, respectively. The effect of various parameters likes reductant concentration, dye concentration; pH etc. on the electrical output of the cell has been studied. Performance of the cell was determined in dark at its power point.

Keywords: Cetyl ammonium bromide, Photo potential, Photocurrent, Diffusion Length.

1. INTRODUCTION

In the developing countries rapid industrialization is very often hampered by inadequate energy availability. Communications, health, shelter and other basic needs of the society are also very much restrained by inadequate availability of energy at several phases, sometimes to such an extent that it even brings the whole process of planning in that sector to a standstill position.

We have a challenge to meet the increasing global energy consumption without sacrificing our future environment. Solar energy provides clean abundant energy and is therefore best option for an environmentally friendly energy source in future. Solar cells are devices that are able to convert solar energy into electrical energy.

* Research Scholar, Dept. of Chemistry, J JT University, Jhunjhunu, Rajasthan
** Associate Prof., Department of Chemistry, J JT University, Jhunjhunu, Rajasthan
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The aim of solar cell research is to increase the solar energy conversion efficiency at low cost to provide a cost-effective sustainable energy source [1]. Silver chloride electrode immersed in an electrolyte and connected to a counter electrode was illuminated with sunlight a voltage and electric current was produced. It was observed by Becquerel in 1839 [2-3], this phenomenon is known as the Becquerel effect. It was the beginning of the present era of photochemistry and photoelectrochemical cells based on photoelectrochemical effect. Photoelectrochemical effect is defined as a change in the electrode potential (in open circuit) or in the current flowing (in close circuit) in an electrode/electrolyte system on irradiation [4]. Photogalvanic cell is a Photoelectrochemical device in which light is absorbed by a highly absorbing electrolyte solution to provide energy for a reaction [5]. Electrical energy is generated by subsequent transfer of charge to electrode by a photo reduced or photooxidized molecule diffusing from the bulk of the electrolyte. This device is in principle, perhaps closest of the PEC devices for photosynthesis.

Researchers have recently reported some better photogalvanic systems for solar energy conversion and storage by using different combinations of Photosensitizers-Reductants-Surfactants in photoelectrochemical cells. From the literature survey [6-24], it was observed that no attention has been paid to intensification of efficiency and commercial viability of the photoelectrochemical solar cells/photogalvanic cells. Therefore this work is undertaken.

2. EXPERIMENTAL WORK

Double distilled water is used for preparation of solutions and all the stock solutions prepared by direct weighing and kept in dark coloured vessels to protect them from direct light.

H-shaped glass tube is used as cell vessel. A total 25.0 ml volume of the mixture of known concentration of the solutions of photosensitizer (Bromothymol Blue), Sodium hydroxide, surfactant, oxalic acid as reductant, and double distilled filled in H-cell. 1.0 x 1.0 cm² dimension platinum electrode is dipped in one arm and a Saturated Calomel Electrode (SCE) is immersed in the other arm of the H tube. The electrodes are then connected to a digital pH meter- Systronics Model – 335 and the entire setup was first placed in dark till a constant potential was obtained, then the platinum electrode was exposed to a 200 W tungsten lamp (Surya). A water filter was used to cut off infrared radiations. The photochemical bleaching of Bromothymol blue was studied potentiometrically. A microammeter (INCO Model No. 65) was used to measure the potential and current generated by the cell.

3. OBSERVATIONS, RESULTS AND DISCUSSIONS

3.1 STUDY THE EFFECT OF VARIATIONS OF PH OF THE SYSTEM

The effect of variations of pH on photopotential and photocurrent are reported in table-1. Cell containing Cetyl ammonium bromide – Bromothymol Blue – Oxalic Acid System is found to be very sensitive to the pH of the solutions. An increase in the electrical output with the increase in pH value (in the alkaline range) is observed.
At pH 12.4 a maximum output is obtained and on further increase in pH, there is a decrease in electrical output.

Table 1: Study on Variations of pH of the system

<table>
<thead>
<tr>
<th>CTAB–Bromothymol Blue–Oxalic Acid System</th>
<th>pH of the System</th>
</tr>
</thead>
<tbody>
<tr>
<td>[CTAB] = 7.00 x 10^{-4} M</td>
<td>12.0</td>
</tr>
<tr>
<td>[BTB] = 4.00 x 10^{-5} M</td>
<td>12.4</td>
</tr>
<tr>
<td>[Oxalic Acid] = 3.00 x 10^{-3} M</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td>13.0</td>
</tr>
<tr>
<td></td>
<td>13.4</td>
</tr>
<tr>
<td>Photopotential (m V)</td>
<td>430.0</td>
</tr>
<tr>
<td>Photocurrent (µ A)</td>
<td>48.0</td>
</tr>
<tr>
<td>Power (µ W)</td>
<td>20.64</td>
</tr>
<tr>
<td></td>
<td>501.0</td>
</tr>
<tr>
<td></td>
<td>615.0</td>
</tr>
<tr>
<td></td>
<td>523.0</td>
</tr>
<tr>
<td></td>
<td>444.0</td>
</tr>
<tr>
<td></td>
<td>64.0</td>
</tr>
<tr>
<td></td>
<td>95.0</td>
</tr>
<tr>
<td></td>
<td>70.0</td>
</tr>
<tr>
<td></td>
<td>49.0</td>
</tr>
<tr>
<td></td>
<td>32.06</td>
</tr>
<tr>
<td></td>
<td>58.43</td>
</tr>
<tr>
<td></td>
<td>36.61</td>
</tr>
<tr>
<td></td>
<td>21.76</td>
</tr>
</tbody>
</table>

3.2 STUDY THE EFFECT OF VARIATIONS OF CETYL AMMONIUM BROMIDE CONCENTRATION

It was viewed that the electrical yield of the cell rises with rise in the concentration of surfactant (CTAB) up to arriving at the extreme value and on further rise in their concentration; the photopotential, photocurrent and power of photogalvanic cell were begin to tumble down. Effect of Variations of concentration of surfactant (CTAB) is given in Table-2

Table 2: Effect of Variations of surfactant [CTAB] Concentration

<table>
<thead>
<tr>
<th>CTAB–Bromothymol Blue–Oxalic Acid System</th>
<th>[CTAB]] x 10^{-4} M</th>
</tr>
</thead>
<tbody>
<tr>
<td>[CATB] = 4.00 x 10^{-5} M</td>
<td>5.0</td>
</tr>
<tr>
<td>[Oxalic Acid] = 3.00 x 10^{-3} M</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>9.0</td>
</tr>
<tr>
<td>Photopotential (m V)</td>
<td>444.0</td>
</tr>
<tr>
<td>Photocurrent (µ A)</td>
<td>44.0</td>
</tr>
<tr>
<td>Power (µ W)</td>
<td>19.54</td>
</tr>
<tr>
<td></td>
<td>509.0</td>
</tr>
<tr>
<td></td>
<td>615.0</td>
</tr>
<tr>
<td></td>
<td>533.0</td>
</tr>
<tr>
<td></td>
<td>424.0</td>
</tr>
<tr>
<td></td>
<td>60.0</td>
</tr>
<tr>
<td></td>
<td>95.0</td>
</tr>
<tr>
<td></td>
<td>71.0</td>
</tr>
<tr>
<td></td>
<td>41.0</td>
</tr>
<tr>
<td></td>
<td>30.54</td>
</tr>
<tr>
<td></td>
<td>58.43</td>
</tr>
<tr>
<td></td>
<td>37.84</td>
</tr>
<tr>
<td></td>
<td>17.38</td>
</tr>
</tbody>
</table>

3.3 Effect of Variations of [Oxalic Acid] Concentration:

With raising the concentration of the reductant i.e. Oxalic-Acid the photopotential raises till it touches a maximum value and on extra rise the concentration of Oxalic-Acid, electrical output of the cell was a decreased.

The effect of variations of the Oxalic Acid concentration on the electrical yield of CTAB –Bromothymol Blue–Oxalic acid cell is reported in Table 3 and graphical representation in fig. - 1.
Table 3: Effect of Variations of [Oxalic Acid]

<table>
<thead>
<tr>
<th>[CTAB] = 7.00 x 10^{-4} M</th>
<th>Intensity of Light = 10.4 mWcm^{-2}</th>
</tr>
</thead>
<tbody>
<tr>
<td>[BTB] = 4.00 x 10^{-5} M</td>
<td>Temp. = 303 K</td>
</tr>
<tr>
<td>pH of system = 12.8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CTAB–Bromothymol Blue–Oxalic Acid System</th>
<th>[Oxalic Acid] x 10^{-3} M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photopotential (mV)</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>400.0</td>
</tr>
<tr>
<td>Photocurrent (μA)</td>
<td>34.0</td>
</tr>
<tr>
<td>Power (μW)</td>
<td>13.60</td>
</tr>
</tbody>
</table>

3.4 Concentration Variations impact of Bromothymol Blue:

It was observed that the increase in electrical productivity (i.e. photopotential and photocurrent) with the increased of the concentration of dye (BTB). In these Variations a maxima was attained at specific concentration of Bromothymol Blue, beyond this decline in the electrical productivity (i.e. photopotential and photocurrent) of the cell is observed.

These effects of Variations of Bromothymol Blue concentration on electrical productivity (i.e. photopotential and photocurrent) are given in Table-4 and graphical representation in figure-2.

Table 4: Effect of Variations of [Bromothymol Blue]

<table>
<thead>
<tr>
<th>[CTAB] = 7.00 x 10^{-4} M</th>
<th>Intensity of Light = 10.4 mWcm^{-2}</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Oxalic Acid] = 3.00 x 10^{-3} M</td>
<td>Temp. = 303 K</td>
</tr>
<tr>
<td>pH of system = 12.8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CTAB–Bromothymol Blue–Oxalic Acid System</th>
<th>[BTB] x 10^{-3} M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photopotential (mV)</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>423.0</td>
</tr>
<tr>
<td>Photocurrent (μA)</td>
<td>40.0</td>
</tr>
<tr>
<td>Power (μW)</td>
<td>16.92</td>
</tr>
</tbody>
</table>

3.5 STUDY OF CURRENT-POTENTIAL (i-V) CHARACTERISTICS OF THE SYSTEM

Current-Potential (i-V) Plots of the system:

Short circuit current (i_{sc}) is measured by microammeter in close circuit and open circuit voltage (Voc) measured by pH meter in open circuit. By the help of a pot (carbon, log 470 K) an external load was applied on microammeter joined to circuit and recorded the extreme value in between the potential and current values. Results of CTAB – Bromothymol Blue–Oxalic-Acid cell for i-v characteristics is reported in table.
In this i-V curve we found that it deviates from regular rectangular shape. A point in i-V curve where the product of current and potential is maximum, called Power Point (PP) and the fill-factor is calculated at power point by using the formula:

\[
\text{Fill factor } (\eta) = \frac{V_{pp} \times i_{pp}}{V_{oc} \times i_{sc}} \quad \ldots \ldots (1)
\]

Where \( V_{pp} \) is potential and \( i_{pp} \) is current at power point. 
\( V_{oc} \) is open circuit voltage, \( i_{sc} \) is short circuit current.

3.6 **STORAGE CAPACITY (PERFORMANCE) OF THE CELL**

The storage capacity or performance of the system is perceived by applying an exterior load (required to have current at power point) after switching off the illumination as soon as the potential ranges a constant value. The storage capacity or performance of the system is determined in terms of \( t_{50} \) (it is the time taken in fall of the power output to its half at power point in dark). It is detected that the Cetyl ammonium bromide Blue–Oxalic Acid system can be used in dark for 73.0 minutes. The graphical representation of outcomes is given in figure 2.
3.7 CONVERSION EFFICIENCY OF THE CELL

By using current and potential values at Power Point (pp) and the incident power of radiations, the conversion efficiency of the cell is calculated by using following formula. The conversion efficiency of the system is 0.25 %

\[
\text{Conversion Efficiency} = \frac{V_{pp} \times i_{pp}}{10.4 \text{ mW/cm}^2} \times 100\% \quad \ldots(2)
\]

4. CONCLUSION

Traditional fossil fuels meet most of our energy demand than solar alternatives. The high cost, low conversion efficiency and low capacity are limitation of solar alternatives. In present study of photoelectrochemical cell of various system combinations we have reached upto a good output and by using surfactant-reductant-photosensitizer conversion efficiency, storage capacity and other electrical parameters were improved and stability of system also enriched.
The commercially viable systems are still likely to be discovered. The appropriate selection of different types of surfactants; reductant and photosensitizer give rise to an efficient system which can be used in creation of photogalvanic system and can be used for society to overcome the energy problem to some extent. This kind of solar cell will be economical viable and pollution free and can be handle easy. The efforts must made to rise electrical out-put by picking appropriate material to reach the preferred results for commercial sustainability of the photogalvanic cells to decrease the energy crisis in some extent.

ACKNOWLEDGEMENTS

Authors are grateful to Head, Department of Chemistry, J.J.T. University, Jhunjhunu and Deen Dayal Upadhyaya College, New Delhi for valuable suggestions and given necessary facilities.

REFERENCES


A COMPARATIVE STUDY ON COMPETITION ANXIETY OF ALL INDIA INTERVARSITY RUNNERS AND FOOTBALLERS

Balasaheb Manikrao Dhonde, * Dr. SK. Md. Attaullah M.K. (Jagirdar) **

Abstract

The purpose of this study was comparing the mean Competition anxiety of all India intervarsity level runners and footballers. For this purpose three groups total of 60 male Runners (20 each of sprinters, Middle distance and long distance runners) All India Athletic intervarsity championship 2015 held at P.U. Patiala and 60 male footballers were randomly selected from North Zone football intervarsity and inter zonal football competition held at amity University Noida . Their age ranges were 18 – 25 years. Sports competition anxiety was assessed questionnaire based Test (SCAT) prepared by Rainer Martens (1986). Analysis of Variance was applied on gathered data. The findings of study revealed that mean sports competition anxiety of long distance runners (26.5) was greatest followed by middle distance runners (22.85), sprinters (20.25) and footballers (18.86).

Key Words: Competition Anxiety, Runner, Footballer

Introduction

Today, if you want to get success in the field of performance of physical education activity or sports, you will have to accommodate yourself to systematic training to develop physical and psychological variables on the one hand and training and consideration of psychological characteristics on the other. The crucial factor influencing development of physical fitness through participation in physical education and sport appear to be psychological characteristics of student and their socio-economic back-ground. To appear in physical education activities besides developing physique gives contribution in building self - confidence, reduction of anxiety level and outgoing tendency or extroversion as such proficiency may lead to increase success in physical task that is valued in one’s group.

Sprinting is the act of running over a short distance at (or near) top speed. It is used in many sports that incorporate running, typically as a way of quickly reaching a target or goal, or avoiding or catching an opponent. Human physiology dictates that a runner's near-top speed cannot be maintained for more than 30–35 seconds due to the depletion of Phosphocreatine stores in muscles, and perhaps secondarily to excessive Metabolic acidosis as a result of Anaerobic glycolysis (Quinn - 2007).

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** H.O.D. Physical Education, Milliya Arts & Science College, Beed (M.S.)
Middle-distance events include “races” of 800, 1500 and 3000 meters. Middle-distance runners use a combination of speed and endurance. They must stay in competition but also regulate their speed carefully to avoid tiring too quickly. Some middle-distance runners change their speed several times during the race, while others maintain an even pace throughout the race. Nurmi, who dominated track and field in the 1920, carried a stopwatch during races as a means of checking on his pace. An important element of middle distance races is the kick, a sprint for the finish line on the last lap. Running form for middle-distance event greatly differs from that of sprints. Knee action is much less pronounced, the stride is shorter and the forward lean is less extreme in middle-distance events.

**Long-distance running** or **endurance running**, is a form of continuous running over distances of at least three kilometres (1.86 miles). Physiologically, it is largely aerobic in nature and requires stamina as well as mental strength. (Grine, Frederick E. et al. – 2006) Among mammals, humans are well adapted for running significant distances, and particularly so among primates. The endurance running hypothesis suggests that running endurance in the *Homo* genus arose because travelling over large areas improved scavenging opportunities and allowed persistence hunting (*Humans hot, sweaty, natural-born runners* – 2007). The capacity for endurance running is also found in migratory ungulates and a limited number of terrestrial carnivores, such as dogs, wolves and hyenas (*Science Week* : 2004-2005).

The game of football is both an art and science. It involves techniques of running, passing, kicking, tackling, blocking, heading, juggling and dribbling. Often all these activities have to be performed at great speed. Though these individual skills are very important but it should not be forgotten that it is a team game and the players have to work together in offence or defense. Therefore a player must develop his skills and understanding for his contribution as per the demands of the game. The game of football contains physical challenges. Though two players may be equal in their skills but because of different physical and mental response, there can be much difference in their performance. A player must be quick in assessing a situation and in his response. A forward has to decide between pass and shot, defender between marking and covering and a goalkeeper whether to defend, keep standing at the goal or to run forward or sideways.

**Sports psychology** unlike like educational sport psychology, clinical psychology and experimental sport psychology study different aspects. The aim of educational sport psychology is to educate physical educators, coaches, athletes on one hand and on the other hand it teaches to our sports administrators how to understand and improve behaviour. Clinical sport psychology tells itself to emotional problem of athletes and enhances performance potential of emotionally healthy competitors.
Experimental sport psychology which is a purview of the researchers, tries to establish relationship between two or more influencing variables through a medium of laboratory techniques and field studies.

Anxiety is considered as one of the greatest problems of modern trends in scientific knowledge, cultural conflicts and economical problem of man. Due to these reasons, the level of anxiety is increasing. Anxiety factor tells us the emotional condition of a mind and in this mind; we find a fear of danger of loss or suffering as a prominent feature. More than anything else, a fear which is not known to us is the reason of anxiety which creates tension and disturbance.

Anxiety is a state of mind in which the individual responds with discomfort to same event that has occurred or is going to occur. Bell (1983) the person’s worries about events; their occurrences and consequences in general are the source of anxiety. However, anxiety is either somatic or cognitive in nature. In sample words it is a type of emotional disturbance.

Anxiety experienced during competition, known as competitive anxiety, can be defined as the feeling of apprehension an individual may experience in response to perceived threats during competition (Martens, 1977). Clearly there are situations in sport where athletes will doubt their own ability to put across a desired impression, either because of their own perceived lack of ability or due to external factors. For example, a skilled athlete who feels he needs to win to demonstrate his ability may still lose to a better competitor or because of factors beyond his control such as illness or injury. In these situations the inability to convey the desired impression may be perceived as a threat to athletes, social-identity, which may result in feelings of anxiety.

This issue of competitive anxiety and performance is of great interest to both researchers and athletes, and emphasis has been placed on the importance of understanding anxiety and the factors which contribute towards it (Martin & Mack, 1996). It has been suggested that through understanding the influences on competitive anxiety psychologists and sport practitioners will be able to more effectively help athletes manage their apprehension.

PROCEDURE

Selection of subjects

For the purpose of this study three groups total of 60 male Runners (20 each of sprinters, Middle distance and long distance runners) All India Athletic intervarsity championship 2015 held at P.U. Patiala dated on 29 December 2015 to 03 January 2016. And 60 male footballers were randomly selected from North Zone football intervarsity and inter zonal football competition held at amity University Noida on dated 8 th to 15 th February 2016. Their age ranges were 18 – 25 years.

1. Sports Competition Anxiety

The sports Competition Anxiety Test is latest and most popular sport-specific anxiety test whose purpose is to assess individual differences in sports competitive trait anxiety or the tendency to pursue competition situations, as threatening, and /or to respond to these situations with elevated state anxiety.
Sports competition anxiety test questionnaire (SCAT) prepared by Rainer Martens (1986), was originally constructed for children (ages 10-15), its adult version was developed later on by suitably modifying the instructions and items. A reliability quotient of 0.85 had been reported for the adult version of SCAT.

Procedure:-

The SCAT questionnaire contains fifteen items. The subjects were asked to indicate how they generally felt in competitive sports situations, and responded to each item using a three point ordinal scale (hardly ever, sometimes, or often).

Out of fifteen items; only ten items assess sports competitive trait anxiety proneness (e.g., “Before I compete I feel uneasy”) and used for scoring purpose. These ten items were: 2, 3, 5, 6, 8, 9, 11, 12, 14, and 15. The remaining five test items were the spurious items, which were added to the questionnaire to diminish response bias towards the actual test items (e.g., “Competing against others is socially enjoyable”). These five spurious items were not scored. These spurious were: 1, 4, 7, 10 and 13.

Every statement had three possible responses i.e.:-
1. Hardly ever
2. Sometimes
3. Often

While the subjects were responding to the questionnaire, the scholar went around verifying that they were recording answers sequentially and explained the meaning of the words in case of doubts.

Scoring:-

The scholar scrutinized the completed questionnaire in order to ensure that the subject responds to every item and there was no question left unanswered. The items 2, 3, 5, 8, 9, 12, 14 and 15 were worded in such a manner that they were scored according to the following key:-

<table>
<thead>
<tr>
<th>Score</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hardly ever</td>
</tr>
<tr>
<td>2</td>
<td>Sometimes</td>
</tr>
<tr>
<td>3</td>
<td>Often</td>
</tr>
</tbody>
</table>

In the case of items 6 and 11 scoring was carried out according to the following key:-

<table>
<thead>
<tr>
<th>Score</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Often</td>
</tr>
<tr>
<td>2</td>
<td>Sometimes</td>
</tr>
<tr>
<td>3</td>
<td>Hardly ever</td>
</tr>
</tbody>
</table>

However spurious questions i.e. 1, 4, 7, 10, and 13 were not be scored as suggested by Rainer Martens.

If a subject deleted one of the test items, her prorated full scale score was obtained by computing the mean score for the nine items answered, multiplying this value by ten values by ten, and rounding the product to the next whole number. When two or more items were omitted, the respondent’s questionnaire was invalidated.
Total scores of SCAT ranged from 10 (low competitive anxiety) to 30 (high competitive anxiety). The subjects were assigned to the following category according to the score obtained by them:

<table>
<thead>
<tr>
<th>Raw/Mean Score</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 17</td>
<td>Low Anxieties</td>
</tr>
<tr>
<td>17 – 24</td>
<td>Moderate Anxiety</td>
</tr>
<tr>
<td>More than 24</td>
<td>High Anxiety</td>
</tr>
</tbody>
</table>

Responses obtained from the subjects on each statements of sports competition anxiety questionnaires were subjected to statistical treatment keeping in view the purpose of study.

**STATISTICAL ANALYSIS**

Retreating the purpose of the study One – way analysis of variance (ANOVA) was applied to find out the significance of mean difference of Body Composition of all India Intervarsity sprinters, middle – distance and long distance runners (each n=20), and all India intervarsity level footballers (n = 60). This followed by appropriate Post – hoc (Scheffe’s test) comparison technique to determine the significance of difference between ordered paired means at 0.05 level.

**ANALYSIS OF DATA**

**Table – 1**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>D. F.</th>
<th>S.S.</th>
<th>M.S.S.</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>957.6333</td>
<td>319.2111</td>
<td>49.75387*</td>
</tr>
<tr>
<td>Error</td>
<td>116</td>
<td>744.2333</td>
<td>6.415805</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at .05 level  

[Tab.F.05 (3,116) = 2.68]

Since calculated F – value is greater than tabulated F – value, the hypothesis is accepted and we conclude that significant difference exists in the mean sports competition anxiety of Sprinters, Middle Distance Runners, Long Distance Runners and footballers. To further find out which group’s mean sports competition anxiety is greater than the other, pair wise means analysis is done through Scheffe’s Test.

**Table – 2**

<table>
<thead>
<tr>
<th>Sprinters</th>
<th>Middle distance runners</th>
<th>Long distance runners</th>
<th>Footballers</th>
<th>Mean Difference</th>
<th>CD at 5% level</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.25</td>
<td>22.85</td>
<td>26.5</td>
<td>18.86667</td>
<td>2.6*</td>
<td>2.271191</td>
</tr>
<tr>
<td>20.25</td>
<td></td>
<td></td>
<td>18.86667</td>
<td>6.25*</td>
<td>2.271191</td>
</tr>
<tr>
<td>20.25</td>
<td></td>
<td></td>
<td>18.86667</td>
<td>3.83333*</td>
<td>1.854419</td>
</tr>
<tr>
<td>22.85</td>
<td></td>
<td></td>
<td>18.86667</td>
<td>3.983333*</td>
<td>1.854419</td>
</tr>
<tr>
<td>22.85</td>
<td></td>
<td></td>
<td>18.86667</td>
<td>7.633333*</td>
<td>1.854419</td>
</tr>
</tbody>
</table>

*Significant at 5% level
Comparing the pair wise mean difference with critical difference we are able to conclude that mean sports competition anxiety of long distance runners is significantly greater than the mean sports competition anxiety of sprinters, footballers and middle distance runners. The mean sports competition anxiety of middle distance runners is significantly greater than the mean sports competition anxiety of sprinters and footballer. Whereas mean sports competition anxiety of sprinters is insignificantly greater than mean sports competition anxiety of footballers. Thus it is concluded that mean sports competition anxiety of long distance runners was greatest followed by middle distance runners, sprinters and footballers.

**Figure – 1**
Sports Competition Anxiety

![Sports Competition Anxiety](image)

**Discussion of findings**

Findings of the study had shown that mean sports competition anxiety of long distance runners (26.5) is significantly greater than the mean sports competition anxiety of sprinters (20.25), footballers(18.86) and middle distance runners(22.85). The mean sports competition anxiety of middle distance runners is significantly greater than the mean sports competition anxiety of sprinters and footballer. Whereas mean sports competition anxiety of sprinters is insignificantly greater than mean sports competition anxiety of footballers. Thus it is concluded that mean sports competition anxiety of long distance runners was greatest followed by middle distance runners, sprinters and footballers.
References


History
सन्त अफजल के स्त्री विश्यक विचार

डॉ. महसूदन चौबे *

मध्यकाल भवित आंदोलन एवं सूफी आंदोलन के लिए भारत के इतिहास में प्रसिद्ध है। यह उच्च कोटियों के धर्मिक, सामाजिक एवं आयामिक विचारों तथा साहित्य सुझन का सुनहरा युग था। इस युग में भारत के मिशन क्षेत्रों में सन्तों ने भक्ति की उत्कृष्टतम घारा को प्रवाहित किया। वर्तमान मध्ययुग का उपमूर्तिक क्षेत्र मिनाझर भी सन्तों की उपस्थिति से धन्य हुआ है।

मिनाझर के सत्यों में अफजल का विश्वास रचना है। उनके जीवनन्वृत्त के बारे में अपेक्षित जानकारी उपलब्ध नहीं है। लेकिन उनकों रचना अम्सामर से उनके चित्रों और कार्यों के बारे में पर्याप्त जानकारी मिल जाती है। इस रचना का संकलन श्री बाबूलल सेन ने किया है।

प्रस्तुत शोध पत्र में सन्त अफजल के स्त्री विश्यक विचारों का अनुशीलन किया गया है।

1. नारी के दो रूपः
सन्त अफजल ने नारी के दो रूपों का वर्णन किया है। एक ओर वे जहाँ नारी को महन, सती, माता, बहन, पति, सती, लाजवंती, प्रियतमा आदि रूपों में देखते हैं, तो दूसरी ओर कुछ नारियों को निर्माण एवं चरित्रकृति कहते हैं।

2. चरित्रवान रित्वियों की प्रशंसा:
सन्त अफजल मानते थे कि नारी की महात्मा उसके दुःख चरित्र पर निर्भर है। वे चरित्रवान रित्वियों की प्रशंसा करते हुये उन्हें पति-पतिया धर्म पर अपहरण से रहने का वापस देते हैं कि ऐसी रित्वियों महत्त्व होती हैं। वे सही को कठोर देखकर दूसरों का भाला चाहते हैं। सुमित्र के संभालक ब्रह्मा, विष्णु और महेश की जन्मदात्री भी तो स्त्री ही थी, अतः स्त्री जाति की महानता में कोई सम्भव नहीं है।

उन्हीं के शब्दों में--
अफजल, तीर्थाया तो सक्रिय है, आद गुरु कुल तारा।
जाकिज उत्तरप ब्रह्मा, विश्व, महेश, जीन से ये संसार।

3. पति-पतिया रित्वियों की प्रशंसा:
उन्होंने पति-पतिया स्त्री को ही सती कहा है जिस सरस से सन्त लोग काम, क्रोध को जलाते हैं और उन्होंने लोग ज्ञान की गलियों में चक्रवीर रहते हैं, उसी प्रकार से पति-पतिया स्त्री अपने तन को जलाकर सती होने का दोष न कर अपने द्वारा अपने गुणों से पति की प्रसनन रखती है।

4. गुणवाना रित्वियों की प्रशंसा:
उन्होंने गुणवाना रित्वियों की भविष्य प्रशंसा की है तथा स्त्री को लोकलाज, मयादा आदि के प्रतीक माना है। उन्होंने तन होने को बड़ी वीरता का काम बताया, आपत्ति उस स्त्री का उससे भी बढ़ा बताया, जो अपने कुटुंब की मयादा की रक्षा में अपने आप को कष्ट पूर्ववती रहती है।

यथा--
अफजल, सूरी हो हृद सती, पति-पतिया जल कुल लाज।
सन्त जार गरम कु, राम मिलन के काज॥

* सहायक प्राध्यापक, इतिहास, शहीद भीमा नायक शास्त्रीकीय स्नातकोत्तर महाविद्यालय, बढ़वानी, म. प.

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अन्धनेव माता, बहन और पत्नी के रूप में अपने कर्तव्य का पालन करने वाली स्त्री की बहुत प्रशंसा की है।

5. परस्त्री के साविन्य का विरोध:

सन्त अफजल ने पराई श्री की कृपणगति को मानव के लिये बहुत ही हानिकारक बनाया है। वे परस्त्री की तुलना विष्णु सिंह से करते हैं। सिंह साँप को खिलाता-पिलाता है, लेकिन जरा सी चूक होने पर साँप सापे को डस लेता है। इसी प्रकार पराई श्री भी जरा सी चूक होने पर प्राण हर लेती है। पराई श्री किसी की नहीं होती। वह बुरौं शरीर के ही शिकार कर लेती है और व्यतिक्रम पराई की पत्ता ही नहीं चलाता है। उन्हीं के शब्दों में—

अफजल, कौं सा तु परस्त्र रह जा, तो न संग पहनाया।
कभी कराह कु मार लीखे, बीन खानें तुलबन्द।

अर्थात् तु किसका स्पर्श कर रहा है। पराई श्री का साथ किसी नहीं छोड़ सका है?
इसने बिना किसी शरीर के कई राहगीरों को मार निषाध कर दिया। वह तुझे भी मार दालेगी।

6. चरित्रहीन स्त्रियों की आलोचना:

अफजल सहाब ने मानवीय चरित्र को बहुत महत्व दिया है। चरित्रहीन स्त्रियों के प्रति उनकी धारणा बड़ी अपराधी थी। वे कहते थे कि जो स्त्री अपने पति की नहीं हो सकती वह किसी की भी नहीं हो सकती है। ऐसी हजारों स्त्रियों होती हैं, जिन्हें चाहे जिन्हें सुख, शायद, आराम मिले व किसी एक की होकर नहीं रह सकती है। ऐसी स्त्रियों को किसी भी प्रकार के सुख की प्राप्ति होने पर भी पर-पुरुष का आलोचना करवाये तो वह निर्मलज्जा होती है।

7. श्री: एक पहली:

स्त्रियों के चरित्र को समाप्त पाना बहुत कठिन होता है। बहुत सी स्त्रियों ऐसी होती हैं, जो करती कुछ है और दिखाया कुछ और ही करती हैं। उन्हीं के शब्दों में—

अफजल, तीरीषा मुफ्त आपर अवयव, तजो तुम प्रसंग।
पहले पीढ़ी को मारकर, जालें मृत्यु संग।

अर्थात् अफजल सहाब कहते हैं कि भाई, तिरित्रायित्र अपरस्पर होता है। कुछ महिलाएं
ऐसी होती हैं, जो पहले से अपने पति को मार डालती है और बाद में उसके साथ सती हो जाती है।

जाँच है कि सन्त अफजल ने नारी के काम स्वरुप को श्रेष्ठ न मानकर, उसके सातन्त्रक, पतियाँ से युक्त पत्नी, माता, बहन आदि के रूपों को ही श्रेष्ठ मानता है। अन्य सन्तों की तरह वे नारी निवृत्त प्रतीत होते हैं, लेकिन वे उसके कामी या विलासिनी रूप के आलोचक नहीं हैं। उन्होंने उदयपुर के देशवासी मानकर अपराध सहाय भी करते हैं। नारी समाज की सत्ताबंध होती है। उन्होंने नैतिक उच्चता समाज की दूरता का आवश्यकता है। इसी तरह
को कुछ दिनवार हुई है उन्होंने इसके दृष्टि से निर्माण की निर्माण की। निर्माण
उनके विवाहों ने तत्कालीन समाज की नायिकाओं को श्रेष्ठ मार्ग के चयन के लिये रोशनी
उपलब्ध कराई हैगी।

संदर्भ प्रमुख श्रीविनो

[1] अमर सागर, खण्ड एक, रचनिता— सन्त अफजल, संकलन एवं अनुवाद— बाबूलाल सेन, प्रकाशक— मध्यप्रदेश आदिवासी लोक कला परिषद, भोपाल, संकरण— 1999, पृष्ठ— 162

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Academic Achievement of Adolescents In Relation To Home Environment

Dr. Manisha Singh,* Dr. Arimardan Singh**

Abstract:
The objective of the present investigation is the relationship between academic achievement of secondary students and dimensions of home environment. 100 senior secondary school students were selected through random sampling techniques. Home Environment Inventory standardized by K. S. Mishra. There is no significant difference between academic achievement of senior secondary school students and dimensions of home environment.

Key Words: Academic Achievement, dimensions of home environment.

Introduction:
Adolescents is the often described as a phase of the life that being is biology and ends in society (Sharma). Adolescents suffer from anxiety when they are faced with unfamiliar or uncertain situations. Sometimes they feel anxiety either by their own inner conflict or sometimes by hardships of life. Reason of anxiety may be feelings of inadequacy which comes from a number of general causes. Such as parental over-protectiveness or over restrictors or the bind of home environment or the relationship with his or her peer group, which result in his inability to handle his problems properly without help.

Objectives:
➢ To study of the relationship between academic achievement among senior secondary school students and dimension of home environment.

Hypotheses:
➢ There is no significant relationship between academic achievement among senior secondary school students and dimension of home environment.

Method:
The descriptive survey method was used.

Sample:
The sample of the study was consisted of 100 senior secondary school students of district Lucknow.

Tool:
Home Environment Inventory standardized) by K. S. Mishra.
Statistical Technique:
Coefficient of Correlation.

Table: I

<table>
<thead>
<tr>
<th>S. No</th>
<th>Dimensions</th>
<th>Variables</th>
<th>Coefficient of Correlation</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Controlled Behaviour</td>
<td>Controlled -Behaviour</td>
<td>-0.0502</td>
<td>Less Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Academic-Achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Punishment</td>
<td>Punishment</td>
<td>0.0174</td>
<td>Less Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Academic-Achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Social–Isolation</td>
<td>Social–Isolation</td>
<td>0.0171</td>
<td>Less Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Academic-Achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Reward</td>
<td>Reward</td>
<td>-0.0132</td>
<td>Less Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Academic-Achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Permissiveness</td>
<td>Permissiveness</td>
<td>-0.0641</td>
<td>Less Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Academic-Achievement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Controlled Behaviour:
The table indicates that the correlation between controlled behavior and academic achievement (-0.0502) which is quite negligible value and signifies that there is no relationship between controlled behaviour and academic achievement of secondary students.

Punishment:
The table shows the correlation between punishment and academic achievement (0.0174) which is quite negligible value and signifies that there is no relationship between punishment and academic achievement of secondary students.

Social – Isolation:
The table reveals that the correlation between social - isolation and academic achievement (0.0171) which is quite negligible value and signifies that there is no relationship between social - isolation and academic achievement of secondary students.

Reward:
Analysis of the correlation between reward and academic achievement (-0.0132) which is quite negligible value and signifies that there is no relationship between reward and academic achievement of secondary students.

Permissiveness:
It is revealed from the table that the correlation between permissiveness and academic achievement (-0.0641) which is quite negligible value and signifies that there is no relationship between permissiveness and academic achievement of secondary students.
Major findings:
1. There is no significant relationship between controlled behaviour and academic achievement of the secondary students.
2. There is no significant relationship between punishment and academic achievement of secondary students.
3. There is no significant relationship between social-isolation and academic achievement of secondary students.
4. There is no significant relationship between reward and academic achievement of secondary students.
5. There is no significant relationship between permissiveness and academic achievement of secondary students.

Educational implication:
1. There proper education teacher can inculcate proper values among the students which will be proved fruit full for their academic achievement as well as home environment.
2. Education is very proof device for making home environment conductive for the better growth of students.
   Home environment has great impact on the academic achievement of the students so before blaming the school authority one should try to make such home environment which is provide various avenue of growth to the students in various aspects.

References:

Relationship between Study Habits and Academic Achievement of Senior Secondary School Students

Dr. Manisha Singh,* Dr. Arimardan Singh**

Abstract:
The objective of the present investigation is to study the relationship between study habits and academic achievement of senior secondary school students. 200 senior secondary school students from Lucknow city was selected through random sampling techniques. Study Habit Inventory by Dr. M. Mukhopadhyay and Dr. D.N. Sansanwal. It was found that no significant relationship between study habits and academic achievement of senior secondary school boys and girls students and also no significant difference in mean of study habits of senior secondary school students of low and high academic achievement.

Introduction
An individual in his lifetime will have so many experiences. Each experience will result in a behavioral change. The process of a change in the behavior is learning. Learning is not simply one type of activity. It is a composite or complex function involving almost all of simpler function into which the activities of the human mind may be resolved. One of the important aspects, which is associated with learning is study habits. The present investigation aims at ‘Relationship between Study Habits and Academic Achievement of Senior Secondary School Students. ‘In a limited sense learning for many is the acquisition of knowledge through reading books and listening to teachers. Learning for a student consists mainly of mastering and making his own the knowledge and skill he is directed to acquire in searching by his personal effort for a wider knowledge of the world around him and in applying his knowledge to practical situation in life. Such learning calls for a variety of action and reactions on his part. The following principals for efficient study are offered

- The first general function of the school in promoting efficient learning is to provide good physical and social surroundings building such aspects as building, equipment, teaching personnel and pupil attitudes.
- The teacher and administration are obligated to provide a curriculum organized into favourable learning units arranged in good sequence.
- Learning should be carried out in terms of ‘whole ‘that is units that get their meaning completely fulfill some important purpose of pupils.

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The teacher must be concerned with analyzing the pupil’s efforts to give him accurate and detailed information concerning his progress.

Demonstrations are particularly valuable for beginners.

Graphical representation of progress is especially valuable but it must be based on measures of performance that are well adapted to the activity and to the pupil’s level of ability.

Verbal directions should be used sparingly in the early stages of learning and more liberally as the pupil make progress and especially as his vocabulary descriptive of the activity is enlarged and made more meaningful.

Study period for a single, detailed skill should be comparatively short.

Study period of forty to sixty minutes in length should contain a variety of activities, although they may be part of a larger unit.

Study distributed over several days, weeks or months in relatively short period is definitely better especially for permanent learning than an equal quantity of study crammed into a single day or few days.

Plateau and slumps of performance are due to inadequate guidance, adoption of undesirable work and study habits and too prolonged direction; they can be minimized or avoided.

Activity organized by strong, motivation produces rapid learning.

Objectives:
1. To study the relationship between study habits and academic achievement of senior secondary school students.
2. To compare the study habits of senior secondary school students of low and high academic achievement.

Hypotheses:
1. There is no significant relationship between study habits and academic achievement of senior secondary school students.
2. There is no significant difference in mean of study habits of senior secondary school students of low and high academic achievement.

Method:
The descriptive survey method was used in the present study.

Sample:
The sample of the study consisted of 200 students of senior secondary school in Lucknow through randomly selected.

Tools:
1. Study Habit Inventory by Dr. M. Mukhopadhyay and Dr. D.N. Sansanwal.
2. 11th Class Examination scores of senior secondary school students were taken as academic achievement.

Statistical Techniques:
Mean, S. D., ‘t’ test, and Pearson’s Coefficient of correlation.
Table 1
Relationship between academic achievement and study habits of senior secondary school students.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient of correlation</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Habits</td>
<td>.052</td>
<td>NS</td>
</tr>
</tbody>
</table>

N=200

The Table 1 reveals that coefficient of correlation between academic achievement and study habits of senior secondary school students is .052 which is positive and not significant even at 0.05 level of significance so the null hypothesis “There is no significant relationship between study habits and academic achievement of senior secondary school students” is retained. Thus it can be interpreted that there is no significant relationship between academic achievement and study habits of senior secondary school students. It can be concluded that study habit is not one of the reasons which influence academic achievement of senior secondary school students.

Table 2
Coefficient of correlation between academic achievement and study habits of senior secondary school boys and girls

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Variables</th>
<th>No.</th>
<th>Coefficient of Correlation</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study habits of boys</td>
<td>125</td>
<td>0.10</td>
<td>0.05</td>
</tr>
<tr>
<td>2</td>
<td>Study habits of girls</td>
<td>75</td>
<td>0.01</td>
<td>NS</td>
</tr>
</tbody>
</table>

The Table 2 reveals that coefficient of correlation between study habits of boys and academic achievement of senior secondary school boys is 0.10 which is significant at 0.05 level of significance. So the null hypothesis, “There is no significant relationship between study habits and academic achievement of senior secondary school boys” is rejected. It can be interpreted that academic achievement has dependence on study habits. So it can be concluded that Study habits have significant effect on academic achievement of senior secondary school boys. It implies that higher the study habits, higher the academic achievement. Whereas the coefficient of correlation between study habits of girls and academic achievement of senior secondary school girls is 0.01 which is not significant even at 0.05 level of significance. So the null hypothesis, “There is no significant relationship between study habits and academic achievement of senior secondary school girls” is retained. Hence it can be interpreted that academic achievement has no dependence on study habits. So it can be concluded that study habits is not only one factor which affect academic achievement of senior secondary schoolgirls there are other factors like environment, motivation and guidance which can be resulted in good academic achievement.
Table 3
Significance of difference in mean of study habits of senior secondary school students of low and high academic achievement

<table>
<thead>
<tr>
<th>Variables</th>
<th>Numbers</th>
<th>Mean</th>
<th>S.D.</th>
<th>t-value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study habits of low achievers</td>
<td>91</td>
<td>117.99</td>
<td>13.34</td>
<td>1.21</td>
<td>NS</td>
</tr>
<tr>
<td>Study habits of high achievers</td>
<td>59</td>
<td>121.01</td>
<td>14.22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 shows that the ‘t’ value is 1.21 which is not significant even at 0.05 level of significance. So the null hypothesis “There is no significant difference in mean of study habits of senior secondary school students of low and high academic achievement” is retained. This calculated difference is not real but it may be due to chance factor. Thus it can be interpreted that there is no significant difference in study habits of low and high academic achievement of senior secondary school students.

Table 4
Significance of difference in mean of study habits of senior secondary school boys and girls

<table>
<thead>
<tr>
<th>Variables</th>
<th>Numbers</th>
<th>Mean</th>
<th>S.D.</th>
<th>t-value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>125</td>
<td>118.97</td>
<td>12.69</td>
<td>2.81</td>
<td>0.01</td>
</tr>
<tr>
<td>Girls</td>
<td>75</td>
<td>121.81</td>
<td>13.48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table 4 reveals that t-value is 2.81, which is significant at 0.01 level of significance. Hence the null hypothesis, “There is no significant difference in mean of study habits of senior secondary school boys and girls” is rejected. This difference is real and not due to chance factor. It can be concluded that mean of girls is higher than the mean of boys. Further girls have better study habits than boys.

Finding:
1. Relationship with respect to study habits the coefficient of correlation between study habits and academic achievement is .052 which was not significant. It means that study habits were not significantly correlated with academic achievement. It can be concluded that study habits was not only one factor that affected academic achievement. But there were other factors like intelligence, environment which influenced academic achievement and can bring change in academic achievement.

2. The coefficient of correlation between study habits and academic achievement of boys was 0.10 which was significant at 0.05 level of significance and it was negligible also. It can be concluded that change in one variable affected the other variable. It can be concluded that anxiety and academic achievement were significantly related.
3. The coefficient of correlation between study habits and academic achievement of girls was 0.01 which was negligible and was not significant. Thus it can be concluded that this relationship did not play significant role in academic achievement.

4. The t-value is 1.21 which was not found significant. It means that students related to low and high academic achievement did not have any significant difference in mean of study habits. It can be concluded that there is no significant difference in mean score of study habits of low and high academic achievements of senior secondary school students.

5. Significance of difference in mean of anxiety of boys and girls was 2.81, which was significant. Therefore, it can be interpreted that boys and girls exhibited significant difference in study habits and girls had significantly higher study habits than boys. There was a significant difference in mean score of study habits of boys and girls. It can be interpreted that girls had higher study habits than boys.

**Conclusion:**

After going through the findings and discussion, following conclusions are drawn. These conclusions may be seen in accordance with sample and tools used by the investigator.

1) No significant relationship is found between study habits and academic achievement of senior secondary school students.

2) It is concluded that study habits and academic achievement of boys are not significantly related. It means interpreted that change in one variable affects the other variable significantly.

3) There is no correlation between study habits and academic achievement of girls. Further study habit does not play significant role in academic achievement.

4) There is a significant difference in mean score of study habits of boys and girls. It is interpreted that girls have significant higher study habits than boys.

**References**


शारा

प्रत्येक स्वतंत्र राष्ट्र का अपना एक संविधान होता है, जिसके अनुसार उस राष्ट्र की शासन व्यवस्था का संचालन होता है। वह संविधान राष्ट्रीय विकास में महत्वपूर्ण सहयोग दे सकता है, जिसे उस राष्ट्र की जनता ने स्वयं बनाया हो जो उस देश की संविधान निर्माणी समा द्वारा बनाया गया है। संविधान निर्माणी समा द्वारा संविधान का निर्माण स्वाधीन राष्ट्र का लक्षण है। अपने निर्वाचित प्रतिनिधियों द्वारा संविधान निर्माण के अधिकार की मांग का सिद्धान्त स्वाधीनता की मांग से होता है। भारत में भी स्वतंत्रता के पश्चात् नये संविधान का निर्माण किया गया जिसकी जिम्मेदारी एक सात सदस्यीय समिति जिसके अन्य डॉ. अम्बेडकर थे, को सीधी गई। डॉ. अम्बेडकर ने दिन-रात एक करके अपने स्वास्थ्य की परवर्धन किये वैभव भारत के संविधान का मूल सूचना प्रदान किया कितने उनके द्वारा निर्माण के समय दिये गये सुझावों एवं वक्तव्यों का वर्तमान तक पूर्ण विवेश्यक किया जाता रहा है तथा समय-समय पर संविधान में किये गये संशोधनों के साथ आज संविधान में 448 घड़ियाँ से युक्त 25 माह, वर्ष अनुसूचियां, 5 अनुलग्नक तथा 100 संशोधन शामिल है। भारतीय संविधान के प्रस्तावना के अनुसार भारत एक समुदायसम्पन्न, समाजवादी, धर्मनिरपेक्ष, लोकतांत्रिक गणराज्य है।

प्रस्तावना

कुछ लोग अपने जीवन में प्रसिद्धि प्राप्त करते हैं, तो कुछ घटनापर्वत। कई ऐसे भी महागुण होते हैं जिनकी उनकी जीवन और परम्परागत दोनों में प्रसिद्धि भरी रहती है। ऐसे ही महागुण थे डॉ. अम्बेडकर जो आज हमारे बीच नहीं है किंतु उनका सन्देश उनकी प्रेरणा, उनकी शिक्षा एवं उनकी विचारधारा हमारे साथ है।

भारत सरकार द्वारा घोषित इस वर्ष डॉ. बी. एच. अम्बेडकर की 125वीं जयन्ती का सामरिक मनाया जायेगा। भारतीय समाज के शिक्षाभार वह रहा है कि “आत्मवाद भये-भयों तरीका” का ज्ञान देने वाला स्वयं ही ज्ञान के तितिर में खोया लगा। विकास और गौरव के एक स्तर पर पहुँचने के बाद भारतीय समाज की इकाईयाँ अपने स्वयं निर्वहन के बजाय अपनी सुविधाओं के अभिविध्य में लग गई एवं इन्हें सजीवत करने के प्रयास ज्यादा महत्वपूर्ण हो गए। इससे अन्यथा भये-भयों व शोषण को बदला मिला। बाबा साहेब डॉ. अम्बेडकर के जीवन की उल्लेखियाँ को अग्रणी मिलाया जाए, तो उन्हें संविधान निर्माण का एक महत्वपूर्ण स्थान रहा है।

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प्रजातंत्र की वे सरकार के एक अंग के रूप में नहीं देखते क्योंकि लोगों की आस्था तथा विश्वास के रूप में महत्वपूर्ण करते थे।

9 दिसम्बर, 1946 को संविधान समा गठित हुई। पौं नेहरू ने भारतीय संविधान के निर्माण का सुझाव 13 दिसम्बर, 1945 को पेश किया। इस सुझाव पर जवाब ने अपनी ओर से उपस्थित पेश की। मुखियां और अन्य संस्थापक लोगों का हिस्सा अखंड भारत में ही सुपरिचित है। इससे सम्बन्धित विचार डॉ० अम्बेडकर ने संविधान समा को सम्बन्धित करते हुए रखी।

इसके बाद पौं नेहरू का सुझाव 1947 के जनवरी माह में पारित हुआ। संविधान समा का प्रारूप (मसीहादा) समिति के साथ सदस्य थे— स्वतंत्र (1) अलियादी कृष्णा स्वामी आवार (2) एक गोपाला स्वामी आवार (3) कांग्रेस मुख्याधी सादुला (4) दीपक मिश्रि (6) डॉ० खतन और (7) डॉ० अम्बेडकर (अध्यक्ष)।

संविधान का मसीहादा धर्म वाचन के लिए पेश करते हुए डॊ० अम्बेडकर 4 नवंबर, 1949 को अपने भाषण में कहा—“कीह भी संविधान पूर्ण नहीं। संविधान जैसा कि मसीहादा समिति ने बनाया है इस देश में शुरुआत करने के लिए काफी उपयुक्त है: मेरे विचार में यह काम चलाने लागा है।

वृद्ध और शांत दोनों अवस्थों में यह देश का एक साथ रहने के लिए काफी सुरू है। वास्तव में, यदि में यह कहें, नए संविधान में परिस्थितियों भिड़ तो कारण यह नहीं होगा कि हमारा संविधान बुरा है, बसक हमें यह कहना पड़ा कि आमीन ही दुःख था।”

केंद्रीय सरकार ने भारतीय राज्यों की मांग पर विचार करने के लिए एक आयोग नियुक्त किया हुआ था। डॊ० अम्बेडकर ने महाराष्ट्र के बारे में इस आयोग के समक्ष गवाही दी और एक अन्य पेश किया। बर्म वृद्ध में आयोग का 14 अगस्त को, 1948 डॊ० को दिए आयोग में डॊ० अम्बेडकर ने कहा—“एक माहाराज प्रत्यक्ष का आवश्यकताएँ अथवा सामाजिक एकसमय पहलन करता है और मिले जुले प्राप्त से एक माहाराज प्रत्यक्ष में लोकतंत्र अधिक सफल होता है। भारतीय प्रत्यक्ष बनाने में कोई हानि नहीं। खास है माहाराज राज्यों में प्रत्यक्ष प्रत्यक्ष का माहा को राजभाषा बनाने में। “ज्ञापन में डॊ० अम्बेडकर ने बर्म शहर महाराष्ट्र में मिलने की जोरदार वकालत की।

डॊ० अम्बेडकर ने 17 नवम्बर, 1949 इंडो संविधान संविधान के लिए संविधान समा में पेश किया। डॊ० अम्बेडकर ने संविधान समा में जो मेहनत की शेष सदस्यों के प्रसंग का। अब तक संविधान समा का कार्य को शुरू हुए 2 वर्ष 11 माह तथा 17 दिन हुए। 29 अगस्त, 1947 को संविधान समिति ने मसीहादा समिति का चयन किया परंतु दूसरे ही दिन यानि 30 अगस्त, 1947 को मसीहादा कमेटी की पहली समा ली। उस दिन से 141 दिन तक मसीहादा कमेटी का काममाज चला। मूल संविधान मसीहादे में कुल 243 धाराएँ तथा 13 परिशिष्ट थे। उत्तराधिकार देखने के संविधान मसीहादा समिति ने उसमें विचार कर संविधान मसीहादा दैनिक कर संविधान समीति के समक्ष प्रस्तुत किया। उस समय धाराओं की संख्या 315 से 385 तक बढ़कर गई। अब अंतिम रूप में संविधान मसीहादे में कुल 395 धारा तथा 8 परिशिष्ट है। इस सारी उदाहरण में लगभग 7625 उपस्थिताएँ प्रस्तुत की थीं, इसमें से 2373 उपस्थिताओं को समागम में ली में वर्षों के लिए रखा गया।

संविधान समा का अर्थ—

संविधान जीवन का वह मार्ग है जिसे राज्य ने अपने लिए अपनाया है। राज्य के इस जीवन मार्ग को निर्धारित करने के लिए विविध पद्धतियों अपनाई जा सकती है। इसमें और 18वीं शताब्दी में सुपरिचित क्रान्तियों ने इस विचार को जन्म दिया कि शासन के मौलिक कार्यों का निर्माण नागरिकों की एक विशेष प्रतिनिधि समा द्वारा किया जाना चाहिए। समा के इस विचार को सर्वोपरित अमेरिका और फ्रांस ने ही अपनाया।

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साधारण शब्दों में, संविधान समा का आशय किसी देश के लिये संविधान का निर्माण करने वाली समा से होता है। इसी तरह संविधान समा का आशय किसी देश के लिये संविधान का निर्माण करने वाली समा से होता है। इसी तरह संविधान समा का आशय किसी देश के लिये संविधान का निर्माण करने वाली समा से होता है। इसी तरह संविधान समा का आशय किसी देश के लिये संविधान का निर्माण करने वाली समा से होता है। इसी तरह संविधान समा का आशय किसी देश के लिये संविधान का निर्माण करने वाली समा से होता है। इसी तरह संविधान समा का आशय किसी देश के लिये संविधान का निर्माण करने वाली समा से होता है। इसी तरह संविधान समा का आशय किसी देश के लिये संविधान का निर्माण करने वाली समा से होता है। इसी तरह संविधान समा का आशय किसी देश के लिये संविधान का निर्माण करने वाली समा से होता है। इसी तरह संविधान समा का आशय किसी देश के लिये संविधान का निर्माण करने वाली समा से होता है। इसी तरह संविधान समा का आशय किसी देश के लिये संविधान का निर्माण करने वाली समा से होता है।
विश्व व भारत के महान विधि विशेषज्ञ डॉ० भीमराव अमबडकर ही इस समिति के समाख्याति के रूप में ब्रह्मांड व्याप्ति वृद्धि गरवे तद्वारा 19 अगस्त, 1947 को प्रारूप समिति का गठन किया गया। डॉ० अमबडकर संविधान सम्बन्धी समस्या में सीधे मार्ग से न आकर बंगाल विधानसभा से दलितों के प्रतिनिधित्व के रूप में मुसलमान लीग के बोर्ड की सहायता से निर्वाचित होकर आये। पूरे नेहरू ने एक प्रस्ताव पेश करके ‘भारत के ध्येय’ की धोखाधड़ी संविधान सम्बन्धी समस्या में की, जिसमें ‘स्वतंत्र सार्वभौम सत्य प्राप्त लोकतंत्र’ कहा गया। लेकिन एबीआई जर्नल के अनुसार ने कहा कि मुसलमान लीग और रिवाजसिद्धों के प्रतिनिधित्व समिति में नहीं तक प्रस्ताव पारित नहीं होकर आये। इस पर अनेक नेताओं ने कहा आलोचना कि तथ्य अमबडकर ‘ये कहा नहीं होकर हास्य विद्वान ही, इय कहने के लिए अवदान दिये हैं, कि भी एक दिन ऐसा आयेगा जब वह भी महसूस करेगी कि अलमद विद्वान ही हम सके के लिए हितकार हैं। वर्क के विकास को दोहराते हुए उन्होंने चलाया, शासनाधिकारी सीपिया तो सरकार बना है, मगर समझदारी देना कठिन बात है। इसे हम अपने व्यवहार से सिद्ध करने का प्रयास करें।’

सम्पूर्ण भारतीय समाचार पत्रों ने ‘अखंड विद्वान’ की धोखाधड़ी’ शरीर से अपेक्ष लिखकर डॉ० अमबडकर पर सुधित समून बताया। एक आलोचक और निदर्शक के रूप में जाने गये डॉ० अमबडकर संविधान समिति के सदाख्याति न गये और बाद में समझदारी दुनिया में समीक्षा पाने का प्रयास करे और जिसे बाद में 22 फरवरी, 1947 को पारित किया गया।

जुलाई 1947 को डॉ० अमबडकर को पूरे नेहरू सरकार में देश का प्रथम विधि मंत्री बनाया गया। 15 अगस्त को भारत आजाद हुआ। 19 अगस्त को संविधान समाप्ति का प्रारूप तैयार करने के लिए प्रारूप समिति का गठन किया। उसका अवधारण डॉ० अमबडकर को बनाया गया। इस तरह भारत के महान सशक्त का सिद्ध निर्माण करने का महत्वपूर्ण कार्य समाप्त करने का अवसर उन्हें मिला।

डॉ० अमबडकर संविधान का महामाया तैयार करने के काम में जुट गये। वे अपने स्वस्थ्य की चिंता न कर दिन-रात महसूस तैयार करने में ही व्यस्त रहे। गठ-गठन महाराज, जातियों, भाषाओं और रहन-सहन वाले देश को एक सुनन में बांधकांक एकत्रित रख सकने वाले संविधान की उन्हें रचना करने थे। फरवरी 1948 में केवल 6 महीने में ही डॉ० अमबडकर ने संविधान सम्बन्धी समस्या के अवधारणा राजनीति प्रसाद को संविधान का कवच महसूलवादी पेश किया। यह प्रारूप जनमत जानने के लिए देश की जनता के समझ प्रस्तुत किया गया।

संविधान का खाली 4 नवम्बर, 1948 को संविधान सम्बन्धी समाचार प्रस्तुत किया गया। 315 अनुशंसित और 8 परिषदों के इस संविधान की विशेषताओं का उन्होंने अपने साथ में विशेषक रूप से विवेचना किया। भाषण का समापन करते हुए डॉ० अमबडकर ने कहा, ‘यह संविधान प्रथम व्यवहार में है। संविधान का सही उपयोग से अनुसरण नहीं हो पाया तो यह नहीं होगा कि दोष संविधान का ही बलिक मनुष्य में बसे अवश्य का है।’

प्रारूप समिति के अध्यक्ष डॉ० भीमराव ने दिन रात अधिराजक में गान का एक प्रसाद से विहंगों विवेचना से तैयार करने का प्रस्ताव रखा और यह प्रसाद 26 नवम्बर, 1949 को पारित हुआ। संविधान समा कार्यवाही आधिकारिक 24 जनवरी, 1950 को हुआ और 308 सदस्यों द्वारा संविधान पर हस्ताक्षर किये गये। इसी अवसर पर डॉ० राजेन्द्र प्रसाद को भारतीय गणतंत्र के प्रथम राष्ट्रपति चुना गया और यह संविधान 26 जनवरी, 1950 से लागू हो गया।
उपरोक्त विशेषताओं के अतिरिक्त स्त्री-पुरुष समानता तथा राजनीतिक एकता का प्रतीत होता है भारतीय संविधान की विशेषताएं कहीं जा सकती हैं। भारत का यह संविधान भारत की प्रगति के मूल सिद्धांतों पर आधारित है तथा भारतीय जनता का वातावरणीय एकता का प्रतीत है। भारतीय संविधान के स्वरुप और विशेषताओं से सप्तत्ते है कि भारत का संविधान एक ऐसा प्रलेख है, जिसमें सिद्धांत और व्यवहारिक नीति श्रेष्ठ समन्वय है। इन अनुपम विशेषताओं से सप्तत्ते हो जाता है कि धौ अम्बेडकर ने एक ऐसा संविधान प्रदान किया जो विश्व का अनोखा और श्रेष्ठ संविधानों में से एक है।

संविधान निर्माण के समय उन्होंने यह साहित्य निर्मान के लिए निर्माण किया जो त्योत्तम और श्रेष्ठ संविधानों में से एक है।

भारतीय संविधान द्वारा धौ अम्बेडकर ने भारत में एक नई नीति की नींव बनायी तथा अनेक समस्याओं के लिए (1) लोक-कल्याण की उन्नति के हेतु राज्य सामाजिक व्यवस्था बनाएगा (2) काम की व्यापारिक जीवन मानवीय दशाओं का और प्रौद्योगिकी-साहित्य एवं (3) श्रमिकों के लिए निवाह-मजदुरी (4) नागरिकों के लिए समान जीवन-संगम (5) वेग़ और राजस्व (6) उद्योग और राजस्व की रुचिकरता तथा व्यावसायिक अनुशंसा बनाना (7) अनुसूचित समुदायों और अन्य सम्पूर्ण हिंदुओं की उन्नति (8) कार्य पालन व न्यायपालन का प्रभावित करना आदि प्रमुख थे तथा घोषणा की गयी कि (1) मानव संगम तथा (2) धर्म वूलांग, जाति, शिक्षा ज्ञान और जन्म स्वातंत्र्य के अधीन (3) राजस्ववादी नौकरी के नियमों में बदलोग-समाय (4) छात्रावली का अन्त (5) मानव स्वातंत्र्य के पुनर्वापन और वाल नौकरी का प्रतिष्ठाप (6) कार्ययात्राओं में बच्चों को नौकर रखने का प्रतिष्ठाप और (7) अन्य समस्याओं के हितों का संरक्षण आदि उपन्य संविधान में दर्ज किए।
अभ्यासकर ने संविधान के निम्न में निम्न वर्णों पर अधिक जोर दिया—

- आज हिन्दू समाज महिलाओं को लेकर जितना लोकात्मक और उपर नष्ट आता है उसके पीछे ये कानून ही है जिन्हें बनाने में अभ्यासकर जी ने मुख्य भूमिका निभाई थी।
- अभ्यासकर ने संविधान में आर्थिक के जरिए दस्तों के लिए सरकारी नौकरियाँ और राजनीति में हिस्सेदारी सुनिश्चित कराई।
- खोजशील विश्वास और अव्यवस्था तब तक रहते हैं तब तक जातिगत राजनीति की जरूरत बनी रही और जब तक वह जरूरत काम है तब जाति का उम्मीदवार संभव नहीं लगा। यह भी सही है कि जाति को लेकर कई हित-समूह स्थापित हो चुके हैं, जिन्हें स्वतंत्र जातीय आंदोलन को निधी रखने से ही हो सकता है।
- जनतांत्रिक और आर्थिक की वजह से देश के लगभग सभी नागरिकों की कथा ज्ञाता भागीदारी शासन-प्रशासन में सुनिश्चित हुई।

निष्कर्ष—

वर्तमान में भारतीय संविधान में एक उद्देश्यों की 448 धाराओं से युक्त 25 भाग, बारह अनुसूचियों, 5 अनुसूचियों तथा 100 संस्थान अस्थायी है। अन्तिम अनुसूची संविधान में 74वें संस्थानीय संविधान द्वारा आयोजित की गई। परन्तु इसके अलावा संविधान में 395 अनुसूचियाँ, जो 22 विभागों में विभाजित हैं तथा इसमें केवल 8 अनुसूचियाँ सामरिक थी।

भारतीय संविधान के निम्न में कई तरह के आरोप और प्रश्न हैं। उनमें से एक प्रश्न यह भी है कि हस्ताक्षर संविधान को जनता से सीधे बुझाना नहीं आया था। हमारे संविधान पर किसी पक्ष का जनमत संग्रह नहीं हुआ। उसे सीमित माध्यमिक से चुंबन गये लोगों ने दी नारायण। भले ही उसमें यह दवा किया जाता हो कि हम भारत के लोगों ने इसे स्वीकार किया। लेकिन इस आपत्ति के जवाब में कहा जाता है कि संविधान बनाने वाली समा के सदस्य बाद में 1952 में हुए आम चुनाव के माध्यम से संसद में बुझाकर आये। इस तरह, उनके काम पर जनता की मुहर लग गई वापस जनमत संग्रह हो गया। किन्तु बाबूजी इसके आज भी देश का एक बड़ा वर्ग ऐसा है जो संविधान और उसके द्वारा आम नागरिकों को दिये गये अधिकारों को न तो जानता है और उसमें विश्वास भी है।

आज अभ्यासकर ने संविधान बनाने में समय दिन-रात एक करते हुए तथा अपनी सहयोग का ध्यान न रखते हुए जिस संविधान का निर्माण किया वह आज हम उस संविधान की कसोटी पर खड़े उतर रहे हैं? आज जो पार्टी सत्ता में आयी है वह संविधान में दिये गये सभी अधिकारों के दरकार करते हुए सिखर अपने पश्चिम के कुछ चुनिन्दा लोगों को ही इसका लाभ दे रहे हैं। अब बुझाया जा गया है कि अभ्यासकर्डीय समय आद्यावलन के अन्य विकल्पों को रणनीति का नजर से न देखे वर्थायें कि जो अभ्यासकर तब सपना अपने लक्ष्य से आज भी कौनों दूर है।

आज संविधान के लिए प्रतिबद्धता जताते समय और अभ्यासकर को याद करते हुए इस बात का ध्यान रखना चाहिए कि संविधान के उन निर्देशीय लड़ख से भंडा जड़ी है, जिन्हें अभ्यासकर ने संविधान में शामिल किया और जिनकी रचना को कसम में पंढर नेहरू, सरदार पंजूल और राजेन्द्र प्रसाद सही न खाये। वे मूल थे, स्वतंत्रता, समाज और बंधुत्व। किसी एक सिद्धांत की रचना के लिए दूरसे की कुब्री की व्यवस्था हमारे यहाँ नहीं है। वह व्यवस्था तानाशाही शासन में ही सकती है। लेकिन भारत जो कि एक लोकतात्त्विक गणराज्य है, वहाँ न तो यह किया जाना चाहिए और न ही इसकी कोई गुंडागर छोड़ी गई। जो लोग समस्ता के लिए बंधुत्व को कुशना करना चाहते हैं वो तो अपनी आजादी के लिए समय के साथ समझौता करना चाहते हैं, वे लोकतंत्र के दिशाविश्वास नहीं हो सकते। लेकिन लोकतंत्र और संविधान के सभी बड़े शताब्दी यहाँ जो समता और स्वतंत्रता के नाम पर बंधुत्व का गला घोटाना चाहते हैं।

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संदर्भ सूची

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Need of Cyber Crime Law

New Vision Computer Forensic Science

Dr. Pardeep Sharma* Ajay **

Introduction

The rapid change occurring in the present era of information Technology and the computer has gained popularity in every aspect of our lives. This includes the use of computers by persons involved in the commission of crimes. Today, computers play a major role in almost every crime that is committed. Every crime that is committed is not necessarily a computer crime, but it does mean that law enforcement must become much more computer literate just to be able to keep up with the criminal element. Extending the rule of law into cyberspace is a critical step to create a trustworthy environment for people and different activities. Computer forensic science helps in maintaining the trustworthy environment for cyber society by applying a set of procedure and integrated analytical techniques to extract evidence when computer is used as evidence in criminal investigation. To provide this self-protection, computer forensic science should focus on implementing cyber security plans addressing people, process, and technology issues. There is need to commit the resources to educate employees on security practices, develop thorough plans for the handling of sensitive data. Records and transactions, and incorporate robust security technology, such as firewalls, anti-virus software, intrusion detection tools, and authentication services, throughout the organizations’ computer systems. One of the major challenges, we are facing in law improvement in this new era is keeping up with growing demands of technology.

Computer Forensic Science and their needs:

Computer forensic is a science of acquiring, preserving, retrieving and presenting data that has been processed electronically and stored on computer media and according to Department of Justice Federal Bureau of Investigation (FBI), computer forensic includes formalized and approved methodology to collect, analyze and present data in a court of law.

Computer forensic is needed due to the complex nature of electronic media. Traditional forensic science will not work in recovering and compiling computer based evidence. There is tremendous amount of fraud being committed using computers. Everyday thousands of computer users are bombarded with tons of bogus email. There is always someone on the internet typing to find a new victim to commit a crime against. They are fake websites, phony on line auctions, credit card fraud and a host of other crimes.

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The percentage of fraud is going up and people are losing thousands of dollars to cyber thieves. Attacks against companies are also very rampant on the internet. Hackers and other such individuals are always trying to compromise one system on the internet. It may range form a home user to sensitive government system. Hackers have been known to steal valuable information form e-commerce systems and hold the information for ransom. Thus, all these various examples necessitate the need for computer forensic to save cyber society.

**Techniques of Computer Forensic**

- **Email Forensic Techniques**
  
  As a result of e-commerce transactions and email communications over the internet, a new type of virtual evidence has been created. Computer related investigations can involve the review of email folder achieves to determine internet policy abuses in businesses or government agencies. Using computer forensics procedures, processes and tools, the computer forensics specialist can identify fragments of email massages that were dumped from computer memory during past work sessions.

- **Internet Forensic Techniques**
  
  Since DOS and WINDOWS were never designed to be secure, Computer Scientists & Law Enforcement personnel could easily obtain information about internet content, web browsing and other activities from windows system. Even after data has been deleted, much information remains available for discovery of the Windows swap file. Windows swap files are dynamically created during the web session & the erased. These same files are then left behind as a large erased file in unallocated spaces. Unless specifically defragmented and written over, these erased swap files can be retrieved and archived for analysis.

- **Password cracking Techniques and Cryptanalysis**

  Password cracking is a problem facing by computer forensic scientist. Numerous programs are available on the internet for cracking passwords; including the password cracking library (PCL) available at various web sites e.g. [www.password-crackers.com](http://www.password-crackers.com). Cryptanalysis is one of two branches of cryptology that is concerned with breaking and defeating cryptography. Cryptanalysis can be an invaluable tool for Computer Forensic Scientists to penetrate encrypted files and passwords and cryptanalyst is the attacker who is concerned with eavesdropping and breaking encrypted chipper text.

**What is cyber Crime & Computer Crime?**

The Encyclopedia Britannica defines Cybercrime as any crime that is committed by means of special knowledge or expert use of computer technology. United Nation Manual on prevention & Control of computer crime and Oxford Reference Online gives list of cyber crimes committed over internet. Cyber crime includes a wide variety of criminal offenses and activities; because of lack of physical evidences investigating a cyber crime becomes very difficult. Scope of this definition becomes wider with a frequent companion or substitute term “computer-related crime" cyber crimes are harmful acts committed from or against a computer or network.
Cyber crimes differ from most terrestrial crimes in four ways:

1. They are easy to learn how to commit.
2. They require few resources relative to the potential damage caused.
3. They can be committed in a jurisdiction without being physically present in it.
4. They are often not clearly illegal.

A criminal might use a computer to keep track of the robberies a person committed or the drug person sold, which means that even stick-ups, breaking and entering and every drug transaction could be considered a computer crime.

**Cyber Laws & their roles**

Existing terrestrial laws against physical acts of trespass or breaking and entering often do not cover their ‘virtual’ counterparts. Computer – related crime is a real expanding phenomenon. It seems very difficult to make only territorial laws applicable to online activities that have no relevant or even determinable geographic location. Web pages such as the e-commerce sites recently hit by widespread, distributed denial of service attacks may not be covered by outdated laws as protected when it attempted to prosecute the perpetrator of the May 2000 Love Bug virus, which caused billions of dollars of damage in worldwide. In India, Information Technology Bill (1999) came into focus for regulating cyber world. The legislations enacted by different countries cover only few of the classified computer related offences.

**Prospective role of cyber laws**

1. Cyber Laws have an important role in representing and defining the norms of the cyber society.
2. Cyber Laws help in giving the right to enter into legally enforceable digital contracts.
3. Cyber Laws help in maintaining the cyber properties.
4. Cyber Laws help in to carry on online business.
5. Cyber Laws help in providing legal reorganization for Electronic documents and Digital Signature.

**Types of Cyber Crime**

1. Data-related crimes. Including interception, modification, and theft.
2. Network-related crimes, including interference and sabotage.
3. Crimes of access, including hacking and virus distribution.
4. Associated computer-related crimes, including aiding and abetting cyber criminals, computer fraud and computer forgery.

**Technology Challenges in Cyber Crime**

In the present era of information technology, the technology in World has become more advanced; law enforcement agencies must provide their computer crime investigators with the technology required to conduct complex computer investigations. Besides access to technology, law enforcement agencies must also be given Forensic Computer support as many computer crimes leave ‘Footprints’ on the computer as well as on the internet most prosecutors also lack the training and specialization to focus on the prosecution of criminal who use computer- based and internet system as a means of committing crimes. Thus they must have a working knowledge of computer-based and internet investigations if they are to handle these crimes effectively.
The Internet

The internet is joy for members of the law enforcement community. On one hand, it facilitates one’s ability to communicate and gather information. On the other hand, it enables the criminal element to do the same. The criminal element actually embraced the benefits of the internet long before the law enforcement community did it and in some ways, the latter have resisted this tool. However, these system protection tools, the software and hardware for defending information systems are complex & expensive to operate.

Data Theft

Law enforcement is charged with the investigation of the theft of data form companies, but the main concern of the law enforcement community is the protection of their own data and unauthorized access to their files. This may require law enforcement agencies to bring in a security consultant to be sure that their own data is secure from unauthorized access. They only way to ensure that their system is totally safe is to not to have outside access to it. If they are connected to the internet through phone lines through a network or a modem. One cannot assume that their system will not be compromised at some point. Agencies and install fairly simple monitoring systems on their systems that will signal them when there has been a ‘Knock’ at the door. These security measures will also alert them to an actual intrusion.

Child Pornography

Child pornography distribution is a natural for the internet. It offers anonymity and ease of transferring images and text. Child Pornographers trade images of very young children, depending on their preferences, to other pornographers that will trade them to others or simply keep them for their own collection.

White Collar Crime

Encyclopedia Britannica defines White Collar Crime as crimes committed by persons of relatively high social or economic status in connection with their regular occupation. Though crimes such as stalking and pedophilia make the headlines, the majority of computer crime is white collar in nature, involving the theft of credit cards, money, identity, or intellectual property such as software or data.

Improvement in Cyber Laws

To avoid the cyber crime some improvement are suggested here to protect the nations: Organization should secure their networked information by networked information by using different technology. Laws to enforce property rights work only when property owners take reasonable steps to protect their property in first place. Governments should assure that their laws apply to cyber crimes. Governments remain the dominant authority for regulating criminal behavior in most places in the world. One nation already has struggled from, and ultimately improved, its legal authority after a confrontation with the unique challenges presented by cyber crime. It is crucial that other nations profit from this lesson, and examine their current laws to discern whether they are composed in a technologically neutral manner that would not exclude the prosecution of cyber criminals.
Computer Forensic Tools

**Net Threat Analyzer:** A tool that is designed to help police and other law officials analyze the internet history of computer users.

**GetSlack:** This tool is used to retrieve file slack information. As discussed before, file slack contain very valuable information and can be very helpful to investigators.

**DerivesSpy:** This tool can perform a verity of forensic functions. It can be installed to collect evidence as it occurs, examine disk partitions, process hidden and deleted file, and create exports and a host of other features.

**Image:** This tool is designed to create copies of floppy disks that are suitable for forensic analysis. It uses a MD5 checksum to maintain integrity.

**PD Block:** This tool is designed to block physical writes to disk derives during an investigation.

**Conclusion**

The nature of electronics evidence is such that it poses special challenges for its admissibility in court. To meet these challenges, it is imperative to follow proper forensic procedures. These procedures include, but not limited to, four phases: collection, examination, analysis and reporting. This article emphasizes on Role of Computer Forensic Science and cyber laws to save cyber society of 21\textsuperscript{st} century from cyber crime by developing strong cyber laws worldwide. Experts, who investigate only cyber crime, are required to stop the cyber crime. To improve law and forensic science technique officers should be trained to become more literate about cyber world. Proper forensic procedures and techniques go hand in hand with good forensic tools; the evidence may be compromised or destroyed.

**References**

Alternative Strategies and Approaches for Rural Development in India

Prof. B. L. Patidar, * Dr. Narendra Kumar **

INTRODUCTION

Rural development has always been an important issue in all discussions pertaining to economic development, especially of developing countries, throughout the world. In the developing countries and some formerly communist societies, rural mass comprise a substantial majority of the population. Over 3.5 billion people live in the Asia and Pacific region and some 63% of them in rural areas. Although millions of rural people have escaped poverty as a result of rural development in many Asian countries, a large majority of rural people continue to suffer from persistent poverty. The socio-economic disparities between rural and urban areas are widening and creating tremendous pressure on the social and economic fabric of many developing Asian economies. These factors, among many others, tend to highlight the importance of rural development. The policy makers in most of the developing economies recognize this importance and have been implementing a host of programs and measures to achieve rural development objectives. While some of these countries have achieved impressive results, others have failed to make a significant dent in the problem of persistent rural underdevelopment. Rural development designates the utilization of approaches and techniques under one single programme, which rally upon local communities as units of action. It provides a large umbrella under which all the people engaged in the work of community organizations, community progress and community relation.

Rural Development (RD) is a process, which aims at improving the well being and self realization of people living outside the urbanized areas through collective process.

According to Agarwal (1989), rural development is a strategy designed to improve the economic and social life of rural poor.

The United Nations defines Rural Development as:

Rural Development is a process of change, by which the efforts of the people themselves are united, those of government authorities to improve their economic, social and cultural conditions of communities in to the life of the nation and to enable them to contribute fully to national programme.

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Rural Development is a process of bringing change among rural community from the traditional way of living to progressive way of living. It is also expressed as a movement for progress.

**Scope and Importance of Rural Development**

Rural development is a dynamic process, which is mainly concerned with the rural areas. These include agricultural growth, putting up of economic and social infrastructure, fair wages as also housing and house sites for the landless, village planning, public health, education and functional literacy, communication etc.

Rural development is a national necessity and has considerable importance in India because of the following reasons.

- About three-fourth of India’s population live in rural areas, thus rural development is needed to develop nation as whole.
- Nearly half of the country’s national income is derived from agriculture, which is major occupation of rural India.
- Around seventy percent of Indian population gets employment through agriculture.
- Bulks of raw materials for industries come from agriculture and rural sector.
- Increase in industrial population can be increasing the purchasing power to buy industrial goods.
- Growing disparity between the urban elite and the rural poor can lead to political instability.

**Need and Importance of Rural Development**

Rural development is a national necessity and has considerable importance in India because of the following reasons.

1. To develop rural area as whole in terms of culture, society, economy, technology and health.
2. To develop living slandered of rural mass.
3. To develop rural youths, children and women.
4. To develop and empower human resource of rural area in terms of their psychology, skill, knowledge, attitude and other abilities.
5. To develop infrastructure facility of rural area.
6. To provide minimum facility to rural mass in terms of drinking water, education, transport, electricity and communication.
7. To develop rural institutions like panchayat, cooperatives, post, banking and credit.
8. To provide financial assist to develop the artisans in the rural areas, farmers and agrarian unskilled labor, small and big rural entrepreneurs to improve their economy.
9. To develop rural industries through the development of handicrafts, small scaled industries, village industries, rural crafts, cottage industries and other related economic operations in the rural sector.
10. To develop agriculture, animal husbandry and other agricultural related areas.
11. To restore uncultivated land, provide irrigation facilities and motivate farmers to adopt improved seed, fertilizers, package of practices of crop cultivation and soil conservation methods.
12. To develop entertainment and recreational facility for rural mass.
13. To develop leadership quality of rural area.
14. To improve rural marketing facility.
15. To minimise gap between the urban and rural in terms of facilities availed.
16. To improve rural development people of states and nation participation as whole.
17. To improve scopes of employment for rural mass.
18. For the sustainable development of rural area.
19. To eliminate rural poverty.
20. To solve the problems faced by the rural mass for their development.

Problems in Rural Development

1. People related:
   - Traditional way of thinking.
   - Poor understanding.
   - Low level of education to understand developmental efforts and new technology.
   - Deprived psychology and scientific orientation.
   - Lack of confidence.
   - Poor awareness.
   - Low level of education.
   - Existence of unfelt needs.
   - Personal ego.

2. Agricultural related problems:
   - Lack of expected awareness, knowledge, skill and attitude.
   - Unavailability of inputs.
   - Poor marketing facility.
   - Insufficient extension staff and services.
   - Multidimensional tasks to extension personnel.
   - Small size of land holding.

3. Infrastructure related problems:
   - Division of land.
   - Unwillingness to work and stay in rural areas.

4. Economic problems:
   - Unfavourable economic condition to adopt high cost technology.
   - High cost of inputs.
   - Underprivileged rural industries.

5. Social and Cultural problems:
   - Cultural norms and traditions.
   - Conflict within and between groups, castes, religions, regions, languages.

6. Leadership related problems:
   - Leadership among the hands of inactive and incompetent people.
   - Malafied interest of leaders.
   - Biased political will.

7. Administrative problems:
   - Earlier, majority of the programmes were planning based on top to bottom approach and were target oriented.
   - Political interference.
   - Lack of motivation and interest.
   - Unwillingness to work in rural area.
   - Improper utilization of budget.

India's commitment to planned economic development reflects government’s determination to improve the economic condition of its people and an affirmation of the role of the government in bringing about this outcome through a variety of social, economic, and institutional means. India’s First Five Year Plan (1951-56) was aimed at economic stabilization and investment in the agrarian sector.
This Plan supported community development aimed at transforming the social and economic conditions of the villages. The Second Five Year Plan initiated structural transformation with an emphasis on heavy industrialization. The first two plans laid the foundation for development planning in India. At the centre of India’s current development strategy is raising the rates of economic growth and enabling inclusion. Raising the rates of investment is a key driver to economic growth as well as structural transformation, and investing in infrastructure is expected to remove constraints to growth. Natural capital or environmental resources are an important complement to such planned investment in achieving development goals. The Planning Commission notes in its Approach Paper to the 12th Five year Plan that “economic development will be sustainable only if it is pursued in a manner which protects the environment. With acceleration of economic growth, these pressures are expected to intensify, and we therefore, need to pay greater attention to the management of water, forests and land2. These concerns are reflective of the situation in other countries as well.

**Role and function of the Government**

The Government’s policy and programmes have laid emphasis on poverty alleviation, generation of employment and income opportunities and provision of infrastructure and basic facilities to meet the needs of rural poor. The Ministry of Rural Development in India is the apex body for formulating policies, regulations and acts pertaining to the development of the rural sector. Agriculture, handicrafts, fisheries, poultry, and diary are the primary contributors to the rural business and economy. The introduction of Bharat Nirman, a project by the Government of India in collaboration with the State Governments and the Panchayati Raj Institutions is a major step towards the improvement of the rural sector. The National Rural Employment Guarantee Act 2005 was introduced by the Ministry of Rural Development, for improving the living conditions and its sustenance in the rural sector of India. The Ministry of Rural Development in India is engaged in legislations for the social and economic improvement of the rural populace. The ministry consists of three departments viz., Department of Rural Development, Department of Land Resources and Department of Drinking Water Supply. Under the department of rural development, there are three autonomous bodies viz., Council for Advancement of People’s Action and Rural Technology (CAPART), National Institute of Rural Development (NIRD) and National Rural Road Development Agency (NRRDA). The objective of the ministry can broadly be elaborated as to encourage, promote and assist voluntary action in the implementation of projects for the enhancement of rural prosperity, strengthen and promote voluntary efforts in rural development with focus on injecting new technological inputs, act as the national nodal point for co-ordination of all efforts at generation and dissemination of technologies relevant to rural development in its wide sense and assist and promote programmes aimed at conservation of the environment and natural resources.
However, various ministries in the central government are engaged directly or indirectly for implementation of many programmes and schemes for the development of rural areas like Ministries of Agriculture, Health and Family Welfare, New and Renewable Energy, Science and Technology, Women and Child Development and Tribal affairs etc. In addition, to strengthen the grass root level democracy, the Government is constantly endeavouring to empower Panchayat Raj Institutions in terms of functions, powers and finance. Grama Sabha, NGOs, Self-Help Groups and PRIs have been accorded adequate roles to make participatory democracy meaningful and effective.

The main objective of the rural development programme is to raise the economic and social level of the rural people.

**The specific objectives are:**

- To develop farm, home, public service and village community.
- To bring improvement in producing of crops and animals living condition.
- To improve health and education condition etc. improvement of the rural people.
- To improve villagers with their own efforts.
- To improve village communication.

The rural economy is an integral part of the overall Indian economy. As majority of the poor reside in the rural areas, the prime goal of rural development is to improve the quality of life of the rural people by alleviating poverty through the instrument of self-employment and wage employment programmes, by providing community infrastructure facilities such as drinking water, electricity, road connectivity, health facilities, rural housing and education and promoting decentralization of powers to strengthen the Panchayati raj institutions etc. The various strategies and programs of the Government for rural development are discussed below:

**Integrated Rural Development Program (IRDP):**

First introduced in 1978-79, IRDP has provided assistance to rural poor in the form of subsidy and bank credit for productive employment opportunities through successive plan periods. Subsequently, Training of Rural Youth for Self Employment (TRYSEM), Development of Women and Children in Rural Areas (DWCRA), Supply of Improved Tool Kits to Rural Artisans (SITRA) and Ganga Kalyan Yojana (GKY) were introduced as sub-programs of IRDP to take care of the specific needs of the rural population.

**Wage Employment Programs:**

Anti-poverty strategies, like assistance to the rural poor families to bring them above the poverty line by ensuring appreciable sustained level of income through the process of social mobilization, training and capacity building. Wage Employment Programs have sought to achieve multiple objectives. They not only provide employment opportunities during lean agricultural seasons but also in times of floods, droughts and other natural calamities. They create rural infrastructure which supports further economic activity.
It encompasses Swarnjayanti Gram Swarozgar Yojana (SGSY), Sampoorna Grameen Rozgar Yojana (SGRY) and National Rural Employment Guarantee Act (NREGA) etc. NREGA is an act of parliament. It is not merely a scheme or policy. It aims at enhancing the livelihood security of the people in rural areas by guaranteeing hundred days of wage employment in a financial year, to a rural household whose members volunteer to do unskilled manual work. The objective of the Act is to create durable assets and strengthen the livelihood resource base of the rural poor.

**Employment Assurance Scheme (EAS):**

EAS was launched in October 1993 covering 1,778 drought-prone, desert, tribal and hill area blocks. It was later extended to all the blocks in 1997-98. The EAS was designed to provide employment in the form of manual work in the lean agricultural season. The works taken up under the program were expected to lead to the creation of durable economic and social infrastructure and address the felt-needs of the people.

**Food for Work Program:**

The Food for Work program was started in 2000-01 as a component of the EAS in eight notified drought-affected states of Chattisgarh, Gujarat, Himachal Pradesh, Madhya Pradesh, Orissa, Rajasthan, Maharashtra and Uttarakhand. The program aims at food provision through wage employment. Food grains are supplied to states free of cost. However, lifting of food grains for the scheme from Food Corporation of India (FCI) godowns has been slow.

**Rural Housing:**

Initiated in 1985-86, the IAY is the core program for providing free housing to families in rural areas. It targets scheduled castes (SCs)/scheduled tribes (STs), households and freed bonded laborers. The rural housing program has certainly enabled many BPL families to acquire pucca houses. The coverage of the beneficiaries is limited given the resource constraints. The Samagra Awas Yojana (SAY) was taken up in 25 blocks to ensure convergence of housing, provision of safe drinking water, sanitation and common drainage facilities. The Housing and Urban Development Corporation (HUDCO) has extended its activities to the rural areas, providing loans at a concessional rate of interest to economically weaker sections and low-income group households for construction of houses.

**Social Security Programs:**

Democratic decentralization and centrally supported Social Assistance Programs were two major initiatives of the government in the 1990s. The National Social Assistance Program (NSAP), launched in August 1995 marks a significant step towards fulfillment of the Directive Principles of State Policy. The NSAP has three components: a) National Old Age Pension Scheme (NOAPS); b) National Family Benefit Scheme (NFBS); c) National Maternity Benefit Scheme (NMBS). The NSAP is a centrally-sponsored program that aims at ensuring a minimum national standard of social assistance over and above the assistance that states provide from their own resources.
The NOAPS provides a monthly pension of Rs. 75 to destitute BPL persons above the age of 65. The NFBS is a scheme for BPL families who are given Rs. 10,000 in the event of the death of the breadwinner. The NMBS provides Rs. 500 to support nutritional intake for pregnant women. In addition to NSAP, the Annapurna scheme was launched from 1st April 2000 to provide food security to senior citizens who were eligible for pension under NOAPS but could not receive it due to budget constraints.

**Land Reforms:**

In an agro-based economy, the structure of land ownership is central to the wellbeing of the people. The government has strived to change the ownership pattern of cultivable land, the abolition of intermediaries, the abolition of zamindari, ceiling laws, security of tenure to tenants, consolidation of land holdings and banning of tenancy are a few measures undertaken. Furthermore, a land record management system is a pre-condition for an effective land reform program. In 1987-88, a centrally-sponsored scheme for Strengthening of Revenue Administration and Updating of Land Records (SRA & ULR) was introduced in Orissa and Bihar.

**Science and Technology for rural development**

Ministry of Science and Technology plays a pivotal role in promotion of science & technology in the country. The departments has wide ranging activities ranging from promoting high end basic research and development of cutting edge technologies on one hand to serving the technological requirements of the common man through development of appropriate skills and technologies on the other. Appropriate rural technology focuses mainly on those technologies which are simple and within the reach of the ordinary people for their own benefit and the benefit of their community and harness the local or regional capacity to meet local needs without increasing dependence on external factors. A large number of governments, public and private non-government organizations are involved in developing technologies for rural areas. However, these technologies have hardly touched the lives of the rural population. Apparently, the problem lies not only in the generation, diffusion and adoption of technologies but also in poor documentation. Recently, efforts have been made by several organizations like NRDC, CAPART, TRCS, NIRD, DST, DBT, CSIR, ICAR, KVKs and other voluntary organizations etc. to bring out a compendium of technologies for rural areas for wide information dissemination and public awareness.

Government schemes focusing on Science and Technology are:

**S&T Application for Rural Development (STARD):**

Aims at facilitating development of promising S&T based field groups and innovative technologies related to rural development.

**S&T for Women:**

To promote research, development and adaptation of technology, improve the life, working conditions and opportunities for gainful employment of women especially in rural areas.

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S&T Application for Weaker Sections (STAWS): Aimed at the development of economically weaker sections of the society in rural and urban areas.

Tribal sub-plan: Aims at improving living conditions of scheduled tribes based on sustainable science and technology activities.

Special Component Plan (SCP): Aims at improving the lot of the poor sections of SC community through intervention of Science & Technology.

**Rural Development Schemes in India**

The Ministry of Rural Development (MoRD) spearheads the country’s efforts to reduce poverty in the rural areas. Until recently, its work was divided among three departments: (i) Department of Rural Development (ii) Department of Land Resources (iii) Department of Drinking Water & Sanitation. In July 2011, the Department of Drinking & Sanitation was converted into a separate ministry, the Ministry of Drinking Water & Sanitation.

The MoRD states that, “This Ministry’s main objective is to alleviate rural poverty and ensure improved quality of life for the rural population especially those below the poverty line.” Towards this end, it sponsors scores of development programmes, big and small, influencing ‘various spheres of rural life and activities, from income generation to environmental replenishment.’ A small number of programmes of the two ministries – MoRD and MDWS, however, account for a substantial share of the expenditure on rural development. Primarily, these include the following:

1. **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS):** This aims at enhancing the livelihood security of people in rural areas by guaranteeing hundred days of wage-employment in a financial year to a rural household whose adult members volunteer to do unskilled manual work. (Budgetary allocation in 2012-13: INR 33,000 billion)

2. **National Rural Livelihoods Mission (NRLM):** The basic objective of the National Rural Livelihood Mission is to create efficient and effective institutional platforms of the rural poor that enable them to increase their household incomes through sustainable livelihood enhancements and improved access to financial services. It plans to cover 70 million households living below the poverty line (BPL) in rural India. (Budgetary allocation in 2012-13: INR 3,563 billion)

3. **Integrated Watershed Development Programme (IWDP):** The main objectives of the IWDP are to restore ecological balance in a watershed by harnessing, conserving and developing degraded natural resources such as soil, water and vegetative cover, and thereby, help provide sustainable livelihoods to the local people. (Budgetary allocation in 2012-13: INR 2,744 billion)

4. **Indira Awaas Yojana (IAY):** This scheme provides financial grants to rural BPL families and the next-of-kin of defence personnel killed in action for construction of houses and upgradation of existing unserviceable kutcha houses. (Budgetary allocation in 2012-13: INR 9,966 billion)
5. National Rural Drinking Water Programme (NRDWP): The goal of this scheme is to provide adequate safe water for domestic uses on a sustainable basis. (Budgetary allocation in 2012-13: INR 10,500 billion)

6. Nirmal Bharat Abhiyan (NBA): The Total Sanitation Campaign, now renamed as the Nirmal Bharat Abhiyan, assists Gram Panchayats to achieve comprehensive sanitation coverage. (Budgetary allocation in 2012-13: INR 3,500 billion)

Conclusion

Although concerted efforts have been initiated by the Government of India through several plans and measures to alleviate poverty in rural India, there still remains much more to be done to bring prosperity in the lives of the people in rural areas. At present, technology dissemination is uneven and slow in the rural areas. Good efforts of organizations developing technologies, devices and products for rural areas could not yield high success. Experiences of many countries suggest that technological development fuelled by demand has a higher dissemination rate. However, in India, technology developers for rural areas have been catering to needs (with small improvement), rather than creating demand. There is no industry linkage machinery to create demand-based-technology market for rural communities. Besides, there is also an imbalance between strategies and effective management programmes. Propagation of technology/schemes for rural development is slow and there is a lacking in wider participation of different stakeholders. An ideal approach may therefore, include the government, panchayats, village personals, researchers, industries, NGOs and private companies to not only help in reducing this imbalance, but also to have a multiplier effect on the overall economy.

References:

जलवायु परिवर्तन: संकट में मानव जीवन

Mrs. Manju *

शीर्ष--आलेख सार--

जलवायु का हमारे जीवन में बहुत अधिक महत्त्व है। लेकिन हमारे देश की जलवायु में दिन-प्रतिदिन परिवर्तन होता जा रहा है जो हमारे जीवन के लिए एक बहुत बड़ा संकट है। जलवायु परिवर्तन के कारण धरती के ऊपर बहुत-सी बीमारियाँ फैल रही हैं। उदाहरण के लिए हमारे पर्यावरण में ओजोन परत है जो सूरज से आने वाली परशुरंगी विकिरणों को रोककर इन हानिकारक विकिरणों से पृथ्वी को बचाता है। लेकिन यह पत्ता CFC गैस की अधिकता के कारण धीरे-धीरे 2 नाट हो रहा है। अगर यह पूर्ण रूप से नाट हो गई तो सम्पूर्ण पृथ्वी पर बीमारियों का प्रकोप बढ़ जाएगा। इस शीर्ष में भारत में जलवायु परिवर्तन से होने वाली बीमारियों के बारे में सिविलपुर्क चर्चा की गई है।

मुख्य शब्द -- जलवायु परिवर्तन व मानव स्वास्थ्य, गरीबी, भारतीय पक्ष

भूमिका--

जलवायु परिवर्तन का सबसे बुरा असर हमें महाद्वीपीय क्षेत्रों पर देखने को मिलता है। आज जलवायु परिवर्तन से होने वाले खतरों को हम नहीं समझ सकते हैं। जलवायु में परिवर्तन एक सार्वजीनिक प्रक्रिया है। लेकिन जब जलवायु परिवर्तन अपनी सभी सीमाओं को लागू देता है तो मानव जीवन खतरे में पड़ जाता है।

जलवायु से अभियान किसी क्षेत्र विवेचन की 30 से 35 वर्ष की मौसम की ओरत अवधि जलवायु कहलाती है। हमारी पृथ्वी पर अबक जलवायु प्रदर्शण विद्यमान है। किसी स्थान की जलवायु में परिवर्तन का सीधा असर मानव जीवन पर देखने की मिलता है। जलवायु परिवर्तन का सबसे बुरा असर एशिया के देशों पर पड़ना क्योंकि इन देशों की अर्थव्यवस्था कृषि पर निर्भर करती है।

लालिका क्रमांक संख्या -- 1 : जलवायु परिवर्तन का मानव जीवन पर प्रभाव

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स्थान : इलाहाबाद, एस्सी सींट्रा संस्था

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जलवायु परिवर्तन व मानव स्वास्थ्य

जलवायु परिवर्तन का सीमा असर मानव स्वास्थ्य पर पड़ता है। मानव शरीर को पूर्ण रूप से कार्य करने के लिए शरीरी, जल, आग, आकाश तथा वायु महत्वपूर्ण भूमिका निभाते हैं। जलवायु परिवर्तन के कारण तापमान में वृद्धि होती है तथा वाष्पकरण का संतुलन खराब होता है। जलवायु परिवर्तन से मानव स्वास्थ्य पर असर को हम उपरोक्त तालिका के नामक से जान सकते हैं।

जलवायु परिवर्तन का प्रभाव मिटटी पर भी पड़ता है। इससे मिटटी के अंश अस्तित्व की रिखति विकसित हो रही है तथा मिटटी मूल्य में बढ़ा हो रही है। हमारे मोजन का मुख्य आधार मिटटी है। जलवायु परिवर्तन का सीमा असर फसल उत्पादन पर पड़ता है।

परिणामस्वरूप मूल्य भूख व कुपोषण की घटता है। इसके साथ ही वैज्ञानिक तापमान उंच होने भूख व कुपोषण से मदद करता है। फसल के युग्मत तथा विश्लेषण का काम करता है व पौधाएं का विकास गुणवत्ता को बढ़ाता है।

विश्व स्वास्थ्य संगठन के जन स्वास्थ्य पर्यावरण तथा सामाजिक मानव विभाग ने लिखा है—“विश्व यदि इसी रूप से चलता रहा तो आने वाले 80 वर्ष में सतह के तापमान में 4°C तक की वृद्धि का आरंभ हो। इस कारण गर्मी में पाकिस्तान व भारत में हमने जिस तरह से गर्म हवाओं को महसूस किया है और जिसके कारण वहां पर 5000 से ज्यादा लोगों की मृत्यु हो गई तथा हजारों की संख्या में लोग बीमारियों के विषाक्त हो गए है। आने वाले समय में हमें इससे भी अधिक गर्मी का सामना करना पड़ेगा।”

'लासेट कमीशन ऑन हेल्थ एंड क्लिमेट चेंज—2015' ने अपनी रिपोर्ट में कहा है कि—जलवायु परिवर्तन से 9 अरब लोगों के वैश्विक आबादी के लिए भिड़ती आबादी सदियों में बिखरे वैकास एवं वैज्ञानिक स्वास्थ्य नम्मे लाम नस होने का खतरा है। जलवायु परिवर्तन का सीमा प्रभाव मानव जीवन पर पड़ रहा है।

परिवर्तन हेल्थ एंड क्लिमेट जिनियस 2009 —

कि रिपोर्ट के अनुसार भारत में पर्यावरणीय कारणों से होने वाली बीमारियों की जानकारी मिटटी है।

जलवायु परिवर्तन से मृत्यु बीमारियों—

इसी तरह जलवायु परिवर्तन होता रहा तो मानव जीवन अनेक बीमारियों से प्रस्त बना हो जायेगा।

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अन्य प्रमुख बीमारियाँ

देंगूँ फ्लेग, यलो फिवर, कोलेरा, इंसेक्टाइडिस, असथमा, जापानी फिवर, ब्रोन्काइटिस, बर्थ-पूर्व एन्जेलर्स, ट्यूबर्कलोसिस, खाली, जुआम, ट्राइपानोसोमियासिस

स्रोत : http://www.who.int/gho/neglected_diseases/in/

ललितिया:

ललितिया एक मानव जीवन में बहुत बड़ी चुनौती है। विश्व में ललितिया से 97 देशों के 32 अरब लोग प्रभावित है।

विश्व स्वास्थ्य संगठन द्वारा जारी ललितिया रिपोर्ट 2014 के अनुसार सन् 2013 में 19 करोड़ 80 लाख लोगों में ललितिया के लक्षण पाए गए।

W.H.O. की रिपोर्ट 2014 के अनुसार - ललितिया संक्रमित होने की अधिकतम आशंका वाले क्षेत्रों में 27 करोड़ 55 लाख लोग हैं। अर्थात् भारत में 89 फीसदी लोग ललितिया प्रभावित क्षेत्र में रहते हैं।

जलवायु परिवर्तन के कारण घरातल पर डेंगू और ललितिया जैसे रोगों का प्रभाव क्षेत्र बढ़ जाता है।

कालावर्जा-

यह एक गंभीर बीमारी है। यह मादा सैंडलाई के कारण से मानव मृत्यु संक्रमण से पैदा है। यह बिमारी मुख्य रूप से अफ़्रीका, एशिया और लेटेन अमेरिका की जनता को प्रभावित करती है। यह मुख्य रूप से कुपोषण, कमजोर आवासीय व्यवस्था, कमजोर पानी शिक्षा के कारण होती है। यह बिमारी 98 देशों में पाई जाती है।

लिमिफीडिक फॉलराइडिसिस-

इस बीमारी से विश्व के 73 देश प्रभावित हैं और पूरे विश्व में 1 अरब 23 लाख 30 हजार लोगों को इस रोग से बचने की आवश्यकता है। यह रोग जल वाले क्षेत्रों में रहने वाले लोगों का अधिक होता है। W.H.O. के अंतर्गत व दो पूरे एशिया के समुद्र तटीय क्षेत्रों के 94 हजार लोग इस बीमारी से संक्रमित हैं।

लेप्रोसी (कुष्ठ रोग)-

जलवायु परिवर्तन का सीधा असर त्वचा पर पड़ता है। अगर जलवायु इसी तरह परिवर्तित होती तो सबसे बड़ी लोग त्वचा संक्रमित रोगों से ग्रस्त हो जायेंगे। W.H.O. की रिपोर्ट बताती है कि 102 देशों और क्षेत्रों में कुष्ठ रोग के मामले पाये गये हैं। 2014 की शुरुआत में 2 लाख 15 हजार 856 मामले शुरू हो गए हैं।

कालावर्जा-

विश्व के 78 देशों में इसका प्रभाव है। इस रोग से बचने के लिए 52 देशों के 26 करोड़ 20 लाख लोग प्रयास कर रहे हैं।

जलवायु परिवर्तन, स्वास्थ्य और गरीबी-

जलवायु परिवर्तन का सीधा असर गरीब लोगों के उपर पड़ रहा है। पहले तो उनके सामाजिक और आर्थिक स्थिति तथा बाद में बीमारी के समाधान के लिए पैसे की समस्या एक गंभीर विपथ है।

W.H.O. के आंकड़ों के अनुसार दो पूर्व एशिया क्षेत्र में पूरे विश्व की 26 फीसदी जनग्रहण रहती है जिसमें से 30 फीसदी गरीब हैं। इस क्षेत्र में अनेक लोगों की इस कारण मौत हो जाती है। 5 वर्ष से अब उन क्षेत्रों की मौत का कारण संक्रमण तथा कुपोषण है।

बदलते मौसम के साथ अनेक बीमारियाँ भी दस्तक देती हैं। इसीलिए ललितिया, डेंगू, ब्लैकफ्लू, विकल्पयुगी आदि। जिनका इलाज गरीब व्यक्ति आसानी से नहीं कर सकता तथा मौत को गले लगा लेता है।

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“Change is a process of life, but higher change in climate is very dangerous for human life.”

References:
1. [1] Jhalawatu wizhna zeskhe – Oso 1907

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Effects of Recent Flood Hazard in District Anantnag (J&K)

Majebur Rasool, * Mohamah Hidayat ullah, ** Dr. Venu Travedi ***

Abstract

District Anantnag of Jammu and Kashmir faced unprecedented flood in September 2014. There were incessant rains for continuous 30 hours. There were loss of life and property during flood. In this paper many reasons were attributed to floods from climate change to loss of water bodies and high rainfall. This paper studies floods which were grim reminder of uncontrolled urbanisation. Anantnag district is the most flood prone district of Jammu and Kashmir. In Anantnag district devastating flood of September 2014 has left a trail of destruction and brought along miseries. This paper studies that devastating flood of September 2014 which damaged settlements, crop fields, live-stock, communication and many precious lives. Present study aims to find the effects of flood hazard in district Anantnag. The river Jhelum and its tributaries were main drainage system which flows through Anantnag district.

Key words: Flood, Hazard, Urbanization.

Introduction

Flood simply means a state of high water level along a river channel or coast that leads to inundation of land which is normally submerged. About 3.5% of total population area of world is covered by flood plains which is about 16.5% of total population of the world. Floods are one of the major natural disasters in India causing loss of life and property every year in different parts of the country. In district Anantnag which is a southern district of j&k state, during September 2014 flood, the situation worsens when heavy rainfall(402.3mm,normal rainfall 32.9mm) in the catchment areas of river Jhelum and its tributaries, over flow its natural banks and flooded Anantnag district. River Jhelum originates from a beautiful spring Verinag (at an altitude of 1860 m above mean sea level) situated in Banihal pass in the south – eastern corner of the Kashmir valley. The River Lidder is biggest tributary of Jhelum and is fed by large number of glaciers. In district Anantnag large areas remain water logged for more than two weeks. Incessant rain in Kashmir led to abrupt rise in water level of Jhelum. The water level in Jhelum during September 2014 flood broke all
records crossing 37 feet at Sangam gauge in Anantnag and 29 feet at Ram Munshi Bagh gauge in Srinagar. In recent years however, the situation has changed, due to enormous siltation coming down from the catchments and shrinking of channels of Jhelum due to encroachments on banks. Hence continuous, heavy and wide spread rainfall more than a day turns Jhelum into a ferocious river. The discharge capacity of river Jhelum is 25000 to 30000 cusecs while capacity of existing flood channels is 8000 cusecs. The flow of water during flood was above 1.15 lakh cusecs. Devastating flood of September 2014 damaged houses, religious places, paddy fields, roads, bridges, hospitals, educational institutions, business complexes, communication, electricity, water supply schemes and live-stock. Many disaster floods have been recorded in history of Kashmir, like floods of 1987, 1988, 1992, 1995, and September 2014 are floods that causes huge damage to settlements, crops and property. During flood, air force, police, army, NGO’S and neighbouring villages carried out rescue operations and provide food, shelter, tents, utensils, medicines, clothes, foot wear, safe drinking water to flood hit people in district Anantnag.

**Study area**

Anantnag district is located between 33° 44′ N 75° 09′ E latitude 33°73′ N 75°15′E longitude comprises an area of about 2917 km² of J&K. It is located at an elevation of 1601 meters (above the Mean Sea Level). Its total population is about 1078692 (according to 2011 census) and the density is about 370 persons per square kilometres.
Objectives of study

The main objective of the present study is to examine effects of flood hazard in the study area.

Data base and Methodology

In the present study primary as well as secondary data is used. Secondary data is collected from books, newspapers, magazines and different offices of district Anantnag like Deputy Commissioner Office Anantnag, Tehsil Office Anantnag, Agriculture and Horticulture Department Anantnag, Forest Department Anantnag, Chief Education Officer Anantnag, Chief Medical Officer Anantnag etc. Primary data is collected through field survey such as schedule, interview and observation. On the basis of primary and secondary sources of information tables are made and analysis is done.

Effects of flood hazards in District Anantnag

Effects of flood Hazard on settlements

Due to flood situation the settlements were badly affected and some settlements developed cracks. The furniture, important documents, utensils, electronic goods, matting etc., were washed away by flash flood. The settlements in rural areas which are made of mud walls were swept away. The data collected from Office of Assistant Commissioner Revenue Anantnag states, that damage caused to settlements was divided into three categories, fully damaged, severely damaged and partially damaged settlements. In Anantnag district, 46.30% pacca houses and 5.88% kacha houses were partially damaged, 23% pacca houses and 1.94% kacha houses were severely damaged, 7.06 % pacca houses and 1.46 % kacha houses were fully damaged. Also, 13.35 % cow sheds and 0.84 % huts were damaged during flood hazard. In the study area, total numbers of settlements were 153142 (2011) in which 17968 (11.73 %) settlements were affected during flood.

Table No. 1.
Effect of flood on settlements in district Anantnag

<table>
<thead>
<tr>
<th>S. No</th>
<th>Damaged Settlements.</th>
<th>Settlement Type</th>
<th>No. of settlements damaged</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Partially Damaged Settlements</td>
<td>Pacca Houses</td>
<td>8320</td>
<td>46.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kacha Houses</td>
<td>1058</td>
<td>5.88</td>
</tr>
<tr>
<td>2</td>
<td>Severely Damaged Settlements</td>
<td>Pacca Houses</td>
<td>4156</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kacha Houses</td>
<td>350</td>
<td>1.94</td>
</tr>
<tr>
<td>3</td>
<td>Fully Damaged Settlements</td>
<td>Pacca Houses</td>
<td>1270</td>
<td>7.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kacha Houses</td>
<td>264</td>
<td>1.46</td>
</tr>
<tr>
<td>4</td>
<td>Total No. Of Cow sheds Damaged</td>
<td>-</td>
<td>2399</td>
<td>13.35</td>
</tr>
<tr>
<td>5</td>
<td>Total No. Of Huts Damaged</td>
<td>-</td>
<td>151</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Effects of flood on agriculture land

Due to heavy rainfall, river Jhelum and its tributaries flooded and over flow its banks and passed through agricultural and vegetable fields causing huge damage to crops. This devastating flood hit production of rice in Jammu and Kashmir with annual produce for 2014-15 was reduced to 4548 lakh quintals. The previous year economic survey says that area under rice crop came down from 271 lakh hectares in 2013-14 to 265 lakh hectares during 2014-15.The survey report states, that due to flood over all food production in Jammu and Kashmir was reduced to 17.42 lakh metric tonnes as against previous year production of 20.26 lakh metric tons. During September 2014 floods, district Anantnag in south kashmir suffered losses amounting to Rs 347 crore to agricultural crops spreading over an area of 44081 hectares ( total net sown area 47861 ha). In Pahalgam 24.39%, Anantnag 21.89%, Kokernag 18.83%, Bijbehara 14.61%, Dooru 11.80%, Shangus 7.51% and in Qazigund 9.4% of agricultural land were affected. This devastating flood damaged standing crops such as maize 65.68%, paddy 55.92%, Vegetables 59.46%, pulses 53.66% and fodder 53.44% etc. These agriculture fields got silted and in some places huge erosion took place and washed away agricultural fields. Shown in Table No. 2 and fig. no.1&2.

Table No. 2
Effect of flood on agricultural land (irrigated and un- irrigated) in district Anantnag

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Tehsil</th>
<th>Total Area under Various crops (ha)</th>
<th>Percentage of Total Area under Various crops. (Irrigated, Un- irrigated)</th>
<th>Agricultural land affected due to floods/incessant rain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Irrigated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Area (ha) (%)</td>
</tr>
<tr>
<td>1.</td>
<td>Pahalgam</td>
<td>10755</td>
<td>24.39</td>
<td>5946 21.68</td>
</tr>
<tr>
<td>2.</td>
<td>Anantnag</td>
<td>9652.50</td>
<td>21.89</td>
<td>7943.01 28.96</td>
</tr>
<tr>
<td>3.</td>
<td>Kokernag</td>
<td>8303</td>
<td>18.83</td>
<td>2673 9.74</td>
</tr>
<tr>
<td>4.</td>
<td>Bijbehara</td>
<td>6443</td>
<td>14.61</td>
<td>5350 19.50</td>
</tr>
<tr>
<td>5.</td>
<td>Dooru</td>
<td>5203</td>
<td>11.80</td>
<td>3462 12.62</td>
</tr>
<tr>
<td>6.</td>
<td>Shangus</td>
<td>3311</td>
<td>7.51</td>
<td>1649 6.01</td>
</tr>
<tr>
<td>7.</td>
<td>Qazigund</td>
<td>141</td>
<td>0.94</td>
<td>404 1.47</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>44081.05</td>
<td></td>
<td>27426.01</td>
</tr>
</tbody>
</table>

Source: District Agriculture office (Ext) district Anantnag (2015)
Fig. No. 1
Effect of flood on agricultural land (irrigated and un-irrigated) in district Anantnag

Table No. 3. Effect of flood on crops in district Anantnag

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Crops</th>
<th>Total area under Various crops (Ha.)</th>
<th>Agricultural land affected due to flood. (Irrigated, Un-irrigated).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Area (ha.)               (%)</td>
</tr>
<tr>
<td>1.</td>
<td>Maize</td>
<td>14922</td>
<td>9800</td>
</tr>
<tr>
<td>2.</td>
<td>Vegetable</td>
<td>1766</td>
<td>1050</td>
</tr>
<tr>
<td>3.</td>
<td>Paddy</td>
<td>24500</td>
<td>13700</td>
</tr>
<tr>
<td>4.</td>
<td>Pulses</td>
<td>1733</td>
<td>930</td>
</tr>
<tr>
<td>5.</td>
<td>Fodder</td>
<td>1160</td>
<td>620</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>44081</td>
<td>26100</td>
</tr>
</tbody>
</table>

Source: District Agriculture office (Ext) district Anantnag (2015)
Loss of Agricultural land

In the study area agricultural land got eroded along with crops. Due to flash flood 143.75 hectares of agricultural land was eroded in district Anantnag. In Kokernag huge erosion occurs in which 29.73% of agricultural land got eroded. It has been seen 19.44% of agricultural land were eroded in Bijbehara, Dooru 19.33%, Shangus 18.26%, Anantnag 8.22% and in Phalgam 4.93%. The following table shows the erosion of agricultural land in different Tehsils of district Anantnag given in Table No 4 & fig.no.3.

Table No. - 4
Agricultural land lost during flood in district Anantnag

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Tehsil</th>
<th>Agricultural land Eroded during flood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Area (in kanals)</td>
</tr>
<tr>
<td>1.</td>
<td>Kokernag</td>
<td>855</td>
</tr>
<tr>
<td>2.</td>
<td>Bijbehara</td>
<td>559</td>
</tr>
<tr>
<td>3.</td>
<td>Dooru</td>
<td>556</td>
</tr>
<tr>
<td>4.</td>
<td>Shangus</td>
<td>525</td>
</tr>
<tr>
<td>5.</td>
<td>Anantnag</td>
<td>238</td>
</tr>
<tr>
<td>6.</td>
<td>Phalgam</td>
<td>142</td>
</tr>
<tr>
<td>7.</td>
<td>Qazigund</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>2875</strong></td>
</tr>
</tbody>
</table>

Source: Office of District Agriculture Officer Anantnag (2015)
Effects of flood on educational institutions

Educational institutions remained submerged under flood water for more than two weeks in which the education system was badly affected. Both rented and owned educational institutions were affected badly. Primary schools, Middle schools, High schools and Higher secondary schools were damaged during flood. It has been observed in Bijbehara large no. of educational institutions were damaged in which 30.15% were owned and 52.63% were rented. In Anantnag 19.4% owned and 47.36 rented, Kokernag(bidder) 15.7% owned, Shangus 13.49% owned, Dooru 10.31% owned, Qazigund 6.34% owned, Phalgam (Aishmaqum) 5.55% owned educational institutions were damaged.

Large no. of middle schools were damaged in which 60.21% were owned and 38.09% were rented. In the study area 25.26% were owned and 47.61% were rented primary schools, 8.60% owned and 14.28% rented high schools and 5.91% owned higher secondary schools were affected. This devastating flood destroyed infrastructure, libraries, Laboratory, instruments, sports goods, office record and cracks occurred in walls of building of these educational institutions. As Shown in Table No.5 and 6 & fig. no. 4 & 5.

Table No.5 Effect of flood on educational institutions in district Anantnag

<table>
<thead>
<tr>
<th>S. NO.</th>
<th>Tehsils Of District Anantnag</th>
<th>Educational institutions damaged during flood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Owned</td>
</tr>
<tr>
<td>1</td>
<td>Bijbehara</td>
<td>38</td>
</tr>
<tr>
<td>2</td>
<td>Anantnag</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>Kokernag (Bidder)</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>Shangus</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>Dooru</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>Qazigund</td>
<td>08</td>
</tr>
<tr>
<td>7</td>
<td>Phalgam (Aishmaqum)</td>
<td>07</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>126</td>
</tr>
</tbody>
</table>

Source: Chief Education officer district Anantnag (2015).
Fig. No. - 4

Effect of flood on educational institutions in district Anantnag

Table No. - 6

Types of institution affected by flood in district Anantnag

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Institute Type</th>
<th>Educational institutions damaged</th>
<th>Educational institutions damaged</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Owned</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>Primary school</td>
<td>47</td>
<td>25.26</td>
</tr>
<tr>
<td>2</td>
<td>Middle school</td>
<td>112</td>
<td>60.21</td>
</tr>
<tr>
<td>3</td>
<td>High school</td>
<td>16</td>
<td>8.60</td>
</tr>
<tr>
<td>4</td>
<td>Higher secondary</td>
<td>11</td>
<td>5.91</td>
</tr>
</tbody>
</table>

Total 186 21

Source: Chief Education officer district Anantnag (2015).

Fig. No. - 5

Types of institution affected by flood in district Anantnag
Effect of flood on forests

In the study area there are two forest divisions namely forest division Anantnag and Lidder (Pahalgam) forest division. In Anantnag district 2068 square kilometres of land is under forests. During September 2014 flood hazard, their occurred massive destruction to forest infrastructure, plantation, nurseries, stock, stores and roads. In forest division Anantnag the road length of 82.50 km’s were washed away in the forest areas. These roads were used for extraction and transportation of timber and fire wood. These roads are found in different ranges of Verinag, Kuthar and Daksum. Various nurseries were damaged during floods. These nurseries include Umoh nursery (compartment no. 13/v) in which 15.38% of seedlings, Arwani Brennard nursery (compartment no. 32a/k) 61.53% of seedling, Chattapal Nursery 23.07% of seedling were damaged.

Large numbers of plantation were also damaged due to flood hazard. In Kokernag range 18.9% of plantation was washed away. In Verinag range 17.41% of plantation, Qazigund range 4.97% of plantations, Daksum range 36.29% of plantation were swept away by flash flood. In Kuthar range 22.38% of plantations were washed away by flood.

In Lidder forest division 23.5 km of road length which was used for extraction and transportation of timber and fire wood was washed away. From Depot Awantipora (C-class stock) 100 quintals of stock and from Coupe Momandanji 60 quintals of populous old stock 402.92 cubic feet were washed away. Many forest Depots were washed away in which timber and fire wood stocks in Pampore Depot (25.26%), Awantipora (8.29%), Bijbehara (17.06%), Zirpora (3.76%), Jablipora (3.39%), Uranhal (9.88%), Veer (6.43%), Krandigam (6.26%), Dupathar (3.63%), Katriteng (3.63%), Sangam (3.72%), Marhama (2.96%), Arawani (5.25%) were swept away. The total fire wood and timber washed away by flash floods was 18403.64 cubic feet.

Table no. - 7

Effect of flood on plantation and seedling in different nurseries of district Anantnag

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Nurseries in district Anantnag</th>
<th>Plantation affected during flood</th>
<th>Seedling affected during flood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. ( in lakhs)</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>1.</td>
<td>Bijbehara</td>
<td>1.9</td>
<td>42.22</td>
</tr>
<tr>
<td>2.</td>
<td>Katriteng</td>
<td>1.6</td>
<td>35.55</td>
</tr>
<tr>
<td>3.</td>
<td>Awantipora</td>
<td>0.7</td>
<td>15.55</td>
</tr>
<tr>
<td>4.</td>
<td>Kanjing</td>
<td>0.20</td>
<td>4.44</td>
</tr>
<tr>
<td>5.</td>
<td>Gulshanpora</td>
<td>0.1</td>
<td>2.22</td>
</tr>
<tr>
<td>6.</td>
<td>Arwani brennard</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>Chattapal</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8.</td>
<td>Umoho nursery</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In district Anantnag, damage caused in plan areas was directly affected by floods are, Bijbehara Nursery in which 0.70 hectares of land had been affected by floods and damages 42.22% of plantation, in Katriteng Nursery 1.25 hectares of land were affected and damages 35.55% of plants. In Awantipora 0.85 hectares were affected and damages 15.55% of plants. In Kanjinag 1.00 hectares of land and 4.44% of plants were damaged. In Gulshanpora 0.02 hectares were affected and damages 2.22% of plants. In the study area total 3.84 lakh hectares of land was affected and 4.6 lakh plants were washed away. As shown in table No.7, 8 & 9 and fig. no. 6, 7 & 8.

**Fig. No. – 6**

*Effect of flood on plantation and seedling in different nurseries of district Anantnag*

![Diagram showing percentage of Plantation and Seedling affected in different nurseries.]

**Table No. - 8**

*Effect of flood on plantation in different ranges in district Anantnag*

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Different Ranges in district Anantnag</th>
<th>Plantation affected in different ranges of district Anantnag</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>1.</td>
<td>Daksum</td>
<td>7300</td>
</tr>
<tr>
<td>2.</td>
<td>Kutha</td>
<td>4500</td>
</tr>
<tr>
<td>3.</td>
<td>Kokernag</td>
<td>3800</td>
</tr>
<tr>
<td>4.</td>
<td>Verinag</td>
<td>3500</td>
</tr>
<tr>
<td>5.</td>
<td>Qazigund</td>
<td>1000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>20100</strong></td>
</tr>
</tbody>
</table>

Source: Office of the D.F.O forest division Anantnag (2015)
Effect of flood on plantation in different ranges in district Anantnag

![Pie chart showing the percentage of timber washed away by floods in various ranges in district Anantnag.]

Table No. - 9
Effect of flood on timber in forest Depots of district Anantnag

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Forest Depots in district Anantnag</th>
<th>Timber (cft.) washed away by floods in district Anantnag</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pampore</td>
<td>4650</td>
<td>25.26</td>
</tr>
<tr>
<td>2.</td>
<td>Bijbehara</td>
<td>3140</td>
<td>17.06</td>
</tr>
<tr>
<td>3.</td>
<td>Uranhal</td>
<td>1819</td>
<td>9.88</td>
</tr>
<tr>
<td>4.</td>
<td>Awantipora</td>
<td>1526</td>
<td>8.29</td>
</tr>
<tr>
<td>5.</td>
<td>Zirpora</td>
<td>692</td>
<td>3.76</td>
</tr>
<tr>
<td>6.</td>
<td>Veer</td>
<td>1184</td>
<td>6.43</td>
</tr>
<tr>
<td>7.</td>
<td>Krandigan</td>
<td>1153</td>
<td>6.26</td>
</tr>
<tr>
<td>8.</td>
<td>Arawini</td>
<td>967</td>
<td>5.25</td>
</tr>
<tr>
<td>9.</td>
<td>Sangam</td>
<td>686</td>
<td>3.72</td>
</tr>
<tr>
<td>10.</td>
<td>Dupathyar</td>
<td>669</td>
<td>3.63</td>
</tr>
<tr>
<td>11.</td>
<td>Katriteng</td>
<td>669</td>
<td>3.63</td>
</tr>
<tr>
<td>12.</td>
<td>Jablipora</td>
<td>625</td>
<td>3.39</td>
</tr>
<tr>
<td>13.</td>
<td>Marhama</td>
<td>546</td>
<td>2.96</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>18403.64</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Office of the D.F.O forest division Anantnag (2015)
**Effects of flood on population**

The flood that hit Anantnag district in September 2014 affected the population badly. The people lost their houses, livestock and other belongings. Many people were injured. Data collected from Office of Assistant Commissioner Revenue Anantnag states, In Anantnag district 10 civilians and one CRPF men lost their lives. Four of them were female and seven were male. The exgratia relief disbursed to them was given at the rate of Rs 1.50 lakh each person. Most of the people fell sick due to spread of diseases. Army, police, air force and NGO’S carried out rescue operation and saved lot of people not only from drowning but also gave food, tents, clothes and medicines to affected people.

**Effect of flood on villages**

Flood waters entered into villages, entire villages were deluged and villagers became homeless. Data collected from Office of Assistant Commissioner Revenue Anantnag states that in the study area there were 394 villages out of these villages 174 (44.16%) villages remain submerged up to four to seven days under flood water and in 220(55.83%) villages 75% of crops were damaged. In these villages due to flood 165000 families were affected. People whose houses have been destroyed or are submerged are putting up in the sheds in the Karewas (higher altitudes). Most of the villagers especially, children, women and elder persons took shelter in neighbouring villages and Masjids. The houses in these villages looked intact from outside but they were crumbling and have developed cracks in their walls. The paddy fields in these villages were turned into lakes. The houses in these villages are not worth living.
People consumed contaminated water because safe drinking water, electricity and means of communication were absent. Schools, official buildings and health centres were damaged. The government announced to issue free ration for six months to flood affected villagers and 210 kg of rice are given to each family.

**Effect of flood on power stations**

Devastating flood caused huge damage to power stations. Data collected from PDD department Anantnag and sub-division Bijbhera studies, that devastating flood washed away electric poles, street lights, transformers, cables, insulators and damaged main office of district Anantnag. In district Anantnag 106 power stations were damaged. The total length of LT (low tension) electric wire was 2067 km’s in which 150 km’s of LT was affected by flood. During flood 3487 electric poles, 226 conductors, 106 transformers, 53 link sets, 23 transformer bed supports were washed away or damaged. The cable wire (185sq.mm, 340sq.mm, 300sq.mm) 2056 meters was washed away. Filter plant was totally submerged in water, motor, pumps, leads, electronic controlling plates, hydraulic pipes and all other accessories were damaged and rendered useless. The transformer oil that was kept for filtering and reserve mixed with water or drained away. The vehicles and cranes were also damaged. The DPC wire, gas welding equipment, power hexa-cutter, hydraulic trolley, testing equipment and single phase energy meter has been washed away.

In sub division Bijbehara HT line of 70 km’s, LT line of 97 km’s and 92 transformers were damaged by flood waters. The work shop building, filter plant, oven, semi-automatic HT/LT winding machine, DPC wire, fuse tube wire, battery bank were damaged due to flash floods. Due to the lack of electricity people, business men, patients in hospitals and water supply schemes were suffered. Thus, whole district was look like a dark island.

**Effect of flood on horticulture**

Flood situation affected Kashmir fruit industry and suffered Rs 2900 crore loss. In Anantnag district 13337.55 hectares of horticulture land were damaged and affected about 83.50% villages. Data collected from Horticulture department Anantnag studies that large area of horticulture land were affected in Anantnag 24.98%, Kokernag 18.26%, Dooru 13.75%, Phalgam 12.21%, Bijbehara 12.08%, Shangus 11.89% and in Qazigund 6.78% of horticultural land were affected due to flood. Horticulture department mentions that 6 lakh families in Kashmir are dependent on the fruit trade. Besides, the horticulture sector provides job opportunities to transporters, labours and packers. During flood 74 lakh fruit boxes were damaged. During September 2013, 17000 trucks loaded with apple were dispatched from Kashmir. But during 2014 we dispatch only 8000 trucks because of flood. This has caused Rs 440 crore loss to the industry. Premature falling of fruits has caused Rs 900 crore loss to the growers. Loss of William pears and Nakh Kashmiri (an apple verity) estimated Rs 400 crore and loss of walnut is Rs 300 crore. The over-charging of freight by transporters in the wake of flood caused loss to apple industry. As shown in table No.10 & fig.no.9.
Table No. 10.
Effect of flood on horticultural land in district Anantnag

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Name of Tehsil in district Anantnag</th>
<th>Horticultural land affected during flood in district Anantnag</th>
<th>Villages affected during flood</th>
<th>Families affected during flood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Area (ha.)</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>1.</td>
<td>Anantnag</td>
<td>3332.6</td>
<td>24.98</td>
<td>60</td>
</tr>
<tr>
<td>2.</td>
<td>Kokernag</td>
<td>2436.6</td>
<td>18.26</td>
<td>46</td>
</tr>
<tr>
<td>3.</td>
<td>Dooru</td>
<td>1835</td>
<td>13.75</td>
<td>49</td>
</tr>
<tr>
<td>4.</td>
<td>Pahalgam</td>
<td>1629.55</td>
<td>12.21</td>
<td>68</td>
</tr>
<tr>
<td>5.</td>
<td>Bijbehara</td>
<td>1612.2</td>
<td>12.08</td>
<td>33</td>
</tr>
<tr>
<td>6.</td>
<td>Shangus</td>
<td>1586.7</td>
<td>11.89</td>
<td>49</td>
</tr>
<tr>
<td>7.</td>
<td>Qazigund</td>
<td>904.9</td>
<td>6.78</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13337.55</td>
<td></td>
<td>329</td>
</tr>
</tbody>
</table>

Source: Chief Horticulture office Anantnag (2015)

Fig. No. - 9
Effect of flood on horticultural land in district Anantnag

- Percentage of total horticultural land affected in district Anantnag.  
- Percentage of villages affected.  
- Percentage of families affected.
Effect of flood on roads

Flood causes severe damage to roads and bridges. Data obtained from R & B division Anantnag studies that, the road length of 5.82 kms was washed away (Khanabal 2.80kms, Qazigund 1.73kms, Vailoo1.29kms) and 315.52 kms were damaged (Khanabal 211.47kms, Qazigund 20.62kms, Vailoo 83.43kms). During flood 11 bridges were fully damaged (Khanabal 1, Qazigund 7, Vailoo 3) and 43 bridges were partially damaged (Khanabal 17, Qazigund 11, Vailoo 3). In the study area 14 culvers were fully damaged (Khanabal 4, Qazigund 3, Vailoo 7) and 62 culverts were partially damaged (Khanabal 31, Qazigund 9, Vailoo 22). After receding of the water level the scenario became more vulnerable as the silt had got accumulated on such roads which were submerged for few days under flood water. Due to accumulation of silt it was virtually impossible for the inhabitants of the flood hit areas to come out of their houses and for those who had left their houses due to flood. The situation got worsened in the areas that had lost connectivity due to washing away of roads and bridges.

Effect of flood on animal husbandry

In district Anantnag large numbers of animals died or were washed away by flood. During flood 738 animals died (cows, horses, buffaloes etc.). Large no. of animals died in Dooru 25.60%. The data collected from animal husbandry department Anantnag states that in Bijbehara 22.62%, Anantnag 17.88%, Phalgam 13.95%, Kokernag(Breng)13.00%, Qazigund 5.55% and in Shangus 1.35% animals died during flood. Most of the animals died due to non-availability of shelter and fodder. Because these villages remained inundated upto four to seven days. Most of the animals died by drinking contaminated water, by eating silted grass and infected food items. Some villagers saved their animals by moving them to safer places during flood. As shown in table No.11& fig.no.10.

Table No. 11.
Effect of flood on animal husbandry in district Anantnag

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Name of Tehsils in district Anantnag</th>
<th>Animals died during floods in district Anantnag</th>
<th>Beneficiaries affected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>1.</td>
<td>Dooru</td>
<td>189</td>
<td>87</td>
</tr>
<tr>
<td>2.</td>
<td>Bijbehara</td>
<td>167</td>
<td>121</td>
</tr>
<tr>
<td>3.</td>
<td>Anantnag</td>
<td>132</td>
<td>76</td>
</tr>
<tr>
<td>4.</td>
<td>Phalgam</td>
<td>103</td>
<td>93</td>
</tr>
<tr>
<td>5.</td>
<td>Kokernag(Breng)</td>
<td>96</td>
<td>71</td>
</tr>
<tr>
<td>6.</td>
<td>Qazigund</td>
<td>41</td>
<td>23</td>
</tr>
<tr>
<td>7.</td>
<td>Shangus</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>740</td>
<td>481</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion and Suggestions

Flood simply means an unusual accumulation of water above the ground caused by high tide, heavy rain, melting snow or rapid run-off from paved areas. Kashmir valley is like a cup shaped vessel with mountains surrounding from all four sides and relatively plain region in the middle. The bed grade of river Jhelum from Anantnag to Wular Lake is very mild, after every 10 kms there is 1m drop in elevation. When we look at south Kashmir region we find about 4200 square kms of mountainous catchment of the river Jhelum. Thus, when heavy precipitation takes place in this region, water travels from higher contour to lower contour. As the lower contours (Anantnag, Sangam) have a very mild slope, the water stagnates and spreads in all directions, just like if we pour a bucket of water on a plain surface, the water will hit the ground, spread in all directions and stagnate. When heavy precipitation takes place Jhelum spreads and flows in 2-3 km width as seen in September 2014. There are various reasons behind this devastating flood such as cutting down of forests in the catchment areas of river Jhelum and other water ways is one of the major factor for their extensive siltation, unplanned construction of railway lines and roads, unplanned urbanisation, construction on flood channels, absence of modern flood forecasting system and meandering course of river Jhelum. The settlements, crop fields, roads, communication, electricity, live-stock were affected and many lives were lost.
The devastating flood of September 2014 in the state of Jammu and Kashmir, especially in district Anantnag has left a trail of destruction. The following suggestions may help us to prevent ourselves from devastating floods in future.

- Indiscriminate deforestation should be stopped.
- Constructing encroachments in flood plains and wet lands should be stopped.
- Dredging should be done in the bed of river Jhelum and its tributaries.
- Construct ponds and lakes in the catchment areas of river Jhelum which reduces surface run off during heavy rainfall.
- Fully equipped disaster management organisations and modern flood forecasting system should be made available in the flood prone areas.
- Flood awareness programmes should be carried out in schools, colleges and universities and teach them different methods of crisis management.

References:

जलवायु परिवर्तन और जलचक्र पर उसका प्रभाव

Poonam Yadav *

काफी समय से एक कहावत प्रसिद्ध है कि ‘जल ही जीवन है।’ जो हमारे जीवन में जल के महत्व को इंगित करती है। रहिने ने भी लिखा है—

‘रहिने पानी राखिये, बिन पानी सब सून’

पृथ्वी पर जल के विना जीवन संयम नहीं है। विश्व की समीम समुद्र सम्पत्तियों का विकास नदी घाटियों में ही हुआ है। जो भी जल के महत्व को दर्शाता है।

आज के युग में बदती हुई जलसंख्या तथा संसाधनों पर उसके बदते दबाव के कारण सतत विकास के अवकाश जोर पकड़ रही है। सतत विकास की अवधारणा भी जल से जुड़ी है।

संयुक्त संघ संघ ने भी जल के महत्व को इंगित करते हुए 2005-15 के दशक को जीवन के लिए जल का अंतर्दृष्टिक दर्शन प्रस्तुत किया है। लेकिन पृथ्वी पर लगातार हो रही तापवृद्धि से जलवायु परिवर्तन हो रहा है जो चलकर को प्रभावित कर रहा है।

जलचक्र अरु जल लगातार परिवर्तन में चक्त होता रहता है। जल के रूप में इस प्रक्रिया को जलचक्र कहा जाता है। पृथ्वी के विभिन्न हिस्सों से जल का वाष्पीकरण होता है जो बाद में वर्षा या बर्फबारी के रूप में वापस महत्व प्रदान करता है।

जलचक्र के एक महत्वपूर्ण विशेषता यह है कि यह आसानी से अपनी अवलोकन बदल सकता है। यह टोपा, ढाब व वापस तीन अवस्थाओं में पृथ्वी पर उपलब्ध है। जलचक्र पृथ्वी पर उपलब्ध जल के एक रूप से दूसरे रूप में परिवर्तित होते हुए जल है। जलचक्र पृथ्वी पर उपलब्ध जल के एक रूप से दूसरे रूप में परिवर्तित होते हुए जल है। जलचक्र पृथ्वी पर उपलब्ध जल के एक रूप से दूसरे रूप में परिवर्तित होते हुए जल है। जलचक्र पृथ्वी पर उपलब्ध जल के एक रूप से दूसरे रूप में परिवर्तित होते हुए जल है। जलचक्र पृथ्वी पर उपलब्ध जल के एक रूप से दूसरे रूप में परिवर्तित होते हुए जल है।

इसके अलावा पृथ्वी पर उपलब्ध जल के एक रूप से दूसरे रूप में परिवर्तित होते हुए जल है। जलचक्र पृथ्वी पर उपलब्ध जल के एक रूप से दूसरे रूप में परिवर्तित होते हुए जल है। जलचक्र पृथ्वी पर उपलब्ध जल के एक रूप से दूसरे रूप में परिवर्तित होते हुए जल है।

**Prashnav**

महासागरों में जल की 1-4 इंच परल वाष्पीकरण होता है जिसमें से 90% से ज्वारा वापस जलचक्र के द्वारा वापस समुद्र तक पहुँचता है। इसके बाद वाष्प का द्रवण होता है।

पृथ्वी उपलब्ध जल के उपर इसका प्रभाव होता है। जो वर्षण स्थल पर होता है या पहाड़ों पर होता है उसका कुछ भाग जमीन के अंदर भूगर्भीय जल के रूप में पहुँचता है। जिसे अंदाज़ स्पर्श कहते हैं। बाकी का भाग सतही जल के रूप में नदियों और झीलों में परिवर्तित होता है।

अधिकांश नदियां समुद्र तक पहुँचती हैं। इस प्रकार समुद्र से वाष्पीकृत हुआ जल वापस समुद्र तक पहुँचता है।

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जलवायु परिवर्तन, पृथ्वी की एक सामान्य प्राकृतिक प्रक्रिया है। मानवीय क्रियाकलापों के कारण जलवायु परिवर्तन की प्रक्रिया तीव्र हो गई है जिसका सीधा असर जीवन एवं जीवन के आधार स्तरों के ऊपर पड़ रहा है।

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[1] Dr. E.S. Lazz, Jhelum Valley (Geology)
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Global Warming – A Threat to Humanity and Environment

Dr. Pardeep Sharma. * Sunila Kumari **

Abstract:
In this paper the Authors have tried to analyze and find solutions to one of the greatest problems that the world is facing at the present moment i.e. global warming. In preparing the paper the authors have analyze policies of different nations in preventing this threat, international conventions are also referred in providing insight to the global perspective. The effects of global warming have been analyzed under different heads like – effect in India, effect in Polar Regions, effect on the wildlife and ecosystem and effect on sea level. The authors have also focus on the problems, which occurred due to the change in climate. As change of climate is the result of global warming, droughts affect crops and livestock production, sea levels are rising, glaciers are melting. Floods and landslides aggravate, destructive storms prevail. Personal recommendations have also been suggested to prevent this threat. The effect global warming would have on human health and food security has also been analyzed by the authors. The authors have tried to focus on the effect, which have occurred due to global warming on India and U.S.A.

The authors have concluded that in order to tackle the problem on global warming the international community should stand together and help each other to prevent this upcoming disaster globally.

KEY WORDS: Rehabilitation, India Constitution, labor laws, Industrial Disputes laws, Environment laws.

Introduction
Man is both creature and molder of environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man’s environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights the right to life itself.

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** Research Scholar, Singhania University, Pacheri (Jhunjhunu), Raj.
Understanding Global Warming

Climate change is any substantial change in Earth’s climate that lasts for an extended period of the lower atmosphere. Global warming can have many different causes, but it is most commonly associated with human interference, specifically the release of excessive amounts of greenhouse gases.

According to the report of IPCC, humans have brought on the global warming that has caused the extreme hurricanes, and that the 21st century will see even more of them. The portion of the study that blamed humans was a result of expert opinions more than a product of research.

Effects of Global Warming

Due to the change of climate which is the result of global warming, droughts affect crops and livestock production, sea level are rising, glaciers are melting, floods and landslides aggravate, destructive storms prevail. Some impacts from increasing temperatures are already happening.

- Ice is melting worldwide, especially at the Earth’s poles. This includes mountain glaciers, ice sheets covering West Antarctica and Greenland, and Arctic sea ice.
- The decline of the Adeline penguins on Antarctica, where their numbers have fallen from 32,000 breeding pairs to 11,000 in 30 years.
- Sea level rise became faster over the last century. Sea levels are expected to rise between 7 and 23 inches (18 and 59 centimeters) by the end of the century, and continued melting at the poles could add between 4 and 8 inches (10 to 20 centimeters).
- Precipitation (rain and snowfall) has increased across the globe, on average.
- Spruce bark beetles have boomed in Alaska thanks to 20 years of warm summers. The insects have chewed up 4 million acres of spruce trees.

Economic Aspects:

Global warming is big business. Some economists argue that a warmer climate could benefit certain crops and the farming communities. However, property insurers are predicting that worsening storms caused by global warming could eventually bankrupt the insurance industry. Insurance companies are now trying to form strategic alliances, and pool resources, which could cover severe economic loss from climatic changes.

Effect of Global Warming in India

Survey has shown that the quantity of monsoons in India has increased in the last 50 years, and for some, the monsoon rains can be seen as either a huge advantage or an equally large disadvantage. Although the average rainfall amount has not increased, the number of heavier monsoons has increased since the 1950s.

Surveys have recently discovered a trend within annual monsoon measurements toward fewer, more extreme downpours – and this raises the concern of more potential floods and other natural disasters, monsoons are needed to nourish crop sand supply water for farming communities. But too much of the monsoon rains can devastate crops and livestock as well – a delicate balance is always required.
Effect of Global Warming in the Polar Regions

Arctic air temperatures increased by about 5°C in the 20th century – ten times faster than the global-mean surface temperature – while Arctic sea-surface temperatures rose by 1°C over the past 20 years.

In the Northern Hemisphere, spring and summer sea-ice cover decreased by about 10 to 15% from the 1950s to the year 2000; sea-ice extent in the Nordic seas has shrunk by 30% over the last 130 years.

Arctic sea-ice thickness declined by about 40% during late summer and early autumn in the last three decades of the 20th century.

Alaska’s boreal forests have been expanding northward by some 100 kilometers for every one degree Celsius of temperature rise.

Precipitation has increased over the Antarctic; the Antarctic Peninsula has experienced a marked warming trend over the past 50 years, while the rest of the continent also seems to have warmed.

Surface waters of the Southern Ocean have warmed and become less saline; the water flowing from the Atlantic into the Arctic Ocean has also warmed, and the water in the water in the Beaufort Sea has become less saline.

Effect on sea level

The global mean sea level has risen by 10-20 cm during the 20th century – ten times faster than the rate for the previous three thousand years.

More water is evaporating from the sea surface; this has likely resulted in total atmospheric water vapor increasing by several percent per decade over many regions of the Northern Hemisphere.

Seventy per cent of sandy shorelines have retreated over the past 100 years; 20-30 percent are stable, while less than 10 percent are advancing.

Seawater is seeping into freshwater aquifers and intruding into estuaries in low-lying coastal areas around the world, particularly on low-lying islands.

Environmental changes will harm human health

The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Global climate change will have a wide range of effects on human health as so defined. Overall, the negative effects are expected to outweigh the positive ones. New patterns of heat waves and cold snaps, floods and droughts, and local pollution and allergens would affect health directly. Indirect effects will result from changes to ecological and social system such impacts will include changes in infectious diseases, freshwater supplies, local food production, population movements and economic activities.
Recommendations

Firstly, for controlling Global Warming it is necessary that there should be cooperation of government. This cooperation of government with its citizens and companies and with other countries should aim to grow research and experimentation on the long-term effect of climate change. A research should be done that how climate change will affect our rain, forests and the world’s major bodies of water like the oceans, lakes, rivers, and the livelihood of people who are depending on them. Addressing all such environmental issues is desperately needed to tackle the effect of global warming. It is also necessary on our part that we should start reducing carbon emission and emission of other greenhouse gases, and teaches people about climate change issues and what practical solutions can be down.

Each country has to map out of how much carbon dioxide and greenhouse gases it produces and emits into the atmospheres and in the same way it has to decide how much greening of the environment through reforestation in the rural areas and planting of lands and trees in bran areas in needed to neutralize this harmful gas emitted into the air. Once these gases are in the atmosphere, they stay there for a long time thus trapping the heat in the lower atmosphere and radiating some of it back to earth. With huge amount of carbon dioxide and greenhouse gases in the atmosphere it would increase the global surface temperature, thus higher sea levels, melting the north and South Pole glaciers order causing drought, and disrupting not only the natural balance of world’s climate but the ecological balance of the environment as well.

For the controlling of Global Warming it is also necessary to follow the following environmental policy of “Reduce…. Reuse... Recycle.” Reuse of anything is the easiest and best way to recycle. Save containers, bags, everything that you may be able tours in the future. Also, use cloth towels and napkins instead of paper ones, and use rechargeable bat4ries instead of disposable ones. Furthermore, we can reduce the need to recycle paper by getting off the junk mail lists. Recycling is only effective when we buy products made from recycled materials. People should try to buy quality products that can be used for a long time, buy products with minimal packaging, and not buy disposable products.

Unfortunately, the disbalance which we have created between our 1lives and the Earth is already showing the signs of disaster. “Earth in the Balance” is moving to the Earth in imbalance, which, in the long run will cease to exist. Remember, we are all in the greenhouse together; nobody can stop the world and get off.

Conclusion

Today the whole world is focused on the challenge of reducing greenhouse gas emissions. This makes sense that unless we start cutting emissions soon, atmospheric concentrations of heat-trapping gases will continue to rise, making the impacts described above that much more likely and severe. In providing the safeguards to stop global warming municipal government have to take initiative. The threat of global warming is a global problem and the nations should forget their personal interest and
work in cooperation with other countries to stop this growing threat. U.S.A. being the largest emitter of greenhouse gases should cooperate with other countries in reducing greenhouse gases and should sign the Kyoto protocol leaving their personal benefit. In developing countries like India these are not many municipal legislations but sing the international crisis towards global warming new policies should be formulated to prevent global warming.

Thus, it can be concluded that if we don’t stop this monster from growing, it would be very soon that it engulfs the whole world within it.

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2. Rio summit, 1992
3. Kyoto Protocol
Geography

Impact of Declining Groundwater on Agriculture: Narnaul Block in Mohindergarh District (Haryana)

Chankit *

Introduction:
Global warming, Climate change, Environmental pollution and other issues related to environment are on the hot seat of discussion these days. Presently, declining groundwater has become a serious problem in the many areas of India as well as in the world also. Earth’s water resources including rivers, lakes, oceans, and underground aquifers are under stress in many regions. Most of the Earth’s water (97%) is salty and a small portion less than (3%) is fresh. Water is a basic need for Plants, Animals and Humans also. Human need water for drinking, sanitation, agriculture and industry but water resource are under major stress around the world. Groundwater plays significant role in sustaining the flow, chemistry and temperature of streams, lakes, springs wetlands etc. Although rivers, lakes, and underground aquifers supply fresh water for irrigation, drinking, and sanitation has declining water level time to time.

If we discussed about India, Groundwater has emerged as the primary democratic water source and poverty reduction tool in India’s rural areas. It is a continuously increasing problem during the study time of many scholars and researchers. Groundwater depletion is a phenomenon that has been observed in large part of India especially in the states of Panjab, Haryana, Gujrat, Rajasthan, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu over the last three decade.

Present study area is also suffering from this mega problem. The study area’s groundwater level has gone down because; groundwater utilization is more than recharge in the study area. Groundwater is necessary for Irrigation and other domestic purpose but the study area do not have enough groundwater that can give sufficient condition for agriculture and domestic purpose. So, the socio-economic status of the study area is less dawn.

Definition:
Groundwater is simply water that is below the ground. It is same as behaves like water that is seen on the surface - in pools, streams, rivers, and lakes. It is hidden from view. It carries a sense of mystery and uncertainty about where it comes from, how it is moving and where it is going. It can’t flow through solid matter - such as a grain of sand or a piece of rock - it can only flow through gaps between the grains or through cracks in the solid rock.

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Causes of Declining Groundwater:
The study area does not have any surface water resource like lakes and ponds etc. Insufficient rain in rainy season, drought conditions in Dohan and Kasawati rivers and in a big amount of tube wells are to be used for irrigation, drinking water and washing plants of Gravel. So, high level utilization or uses of groundwater are main cause of declining groundwater level. It was found that utilization of groundwater is more than the recharge of groundwater in the study area.

Literature Review:

Sambasiva Rao (1993): Studied with regard to different elements of soil Moisture, Water availability periods and water availability calendar using appropriate data of rainfall and potential evapotranspiration. He observed the plain regions possess high soil moisture deficit ranging from 144-173 MM per annum but hilly terrain possess very low soil moisture deficits that is 34-42%. His aim to study the changes in soil moisture conditions, to bring out the number of water availability days in different periods, to prepare the water availability calendar, to guest suitable crops abased on soil moisture conditions, he suggested that based on the soil moisture conditions and water availability day a suitable crop depending upon available irrigation facilities.

Bilas (1980): Studied that the ground water assessment of condition, use and quality in Varanasi district. He observed the annual ground water recharge in the area estimated for 1978-1979 is 880, 87 mcm, and utilization of ground water is 562.00 mcm. He analyzed that rate of recharge is higher than the rate of draft of groundwater. It resulted that the underlying sand beds from the main source of groundwater in area and in an average 100 meter depth to a Tubewell, the total thickness of the sand layer amounts up to 60% of the total depth of the Tubewell.

Nagarathinam and Sivaganam (1992): Analysed the water availability during different crop seasons, and the crops grown in Coimbatore district in Tamil Nadu. He used climatic variables of temperature and rainfall, agricultural variables of local crop seasons, crop sown and irrigation from the meteorological stations and agricultural departments. He observed crops are mostly to well irrigation than moisture availability in the soils. It resulted that moisture deficit is high in the district Chitraipattam and crops sown in this season suffer from moisture stress during the critical periods. He suggested the moisture availability Purattasipattam shows that instead of Cholam and pules, high moisture requiring crop of cotton and groundnut are best suited to this season.

Rigg (1994): Highlighted the Thailand’s water crisis issues and conflicts in the kingdom’s developments. The first crises has the tenuous basis son which the electricity generating authority and the royal irrigation department have built them; 1. Dam built. 2. Focus on the potential conflicts between different water users in rural and urban Thailand. 3. Crisis has highlighted in the rather cavalier and simplistic way in which environment. It resulted that the constantly shifting dialectic between society and land based resources and within classes and groups within society itself.
Marsden (1997): Studied that how environmental vulnerability is being created through different types of agricultural intensification and abandonment. He observed that reshaping of environments is the Social management of agriculture and water. It resulted that the need for new models of agro water relations which incorporate internal and external market influences on food production and resource management. He suggested that these processes lead to new patterns of environmental uneven development whereby regions rapidly intensify or deintensify their agricultures and their use and availability of water.

Burt and Johnes (1997): Examined the managing water quality in agricultural catchments in rural drainage basins of the UK. He used a nutrient export coefficient model to examine the cost of land use change in relation to improvement of water quality. It resulted that underlings the need for integrated management of entire drainage basin and a wide range of benefits may accrue from land use change, in chiding enhanced habitats for wildlife as well as better drinking water. He suggested that successful river basin planning can emerge in the UK and truly integrated catchment management may remain an elusive goal.

Pionke and Urban (2006): Examined the effect of agriculture land use on ground water quality in small Pennsylvania watershed. They used ground water quality by 10 samplings of 14 wells with a 7.4 KM watershed during 1973-1982 was related to land use and geology. The observed the wells represent forestry and cropland use associated with three geologic zones such as Nitrates, Chloride and Phosphate concentration were much higher in ground water underlying cropland. It resulted that the nitrate, chloride and phosphate due to mixing and dilution. Water reflects more the geochemistry of local geologic deposit than the impact of cropland use.

Alain et al. (2008): Studied the impact of eight pesticides on the surface and ground water quality of agricultural area within Ebro, Duero and Mino rivers basin in North Spain. They used environmental data assessed using descriptive statistical and multivariate data analysis with principal components analysis (PCA) to evaluate the relevant contamination patterns and provide a description of their seasonal trends. The found that consideration the European Union(EU) maximum residual limit of pesticides in ground water 12% of the results exceeded the 0.1 Mg/2 limit and high levels up to 2.46 Mg/2 in ground water and 0.63 Mg/2 in surface water. They resulted that the levels of ground water higher in the Mino river basin than surface water levels.

A.V.S. Chandela and M. Chourasiya (2010): Studied that urbanization and population explosion are the emerging issues that are causing water crisis. Uses of fertilizers and pesticides in agriculture increasing threats to surface and groundwater quality. Excessive use of water is main cause of fallen down the water level. Natural environment has lost its equilibrium and extreme hazards take place. Overexploitation of underground water has led to shortage of drinking water.
Objective:
- To analyse the declining groundwater level in various decades.
- To analyse the impact of declining groundwater on agriculture.
- To analyse the salinity quantity in the groundwater.

Importance of study:
In last three decades the problem has boomed to the highest level and immediate solutions are required for this serious problem to secure future of peoples. The study has devoted particular attention to the control of declining groundwater level. This study will provide us an idea to improve our environmental conditions and also will provide scientific data for planning and regulatory agencies to address environmental problems in this area.

Methodology:
Methodology is the central part of any research work which helps in scientific description and explanation of reality. It is a way to systematically solve the research problem. The study will be based upon the data and information collected from various primary and secondary sources. The primary data will be collected with the help of sampling, questionnaires and field survey etc. The secondary data will be collect with the help of Gazetteers, District Static Book, Groundwater department and Internet etc. After collection the data, it will be process and cartographically represent with suitable maps, diagrams and graphs.

Study Area:
The area under study lies in Mohindergarh district of Haryana in the South-west side of the State, it is located South-west side of Mohindergrah district. The Mohindergarh district comes under dark-zone. Geographical extension of Narnaul i.e. 28°04’ Latitude and 76°11’ Longitude. It has an average height of 298 meters or 977 feet. It lies at a distance of near about 150 km from Delhi. There are two seasonal rivers namely the Krishnawati and Dohan. These rivers enter in the study area from Rajasthan State. Both rivers don’t have water because Rajasthan State constructed dams on these rivers. The study area is rich in mineral resources such as Iron, Copper, Beryl, Tourmaline, Muschovite mica, Biotite mica, Albie, Calcite and Quartz etc.

Climate:
The study area lies between tropical and sub-tropical belt. In reference to the type of climate of Narnaul lies under semi-arid climate to sub-humid type by nature. The region lies in between these two types of climate conditions. Most of plant species are of the nature of tropical thorny forest type.

Rainfall:
It is very obvious perception to us that rainfall has great significance in various aspects for the development of any area from many angles on this planet. It is a basic factor for each and every kind of life forms exists on the earth surface. If we analyses the distribution of rainfall according to the sessions, then we get the results that about 85% of total rainfall is cause during the period of monsoon season. Table-1 shows that the study area has very fluctuation in rainfall. In last 20 years the highest rainfall was in 1996 and lowest rainfall was in 2002.
Table-1 Rainfall of Narnaul

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<td>19.</td>
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</table>

Source: http://mahendragarh.nic.in/

Temperature:
If we go through the statistics of climatic records of the prevailing year from 2003 to 2013 then we find that maximum annual average and minimum annual average temperature value were not in the homogeneous order but generally it had fluctuated from year to year. Temperature was found maximum in decade 45°C in 2009 and minimum -3°C in 2013.

Relative Humidity:
It is third important climatic element which also plays a significant role in an overall climatic conditions prevailing in any area of the earth surface congenial and uncongenial conditions of weather for the in-habitats of any area. It is a considerable factor may be observed with little variation.

The percentage of maximum and minimum average annual values of relative humidity of Narnaul for the years of the last decade i.e. 2000 to 2010 reveals that in minimum annual average percentage of the lowest value was recorded in 2002 i.e. 22% where as the maximum annual average percentage of relative humidity was recorded in 2005 i.e. 75%. Similarly the average annual percentage fo relative humidity was found highest in 2009 i.e. 42.5% whereas it was recorded 37% as the lowest value 2002.
Wind:

Direction and speed of wind vary from time to time and season to season. Neither its direction nor its speed remained similar and it is true that it varies to much extent through out the year. Normally the winds are observed with their two prominent directions i.e. South-west to North-east in summer and North-east to South-west i.e. reverse in winter season.

It is very interesting here that Physiographical the wind direction coincider with the prominent transitional position of the Aravali Mountain range of the state. For a better presentation of prevailing wind direction in different season of the year at the three places, the observations of the prevailing winds directions with their percentage were recorded and it is very interesting to mention here that there are three dominant wind directions over Narnaul viz. from South-west and South during the period of the summer season in which highest percentage of wind direction was found from South-west i.e. 24% during rainy season three dominant directions were observed which are from South-west, North-east, and South-east. In which highest percentage was found of South-east winds.

Many times, wind velocity generally crosses 100 km/hour in the events of prevailing and cyclones where as wind velocity in normal condition was observed in between 20 to 30 km/hour through out the year.

Irrigation:

In 2010-11 the total cropped area was 130045 hectare and the land put to non-cultivable area is 20324 hectare. The study area has total geographical area 95446 hectare with 75122 hectare cultivable area. The total irrigated area with the help of cannel is 412 hectare and with the help of tube-wells is 46252 in the net-irrigated area 46664 hectare.

The gross irrigation area of the study area is 48210 hectare in this by cannel is 412 hectare and by tube-wells is 47798 hectare.

Conclusion and Suggestions:

More groundwater utilization and insufficient rain in rainy season are the main cause of declining groundwater as well as both rivers (Krishnawati and Dohan) of the study area does not have water that’s why the study area not have recharge system. Declining groundwater level affected the agricultural land and socio-economy status of the area. With the help of Government concern and local information we can control declining groundwater level.

If Government connects the study area to Satluj Yamuna Link (SYL) cannel then we can say, the declining groundwater problem may be controlled. If the Government dug tube wells near by the Jhawar Lal Nehru (JLN) cannel in Rohtak and Jhajjar districts and dropped tube wells water in JLN cannel then we can control two major problems. First we can store JLN cannel water in the Dohan River Dam by this the study areas groundwater will be recharged. Second water logging problem will be controlled in Rohtak and Jhajjar district.
Reference:


"Quantitative Assessment of Aquatic Resources in Lake City"

Rakesh Kumar *

Introduction:

As water is a prime resource, a basic need it is essential to realize its full potential. It has always played a very important role in human life since its existence. All human activities are affiliated to water. Water is a supreme economic wealth besides its biological importance. It serves as an ideal medium for bio chemical reactions so necessary for life.

The total water resources of the earth equal to 326 million cubic mile, only 2-5% of water is fresh water, 97.5% is salt water. Almost 69% of fresh water resources are tied in glaciers and ice caps, about 30% is ground water and a mere 0.27% is surface water (www.drinkingwater.com). Water Resources are important for the survival of planet.

Thus water sustains life and regulates all important economic activities because of which it has been termed as richest of all economic resources. Nearly 70% of the world's population is concentrated in the river valleys and deltas, around lakes and in the coastal areas speaks volumes of utility of aquatic resources for man. It seems that water is abundant, but usable water is very limited and creates a serious conservation problem in many places where it is needed.

While plants and animals living in oceans are called as marine resources and those living in flowing water like rivers as well as inland standing water like reservoir and ponds are called as aquatic resources (fresh water resources). Present paper highlights the present scenario of aquatic resources in Udaipur city. Udaipur being the Kashmir of Rajasthan, Lake city or Venus of India.

STUDY REGION

Geographical location: Udaipur city is located in Southern part of Rajasthan. It is actually lying in the center of bowl shaped basin surrounded by Aravalli hills and is drained by Ayad River. Its latitudinal location is from 23° 9' to 25° 28' N and longitudinal extension is from 73° 1' to 75° 49' E. Its geographical region is 12,499 km² and is about 577 metres above sea level.

Udaipur evolved as a result of decline in political power. The decision to site the new capital was favoured by a number of factors of which temple of Eklingji being close by, its isolated position caused by a hilly and forest covered terrain, availability of water in abundance, area having a quality of defense in depth word to name a few.

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The increase in municipal area of the town was primarily in response to the increase in population. Except for the two consecutive decade, 1891 to 1901 and 1901 to 1911, when the population recorded decline due to natural calamities, it has otherwise registered a steady and continuous growth, except that of 1941 to 1951 when it had the highest growth due to various reasons of which the post partition being the most significant. Besides this the growth rate in Udaipur city had been in accordance with Udaipur's economic and cultural growth. Udaipur being an important tourist centre has a floating population of considerable size. Though demographically, it is class-I city but functionally it is only a medium seized regional city without having any major or metropolitan function. Till 2011 Udaipur continues to develop and expand its commercial, administrative, educational, cultural recreational and tourist interests.
Thus this throws light on the fact that with the rapid increase in population the area of city is also increasing.

**Aquatic Resources of Lake City**

Rain water remains reserved in nature in various forms called water reservoirs. They can be broadly classified into surface sources and underground sources.

![Map 2: Lakes of Udaipur City](image)

**Surface Water Sources**

Udaipur famous as 'City of Lakes' include rivers, lakes and talabs are surface water sources, namely – Fatehsagar, Pichhola Lake, Swaroop Sagar, Nandeswar Talab, Badi, Madar, Choti Madar, Ayad River, etc. Map 2 gives a clear picture of all the surface water sources of Udaipur city.

Besides these there were 121 Baovaries of which 83 have dried up.

**River of Lake City Ayad**

Berach the main tributary of river Banas rises originates from the Girwa ranges of Aravali situated to the North of Udaipur city. It is called river Ayad from its fountainhead through Bedla up to Udaisagar Lake, in which it falls. It is the principal
river of Udaipur Basin. Beyond Udaisagar upto Dabok village the river passes through a distance of about 75.5 km and is named as Udaisagar ka nala. Afterwards known as Berach it runs for another 70 km towards North-East and finally merges into river Banas, near Bigod in the Bhilwara district, which is a tributary of Chambal river, Chambal again is a tributary of river Yamuna and Yamuna is the principal tributary of the holy river Ganga. Near the town of Chittorgarh it receives the water of Gambhiri River, then it turns North-East and after flowing for about 190 km it joins river Banas at the place acclaimed as Triveni Sangam near the village Bigod.

**Lakes of lake City**

**Pichhola Lake**

Pichhola Lake is in Udaipur, was originally constructed by some Banjara, in the 14th century A.D. and later on was extended to Rangsagar and Swaroopsagar and finally was connected to Fatehsagar by the successive rulers of the princely state of Mewar. Pichhola lies to the West of majestic ‘City Palace’ providing them with unique and water frontage which enchants every tourist’s heart and soul. It is roughly triangular in shape with its base along the palace ridge. It was renovated and enlarged in 1559 A.D. along with the establishment of Udaipur itself, it enjoys the water spread of 10.8 sq km and a maximum depth of 9.15 m. The gross, live and dead capacities of the lake is 13.67 mcm, 9.00 mcm and 4.67 mcm respectively, while the gauge height above and below sill level is 3.35 and 5.2 m. The lake has a net catchment area of 142 sq km and it has an average yield of 493.5 mcf water. Presently 13.50 mld of water is drawn from this lake by the PHED to serve the thickly populated areas of the old city lying around this lake. The lake is extended towards North and South forming smaller lakes, viz., Doodhtalai and Swaroopsagar as shown in map 2 which gives a detail picture of lakes of Udaipur.

**Swaroop Sagar**

It was constructed during 1845 to 1850 A.D. Its intermediate position has sluice gates and canal to feed water to Fatehsagar Lake which is towards North and linked with Pichhola through Rangsagar Lake in South.

**Rang Sagar**

It has an average depth of 7 m but its width is about 245 m whereas its Westward extension is known as Kalaliya tank.

**Fateh Sagar**

It is situated in the North Western part of the city and almost in the central West of the basin covering an area of 12.88 sq km. It has a pear like shape, covering about 4 sq km areas and gross live and dead capacity of 12.0 mcm, 7.00 mcm and 5.09 mcm respectively. Nearly 20.71 sq km of its catchment area yields annually 71.87 mcf water, evidently lower than that of Pichhola. The daily drawl of water for domestic purposes has been recorded 30 lakh litres in 2004 which was 0.00 in 2008 that is no water was taken from Fatehsagar for supply for domestic purpose which serves about 40 percent population residing in the Northern and Western part of Udaipur city.
Bari

Bari ka talab or Bari Lake is laying 10 kms away towards West from Udaipur city. This lake was constructed by Maharaja Rajsingh in 1643 A.D. for recreation purpose. The lake is formed by damming the river Ubheswar coming from the West. Total length of canal is measured as 3,300 m which are constructed for supplying water to the nearby areas, namely, Bari, Liyo ka Guda, Hawalan Khurd, and Dewali villages. The full gauge of the lake is 9.76 m. almost no supply of water is rendered from this lake. (Irrigation dept. Udaipur City)

Lakhawali

It is located at a distance of 10 kms from the centre of the basin in the North direction. It ranks fifth from the point of view of capacity, yield water level, catchment area and command area of the total six lakes of the region. Its nearby terrain provides no scope for bed cultivation area. The lake is comprised of good canal system spread over a length of 7500 m irrigation about 1012.50 sq km of land per year. Water of this lake is also used for domestic purposes.

Goverdhan Vilas

It is the smallest water reservoir of all the major lakes of the basin lying in the South. The length of the canals of this lake is also meager extending over an area of only 3750 m.

Udai Sagar

It is one of the largest lake of the Udaipur basin constructed by Maharana Udaisingh in 1559 A.D. and named after him; this lake is situated in the far South-East of this basin. The lake was formed after damming river Ahar, particularly for the strategic and water source point of view.

Vallabh Nagar

Vallabh Nagar is in Udaipur, on river Berach. Total catchment area is 1188 sq km. Its gross, dead & live capacity is 31.14 mcm, 3.54 mcm and 27.60 mcm respectively. Its full tank level is 492.71 mcm. Its water is used for irrigation as well as for drinking purpose. (Rajasthan Sujas-2010)

Badgaon

Badgaon is in Udaipur, on river Berach. Its catchment area is 1698.3 sq km. Its gross capacity is 31.50 mcm, with its dead & live capacity of 1.34 mcm and 30.16 mcm respectively. Its water is used for irrigation as well as for drinking purpose.

Jaisamand

Also known as Daber, Jaisamand is located 51.48 km South-East of Udaipur. It was made by Maharaja Jai Singh in four years from 1687 to 1691. It is more than 14.48 km long and its breadth is more than 9.65 km. The dam on this lake is made of marble and is in between two mountains. It is 1000 feet long and at a height of 95 feet. Behind this another water reservoir at the same height was constructed which according to Dr. O.J. Ojha remained empty for about 184 years. In the year 1875 being afraid of heavy rainfall Maharana Sajjansingh spent Rs. 2 lakh to fill the two third gap in between the two dams the remaining work was completed afterwards. Jaisamand is
the world famous artificial lake. Its catchment area is 1813 sq km and gross capacity is 414.60 mcm followed by dead and live capacity of 118.46 mcm and 296.14 mcm respectively. Its water is used for supplying drinking water to Udaipur and also for irrigation. (Irrigation dept. Udaipur City)

All these water bodies stand endangered today because of their misuse.

**Baovries of lake City**

There are 121 baovries in Udaipur out of which 83 have dried up. Most of this baovries are situated in the Sajjan Niwas Garden area. Maximum load was recorded on Sarvaritu vilas Baovri and lowest was on the Chowk Wali Baovri. The other baovries are Sagasji Ki Baovri, Tarkari Wali Baovri, Garden Wali Baovri, Nalaka, Chhatriwali, Jalijiwali, Maji, Ayurvedic Hospital, Satyanarayan, Toranwali and Om Prakashji Ki Baovri, Customwali, Ramdas Colony, Dorenagar, Goverdhan Vilas, Phoolji, Jethji, Maliwali, Bhanbagh, Kalaonwali, Khilonawali, Delhigate and Maszidiji Baovri are some of the baovries of Udaipur. (Lakshya guide 2010-Dr.Jain Mahaveer, Jain kranti, manu prakashan, Ajmer)

**Under Ground Water Sources of lake City**

Udaipur city average water level pre monsoon was 11.44 mbgl and post monsoon was 6.87 mbgl. All the years show a rise in post monsoon water table which was less in 2007 in comparison to other years as shown in figure 1.

**Fig. 1**

It becomes clear how rainfall affects the underground water availability. In the years when rainfall in two consecutive years had been above mean average the underground water level pre-monsoon and post monsoon observed a lesser gap which
has been minimized in the year 2011. Although the post monsoon water level has fallen down in comparison to 2010. Water demand has been increasing every year thus resulting in Udaipur city lying in over exploited zone because of over exploitation of underground water. (State groundwater dept. Udaipur)

WATER QUALITY

The water quality of the lakes has a high sodium and bi-carbonate content, which is attributed to continental weathering due to anthropogenic pressure, intense development activities in the basin area and untreated effluent from municipal and domestic sewage into the lake. The semi arid conditions of the area, saline and Alkaline Soils/Groundwater conditions and weathering of the silicate rock exposed in the drainage basin are assessed as the reasons for the supply of major ions.

The assessment of the pollution parameters recorded at random intervals determined that water is polluted and needs remedial measures. Water Hyacinth Growth has been found, the lake bottom is also covered with a thick mat of submerged vegetation, presence of floating microalgae which are detrimental to the public health.

pH value varies from maximum of 8.4 on the surface to a minimum of 7.8 at the bottom and maximum nitrogen concentration of 0.941 at 1 m. below the surface and 0.523 at the bottom of the lake. The lake water is reported to be poly mictic and there is lack of true thermocline. The lake water temperature varied from a minimum of 19°C in January to 29.4°C in June at the surface and correspondingly 16.8°C and 28.5°C at the bottom of the lake.

Eutrophication has occurred in the lake due to algae bloom (dominant species are microcystis up and submerged macrophytes.) Urbanization around the lakes has increased in nutrients on account of leaching from agricultural activities.

The fauna recorded in the Lake are the 200 plankton, Benthos and fish. Macrophytes that merged in the lake are floating macrophytes, the submerged macrophytes and the phytoplanktons. The lake surroundings have sparse vegetation cover, however, several species of plants in the periphery of the lakes.

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Parameter</th>
<th>Status in Pichhola</th>
<th>Status in Lake Fateh Sagar</th>
<th>Status in Lake Baris</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Presence of tall trees in vicinity of water bodies</td>
<td>Common</td>
<td>Common</td>
<td>Less Common</td>
</tr>
<tr>
<td>2</td>
<td>Presence of Island</td>
<td>Many</td>
<td>Many</td>
<td>NIL</td>
</tr>
<tr>
<td>3</td>
<td>Presence of seeds</td>
<td>Patchily present at few places</td>
<td>Patchily present at few places</td>
<td>Absent</td>
</tr>
<tr>
<td>4</td>
<td>Width of water body</td>
<td>Quite more</td>
<td>Quite more</td>
<td>Narrow</td>
</tr>
<tr>
<td>5</td>
<td>Depth of Water at Water Line</td>
<td>Shallow zone is quite spreaded</td>
<td>Shallow zone is quite spreaded</td>
<td>Less shallow zone restricted towards Southern tip only</td>
</tr>
<tr>
<td>6</td>
<td>Presence of Crocodile</td>
<td>None</td>
<td>None</td>
<td>Few</td>
</tr>
<tr>
<td>7</td>
<td>Presence of Railing</td>
<td>Present</td>
<td>Present</td>
<td>Absent</td>
</tr>
<tr>
<td>8</td>
<td>Algae Blooms</td>
<td>Present</td>
<td>Present</td>
<td>Interestingly absent.</td>
</tr>
</tbody>
</table>
Lake Bari one end touches Sajjangarh wildlife sanctuary. This lake acts as a mega water hole for the spill over animals of the surroundings. It was named Jiyan Sagar after Maharaja Raj Singh it's mother name Jana Devi by whom this lake was built but because it is in close vicinity of village Bari, it is popularly known by this name. The lake has a surface area of 1.25 km² and has an embankment 180 m. long and 18 m. wide. The maximum depth of lake is 150 m.

A total of 32 bird species belonging to 18 families were found among these 20 species were resident, 2 species were summer migrants and 10 species were counter migrant.

An attempt has been made to analyze and compare the habitats of three lakes in order to understand as to why the number of bird species in all the lakes is almost similar, in spite of the fact that there is a lot more anthropogenic activity in Lake Fateh Sagar, Pichhola as compared to Lake Badi.

**CONCLUSIONS**

- Lakes polluted due to disposal of sewerage directly into surface drains of surface water bodies.
- Large scale and uncontrolled mining of marble and other minerals leading to heavy deforestation of hill slopes.
- Catchment area degradation and soil erosion causing deposition of sediment and disturbance of eco-system of the area.
- Encroachments.
- Dumping of solid, liquid waste, destruction of submergence areas and over exploitation of aquatic resources of Udaipur city.
- Poor governance.
- Lack of citizens and stakeholders participation in management of lakes.
- Due to deteriorated water quality, out of 42 species of fishes including Mahseer and all major Carp fishes only 17 species of fishes have survived.
- In the catchment area of Fateh Sagar Lake, Pichhola effluents from synthetic fiber mill and soft drink plant, hotels, etc. are discharged. Apart from bathing, washing, vehicles are also washed in Lake Fateh Sagar and Pichhola. There is prolific growth of Foul Smelling Blue Green Algae, which is neuro toxic and cannot be eradicated by normal filtration.
- No policy implementation for boring in the city.

**SUGGESTIONS**

- Anthropogenic activities should be controlled like Motor Boating, Bathing, Washing, etc.
- Public Awareness to be made by various local means of communication like Radio, T.V., Nukkad Natak, Banners.
- Syllabus primary, secondary, senior secondary and at higher education should be framed keeping the education of the area among them.
- Garbage cans should be placed away from the lake areas.
Solid water should not be disposed in the lakes.
Sewerage water needs to undergo ETP before being disposed in Lakes from hotels, industries and houses.
Strick policy making and its implementation is required as it will help in maintaining bio-diversity of Lakes of Udaipur City.

Thus aquatic resources at Udaipur city can be maintained if anthropogenic activities are checked by educating Udaipurites through various awareness programmes. It is not a day’s task but needs a joint effort of all than only aquatic resources in the form of various species of fauna and flora will add to the beauty of Lake City - The Kashmir of Rajasthan. Aquatic resources are a bliss they should be conserve. Policy making is not enough but their proper implementation is the need of an hour.

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Dissertation Volume Abstracts


परिचय:

महेश्वर जल विभुत परियोजना नर्मदा सागर काम्पलेक्स के अंतर्गत निर्माणी धारा परियोजना में से एक है। यह परियोजना नम्बर नंद नदी में बहते वाली वर्षीय जल एवं इंडिरा सागर बांध से विभुत उत्पादन के बाद निर्माण बना है। यह परियोजना जल नकली तथा विभुत उत्पादन के बाद महेश्वर से संयुक्त उपयोग से अध्ययन क्षेत्र की दोनों ईकाईयों एवं सदास राष्ट्रीय बांध की समस्या भी है। नर्मदा सागर काम्पलेक्स में कम ताकत में विभुत उत्पादन का यह परियोजना अत्यन्त बड़ी महत्वपूर्ण व लाभदायक है।

म.प्र. राज्य का यह जल विभुत बांध है। जिससे विभुत उत्पादन के पश्चातः गुजरात राज्य हेतु उसके हिस्से का पानी एवं दी.टी.वी. के निर्देशानुसार छोड़ा जायेगा। इस तरह यह बांध म.प्र. महाराष्ट्र एवं गुजरात तीनों प्रदेशों के हिस्से में पानी के बदलाव का हिस्सा सब वालों के मुख्य परियोजना है।

वर्ष 1983 में इस परियोजना का आंकलन 241.27 करोड़ रुपये किया गया था। सन 1989 की मूल दरों के अनुसार परियोजना की कुल लागत 465.83 करोड़ रुपये आकी गई थी।

महेश्वर जल विभुत परियोजना का निर्माण म.प्र. के खासियत जिले में जलुद गांव के पास (जो कि मण्डलस्वर शहर से 4 कि.मी. की दूरी पर है)। नर्मदा गांवी परियोजना के अंतर्गत प्रस्तावित 30 बड़े बांधों में से एक है। परियोजना का पूर्ण जलाशय स्तर 162.76 मीटर और अधिकतम जल स्तर 165.80 मीटर होगा। बांध की अधिकतम क्षेत्रफल 36 मीटर है। साथ ही, 10 गूंटित से प्रत्येक के द्वारा 40 मेगावाट विभुत का उत्पादन किया जायेगा। इस परियोजना में सिंचाई का कोई प्रवाहण नहीं है। इसकी स्थापित क्षमता 400 मेगावाट होगी तथा इसे मूलतः पीपिंग बिजली (स्वच्छ खपत के समय उपयोग) हेतु बनाया जा रहा है। बहराइच द्वारा इस बांध से जल स्तर घटने बहने के आधार पर उपशादी पर्यन्त 92 मेगावाट तथा अन्यतः 48 मेगावाट होगा।

महेश्वर परियोजना से कुल 61 ग्रामों की उपजाऊ एवं सिंचाई जमीन के ब्रह्मण्ड प्रभावित होगी।

इसके अलावा वैकल्पिक, रेत बांध द्वारा खेतों, गुड़ के कार्यालयों, पुरातात्विक महत्व के अंतर्गत स्थल भी ब्रह्मण्ड की शिकार होंगे एवं किसानों, कृषकों, नागरिकों महादेशरों, नदी में सजिए और तरसुज की बाधिया लगाने वाले, रेत खेतों और पावर खनन व निर्माण सैकड़ों परिवार उड़ाने, एक अनुसार के अनुसार संपूर्ण (परियोजना से वृळी मजदूर निन्दित चालन प्रकार के उत्पाद घरों खासकर नर्मदा से मलबी पालना व मारना) तथा नर्मदा नदी द्वारा प्रवाह व अप्रवाह रूप से पुड़े लगभग 10000 परिवार प्रभावित होंगे।

महेश्वर परियोजना से ब्रह्मण्ड में आने वाली जमीन नर्मदा किन्हेरे महादेश की जलोद्ध थी। यह भारत कि सबसे उपजाऊ जमीनों में से एक है और यहाँ कला, पेड़ों, रेतों, ग़न्ने, निंबु एवं अन्य मसालों का मर्दर फसल होती है। यह नर्मदा व ब्रह्मण्ड में बहते अच्छी सिंचाई की जाती है जिससे मौसमी रोजनार भी उपलब्ध होता है।

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यह परियोजना प्रारंभ में नर्मदा घाटी विकास प्रक्रियाओं के भाग में थी। लेकिन अ.प्र. सरकार द्वारा इस परियोजना का निजीकरण करके इसके निर्माण तथा विज्ञापन का काम एस.कुमार को सौंप दिया गया। इसके बाद (सन् 1989) में विभुतमण द्वारा यह परियोजना को पूर्ववर्ती व बन मंजिल लागा विभागीय स्थिति में सन् 1994 में निम्न। सन् 1996 में राज्य सरकार और म.प. विभुतमण ने एस.कुमार के साथ “मेमोरियल ऑफ अम्फरल्डिंग” पर हस्ताक्षर किये। तत्वांतर में इस परियोजना के निर्माण, संचालन एवं बिजली उत्पादन के निष्ठे एस. कुमार के पास है। इस परियोजना से बिजली उत्पादन शुरू होने के बाद इसके संचालन और वितरण का आधार म.प. विभुतमण द्वारा होगा। म.प. ने एस. कुमार के साथ समझौता करके पूर्ववर्ती व पुर्वस्थापन का दायित्व भी लिया है।

एक अनुमान के अनुसार वर्तमान 2010 -11 तक परियोजना की कुल लागत लगभग 2700 करोड़ रुपये हो गई थी तथा सम्पूर्ण कार्य पूर्ण होने तक यह लागत 3000 करोड़ रुपये के आसानी से पा कर लेंगी जिससे परियोजना का सम्पूर्ण कार्य समाप्त किया जाएगा है।

प्रारंभ में एस. कुमार द्वारा इस परियोजना का कार्य काफी तीव्र गति से शुरू किया गया था। परन्तु अनुबंध की शर्तों में म.प. विभुतमण एवं एस. कुमार के बीच कुछ कठिनाइयाँ आने से परियोजना का कार्य काफी लंबे समय तक बंद हो गया था। परियोजना प्रदेश हिम्न में होने के कारण परियोजना के निर्माण कार्य में आने वाली कठिनाइयाँ को हल करने परियोजना कार्य को पुनः चलाया गया था। परन्तु वर्तमान में 2011-12 परियोजना का कार्य अग्रदृष्टि पर है।

परियोजना के सम्पूर्ण मुख्य किर्द:--
1. महेश्वर परियोजना के अन्तर्गत 35 मीटर ऊंचाई तथा 3.17 किमी. लम्बा बांध सह पावर हाउस का निर्माण नर्मदा नदी पर निर्माणधीन है।
2. 825 मीटर लम्बा कार्टिंट का बांध एवं 2345 मीटर लम्बा मिट्टी का बांध नदी के दोनों तरफ निर्माणधीन है।
3. बांध में 20 मीटर चौड़े तथा 17 मीटर ऊँचे 25 रेडियल गेट बांध के बीच वाले ऊपर फल हिस्से में लगाये जा रहे हैं।
4. नर्मदा नदी के बाद दिनांकन पर 400 मेगावाट विभुति उत्पादन क्षमता का विभुति गृह निर्माणधीन है।

परियोजना क्षेत्र की लोकसम्पत्ति--
“परियोजना स्थल इंदौर नगर के दक्षिण में 104 किमी. की दूरी पर नेशनल हाईवे क्रमांक 3 के पास स्थित है। सांपरक नगर से जितना मार्ग द्वारा जुड़ा हुआ है। यह खरगोन जिले के महेश्वर तहसील विकासखंड के मण्डलवर राष्ट्र में 4 किमी. पूर्व की ओर ग्राम सन्तोष में स्थित है। बांध स्थल 22° 09’30 अश्विन और 75° 41’00 वेष्टनेर पर स्थित है।

परियोजना स्थल बड़वाह घाटने किला मण्डल नवलेस्वर होकर 04 किमी. की दूरी पर है। परियोजना से परिचालन निमात्र के महेश्वर करारवाद बड़वाह तहसील की तथा पूर्व निमात्र की खण्डवा तहसील की सीमा के बीच से सम्बद्धित हो गया।

यह परियोजना लघु रूप से जल विभुति परियोजना है। इससे खरगोन जिले के मुख्य रूप से विभुति सुरक्षा उत्पल्ल शहरों सह साथ ही साथ म.प. राज्य का पश्चिमी छोर विभुति उत्पादन में सकार हो जायेगा।

महेश्वर परियोजना से रोजगार के अवसर:--
परियोजना के क्षेत्र में रोजगार की सबसे ज्यादा संभावना बनानी क्षेत्रीय जब यहाँ पृथ्वी पर बिजली प्राप्त होने लगेगी तो कृषि उत्पादन, औद्योगिक विकास, जल यातायात, मल्टी उत्पादन व वर्तमान स्तर की संभावना बढ़ जायेगी जिससे क्षेत्र के रोजगार के नये अवसर की संभावना भी बढ़ेगी लगेगी।

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महेश्वर परियोजना के लाभ:
महेश्वर जल विभुति परियोजना मुख्यतः पूर्ण रूप से जल विभुति उत्पादन के लिए बनाई जा रही है। परियोजना की आगस्त 1983 में तैयार की गई रिपोर्ट एवं प्राकृतिक आधार पर पूर्ण लागत निर्माण पूर्ण होने के 6 वर्ष के अन्दर ही विभुति की जाती है। तब वर्ष के अन्तगत यह परियोजना का कार्य रुक-रुक कर होता आ रहा है। जिसके कारण परियोजना को समय में बुद्धि समयसार होती रही है। अनुमानित: परियोजना के पूर्ण होने पर यह निर्चित ही प्रदेश हिट में होगी। जिसके अनेक लाग परियोजना क्षेत्र व प्रदेश को होगे जो निम्न है—
1. प्रारंभिक दौर पर परियोजना से 100 मेगावाट की निर्मित विभुति प्राप्त होगी और अन्तिम चरण में 100 प्रतिशत लॉड फेक्ट पर 50 मेगावाट अतिरिक्त विभुति प्राप्त होगी।
2. विभुति के बेचने से 61.81 करोड़ रु प्रतिवर्ष की आय होगी।

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3. परियोजना के पूर्ण होने के पश्चात् 4 वर्ष के अंदर 65.72 प्रतिशत लागत प्राप्त होगी (जो कि 1983 की रिपोर्ट के आधार पर)
4. परियोजना से खरगोन जिले को सिचाई के साधनों की उपलब्धता होगी।
5. परियोजना के द्वारा 3500 कर्मचारियों को दैनिक वेतन भोगी के हिसाब से नौ वर्षों के लिए एवं 400 कर्मचारियों को नियमित कर्मचारियों के रूप में रोजगार प्रदान किया जायेगा।
6. अनुशीलन बचत का पालन के माध्यम से 1.25 लाख प्रतिवर्ष अतिरिक्त राजस्व की संभावना है तथा मछली पालन क्षेत्र का विकास भी होगा।
7. परियोजना स्थल पर कोई विशेष प्राध्यापन न होने के बावजूद भी पर्यटन स्थल के रूप में विकास किया जायेगा।
8. खासकर विश्व उत्पादन में परिचित क्षेत्र को बढ़ावा मिलेगा क्योंकि म.प्र. राज्य में अधिकारी को योगदान के द्वारा विश्व उत्पादन होता है।

संदर्भ ग्रंथ सूची:

[1] नरमदा नियन्त्रण प्राधिकरण सरदार सरोवर परियोजना पुनर्स्थापन एवं पुनर्वास जून 2010 रिपोर्ट
[2] नरमदा नियन्त्रण प्राधिकरण इन्दौर सरोवर परियोजना पुनर्स्थापन एवं पुनर्वास जून 2010 रिपोर्ट
[3] जिला साधारण पुस्तक धारा म.प्र. विभुति मण्डल जबलपुर फरवरी 2009, पृष्ठ संख्या 38
[4] नरमदा नियन्त्रण प्राधिकरण इन्दौर सरोवर परियोजना पुनर्स्थापन एवं पुनर्वास जून 2010 रिपोर्ट
[5] दैनिक भास्कर द्वारा प्रस्तुत विकास यात्रा पुस्तक खरगोन जिला 2009, पृष्ठ संख्या 50

***
Geography

भारत की विरासत: शेखावटी की सांस्कृतिक विरासत का सतत विकास
(राजस्थान में पर्यटन विकास और रोजगार के अवसर)

डॉ. मुनेश कुमार *

राजस्थान में पर्यटन का विकास –

राजस्थान प्राचीन काल से पर्यटन का कूट रहा है। प्राचीन इतिहासवेता कर्नल जेम्स टॉन्ड ने "ट्रेवल्स इन वैस्टर्न इन इण्डिया" नामक पुस्तक में राजस्थान को अवधिक समय तथा अन्तराल मुख्य करने वाला प्रदेश बताया है। ब्रिटिश समय से यहाँ के स्थानीयों ने पर्यटन को अंगीकार कर राष्ट्रीय व्यवस्था के आधिक पहाड़ी का अधिक रिपोर्ट करने का प्रयास किया था। बीकानेर से राजा गंगासिंह ने "हलीरोल सैंड्रा ग्राउंड" के शिकार का ऐसा रोचक वर्णन किया था कि अंग्रेज बाइनसरय तक विरासत में शिकार के लिए कई दिनों तक रहने के लिए। "कोकस्पेसश तथा गजराज के सूखे क्षेत्रों तथा तालाबों में हुए शिकार के कारण ही पानी की कुटीनीति का विकास हुआ और पंजाब के पानी को ग्राहक करने का महाराजा का प्रतिनिधि अंग्रेजों ने स्वीकार कर लिया और राजस्थान में "गंगा नहर" आई। भरतपुर में केवलावेद पक्षी रूप में वायुसरय सहित अन्य स्थानीय मेहमानों को आमंत्रित किया गया।

राजस्थान भारत का पहला ऐसा राज्य है जिसने पर्यटन पूलिस का गठन किया। सन् 1989 ई. में पर्यटन को उद्योग का दर्जा मोहम्मद युनूस सभित की सफारिया पर दिया गया। सन् 1978 ई. में "आयरल.डी.सी.ई." राजस्थान टर्टियरियल डेवलपमेंट कॉर्पोरेशन का गठन किया गया था। इसके कार्य पर्यटन विकास के प्रोजेक्ट तैयार करना तथा पर्यटकों के लिए निवास, भोजन की व्यवस्था करना तथा पर्यटकों के लिए मनोरंजन, परिवहन, सुरक्षा की व्यवस्था करना था। सन् 1995 ई. में जयपुर (पुलवामा नगर) अन्तरराष्ट्रीय सत्र का पर्यटन मेना आयोजित किया गया था। जिसका नाम इन्भेंसर रखा गया। इस मेले में सिंगापुर को राजस्थान का महामारी देश घोषित किया गया था तथा कॉन्ग्रेस की मुख्य आंदोलन बनाया गया। जिसमें होटलों के वार्णिक (होटेल होटल) वे इमारत सन् 1950 ई. से पहले बनी हैं। होटेल अक्सण विकास में होटल जिनमें 15 कमरे में, 30 बिस्तर हों। होटेल विश्व विश्व होटल जिनमें 15 कमरे, 30 बिस्तर हो। वातानुसार होते हो, क्षेत्रीय भोजन मिलता है। तरफाल, हैल्थ कल्ब, टेनिस हॉल, घुडस्वारी का मैदान, गोल्फ का मैदान हो।

सन् 1982 में पहली बार राजस्थान के लिए शाही सुख-सुविधा वाली रेल चलाई। सन् 2004 में इसका नाम ओरियनल एस्प्रेस रखा गया। यह रेल देशी पर्यटकों को आकर्षित करने के लिए शुरु की गई थी। सन् 1991 में "पेड्रो गेस्ट" योजना शुरू की गई जिसके अन्तर्गत पर्यटकों को घरेलू तथा अन्तर्राष्ट्रीय उपलब्ध कराना, राज्यीय संस्कृति, रहन–सहन, खान–पान से परिवर्तित करना आदि कार्य किये जाते हैं। ग्रामीण पर्यटन योजना – इसके अन्तर्गत ग्रामीण क्षेत्रों में आकर्षित करने के राज्यीय संस्कृति से परिवर्तित करना था।

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वर्तमान में राजस्थान को 10 पर्यटक सर्विटों में बांटा गया है।  
1. जयपुर-आमेर सर्विट :- राजस्थान की राजधानी गुलाबी नगरी व पूर्व का पैरिस जयपुर अपने अनुगम निर्माण गुलाबी सुन्नस्तरा एवं भव्यता के लिए अद्वितीय माना जाता है। गुलाबी नगर की नींव 25 नवम्बर 1727 में महाराज सवाई जयसिंह द्वारा रखी गई थी। प्रसिद्ध वैज्ञानिक सी.बी. राम ने जयपुर को "रंगश्री की झील" का नाम दिया था। स्थापत्य कला एवं वास्तु कला स्थल – आमेर का शीशा महल, जंतर-मंतर, हवामहल, त्रिपोलिया गेट, जोआसिसिंह गेट, चौदपोल आदि अद्वितीय नमूने हैं। जंतर-मंतर वैशालिका देश की सबसे बड़ी तकनीक संग्रह वैशालिका है। जिसकी स्थापत्य समवाह जयसिंह द्वारा 1718 ई. में करवाई गई थी।  
जयपुर आमेर के दुर्ग – आमेर का किला – यह जयपुर से 11 किलोमीटर उत्तर में आमेर की पहाड़ियों पर घाटी से ऊपर "महावटा" तालाब के ऊपर उठी पहाड़ी की घाटी पर स्थित है। महलों एवं किलों को तीनों पानी की नौका बिहार हेतु छोटी कृत्रिम झील बनाया है। यहीं शिला देशी का मन्दिर है। जो जयपुर नरेशों की कुलदेवी है। दीवाने-ए-आम सफेद संगमस्तर व ताल फर्श का बना है। जयपुर, सिहपोल, शीशा महल देखने योग्य स्थल है।  
जयपुर का किला – इस किले का जयसिंह के नाम में नववाहा गया था। इस किले में हिन्दु गुरु श्रीपत्र कला का मिश्रण है। यहाँ जयबाज़ी की एक तोप है जो विश्व की सबसे बड़ी तोप है।  
नाहरागढ़ का किला – यह किला जयपुर के उत्तर-पश्चिम में स्थित एक सुन्दर मनोहर पहाड़ी पर स्थित है। राजाओं का खजाना इसी दुर्ग में स्थापित गया था।  
जयपुर आमेर की 300 किमी दूर पूर्व में जमवा रामानाथ गांव के पास बाण गंगा नदी पर यह बांध 16 वर्ष की खासीर में बनाया गया है। इस बांध में पूर्व एशिया में नौकायन की प्रकियाओं के लिए श्रेष्ठ है।  
महाट्टा – आमेर की पहाड़ियों के मैय धारा यह झील है। इस झील के किनारे पर शिलादेशी मन्दिर स्थित है। झील में नौकाएं, ददह ग्राम सिस्तर बनाए रखी हैं। श्री जो झील की द्वारा जोता बनाया गया है।  
राजस्थान – आमेर का धार्मिक स्थल – यहाँ गोविन्दनाथ और आमेर पर्वत श्रुतिकार है।  
2. अलवर–सितारगंज–सारस्वत सर्विट – राजस्थान का सिंह द्वारा अलवर विकास श्रुतिकारों और वनों से धीरा है। अलवर एक महत्वपूर्ण एवं धार्मिक केंद्र है। यह अन्तर्द्वंद्व के लिए प्रसिद्ध है। अलवर से दर्शन के लिए अपनी आकर्षकता की है। अलवर का किला है। इस किले में मनोहर महल, शाही सागर, सुसंगकुंड, सुलन महल शिल्प कला की दृष्टि से अत्यन्त आकर्षक स्थल है। जो पर्यटकों को अपनी ओर आकर्षित करते है।  

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अल्टर-सिलीसेट-सरिस्का के दुर्ग (बालटूर) — अल्टर का बाला किला ऐतिहासिक दृष्टिकोण से बहुत महत्वपूर्ण है। यह किला अपने प्रदेश के लिए प्रसिद्ध है। इस दुर्ग में 15 बड़ी 52 छोटी बौंजे तथा 3360 कंपूरे है। प्रत्येक कंपूरे में 2 छिद्र है। जाहिर से गोलिया चलाई जा सकती है।

अल्टर सिलीसेट सरिस्का सिक्केट की प्रमुख जीवन और जल प्रपात —
जयसमय झील— यह झील अल्टर से 12 किलोमीटर दूर रिश्ता है। इस झील के ऊपर बांध बना हुआ है। ऊपर चढ़ने के लिए सड़कियां बनी हुई हैं। जो पर्यटकों को आनन्द की अनुभूति करवाती है। अल्टर पाण्डुपोत स्थान पर एक जल प्रपात है। जो 30 फीट ऊंचा है। इसका आनन्द लेने के लिए देशी-विदेशी पर्यटक वर्षा के 9 में यहाँ बड़ी संख्या में आते हैं। यहाँ स्थित इन्स्टीट्यूट जो कि मनिलर होने के कारण इसका धार्मिक महत्व है। गर्म जल के स्नात अल्टर के पास ताल तूफ़ा का गर्म कुंड, सारायणी माता का धाम, गर्म जल का प्राकृतिक स्नात है। यहाँ पर्यटकों की धार्मिक भक्तियाँ जलकर है।

धार्मिक स्थल— जिजारा का जैन मन्दिर— अल्टर— दिल्ली राजमंडिर पर स्थित जिजारा के जैन मन्दिर पर्यटकों के आकर्षण का केन्द्र है।

3. भरतपुर झील धीलपुर सिक्केट — भरतपुर की स्थापना राजा सूरजमल ने सन 1773 में की थी। इसे राजस्थान का पूर्वी द्वीप कहते हैं।

स्थापन करने एवं वास्तुकला स्थल— झील के महत्व — भरतपुर से 35 किमी दूर उत्तर की ओर राजमहल की गाढ़ी तथा प्राकृतिक बन्धों का दुर्ग रिश्ता है। यह सड़क बना, सूरज माता, पूर्ण माता की स्थापन कर देखने योग्य है। यहाँ भारतीय इलामी कला का सुन्दर निर्माण मिलता है। जो पर्यटकों को आनन्द आकर्षित करता है।

भरतपुर झील धीलपुर सिक्केट के वन्य जीव अव्यावरण— (कंवला देव घना राष्ट्रीय पक्षी उद्यान)— यह आगरा भरतपुर राजमंडिर पर रिश्ता है। यहाँ प्राकृतिक चुन्न दिखाई देता है।

वन्य जीवों और पक्षियों के लिए वन्य के रूप में जना जाता है। यहाँ एक झील 11 वर्गफील्ड स्क्वायर में है। जो पर्यटकों की आकर्षण का केन्द्र है। यहाँ बहुत बड़ी संख्या में प्राकृतिक पर्यटक पुरुषों के लिए आते हैं।

4. रणथभूमी—टॉक क्षेत्र (सुहरी कोटी) — स्थापत्यकला एवं वास्तुकला : टॉक में सोने की कोटी अरबी फारसी स्थापना — यह कोटी शीशमहल के नाम से भी जानी जाती है। यह इमारत अरबी महोदभिकारी और दर्शनीय है। इस कोटी की दिवारों एवं दरों में कॉच व रचन लगे हुए है। सानी की बेल-बुटिया, फूल, मीनाकारी आदि का कलामक रंग रंग भी आकर्षण को केन्द्र है।

रणथभूमी टॉक के दुर्ग— (राजमहल)— टॉक का यह महल बनाना नदी के किनारे पर रिश्ता है। जो प्राकृतिक सौदर्य से परिपूर्ण है।

कंकों का किला— टॉक से 22 किमी दूर छोटे पहाड़ पर यह बह शय दिला रिश्ता है। इसका प्राचीन नाम कनकपुरा था।

5. हाजीपुर सिक्केट — हाजीपुर क्षेत्र के स्थापन कला एवं वास्तुकला (चौरासी खंडों वाला स्वारक) — वृद्ध में देवपूरा गांव के समपी 1683 ई. में इसका निर्माण हुआ। कौलवी की बौद्ध
दो संख्या वाला जो प्रकाशन का अंतिम दिन का शीघ्रता —
समाप्त विस्तार द्वारा 1153 ई के लगभग निर्मित यह हातभर संस्कृत भाषा संग्रह था।
क्षुद्र 1192 ई में मौकेहर गीति ने इसे प्रसारण कर दई दिन में मनोका का रूप दिया था।
इसी कारण यह बड़े दिन के शीघ्रता से विविधता है। यह भी हातभर वाला का प्राकृतिक एवं
संग्रह कृति नमूना है।

6. मेंरवादा केन्द्र (स्थापत्य कला एवं वासुकला केन्द्र) — अजमेर का अंतिम दिन का शीघ्रता —
समाप्त विस्तार द्वारा 1153 ई के लगभग निर्मित यह हातभर संस्कृत भाषा संग्रह था।
क्षुद्र 1192 ई में मौकेहर गीति ने इसे प्रसारण कर दई दिन में मनोका का रूप दिया था।
इसी कारण यह बड़े दिन के शीघ्रता से विविधता है। यह भी हातभर वाला का प्राकृतिक एवं
संग्रह कृति नमूना है।

7. जैकवादी केन्द्र — जैकवादी केन्द्र में हवेलियों का अंतर और बाहर निर्मित चित्र पायी जाती है।
वासुकला को जैकवादी की स्तर नगरी कहा जाता है।

8. मलदर (लालगढ़ पैलेस-बीकानेर) — लाल पत्थरों से निर्मित लालगढ़ महल खुदाई
कला का उत्कृष्ट नमूना है। यह महाराजा गंगासिंह द्वारा अपने विश्व का स्मारक में
बनवाया था। इस महल में संग्रह एवं संस्कृति लालशेरी है। पट्टों की हरी — यह
जैसलमेर में स्थित है। 18 मी बड़ी इन हवेलियों में रिलाय कला को देखने के
लिए विदेशी पर्यटक प्रामाण्य लोग अन्य रूप दिया था।

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माउंट आबू सर्केंट- यह राजस्थान का एकमात्र हिल स्टेशन है। जो पर्यटकों को ग्रीष्म क्रू में अपनी ओर आकर्षित करता है। यहाँ प्रतिवर्ष लगभग दस लाख देशी व विदेशी पर्यटक आते हैं।

प्रमुख धीले (नवकी धीले)-यह अरावली पर्वत सागरों से थिरी हुई पर्यटकों को अपनी ओर आकर्षित करती है। मुख्य शिखर पट्टियाँ- यह अरावली झुंडन का सर्वोच्च शिखर है। (1722 मीटर) आबू पट्टी के आवासीय क्षेत्र से लगभग 10 मीटर दूर स्थित है। इस शिखर के चारों ओर मनोरंजन प्रकृति द्वारा पृथ्वी पर्यटकों की अक्षमित का प्रवेश करता है।

9. माउंट आबू सर्केंट- यह राजस्थान का एकमात्र हिल स्टेशन है। जो पर्यटकों को ग्रीष्म क्रू में अपनी ओर आकर्षित करता है। यहाँ प्रतिवर्ष लगभग दस लाख देशी व विदेशी पर्यटक आते हैं।

प्रमुख धीले (नवकी धीले)-यह अरावली पर्वत सागरों से थिरी हुई पर्यटकों को अपनी ओर आकर्षित करती है। मुख्य शिखर पट्टियाँ- यह अरावली झुंडन का सर्वोच्च शिखर है। (1722 मीटर) आबू पट्टी के आवासीय क्षेत्र से लगभग 10 मीटर दूर स्थित है। इस शिखर के चारों ओर मनोरंजन प्रकृति द्वारा पृथ्वी पर्यटकों की अक्षमित का प्रवेश करता है।

10. मेवाड़ सर्केंट (धीले)- फोहंसागर धील- मिलाई धील से रंग सागर एवं स्वरुप सागर दो छोटी अन्तर संयोज धीलों द्वारा मिली हुई थंगा ठार की ओर स्थित फोहंसागर धीलें भी अपनी अहिंसी छटा के लिए प्रसिद्ध है। जयसम्भव धील- यह उदयपुर के दक्षिण दिशा में लगभग 55 किलोमीटर दूर 17वीं शताब्दी में महारानी जयसुखा द्वारा निर्मित कुटुम्बी मीटर पानी की धीले है। इस धील के फिलारे बना महल संगमरमर की छत्तियाँ यहाँ की मनोरंजन दृश्य पर्यटकों को अक्षमित करता है।

धार्मिक स्थल- एकतरल जी की मन्दिर- कैलाशपुरी उदयपुर नागदवार देश पर उदयपुर के उत्तर में एकतरल जी का शिव मन्दिर है। यह सफद पदार्थों से निर्मित है। इसमें भगवान शिव का बाहुमुखी काला पत्थर की अंगुलियों हुआ बांकी का सप्त अभ्यास माता कालिका जी का, गणेश जी का मन्दिर, अन्य देवी-देवताओं के 108 मन्दिर हैं।

सहितियों की बादी- यह उदयपुर में फोहंसागर सागर धील की पानी की तलहटी में बना एक सुन्दर उद्यान है। इस स्थानीय बगीचे में पानी के फूलों और संगमरमर की छत्तियों बड़ी मनोरंजन दृष्टिकोण दिखाई देती है। जो पर्यटकों को आकर्षित करती है।

पर्यटकों में वृद्धि – वर्ष 2005 में 11.31 लाख विदेशी तथा 187.87 लाख राजस्थानी पर्यटक वर्ष 2006 में 234.83 लाख विदेशी तथा 1220 लाख राजस्थानी पर्यटकों का राजस्थान में घुमाने आये थे। वर्ष 2013 में यह बढ़कर 284.89 लाख संख्या पहुँच गई। वर्तमान में यह पर्यटकों का सबसे प्रसाद वाला राज्य बन गया है। प्रदेश के सभी 33 जिले इस राज्यस्व से जुड़े हुए हैं। जिसमें
1. लाख व्यक्ति प्रत्यक्ष रूप से तथा 3 लाख अप्रत्यक्ष रूप से पर्यटन से आजीविका कमाते हैं। कई उद्योग, होटल, फुड व क्राफ्ट टूरिस्ट गाइड, हैण्डी क्राफ्ट, एक्सपोर्ट शेडिंग, टैक्सी संचालन आदि इसी पर निर्भर हैं। राजस्थान में प्रत्येक मह किसी न किसी क्षेत्र में उत्तम या मेले का आयोजन होता ही रहता है। यहां मनुष्य उत्सव जिसमें लोगों की संख्या के सामने नूतन, ऊंट की तौर पर आयी आदि का आयोजन होता है। देश के कुल 125 हैरीटेज में से 95 होटल राजस्थान में है। यह उद्योग दौलत है जिसका विकास से अन्य निवेश वाला अधिक लाभ देने वाला उद्योग है। इस प्रकार 8 विदेशी पर्यटकों पर 1 व्यक्ति को रोजगार तथा 32 स्वदेशी पर्यटकों पर 1 व्यक्ति को रोजगार मिलता है। पर्यटक से होटल, परिवहन, हथकरघा उद्योग, हस्तशिल्प का विकास होता है। आधारभूत ढंग से विकास के कारण पर्यटन स्थल पर अन्य उद्योग भी विकसित होते हैं जिसमें रोजगार भी विकसित होता है। राजस्थान में पर्यटन विकास की आपर समावेशन को अत्यधिकता रखते हुए राज्य सरकार द्वारा पर्यटन क्षेत्र में विभिन्न साधनों को स्वदेशी मूल्य की तथा पर्यटन के साथ-साथ पर्यटन के विकास से उनके सामाजिक और आर्थिक विकास को बल मिलेगा।

संदर्भ सूची :-

[1] डॉ। संह साईवाल—राजस्थान भूगोल (पर्यटन के विकास) CBH Publication Jaipur.
प्रस्तावना:

ग्रामीण बस्तियों का स्थानिक वितरण एवं परिवर्तन प्रतिरूप (खरगोन जिले के विशेष संदर्भ)

दृ. प्रगन्धल बधेल *

शोध प्रतिविधि:

शोध प्रतिविधि के लिए प्राथमिक व द्वितीयक आकड़ों का प्रयोग किया गया है। आकड़ों का एकत्रीकरण जिला मुख्यालय से किये गये हैं तथा जिला साल्यकी पुस्तिका खरगोन का भी उपयोग किया गया है।

परिकल्पना:

1. निर्देशक और कुल ग्रामीण बस्तियों का प्रतिशत
2. प्रति 100 किमी. पक्की सड़कों की लम्बाई (किमी) और प्रति 100 किमी. में ग्रामीण बस्तियों का घनत्व
3. प्रति 100 किमी. में ग्रामीण बस्तियों का घनत्व और प्रति 100 किमी. ग्रामीण जनसंख्या घनत्व
4. मुख्य कार्यशाला जनसंख्या प्रतिशत और कुल ग्रामीण बस्तियों का प्रतिशत
5. ग्रामीण जनसंख्या का साशक्तिक प्रतिशत और कुल ग्रामीण बस्तियों का प्रतिशत
6. ग्रामीण बस्तियों की औसत दूरी (किमी.) और प्रति 100 किमी. ग्रामीण बस्तियों का घनत्व

ग्रामीण बस्तियों का स्थानिक वितरण

जब कोई घटना या कारण दृश्य तत्काल का स्थान घेरता है तो उसे स्थानिक कहते हैं। किसी भी घटना या कारक के एकत्रीकरण को वितरण कहा जाता है। वितरण भौगोलिक अध्ययन का महत्वपूर्ण अंग है।

* पी.डी.एफ. दोहरी, भगवान विजयव, शास. मधव कला एवं वाणिज्य महाविद्यालय, उज्जैन (मू.प्र.)
प्रारंभिक काल से लेकर वर्तमान समय तक यह भूगोल की मूलभूत संकल्पना रहा है।
इसलिये भूगोल को पृथ्वी तल पर वितरण का विज्ञान कहा जाता है।
ग्रामीण बस्तियों के आकार से सम्बंधित मापदंडों में जनसंख्या, रहवास, परिवार, मकानों के आकारों के मापदंड को आधार माना है। ग्रामीण बस्तियों का आकार रहवास और बस्तव को प्रदर्शित करता है।

**तालिका क्रमांक 1**

<table>
<thead>
<tr>
<th>तहसील</th>
<th>क्षेत्रफल (कि.मी.)</th>
<th>जनसंख्या</th>
<th>प्रतिशत</th>
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<td>महेश्वर</td>
<td>793.250</td>
<td>171</td>
<td>22.8</td>
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<td>सेंगाँव</td>
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<td>7.06</td>
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<td>931.940</td>
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<td>खरगोन</td>
<td>986.900</td>
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<td>21.73</td>
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<td>भूगवानपुरा</td>
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<td>14.26</td>
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<td>झिरप्पा</td>
<td>664.690</td>
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<tr>
<td>योग :</td>
<td>4288.86</td>
<td>750</td>
<td>100.00</td>
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स्त्रोत: जिला सांख्यिकीय कार्यालय खरगोन – 2001

उपरोक्त तालिका के आधार पर खरगोन जिले की 4: तहसीलों में कुल ग्रामीण बस्तियों की संख्या 750 है। महेश्वर में 171, सेंगाँव में 53, भीकनगाँव में 128, खरगोन तहसील में 163, भूगवानपुरा में 107 तथा झिरप्पा में 128 ग्रामीण बस्तियों है।

ग्रामीण बस्तियों को प्रभावित करने वाले मापदंड कारक निम्नलिखित हैं –

**तालिका क्रमांक 2**

<table>
<thead>
<tr>
<th>क्रमांक</th>
<th>स्वतंत्र पर आश्रित वर का नाम</th>
<th>सह संबंध गुणांक</th>
<th>सार्थकता स्तर प्रतिशत</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>प्रति 100 कि.मी. पक्की सड़कों की लम्बाई (कि.मी.) और प्रति 100 कि.मी. में ग्रामीण बस्तियों का घनत्व</td>
<td>+ 0.942</td>
<td>99 प्रतिशत</td>
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<td>2.</td>
<td>प्रति 100 कि.मी. में ग्रामीण बस्तियों का घनत्व और प्रति 100 कि.मी. में ग्रामीण जनसंख्या का घनत्व</td>
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<td>3.</td>
<td>निराकरण का प्रतिशत और कुल ग्रामीण बस्तियों का प्रतिशत</td>
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<td>95 प्रतिशत</td>
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<td>4.</td>
<td>मुख्य कार्यशील जनसंख्या का प्रतिशत और कुल ग्रामीण बस्तियों का प्रतिशत</td>
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<td>5.</td>
<td>ग्रामीण जनसंख्या का साक्षरता प्रतिशत और कुल ग्रामीण बस्तियों का प्रतिशत</td>
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<td>95 प्रतिशत</td>
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<td>6.</td>
<td>ग्रामीण बस्तियों की आवश्यक दूरी (कि.मी.) और प्रति 100 कि.मी. में ग्रामीण बस्तियों का घनत्व</td>
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स्त्रोत: जिला सांख्यिकीय कार्यालय खरगोन (पी.ए.)

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किसी भी प्रदेश की विकास के पहले सीढ़ी यातायात विकास है इसलिये परिवहन देश की महत्वपूर्ण आवश्यकता मानी जाती है। परिवहन के माध्यम से ही एक नगर-दूसरे नगर से समर्पित स्थापित करता है। भारत गांव के देश है इसलिये ग्रामीण क्षेत्रों में सड़क परिवहन का महत्व अधिक है। सड़क परिवहन ग्रामीण बसियों को बसियों तथा बसियों को नगरों से जोड़ता है। ग्रामीण बसियों का विकास सड़क मार्ग के सहारे अधिक होता है। अनुकूल परिस्थितियों के कारण भी बसियों का किसान बिदा होता है। दो सड़कों के भिन्न भिन्न पर भी बसियों का विकास अधिक होता है। ग्रामीण बसियों के विकास में सड़क मार्ग महत्वपूर्ण भूमिका निभाते है। मानव को अपनी दैनिक आवश्यकताओं की पूर्ति के लिये निकटच्छेदी ग्रामीण बसियों पर निर्भर दर्जन पड़ता है। सभी ग्रामीण बसियों किसी न किसी सेवा केन्द्र या नगर सेवा केन्द्र से सड़क मार्ग द्वारा ही जुड़ी रहती है।

निरासोया गया क्षेत्र :
प्रस्तुत अध्ययन में निरासोया गया क्षेत्र तहसीलवार तथा ग्रामीण बसियों का प्रतिशत तहसीलवार का सह-संबंध गुणांक ज्ञात किया गया है। निरासोया गया तथा ग्रामीण बसियों में धनात्मक संबंध पाया गया है। इसका सह-संबंध गुणांक +0.866 प्राप्त हुआ है जो 95 प्रतिशत विश्वसनीयता स्तर पर सार्थक है क्योंकि "+1" का सार्थक मूल्य 0.4 स्तरताता की बात तथा 0.05 विश्वसनीयता स्तर पर 2.77 है जो परिकलित मूल्य 3.371 से कम है। जब यह कहा जा सकता है कि जैसे-जैसे निरासोया क्षेत्र बढ़ता जाता है, वैसे-वैसे ग्रामीण बसियों की संख्या बढ़ती जाती है।

जनसंख्या घनत्व :
किसी भी क्षेत्र का विकास करने में जनसंख्या एक महत्वपूर्ण भूमिका निभाती है। जनसंख्या एक संसाधन के रूप में होती है जो अन्य वस्तुओं का उपयोग कर उपयोग करती है। जनसंख्या और ग्रामीण बसियों के मध्य एक समान लिंक संबंध देखा जाता है। खास ग्रामीण जिले में जनसंख्या का ग्रामीण बसियों पर प्रभाव ज्ञात करने के लिये तहसीलवार जनसंख्या घनत्व तथा प्रति 200 किमी. में ग्रामीण सेवा केन्द्रों का घनत्व के मध्य सह-संबंध गुणांक ज्ञात किया गया है। जिसका सह-संबंध गुणांक +0.878 प्राप्त हुआ जो 35 प्रतिशत विश्वसनीयता स्तर पर सार्थक है। "+1" का तात्कालिक मूल्य 4 स्तरताता की बात तथा 0.05 प्रतिशत विश्वसनीयता स्तर पर 2.77 प्राप्त हुआ है जो परिकलित मूल्य 3.48 में से कम है। ग्रामीण जनसंख्या घनत्व ग्रामीण सेवा केन्द्र के वितरण को प्रभावित करता है।

मुख्य कार्यक्षेत्र जनसंख्या :
मुख्य कार्यक्षेत्र जनसंख्या का आकार भी ग्रामीण बसियों के विकास पर अपना प्रभाव डालती है। कार्यक्षेत्र जनसंख्या उत्पादन को जन्म देती है। उत्पादन तथा अतिरिक्त उत्पादन विनिमय को जन्म देता है। प्रस्तुत अध्ययन क्षेत्र में कार्यक्षेत्र जनसंख्या तथा ग्रामीण बसियों
वन क्षेत्र:
जिले में वनों के अनावश्यक क्षेत्र 10.35 प्रतिशत भाग पर है। समय के साथ-साथ वनों का क्षेत्र कम होता जा रहा है। महेश्वर, खरगोन, सेंगोव, भीकनगौं में वनों का प्रतिशत कम पाया गया और ग्रामीण बस्तियों की संख्या अधिक पाई गई है। मधैननगर तथा फिरोज़ा तहसील में विभिन्न क्षेत्र पर वनों की अधिकता के कारण ग्रामीण सेवा केन्द्र कम पाये गये हैं।
समुद्र ताहत से ऊँचाई:
प्रस्तुत अध्ययन में ग्रामीण बस्तियों के वितरण पर समुद्र ऊँचाई का प्रभाव देखा गया है। ऊँचाई के साथ-साथ ग्रामीण बस्तियों की संख्या घटती जाती है। समुद्र सतह से ऊँचाई भी ग्रामीण बस्तियों को प्रभावित करती है। कम ऊँचाई पर अधिक तथा अधिक ऊँचाई पर कम ग्रामीण बस्तियों की संख्या कम भ्रम ऊँचाई पर अधिक तथा अधिक ऊँचाई पर कम ग्रामीण सेवा केन्द्र पाये जाते हैं। अतः यह कहा जा सकता है कि ऊँचाई बढ़ने के साथ-साथ ग्रामीण बस्तियों की संख्या कम होती जाती है।
अन्य कारक:
ग्रामीण सेवा केन्द्र के ऊपर सामाजिक, आर्थिक, सांस्कृतिक कारक भी प्रभाव डालते हैं। कृषि ग्रामीण बस्तियों में उच्च जाति की अधिक जनसंख्या होने से भी वह ग्रामीण बस्तियों में परिवर्तित होने लगती है। आर्थिक व्यवस्था भी ग्रामीण बस्तियों पर अपना प्रभाव डालती है। धार्मिक स्थल होने से यह क्षेत्र धीरे-धीरे ग्रामीण सेवा केन्द्र में विकसित होने लगता है। राजनीतिक कारक, भौगोलिक कारक, आर्थिक कारक ग्रामीण सेवा केन्द्र पर अपना प्रभाव डालते हैं। शिक्षा की प्रगति भी ग्रामीण विकास में महत्त्वपूर्ण भूमिका निभाती है।
अध्ययन क्षेत्र में प्रति 100 कि.मी. ग्रामीण बस्तियों के घनत्व में तथा ग्रामीण बस्तियों के घनत्व में नकारात्मक सह-संबंध गुणांक पाया गया है। ग्रामीण बस्तियों की दूरी तथा ग्रामीण सेवा केंद्र के घनत्व में भी नकारात्मक सह-संबंध गुणांक पाया गया है।

अध्ययन से स्पष्ट होता है कि ग्रामीण बस्तियों की दूरी तथा घनत्व में क्रमांक संबंध पाया गया है। जैसे-जैसे दूरी बढ़ती जाती है, तैसे-तैसे घनत्व घटता जाता है। इसका विपरीत जैसे-जैसे दूरी घटती जाती है, तैसे-तैसे घनत्व बढ़ता जाता है। ग्रामीण बस्तियों को प्रभावित करने में परिवहन, जनसंख्या घनत्व, सांस्कृतिक, सांस्कृतिक समाज से ऊँचाई, कार्यशील जनसंख्या आदि तत्त्वों ने ग्रामीण बस्तियों के वितरण को प्रभावित करने में महत्त्वपूर्ण भूमिका निभाई है।

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Social Realism in Untouchable by Mulk Raj Anand

Dr. Chhote Lal *

Untouchable (1935) is a sociological novel which seeks to stress the evils of untouchability by focusing attention on the miserable plight suffering, poverty and degradation of a large section of Indian society. This evil has been high lightened by studying what happens to the soul of Bakha on a single eventful day. Sakha as an untouchable seeks his freedom in the infallibility of caste discrimination, with its hypocrisy, cruelty, deceit and inhumanity.

He stands passive bewildered at the immensity of horror, hoping for a change. Bakha, thus, is a symbolic figure, a universal figure, a larger than life figure, which stands for a lager segment of Indian society which has been doomed to suffering since times immemorial. To stress the universal nature of his theme, the novelist has called it Untouchable and not ‘The Untouchable.’ It is the story not of Bakha’s suffering alone, but of the sufferings of all untouchables as class. This novel deals with the lives and fortunes of humble scavenger.

Anand, on the threshold of literary career, makes an effective protest against the stigma of pollution attached to untouchables. M.K. Naik says:

“He exhibits a sure grasp of the psychology of both the caste Hindu and untouchable….his picture of relationship between them is objective and balanced.”

Thus in Untouchable, Anand is deeply concerned with a social problem of national dimension and he takes up a role of writer committed to the eradication of the evils of society. As Srinivas Lyengar points:

“The novel presents the picture of a place of a society, and of certain persons, not easily to be forgotten, a picture that is also an indictment of the evils of a decadent and perverted orthodoxy.”

The novel remains a telling document of relevance even today in view of recent atrocities being committed on Harijans by caste Hindus. The untouchability, the social evil is shown with its deep roots. In other words, it reflects the deep-rooted prejudices, the barbarism and the cruelty with which men inflict human beings who are still non-entities in the eyes of society. Anand has attempted a fictional depiction of felt experiences of this dehumanizing social evil, which results in loneliness, loss of identity and ruthlessness. Anand himself says:

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"The book poured out like hot lawa from the volcano of my crazed imagination during a long week-end. I remember that I had to finger exercise in order to ease the strain on my right hand, and I must have slept only six hours in three nights, while writing this drama. And even during the six hours, I kept on dreaming about several strains in the central character of Bakha, almost as though I was molding his personality and transmuting it form actuality into the hero of a nightmare."

Anand’s views and attitudes which condition his novel Untouchable are the result of a number of influences that operated upon him from his childhood onwards. His heredity, his social milieu, his education, the books he has read and the people he has met have all influenced him to write such a novel on untouchability.

No doubt, by caste, Anand is a Kashatriya, but as a child, he played with the children of the sweepers attached to an Indian regiment, he grew to be fond of them and to understand a tragedy which he did not share with them has just the right mixture of insight and detachment and the fact that he has come to fiction through philosophy, has given him depth. Thus Bakha is a living character whom he met in his childhood. Therefore, there was little about his hero in his life that Anand did not know.

An attitude to protest against this type of exploitation, which is based on casteism first developed in his mind when he was very small. Once Bakha, the real life prototype of the hero of Untouchable carried Anand bleeding from a hit on his head by a stone thrown by fellow friends and brought him home. Anand’s mother snatched away her son from a tender embrace of Bakha and instead of saying thanks, she berate him for polluting her son by his touch. Anand confesses that this inhuman treatment of his childhood friend lay in his inner consciousness.

There is another incident which actually made Anand realize the meaning of untouchability. Once he himself was separated on a board ship by some westerners and with a shock he realized ‘what it meant to be an untouchable.’

Through Untouchable Mulk Raj Anand draws our attention to a number of questionable customs and social ways of the Hindu Society of the thirties particularly the caste system. It is socially conscious to the various problems of the untouchables who are ill treated, underfed and exploited by the upper strata of our society. This orthodox-social system made Anand’s conscience to paint the picture of caste-ridden society having been divided since ancient times, on the basis of caste, into four sections-Brahmins, Kshtriyas, vaishyas and Sudras.

Mahatma Gandhi’s influence on Anand’s writing cannot be ignored. Anand admits what when he had read a story of an untouchable boy, UKa, written by Mahatma Gandhi, he was influenced by this sensitive and emotional of UKa that he himself decided to write a novel on the life of untouchables. And when he presented

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his novel to Mahatma Gandhi, he was asked by the old man about the subject of the story. Anand replies-

I have written a novel about a day in the life of Bakha---about how he is slapped on the face by a casts Hindu....as you have done in your story about the sweeper, UKa.”

One more factor which shocked him badly was religious bigotry, hypocrisy and formalism and degeneration religion into an instrument of exploitation based on casts and class. There is an incident-temple incident—which shows how Anand is deeply acquainted with the religious diplomacy and his emotions towards such situations are clearly pictured:

“Asif by magic, he (Bakha) is drawn towards the temple and mounts the first two steps. But the oppressed underdog in him exerts itself and he streets to collect the litter. The urge to see his Gods becomes over-whelming as the temple stood challenging before him and them 'seemed to advance towards him like a monster.'

With a sudden onslaught, he captures five of the fifteen steps another push and he is on the top step, crouched like a dog at the door of a banquet hall.

However, unable to suppress his curiosity, he goes near the temple-door and catches just a glimpse, of the dark, sanctuary and its idols. He is moved by the chorus of devotees. The smell of incense, the ritualistic chanting of triumphant worshippers overpower him and his hands joined unconsciously and his head hung in the worship of the unknown God.'

But the next moment, Bakha’s homage to God is answered with the crisis of ‘Polluted, Polluted, raised by the temple priest. The whole crowd takes up the cue and starts shouting the same words. Bakha is unnerved. Another torrent of abuses overpowers him. As it all this was not enough, priest shouts now from near the temple that he it too has been polluted, more severely. So because he has been defiled by contact of Sohini, Bakha’s sister. As Bakha manages to take Sohini away from the courtyard she tells him how the priest had made improper suggestions to her when she was cleaning the courtyard. Bakha is furious that the Brahmin dog should be vile enough to accuse his sister of polluting him when he had actually tried to seduce her. When he hears the truth, he moves in giant strides to avenge the insult of his sister. But the poltroon crowd takes to his heels. Only the Gods remain secure in their individual inches, rebuking Bakha with their cold, impersonal stares. Everything in the episode is exact: we have the sweeper’s pre-occupation with his job, the sinister appeal of the temple to the uninitiated (something akin of Forster’s Malabar caves) his obeisance to the Gods, the hypocrisy of the priest, the cowardice of the ‘twice born’ Hindus, the hero’s immediate impulse to avenge the insult and his eventual failure to do so.
Actually untouchables were being treated in the same way in those days. Religious diplomacy and hypocrisy were real instruments to exploit the untouchable class. As in this incident, priest (Brahmin), the so-called custodian of religion is on the one hand ready to have physical relation with a beautiful untouchable girl, Sohini, and on the other hand, Bakha, Sohini’s brother is not allowed even to touch the steps of the temple. Anand tries to uncertain such religious bigotry in his novel Untouchable.

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भूमिका –

प्रेमचंद एक प्रतिमा समपन लेखक थे जिन्होंने अपने मौलिक विचार गम्भीर अपेक्षाओं और अन्वेषण की गहन शक्ति के कारण हिन्दी कथा साहित्य की धारा का रूप और रूख मूल गए। प्रेमचंद का कथा साहित्य मूल-मूलजय से भरपूर नहीं है अथवा संसार के ठोस जीवन पर आमंत्रित है। अतः वह हिन्दी साहित्य के लिए बरदान सिद्ध हुए।

उनका कथा साहित्य गुण जीवन का प्रतिबिंब है। उनकी कथा साहित्य में गूढ़ कल्पना की मांगना कुट्ट-2 कर भरी हुई है।

हिन्दी साहित्य के कहानीकारी में मुख्य हिन्दी प्रेमचंद का स्थान सवोच्छल है। हिन्दी शैशव कहानीकार और उपन्यासकार मुख्य हिन्दी प्रेमचंद का जन्म काशी के समय सियमा तम्मी नामक गांव में एक समाजपत्र परिवार में 31 पुष्ण 1880 ई० में हुआ था। इनका वास्तविक नाम धनन्तराय था और इसका नाम अजियाबराय था। आठ वर्ष की आयु में ही इनकी माता का देहांत हो गया था। सात वर्ष की आयु में इतने फिर भी थोड़े बचे आते, सारे परिवार का माह इनके कोशियों पर आ पड़ा। छोटी आयु में ही इनको आदरपक की नौकरी का कार्यालय संभाल लिया और धीरे-धीरे ये घटित इसपेक्षा के पद पर पहुँच गए। बाद में सरकारी नौकरी छोड़कर लेखक कर्म में जुट गए गांधी के आवास के आदर्श इन्होंने कई सार्थक आदेशों में भी मान लिया। इनके फिल्मों के लिए लिखित है, लेकिन बाद में सरस्वती प्रेस की स्थापना के 8 अक्टूबर सन 1936 ई० को इनका देहांत हो गया।

मुख्य हिन्दी प्रेमचंद अपनी पहली कहानी 'पंच परमेश्वर' के साथ हिन्दी साहित्य में आए। इसके बाद प्रेमचंद ने असंख्य कहानियों द्वारा हिन्दी को समुद्र किया। प्रेमचंद ने लगभग 300 कहानियाँ लिखकर हिन्दी साहित्य को आगे बढ़ाया। इसलिए इन्हें 'कहानी कला का अवदूत' भी कहा जाता है। प्रेमचंद के समय भारतीय समाज बंगाली हुकूक की गुलामी का शिकार था। एक तरफ पूरा भारतीय समाज बंगाली हुकूक की गुलामी का शिकार था। किसानों और दलित अघेजी सता की गुलामी के अलावा भारतीय समाज में मौजूद शौच-मूलक संस्करण की गुलामी से पीड़ित था। इस प्रकार दलितों और सितियाँ का तब्दील दोहेरी गुलामी बनाने को मजबूर था। उस समय भारतीय समाज में छुआ-छाया की प्रवृत्ति सिरहा पर थी।

प्रेमचंद ने अपनी रचनाओं में दोनों तरफ की गुलामी को विश्वास बनाया है। उनकी रचनाओं की अपनी खूबी और सीमा है। प्रेमचंद हिन्दी के पहले रचनाकार हैं, जिन्होंने शिशुत्व से इन प्रभाव का उत्पाद था। प्रेमचंद के समकालीन कई बुद्धिजीवी देश की गुलामी को ही मूल समस्या के रूप में देखते थे। वे लोग देश की आजादी को ही एकमात्र लय मानते थे। उन्होंने भारतीय समाज की आंतरिक गुलामी के तीखे जोन का सहारा नहीं किया। कुछ लोगों को लगता था कि देश का आजाद होने ही इन सारी समस्याओं को समाप्त करने में कोई खोजना होगा। इलाम अम्बेडकर ने भारतीय साहित्य को नई दिशा-दृष्टि दी। चुरुचुरु चंचल करने के आँतर दलितों के हाथों में थे। उन्हें पैकाय तो उनके हाथों में कलम थामा। उनमें जीवंत और जीजीविता चैपल क खुदावनी से जीवा धार्मिक बाबा साहब की उस मुहिम के साहित्य जगत को भी प्रभावित किया और वह अपनी नई सिद्ध के भहुसंख्यक लोग सत्यों से चली आ रही जाति-प्रथा एवं इससे उन्हें छुआ-छाया और
प्रमेश्वर ने जिन दो उपन्यासों में दिल्ली सवाल चुनाव है वे हैं 'कर्म भूमि' में दिल्ली सवाल उपन्यास के केन्द्र बिन्दु तथा 'गोदाम' का एक प्रश्न में दिल्ली सवाल पर केंद्रित रूप से जिन दिल्ली की चार कहानियाँ हैं— 'मंदिर', 'सदनातिर', 'ठाकुर का कुंड', तथा 'दूध का दाम'. दिल्ली जीवन से जुड़ी प्रमेश्वर की सभी कहानियाँ में दो बातें समान हैं—दिल्ली पाँच की आर्थिक और सामाजिक दृष्टि. आर्थिक और सामाजिक बदलाव की दोनों का अधिकारी रूप में है। प्रमेश्वर की रचना के पात्र इन दोनों प्रकार के शोध के शिकार हैं। इन दोनों से निकले बागेर इन्हीं हालत में सुधार नहीं हो सकता। प्रमेश्वर की कहानियाँ में दिल्ली पाँच के पुरूष को अपेक्षा शिक्षाज्ञानी एवं बुद्धिमान है। 'ठाकुर का कुंड' कहानी की गंगी, घासपाती की मुंकिला इसके उदाहरण है। यहीं वह उपररात्री है कि ब्राह्मणवादी मूल्य के पार दिल्ली के पाँच दिल्ली पुरूष को युगाधिकृत का डंड है। इस दिल्ली है और बागेरा की सदियों पर रहती है। शोध का दश कि जिन ज्यादा डंड छेदना है, विनयाधि की चेतना उसमें बताया जा रही है। याद जलता है, गौर दिल्ली पुरूष दिल्ली और वर्तमान के शीर्ष पर अपना सामाजिक अधिकार सम्बन्धित नहीं है। इसी कारण दिल्ली और वर्तमान का प्रतिवेदन ज्यादा मुश्किल में इन कहानियों में अविश्वास हुआ है। प्रमेश्वर की इन कहानियों में दिल्ली की रचना को दो तरह से देखा गया है। एक जो ब्राह्मणवादी मान्यताओं से रखे-बरके है और दूसरे जो इसका विरोध करता है। 'सदनातिर' का दुवी और मन्दिर की मुख्य ब्राह्मणवादी मान्यताओं का स्वीकार है। दूसरे शब्दों में कहा जाता है कि दूसरे से तली आ रही शोध मूलक मान्यता—इन लोगों के लिए सामाजिक बन गई है। 'सदनातिर' के दुरस्त्रे की इन्हीं मान्यताओं में मिला है जिसमें गलत के कारण क्षति होती है। प्रमेश्वर की मुख्य ब्राह्मणवादी मान्यताओं की स्वीकृति है। दूसरे तत्काल मन्दिर की मुख्य ब्राह्मणवादी मान्यताओं के प्रति चार-चुपके प्रतिरोध करती है। लेकिन दिल्ली के दूसरे सिक्के मुख्य ब्राह्मणवादी मान्यताओं के प्रति प्रतिदिन बुद्धिमान का निर्देश मुक्तियों की धरति करना है। इससे सुझाव दिया है कि लॉके मन्दिर पुरूष के पूर्ण में ये ही का जो उपले की आवश्यक तरीका है। प्रमेश्वर का मानना है कि आजादी के लिए पूरी व्यवस्था को चुनौती होगा।
दर्शनात्मक कथन के पैसे की खास-पीकर वे समाज के वर्तमान-वादी समूहों द्वारा निर्धारित इस लॉकिक और पारसौजिक दोनों सीमाओं या अविस्मरण करते हैं। यह अविस्मरण एक साथ पैसा देने वाले शोषक वर्ग धर्म के ठीक-ठाकरे बादशाहों और इस्लाम की सत्ता को मार्मिक मुन्नती देते हैं। ऐसा करने से वे लोकमत और शासत्मक दोनों की अवहेलना कर रहे हैं। ये अवहेलना दर्शनात्मक प्रतिघोष स्वरूप ही है। ऐसा सिफर दलित-पात्र कर सकता था क्योंकि समाज में प्रभावित मान्यताओं की अधिकतम ओरा दलितों को ही सहन करनी पड़ती थी। यह भारतीय समाज की अंशुरुष सच्चाई है। आचूर्तिक युग में भारतीय समाज अनेक कारणों से फिर एक बार जाति संगठन बना रहा है।

निष्कर्ष -

आचूर्तिक शिक्षा तथा अत्याचरण तकनीकी शिक्षा प्राप्त मध्यर्ध के रहे हैं। लोकतंत्र में अपनी जगह बनाने के लिए भी जातियों संगठन बना रही है। विज्ञान की शिक्षा ग्रहण करने वाले लोगों में भी शोषण घूमक्क मान्यताओं के प्रति आलोचनात्मक जोखिम घटा है। दलित समुदाय पर अत्याचार के कई उदाहरण दिखाया दिया है धर्म के नाम दोष और कर्म-काण्ड में वृद्धि हुई है। ऐसे विधिभवन पूर्ण समय और समाज में प्रेममंडल की दलित जीवन से जुड़ी कहानियों का वर्ण विशेष विश्वस्त है। उन्होंने साहित्यिक से पद-दलित अपमानित और शोषित कृषकों की आवाज उठाई वे पर्दे में केंद्र, पद-पद पर लाखिल अपमानित और शोषित नारी जाति महिमा के वकील थे। गरीबों और बेकारों के महत्व के प्रश्न के कारण थे। यदि हम उत्तर भारत की विदेश नवन निर्माण के जनता के आचार-विचार, भाषा-भाव, रहन-सहन, आशा-आकाश, सुख-दुख और सुदृढ़-बुझ जीवन निःसंचार वाले हैं तो प्रेममंडल से उत्तर परिसंचारक हमें नहीं मिल सकता है। उनकी कहानियों में तत्कालीन समाज का नवीन चित्रण देखने को मिलता है जैसे: प्रेममंडल को दूरी कथा का महान-लेखक एवं समाज कह सकते हैं।

सन्दर्भ ग्रन्थ-

[1] दलित चेतना और स्त्री विभाग डॉ. विजय कुमार 'संदेश'
[2] मृति प्रेममंडल और दलित समाज 'रसल कार्यक्रम सांभरिया'
[3] ठाकुर का कुल (कहानी) 'प्रेममंडल'
[4] ममता कहानी 'प्रेममंडल'
[5] संदर्भ संगठन 'प्रेममंडल'
[6] दृढ़ का दाम 'प्रेममंडल'
[7] केफन कहानी 'प्रेममंडल'
[8] बृहत साहित्यिक निबंध, डॉ. वा गुलाबी
Autism Spectrum Disorder

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Abstract:
Autism is one of the neurological disorders mostly affects child’s ability to communicate, form relationships with others and respond appropriately to the environment. Autism is a developmental disability generally evident before age 3, that affects a child’s performance. Some children with autism are relatively high functioning with speech and intelligence intact. Others are mentally retarded mute or have serious language delays. There are some others who seem locked into repetitive behaviors and rigid patter of thinking. Education is the primary tool for treating as well as developing the autistic children as an independent and useful citizen. Intervention may help to minimize disruptive behaviors while education can teach self-help skills that will allow the child to become more independent.

Key words: Autism, awareness, education, parents, child and teachers.

Introduction:
Autism has become one of the most prevalent childhood afflictions of our generation. Autism is the second most common developmental disability, next to mental retardation. Autism is a “developmental disability affecting verbal and non-verbal communication and social interaction, generally evident before age 3, that affects a child’s performance” (IDEA, USA). An estimated 1 in 88 children (Center for Disease Control and Prevention) today is born with Autism Spectrum Disorder (ASD) against a ratio of one in 110 few years back. Autism is a lifetime neurobiological disorder and is not curable. India is home to about 10 million people with Autism. A child with Autism is adversely affected in terms of the educational performance and day-to-day adjustment in his life. Autism Spectrum Disorder is a brain disorder that typically affects a child’s ability to communicate, form relationships with others and respond appropriately to the environment. Some children with autism are relatively high functioning with speech and intelligence intact. Others are mentally retarded mute or have serious language delays. Boys are mostly affected by this disorder in comparison to girls.

The concept of ‘Autism Spectrum Disorder’ is not new, It has been with us since 1908 but 70 years back it is only mentioned in books. Now, in recent time educational program have been provided for Autistic children on a broad scale under the public and special school.

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Education is the primary tool for treating as well as developing the autistic children as an independent and useful citizens. Intervention may help to minimize disruptive behaviors while education can teach self-help skills that will allow the child to become more independent.

**Signs and Symptoms**

- The children instead of playing and socializing with others isolated themselves in world of their own.
- A place characterized by repetitive routines.
- Resistance on sameness
- Lack of coordination or clumsiness with fine activities.
- Does not understand the concept of danger.
- Inappropriate laughter or crying.
- Delay in speech and language development and inability to develop appropriate social skill.
- Difficulty in expressing needs and uses gestures instead of words.
- Difficulty in maintaining eye contact.
- Distractibility and poor attention span. Hyperactivity or passiveness.
- Self injury includes movements that injure or can injure the person, such as eye-poking, skin-picking, hand-biting and head-banging.
- Inability to tolerate certain touch, sound, etc.
- Children with Autism learn more slowly than a typical child.

**Causes**

- The children with autism are found to have specific genetic abnormalities. There has been no single study to show a clear – cut causal relationship between a specific genetic abnormality and the occurrence of autism. That is why no genetic test is available for the diagnosis of autistic disorder. The parietal area of brain (responsible for the control of hearing, speech and language) and corpus callosum (a portion of the brain responsible for passing information from one side of the brain to the other) of the autistic children found less active than the normal disabled peers. In this way, at present, we may claim to have some research evidences in favour of declaring brain dysfunction or neurological impairments as a strong causative factor for autism disorder.

**Strategies for Teaching Children with Autism**

- **Interaction:** Learners with autism need to interact with other students, because there is opportunity to the development of social interaction.
- **Better Environment:** Student can learn better when exposed to the general education environment.
- **Repetition:** Teaching student with autism need patient since they needs much time and a lot of repetition to learn.
- **Activities:** It is important for the teacher to have goal, lesson plans, method and activities, which meets child’s need.
Experience: Teacher’s personal commitment and experience or awareness in teaching learners with autism is also very important, since these children need more attention and support.

Therapies: Along with special education, children with autism also need speech therapy for proper development of understanding and speech, physiotherapy, occupational therapy for reducing sensory imbalance.

Government & Non Government Provisions: Government and NGO’s should increase the budget of special need education. This will solve the problem of resources, improvement of school buildings and special support for children with Autism like medical care and quality education for the better future.

Programmes: Different type of degree and diploma programme in special education for children with autism should be arranged by the government so that teachers can get appropriate knowledge and skills to guide autistic children.

Services: Also to prepare and arrange the early intervention service for learners and families with children with Autism.

Conclusion:
All learners have right to education, regardless of their individual characteristics or difficulties. Children with autism as other children go to ordinary schools, and they also must go to normal classes. General education teachers need to be sensitive with the special needs of learners with autism, also some instructional strategies to cope with problem which might arise. The school and classroom environment should be flexible to help children with autism to feel secure. All these needs make research studies more important in present context.

References:

Physical Education

HEIGHT, SPORTS ACHIEVEMENT MOTIVATION AND PERFORMANCE OF B.P.ED ASPIRANTS: A CO – RELATIONAL STUDY

Dr. Jaswant Singh Yadav, * Dr. Akhilesh Chand Saxena **

Abstract
The Purpose of this study is to find out correlation between performances of B.P. Ed. aspirants and their sports Achievement motivation and Height. For this purpose total Eighty five (N=85) students were selected from Department of physical Education, Dr. B. R. A. University, Agra on dated 19 – 08 – 2015. For assessing their performance Modified AAPHRED physical fitness test was applied. For measuring their height Stadiometer was used. And Sports Achievement Motivation Test developed by M. L. Kamlesh (1990) was used for assessing their achievement motivation. Pearson’s Product moment correlation was used on gathered data for statistical analysis. Findings of the study revealed positive correlation between performance and sports achievement motivation and performance and Height of B.P.Ed. aspirants.

Key words: B.P. Ed aspirants, Sports Achievement Motivation, Height

INTRODUCTION
In present sporting environment, sport scientists and sports psychologists have the capacity and ability to search and find out those invisible factors which directly and indirectly support towards the enhancement of athlete’s performance. Sports related scientific research and development in India has not been able to keep pace with international standard in the wide arena of sport psychology, exercise physiology, sport training methods, kinesiology, sports medicine and injury management etc. To achieve the highest and economical performance in the field of games and sports at national and international level, a positive attention should be given towards research development in sports sciences and its allied field.

Psychological variables are the most important contributing factors for performance in all sports and games. The game of Athletics requires considerable amount of mental alertness and Motivation performance in sports is the combined result of physical as well as mental fitness; mental fitness has relatively been remained neglected in India. As asserted by Singh (1981) most of the coaches agree that the physical characteristic, skills and training of the players are extremely important but they also indicate the good mental preparation for competitions, which is the necessary
component of success. In western countries like Russia, G.D.R., Bulgaria, much stress is being laid on the mental preparation conditioning of their sportspersons. A coach has the right to help the player to find out his specific talents and factors to their fullest potentials helps in developing not only physical attributes but also had attitudinal and psychological spirits.

The athletes and teams are prepared not only to play the game, but to win it. And for winning the games it is not only the proficiency in the skills which brings victory but more important is the preparation, the spirit and the attitude of the athletes with which they play and perform the best in the competition. The modern sport training lays greater emphasis on preparing the athletes psychologically. Lots of emphasis is being given to the psychological research dealing with different psychological variables and mental rehearsals of the training of the top level athletes.

Sports involve extremely complex behavioral issues. As a consequence of intense competition sportsman’s behavior may also undergo important changes. So physical education scientists and coaches have not to be expert only in the matter of skill training but also to be engineers who understand the mechanism of human behavior on the playfields, under extremely diverse situations. No training in the sports is complete without reference to the psychological study and training of athletes. All other factors, as like biological and sociological being equal, psychological conditioning of an athlete decidedly determines his success or failure in the competition. Kamlesh (1983) cited that in modern competitive sports, psychological preparation of an athlete or a team is much important as technique of the different skills of the game on specific lines.

Participation in sport and physical activity has the potential to act in a positive fashion, affecting moral development through such processes as observing positive role models in coaches, parents and other children (Martens, 1993) and having the opportunity to engage in pro social, or ethical, behavior. From a psychological perspective, there are very important concerns about the relationship of body image to female’s attitudes about physical activity and actual behavior in sport and exercise settings (Gill, 1993). Psychological activity is associated with enhanced self-esteem, self-concept, anxiety and body image (Plaited, 1995, Snyder and Spritzer, 1977).

Study show that females are generally more negative about their bodies and are concerned with physical beauty and maintaining an ideal, thin shape (As identifies by media and societal images), where males are concerned with size, strength and power (Gill, 1995). According to Hart, Leary and Rejeski (1989), such dissatisfaction with body image is associated with both low self-esteem, depression, low self-concept and less motivation. Both social and sport-based pressures on flame athletes to be this can be implicated in this excessive focus on an appearance (Plastid, 1995). For example, societal pressure idealizing a body image that is not particularly health or attainable for many females has important consequence in terms of self-esteem and disordered eating.
Motivation is one psychological characteristic which affects the performance of any individual; this is true in the case of sport person also. Motivation effects performance of any individuals. Motivations is responsible for initiations continuation and direction of any activity, so a motivated sports persons is able to start sports activity continue it and take it in the desired direction. Forts (1971) has rightly stared that motivations in general is a process, which indicated why people participate in sports and the way they do so. The urge to run and play when competing, to struggle when confined to be aggressive when anger had to be faced, when frightened and typical of man as he matures and develops and moves through life’s many dangerous and competitive situations.

In fact achievement motivation is the motivation to achieve; this idea has been emphasized by Barrow and Rosemary M.C. Gee (1979) when they state that the basis of achievement motivation is achievement motive that is a motive to achieve. Those who engage themselves in a task on account of an achievement motive are said to work under the spirit of achievement motivation.

Achievement motive comes into picture when an individual knows that his performance will be evaluated, that the consequence of his actions will be either as success or a failure and that good performance will produce a feeling of pride and accomplishment. Hence, achievement motive may be considered as a disposition to approached success or capacity for taking pride in accomplishment when success at one or another activity is achieved.

The process of achievement motivation had been analyzed by psychologists from time to time. For example M.C. Cleland et.al. (1953) are of the view that the theory of Achievement Motivation originated from the leveled of motivation in players. According to them in players three points are important (1) the strength of fairly consistent motives or needs of players, (2) their expectations of what outcome certain actions will produce, and (3) how badly at this time they want a certain payoff over all the other wants they have and over the risks they face.

Heckhausen defines as the striving to increase or keep as high as possible one’s own capacity in all activities in which standard of excellence of such activities can either success or fail”.

Kamlesh, Kumar & Kaur(1987) studies that level of sports achievement motivations with inter collegiate female players (N=43) belonging to various games (Volleyball-12, Hockey=19, and others from kho-kho, Football, Kabaddi, Gymnastic and Tack and Filed -12), Sports achievement Motivations Test by Kamlesh was administered to the subjects in the convenient size groups. It was concluded that the inter-collegiate female players have moderate level of sports achievement motivation. No inter sport differences on the level of achievement motivation were reported.

The American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD), previously known as the Association for Health, Physical Education and recreation, is an organization providing support to professionals specializing in health, physical education, recreation and dance. AAHPERD is also
using in India for assessing the physical fitness of Youth. Most of the Educational Institutes Running Course B.P. Ed in their curriculum preferred using AAHPERD for selecting of students. Dr. B. R. A. University Also conduct same test for B.P.ED. students selections.

**Selection of Sample:**

Eight Five (N = 85) subjects for the study were selected from the department of physical Education. All participated were qualify written test and intimated for Modified AAHPERD Test. Most of the subjects came from different parts of Uttar Pradesh and were of different Socio-economic status. Before filing the questionnaire of sports Achievement motivation the researcher held meetings with the subject and told them the objective of the study. He requested to give their response honestly in the interest of scientific investigation. Subjects were very enthusiastic and cooperative throughout the whole data collection. The age range was limited from 18 up to 28 years.

**Criterion measures**

For keeping the entire study unitary and integrated, expert’s consultation was taken. The criterion measure for the study was the final ratings of the appropriate scales selected for assessing the following variables of the study.

**TOOLS**

Sports achievement motivation test developed by M.L. Kamlesh (1990) was used for measuring Sports Achievement Motivation Test. Psychological tests are used to measure and understand human behavior. It is matter of fact that there is not a single tool or psychological instrument, which may understand all aspect of behavior because of complex and varying psycho - emotional attributes of personality and human behavior dimension.

**Sports Achievement of Motivation Test (SAMT)**

The sports achievement motivation test (Kamlesh, 1990) is a self-evaluation questionnaire of 20 statements, the response value of this test extended from 0 to 40 in total. Each statement carries a maximum score of two and minimum zero. The scale had been provided with a key to evaluate the answers. The test-rest reliability of the scale with N-70 has been reported to be 0.70. Although the test automatically was valid. But it measure only one thing i.e. level of sports achievement motivations. After conducting further studies by using SAMT the author has given the following classification criteria based on percent and point.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Raw/Mean Score</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0-24</td>
<td>Low</td>
</tr>
<tr>
<td>2.</td>
<td>24-30</td>
<td>Moderate</td>
</tr>
<tr>
<td>3.</td>
<td>30 and above</td>
<td>High</td>
</tr>
</tbody>
</table>

**STATISTICAL PROCEDURE**

Objective of this study is to find out relationship between Physical fitness Index and sports Achievement of B.P. Ed Aspirants of Dr. B. R. A. University, Agra.
Retreating the objectives of the study Pearson Product Moment Correlation was applied on gathered data. Level of significance set at 0.05 level.

**ANALYSIS OF DATA**

<table>
<thead>
<tr>
<th></th>
<th>Achievement Motivation</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>27.64705882</td>
<td>29.42352941</td>
</tr>
<tr>
<td><strong>Correlation</strong></td>
<td>0.097394781</td>
<td></td>
</tr>
</tbody>
</table>

Pearson’s Product moment correlation shows that Positive correlation (0.097) was exists between Sports Achievement motivation test and Performance of Physical fitness test of B.P. Ed. aspirants of Dr. Bhimrao Ambedkar University, Agra.

<table>
<thead>
<tr>
<th></th>
<th>Height</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>169.2117647</td>
<td>29.42352941</td>
</tr>
<tr>
<td><strong>Correlation</strong></td>
<td>0.075365803</td>
<td></td>
</tr>
</tbody>
</table>

Pearson’s Product moment correlation shows that Positive correlation (0.075) was exists between Height and Physical fitness test’s Performance of B.P. Ed. aspirants of Dr. Bhimrao Ambedkar University, Agra.

**Discussion of Findings:**

Pearson’s Product moment correlation shows that Positive correlation (0.097) was exists between Sports Achievement motivation test and Performance of Physical fitness test of B.P.Ed. aspirants of Dr. Bhimrao Ambedkar University, Agra. Greater the Sports Achievement motivation may provide more confidence thus the B.P. Ed. aspirants performs better during physical fitness test. Most of the B.P. Ed. Aspirants
are belong to sports person community thus they are having greater sports achievements in their respective Events/ Games.

Pearson’s Product moment correlation shows that Positive correlation (0.075) was exists between Height and Physical fitness test’s Performance of B.P. Ed. aspirants of Dr. Bhimrao Ambedkar University, Agra. The Height is a natural phenomenon for sports person it provides more the mechanical advantage to men who are performing during physical fitness test. It also provides levers benefits for the taller students thus the height having positive correlation with performance.

REFERENCES

Music

Music: A tool for a blissful, healthy and happy life

Fr. Robert Ramesh Francis D’Souza *

1. Introduction:
   
   Let me clarify at the very outset that as I talk of music, or refer to music, directly or indirectly, I mean to talk of Indian music unless specified otherwise being an Indian, I am closer to it than any other kind of music. I have been a student of music and hence can say it on account of my experience that music is a very efficient tool which can help us keep healthy and happy through our lives. According to Sri Chinmoy,¹ “God’s favourite sound is the sound of His inner Music. This inner Music is the music of earth’s transformation and humanity’s life-perfection.” As we open up for music, full of beauty and bliss, we are spell-bound to its melodies and forget everything else.

   Music, as referred to in various ancient and medieval Works and treatise, is a combination of three other fine arts. Namely, Geet, (melody or vocal music), Vadya, (instrumental music) and Nritya, (dance).² However, we d’not go into the technicalities of the term. Generally, the common men and women do not need a definition to appreciate, understand, adjudge any concepts, ideologies, arts, philosophies etc. the common people use the ‘common sense’ to understand even the most complicated situations. It is the job of the scholarly and the intelligent to play with language and more often than not, to prove nothing but their capacity of analyzing the concepts. One needs to be a connoisseur and not necessarily a scholar, to enjoy or appreciate music or any art for that matter. Therefore, the definitions do not lead us to any point. Let us concentrate upon music of the time we live in. at present, Indian music is very much popular in around the Indian Subcontinent.³ Not only here; we find our music wherever the people from Indian origin belong to. Thus, our music can be felt from almost every part of the world.

1.1 Hypothesis:

   Now, let us come to the point which this Paper deals with. I begin with the hypothesis that music has the potentials to provide us with the real pleasure which is never-ending; the blissful serenity and hence a healthy and a happy life. Hence, it is relevant that we should look into the terms like ‘health’ and ‘happiness’. There is a very famous saying which I wish to quote here, “Wealth is lost, nothing is lost; health is lost, something is lost; but character is lost, everything is lost.”

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The loss of wealth is reversible. One can gain it in due course of time. The loss of health is not easily reversible. One may or may not regain it. As for the loss of one’s character, it is most unlikely to be regained and hence is considered the biggest loss of all. Interestingly, it is one’s character which plays a pivotal role in deciding his/her state of mind; his/her happiness or sorrows also.

1.2 Happiness within:

The prime factor which gives us happiness is neither the physical comforts nor the swelling Bank accounts. It is our inner bliss which provides the basis for pleasure or joy we experience. Unless we are liberated of the physical comforts, we are not likely to experience the inner bliss and unless we have it, the real pleasure is next to impossible. That is the reason that all men and women who are considered wealthy and rich, are not happy in reality. Most of the highly successful persons are found to be tensed and troubled. The real pleasure comes from within and not from outside comforts. We can purchase goods, services, brands etc., but feelings like pleasure and tranquility cannot be bought. These feelings are within our mindsets. Thus, we need to change our mindset in a manner which may lead to happiness.

We have five senses to perceive the surroundings encompassing us. Namely, vision, hearing, taste, touch and smell. These senses are the basic informers which send data inputs to our brain which, in turn, analyzes the same and draws conclusions. The identical inputs may create totally different perceptions in different minds. Therefore, the senses in themselves are not responsible for the state of our mind – that is, joys or sorrows. Neither is the brain which makes happy or said. It is our mind which takes the inputs from the brain and tries to match the same with the data already available in our subconscious state of mind. Hence, finally, the mind seems to be responsible for our feelings – sad or pleasant. We cannot change the world according to our likings. Neither can we close our eyes to what we do not like. What can we change is our attitude which is dependent upon our mindset. The mindset is formed on the basis of one’s previous experiences, perceptions, ailments etc. in this manner, our feelings and sentiments – negative or positive – depend upon our experiences, perceptions, ailments which have been recorded in the data base of our subconscious mind.

1.3 Health:

After discussing the term ‘happiness’, let us now concentrate on the second very important term of this paper. i.e. ‘health’.

This term relates to the field of medical fraternity. Whenever we think our health is deteriorating, we consult a doctor. The question may arise then, in many minds, as to how music is related to our health. This question is relevant and an important one. However, to get a reply to it, we have to look into the basic question as to what really health is.

According to World Health Organization⁴, (WHO), “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” Therefore, happiness is related to health. If one tends to get sad
frequently, he/she cannot be considered ‘healthy’ according to this definition. In order to be healthy, one has to learn to be happy.

Physical health can be regulated efficiently through the medical treatments. But the happiness is related to our mental health. Mental health is looked after by the psychologists/psychiatrists. Here let me impress upon the fact that the physical health is dependent upon mental health and hence, mental health is more important than the physical health. In order to keep fit physically, one has to be happy and full of enthusiasm.

2. Music and happiness:

Now we come to our basic issue of this paper. How is music responsible for our happiness? This question can be answered in many ways. I adopt the layman’s method. I d´not go into technicalities of the topic. On the contrary, I am tried to present the perception of a layman. I am not a health specialist. This is the subject of the medical fraternity. Therefore, I am not competent enough to discuss the same in a technical manner. But health and happiness are the human virtues also. On that count, we are competent to discuss the topics.

Fine arts in general and music specifically, give us happiness. Pt. AhoBal, the author of Sangeet Parijat, has described that music has two objectives: first is Jan Ranjan (entertainment of the masses) and the second is Bhava Bhanjan (The liberation from the worldly troubles and tensions). First objective hence is related to our happiness, (which is said to have outer or physical connotations). The second objective directly relates to mental bliss which is responsible for the happiness coming from within. The happiness which we get from the outer sources or physical comforts is temporary. It evaporates as the comfort goes or we get bored from the particular outer source of happiness. But the happiness which comes from within is permanent than the latter one.

For instance, if one loves to have a particular amount of salary, and he/she eventually gets it, the person would be happy for some time. But as he/she sees that there are many more persons getting higher salaries, his/her happiness would vanish. Many more examples can be stated to elaborate it but I think the one, just presented, is more than enough and I d´not go deep into it. Let us concentrate upon the happiness we get through musical compositions.

When we listen to beautiful music, we get a kind of happiness which is inexplicable in words. Music has the power of attracting the listener to itself. We get fascinated to the tunes of music. In our childhood, most of us have read the story of a pied piper, who had driven all mice out of the city. However, when he was not paid the promised money, he began to play on his Pipe (a kind of flute). This tune was so fascinating that all the children of the city began following the Piper.

The same is said about Lord Krishna. He was so perfect with his flute that Gopis would forget everything and came to him spell bound. This is the magic of music.
Maybe, some of you would not like to believe upon stories. Therefore, it is binding upon me to prove my point through real events and not through the myths and tales.

We sing or dance in order to express our happiness. Even the little infant; when he feels happy, he expresses it through whatever noises he can make, and through his the movements of his limbs. In the rural areas, when the fields get filled with crops, the farmers show their happiness through folk songs and folk dances. During all happy occasions, music is used to express our sentiments. Be it wedding ceremony, birthday of somebody or any other happy occasion, music is an important component in all these functions. Whenever is the party-time, music is it's integral part.

2.1 Inner bliss:

Music does not just provide the temporary joy; it gives us the inner bliss too. Music is a miniature of the harmony of the whole universe, for the harmony of the universe is life itself, and humans, being a miniature of the universe, show harmonious and inharmonious chords in their pulsations, in the beat of their hearts, in their vibration, rhythm and tone. Their health or illness, their joy or discomfort, all show the music or lack of music in their life.

And what does music teach us? Music helps us to train ourselves in harmony, and it is this which is the magic or the secret behind music. When you hear music that you enjoy, it tunes you and puts you in harmony with life. Therefore we need music; we long for music. Many say that they do not care for music, but these have not heard music. If they really heard music; it would touch their souls, and then certainly they could not help loving it. If not, it would only mean that they had not heard music sufficiently, and had not made their heart calm and quiet in order to listen to it, and to enjoy and appreciate it. Besides music develops that faculty by which one learns to appreciate all that is good and beautiful in the form of art and science, and in the form of music and poetry one can then appreciate every aspect of beauty.

What deprives us of all the beauty around us is his heaviness of body or heaviness of heart. We are pulled down to earth, and by that everything becomes limited; but when we shake off that heaviness and joy comes, we feel light. All good tendencies such as gentleness and tolerance, forgiveness, love and appreciation, all these beautiful qualities come by being light; light in the mind, in the soul, and in the body.

2.3 Music and mental health:

What is wonderful about music is that it helps us to concentrate or mediate independently of thought - and therefore music seems to be the bridge over the gulf between form and the formless. If there is anything intelligent, effective and at the same time formless, it is music. Poetry suggests form, line and colour suggest form, but music suggests no form. It creates also that resonance which vibrates through the whole being, lifting the thought above the denseness of matter; it almost turns matter into spirit, into its original condition, through the harmony of vibrations touching every atom of one's whole being.
Beauty of line and colour can go so far and no further; the joy of fragrance can go a little further; but music touches our innermost being and in that way produces new life, a life that gives exaltation to the whole being, raising it to that perfection in which lies the fulfillment of our life.

Thus, we see that music is related to our mental wellbeing too. It strengthens our ability to take life in whatever manner it is bestowed upon us. The music lover develops a positive attitude towards the life and all other related aspects. All negativities get away when we are close to music. That is why, government of India and the State Governments too have introduced music in different schools and colleges. Learning even a little bit of music helps change our attitude. Everybody cannot become a musician; neither is it required. However, we all can become the appreciators of music. We can enjoy it and hence can get the related benefits of happiness and bliss through it.

Nature binds all eternal souls to the material world through her three modes – goodness, passion, and darkness. This writing, in commoner’s language, explains what these modes are and how they influence us in everyday life.

Classical Music becomes a spiritual path when we offer our music performance to the Divine or start recognizing the oneness in music and God. The internationally-renowned Los Angeles-based sitar maestro from India, Pundit Ravi Shankar\(^5\) has seen New Age mature from the dizzy youth of the '60s to its eclectic millennium form. Saurabh Bhattacharya\(^6\), an acclaimed reporter, asked some relevant questions while in an interview with him:

**Q.:** You were one of the earliest catalysts of New Age. What, in your opinion, is the true New Age?

**Ans.:** You know the saying, old wine in new bottles? The concepts are all same. Only the names seem to change. The ideas prevalent now were once part of Dadaism and Bohemianism. The New Age has given more sanctity to these ideas, unswayed by drugs and intoxicants. And that's why I appreciate this movement. It has taken good things out of varied traditions—from Indian yoga to Japanese reiki. It definitely has a bigger and a better canvas.

**Q.:** Do you think music can actually heal?

**Ans.:** Music does work as a therapy. But the way the so-called 'music therapy' is practiced today is stupid. I've met a lot of crazy 'music therapists' who are out there only to make money and fool people. If you listen to a finely-tuned tanpura in isolation and with a quiet mind, you'll feel a sense of peace. If you listen with absolute concentration to church organ or Bach or a truly good musician performing any raga, you shall have a fantastic sense of peace. I consider that the final therapy.
Q.: Is music essentially spiritual?

Ans.: The highest form in music is spirituality. That is different from the professional approach, which even I have to unfortunately maintain—where it is a commercial arrangement that gives you a stipulated period of time within which you give your best.

3. **Music/Dance therapies:**

This shows that music can be used as a tool for a happy and a healthy life. Presently, dance and music have been used as alternative medical therapies in order to have a good health without using harmful drugs. We are aware of the fact that music can affect the growth of plants in a positive manner. We are also in knowledge of the fact that more and more doctors are advising their patients to include music-listening in their lifestyles. Nada Center of T. Sairam is running many courses on music therapy.

Likewise, dance therapy is also getting popular these days. Dance is the most fundamental of the arts, involving direct expression through the body. Thus, it is an intimate and powerful medium for therapy. Dance therapy (also called dance/movement therapy) is the use of choreographed or improvised movement as a way of treating social, emotional, cognitive, and physical problems. Throughout the ages, people of many cultures have used dance to express powerful emotions, tell stories, treat illness, celebrate important events, and maintain communal bonds. Dance therapy harnesses this power of movement in a therapeutic setting and uses it to promote personal growth, health, and well-being.

Dance as therapy came into existence as a marriage of sorts between modern dance and psychiatry. It was pioneered by Marian Chace (1896-1970), who studied dance in New York City before establishing her own studio in Washington, DC, in the 1930s. Because Chase's dance classes provided unique opportunities for self-expression, communication, and group interaction, psychiatrists in Washington began sending patients to her.

By the mid-1940s Chase was giving lectures and demonstrations, and other professional dancers soon followed her lead, using dance to help people with an array of emotional, mental, and physical problems. It was not until 1966, when the American Dance Therapy Association (ADTA) was founded, that dance therapy gained professional recognition. Today the ADTA has nearly 1,200 members in 46 states and 20 countries around the world.

4. **Conclusion:**

Thus, we see that it is through learning a little bit of musical skills that we can lead a healthy and a happy life. Music makes us peaceful in our habits. We practice peace and serenity in our lives when we are able to appreciate good music. Music helps in meditation too. It is an integral part of Yogik and other physical exercises. During such exercise sessions, music is played which helps the participants evolve concentration skills. Therefore, it is advisable to all human beings to learn music to whatever extent you can. Sing a song, play on an instrument or dance to the melodies of music. It will surely make you healthy and happy.
References

[1] Sri Chinmoy is a spiritual teacher who dedicated his life in the service of humanity. In his 43 years in the West, he endeavored to inspire and serve mankind with his soulful offerings - his prayers and meditations, literary, musical and artistic works. For more info, visit: http://www.srichinmoy.org/


[3] Indian Subcontinent refers to the geographical entity consisting of countries like India, Pakistan, Bangladesh, Nepal and Bhutan etc.


[7] Please visit: http://www.nada.in

Music

Music and Spiritualism

Fr. Robert Ramesh Francis D’Souza *

1. Introduction:

In today’s era, why is it that every hand has a stone and every head is wounded. All of us are aware of our final destination but yet all of us wish to conquer the whole world.

It is in this context that Bertrand Russell, the great philosopher had indicated to this fact long back in his book titled, “unpopular essays”.

He said and I quote,

“With vastly more powerful means of utilizing atomic energy than those now available, it is thought by many sober men of science that radio-active clouds, drifting round the world, may disintegrate living tissue everywhere. Although the last survivor may proclaim himself universal Emperor, his reign will be brief and his subjects will all be corpses. With his death the uneasy episode of life will end, and the peaceful rocks will revolve unchanged until the sun explodes.”

It is in this critical situation, that we are living in; we have to evolve one or the other mechanism which can release our anger, our ego, our lust for physical comfort, our passiveness etc. We have to get closer to the Nature in order for the survival of human civilization. It is in this context that I have chosen to present a Paper on spiritualism and music. Spiritualism is the only hope that can save humanity from the devastation and the decay. And music is the tool which can help us attain the gift of spirituality.

2. Background:

In the present era of chaos and calamities, tensions and turbulences, the human beings who have been the basic unit of the society, are being challenged by none other than their own creations. The ideas that once had helped the man are now-a-days, threatening to swallow his own master. The metropolises that had been planned so very meticulously have now been converted into ‘Jungle of concrete’. The weapons that had been innovated so as to get a sense of security and protection are ready to wipe out the mankind from the map of evolution. Discoveries that once were considered as the great technological advancements are now proving to be devastating and destructive. New ailments are mushrooming even if more and more medicines are being supplied for the present ones.

The fact of the matter is that we have to work in conformity of the Nature. We have to admit the fact that physical forces cannot match mental power and hence the spiritual evolution. Scientific and technological development cannot be an alternative to the path of God.

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Music is one of such tools that can turn our minds upside down and can guide the mankind to the journey of spiritualism. It can transfigure our minds and bring about phenomenal changes in the state of our mental health. It can curb most of the psychological disturbances of the era and hence can take us closer to the Gracious God.

In this era of information revolution, we have somehow erased from our memories the basic information about our very existence. We have forgotten that it is not our efforts but the grace of God, which showered on us numerous gifts of Mother Nature. Of course, we could not become worthy sons of the Almighty.

It is in this light that we shall have to insist upon the fact that the society is badly in need of the spiritual upliftment. We have become so self-centred that gradually, we are closing all avenues of social contacts. We spend hours to communicate our ideas and aspirations through the internet but forget to give a smile as we run into the person next door; we fail to recognize our neighbours at times. There are problems in the society which need prompt attention. If these problems are not addressed to in the near future, we shall endanger ourselves. Therefore, let us recognize that there are problems which are psychological in nature. These problems need a quick solution. One of such solutions is using music as a tool of mental healing. It is through music that we can attain spiritual upliftment.

3. What is Spiritualism?

However, before going deep into the world of spiritual experiences, let us first try to understand as to what really the term “spiritualism” means. There are different connotations related to the term. But we shall try to limit ourselves to the academic discourses only and try to avoid the religious overtones of the term.

The word ‘Spiritualism’ is derived from ‘Spirit’. Hence, commonly it can be stated that spiritualism deals with the study of spirit. ‘Spirit’ in itself is very abstract in nature. Here let us go through the meaning of spiritualism as given in dictionaries and other reference books:

According to WEBSTER’S NEW WORD DICTIONARY, Spiritualism N.

1. The belief that the dead survive as spirits which can communicate with the living, especially, with the help of a medium.
2. The philosophical doctrine that all reality is in essence spiritual.
3. Spiritual Quality.

Spiritual (ity):
1. Of religion or the church; sacred, devotional etc.
2. Refined in thought and feeling.
3. Of or consisting of spirit; not corporeal.

This dictionary entry shows that the word “spiritualism” is inter-related to the institution of religion. A spiritual person is understood to be a religious-minded person. In fact, spiritualism is a very recent term. In ancient India and Greece, “science of spirits” or “studies of soul” have been an integral part of religious systems.
This spiritual core is the deepest center of the person, involved with ultimate questions about life’s meaning and purpose. It refers to the ultimate values and meanings in terms of which we live. It includes a sense of identity that goes beyond the individual to be centered in the Whole, or the Absolute.

3.1 **Characteristics of spiritualism:**

There are three characteristics of spirituality:

a. Inner strength,

b. Meaning in life,

c. Harmonious interconnectedness.

Inner strength involves finding an animated sense of joy and peace within one’s inner wellspring of awareness. Finding a meaning or a purpose in life, points to a sense of hope in the unfolding mystery, uncertainty, and ambiguity of life, and an ability to see beyond present realities. The last characteristic, interconnectedness, involves finding harmony with the self, others, and the Universe.

The basic purpose to go through the meaning and the definition of the spiritualism is to connect the term with the concept of faith and religion which seeks to present the spiritual wisdom of the human race in its historical unfolding.

The term ‘spirituality’ focuses on that inner dimension of the person called by certain traditions ‘the spirit.’ This spiritual core is the deepest center of the person. It is here that the person is open to the transcendent dimension; it is here that the person experiences ultimate reality. The study explores the discovery of this core, the dynamics of its development, and its journey to the ultimate goal. It deals with prayer, spiritual direction, the various maps of the spiritual journey, and the methods of advancement in the spiritual ascent.

By presenting the ancient spiritual wisdom in an academic perspective, the study of the term under our scrutiny can fulfill a number of needs. It can provide readers with a spiritual inventory of the richness of their own traditions, informing them at the same time of the richness of other traditions. It can give structure and order, meaning and direction to the vast amount of information with which we are often overwhelmed in the computer age. By drawing the material into the focus of world spirituality, it can provide a perspective for understanding one’s place in the larger process. For it may well be that the meeting of spiritual paths the assimilation not only of one’s own spiritual heritage but of that of the human community as a whole, is the distinctive spiritual journey of our time. Therefore, let us study some of the definitions of the great philosophers who provide an inner glimpse of the concept:

According to Charles L. Whitfield, in perhaps one of its briefest definitions spirituality is about the relationships that we have with our self, with others and with the universe. It matches with the basic Indian philosophy of “Aatman” which is the essence of the human existence. The basic questions confronted by the philosophers are: “Who am I? Where I have come from? And where shall I go to?”
In fact human body is just the medium. It is worldly and has to perish. There is something more subtle and abstract, which cannot be perceived through sensory organs. Spiritualism deals with that abstract but infinite inner strength which gives life to the body.

3.2 Distinction between religion and spirituality:

As we have submitted earlier, religion and spiritualism are intermingled and sometimes, look as if both the terms are the two sides of the same coin. Religion involves creeds and catechisms. Spirituality involves feelings and experiences that transcend mere words. Religion is imitative and comes from without; religion is ‘so I’ve been taught.’ Spirituality comes from within; spirituality comes from ‘my strength, hope and experience.’ Religion is ‘left-brain—it is rooted in words, sacred texts, and culture. Spirituality is ‘right-brain’; it transcends the boundaries of body, language, reason, and culture. However, just as both sides of the brain are inseparable, just so for most people religion and spirituality are inseparable.

Philosophers, bending towards the study of religion have the opinion that ‘Spirituality’ is a term used in traditional religious writings to designate the search for self-fulfillment and perfection.6

We have come to know that the words spiritualism, spirituality etc. are derived from the word spirit which in turn, is a Latin word, ‘spirare’ which means ‘to breathe.’ The noun, spiritus signifies the action of breathing, a single breath, and also life itself; and the non-corporeal part of a person separable from the body at death, is also called the spirit or the soul.

The theory of spiritualism states that Spirituality can be conceptualized as concerned with the transcendent, addressing ultimate questions about life’s meaning and purpose with the assumption that there is more to life than that which we can see or fully understand.

Spirituality refers to the experience of the highest values of goodness, love, truth and beauty. It is an experience rather than external forms or beliefs. Robert Zaehner’s7 presents with distinction, 4 types of spirituality applicable to all religions is useful. According to the Larousse Dictionary of Beliefs and Religions, he claims that

There are four types of spirituality within and between religions:
A. Loving union with a personal God,
B. A sense of oneness with the Absolute and the world
C. A sense of merging with the world, and
D. A sense of being separate from the world and becoming one with one’s real self.

Spirituality indicates a person’s awareness of and attunement to that force. It refers to the quality of our relationship to all things. It is characterized by love.

It is also related to moral high ground. But we have already stated clearly that we should avoid religious discussions and restrict ourselves to the spiritualism as a philosophical term. Spiritualism is a life skill and can be attained even without the help of any religion. If we include the religious experiences, we have to address the various
misbeliefs etc. which have since been associated with spiritualism. For instance, I state here just two examples:

As with many other concepts, the idea of spiritualism has also been mingled with superstitions and misbeliefs. One of such examples is a Novel written by R. K. Narayan titled ‘The English Teacher’, revolves around a professor of English Literature who runs into a man claiming to be the communicator between the professor and many spirits including that of the professor’s dead wife.¹⁰

There are many such examples available on the internet. Some of them are reprinted here to elaborate upon the different shades of spiritualism.

Spiritualists do not "worship" spirits. Neither do they seek to commune with the devil. Some, as was the case with the clairvoyant Edgar Cayce (1877-1945), may be Methodist Sunday-school teachers. Others, as was true of Sir Arthur Conan Doyle (1859-1930), creator of the fictional detective Sherlock Holmes, may be best-selling authors.

But Spiritualists do seek contact with those who have crossed the border dividing the material world from the spiritual. Those who have died are still alive, according to Spiritualist belief, but in a different form.

It is in the light of the above examples that we cannot include the religious connotations in this paper.

4. **Spiritualism for all:**

As I have stated in the very beginning, spiritualism is the science of the spirits or the souls. Though, soul is invisible in its physical term, we can feel it through meditation and Yoga. The basic question which originated different philosophies, “Who am I?”, is still relevant. Who am I? Why have I come in this world? What is the purpose of my life? There are many such questions which have not been addressed very satisfactorily. Spiritualism can give answers to many of such questions very effectively and to the best of satisfaction to the logic and the faith as well. That is why, the study of spiritualism is vital and relevant.

Spirituality is the need of the hour. In the chaotic and perturbed environment, charged with the violence and lust, it gains more significance. One has to sit and think: who am I? My body is not me. It is “my” body, so I am not the body. I am something different, something else. I command the hands and they act accordingly. Therefore, I am the commander and not the follower of the command. The question arises, if I am the commander of the body, then I must be the brain. It is the brain whose command the body follows. But I am not the brain either. It is my brain. I possess the brain. I am the possessor of the brain and not the brain. I am something more subtle, something more abstract than the brain. I am the subconscious mind. But the same logic works here too. I am the possessor of the mind and so I cannot be the mind. So who am I? It is the very pertinent question. In fact, I am the soul. I give life to my body. I am abstract and very subtle. I cannot be felt through the sensory perception.¹⁹ To study my nature, one has to take the path of religious purity and the blessings of the almighty. It is on this point that one has to take the route of faith. Logic can lead to nowhere.
Through logic, one can create models to solve problems. However, no new philosophies or thoughts can be created through the logic. For the unique ideas, one needs creativity and genius. The intelligence quotient created by the clinical psychologists may establish the level of intelligence in a particular brain but it cannot help us thinking fresh and unique. It is a common experience that at times, we try hard to resolve a problem and do not get the solution. And, at another point of time, the solutions flashes in our mind and we smile that so small was the problem and so much worried it made us. It is the grace of the God which gives the solutions to various problems. For example, sometimes, we try to convince a drug addict in terms of leaving the drug and he/she does not listen. While at some other point of time, he/she readily agrees to what we explain. It is not just the coincidence. It is the blessings of the God which some of us do not believe in.

But the believer or the nonbeliever alike, spiritual practices are open to all. The atheists too cannot deny the power of one’s conscience. They also follow the moral codes well established by the society they live in. Neither the conscience nor the sanction of the society is imposed upon them but most of us listen to the conscience and likewise, most of us follow the customs and traditions sanctioned by the society.

Therefore, one believes or not believes in the institution of God, makes no difference. Theists and atheists alike can enjoy the experience of spiritualism.

5. **Spiritualism through music:**

Now that we have clarified as to what spiritualism is, let us try to see as to how we can attain spiritual experiences through music. Here, when I talk in terms of music, I mean Indian music. It may or may not apply to Western music. I have been a student of Indian music and I can speak with regard to Indian music most certainly.

Music is the expression of one's state of mind. Through the means of the permutations and the combinations of the interesting and pleasing sound-patterns representing the tones and overtones of musical notes, we can relax the nervous system. Thus, it is perceived through our ears. Though on the higher levels, when we listen to the great artists, we make an eye-contact too with the performer.

However, this eye-contact hardly affects or influences the pleasure which we receive by listening to the good music. It hardly makes any difference – listen to the music through a radio set [where it is not possible to view the artist], or listen to it through some visual media like the television, video etc. the only condition is that the listener should have the capacity to appreciate music. We are aware that those who are not "Rasika" cannot appreciate any arts. That is why this condition is important. This condition does not mean that most of the persons cannot appreciate the music. This only means that one has to attain certain level of understanding of the art in order to appreciate it. That is where comes the requirement for the young and the adolescents to learn music in order to appreciate it.

Music has always been an integral part of the human civilization. Has it been the East or the West, music looks to have a universal appeal. Many archaeologists and anthropologists recognize it as a dimension for the cultural upgradation. Historians
consider musical skills as one of the most important conditions for the intellectual growth.\textsuperscript{12} That is the reason as to why the developed societies, more often than not, evolve more delicacies and complexities in their musical genre than those of the less developed ones.

In fact, music is the most powerful tool for the hypnotism. It not only spells its charm upon the human beings but the animals too fall prey to it. The scientists concluded after different experiments that cows are milked easily while the suitable music is played during the process of milking.\textsuperscript{13} Likewise, elephants respond to music too. Not only have the animals, the plants also responded to music. In the paddy fields the specified instrumental music was played as the crop was growing. There was a visible increase in the per acre produce.\textsuperscript{14} Thus, it looks that music has a very soothing effect on living bodies.

Music is a fine art. Therefore, it has the capacity to generate the feeling of beauty. The beauty of ideas, the beauty of feelings, the beauty of Mother Nature and above all, the realization of the omnipresent God through the realization of beauty.

There are five fine arts. Namely,

1. Architecture
2. Sculpture
3. Painting
4. Literature and

Every fine art has two basic features: A. Beauty and B. Utility. Beauty without the utility has no meaning.\textsuperscript{15} For instance, if you have a very beautiful chair but it is so weakly built that nobody can sit over it, and then there is no utility of that chair. Nobody is going to buy it. The objective of all arts has been and is to make those items beautiful which we use so frequently in our daily life.

Generally speaking, fine arts and the aesthetics (the study of beauty), have intermingled together. The study of the fine arts is incomplete without the assistance of the aesthetics. Likewise, the concept of aesthetics is inconclusive without an analysis of the fine arts. Especially, when it comes to the study of the art of music, the significance of the aesthetics seems to be greater simply because of the two major general notions:

A. It is a general perception that the aesthetics is the study of "beauty", which is supposed to be the characteristic of vision, whereas music is expressed through the medium of sound.

B. The characteristic of music is pleasantness or "enjoyable to ears" and hence has nothing to do with the aesthetics which is said to deal with the beauty.

The philosophy of "Satyam Shivam Sundaram" expresses the importance of purity and pleasure in all the fine arts. When we talk of music, nobody can claim to disagree from the fact that it has the capacity to give pleasure even in the adverse conditions like trouble and tensions. That is the reason why music-listening is now recommended to the patients of hypertension, sleeplessness, cardiac diseases etc.
6. Conclusion:

Music has the potential to diverge the mind from the negative attitude to the positive one and thus to provide relaxation and relief, though only for a shorter period of time. It is this speciality of music which is very important. In other arts, we have to concentrate our minds first in order to appreciate them. On the contrary, as far as the art of music is concerned, as a musical sound is perceived through our ears, our mind is diverted towards the sound itself. We do not have to make an extra effort in order to appreciate the pleasure inculcated through the perception of amazing and pleasing tones. That is why, music is liked by almost all the men and women of different ages, classes, social backgrounds etc. why the human beings only! It is taken in good taste by animals also. Music can divert our attention from the outside world and concentrate it onto our inner conscience. This powerful tool can bring forth our attention to the state of meditation. That is why, during different Yoga sessions, we use music. Music can turn us upside down and make us feel the inner spirit that is within ourselves. Through this inner spirit, we can reach the feeling of the spiritual upliftment. That is why, it is said that music is a very powerful healer that can lead us to the path of spiritualism.

Through the soft tones and overtones of music, our mind gets a very soothing effect. Presently, music and dance have extensively been used and are being used in therapeutic sessions in collaboration with the medical supervision. Music and dance therapies have very positive effects on the patients of hypertension, and similar ailments. During surgeries, music is being used in operation theatres. All these example amply confirm that music has something to do with our mind. The sound waves which are generated through music make miracles and our mind gets pleasure and bliss. Gradually through music, we can attain the real spiritual bliss which can free us of the present tensions. We can control our anger, lust, possessiveness, and so many other desires and can live a more satisfying and wholesome life that may contribute more positively towards making a pleasing and blissful world of humans and the humanity.

References:


[14] The Basic Elements of Music, By Catherine, Schmidt-Jones. PP. 126. Online: <http://cnx.org/content/col10218/1.8> This selection and arrangement of content as a collection is copyrighted by Catherine Schmidt-Jones. It is licensed under the Creative Commons Attribution License: http://creativecommons.org/licenses/by/1.0

Social Science

भारत के ग्रामीण क्षेत्रों में पेयजल आपूर्ति की समस्या का अध्ययन (उज्जैन जिले के संदर्भ में)

डॉ. सादिक मोहम्मद खान *

प्रस्तावना:—

वर्तमान समय में पेयजल समस्या एक जलंत बिनु से रूप में उभर कर सामने आयी है। ऐसी स्थिति में जल संस्करण के संस्करण के दो उपाय हैं। प्रथम उपाय जल का समुचित उपयोग एवं दूसरा पेयजल हेतु शुद्धजल उपलब्ध होना। जल के अनियंत्रित व प्रकृति के अनियमित व्यवहार ने जल संकट के पैदा किया है। जल संकट भारत ही नहीं वरन समूची विश्व की समस्या वन दाई है। जल संकट के व्यापकता और स्वरूप ने कई सिद्धांत को यह कहने के लिए विवेचन कया दिया है कि आज विश्व यूं जल स्वतंत्र पर अधिकार के लिये होगा। यह मानना है-संस्कृति वर्तमान परिसर में सीमित होकर जल स्वतंत्र और नवीन जल के दोहरे द्वारा संदर्भ में सार्थक है। भारत में कई छोटी-छोटी नदियां रूप गई है या सूचने की कगार पर है। बड़ी-बड़ी नदियों में पानी का प्रवाह धीमा होता जा रहा है। कुएँ खुदवाने जा रहे हैं। 1960 में हमारे देश में 10 लाख कुएँ थे, लेकिन आज इसकी संख्या 2 करोड़ 80 लाख से ऊपर है हमारे देश में 55 किसानों से अधिक लोगों को पानी की सामर्थ्यकार की पूर्ति भू-जल द्वारा होती है। लेकिन हमारे भू-जल की उपलब्धता को लेकर भारतीय साधृण अमूल्य आपूर्ति ना पाने का नाम है। नौ नौ गिरता भू-जल का स्वापर्यद देश के लिए गंभीर चुनौती मानी जाती है। हमें यह भूमिका चाहिए की आजादी के बाद कृषि उत्पादन बढ़ाने में भू-जल की महत्त्वपूर्ण भूमिका। इससे हमारे अनाज उत्पादन की क्षमता 60 सालों में लगातार बढ़ती गई, लेकिन आज अनाज उत्पादन की क्षमता में लगातार बढ़ती आती जा रही है। इसका मुख्य कारण है किसने सोचते समय भू-जल का अधिकार देखना है। कई जगहें पर भू-जल का इतना दोहरा किया गया की वहां आर्थिक और नामक तक निकल आया है। हम यह नहीं सोचिए की जब जल नहीं मिलेगा, तब क्या होगा ? यह सब सब है कि इस चुनौती की समस्या वह सबसे सरकार के बस की बात नहीं है। यह आम आदमी के सहयोग से ही होगा। भारतीय स्वदेश में जल की जीवन का आधार माना गया है और इसी दृष्टिकोण के तहत इसे हमें से सहजेने की परम्परा रही है। जल संस्करण के लिए भारत का जागरूक होना आवश्यक है।

अध्ययन क्षेत्र उज्जैन जिला:

भारत के इतने स्थलों में मालवा के पटार पर रिपोर्ट उज्जैन अवयंत प्रातीन एवं धार्मिक नगर है। यह समृद्ध उपज्ञात कृषि एवं विकसित पटारणी भारत है। उज्जैन जिला 22°43' उत्तरी आश्रय से 23°36' उत्तरी आश्रय तथा 75°58' से 76°14' पूर्वी देशांत्र के मध्य स्थित है। अध्ययन क्षेत्र में लगभग 10 हजार—किलोमीटर गणितीय, वास्तव तथा चामला भव्य है। अध्ययन क्षेत्र की उत्तरी सीमा ज्ञातक के निकट राजस्थान से मिलती है। इसके उत्तर-पूर्व में शाश्वत, दक्षिण-पूर्व में देवसर, दक्षिण में इंदौर, दक्षिण-पश्चिम में खाता तथा पश्चिम में छतरपुर जिला स्थित है। व्यासाध्यात्मिक दृष्टि से उज्जैन जिले के साथ तहसीलों में मिला है। ये तहसीलों हैं— 

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उन्नत उद्देश्यों की प्राप्ति के लिए शोधार्थी द्वारा ग्रामीण क्षेत्रों में पहुँचकर अवलोकन, साक्षात्कार, अनुशीलन, समूह चर्चा जैसे उपकरणों का उपयोग कर शोध कार्य किया गया। जिसमें ग्रामीणों द्वारा उत्साह पूर्वक सकारात्मक रूप से सूचनाओं का आदान प्रदान किया गया। इस कार्य में ग्रामविशेषता, गांव के सरपंच तथा पंचायत सचिव भी सहभागिता है, जिनके साक्षात्कार दिया गया है। प्रत्यक्ष अभ्यास में ग्राम दंगावाड़ा, बलदी, टकसाड़ा, नागरिक, दौलपुर, चितमण, जवासिया, अकोलिया, असावता आदि ग्रामों में पेयजल आपूर्ति की समस्याओं का अध्ययन किया गया। प्रत्येक ग्राम से 10 उत्तरदाताओं से प्राथमिक आकड़े संकलित किये गए इस प्रकार 120 उत्तरदाताओं से संपर्क किया जो विशेष जालिय व समुदायों के हैं।

अध्ययन निफ़कर :-
1. ग्रामीण क्षेत्र में पेयजल आपूर्ति के मुख्य स्रोत हेंडपपम, कुंए तथा टूबबेल है। कमजोर वर्गों के लिए पेयजल आपूर्ति का मुख्य स्रोत हेंडपपम है। इन स्रोतों का जनसंख्या से अनुपात लगभग 200 : 1 है जोकि उनके लिए आपूर्ति भी है।
2. 12 गांवों में से 4 में पेयजल आपूर्ति नल लाइन द्वारा जल आपूर्ति होती है। जोकि वर्षा चाव तथा शीत ऋतु में सक्रिय होकर ग्रीष्म में पानी की कमी के कारण असंक्रमित हो जाती है।

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अभ्यासगत सुझाव :-
1. पेयजल की उपलब्धि मनुष्य की मूलमत है। अतः प्रशासन की इस क्षेत्र में साधन एवं साधनक मूल्यक होना आवश्यक है।
2. प्रशासन के इस क्षेत्र में सरकार नीति में आवश्यक परिवर्तन लाकर इसे आवश्यक श्रेणी की आवश्यकताओं में रखकर घर-घर तक शुद्ध पेयजल की नियमित आपूर्ति सुनिश्चित करना चाहिए।
3. जल खंडों की निगमन संस्थान संगठन प्रशासन का उद्देश्य है।
4. पेयजल आपूर्ति क्षेत्र में हो रहे पक्षपात को समाप्त करने के लिए तथा इस कार्य के व्यवस्थित संचालन के लिए प्रशासक की जल आपूर्ति संबंधत का स्थानीय गठन होना चाहिए।
5. पेयजल आपूर्ति संबंधत में कमजोर वर्गों जैसे अनुसमर्थ जाति एवं जनजाति के लोग तथा महिलाओं को भी सत्ता के घर में रखा जाना आवश्यक है।
6. छात्रावास तथा भेदभाव के क्षेत्र में जल वर्गों की संकीर्ण मानविकता में सुधार हेतु प्रशासन आवश्यक है। तथा इस क्षेत्र में कमजोर वर्गों को उनके अधिकारों एवं कानूनों से अवाग्र करना आवश्यक है।
7. केंद्र एवं राज्य स्तर पर प्रशासकीय रूप से प्रशासन संबंधी विभाग मंत्रालय के गठन किया जाना चाहिए।

संदर्भ ग्रंथ सूची
[2] गोस्वामी, ए. (2011) वैश्विक जल संकट : विकट चुनौती, बुक इंटेल प्रेसबुक, पृष्ठ 42
[5] लोक स्वास्थ्य यात्रीक योजना पुस्तक वर्ष 2015, उज्जैन
[6] ग्राम पंचायत सिधांत, वार्षिक योजना वर्ष 2015, जिला पंचायत उज्जैन
[7] पंचायत चिकित्स, राज्य आयुभाग (भारत)
[8] www.iiwm.res.in
भारत में पंचायती राज व्यवस्था का महत्त्व

दृ. पवनवीर, * बसंत कुमार**

भारतीय संविधान मुल्त: विकर्दीकरण के सिद्धांत पर आधारित है। भारत में पंचायती राज व्यवस्था उसी विकर्दीकरण तथा लोकात्मक व्यवस्था के प्रवेश द्वार पर स्थापित एक प्रकार के रूप में है। भारतीय संविधान में मौजूद पंच परिषदों की अधिकारण को ध्यान में रखते हुए संविधान में भी इसको व्यवस्था की गई है। पंचायती राज व्यवस्था सामाजिक राज व्यवस्था के केंद्र में सही है। हां, इसके रूप भारत के इतिहास में मिलते हैं। परन्तु इसका सबसे व्यवस्थित रूप वाल प्राच्य के समय निखरकर सामने आया। तथा स्वतंत्रता के पश्चात्‍ तो यह मुख्य रूप से दिखाई देने लगा।

पंचायती राज व्यवस्था का भारत में सामाजिक, राजनीतिक व राष्ट्रीय प्रसार से कार्यक्रम के विकास होने के पश्चात् यह जब इनकी विकलप का पता लगाने के लिए 1957 में शिकुआ बलवंत राय मेहता ने अपनी रिपोर्ट प्रस्तुत की जिसमें कहा गया कि इन कार्यक्रमों का जनता को अपेक्षित सहयोग प्राप्त नहीं हुआ। रिपोर्ट में कहा गया कि जब तक ग्रामीण और राजनीतिक नेताओं के हाथों में और अंतरिक्ष जिम्मेदारी नहीं सीखी जाएगी तब तक हमारे संवादाधिकारिक विकास संबंधी लक्ष्य पूरे होंगे। पंचायती राज व्यवस्था के पीछे तीन उद्देश्य के लिए पहली लोकतंत्र दूसरा प्रशासनी तीसरा विकास। यह आशा की गई थी कि पंचायत व्यवस्थाओं द्वारा राजनीति में आम लोगों की भागीदारी बढ़ानी तथा वे लोकात्मक व्यवस्था के लिए प्रशिक्षित होंगे। इसी उद्देश्य को ध्यान में रखते हुए पहली बार 2 अक्टूबर 1952 को अमेरिका की फॉर्ट फाउंडेशन के संस्थान से सामाजिक विकास की योजना भारत की गई थी। परन्तु इसकी विकल के निर्देश 1955–57 में राज मेहता की सिफारिश पर भारत में विविध स्तरीय पंचायती राज व्यवस्था का गठन किया गया। इसके अनुसार ग्राम स्तर पर पंचायत, बांक स्तर पर पंचायत सामग्री और जिला स्तर पर जिला परिषदें का गठन किया गया।

कुछ राज्यों में आधे ही पंचायत राज व्यवस्था को केंबल हिस्से रखने के लिए तीन राज्यों में मेहता, नागालैंड तथा मिजोरम के ग्राम बुधान्वा व पर्यावरण में होने की जारी की गई। पंचत विचार लाया जा है कि यह में पंचायतें भारतीय लोकतंत्र की नींव हैं।

परन्तु दुनिया भर में पंचायतें अनुसार इसके कारण नहीं उतारी इसके परिःश्रावण स्पष्ट इसके अध्ययन के लिए समाज-संस्कृति पर समाजशास्त्रियों की भी गठन होता रहा है। इसी कहीं में 1978 में गठित अशोक मेहता समिति सदस्य महामुर्तियाँ हैं जिन्हें पंचायत राज व्यवस्था को तीर सरकार के स्तर पर द्वितीय करने की सिफारिश की थी तथा समस्याओं के इतिहास निर्वाचन की बात करना था।

उम्मीद थी कि पंचायत विचारों में राजनीतिक दलों का प्रत्यक्ष रूप से भाग लेने दिया जाए। तथा जिला परिषदें को शिक्षा स्तर में उन्नति दें संबंधित कार्य साँप देने वाले।

1. अशोक मेहता समिति के आधार पर ही पहली बार पंचायत राज से संबंधित 43 अधिकारियों संबंधित संस्कृति व शासन संबंधित सदन में आए परंपरा बीजाड़। लेकिन अंत में 1992 में 73 अधिकारियों संबंधित संस्कृति से पारित किया गया जो जनवरी 1993 को प्रारंभी हुआ। इस व्यवस्था ने सारी रूप में पंचायती राज व्यवस्था को

* विस्तारक व्याख्याता, राजनीति विज्ञान विवाद, राजकीय महिला महाविद्यालय, महेंद्रगढ़, हरियाणा।
** विस्तारक व्याख्याता, इतिहास विभाग, राजकीय महिला महाविद्यालय, महेंद्रगढ़, हरियाणा।

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नया जीवन प्रदान किया। पंचायती राज प्रारंभ सर्वप्रथम आदेश व राजस्थान में 2 अक्टूबर 1959 में लागू किया गया। पंचायती राज संस्थाओं की संरचना अलग-अलग राज्यों में अलग-अलग की गई है। देश के अधिकांश राज्यों में जहां पंचायती राज के तीन स्तर हैं - कहीं कुछ राज्यों में दो व एक स्तर की पंचायती व्यवस्था है।

2. जीवनवी राज समिति की रिपोर्ट :- राज समिति ने अपनी रिपोर्ट दिसंबर 1985 में दी थी। इसमें कहा गया कि पंचायतों की आर्थिक स्थिति उनके बुनावृत्ती और कार्यक्रमों को लेकर राज्य सरकारें उदासीन हैं तथा इसके सृजन के लिए भी सुझाव दिए।

3. एलएम सिद्धी की रिपोर्ट :- 16 जून 1986 को पंचायती राज संबंधी संकल्पना प्रतिष्ठित करने के लिए यात्री किया गया। भारत सरकार ने सिद्धी की आयश्चर्य का धन किया। इसमें अपने अधिक बहुत सी पंचायतों का गठन किया गया। परंतु संबंधित संस्थान पंचायती राज में महत्वपूर्ण सुधारों के लिए मौल का पत्थर सिद्ध हुआ जिसमें निम्नलिखित सुधारों को लागू किया गया :-

- पंचायती राज संस्थाओं को संवैधानिक स्तर प्रदान करना।
- ग्राम समा का प्रारंभ।
- त्रितीय पंचायती व्यवस्था की स्थापना।
- पंचायत बुनावतों में आर्थ्य।
- महिलाओं के लिए आर्थ्य।
- समापति व अवध्य के लिए आर्थ्य।
- शिक्षाकी जातियों के लिए आर्थ्य।

आदि सुझाव 73वें सालिश्च संस्थान में लागू किया गया। इसी कड़ी में 74वें संस्थान के अंतर्गत नवरस्तातिकमें की भी स्थापना की गई।

अतः अनुमा है कि भारत यदि दुनिया का सबसे बड़ा लोकतात्त्विक देश है तो पंचायती राज व्यवस्था इसका आधार है और यही पंचायती राज व्यवस्था भारत के सही रूप से लोकतात्त्विक होने का योग्य प्रदान करती है।

संदर्भ ग्रंथ सूची :-

1. भारतीय प्रशासन– अवस्था एवं अवस्था।
2. निबंध सौरभ – विचार अग्रवाल।
3. भारतीय प्रशासनिक व्यवस्था – गौतम वीर।
4. भारतीय प्रशासन एवं राजनीति – समग्रनाथ वर्मा।
5. भारत में पंचायती राज – ड्र. शिवमान।
6. भारत में स्थानीय स्वतंत्रता – अशोक राम।
7. भारत में स्थानीय शासन – श्रीराम माहेशवर।

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रिजर्व बैंक ऑफ इंडिया के कार्य एवं भारत के आर्थिक विकास में भूमिका

अर्जय शर्मा *

किसी भी राष्ट्र या समाज का विकास वर्तमान परिदृश्य में बहुत हद तक पूर्विकता निवेश के साथ-साथ आर्थिक नीति व भौगोलिक नियंत्रण पर निर्भर करता है। सामान्यतः भौगोलिक नियंत्रण का कार्य किसी भी राष्ट्र में एक केंद्रीय बैंक द्वारा किया जाता है। इसी दिशा में भारत में भी एक केंद्रीय बैंक की स्थापना रिजर्व बैंक ऑफ इंडिया एवं 1934 के तत्तत 1 अप्रैल 1935 को अग्रेजी शासन के दौरान स्थापित की गई। आर्थिक आईक ने भारत की स्थापना के 5 करोड़ रु. की अधिकृत पूंजी से की गई। पुरातन अर्थव्यवस्था व भौगोलिक नियंत्रण में सुधार हेतु यह एक लम्बे समय का परिणाम था। सविनय आर्थिक आईक की स्थापना हेतु 1773 मार्च लैटिन ने एक केंद्रीय बैंक का सुझाव दिया था। इससे आगे चलकर समय-समय पर विदेश आयोग व अधिकारियों के द्वारा दिशा प्रदान की गई। विदेशी सुधारों व प्रायांकों के परिणामस्वरूप भारतीय विधिविधान समा में 8 सितंबर 1933 को आर्थिक आईक ब्रिटिश प्रस्तुत किया गया जिस पर 6 मार्च 1934 को मार्च तथा आर्थिक आईक के अंतर्गत भारतीय आर्थिक आईक की अधिशालिनी खड़ी हुई। सर ऑस बॉन रिक्त को आर्थिक आईक का प्रथम गवर्नर नियुक्त किया गया वर्तमान समय के राष्ट्रम राजन इस पद पर है। रिजर्व बैंक के सर्वोच्च पद गवर्नर के पद पर प्रारंभ से वर्तमान तक कुल 23 व्यक्तियों ने सुनिश्चित किया है जिनकी सूची निम्नलिखित है—

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* शोचार्य, राष्ट्रवाद विविधविद्यालय, जयपुर
आर्थिक आई का वर्तमान स्वरूप स्वतंत्र भारत के बाद माना जा सकता है जब भारत सरकार द्वारा 1 जनवरी 1949 को आर्थिक आई का पूर्णतः राष्ट्रीयकरण कर दिया गया। आर्थिक आई का वर्तमान स्थिति निम्नलिखित रूप से है:

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- 20 संबंधीकरण
- गवर्नर
- एक सर्वोच्च पूर्णकालिक अधिकारी
- हिमाचल मार्गर
- सभी पूर्णकालिक अधिकारी
- संचालक
- पंद्रह सभी अंतर्देशक
- भारत सरकार द्वारा मनोनीत
- 4 स्थानीय मण्डलों द्वारा मनोनीत
- 1 भारत सरकार द्वारा मनोनीत अधिकारी
- स्थानीय मण्डल
- पूर्वी क्षेत्र कलकत्ता
- पश्चिमी क्षेत्र मुंबई
- उत्तरी क्षेत्र नई दिल्ली
- दक्षिणी क्षेत्र चेन्नई

सभी स्थानीय मण्डलों में भारत सरकार द्वारा मनोनीत पौंच-पौंच निदेशक
आर्थिक कार्य—
रिजर्व बँक ऑफ़ इंडिया भारत का केंद्रिय बँक है जो किसी अन्य देशों के केंद्रिय बैंकों की माति वे समस्त कार्य का निवाह करता है जो किसी भी केंद्रिय बैंक के लिए अपेक्षित है। मौतीर्थ पर आर्थिक आर्थिक 1394 की प्रस्तावना के अनुसार इस बैंक का मुख्य कार्य बैंकों, नोटों के निर्माण का नियमन करना तथा भारत में मौद्रिक स्थायित्व रखने हेतु कोषों को रखना व चलन तथा साहित्य व्यवस्था का सामान्य राज्यीय हित में संचालन करना है। उज्जवल प्रस्तावना के अनुसार भारतीय रिजर्व बैंक ऑफ इंडिया के निम्नांकित कार्य हैं—
1. नोटों का निर्माण — आर्थिक आर्थिक को एक रूपये के नोट के अतिरिक्त सभी नोटों का निर्माण करने का एकाधिकार है।
2. सरकार का बैंकर
3. सरकार का अभिक्रिया एवं सलाहकार
4. बैंकों का नियन्त्रण व निरीक्षण
5. भारत का सार्वजनिक ऋणदाता
6. विदेशी विनियम पर नियन्त्रण
7. समावेशदान कार्य
8. साइक नियन्त्रण
9. बैंकिंग कार्य— बैंकों को लाइसेस्प्रेशन प्रदान करना, बैंकों का प्रबंध, शाखा विस्तार व निरीक्षण सम्बन्धित कार्य।
10. मुद्रा हर्सातरण
11. मुद्रा विनियम
12. अन्तर्राष्ट्रीय सस्त्रात्मक से तेज—देन
13. बैंकिंग शिक्षा एवं पश्चिमान
14. बैंकिंग पौर्विक निम्नांकित
15. आर्थिक आकड़ों का प्रकाशन
16. राज्यीय विकास येत्वे विश्व उपलब्ध करवाना।

भारत के आर्थिक विकास में आर्थिक आर्थिक की श्रुतिका
रिजर्व बैंक भारत का केंद्रिय बैंक होने के नाते भारत के आर्थिक विकास में इसका महत्वपूर्ण योगदान माना जाता है रिजर्व बैंक बैंकिंग मौद्रिक व साइक नीति का निम्नांक व संचालक है अत: समय —समय पर इस नीतियों में आवश्यक परिवर्तन कर देश के आर्थिक विकास का दिशा प्रदान करता है तथा आर्थिक विकास हेतु आवश्यक पूंजी उपलब्ध करवाता है। मोटे तौर पर रिजर्व बैंक का भारत के आर्थिक विकास में मिल्य योगदान माना जा सका है—
1. पत्र मुद्रा का निर्माण एवं नियन्त्रण।
2. पूंजी निर्माण की प्रोत्साहन
3. बैंकिंग एवं वित्तीय संस्थाओं का विकास करना
4. विदेशी विनियम कोष प्रबंध
5. सार्वजनिक ऋण प्रबंध
6. सहकारी संस्थाओं का विकास में योगदान
7. आर्थिक विकास में संचालन बनाये रखना।
8. साइक नियन्त्रण
9. तकनीकी सहयोग प्रदान करना।
10. आर्थिक विकास हेतु पूंजी उपलब्ध करवाना।

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निष्कर्ष:

निष्कर्ष रूप से कहा जा सकता है कि आर्थिक आई भारत का केंद्रीय बैंक भोको के नाम देश के विकास का एक महत्वपूर्ण अध्याय रूप से है इसकी स्थापना का यही उद्देश्य रहा है कि भारत में नैतिक नीति में आर्थिक सुधार किया जा सके। विभिन्न बैंकों पर आर्थिक रूप से राष्ट्र हित व आर्थिक हितों के अनुरुप नियन्त्रण किया जा सके ताकि राष्ट्र का विकास एक सुनियोजित रूप से किया जा सके। इसके साथ-साथ विदेशी मुद्रा व ऊर्जा को नियंत्रित किया जा सके। रिजर्व बैंक की स्थापना से लेकर वर्तमान तक अगर मूल्यांकन किया जाये तो सम्बन्ध: इस स्पष्ट है कि भारत की अर्थव्यवस्था में सुधार व आर्थिक विकास को गति प्रदान करने में रिजर्व बैंक की अहम भूमिका रही है। समय-समय पर रिजर्व बैंक के द्वारा ऐसी नीतियों का संचालन किया गया है जो भारतीय अर्थव्यवस्था को मजबूती की दिशा प्रदान की है तथा विभिन्न आधारित, सामाजिक व कल्याणकारी योजनाओं के सफल संचालन में आर्थिक रूप से मूलभूत संसाधनों की पूर्ति हेतु आर्थिक पूंजी निर्यात भी किया गया है।

संदर्भ स्रोत—

1. बैंकिंग एवं वित्त – गुप्ता वाणिज्य स्वामी, आर बी डी, जयपुर।
2. प्रतियोगिता दर्पण समान्य अध्ययन – भारतीय अर्थव्यवस्था अध्यक्ष अतिरिक्तांक
3. अंतरराष्ट्रीय ध्वनि एवं वित्त – बी. एल. ओझा, आर बी डी, जयपुर।
4. आर्थीआई वेबसाइट

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**Introduction**

Environmental Accounting is an important tool for understanding the role played by the business enterprises in the economy towards the environmental safety and welfare. It provides data highlighting both the contribution of business enterprises to economic well-being and the costs imposed in the form of pollution or resource degradation.

Every business has an overriding responsibility to make the fullest possible use of its resources - both human and material. An enterprise is a corporate citizen. Like a citizen, it is judged by its actions in relation to the environment and society of which it is a member as well as by its economic performance. As far as Indian corporate sector is concerned, it is sad but true that it has not been performing as a good citizen. There are many laws that have been enacted and amended from time to time to make the corporate sector to fulfill its social responsibility for better development of Indian environment and economy. Therefore, recent years have witnessed rising concern for environmental degradation which is taking place due to increasing industrial activities. It may be noted here that the environmental degradation and pollution spoil human health, reduce economic productivity and lead to loss of amenities.

Manufacturing companies all over the world have realized the significance of energy conservation - utilization and measurement of cost and benefit pertaining to total energy of all forms such as electricity, fuel, gas, lubricant oil, conventional and non-conventional energy purchased, consumed and stored. The mitigation of energy resource use without impairing the quality and functions of the organization rendered the multi-national companies to stay competitive. The energy conservation in the firms brought cost reduction, cost leadership and market leadership. The western developed countries including USA, UK, France, Germany, Australia, Japan and New Zealand have recognized the concept of calculated energy consumption in their manufacturing and service sectors. The International Accounting Standards Board (IASB) identified and recognized the measurement of energy conservation under the name and style of **Environmental Accounting**.

The developing countries like India are facing twin problems of protecting the environment and promoting economic development. A trade-off between environmental protection and development is required. A careful assessment of the benefits and costs of environmental damages is necessary to find the safe limits of environmental degradation and the required level of development.

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It is known that there are limited resources available for the use of all species on the earth and the enormous damage is done to the environment due to the activities of the business enterprises. In fact, the industrial and business activities are directly and indirectly responsible for birth of incidences like the Bhopal Chemical Leak (1984), Tsunami in India (2004), etc.

The issue of corporate social responsibility and the sustainable industrial development has given birth to a new branch of accounting VIZ., Environmental Accounting. It is relatively a recent entrant in the domains of Accounting. Environmental Accounting was first adopted in Norway in 1970s and in India, it is followed only in industries like cement, oil and petroleum, power and electronics, steel, engineering and textile industries, etc.

**Definition of Environmental Accounting**

In recent years, environmental accounting has become a strong branch of accounting. The term environmental accounting can be explained at different levels.

National level environmental accounting is a method of keeping accounts of natural resources and other environmental elements. It involves valuation of natural resources, measuring income there from, keeping records of costs relating to them, estimating them and providing depreciations on them.

On the other hand, at corporate level, environmental accounting refers to the measurement and communication of information on the environmental responsibility performance of an entity to the interested parties. It is a part of corporate social responsibility and attempts to evaluate impact of organisational activities on environmental resources. While environmental financial accounting deals with collection, measurement and reporting of environmental information for external reporting purposes; environmental management accounting is concerned with presenting environmental data to management for internal decision-making.

**Factors inhibiting the Development of Environmental Accounting**

Improving the environment for sustainable development is possible and necessary. Environmental aspects of sustainable development add another dimension as to how to share the benefits and costs among and between current generation and future generation. This makes more sense to identify and measure environmental costs.

Accounting information system is a critical component of management information systems. It plays an important role in helping to protect the environment by making polluting production companies to take responsibility for the environmental protection - how the companies reflect in their accounts or how they might expose issues, ETC. However, necessary rules and regulations are necessary to protect the environment. Further, well established accounting guidelines are required.

**Forms of Environmental Accounting**

1. **Environmental Management Accounting:**
   Management Accounting focuses on material and energy flow information and environmental cost information. This type of accounting can be further classified into three sub-systems as presented below.
a. **Segment Environmental Accounting:** This is an internal environment accounting tool to select an investment activity or project related to environmental effects for a certain period.

b. **Eco-Balance Environmental Accounting:** This is also an internal Environmental Accounting tool to support sustainable environmental management activities.

c. **Corporate Environmental Accounting:** This is a tool to inform the public of relevant information compiled in accordance with the Environmental Accounting. It should be called Corporate Environmental Reporting. For this purpose, cost and effect (in quantity and monetary value) of its environmental conservation activities are used.

2. **Environmental Financial Accounting:** Financial Accounting focuses on reporting environmental liability costs and other significant environmental costs.

3. **Environmental National Accounting:** National Level Accounting focuses on natural resources, stocks and flows, environmental cost and externality cost, ETC.

**Review of Literature**

Many studies focused on the environmental issues in the past. For example, P. Caggti D. Viaggi G. Zanni has analyzed the problems relating to environmental protection involving a growing number of economic and social factors. The present environment requires not only innovations concerning policy instrument but also an evolution of tools such as those for environmental accounting and assessment. Similarly, another study focused on the growth in environmental accounting research and interest in the last few years (Rob Gray and Kan Bebbington). This study seeks to provide a review of current state of the art in environmental accounting research and illustrates the essence of the problem through the reporting of a new analysis of data from an international study of accounting, sustainability and transnational corporations. The authors conclude with a call for more explicit accounting research. Another study by Teoh and Thong (1984) investigates corporate social responsibility accounting and reporting from the point of view of a developing country. Their study was based on an interview with chief executive officers across 100 companies operating in Malaysia. Findings indicate that social reporting lags behind corporate social involvement and those corporate attentions are largely focused on activities relating to employees and products. Similarly, in another study using secondary data, Belal (2001) examines the social and environmental disclosure practices of a small number of publicly traded companies operating in Bangladesh. 30 annual corporate reports over a year were collected for analysis from companies listed on the country’s stock exchange. The study reveal that, on average, 13 lines were used by the companies to make social and environmental disclosures, which represents only 0.5 per cent of the average total number of lines contained in the annual reports of sample companies.
A further contribution is offered by De Villiers and Van Staden (2006) who utilize annual report content analysis to investigate the environmental disclosure practice of companies operating in South Africa. They made an analysis of more than 140 corporate annual reports over a 9-year period in order to identify the trends in environmental disclosure by South Africa companies. A further contribution by Bhate (2002) investigated the extent to which consumers of India are aware of environmental issues and it was found that Indians are most involved with environmental issues.

However, in India, very few corporations provide some information regarding environmental issues. If, as per requirement of applicable law, they have to prepare and submit information relevant to environment they have to make necessary preparation. The Environment Ministry has issued instructions in this regard to prepare environmental statement. It can be observed through their accounts that mainly the following types of information are given.

- What type of devices installed for pollution control
- Steps taken for energy conservation
- Steps taken for raw material conservation
- Step taken for waste water and production process waste
- Step taken for improvement of quality of product and services, process of production, ETC.

**Importance of the Study**

Environmental Accounting needs to work as a tool to measure the economic efficiency of environmental conservation activities and the environmental efficiency of business activities of companies as a whole. Management seldom tries to make proper arrangement to save the environment unless it is required by law as there is no direct relationship between investment and benefits. In many contexts, environmental accounting is taken to mean the identification and reporting of accounting for any costs and benefits that arise from change to a firm's products and processes where the change also involves environmental impact.

Business enterprises are facing the challenge of determining their true profits which are environmentally sustainable ones. It may be noted here that this requires companies to account for the environment. They should take account of most significant external environmental impacts to determine what profit level would be left if they attempted to leave the planet in the same at the end of the accounting period as it was in the beginning.

The benefits of undertaking an environmental accounting initiative include the identification and greater awareness of environment related costs providing the opportunity to find ways to reduce or avoid these costs, while also improving environmental performance. More elaborately, environmental accounting is an effective tool for placing environmental issues firmly on top management’s agenda, providing useful data to inform environmental and financial managers’ decision making, and concretely demonstrating environmental commitment to stakeholders.
Need for the Study
There is no consensus as to the constituents of environmental costs and benefits and their measurement. This poses a challenge in the form of quantification of environmental costs and benefits. Hence, there is a need to evaluate the procedure followed by the selected companies as to how they quantify the environmental costs and benefits and report the same to the stakeholders.

Scope of the Study
The scope of environmental accounting is very wide. It includes corporate level, national and international level. The following aspects are included in Environmental Accounting

1. **Internal Point of View**: Investment made by the corporate sector for minimization of losses to environment. It includes investment made into the environment saving equipment. This type of accounting is easy as money measurement is possible.

2. **External Point of View**: All types of losses are caused indirectly due to business operation/activities. They include, among others, the following.
   - Degradation and destruction like soil erosion, loss of biodiversity, air pollution, water pollution, voice pollution, problem of solid waste, coastal and marine pollution.
   - Depletion of non-renewable natural resources, loss emerged due to over-exploitation of non-renewable natural resources like minerals, water, gas etc.
   - Deforestation.

From the above, it clear that there is a great deal of scope to environmental accounting research within the context of developing countries. Some of the contemporary social and environmental issues such as climate change and greenhouse gas emissions affecting the global community are also believed to be key issues of research to the scholars in both developed and developing countries.

Objectives of the Study
1. To make a brief review of accounting regulations and government rules relating to Environmental Accounting.
2. To analyze the corporate strategies towards environmental safety and protection.
3. To evaluate the corporate practices relating to the quantification of environmental costs and benefits.
4. To analyze the recognition procedure, recognition of environmental costs and benefits in the books of account – either in the financial statements and/or in the annual reports.
5. To make an evaluation of environmental accounting practices, including disclosure practices, of selected Indian companies.
6. To offer suggestions for the improvement of quantification and reporting system.

Data Analysis
The analysis of accounting standards and guidelines in different countries showed that the accounting standards setters at the international and national levels have generally chosen to avoid dealing directly with the topic of environmental issues in financial reporting.
Till date, only a few international standards exist concerning how environmental issues may be treated in annual reports. The recommendations of the UN ISAR group and the EU represent worthy attempts by non-accounting organizations to fill the gap and should be taken forward by various accounting standard setters.

Till date, in India, there is no financial reporting or auditing standard dealing explicitly with social, environmental or sustainability related issues. The current financial accounting framework in India appears to be ill-equipped to provide the information required by various internal and external stakeholders on environmental costs and liabilities, environmental risks involved in their investments, social costs or externalities and steps taken by companies to reduce global warming and improve sustainability. This shows that the accounting profession in India has yet to display significant role in sustainability. It should contribute in this area by developing an environmental and sustainability reporting framework on the lines of those developed by FEE and GRI. Environmental reporting should be made mandatory in India. Moreover, in order to provide relevant, reliable and comparable information to the interested stakeholders, it is necessary that only duly audited information is provided to them. This gives rise to the need for independent environmental information audit.

Conclusion

Generally, the CAS felt that 'environment' is a big challenge for business these days and companies must establish an efficient system of environmental management to take care of it. Establishment of a good EMS helps in maintaining clean and green environment around the factories, controlling pollution emission and thereby meeting legal standards in this area. The executives also found environment as one of the most important challenges faced by them. An examination of actual practices showed that about 90 percent of the companies already had EMS in their organizations, while some companies were planning to introduce it in near future.

An analysis of environmental accounting practices of the sample companies also revealed that a large majority of the companies did not prepare environmental accounts for external reporting mainly because ‘it is not mandatory’. ‘No specific standards on the issue’ was cited as another reason for non-preparation of these accounts. Thus, a significant expectation gap exists in this area. While users want that companies should prepare environmental accounts, companies do not prepare these accounts mainly because this is not required by law. However, 54 percent of these companies informed that they generated some environmental cost information for internal decision-making. The study found popularity of the concept of environmental accounting in India only at the management accounting level.

The respondents generally felt that companies in India do not give environmental information because the disclosure may jeopardize confidentiality in the sensitive areas and thereby, may adversely affect their competitive position.
A large majority of the CAs were in favor of mandatory disclosure of environmental information. About three-fourths of the executives were also of the same view. They felt that compulsory environmental information disclosures will increase seriousness in the issue and will lead to overall increase in environmental reporting by Indian companies.

The CAs recommended that a company should use environmental information for both internal decision-making and external reporting. They felt that companies must disclose qualitative as well as quantitative information on these issues. Most of them preferred disclosure of this information in separate environmental statements to 'highlight its importance' and to 'avoid any confusion'. Furthermore, they also approved disclosure of qualitative information in the Director's Report.

A large majority of the CAS were of the opinion that environmental statements prepared by a company should be verified by an auditor to 'increase credibility of information provided' in them. They felt that this audit will also help a company in complying with environmental laws. They, in general, favored appointment of a team, mainly comprising of external environmental auditors to do this task. ‘Chartered accountants’, ‘engineers’ and ‘cost accountants’ may also form a part of this team to handle specific tasks, according to them.

The study reinforces a great need for development of a separate conceptual framework and a standard on EAR to help companies in properly identifying, measuring, recognizing and disclosing relevant environmental costs, benefits, assets, liabilities and contingencies.

Hence, it is recommended that professional accounting bodies at national and international levels should develop a separate conceptual framework on EAR (on the lines prescribed by FEE) specifying objectives, general assumptions, qualitative characteristics and guidelines for the companies. A standard should also be issued giving basis on which environmental costs should be bifurcated from other costs, basis for expensing and capitalization of environmental costs, depreciation of environmental assets, recognition of environmental benefits and measurement and recognition of environmental liabilities and contingencies. Some guidelines should also be provided for treatment of environmental costs relating to prior period in the books of accounts and on recovery and impairment of environmental assets. Existing accounting standards can also be modified to take care of environmental issues. The ICAI should also develop a separate standard on Carbon (Emission and Sequestration) Accounting (CES Accounting) which needs to be consistent with the Intergovernmental Panel on Climate Change (IPCC) principles. In addition, the measurement of externalities, tax treatment of environmental activities and verification of an entity's environmental accounts by independent duly qualified assurors are some other issues to be considered by the ICAI.
References:

Valuation methods of Human resource Accounting in a Industry

Ved Prakash, * Dr. Sudhir Lamba **

Abstract

Human resource accounting has very high significance not only for the management, but also for analyst and even for employees. It helps management in better utilization, planning management of human resources in the organization while for analyst, Even today, when a good deal of work has been done in this field, it is very much unfortunate that there is not only set pattern or generally accepted method either for valuation of human resource or for their recording in books of accounts or for the disclosure of information by means of different statements. The study focuses on the calculation of the value of human resources at different levels of organization & to determine the human resource efficiency quotient. The incorporation of the value of HR is very expensive and not easy to calculate the value of HR and if they calculate it, then the value will not indicate the true position of human resource. That is why firms also need to search people those are on capital investment along with capital (money) while many entrepreneurs are focused on securing capital they have to make sure they have the right management team and employer in place if they want to attract investor create value and maximum wealth. Solid management team in what sets a company apart with venture capitalists. The article highlights the significance of Human resource valuation and methods to measures human assets value. The article describes views of the authors and finds out the organizations those have tried to implement human resource accounting. The article depicts the advantages of human resource valuation.

Introduction:

Human Resources constitutes the most valuable asset in the context of development, which is always helpful for the growth of nation, of region of economy, of sectors of industries as well as corporate experiences are critically linked to quality of human talent contribution. It is a non fact that success of an organization depend on the quality, caliber and character of the people working in it. Employees are thus, the greatest asset of an organization and the success or failures depend on the skill and the performance of the employee. In spite of the vast physical resources and the latest technology an organization fails if it does not have the right people to manage and conduct its affairs.

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For instance in the case of an IT firm, the value of its physical asset is negligible as compared to the knowledge and skill of its Personal. Similarly in hospital, academic institutions, consulting firms etc. the total worth of the organization depends mainly on the skills of its employees and the services they render. In knowledge driven economies, therefore it becomes necessary that the human be recognized as an integral part of the total worth of an organization.

However in order to estimate the worth of an organization, it is necessary that some method of qualifying the worth of the knowledge, skills and contribution of human element as well as that of the organizational process like recruitment, selection, training etc which are used to build and support the human resource aspect is developed. Human Resource accounting devotes this process of measurement of human resource.

The American Accounting Association Committee on Human Resource Accounting has defined Human Resource Accounting as “The process of identifying and measuring data about human resources and communicating this information to interested parties”.

From the above definition it is clear that Human Resource Accounting not only involves measurement of the costs increased on recruitment, placement, training and development of employee but also the quantification on the values of the people in the organization.

Objectives of Human Resource Accounting:-
According to Likert, HRA serves the following purposes in an organization –
1. It provides cost / value information for making management decision about acquiring, allocating, developing and maintaining human resources in order to attain cost effective organization objectives.
2. It helps management personnel to monitor effectively the use of human resources.
3. It assists in maintaining a sound and effective basis of human asset control, i.e. whether the asset is appreciated, depleted or conserved.
4. It helps in the development of management principle by classifying the financial consequences of various practices.

From the above, it is cleared there are two important aspects of HRA:-
1. Valuation of Human Resources.

1. Valuation of Human Resources: -
The biggest challenge in the HRA is that of assigning monitory value to different dimension of HR costs, investment and worth of the employees. The two main approaches usually employed for this are: -
(a) Cost Approach.
(b) The Economic Value Approach
(a) Cost Approach :-

This involves method based on the costs incurred by the company with regard to an employee. Under this the following method are involved:-

(i) Historical Cost Approach: -

In this approach actual cost incurred on recruiting, hiring, training and developing the human resources of the organization are capitalized and amortized over the expected useful life of the human resources. But the main drawback of the method is the estimation of the number of years over which the capitalized expenditure is to be amortized and secondly the economic value of human resources increases over time as the people gain experience, this thing is also ignored in this method.

(ii) Opportunity Cost Approach:-

This approach is based on the calculation of what would be returns is the money spend on HR is spent on something else. Therefore this method is seen to be not as objective as desired. Hence its use in restricted to internal reporting not external.

(iii) Replacement Cost:-

This method considers the costs that what would have to be incurred if present employees are to replaced. Under this we include positional replacement cost related to replace the services rendered by an employee only to particular position and personal replacement cost related to replace all the services expected to be rendered by the employee at the various positioning that he might have occupied during his work in the organization.

Economic Value Approach :-

This includes methods based on the economic values of the human resources and their contribution to the company’s gains. This approach looks human resources as asset and tries to identify the benefits flowing from this asset. The methods for calculating the economic values are as follows:-

(i) Present value of Future Earning Model :-

This model has been developed by Lev and Schwartz in 1971. They divided the total labour force into certain homogeneous group such as unskilled, semi skilled, technical staff and managerial staff etc and in accordance with different classes and age group. Average earning stream for different classes and age groups are prepared for each group separately and the present value for the human capital is calculated based on cost of capital. The aggregate present value of different group represents the capitalized future earning of the firm as a whole. The formula for calculating the value of an individual:-

\[ V_r = \frac{I(t)}{(1+R)^T} \]

Where

- \( V_r \) = the value of an individual \( r \) year old
- \( I(t) \) = the individual’s annual earning upto the retirement.
- \( T \) = retirement age
- \( R \) = discount rate
The main drawbacks of this model are:

1) This model ignores the possibility of leaving the organization by an employee for reasons other than death or retirement.
2) This model is based on the assumption that employees will not be transferred and promoted in the organization.
3) This model ignores security, bargaining capacity; skill and experience etc which may affect the payment of higher or lower salaries.

2. Flameholtz’s Stochastic Rewards Valuation Model: -
This model is an improvement over the Lev and Schwartz. It is based on the assumption that an individual generates value as he occupies and moves along organizational roles and renders services to the organization. It presupposes that a person will move from one state in the organization to another during a specified period of time. This model necessitates the following information:

 a) Forecasting the period as person will remain in the organization.
 b) Identify the services state that he might occupy in the system during his / her carrier.
 c) The value of each state to the organization.
 d) Estimate the person’s expected tenure in the organization.
 e) The discount rate to be applied in the future cash flows.

The main drawback of this method is that it is difficult to make the necessary estimates of the values of the service states, the expected tenure and the probability that the individual will occupy the state for the specified period of time. If this information can be made available, this model emerges as one of the most sophisticated model for determining the value of individual.

Recording and Disclosure of Information: -
As per the statutory requirement concerned the Companies Act, 1956 does not provide any scope for furnishing any significant information about human resources in financial statement. Beyond it there are no rigid instructions on behalf of the Companies Act, 1956 to attach information about the value of human resources and the result of their performances during the accounting year in notes and schedules. The Institute of Chartered Accountants of India too has not been able to bring any definitive standard or measurement in the reporting of human resources cost. While qualitative pronouncements regarding the importance of human resources often made by the chairman in the AGM, Quantitative information about their contribution is rarely recorded or communicative.

There are few organizations that they recognize the value of their human resources and furnish the related information in their annual reports. In India some of these companies are – Infosys, BHEL, SAIL, The Mineral and Metal Training Corporation of India Limited (MMTC), Engineers India Limited, The Oil and Madras Refineries India Limited. These industries show the human resource accounting information in the form of supplementary information attached to the financial statement.
Importance of HRA: -

i) Basically HRA is a management tool which assists senior management in undertaking long term cost and benefit implication of their HR decisions so that better decision can be taken.

ii) HRA provides required information to the HR professional to manage the human resources efficiently and effectively.

iii) HRA provides the investor with more complete and accurate information about organizations that worth to take investment decisions.

iv) HRA reflects the extent to which organization contributes to society’s human capital by investing in its development.

Problems of HRA: -

No doubt HRA provides valuable information both for Management and outsiders yet its development and application in different industries and organizations has been very encouraging because of lack of specific and clear cut guidelines for finding cost and value of human resource of an organization. Secondly, Uncertainty regarding life of human resources and therefore valuing them under uncertainty seems unrealistic. Thirdly, tax laws do not recognize human being as assets. So human resource accounting has been reduce to a merely theoretical concept.

Conclusion:

The concept of HRA is still at the experimental developmental stage. Very few firms have introduced this system in few organizations because of the fact there is no universally accepted method of human asset valuation. So there is an urgent need for evaluating a method which could be universally acceptable and side by side sound human resources information system. In those organizations where the data is not routinely maintained the first step towards HRA will have to be HRIS. Overall, even valuing human resources appear to be important to Indian organizations, most organizations do not value their human resources and plans to implement valuation of human resources are at a very early stage. Despite the interest in valuation there will be little or moderate progress in the area over the next five to ten years. In order to show greater progress, more needs to be done at both the theoretical and practical level. More search into valuation methods and models, and the practical implication of these, is needed together with the engagement of both human resource and accounting professionals in the debate on valuation and its implementation in practice.

References:


⭐⭐⭐
Eco Industrial Development in India

Dr. Anurag Mittal *

Introduction:
India is becoming one of the fastest growing economies in the world. With new policies such as the National Manufacturing Policy, the Government of India envisions to increase the manufacturing sector’s contribution to GDP by 25%. This goal is to be achieved by 2022, together with an increase of competitiveness as well as double the employment in this sector. This clearly shows that the industrial sector in India will assume more importance than ever before.

However, the last few decades have made it evident that economic development does not happen in isolation from environmental protection and social progress. Technological progress, globalisation of trade and commerce, a growing knowledge base as well as active participation of the civil society need to come together to achieve sustainable development.

Eco Industrial Development is a promising strategy for promoting sustainable industrial development, while tackling environmental, economic and social aspects in a balanced manner. The Indian Government has taken many initiatives in this regard.

A number of environmental approaches to doing business have been promoted in the recent past including; industrial ecology, pollution prevention, environmental management systems, green building design, life cycle design, design for the environment, green productivity, and other strategies to “green” businesses. Eco-industrial development offers a setting that all of these approaches to “greening” of industry can come together. Eco-industrial development is a framework for industrial development that has room for all of these “greening” strategies.

The definitions of eco-industrial development from the President’s Council on Sustainable Development are provided:

“A community of businesses that cooperate with each other and with the local community to efficiently share resources (information, materials, water, energy, infrastructure and natural habitat), leading to economic gains, gains in environmental quality, and equitable enhancement of human resources for the business and local community.”

“An industrial system of planned materials and energy exchanges that seeks to minimize energy and raw materials use, minimize waste, and build sustainable economic, ecological and social relationships.”

-- President’s Council on Sustainable Development (1996)

As environmental regulations and community pressures rise, businesses will be interested in proactive strategies that address those concerns, including eco-industrial development.

* Saharanpur, Uttar Pradesh
The benefits to communities and businesses for adopting eco-industrial development strategies are numerous, depending on the local conditions. Table 1 lists some of the potential benefits to communities, the environment, and businesses.

**Table 1**

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<thead>
<tr>
<th>Communities</th>
<th>Environment</th>
<th>Business</th>
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<tr>
<td>Expanded local business opportunities</td>
<td>Continuous environmental improvement</td>
<td>Higher profitability</td>
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<tr>
<td>Improved tax base</td>
<td>Reduced pollution</td>
<td>Enhanced market image</td>
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<tr>
<td>Community pride</td>
<td>Innovative environmental solutions</td>
<td>High performance workplaces</td>
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<td>Reduced waste disposal costs</td>
<td>Increased protection of natural ecosystems</td>
<td>Improved efficiency</td>
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<td>Improved environment and habitat</td>
<td>More efficient use of natural resources</td>
<td>Access to financing</td>
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<tr>
<td>Recruitment of higher quality companies</td>
<td>Protection and preservation of natural habitat</td>
<td>Regulatory flexibility</td>
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<tr>
<td>Improved health for employees and community</td>
<td></td>
<td>Higher value for developers</td>
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<tr>
<td>Partnership with business</td>
<td>Minimized impact on infrastructure</td>
<td>Reduction of operating costs (i.e. energy, materials)</td>
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<td></td>
<td>Enhanced quality of life near eco-industrial development</td>
<td>Reduction in disposal costs</td>
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<td>Improved aesthetics</td>
<td>Income from sale of by-products</td>
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<td>Good jobs</td>
<td>Good jobs</td>
<td>Reduction of environmental liability</td>
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<td>Improved public image</td>
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<td>Increased employee productivity</td>
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Over the last few decades, industrialisation is increasing substantively, especially in emerging economies like India. Industrialisation, if not properly planned, is associated with environmental risks caused by unrestrained consumption of natural resources.
resources, pollution, and disasters. The impacts of industrialisation get exacerbated with those of climate change. This situation calls for development of approaches that satisfy the growing needs of the Indian population without either damaging the natural environment irreversibly or contributing to climate change.

Internationally, there have been several concepts such as \textit{Industrial Ecology}, \textit{Eco Industrial Parks}, \textit{Resource Efficiency}, and \textit{Industrial Symbiosis}, which have been developed to combat the risks of industrialization and support sustainable development. In India too, as in most other parts of the world, several of these concepts have been applied in recent years. Successes from these concepts vary from one industrial sector or geographic region to another. These concepts, in one way or the other, support balancing environmental, social and economic interests. \textit{Eco Industrial Development} is an overarching framework and a subset of sustainable development, while \textit{Industrial Ecology}, \textit{Industrial Symbiosis} etc. are specific strategies.

Industrialization is an important driver for development. Focusing on proper planning and development of industrial areas, such as industrial estates, industrial parks, special economic zones, or investment zones could contribute significantly towards the goal of sustainable development.

Not only the industrial areas, but also the individual companies within these areas need to strive for achieving greater competitiveness by resource-efficient modes of production. Efficiency strategies play an increasingly important role for emerging economies such as India for becoming competitive locally as well as globally, especially in compliance of the recent conventions and treaties.

Eco-industrial development includes and employs four major conceptual instruments. Each of the approaches intends to combine the seemingly antithetic processes of industrial development and bolstering sustainability.\textbf{Industrial Ecology} is the study of the flows of materials and energy in industrial and consumer activities, of the effects of these flows on the environment, and of the influences of economic, political, regulatory, and social factors on the flow, use, and transformation of resources.\textbf{Industrial Symbiosis} is cooperation between different industries by which the presence of each increases the viability/ profitability of the other(s), and by which the demands of society for resource savings and environmental protection are considered.\textbf{Environmental Management Systems} are environmental management approaches that identify the environmental aspects of a company’s operations and legal requirements, establish environmental objectives and targets, create a set of management programmes to meet these objectives and targets, establish internal and external reporting systems including regular audits, reports to management, and provide follow-up on the audit findings and reviews to ensure continual improvement. \textbf{Design for the Environment} evolved out of product life-cycle analysis and concurrent engineering. This work considers all potential environmental implications of a product: energy and materials used in the product, its manufacture and packaging, transportation, consumer use, reuse or recycling, and disposal.
Eco-industrial development can take three forms - a co-located eco-industrial park, a virtual eco-industrial network, or a transformed existing industrial park. The most commonly recognized is the eco-industrial park. An eco-industrial park is a specific property that has co-located businesses that implement eco-industrial principles with one another. Virtual eco-industrial networks do not involve co-locating companies. By linking how materials (i.e. raw materials, wastes, products) move and exploring potential regional connections, this latter approach allows communities with large existing industrial bases to apply eco-industrial principles to create more sustainable businesses without having to relocate companies. A combination of both can also be effective. Eco-industrial development principles can also be applied to existing industrial parks to capitalize on the benefits that this approach has for businesses, the surrounding community, and the environment.

The concept of ‘Eco Industrial Parks’ (EIP) has been first described at the United Nations Conference on Environment and Development, Rio de Janeiro 1992. Eco Industrial Parks are a promising strategy to promote sustainable industrial development and to improve the industries’ environmental performance in terms of management of materials, energy and waste. The Eco Industrial Parks provide substantial benefits for participating companies, for the neighborhood and for the region. The commonly accepted international definition earlier was based on the one initially created by an Indigo Development team in 1992 and then expanded for the US-Environmental Protection Agency in 1995. It was refined in 2001 by Ernest Lowe in an Eco Industrial Handbook published by the Asian Development Bank:

“An eco-industrial park or estate is a community of manufacturing and service businesses located together on a common property. Member businesses seek enhanced environmental, economic, and social performance through collaboration in managing environmental and resource issues”.

However, the term ‘eco industrial development’ needs a new definition in the context of changing scenarios, especially in situations like in India, and different facets of eco-industrial development. Some of the existing examples are looked into for arriving at a strategic approach for the Indian scenario.

India has over three million Small and Medium Enterprises (SMEs). Since the beginning of planned economic development, India has followed a policy for the development of industrial estates and industrial parks to facilitate the establishment of small and medium industrial units. Special Economic Zones (SEZ) have been developed to host bigger companies. Recent trends show setting up of Special Investment Zones/Regions, National Manufacturing and Investment Zones (NMIZ), and Petroleum Chemicals and Petrochemical Investment Zones (PCPIR), in addition to the SEZs and the more traditional industrial estates and industrial parks.

Many existing industrial estates face severe environmental problems due to the lack of environmental infrastructure. With regard to Common Effluent Treatment Plants (CETP), as per a study of the Central Pollution Control Board (CPCB) in 2005, only 6.4 % of about 78 CETPs studied comply with the standards.
With regard to wastes, there still are problems associated with Hazardous Wastes, e-wastes, and non-hazardous industrial wastes. Towards the end of the Tenth Five Year Plan (2002-03 to 2006-07), there were many schemes for the improvement of these estates as well as industrial clusters outside the estates. However, a Comprehensive Environmental Pollution Index (CEPI) which was developed by CPCB for industrial estates showed that as per the initial study taken up for 88 industrial areas in 2009–10, 43 of these areas were critically polluted with respect to one or more environmental components.

High growth rates of industry and pollution problems potentially increase pressure on climate and the environment. Fortunately, environmental and climate change issues are high on India’s political agenda and initiatives have been taken by the towards climate friendly and sustainable development. The National Environmental Policy (2006), the National Action Plan on Climate Change (2007), the Low Carbon Inclusive Growth Strategy (2011), and the National Manufacturing and Investment Zone Policy (2011) are a few to name.

The Government has notified emission and effluent standards under the Environment (Protection) Act 1986. The concerned State Pollution Control Boards/ Pollution Control Committees along with the Central Pollution Control Board (CPCB) monitor the effluent discharges, emissions and wastes. As in the year 2009, a total number of 2,504 industrial units have been identified as polluting, out of which 1,810 have set up pollution control facilities to comply with standards, 265 are defaulting, and 429 have been closed. The Charter on Corporate Responsibility for Environmental Protection (CREP) covers 17 categories of highly polluting industries that provide for voluntary pollution control commitments by various industry sectors.

Conclusions

The industrial sector is a key driver of India’s impressive economic growth and, supported by the Indian government, it will continue to expand. Well-aware of the current environmental challenges, the Indian government and the industrial sector are giving much attention to sustainable development. First successes in balancing economic development, environmental protection and social progress are already visible.

With this focus, the government and the industry have applied the Eco Industrial Development approach in the Indian context. The government has developed suitable framework conditions at the policy level enabling the effectual implementation on industrial park and industry level. GIZ has supported the process of policy development and implementation of measures at all levels and will continue to do so in the future.

It is seen that on the industrial park level, the challenge of Eco Industrial Development can be tackled by developing new as well as by transforming existing parks into Eco Industrial Parks. The advantages are obvious.
References:


Various Applications of differential equations in different fields
Dr. Sharmila Kumari *

Introduction:
Many practical problems in science and engineering are formulated by finding how one quantity is related to, or depend upon, one or more (other) quantities defined in the problem. Often, it is easier to model a relation between the rates of changes in the variable rather than between the variables themselves. This study of this relationship gives rise to differential equation. Derivatives can always be interpreted as rate. For example, if \( x \) is a function of \( t \) then \( \frac{dx}{dt} \) is the rate of \( x \) with respect to \( t \). If \( x \) denotes the displacement of a particle, then \( \frac{dx}{dt} \) represents the velocity of the particle. If \( x \) represents the electric charge then \( \frac{dx}{dt} \) represents the flow of charge that is the current. Derivatives of higher orders represents rate of rates. If \( x \) denotes the displacement of particle, then \( \frac{d^2x}{dt^2} \) represents the accelerations.

A differential equation can be defined as an equation containing derivatives of various orders and variables. Differential equation which involves one independent variable are called ordinary differential equation. If the differential equation involves more than one independent variable and partial derivatives of the dependent variable with respect to them, than it is called partial differential equation.

Solving linear differential equations using operator method
I will first introduce what differential equation is? Separable first order differential equation will be solved. Then the integrating factor will be taught to solve linear differential equation of the first degree. The auxiliary equation (or characteristic equation) will be introduced to solve homogeneous linear equations, and then operator method will be taught finally to solve non-homogeneous linear equations. In these equations, \( y \) is an unknown function depends on \( x \) which we would like to solve. These kinds of equations are very important in different fields, like in chemistry describing rate of reaction, physics describing equation of motion, etc. Therefore, able to solve these equations analytically enables us to understand many natural processes. The above equations are known as ordinary differential equations (ODE) since they only contain derivatives with respect to one variable, \( x \).

In mathematics, an ordinary differential equation is a relation that contains functions of only one independent variable, and one or more of their derivatives with respect to that variable. A simple example is Newton's second law of motion, which leads to the differential equation for the motion of a particle of constant mass. 

* Assistant Prof. in Mathematics, Mahila Mahavidyalaya Jhojhu Kalan, Bhiwani, HR
In general, the force \( \mathbf{F} \) depends upon the position \( \mathbf{x}(t) \) of the particle at time \( t \), and thus the unknown function \( \mathbf{x}(t) \) appears on both sides of the differential equation, as is indicated in the notation \( \mathbf{F}(\mathbf{x}(t)) \).

Ordinary differential equations arise in many different contexts including geometry, mechanics, astronomy and population modelling. Many famous mathematicians have studied differential equations and contributed to the field, including \( \text{Abraham} \) \( \text{Newton} \), \( \text{Gottfried} \) \( \text{Leibniz} \), the \( \text{Bernoulli} \) family, \( \text{Jacopo} \) \( \text{Riccati} \), \( \text{Joseph} \) \( \text{Clairaut} \), \( \text{Jean} \) \( \text{d'Alambert} \) and \( \text{Leonard} \) \( \text{Euler} \). Much study has been devoted to the solution of ordinary differential equations. In the case where the equation is linear, it can be solved by analytical methods. Unfortunately, most of the interesting differential equations are non-linear and, with a few exceptions, cannot be solved exactly. Approximate solutions are arrived at using computer approximate.

**Some Application of Differential Equations**

**Application 1: Exponential Growth – Population**

Let \( P(t) \) be a quantity that increases with time \( t \) and the rate of increase is proportional to the same quantity \( P \) as follows
\[
\frac{dP}{dt} = kP
\]
where \( \frac{dP}{dt} \) is the first derivative of \( P \), \( k > 0 \) and \( t \) is the time.

The solution to the above first order differential equation is given by
\[
P(t) = A e^{kt}
\]
where \( A \) is a constant not equal to 0.

If \( P = P_0 \) at \( t = 0 \), then
\[
P_0 = A e^0 \quad \text{which gives } A = P_0
\]
The final form of the solution is given by
\[
P(t) = P_0 e^{kt}
\]
Assuming \( P_0 \) is positive and since \( k \) is positive, \( P(t) \) is an increasing exponential. \( \frac{dP}{dt} = kP \) is also called an exponential growth model.

**Application 2: Exponential Decay - Radioactive Material**

Let \( M(t) \) be the amount of a product that decreases with time \( t \) and the rate of decrease is proportional to the amount \( M \) as follows
\[
\frac{dM}{dt} = -kM
\]
where \( \frac{dM}{dt} \) is the first derivative of \( M \), \( k > 0 \) and \( t \) is the time.

Solve the above first order differential equation to obtain
\[
M(t) = A e^{-kt}
\]
where \( A \) is a non zero constant.

It we assume that \( M = M_0 \) at \( t = 0 \), then
\[
M_0 = A e^0 \quad \text{which gives } A = M_0
\]
The solution may be written as follows
\[
M(t) = M_0 e^{-kt}
\]
Assuming \( M_0 \) is positive and since \( k \) is positive, \( M(t) \) is an decreasing exponential. \( \frac{dM}{dt} = -kM \) is also called an exponential decay model.
Application 3: Falling Object

An object is dropped from a height at time $t = 0$. If $h(t)$ is the height of the object at time $t$, $a(t)$ the acceleration and $v(t)$ the velocity. The relationships between $a$, $v$ and $h$ are as follows:

$$a(t) = \frac{dv}{dt}, \quad v(t) = \frac{dh}{dt}.$$ 

For a falling object, $a(t)$ is constant and is equal to $g = -9.8 \, \text{m/s}$. Combining the above differential equations, we can easily deduce the following equation

$$\frac{d^2 h}{dt^2} = g.$$

Integrate both sides of the above equation to obtain

$$\frac{dh}{dt} = g \, t + v_0.$$ 

Integrate one more time to obtain

$$h(t) = \frac{1}{2} g \, t^2 + v_0 \, t + h_0.$$ 

The above equation describes the height of a falling object, from an initial height $h_0$ at an initial velocity $v_0$, as a function of time.

Application 4: Newton's Law of Cooling

It is a model that describes, mathematically, the change in temperature of an object in a given environment. The law states that the rate of change (in time) of the temperature is proportional to the difference between the temperature $T$ of the object and the temperature $T_e$ of the environment surrounding the object.

$$\frac{dT}{dt} = -k \, (T - T_e).$$

Let $x = T - T_e$ so that $\frac{dx}{dt} = \frac{dT}{dt}$.

Using the above change of variable, the above differential equation becomes

$$\frac{dx}{dt} = -k \, x.$$ 

The solution to the above differential equation is given by

$$x = A \, e^{-k \, t}.$$ 

Substitute $x$ by $T - T_e$.

Assume that at $t = 0$ the temperature $T = T_0$.

To - $T_e = A \, e^{0}$ which gives $A = T_0 - T_e$.

The final expression for $T(t)$ is given by

$$T(t) = T_e + (T_0 - T_e) \, e^{-k \, t}.$$ 

This last expression shows how the temperature $T$ of the object changes with time.

Application 5: RL circuit

Let us consider the RL (resistor $R$ and inductor $L$) circuit shown above. At $t = 0$ the switch is closed and current passes through the circuit. Electricity laws state that the voltage across a resistor of resistance $R$ is equal to $R i$ and the voltage across an inductor $L$ is given by $L \frac{di}{dt}$ (i is the current). Another law gives an equation relating all voltages in the above circuit as follows:

$$L \frac{di}{dt} + Ri = E,$$ 

where $E$ is a constant voltage.
Let us solve the above differential equation which may be written as follows
\[ L \left( \frac{di}{dt} \right) / (E - Ri) = 1 \] which may be written as
\[- (L / R) \left( \frac{d}{dt} \right) (E - Ri) = dt \]

Integrate both sides
\[- (L / R) \ln(E - Ri) = t + c , \text{ c constant of integration.} \]

Find constant c by setting \( i = 0 \) at \( t = 0 \) (when switch is closed) which gives
\[ c = (-L / R) \ln(E) \]

Substitute c in the solution
\[- (L / R) \ln(E - Ri) = t + (-L/R) \ln(E) \] which may be written\[ (L/R) \ln(E) - (L / R) \ln(E - Ri) = t \]
\[ \ln[E/(E - Ri)] = t(R/L) \]
Change into exponential form
\[ [E/(E - Ri)] = e^{t(R/L)} \]
Solve for i to obtain
\[ i = (E/R) \left( 1 - e^{-Rt/L} \right) \]

The starting model for the circuit is a differential equation which when solved, gives an expression of the current in the circuit as a function of time.

REFERENCES-

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