Vol. 006, No. 001, June 2019

RESEARCH AND REVIEW
An International Research Journal of Humanities and Sciences
(A Biannual & Bilingual Research Journal)

A Peer Reviewed Multidisciplinary Journal

Editor in Chief
Prof. Sugam Anand

Editor
Dr. Anil Kumar Verma

Managing Editor
Dr. Jai P. Sharma

Edited and Published
Innovative Group of Higher Learning & Research
Head Office C-91, Ganpati City, Bainpur, Behind Sikandra, Agra-07 (U.P.), INDIA
Website – researchandreviewblog.wordpress.com
Email: researchreview2014@gmail.com
EDITORIAL NOTE

This research journal publishes high quality research papers and articles on various areas of humanities & Sciences. The Journal aims at scientists, academicians, research scholars and students working & studying in various International universities, Research Institutions, Governmental and Non-Governmental organizations. The main objective is to create an environment of learning & fruitful academic interactions on various aspects of humanities & Sciences with the attainment of scientific productivity in all these areas.

All the research paper /articles are peer reviewed by the editorial board consisted of eminent academicians. The submitted research papers / articles should meet internationally accepted criteria and manuscripts should follow the style of the journal for the purpose of both reviewing and editing.
<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>CONTENT</th>
<th>PAGE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Indian Ethos—‘Peace with All’</td>
<td>1–8</td>
</tr>
<tr>
<td></td>
<td>– Prof. Sugam Anand</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Women and Profession In Later 19\textsuperscript{th} Century</td>
<td>9–13</td>
</tr>
<tr>
<td></td>
<td>– Prof. Nidhi Chaturvedi</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Computational Electromagnetic Technique for Space Application Antennas</td>
<td>14–31</td>
</tr>
<tr>
<td></td>
<td>– A Review</td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Dr. Shatrughna Prasad Yadav</td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Dr. S.S. Rathi</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fairness In Criminal Trial In India A Socio-Legal Analysis</td>
<td>40–46</td>
</tr>
<tr>
<td></td>
<td>– Dr. Sanjay Singh</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Medical Tourism in India with focus on NCR-Emerging</td>
<td>47–56</td>
</tr>
<tr>
<td></td>
<td>Challenges in 21\textsuperscript{st} Century</td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Dr. P.N. Asthana and Pankaj Gupta</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Rural Development In Relation To Poverty &amp; Inequality</td>
<td>57–71</td>
</tr>
<tr>
<td></td>
<td>– Dr. Shubha Singh</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Study of Military System During Gupta Period</td>
<td>72–74</td>
</tr>
<tr>
<td></td>
<td>– Manish Prakash</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Feminism in the English Novels of Indian Women Writers</td>
<td>75–77</td>
</tr>
<tr>
<td></td>
<td>– Satya Deo</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>सम्राट—जो एकता का मसीहा बन गया</td>
<td>78–82</td>
</tr>
<tr>
<td></td>
<td>– प्रो. (श्रीमती) प्रतिमा अस्थानान</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>ब्रजभाषा की रूप—स्वामित्व</td>
<td>83–95</td>
</tr>
<tr>
<td></td>
<td>– डॉ. विजेंद्र प्रताप सिंह</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>सोशल मीडिया का भारतीय समाज पर पड़ने वाले प्रभावों का एक</td>
<td>96–100</td>
</tr>
<tr>
<td></td>
<td>विश्लेषणात्मक अध्ययन</td>
<td></td>
</tr>
<tr>
<td></td>
<td>– मानवेंद्र सिंह</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>The Female Perspective in Shashi Deshpande’s</td>
<td>101-107</td>
</tr>
<tr>
<td></td>
<td>The Binding Vine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Dr. Anuradha Gaur</td>
<td></td>
</tr>
<tr>
<td>Page</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>14</td>
<td>पाणिनीय–शिक्षा के परिक्षाय में मन्त्रो का सम्पर्क उच्चारण: एक समीक्षा</td>
<td>दोंडो (श्रीमल) कपालेश वर्मा</td>
</tr>
<tr>
<td>15</td>
<td>चम्पू काव्य का उद्भव एवं विकास</td>
<td>दोंडो (श्रीमल) दीपिकावर्मा</td>
</tr>
<tr>
<td>16</td>
<td>Working and Management of SAPMB (Uttar Pradesh Rajya Krishi Utpadan Mandi Parishad)</td>
<td>Rakesh Kumar Kulshreshtha and Parvendra Kumar Singh</td>
</tr>
<tr>
<td>17</td>
<td>Chemical Composition of Plane Burfi Purchased From Different Markets of Agra City</td>
<td>M.L. Bhaskar, S.S. Katiyar and Om Prakash</td>
</tr>
<tr>
<td>18</td>
<td>Comparative Study of Conventional method and Lignin ratio technique to Estimate Dry matter and other nutrients Digestibility in Buffalo calves</td>
<td>Dr. Om Prakash, Dr. Bhimsen, Dr. S.S. Katiyar, Dr. Dashrath Singh, Dr. Laxman Singh</td>
</tr>
<tr>
<td>19</td>
<td>Contribution of Breast Feeding Among Infants to Increase Immunity</td>
<td>Dr. Renu Bala Garg</td>
</tr>
<tr>
<td>20</td>
<td>प्राचीन भारत में सातवाहन कालीन आर्थिक व्यवस्था</td>
<td>डोंडो लक्ष्मी गोतम</td>
</tr>
</tbody>
</table>
Editorial Board

Editor in Chief
Prof. Sugam Anand
Head, Deptt. of History & Culture,
Dr. B.R. Ambedkar University, Agra

Editor
Dr. Anil Kumar Verma
Associate Prof., Deptt. of History & Culture,
Dr. B.R. Ambedkar University, Agra

Managing Editor
Dr. Jai P. Sharma
Former, Director Anand Bhawan Allahabad, Faculty Member, Deptt. of History & Culture,
Dr. B.R. Ambedkar University, Agra

Sub-Editors
Dr. Anil Kumar Gautam
Asstt. Prof. (History)
Govt. P.G. College, Jalesar, Etah

Dr. Hema Pathak
Senior Lecturer,
Deptt. of History & Culture,
Dr. B.R. Ambedkar University, Agra

Distinguished Members of Editorial Board

1. Dr. Anoop Kale
   University of Sydney, Australia

2. Dr. Kavita Vachak Navee
   DAVSS, United States of America

3. Dr. Manoj Kumar Rawat
   Agra College, Agra

4. Prof. Subhash Chandra Sharma
   Deptt. of Law M.L.B. Collage of Excellence, Gwalior

5. Prof. Shatrughna Prasad Yadav
   Deptt. of E.E.E., Indus Institute of Technology and Engineering, Indus University, Ahmedabad

6. Dr. Vibhuti Jain
   Associate Prof., Deptt. of History & Culture, Dr. B.R. Ambedkar University, Agra
7. Dr. V.P. Singh
Assistant Professor Hindi, Govt. P.G. College, Jalesar, Etah

8. Dr. Bharati Sagar
Sr. Asstt. Prof. & Head Dept. of Sociology, R.C.A. Girls’ (P.G) College, Mathura

9. Dr. Akhilesh Chandra Saxena
Head, Department of Physical Edu., Dr. B.R. Ambedkar University, Agra

10. Dr. Vibha
Asstt. Prof. Sociology, Govt. P.G. College, Jalesar, Etah

11. Dr. Niharika Tiwari
Asstt. Prof. Political Science, Govt. P.G. College, Jalesar, Etah

12. Dr. Ranjay Kumar Singh
MCA, Ph.D. in Computer Science, Baroda

13. Dr. Vijay Singh Chaudhary
Asstt. Prof. Physical Education, Govt. P.G. College, Jalesar, Etah

14. Dr. Sanjeev Kumar
Asstt. Prof. Physical Education, Govt. Girls P.G. College, Sirsaganj, Firozabad

15. Dr. Anita
Asstt. Prof. Political Science, Govt. Girls P.G. College, Sirsaganj, Firozabad

16. Dr. Manish Patel
Asstt. Prof. Sociology, Govt. Girls P.G. College, Sirsaganj, Firozabad

17. Dr. Yugal Pratap Singh

18. Dr. Pravendra Kumar Sharma
The Indian Ethos—‘Peace with All’

Sugam Anand
Professor and Head,
Dept. of History & Culture,
Dr. B.R. Ambedkar University of Agra

Peace with All signifies the Sarv Dharm Sambhav. It has ever been the pivot of cultural values and humanism in the long process of Indian History. It signifies a respect for all religious cults and mode of thought. It also denotes the feeling of tolerance and understanding to what others hold in esteem or faith. In the context of Indian government, it means that the government will not interfere in religion, neither encourage nor discriminate on the basis of religion.¹ For the people at large, it has been a positive attribute of human mind that enables one to adjust and accommodate with others, who may be basically different in their religious faith. Secularism, in the opinion of some scholars is a modern term, but the origin of Sarv Dharm Sambhav has been embedded deep in the cultural moorings of this ancient land. The Indian view of life has maintained a unique correlation with the spiritual or the inner consciousness of man. Its integration with the totality of the Universe has been derived from the spiritual principles embodied in the social and cultural framework of this country. The unity of mankind has ever been an inspiring motive for the Indians at large. Maharishi Ved Vyas asserted centuries ago that, “All may be the source of happiness to others. All may enjoy good days, and no one may suffer any pain .....”²

In the ancient Indian literary sources, references are available of such liberal and cosmopolitan ideas and ideals as have been based upon the basic assumption that the entire globe is ‘one family’ and all individuals have to cultivate a positive outlook embracing all humanity. Our ancient seers and sages asserted that the goal of human beings must be mutual tolerance.

[1]
“Let all ideas flow and enter into the fabric of our life and society. It shall certainly enrich us. Let us travel towards light, life and eternity. Let our hearts be one and let us live and let live. Let us tolerate others and be together in the journey of life.”3

In the Indian epic, Mahabharata, it is upheld that a religion which opposes any other religion is the worst one.4

The efforts of our thinkers have indeed been directed towards supporting an integrated development of socio-political life for the collective good of the entire humanity. India has always stood and stands even today for universal brotherhood, peace and harmony. The supreme goal of human life in India has been defined as the attainment of spiritual perfection and the final redemption from the cycle of birth and death. In the Shanti Parv of Mahabharata,5 the virtues incumbent on all the people have been non-hatred towards all beings in thought, deed and action. By 'all beings', it is implied that not only humans, but all creatures great and small, even the flora and fauna deserve our sympathy and positive feelings. Life in seclusion i.e. Sanyas (last Ashrama in Vedic Varnashram) was also governed by these injunctions. Love was considered to be the supreme virtue.6 Love and respect have always been the, basis of tolerance and a binding principle in social relationship.

The norms of Indian social life have been laid down in a manner that effectively ensure the right of each of its members to live, to grow and to work as individuals without any fear. All of them could enjoy the freedom of conscience. In the realm of thought and philosophy, both currents, the Vedic and the non- Vedic simultaneously flourished in India.7 New thought currents germinated through their peaceful interaction and confluence with each others. They also contributed their share in enriching Indian thought and philosophy. Many new thought currents were received in India from time to time from the outside world. The Indian mind did not feel any hesitation in intermingling and interacting with them and finally assimilating them into the reservoir of Indian thought. The Indian society was mature enough to absorb alien influences coming to India either as peace loving people or as aggressors in the fold of Indian culture. If it could not be possible they were allowed to live side by side, with
their own cherished values. The basic ideology that worked throughout Indian history and culture has been the visualization of the eternal Truth inherent in its social milieu. The moral responsibility of the individual was not identified with the glory of the Indian State or with the privilege and prestige of social groups or classes, but with the enormously unlimited vista of human life. The individual’s self-perfection and the brotherhood of mankind were seen as the facets of the same ideals that signified the eternal human spirit. The aim was to gradually develop a broad social order on a common system conducive to the highest good of the highest number. The social adjustments were first comprehended on the spiritual plane. This spontaneously infused humanism and universal tolerance among the people of different castes, creeds and ideologies in this country.

In ancient India, an ideal State presented the vast spiritual apparatus for the realization of the material as well as the spiritual wellbeing. The state was effectively concerned with the people's life, though its framework rested upon feudalism, autocratic kingship and centralized administrative machinery. The state owned the moral responsibility of social and intellectual betterment of its people and their economic and cultural interaction. Universal tolerance, justice and fair play were the keynote qualities of a Chakravartin emperor. Its rationale lay in the principle of realism and the question of a peaceful coexistence. If they all moved through creativity, equanimity and development, the state flourished and grew. If there were discords, tensions and moral pressures leading to violence and destruction, the state was ruined. Sarv Dharm Sambhav was the keynote and an established principle of great kings like Ashoka and Akbar. In the XII edict of king Ashok, it has been clearly mentioned that: “His sacred and gracious majesty, the King, does reverence to all sects whether ascetics or householders. The man who praises his own particular religion and sneers at that of others, in order to enhance his own, inflicts great and grievous injuries on his own religion.” Ashoka quite realized that in a country like India with heterogeneous people inhabiting the vast land, the outward form of any religion or externelia could hardly prove significant. His Dhamm Vijay succeeded due to his broad outlook,
forbearance and syncretic unity of the essentials of different religions prevalent during his time. The Gupta and the post-Gupta rulers pursued the principle of Sarv Dharma Sambhav and provided the heritage of a unique strength and rare adaptability to posterity. The Guptas combined genius with synthesis which blossomed in a wonderful development with new trends in Indian art, literature, philosophy, science and religion. Dharma in ancient India, created and nourished an atmosphere of tolerance. The tradition of ‘Sambhav’ led to freedom of thought and expression for all. Kings and donors of one persuasion gave gifts to cults and institutions of other persuasions without any discrimination or preference.

The vital forces of assimilation and absorption latent in the dynamics of Indian culture were activated after some centuries of Muslim rule in India. Dr. Tarachand has analysed the tremendous effects of the Muslim conquest on the evolution of Indian culture. He believes that Muslims to a large extent shifted their loyalty to the place and considered India as their homeland. They came to realize that a state of perennial hostility and incessant warfare with the majority population of this land, among whom they have to live and stay, would certainly not pay. They concluded that it may prove rather injurious to their own life and interest if they did not practice tolerance. In the long run, mutual interaction led to mutual understanding and India saw the emergence of an unparalleled galaxy of saints like Kabir, Nanak, Raidas, Paltu, Dadu, Meera, Sahjo and Jana. The Khanqahs of Sufis also became the shelters for the people of all castes, communities and creeds. Hafiz Shirazi outlined the mutual relations of the two communities on practical grounds as early as the 13th century. He said,

“हाफिजा गार वस्त्रख्याही बा सुलहकुल खासो आम। बा मुसलमाँ अल्ला—अल्ला, बा बरहमन राम राम।”

He was the first Muslim saint to introduce the policy of Sulah-i-kul or ‘peace be with all’ By living together in peace and harmony, the trends of mutual understanding, friendship and goodwill led to understanding the ideas, beliefs and lifestyles of each other. Prof Abdual Majid Siddiqi has discussed this theme in detail in
Dr. R. C. Majurndar has correctly observed about the mutual interaction of the two communities that, “As regards dress, food, language, music, art and architecture, each influenced the other to some extent. In religious matters, there was also an interaction as is indicated by Sufism on the one hand and the teaching of medieval Hindu saints on the other. The synthesis, instead of acute social compartmentalization has been eloquent in the rural areas. Amir Khusro was one such protagonist and propagator of this unique synthesis and he felt proud of his Indian origin.”

Many Sultans and kings curbed the interference of orthodox class and proceeded to solve administrative problems in their own secular style. In one of his poems, Babur mentions a dream that he visited a beautiful garden full of multicoloured flowers and felt there, a divine joy and bliss. Dr. Yusuf Hussain believes that this dream signified his conquest of India and the bliss was the mingling of different cultures.

Akbar was the real product of the much awaited Indian renaissance of the sixteenth century. Through his policy, of Sulah-i-kul, he could herald in India, a theory of peaceful co-existence based on love, mutual respect, humanism and universal brotherhood. Jahangir tried to emulate the ideals of his father and he records in his Memoirs, “The professors of various faiths had room in the broad expanse of his (Akbar’s) incomparable sway.......room for all classes and the followers of all creeds........for beliefs good and bad and the road to altercation was closed.”

Sulah-i-kul had become an ideal of the Imperial policy. Similarly, social integration became an unnoticed phenomena in a land of varied cultures and multiple religious cults due to living together in this land.

It is a fact of History that the rich heritage of the ideals and practices of Sarv Dharm Sambhav existed in this country for long. We can frankly admit that the devastating role of politicians and fundamentalists has been responsible for obstructing gravely - the observance of Sarv Dharm Sambhav in actual life. Maulana - Abul Kalam Azad who was a thorough nationalist rightly asserted that, ”When India attains her
destiny, she would forget the chapter of communal suspicion and conflict and face the problems of - modern life from a modern point of view." He warned the Indians against the policy of British officials to divide and rule over the Indians.

What he actually meant was that differences would, no doubt, persist and remain but they will be economic and political but not communal. He exhorted upon the people to be totally dedicated to their mother land and desired that members of both the communities must work for making India, a great Nation.

As we see today, the spread of hatred among people on grounds of religion and caste still plague our country. Those responsible for such heinous crime as communal riots must be severely punished. Those who wish to disintegrate this great country and ruin it’s future must not be spared any more. They, of course, will not succeed in their evil machinations because the ethos of Sarv Dharma Sambhava remains overwhelmingly strong in India. It has been the sustaining force in our history and will continue to be the ever guiding star even in face of modern challenges.

REFERENCES:

1. The unity and fraternity of the people of India, professing numerous faiths has been sought to be achieved by enshrining the ideal of a ‘secular state’ which means that the state protects all religions equally and does not itself uphold any religion as the state religion. (42nd Constitution Amendment Act, 1976), D.D. Basu, Introduction to the Constitution of India, 10th ed., New Delhi, 1983, p. 26.

2. सर्व भवन्तु सुखिः सर्वं संतुनिरामयः। च सर्वं भद्राणि परस्यन्तु कवितादु खमावम--भवेत्।।

3. आ नो भद्राः कृतवो यथो विश्वातु.........Rig Veda Samhita, Nag Prakashak, Delhi, 1994, 1/89/1. Also Yajur Veda (Bhasha Bhashya) Sarvadeshik Arya Pratinidhi Sabha, New Delhi, 1991, 25/14

4. धर्मं येवाधि तेषां नस्तहम् कृत्तंतत्। अविनोभातु तुयथाम्, सहर्षं, सकिम।। Mahabharat, Vanparva, 131/10.

6. Ibid, p.4582. See Also, Manu Smriti, Chaukhamba Sanskrit Pratishthan, Delhi, 1985, pp. 148-149.

7. The feeling of respect and hospitality for the Vratyas found in the Atharva Veda signifies that the people were not intolerant. Atharva Veda, Sarvadeshik Arya Pratinidhi Sabha, New Delhi, (1991), 15/11/13 and 5/8/3.

8. It was accepted that One Truth can be described in many ways by the learned. Also the Rig Veda says that there are many rathas but only one road. (10/142/5) The Atharva Veda also says that Earth holds people of many faiths and speaking many languages. It also holds people of both types - learned as well as dumb, good as well as bad. (12/1/45-48).

9. This was also a factor in the rise of the Puranic religion later. Padma Purana says that do not criticise other religions to safeguard your own. (Srishti Khand, 19/332) Gautam Buddha has indicated respect for the true principles of other religions. (Mahavagga, 1/7/5). See also Chulviyuhsutta and Dutthakkasutta in the Sutta Nipata. The Puranic religion accepted Buddha as the incarnation of Vishnu. Jams used Brahmana-Purohits for their rituals and gave Rama and Krishna the place of ‘praise worthy great men’ in their pantheon. The 22nd Tirthankara Arishtanemi was related to Krishna. A Vaishnava sect developed among the Jams. (Dr. Radhakrishnan, Indian Philosophy, Vol. I, p.331). Respect for other sects was a cardinal principle of Bhagvatism. Later Shankaracharya validated the principles of the Shaiva, Shakta, Saur, Vaishnava, Ganapatya and Kapalika sects and testified to the inherent truth in them.


11. Shanti Parva, Mahabharat, op. cit., 96th Chapter, 1-10. From the Atharva Veda onwards the ideal of Chakravartin (universal sovereign) was extolled with
almost religious fervour. Kautilya too paid homage to the idea of the Chakravartin ruler.


14. Khwaja Shamsuddin Muhammad Hafiz-i Shirazi was a thirteenth century Sufi poet of South-Central Iran. His tomb stands in Musalla Garden along the banks of river Ruknabad in Shiraz. His Diwan was compiled after his death. Many other couplets have also been attributed to him. He was against the orthodox clergy of his time.


16. Dr. R.C. Majumdar, ‘Hindu Muslim Relations’ in the History and Culture of Indian People, Vol. VI, The Delhi Sultanate, Bhartiya Vidya Bhawan, Bombay, 11 ed. 1967, p. 616.


[8]
Women and Profession in later 19th Century

–Nidhi Chaturvedi
Reader, Department of Medieval and Modern History,
D.D.U. University of Gorkhpur

This presentation works out the prevailing gender problem in colonial India specially in the field of medical science, an important development during the later half of the nineteenth century. Since 1880, the reformists, both men and women, in Great Britain along with the missionaries and a number of Indian reformers were demanding western medical care to be extended to Indian women\(^1\).

Women’s new professional opportunities as well as their employment in urban districts were the consequences of British Policies. In the late nineteenth century and the early decades of the twentieth century, demand for medical professionals largely grew. The demand came from the middle class Indian women working in the organized sectors, factories, mines and plantation where laws mandated the provision of medical services. As far as the Indian society is concerned, few parents of those times encouraged science courses for their daughters, as it was supposed too rigorous for female minds. Miss Janau, the Principal of Bethune College, Observed that college girls became physically weaker with every year of study. She characterized them inadequately prepared for these subjects\(^2\). It was not until 1885 that the British Raj became indirectly involved with providing medical care to Indian women through establishment of the Dufferin Fund (The Countess of Dufferin’s fund for supplying Medical aid to women of India). This new organization aimed to provide medical relief to Indian women, to build hospitals and encourage women to study medicines. While some Indian males applauded this attitude, others denounced it as yet another intrusion by the imperial government into their private social lives.\(^3\)

Dr. Kadambini Basu one of the first Indian women doctors, was the beneficiary of this scheme. In 1986, she was awarded GBMC (Graduate of Bengal Medical College). She established a thriving private practice and in 1888 she was appointed at [9]
lady Dufferins Women Hospital with a salary of Rs. 300 per month. She also served as one of the first woman delegates to the Indian National Congress. Despite these accomplishments, the then orthodox magazine ‘Bangabasi’ indirectly went up to the extent of labelling her unethical. Such attacks illustrated the widespread antagonism of orthodox Indians towards new professional courses for women.

Anandibai Joshi (1865-87) was the first Indian women who graduated from the Women’s Medical College in Philadelphia. She too had to face severe gender bias. She was verbally and physically threatened when she ventured to study medicine. She told her audience that she should not pursue her professional ambitions in India. She was appointed resident physician of the Women’s ward of Albert Edward Hospital at Kolhapur but she never took charge of her post. She died soon after, not to face more stored music. Dr. Rukhmabai was another distinguished personality of the same era, (1864-1951) who attended the London School of Medicine for women and completed her education with MD from Brussels.

As per social norms, the, respectable Indian women were not expected to pursue career in Medicine as the prevailing gender ideology regarded both western medicine and science as incompatible with orthodox Hinduism. The women in purdah or seclusion required a need for separate medical system employing female doctors in Zenana hospital (lady hospitals). The Dufferin Fund met this need. In 1983, the Calcutta Medical College which was established in 1935 became the first institution in Bengal to accept female students. In 1887, Campbell Medical School and College (New Nilratan Sankar Medical College) opened its door to women to be trained as hospital assistants. These hospital assistants worked under British lady doctors. By 1887, there were just 150 Indian women enrolled in these programmes. These hospital attendants were not given equal footing and were never intended to take independent charge with British lady doctors.

Dr. Haimvati Sen who had passed the Entrance Examination for Campbell Medical College narrates the hardships suffered by women who received Venacular degree. She narrates, that “in the early years of private practice, she was treated and
paid as if she was a trained Dai (a traditional birth attendant).” In Dufferin hospital the pay was quite meagre and miserable. She began working in 1884 for Rs. 40 per month and in 1986 her salary was raised to Rs. 50 per month.

After the first world war, due to more demands for the women doctors, science subjects were added to the curricula in women’s colleges and medical colleges accepted more women students. By 1929, nineteen men’s medical colleges and schools admitted men and there was one medical and four medical schools for women only. Attending the men’s Medical college presented a district set of challenges for Indian women. All the female boarders stayed together making it impossible to observe caste rules and their relative suffered the consequences. If they chose to live in private homes, they had to endure public taunts as they travelled to and from classes. Dr. Muthulakshmi Reddy narrates that “like other women of her generation she was either the lone female in her classes or in the company of two. Professors usually placed women in one side of the room and few professors did not allow female students in their classes and assigned junior assistants to lecture them. It is no wonder so many women failed to complete medical degrees in such situations.”

There were some other challenges. It was difficult to combine joint family life with professional demands. Women also faced sexual harassment. In 1930’s Dr. (Miss) Ahalyabai Samant was abducted and assaulted by Dr. Balabhai Harishand Bhatt the municipal councillor. The district & sessions judge said – “If women engaged in professional work come out into the open world they must adopt standards of the ordinary men and women of the world. They cannot expect to retain the hyper sensitive notions of modesty which their ancestors in purdah may have possessed”.

The women worked in a professional dominated by European & Anglo-Indian women. Salary discrimination was another problem. Indian women received less pay and had to contend with racial prejudices. Gender discrimination was also evident in salary structure. Theoretically, salaries depended on credentials but it was extremely difficult for Indian women to obtain the same degrees as their British colleagues. In Bengal, Indian women could earn the VLMS (the vernacular licentiate in Medicine and
surgery) a certificate obtainable without knowledge of English, but it doomed them to a salary less than 1/10th that earned by a women holding a MB or MD degree.

In 1907, British women doctors practising in India formed the ‘Association of Medical Women in India’ and proposed the formation of a Woman’s Medical Service (WMS) modelled on IMS. In 1914, the became a reality. The WMS professed concern for the Indian women professionals and offered to integrate them through a two tier system of superior and inferior grades, but it was the British women doctors who gained the most from this measure. It further marginalized the Indian women doctors with vernacular degree. It was not until 1947, that Indian women, Dr. Lazarus, held the position of the Chief Medicine Officer.

Women practising the medical professional had to face a range of problems. Research on the impact of the Raj’s sponsorship of a medical system and in context of gender bias, the facts are yet to be fully explored. It can be sorted out by the forgotten autobiographies and buried memoirs of Indian women who dared to adopt the medical profession.

REFERENCES:


10. Lazarus, Hilda (1976) : *Sphere of Women in Medical Work* (Vizayapatna : SFS Printing) p. 51, Medical Colleges were able to issue university degrees, whereas Medical School’s often attached to hospital’s were regarded as training schools and could issue only certificates.


Computational Electromagnetic Techniques For Space Application Antennas - A Review

Shatrughna Prasad Yadav
Electrical and Electronics Engineering Department
Indus Institute of Technology and Engineering
Indus University, Ahmedabad, Gujarat-382115
spyadav68@gmail.com

Abstract

Computational techniques are used to provide extremely accurate predictions for scattering and antenna structures. Many numerical methods are available for solving electromagnetic problems. Each has got its own advantage and disadvantage associated with it and is well-suited for the analysis of a particular type of problem. Numerical techniques such as, the method of moments (MOM), finite difference time domain (FDTD) methods, finite element method (FEM), etc. are available for analysis of small structures but become less efficient as the electrical size of the computational domain increases. Whereas, high-frequency (HF) techniques like, geometrical optics (GO), geometrical theory of diffraction (GTD), uniform theory of diffraction (UTD), physical optics (PO) & physical theory of diffraction (PTD), based on the asymptotic solution of Maxwell’s equations, are more efficient for the structure of larger dimensions used for space applications. In this paper an effort has been made to review different CEM techniques and analyze performance of antennas used for space application taking an offset parabolic reflector antenna as an example.

Keywords—Antennas for Space Applications, Method of moments, finite element method, Geometrical optics, Physical optics, Offset parabolic reflector antenna.

1. INTRODUCTION

Computational Electromagnetics (CEM) have changed the way in which electromagnetic problems are analyzed. Antenna engineers rely heavily on numerical methods to analyze and evaluate new designs. Computational electromagnetics (CEM) are used effectively at frequencies spanning from DC to optics, for system sizes ranging
from subatomic to intergalactic, and for application areas as design of antennas and microwave devices, components, and circuits, electromagnetic scattering, wireless communication systems, and electromagnetic compatibility, etc. It has evolved rapidly during the past decade to a point where extremely accurate predictions can be made for very general scattering and antenna structures.

As the size of the objects under consideration tends to be large according to the wavelength, numerical techniques such as the FEM, MoM, FDTD, FDFD methods require longer computer time and become resource prohibitive. High frequency techniques such as geometrical optics, geometrical theory of diffraction, uniform theory of diffraction, physical optics & physical theory of diffraction, provide physical insight into the dominant radiation and scattering mechanisms. This makes them a very powerful diagnostic and design tool for antenna engineers.

Geometrical optics method is sufficient for some applications at optical frequencies; it does have severe deficiencies at RF and microwave frequencies. To overcome its deficiencies, the geometrical theory of diffraction was originally developed by Keller [1], [2] around 1951. The GTD and its uniform version, commonly referred to as the uniform geometrical theory of diffraction solutions are presented for edge diffraction. All the techniques mentioned here use rays to calculate the fields. But, there is an alternative way to calculate the fields using surface currents. Technique based on this concept is physical optics (PO) where approximate high frequency currents are used to obtain the fields. To improve the accuracy of PO, the physical theory of diffraction was developed in the former Soviet Union by P. Ya Ufimtsev [3]. PTD improves the accuracy of PO in the same manner as GTD improves the accuracy of GO.

II. ANTENNAS FOR SPACE APPLICATIONS

Reflector antenna shown in figure 1 is very popular for applications such as satellite communications, radio telescopes, radars, and remote sensing systems, etc. [4]. Mainly, the offset geometry of paraboloid reflector antenna brings attractive properties [15]
over its symmetrical-cut counterpart. First, it reduces the blockage of the feed and the supporting struts on the reflector illumination aperture, which in turn increases the gain and decreases the sidelobe levels of the secondary far-field patterns. Second, it provides excellent isolation between the reflecting surface and the feed. Third, it can accommodate larger focal length to diameter ratios, as well as, a larger feed array size in comparison to the symmetric configuration. But, the asymmetrical structure of the reflector generates a high level of cross polarization radiation in the plane of asymmetry, when it is illuminated by a conventional linearly polarized feed. For the circular polarization, the two orthogonal linear crosspolar components result in a copolar component with a squinted beam [5]. Normally low cross polarization levels are required in frequency re-use applications, in which two orthogonally linear or opposite circularly polarized signals are employed for each frequency band to enhance the channel bandwidth [6]. It has been investigated by many researchers that the cross polarization of offset reflector antennas can be reduced, or cancelled, using multimode horns as primary feeds to match the focal region fields of the reflector antenna.

![Fig.1 Geometry of an offset parabolic reflector antenna](image)

Rudge and Adatia [7], have designed a trimode conical horn utilizing the TE_{11}, TM_{11} and TE_{21} modes to minimize the effects of cross polarization. Later, Jacobson [8], presented two solutions: one a dual-mode rectangular horn and the other a linear array of small aperture round waveguide feeds, with their axes parallel to the optical axis of the offset reflector, to reduce cross polarization in the offset reflector antenna. The tri-
mode feed design has also been done by Bahadori and Rahmat-Samii [9], for balanced back-to-back reflectors with a reduced moment of inertia.

III. NUMERICAL METHODS

A. Finite Element Methods

Electrical engineers use finite element methods to solve complex, nonlinear problems in electromagnetics and electrostatics. An increasing availability of computer resources coupled with a desire to model more complex electromagnetic problems has resulted in a wave of renewed interest in finite element methods for solving EM radiation problems [10].

The first step in finite-element analysis is to divide the configuration into a number of small homogeneous pieces or elements. An example of a finite-element model is shown in Figure 2. The model contains information about the device geometry, material constants, excitations and boundary constraints. The elements can be small where geometric details exist and much larger elsewhere. In each finite element, a simple variation of the field quantity is assumed. The corners of the elements are called nodes. The goal of the finite-element analysis is to determine the field quantities at the nodes. Most finite element methods are Variational techniques.

![Figure 2: Finite-Element Modeling](image-url)
Variational methods work by minimizing or maximizing an expression that is known to be stationary about the true solution. Generally, finite-element analysis techniques solve for the unknown field quantities by minimizing energy functional. The energy functional is an expression describing all the energy associated with the configuration being analyzed. For 3-dimensional, time-harmonic problems this functional may be represented as,

$$\mathfrak{G} = \int_{\Omega} \frac{1}{2} \mu |\mathbf{H}|^2 + \frac{1}{2} |\mathbf{E}|^2 - \frac{1}{2i\omega} \mathbf{J} \cdot \mathbf{E} \mathrm{d}\mathbf{v}$$  \hspace{1cm} (1)

The first two terms in the integrand represent the energy stored in the magnetic and electric fields and the third term is the energy dissipated (or supplied) by conduction currents. Expressing $\mathbf{H}$ in terms of $\mathbf{E}$ and setting the derivative of this functional with respect to $\mathbf{E}$ equal to zero, an equation of the form $\mathfrak{G}(\mathbf{A},\mathbf{E}) = 0$ is obtained.

$$\mathbf{A}_{1} = \begin{bmatrix} \mathbf{S}_{11} & \mathbf{S}_{12} & \cdots & \mathbf{S}_{1n} \\ \mathbf{S}_{21} & \mathbf{S}_{22} & \cdots & \mathbf{S}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \mathbf{S}_{m1} & \mathbf{S}_{m2} & \cdots & \mathbf{S}_{mn} \end{bmatrix} \begin{bmatrix} \mathbf{E}_{1} \\ \mathbf{E}_{2} \\ \vdots \\ \mathbf{E}_{n} \end{bmatrix}$$  \hspace{1cm} (2)

The values of $\mathbf{A}$ on the left-hand side of this equation are referred to as the source terms. They represent the known excitations. The elements of the $\mathbf{S}$-matrix are functions of the problem geometry and boundary constraints. Since each element only interacts with elements in its own neighborhood, the $\mathbf{S}$-matrix is generally sparse. The terms of the vector on the right-hand side Structure Geometry Finite-Element Model represent the unknown electric field at each node. These values are obtained by solving the system of equations. Other parameters, such as the magnetic field, induced currents, and power loss can be obtained from the electric field values.
B. Methods of Moment

Like finite-element analysis, the method of moments (or moment method) is a technique for solving complex integral equations by reducing them to a system of simpler linear equations [11]. In contrast to the Variational approach of the finite element method however, moment methods employ a technique known as the method of weighted residuals. Actually, the terms method-of-moments and method-of-weighted-residuals are synonymous. Harrington [12] was largely responsible for popularizing the term method of moments in the field of electrical engineering. The equation solved by moment method techniques is generally a form of the electric field integral equation (EFIE) or the magnetic field integral equation (MFIE). Both of these equations can be derived from Maxwell’s equations by considering the problem of a field scattered by a perfect conductor (or a lossless dielectric). These equations are of the form, where the terms on the left-hand side of these equations are incident field quantities and \( J \) is the induced current.

\[
\text{EFIE:} \quad E = G_e \left( J \right) \quad (3)
\]

\[
\text{MFIE:} \quad H = G_m \left( J \right) \quad (4)
\]

The form of the integral equation used determines which types of problems a moment-method technique is best suited to solve. For example one form of the EFIE may be particularly well suited for modeling thin-wire structures, while another form is better suited for analyzing metal plates.

Usually these equations are expressed in the frequency domain; however the method of moments can also be applied in the time domain. The first step in the moment-method solution process is to expand \( J \) as a finite sum of basis (or expansion) functions, where \( B_i \) is the \( i^{th} \) basis function and \( J_i \) is an unknown coefficient.
Next, a set of \( N \) linearly independent weighting (or testing) functions, \( w_j \), are defined. An inner product of each weighting function is formed with both sides of the equation being solved. In the case of the MFIE (Eq. 4), this results in a set of \( N \) independent equations of the form,

\[
< W_j, H > = < W_j, f_n( J ) > \quad j = 1,2,\ldots,N \quad (6)
\]

By expanding \( J \) using Equation (6), we obtain a set of \( N \) equations in \( N \) unknowns,

\[
\sum_{i=1}^{N} (w_j, f_n(J_i)) = H_j \quad j = 1,2,\ldots,N \quad (7)
\]

This can be written in matrix form as,

\[
[H] = [X] [J] \quad (8)
\]

The vector \( H \) contains the known incident field quantities and the terms of the \( X \)-matrix are functions of the geometry. The unknown coefficients of the induced current are the terms of the \( J \) vector. These values are obtained by solving the system of equations. Other parameters such as the scattered electric and magnetic fields can be calculated directly from the induced currents.

C. **Finite Difference Time Domain Method**

The Finite Difference Time Domain method is a direct solution of Maxwell’s time dependent curl equations. It uses simple central-difference approximations to evaluate the space and time derivatives [13]. The FDTD method is a time stepping procedure. Inputs are time-sampled analog signals. The region being modeled is represented by two interleaved grids of discrete points. One grid contains the points at
which the magnetic field is evaluated. The second grid contains the points at which the
electric field is evaluated. A basic element of the FDTD space lattice is illustrated in
Figure 3. Note that each magnetic field vector component is surrounded by four electric
field components. A first-order central-difference approximation can be expressed as:

\[
\frac{1}{S} \left[ E_{x1}(t) + E_{y2}(t) - E_{x3}(t) - E_{y4}(t) \right] = \frac{\mu_0}{2\Delta t} \left[ H_{x0}(t + \Delta t) - H_{x0}(t - \Delta t) \right]
\]

(9)

Where, S is the area of the near face of the cell in Figure 3. \(H_{x0}(t+\Delta t)\) is the
only unknown in this equation, since all other quantities were found in a previous time
step. In this way, the electric field values at time t are used to find the magnetic field
values at time (t+\(\Delta t\)). A similar central-difference approximation of Equation (15) can
then be applied to find the electric field values at time (t+2\(\Delta t\)) from the magnetic field
values at time (t+\(\Delta t\)).

By alternately calculating the electric and magnetic fields at each time step,
fields are propagated throughout the grid. Time stepping is continued until a steady
state solution or the desired response is obtained. At each time step, the equations used
to update the field components are fully explicit. No system of linear equations must be
solved. The required computer storage and running time is proportional to the electrical
size of the volume being modeled and the grid resolution.
D. Finite Difference Frequency Domain Method

Although conceptually the Finite Difference Frequency domain method is similar to the Finite Difference Time Domain method, from a practical standpoint it is more closely related to the finite element method. Like FDTD, this technique results from a finite difference approximation of Maxwell’s curl equations. Since, there is no time stepping it is not necessary to keep the mesh spacing uniform. Therefore optimal FDFD meshes generally resemble optimal finite element meshes. Like the moment-method and finite-element techniques, the FDFD technique generates a system of linear equations. The corresponding matrix is sparse like that of the finite element method [14].

IV. HIGH FREQUENCY ANALYSIS TECHNIQUES

A. Geometric Optics

Geometric optics is an HF approximation of Maxwell’s equations that employs rays to describe EM field propagation [15]. According to GO, HF fields propagate along ray paths that satisfy Fermat’s principle and are orthogonal to the wave fronts in an isotropic homogeneous medium. Note that Fermat’s principle states that the ray trajectory is such that the optical path length is stationary. This normally implies that the path length must be a minimum, subject to some constrains. Although there are several ways to rigorously develop the GO field representation, the Luneberg–Kline series expansion is used here. This is done to clearly show that the GO field is simply an asymptotic approximation to Maxwell’s equations. The first step is to expand the electric field \( E(s, \omega) \) in terms of the series:

\[
E(s, \omega) \sim e^{-j\psi(s)} \sum_{n=0}^{\infty} \frac{E_n(s)}{(j\omega)^n}
\]

Where \( \omega \) is the angular frequency, \( s \) is the position vector, \( k \) is the wave number of the homogeneous isotropic medium, and \( \psi(s) \) is the phase function. Note that the preceding series is in inverse powers (integers) of \( \omega \). The equations for GO [22]
electric field and magnetic fields are given by equations (19) and (20) respectively at a distance d from the reference location d = 0 where η is the intrinsic impedance of the medium. If the medium becomes free space, η and k become η₀ and k₀, respectively. The parameters ρ₁ and ρ₂ are the principal radii of curvature of the wave front at the reference location d=0, and ŷ is the ray propagation direction.

\[ E(d) = E(0) \sqrt{\frac{\rho_1 \rho_2}{(\rho_1 + d)(\rho_2 + d)}} e^{-jkd} \]  (11)

\[ H(d) = ŷ \times \frac{E(d)}{\Gamma} \]  (12)

This direction is straight in a homogeneous isotropic medium. The distance s is positive in the direction of wave propagation and negative in the opposite direction. It can also be shown that

\[ \mathbf{E} \cdot \mathbf{E} = \mathbf{H} \cdot \mathbf{H} = 1 \]  (13)

Which, implies that the GO fields do behave as plane waves. Now that we have introduced the GO field, we can consider the situation where this field is incident on an electrically large, smooth structure as depicted in Fig. 6. It is well known that the incident field is reflected and if the structure is penetrable, there could also be a transmitted field. This discussion initially concentrates on the reflected field. By assuming that the incident GO field is given in Eq. (19), then the reflected GO field can be written as eq.(22). Where, \( \mathbf{R} \) is the dyadic reflection coefficient, \( E^i(Q_r) \) is the incident field at the point of reflection \( Q_r \), and the reflected field is evaluated at a distance \( d_r \) from the point of reflection. The magnetic field can be obtained from Eq. (19) by replacing \( E^i \) by \( E^r \) and \( d \) by \( d' \) where \( d' \) is the direction of propagation of the reflected field.
\[ \mathcal{E}'(x') = \mathcal{E}(Q_r, \mathbf{R}) \cdot \mathbf{R} \sqrt{\frac{Q_r x'}{Q_r ^2 + x'^2}} \]  \hspace{1cm} (14)

Fig. 4. Ray-fixed coordinate system for GO fields (Roberto G. Rojas)

Note that the reflected GO field has the same form as the incident GO field, except that its radii of curvature is dependent on the radii of curvature of the surface and the incident field wave front in the neighborhood of Q, as well as the direction of incidence. Because Eq. (19) is similar to Eq. (22), the reflected GO field also fails at the caustics. The radii of curvature \( \rho_{1,2} \) can be written as in eq. (23).

\[ \frac{1}{\rho_{1,2}^r} = 0.5 \left( \frac{1}{\rho_1^i} + \frac{1}{\rho_2^i} \right) + \frac{1}{F_{1,2}} \]  \hspace{1cm} (15)

Where \( \rho_1^i \) and \( \rho_2^i \) are the radii of curvature of the incident field at the point of reflection Q, and the parameter \( F_{1,2} \) is a fairly complex expression.

B. Geometric Theory of Diffraction

To overcome some of the shortcomings of the GO field, such as, the discontinuous fields at the shadow boundaries and the prediction of zero fields in the shadow regional method referred to as GTD was introduced by Keller, as previously mentioned [2]. It is an extension of geometrical optics which accounts for diffraction. It introduces diffracted rays apart from the usual rays of geometrical optics. These rays are produced by incident rays which hit edges, corners, or vertices of boundary surfaces or which graze such surfaces as shown in fig. 7. Modified forms of Fermat’s principle, [24]
equivalent to these laws, are also used. First, diffracted wave fronts are defined, which can be found by a Huygens wavelet construction. There is an associated phase or eikonal function which satisfies the eikonal equation. In addition to that complex or imaginary rays are introduced. A field is associated with each ray and the total field at a point is the sum of the fields on all rays through the point. The phase of the field on a ray is proportional to the optical length of the ray from some reference point. The amplitude varies in accordance with the principle of conservation of energy in a narrow tube of rays.

Figure 5: Different types of ray paths predicted by the generalization of Fermat's principle.

Fermat’s principle states that a light ray between two points m and n has optical path length which is stationary with respect to perturbations of the path.

\[ \int_{m}^{n} \frac{d\ell}{\sqrt{1 - \beta^2}} = \text{constant} \]

Here, \( s \) denotes arc length along the curve, and \( n(x) \) is the refractive index. This method introduces diffracted rays that can penetrate the shadow region as depicted in Fig. 8. We must note that a ray hitting the edge of the structure can radiate into the shadow region as well as the lit region. Likewise, the incident field at grazing incidence on the convex surface can excite a surface diffracted field, which travels along the surface and penetrates the shadow region.

[25]
As a matter of fact solutions for the scattering of an object with an edge were obtained before Keller’s work; the key to Keller’s contribution was the interpretation in terms of rays of the various components of the solution. The total GTD field is given in equation (25). Where $E^d(P)$ is the diffracted field and $E^{GO}(P)$ is the GO field. The general form of the diffracted field, away from the point of diffraction, is as in equation (26).

$$E(P) \sim E^{GO}(P) + E^d(P)$$  \hspace{1cm} (17)

$$E^d(s^d) = E^{id}(s^d) \left( \frac{P^2 + P^2}{R^2 + r^2 + r'^2} \right)$$  \hspace{1cm} (18)

Where $E^d(0)$ is the diffracted field at the reference point $s^d = 0$. The diffracted field, away from the point of diffraction, has the same form as the GO field. To obtain this field in terms of the incident field and a diffraction coefficient, which plays the same role as the reflection coefficient, it is necessary to move the reference point to the diffraction point. The diffraction coefficient depends on the nature of the surface in the neighborhood of the diffraction point. In its original form, the diffracted fields developed by Keller were not continuous at the shadow boundaries.

C. Uniform Geometric Theory of Diffraction

Uniform Geometric Theory of Diffraction [16], is used for arbitrary electrical size structures without extra needs for computational resources. In the UTD method, objects are approximated by the combinations of boards, cylinders and cones which have
analytical mathematical expression and are all developable surfaces. Geometrical information which is used in calculating ray fields can be easily obtained from the developable surfaces. ………[20]

D. Physical Optics

The Physical Optics approximation method, also known as the surface current method is a well-known high frequency technique. It is based on the determination of the equivalent current densities induced on the surface of an illuminated perfect electric conductor (PEC) plane [17]. The GO, GTD and UTD asymptotic methods were in terms of fields and rays. An alternative approach is to start with the source of the fields itself. It is possible to obtain HF asymptotic expressions for the currents generating the fields. Once we obtain the currents, the fields can be evaluated using radiation integrals. The integral techniques are very useful in caustic regions where the UTD and other ray techniques fail. Let us consider a reflector illuminated by fields radiated by a feed as shown in Figure 7. The expressions can be derived from the physical equivalent for the electric and magnetic equivalent current densities, PO\(E\) and PO\(H\) respectively.

The incident electric and magnetic fields due to external sources and in absence of any obstacle are \(E_{1}^{inc}\) and \(H_{1}^{inc}\). Whereas, the total fields inside the PEC are null \((E^{tot}_{PEC} = H^{tot}_{PEC} = 0)\), while in the second medium \(E^{tot}_{1}\) and \(H^{tot}_{1}\) are calculated by adding those incident fields to the reflected ones denoted by \(E_{1}^{ref}\) and \(H_{1}^{ref}\). The electric and magnetic induced current densities, \(J\) and \(M\), at the boundary \(S\) can be obtained from the tangential components of the total fields as depicted in eq. (27) and (28).

Considering the characterization of the boundary \(B\) as a PEC plane and taking into......
account the eq. (27) and (28), the Physical Optics approximation states that \( H_{1}^{\text{inc}} \) and \( H_{1}^{\text{ref}} \) at the boundary \( B \) are in phase and also have the same amplitude.

\[
I = \hat{\alpha} \times (H_{1}^{\text{inc}} - H_{1}^{\text{ref}})|_{B} = \hat{\alpha} \times H_{1}^{\text{inc}}|_{B} = \hat{\alpha} \times (H_{1}^{\text{inc}} + H_{1}^{\text{ref}})|_{B} \tag{19}
\]

\[
\mathcal{M} = -\hat{\alpha} \times (\mathbf{e}_{1}^{\text{inc}} - \mathbf{e}_{1}^{\text{ref}})|_{B} = -\hat{\alpha} \times \mathbf{e}_{1}^{\text{inc}}|_{B} = -\hat{\alpha} \times (\mathbf{e}_{1}^{\text{inc}} + \mathbf{e}_{1}^{\text{ref}})|_{B} = \mathbf{0} \tag{20}
\]

Thus, \( \text{PO}^{J} \) and \( \text{PO}^{M} \) can be expressed as given in equations (29) and (30) respectively. An additional consideration to complete the PO formulation is included here when dealing with finite geometries,

\[
\mathcal{I}^{\text{PO}}_{J} = \hat{\alpha} \times (H_{1}^{\text{inc}} + H_{1}^{\text{ref}})|_{B} \propto 2\hat{\alpha} \times H_{1}^{\text{inc}} \tag{21}
\]

\[
\mathcal{M}^{\text{PO}}_{J} = -\hat{\alpha} \times (\mathbf{e}_{1}^{\text{inc}} + \mathbf{e}_{1}^{\text{ref}})|_{B} = \mathbf{0} \tag{22}
\]

the PO current density is null in the regions not illuminated by the source.

\[
\mathcal{I}^{\text{PO}}_{J} = \begin{cases} 2\hat{\alpha} \times H_{1}^{\text{inc}}|_{B} & \text{lit region} \\ 0 & \text{Non-lit region} \end{cases} \tag{23}
\]

That is why the distinction between shadowed and illuminated parts of the scenario is one of the aforementioned constraints to correctly apply the PO approximation.

In PO, the equivalent currents need to be integrated over the surface to calculate the scattered field. Obviously, the larger the surface, the more time it takes to integrate the currents. Integration can be performed in two ways. One approach is to integrate using asymptotic techniques such as the method of stationary phase. This method is based on the idea that the contribution to the scattered field comes from a few isolated points on the surface as well as diffraction points along the edges. The former are called stationary points, whereas the latter are endpoints or diffraction points.

[28]
E. Physical Theory of Diffraction

It is important to be noted that the PO technique is accurate near and within the specular reflection region and becomes erroneous farther away from this region. This means that the PO-diffracted field $E_{\text{d PO}}$ is not accurate because the PO currents are not accurate near edges. To improve the accuracy of the PO fields, it is necessary to improve the accuracy of the currents, especially in the regions where diffracted effects are important. As stated previously, PTD, originally developed by Ufimtsev, is an extension to PO where the induced surface current is improved by including a correction that accounts for diffraction effects such as the discontinuity of the surface currents at the lit and shadow region boundaries and near the edges of the surface [19]. Thus PTD refines the PO solution just like UTD refines GO. The PO current introduced earlier is corrected by a “non-uniform” current that accounts for diffraction effects.

$$J_s(r') = J_{\text{po}}(r') + J_{\text{pr}}(r')$$  \hspace{1cm} (24)

The field scattered by the above surface currents are more accurate because the currents account for diffraction effects. Again, the surface integration can be performed asymptotically or numerically. The corrected scattered field resulting from the surface currents can be expressed as

$$E^s(r') = E^s_{\text{sc}}(r') \times E^d_{\text{PTD}}(r')$$  \hspace{1cm} (25)

Where $E^d_{\text{PTD}}(r)$ is the PTD correction term to the PO scattered field, $E^s_{\text{PO}}(r)$. We must note that the PTD diffracted field $E^d_{\text{PTD}}$ is not the same diffracted field as the GTD-diffracted field. The field $E^d_{\text{PTD}}$ is radiated by the non-uniform or “fringe” currents only, whereas the GTD edge diffracted field is radiated by the total currents in the vicinity of the edge. The experimental study has been done by Pathak, Carluccio, and Albani [20] for wedge.
V. CONCLUSIONS

There are many efficient computational electromagnetic modeling techniques available and each has got its own advantage and disadvantage. Each technique is suitable for analyzing a particular problem. In some problem a mixed or hybrid techniques is used to obtain a specific solution pattern. In this paper, emphasis has been put to discuss numerical techniques like- FEM, MoM, FDTD, FDFM, and high frequency analysis technique like GO & GTD, UTD, PO & PTD, etc. for analysis of antenna used for space applications. References have been provided that direct the reader to more detailed information and sources of computer codes.

VI. REFERENCES


Dr. S.S. Rathi

Pandit Jawahar Lal Nehru, who himself had been incarcerated for a number of times, described the deplorable condition of prisoners in ‘Prison Land’ and stated: “High Walls and iron gates cut off the little world of prison from the wide world outside. Here in this prison world, everything is different. There are no colours, no changes, no movement, no hope, no joy for the long term prisoner. Life runs its dull round with a terrible monotony: it is all that desert land with no high points and no oasis to quench one’s thirst or shelter one from the burning heat. Days run into weeks, and weeks into months and years till the sands of life run out”.

The above words of Pandit Nehru are relevant even today. Not much has changed in the Indian prisons, which are still being governed as per Prisons Act, 1894. However, Delhi State has enacted its own law, Delhi Prisons Act, 2001 with the Rules of 1988 which are applicable in Tihar Prison, made under the old and archaic Act.

Before taking up various aspects of human rights of prisoners, it would be appropriate to identify and enumerate such various rights. Constitution of India provides a number of rights to the individual in Part III which have been termed as “fundamental rights”, and for the sake of convenience, these rights may be divided in two categories, viz. Specified Fundamental Rights and other Fundamental Rights. ‘Specified’ Fundamental Rights are called as such, as they are mentioned in the constitutions by name. ‘Other’ Fundamental Rights are those which are not mentioned in the constitution, but are given in various landmark judgements by the Supreme Court of India.

In brief, such human rights which are applicable in case of prisons and prisoners, have been identified and enumerated with regard to-(1) Segregation of Juvenile Prisoners (2) Fetters and hancuffs of the Prisoners (3) Incarceratory torture (4)

Presently, Tihar prison complex which has nine prisons including one for women and girls and another for young offenders of the age group of 18 years to 21 years, is meant for the people of Delhi comprising the population of 1,37,82,976 persons and covering an area of 1,483 sq. km. The population of Tihar Prison on 27.07.2005 was 13,000, whereas, the sanctioned capacity of the prison was for 5650 inmates. As per Prison Statistics, 3 out of total inmates, 79.4% are under trial, 20.1% are convicts, whereas, 0.5% are detainees. The total sanctioned strength of officers and men including D.G./I.G./D.I.G/ Supdt./Dy. Supdt./Asst. Supdt./Head Warder/Matrons / warders/ Medical /ministerial staff are 1365, whereas, the actual present strength is 1038. It shows a shortage of 327 officers arid men.

The National Human Rights Commission, New Delhi in its Annual Report, 2000-2001. I has analyzed the prison population. It indicated that there were a total of 3,19,065 prisoners in the jails of all the states/ UTs, against the authorised capacity of 2,19,880 i.e. an overall crowding of approximately 31.2 per cent. A total number of jails in the country including Central Jail, District jail, Sub jail, Women jail, Open jail, Special jail, etc. are 1119.

Overcrowding in jails was being experienced in 10 states, namely, Andhra Pradesh, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Jharkhand, Madhya Pradesh, Mizoram, Orissa, Uttar Pradesh, the UTs of Andaman and Nicobar Islands and Delhi. Jharkhand had the most overcrowded jails in the country (260%) followed by Delhi (192%), Haryana (165%), and Chhattisgarh (150%).

Under trial constituted 74.18 percent of the total jail population in the country. Women account for 3.12 percent of the total jail population in the county Mizoram has the highest percentage of women in jail (11.02%) followed by Chhattisgarh (5.69%). Delhi has 4.45% women population in Tihar jail.
We should find out the reasons of overcrowding the prisons. In India, there are total 1119 prisons in a country of more than one billion of population. The total world’s population is estimated to be about six billions, i.e. every sixth person in the world is an Indian. In USA, which has the highest prison population rate in the world, every year about 100-150 new prisons are built and filled.

In India, there is slow disposal of pending trial cases in the courts, with the result that the under trial prisoners remain languishing in jails, as bail is generally denied to the accused. There is no satisfactory bail policy in India. It is purely the discretion of the Judge. In February 2003, Th Supreme Court of India had commented upon on the speed of trial in Bofors Pay off case during the hearing of application of Hinduja brothers. The Bench said this was an instance to show that criminal trial in India was like a slow-motion picture.

The Supreme Court has already said that the Judge-population ratio should be increased in phased manner. At present, it is 10.5 Judges per million of population in India. It should be five times of the present one, which is insufficient to tackle the task of disposal of mounting arrears in the Subordinate Courts and High Courts. As of now, it has resulted in accumulation of arrears of 2.4 crores cases in the courts. There are 1854 vacancies which formed 15 percent of the total judges strength in the subordinate judiciary (Total 12,780 judges post). The Law Commission of India has indicated that for every one million population, there are 50.9 judges in the U.K, 41.6 in Australia, 107 in the U.S. and 75.2 in Canada.

In petty offences and matters, police arrests the persons and sends them to jails. The National Police Commission in its 3rd report referring to the quality of arrest by the police in India, had mentioned that power of arrest was one of the chief source of corruption in the police. The report suggested that by and large, nearly 60% of the arrest were either unnecessary or unjustified and that such police action accounted for 43.2% of the expenditure of the prison department.

Following is the crime rate in the big metropolitan cities of the country, for the year 2001, of the cases per lakh of population.
Delhi 385.8 cases per lakh of population.
Cheunai 113.5 cases per lakh of population.
Kolkata 90.6 cases per lakh of population.
Mumbai 177 cases per lakh of population.
National average 172.3 cases per lakh of population.

The above table indicates that Delhi is the worst affected with spiraling crime rate resulting in the crowding of prison. The question of common man's interest regarding long vacations in the courts inspite of huge pendency of cases in all courts was taken up by Justice V.S. Malimath Committee constituted for Reforms in Criminal Justice System in India.

Lawyers’ strike has been one of the important reasons for delay in the trial of cases. Due to one or the other reasons, the lawyers, particularly in District courts and also in the High courts have been going on the strike. In April 2000, a Division Bench of the Delhi High court on the lawyers’ strike and on the Public Interest litigation filed by Dr. B.L. Wadhera, Advocate, held that the litigant’s right to a speedy trial is above the lawyers’ right to strike work and also declared the strike illegal. The Bench further said that “Assuming the lawyers are trying to convey their feelings or ideas through the strike in exercise of their fundamental rights to freedom of speech and expression guaranteed in the constitution, the exercise of such right will come to an end when it threatens to infringe the fundamental right of another”.

Another reason for delay in criminal trial include delay in the investigation of cases by the police, wherein accused persons are in judicial custody, non-availability of all concerned in the court, eyewitness, case property, stenographer and record keeper of the court, advocates of both sides, accused person and of course, the presiding Judge. If any one of them is absent, the proceedings cannot be started and adjournment will have to be granted.

The evils in the jail include corruption/extortion at the hands of jail officials and convict officers (Munshi), smuggling of drugs and other contraband items in the jails,
crime, violence, group clashes and use of improvised weapons in the jail. Famous and sensational Jail break from Tihar includes cases of Charles Sobraj and M.P. Phulan Devi’s killer Sher Singh Rana.

On the positive front of prison reforms in Tihar jail, various treatment programmes are being run by the jail department. The philosophy of reformation and rehabilitation of offenders casts upon prisons the responsibility of utilizing the period of imprisonment of offenders for their treatment with a view to modifying their behaviour to re-socialize them. Treatment of drug-addicts is being taken up in a special ward by an N.G.O. ‘AASRA’. There are 78 beds in the Jail Hospital to treat drug addicts.

**Motto in Jail:**

To instil confidence in the inmates and to maintain good working relations between the inmates and personnel of the jail, the mottos suggested include :- (i) No torture or ill treatment to any prisoner, (ii) Equally good and dignified treatment to all prisoners and (iii) All human rights for all.

The last slogan was suggested by the U.N. on the occasion of celebration of Human Rights Decade from 1994-2004.

**Legal help to prisoners :**

Legal help to prisoners can be provided by - (i) Access to lawyers of prisoners' choice, (ii) Free Legal Aid through Legal Aid sells and Legal Panchayats and (iii) Lok Adalats for the final disposal of petty cases wherein accused are in judicial custody.

**Treatment and Welfare Programmes in Prison :**

Criminologists have recognized that every prison has its own sub-culture which gets concentrated over a number of years. This accumulated sub-culture is transmitted from prisoner to prisoner and taken to prison personnel. This sub-culture is reflected in many ways, such as, prison grapevine, prison-code language, prison jargon, under world in the prison, undesirable activities, such as gambling, homosexuality, auto-cratic practices etc. A large majority of prisoners consisting of first offenders have basically to be protected from getting contaminated by such prison-culture.
Various programmes are going on in Tihar prison including: (i) Education of prisoners, (ii) Recreational and cultural activities and (iii) Yoga, Meditation and spiritual courses.

Other such programmes include computer training, technological advancement and modernization, panchayat and participative management in prison and visits of VIPs and other celebrities in the prison. Vocational training and work programme being run in Tihar Jail include Jail Factory in respect of weaving, carpentry, chemical, recycled paper unit and tailoring section.

The concept of open prisons which is not in existence in Delhi should be encouraged. They are being run in Rajasthan (Sanganer, Jaipur), U.P. etc. This can be highlighted and termed as “New Initiatives and Penal Reforms and Good Prison Practices”.

The system governing remission, leave and pre-mature release, has been an integral part of our prison administration. It has been functioning as a positive incentive to prisoners for good behaviour and work.

There are 39 N.G.O.s which are helping the Tihar Jail administration in their endeavour to reform the inmates by running various social and vocational activities.

The talk of human rights of prisoners will be futile if we do not discuss the problems of jail officials and police staff at the same time. With the jail officials, the IIIrd Battalian of Delhi Armed Police is also performing duties for production of prisoners before various courts. One Battalion of Tamil Nadu Special Police (T.S.P.) posted at Tihar Jail has been performing duty of providing security at the watch towers and peripheries, external and internal both.

There is an urgent need of reviewing the relevant laws an rules dealing with prisoners and their allied problems. Prison is state subject in the List-II of the constitution. It should be brought in the List III (concurrent) so that central government could make uniform prison laws for all the states. The whole laws relating to prisons should be consolidated. Bureau of Police Research and Development, Ministry of Home Affairs, New Delhi has brought out a good Model Jail Manual.
National Commission on Prisons should be created with legal teeth, through a proper legislation for the management superintendence of prisons in India with powers to recommend for enacting laws, rules and other guidelines for prisons and to enforce and implement.

The relevant recommendations of the various committees set up on Jail Reforms and particularly, the All India Committee Jail Reforms, 1980-83 along with the directions of the Supreme Court of India and High Courts given in various landmark judgments and also recommendations of the National Human Rights Commission should be incorporated in the National Policy on Prisons. Judiciary and National Human Rights Commission have been working as great promoter and protector of the human rights of prisoners.

The appointment of Prison Ombudsman can remove the problems of lack of transparency, which is the root cause of all the Nils in Jail.

Various other recommendations for reforms in prison include the improvements in the areas of prison buildings, food, sanitation and hygiene, clothing, bedding and equipments, medical care, prison budget, admission & release, lock-in and lock out of prisoners, complaints, redressal system, production of the prisoners in the courts, other evils in the jail, for maintaining human dignity, security and discipline, communication with the outside world, women prisoners and their children up to the age of 5 years adolescents (18-21 yrs.), juveniles, prisoners sentenced to death and life imprisonment, under trial prisoners, detenus, etc.

If these recommendations are religiously implemented, then the saying of Mahatma Gandhi that the prisoner is to be treated like a patient and the jail must have an environment of hospital for treatment and care of patient, will stand the test of time.

REFERENCES:
1. India 2003, a Reference Manual issued by Ministry of Information and Broadcasting, Govt. of India, New Delhi.
2. Tihar Prisons; an overview issued by D.G. Prison, Tihar, New Delhi.
Our justice system with ideology of distributive justice never looks at multipronged procedural technicalities baffling legal world. No wonder it sleeps over maladies of masses. In India too workingmen and peasants are administering justice rightly through panchayat system, which is oldest indigenous political institution. But it is not only courts or men who administer justice that are responsible for laws delays. The responsibility lies at other quarters also. The former Chief Justice of India Justice Y.V. Chandrachud said that courts were in no way an impediment in securing social justice, but they could not help people to achieve desired ends even when they wished to do so because of constraints and defects of existing laws. He attempted to persuade two successive Prime Ministers to take up some practical steps to solve problem of arrears. His attempts were in vain. Reports after reports from Law Commission gathered dust. Failure of judicial system in long run will undermine democratic structure and rule of law.

Three wings have well-defined roles and functions under our constitution. However, all wings have a common goal which is fulfillment of hope of Founding Fathers of our Republic and as spelt out so clearly in our magnificent constitution. Government accords high priority to judicial reforms. The National Common Minimum Programme (NCMP) envisages judicial and legal reforms and one of thrust areas in promoting good governance. It has amended procedural laws with a view to improve criminal justice system. Plea-bargaining has been introduced in Criminal Procedure Code.

Our government places special emphasis on professionalism in investigation and prosecution as well as providing protection to our citizens, particularly women, against arbitrary harassment from police. There is a bill now before parliament that
seeks to amend Criminal Procedure Code to deal with problem of witnesses turning hostile. It also seeks to provide legal rights and compensation to victims. It will also facilitate use of modern techniques in investigation. The bill will make summary trial mandatory in cases with imprisonment up to 3 years.

Fast Track Courts are another answer to dealing with problem of arrears. Fast Track Courts have reportedly established a good track record. New initiatives will undoubtedly be taken to provide relief to litigants and faith of people in judiciary will be reinforced and strengthened. As mentioned by Shri Bharadwaj, a ten year perspective plan has also been drawn up for construction of court buildings and residential accommodation for judges. Family courts will be set up at earliest.

In case of resignation and death, selection process should come into play without any delay, ensure that benches work with full strength. If wholesome principle of “merit”, enunciated by law commission is accepted in principle, there is no reason why there should be any delay determining appointments or filling resultant vacancies.

Judiciary deserves full financial autonomy funds are required for creating new posts of judges, increasing no. of courts and providing infrastructure needs finance. Judiciary has to petition Law Ministry each time it needs funds. Less than 0.3 % of GNP or 7.8 % of total revenue is spent on judiciary in India (when half of this is realized by states through courts fee and fines) compared to UK, the USA and Japan where it is between 12 and 15 % of total expenditure.

Together with adequate manpower, it is necessary to simplify and reform the current procedural laws, which provide ample scope for obstructing and stultifying legal process. In addition there are myriad laws, which have no relevance today but are frequently invoked. These must be repealed to expedite the judicial processes. “The court procedure is not to be a tyrant but a servant, an obstruction but an aid to justice, a lubricant not a resistant in the administration of justice.”

In a broad sense, due to process is interpreted here as the right to be treated fairly, efficiently and effectively by the administration of justice. The rights to due process place limitations on laws and legal proceeding, in order to guarantee
fundamental fairness and justice. Due process is interpreted here as the rules administered through courts of justice in accordance with established and sanctioned legal principles and procedures, and with safeguards for the protection of individual rights. The rules applicable to the administration of justice are extensive and refer to, inter alia, fair trial, presumption of innocence and independence and impartially of the tribunal. In most conventions, the various rules are included in several articles. As this handbook focuses on a variety of conventions, four elements of due process are discussed-(a) quality in terms of administration of justice; (b) quality in terms of protection of the rights of the parties involved; (c) efficiency; and (d) effectiveness. As due process rights are traditionally known among human right experts to centre on the right to fair trial and the right to an effective remedy, the first three elements are discussed under the heading of fair trial, while effectiveness is discussed under the right to an effective remedy.

The right to a fair trial does not focus on a single issue, but rather consists of a complex set of rules and practices. The right to a fair trial is interpreted here as the rules administered through courts of justice in accordance with established and sanctioned legal principles and procedures, and with safeguards for the protection of the individual rights. The rules applicable to administration of justice are wider and refer to, inter alia, a fair and public hearing, the presumption of innocence and the independence and impartiality of the tribunal.

The importance of these rights in the protection of human rights is underscored by the fact that the implementation of all human rights depends upon the proper administration of justice. Whenever a person’s rights are interfered with, he/she can only defend himself/herself adequately if he/she enjoys an effective recourse to due process.

The Trial is the principle method for resolving legal disputes that parties can not settle by themselves.

The chief purpose of a trial is to secure fair and impartial administration of justice between the parties to the action. A trial seeks to ascertain the truth of the
matter in issue between the parties and to apply the law to those matters also a trial provides a final legal determination of the disputes between the parties.

At present stage of civilization fairness in criminal trial has been universally accepted as a human value that a person accused of any offence should not be punished unless he has been given a fair trial and his guilt has been proved in such trials. India has accepted a democratic constitution which guarantees Justice, Liberty and Equality to all its citizens.

In view of constitutionals goals many penal laws especially procedural laws contains numerous requirement securing fairness in trial these provision lay down detailed provision for rights like fair hearing, honest investigation, impartial judiciary that ensures elimination of all kind bias or prejudice for or against the accused for the witness and aims to find out the truth. The major panel procedural statutes like Cr.P.C, Evidence etc. contains many such provisions whenever it has come to know that notice of courts any provision of law or any area affecting adversely the fairness element of criminal trial. The courts have stepped in with effective and landmarks decisions in case the court finds in accuracies in any area of law violating guarantees of fair trial they have issued direction from time to time to fill the legislative vacuum.

A fair trial has been taken from the principles of natural justice. The principle of natural justice has two main components first one is that rule against bias according to which no person can be judge of his own case second one is that every person is entitled to have right of hearing before pronouncing the judgment. Fair trial is broad concept generally it is process through which guilt & innocence of the accused is decided and manifestation of criminal trial includes various safeguard for this purpose. Such as adversile system of justice fair trial the concept of presumption of innocence of fair trial, public trial and independent, impartial and competent judge are also required for proper functioning of fair trial.

In context with international law regarding a right to a fair trial is that it is considered an ancient one and synonymous with trial process itself. It would nonsense to speak of the permissibility of an unfair trial. After centuries of
implementation in practice the right which was finally confined in the international human right instrument following World War II, is now universally recognized.

The right to fair trial is norms international human law protects unlawful and arbitrary under these instruments are trial rights, during the final right and post trial rights are blessed to the individuals.

Fairness in an ancient phenomenon, it is considered as a part of Raj-Dharma in ancient India. There is no relaxation for the individual belonging to High cast through the cast system was prevailing at the time. In the British fairness in criminal trial is crushed for in the Raja Nand Kumar and Nuremburg trial fairness is not maintained. Many constituent assembly debates have been held to make amendments in the law to ensure fairness. The exertions have been continued after independence also. Judicial emphasis is late on just and fair trial and the recommendations made by Malimath committee plays an important role to ensure fairness in criminal trials in India.

In the constitution part three deals with the fundamental rights which are conferred to the people of India. These rights are fundamental because they are not violated by the state. There is no provision which directly guarantees the fair trial. But the Articles 14, 20, 21 and 22 have given the safeguard to fair trial. These articles provide equality before law, equal protections of the laws, protection in respect of conviction for offence, protection against ex-post facto law, guarantee against double-jeopardy, prohibition of self- incrimination, protection against compulsion to be a witness, protection of life & personal liberty and protection against arrest and detention in certain cases.

The constitution has provided legal framework for Fair trial in Cr.P.C, The Evidence Act, MCOCA, TADA, POTA, FEMA, Juvenile Justice Act and Women Violence Acts.

Justice provided the state because state is the protector of public in its territory. This good work of providing justice is done through the third pillar of government i.e. Judiciary. The Indian judiciary plays a very vital role in various pronouncements of the supreme court of India on the subject of the fair trial. The judicial approach on the
fair trial as a part of the criminal justice system can be divided into two period viz. Pre Menaka Gandhi Period and Post Menaka Gandhi Period.

Post Menaka Gandhi period consists various provisions for the accused to ensure fairness in criminal trial such as speedy trial, safeguards for arrest, The right to arrest and detention, information about ground of arrest, bail - Is it a rule or an exception?, Courts power to ensure fair investigation, The right of courts, establishing more criminal courts, The right to humane condition during Pre-trial detention and prohibition of torture, right to legal counsel, right to legal-aid, handcuffing of under-trials, transferring trial outside the state, the right to self defense, requirement of notice, the right to a fair hearing, the right to a presumption of innocence, safety of witnesses, right against self-incrimination, the prohibition double-jeopardy, right to appeal, the right to compensation for miscarriage of justice.

The judicial process of delay, awareness, fair treatment for accused persons and sanctity of trial has been examined in Aligarh district through a socio legal survey. In the socio legal survey the questionnaire of twenty questions has been provided separately to judges/magistrates and academicians, government councils, private advocates and accused persons. The answers of questionnaires reveal that the condition of fair trial in District courts, Aligarh is not satisfactory.

Various extraneous factors influencing fairness of criminal trial in our country enshrined in the constitution have been discussed. The constitution of India guarantees rights to equality (article-14), right to six basic freedoms (article-19), protection to accused against ex-post facto law double-jeopardy and testimonial compilation (article 20 {1,2}and {3}), protection to life and personal liberty (article 21), protection against arrest and detention(article 22) and rights to remedies before the supreme court and high courts (article 32 & article 226-227). There is also analysis of various recommendations and the judiciary with a view to augment fairness in the criminal justice system in country specially in criminal trials such as limitations on the power of arrest, police remands, pre-hearing rights for accused persons, right to a counsel,
right to bail, right to free legal aid, right to fair treatment in police custody or in prison etc.

The concept of fair trial has been taken from the principle of natural justice. The principle of natural justice has two main components no person shall be a judge of his own case and every person is entitled to have right of hearing before pronouncing the judgment. The concept of fair trial is recognized in almost all the countries to provide fairness to the individuals without distinctions. In India the concept of fair trial is recognized in the constitution and criminal law. There is lot of provisions regarding fair trial but some are very important. “A man is presumed innocent until he is proved guilty”, is a well known common law maxim. Criminal policy considers that it is better it several guilty persons should escape punishment then one innocent person should suffer.

The police man and prison officials should be made familiar with the education in human rights. Special training should be given to the police for adopting scientific aids and techniques in the matter investigation of crimes. There are several sections which has been amended but they are not implemented even today thus the fairness in criminal trials has been effecting.
Medical Tourism in India with focus on NCR-
Emerging Challenges in 21st Century

Dr. P.N. Asthana* and Mr. Pankaj Gupta**

Medical tourism is the practice of traveling to other countries for taking the advantage of the world class health care facilities at an affordable cost. Medical tourism is not a new concept. It is being in practice since olden days. In the olden days the patients from different parts of the world use to travel to Greece and Egypt for the treatment. In later days the wealthy patients from Middle East, Africa, Latin America and Asia travels to the developed countries such as USA, UK and European countries like Germany, Hungary and Turkey etc. for treatment to get the highest quality medical care using latest technologies and advance medical infrastructure which was not available in their home country consequently the hospitals in the developed countries become overcrowded. The patients have to wait even for months to get the treatment in their home country. As a result the patients from the developed countries are looking to developing countries like India, Thailand, Malaysia and Singapore etc. for medical treatment having advance medical infrastructure and state of art accredited hospitals at par with the international standards with zero waiting time at very less cost for the same treatment as compared to their home country. India has emerged as a hub for Medical tourists offering wide variety of medical treatments such as Cardiology, IVF, orthopedic and joint replacement, stem cell therapy, organ transplant, oncology, Surrogacy, Bone marrow transplant, cosmetic surgeries, alternative therapies like Ayurveda, Yoga, Naturopathy and other rejuvenating therapies with success rate at par with the best in the world. Medical tourism is the largest and fastest growing industry in the world as a result the developing countries have recognized the potential which medical tourism hold for their economies.
Major competitors for India in medical Tourism Industry-

Globalization of health care resulted in the growth of medical tourism at a rapid pace. Growing number of patients from the developed countries are travelling to the third world countries for the medical treatment including India. More than 50 countries have identified medical tourism as one of the fastest growing industry and taken steps to promote it. The table 1.1 exhibits the important destinations promoting medical tourism from all around the world.

<table>
<thead>
<tr>
<th>Block-1 America</th>
<th>Block-2 Europe</th>
<th>Block-3 Africa</th>
<th>Block-4 Asia/ Middle East</th>
<th>Block-5 Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>UK</td>
<td>South Africa</td>
<td>China</td>
<td>New Zealand</td>
</tr>
<tr>
<td>Canada</td>
<td>Turkey</td>
<td></td>
<td>India</td>
<td>Australia</td>
</tr>
<tr>
<td>Colombia</td>
<td>Germany</td>
<td></td>
<td>Israel</td>
<td></td>
</tr>
<tr>
<td>Costa Rica</td>
<td>Hungary</td>
<td></td>
<td>Jordan</td>
<td></td>
</tr>
<tr>
<td>Panama</td>
<td>France</td>
<td></td>
<td>Malaysia</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>Lithuania</td>
<td></td>
<td>Singapore</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>Poland</td>
<td></td>
<td>UAE</td>
<td></td>
</tr>
<tr>
<td>Cuba</td>
<td>Estonia</td>
<td></td>
<td>Thailand</td>
<td></td>
</tr>
<tr>
<td>Uruguay</td>
<td>Romania</td>
<td></td>
<td>Philippines</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cyprus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bulgaria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Czech Republic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source- http://en.wikipedia.org/wiki/Medical_tourism

India has the strong competition from the Asian countries such as Malaysia, Singapore, and Thailand. India is the new entrant in the medical tourism industry as [48]
compared to its Asian competitors. The Asian medical tourism industry has been growing at a double-digit growth rate for the past few years. The major reason for expansion of medical tourism in Asia is that the Asian countries offer quality medical services at a very low cost as compared to the western countries with nearly zero waiting time. Thailand, India, and Singapore dominated the region’s medical tourism industry, with a combined market share of over 89% in 2010.

**Medical tourism Industry in India**

India is one of the important players in the medical tourism industry in the world. Patients from the foreign countries are visiting India for the medical treatment in large numbers. India with its 5000 year old civilizations and rich historical and cultural diversity has always attracted the foreign tourists. India with its low cost quality medical treatment like Cardiac surgeries, IVF, Joint replacement and other Orthopaedic procedures, stem cell therapy, organ transplant, oncology, Surrogacy, Bone marrow transplant, cord blood banking and cosmetic surgeries along with alternative therapies like the Ayurveda, naturopathy, yoga and other rejuvenation therapies is attracting medical tourist from Europe, South Asia and Middle East. In India Chennai, Bangalore, Mumbai and NCR have emerged as noticeable medical centre for the medical tourists. India has 22 JCI and 191 NABH accredited hospitals promoting medical tourism. Indian corporate hospitals have large pool of doctors, nurses and support staff ensuring individualized treatment with wide experience and international exposure. India has state of art medical investigation laboratories using latest technology and cutting edge diagnostic equipment. India’s strong pharmaceutical sector has gained international recognition and contributed to the growth of medical tourism. India has several advantages over its competitors making it a pioneer in the medical tourism industry.

- The cost of the treatment in India is the lowest in the world.
- Hospitals in India have doctors and medical staff having world class exposure and fluency in English.
Waiting time for the treatment in India is nearly zero.

India has rich history of alternative medicine and rejuvenation therapies which has attracted the attention of western world.

The favourable currency exchange rate makes India a favourable destination for medical tourists. Fall of rupee versus dollar has proved to be advantageous to the patients from Middle East, Africa, US, UK and SAARC countries to the extent of 35 to 45 per cent on complex surgeries as a result the number of medical tourists coming to India has jumped by 40 per cent in the past six months as per report from ASSOCHAM.

**Hospitals promoting medical tourism in NCR-**

NCR is the prominent hub for the Medical tourists coming to India for Treatment. NCR has large number of corporate hospitals promoting medical tourism. In the last two decades, the economic boom in India has led to the building of medical facilities and infrastructure which is at par with the very best in the world. Hospitals in NCR are having thousands of skilled physicians, nurse and other paramedical staff. Many of the physicians that practice in these hospitals have returned to India from the U.S. and Europe, leaving behind successful practices having international exposure. India is one of the countries that offers a comprehensive solution for all medical needs, and does this with the highest levels of success and professional skills. A complex transplant or bypass procedure can be done for a $1/10^{th}$ of the cost for the same procedure in the U.S. and Europe. The costs are usually a lot lower than even the premium deducted by most of the insurance companies from patient.

There are many corporate hospitals aggressively promoting the medical tourism in NCR region.

1. Indraprastha Apollo Hospital, New Delhi
2. Medanta – The Medicity, Gurgaon
3. BL Kapur Hospital, New Delhi
4. Artemis Health Care Institute, Gurgaon
5. Moolchand Hospital, New Delhi
6. Sir GangaRam Hospital, New Delhi
7. Columbia Asia Hospital
8. Fortis Hospital, New Delhi
9. Max Health care, New Delhi
10. Paras Hospital, Gurgaon

A survey was conducted in all the major corporate hospitals promoting medical tourism in NCR region. The data was collected from 100 foreign patients from 16 countries visited India especially NCR for the medical treatments to find out the disease for which they are taking treatment in India. The survey revealed that 34% patients visited India for cardiology, 20% patients for orthopedic and joint replacement, 16% for oncology, 12% for IVF and problem related to gynecology, 6% for neurology, 4% for urology, 4% Kidney transplant surgery, 2% for gastroenterology, 2% for ophthalmology.

Chart-1 Treatment taken by medical tourists

Source- Survey conducted in the hospitals promoting medical tourism in NCR

Majority of the foreign patients visited India for Cardiac treatment followed by orthopedic & joint replacement followed by IVF & Gynecology. 10% of all the patients
visited hospitals in India have taken the advantage of wellness therapies such as Ayurveda, Yoga and other rejuvenating therapies for reducing stress, preventing many life style related disease, promoting general health and recovery from the ill effect of the allopathic medicines.

**Medical Tourism Growth**

India is gradually becoming a major healthcare destination of the world. India's medical tourism sector is expected to grow at the annual growth rate of 30% which makes it as one of the fastest growing industry in the world. Confederation of Indian Industry reported that 150,000 medical tourists came to India in 2005, based on feedback from the organization's member hospitals. The number grew to 200,000 by 2008. A study by ASSOCHAM reported that the year 2011 saw 850,000 medical tourists in India and projected that by 2015 this number would rise to 3,200,000. It is been predicted that India will be one of the fastest growing medical tourism destinations in the world and will become a market leader by 2015. Despite of massive growth in the Indian medical tourism industry still there are certain grey areas we must certainly look into to consolidate the growth.

**Constraints for medical tourism in India**

Despite of upsurge in the medical tourism industry there are some constraints which India has to tackle to consolidate its position as the most preferred destination for the medical tourists in the world. As per the survey conducted in the 10 hospitals promoting medical tourism in NCR and feedback given by the foreign patients the main constraints in the development of the medical tourism in India are-

- In India not much legal option available to the foreign patients in case anything goes wrong during the treatment. India does not have any well-established malpractice law as a result proving the negligence of the treating doctors during the treatment is difficult. Hospitals are incompetent to manage the complaints of the patients in case of medical negligence.
- India is perceived as one of the most un-hygienic countries in the world. The negative perception about the public sanitation and hygiene standard, outbreak of...
contagious disease, rumour about super bug and the waste management practice adopted in the country has hit the medical tourism sector the most. The well to do patients from developed countries prefers to go to Thailand, Malaysia and Singapore nullifying the cost advantage of Indian health care system.

- There is disparity in the price charged for different treatments across the hospital all around the country. This inconsistency in the price creates confusion in the minds of the foreign patients about the quality of the treatment.

- Lack of proper infrastructure in terms of inadequate flight connectivity, poor roads as compared to developed countries, Traffic jam, insufficient accommodation facility around the hospital for the medical tourists, sewage, water and electricity problems are hindrance in the growth of the medical tourism in India.

- Poor experience of foreign visitors about the incidents of touting and harassment of the medical tourists coming to the country. Hospitals are also harassing the foreign tourists by giving wrong estimate of the treatment and later charging more than the estimate.

- Medical tourism is totally dependent on the western countries due to high cost of health care services and rising number of uninsured citizen having medical insurance. In US the patient protection and affordable care act (PPACA) passed in 2010 with the objective to increase the access to medical insurance and reducing health care cost. This act will raise the demand for domestic healthcare and reduce the demand for medical tourism.

- Increase in the competition for its share among the countries in the medical tourism industry lead to the state of saturation. The entire player in the medical tourism industry offers similar products; success can only be achieved if countries can do macro level differentiation such as promoting better infrastructure, supportive government policies and greater number of accredited hospitals and medical staff. These advantages have to be properly managed otherwise countries like India will be on the losing side in future.
Suggestions-

As per the survey conducted in the 10 hospitals promoting medical tourism in NCR and feedback given by the foreign patients the following suggestions have been framed:

- The government of India has to work for improving the status of medical tourism by removing political instability, terrorism, Bureaucratic roadblocks, and Taxation anomalies. Government should introduce long term revenue generating projects and investor friendly policies to get benefit from medical tourism. Government should make provisions to provide Quality accreditations to the Indian health centres and should apply the customer oriented approach to improve the image of Indian hospitals.

- Government has to simplify the norms for medical Visas to make the international patients travel across the border easy. The procedures for obtaining medical visa, the subsequent registration and visa extension procedures are complicated and time consuming as a result the patients has to come for treatment on tourist Visa. There is a need to simplify and speed up these procedures to make India a more attractive medical tourism destination. Lot of reforms has been done in this regard such as Visa on arrival but still it is not enough.

- Indian corporate hospitals should make Joint ventures and alliances with capacity constraint hospitals, NHS, leading insurance companies to counter the competition in the medical tourism industry. The tie ups will ensure continuous supply of medical tourists to India.

- Focus on the standardization by establishing price parity for similar kind of treatment in all the hospitals across country. The stringent rules and regulation and standards have to be framed to ensure quality treatment to foreign patients at same price.

- India has to launch an integrated marketing campaign using print media, international trade fairs, media campaigns and road shows. The campaign should
highlight the medical tourism by focusing on high quality medical service, value for money and country with rich cultural heritage with history of alternative therapies.

- Inter sectorial coordination is the key for the success of medical tourism. All the stake holders such as Tourism department, transport operators, hotel associations, escort personnel, language translators have to work in the synchronous manner to promote medical tourism.
- Hygienic food and international cuisine should be made available to the international patients especially from Africa, and Middle East countries. Most of the patients and their relatives have the problem with the food available for them in the hospital cafeterias.

Conclusion-

India has a vast potential for improving medical tourism for which it is imperative for the government to undergo changes in the rules and regulations related to medical tourism. Government should also encourage implementation of PPP Model where all the stakeholders work together to promote medical tourism. Integrated marketing campaign has to be planned focusing to build brand “India” highlighting the quality of the medical services at a very low cost keeping in view rich cultural heritage which India has.

REFERENCES-


WEB SITES-


5. http://en.wikipedia.org/wiki/Medical_tourism_in_India

Indian Economy is the second fastest growing economy of the world after China. The strength of the Indian Economy lies in the fact that it survived from historic economic recession of 2008 and the subsequent European economic crisis. The 8.5% plus growth rate of GDP during the last decade seems quite impressive but all these glittering achievements fade their shine when the assessment of the economy is done in terms of poverty and inequalities especially in rural areas of India. It is true that per capita income in rural areas grew significantly as a result of various rural development programmes such as IRDP, JRY, SGSY, National Rural Livelihood Mission and MNREGA. Various studies have shown that average wages of rural agriculture labourers have increased considerably because of successful implementation of MNREGA. But there are many pit-falls in the growth story of rural India. Inequalities of income and wealth have grown in the post independence era especially during the era of economic reforms. Majority of the economists and policy makers are of the view that economic growth is an important factor to mitigate the curse of poverty and inequality. Economic growth creates more resources and also the potential of creating more space for the involvement of poor. But the involvement of poor, depends on the sources of employment, the growth of employment depend upon the economies of the activities which have a tendency to create employment. Such growth helps poverty eradication.

So far as the Indian economy is concerned, the growth trends during the post independence economies do not match with these premises. The average annual growth
during the last two decades has been to the order of 6 percent plus. In some years an annual growth rate of GDP has been 9 percent plus but sectoral analysis of growth outcome shows that the high growth rate of GDP has been the outcome of high performance of service sector.

On the contrary the growth rate of agricultural and allied activities has remained to the order of 2-3 percent which resulted into the decline of its share in GDP at the level of 14.2 percent during 2011-12. All the data pertaining to the growth of GDP and the social indicators show that growth pattern during the last two decades has not been inclusive.

As a result the inequalities of income and wealth have widened considerably. Although policy makers and the political leadership often claim that incidence of poverty in India has reduced considerably, during the last two decades. But the recent affidavit submitted by Planning Commission in Supreme Court tells a different story. According to Planning Commission, a person with Rs. 32 per day per capita expenditure in urban areas and Rs. 22 in rural areas is no more a poor. It is the irony of the data conquoted in Planning Commission as well as the other agencies of the government that the true picture of poverty and inequality does not reflect official sources.

The economic and social indicators, that are being used to construct human development and socially useful indicators did not coincide with the claim of Government. As per the Human Resource Development report 2011 prepared by UNDP, India’s rank is 134th in 2011 among 187 countries. India’s-HDI is 0.5 which is below than that of China and Sri Lanka. In view of this the present paper entitled ‘Rural Development in Relation to Poverty and Inequality’ analyses the pattern of growth in relation to the poverty and inequality in India. The paper is divided into five sections:-

1. Introduction

Although poverty and inequality are the two faces of the same point that is standard of living, their magnitude and interrelationship have different aspects of policy interventions on the part of the state. Growth in itself is treated as fundamental
requirement for the elimination of poverty. However the economists have different views on the elimination of poverty and inequality for the growth of GDP. Some of the economists are of the view that inequalities of the incomes and the wealth can be compromised if higher growth has a direct impact on the reduction of poverty, it means in monetary terms if higher growth rates of GDP results into a significant decrease in a number of persons living Below Poverty Line (BPL) then it hardly matters that high growth rate of GDP has widened the gap between rich and the poor. The other school of the thoughts gives greater attention to the reduction of inequalities of income and wealth for them. Growth of the GDP matters but not at the cost of the widening of the gap between the rich and the poor. In this case the policy interventions must be pro-poor even if the growth rate is moderate.

The state has started intervening in poverty reduction strategies since 1972 either in the form of employment generating programmes such as Prime Minister’s crash Programme, Employment Generating Programme, Food for Work Programme, NREP, Rural Landless Labourer Employment Guarantee Programme, Jawahar Rojgar Yojana, Sampurna Gramin Rojgar Yojana and Mahatma Gandhi National Rural Employment Guarantee Programme (MNREGA) or in the form of SFDA, IRDP, TRYSEM, DWACRA, SITRA, SGSY and National Rural Livelihood Mission. The era of economic reforms stated two decades ago have brought certain changes in developmental strategy. The programme of structural changes in the economy give greater attention to higher GDP growth in the process the public expenditure in social sector proned so as to resumed if skilled deficit. The private sector has been given a free hand to run educational and medical institutions. GDP and per capita GDP grew at higher rates during this period. Average annual growth rate in GDP at constant price during 2005-11 is 8.6 percent but this higher growth rate of economy was service sector oriented, the average annual growth rate of agricultural sector was 3.4 percent. Since more than 2/3 of the population of the country depends on agriculture for their survival and lower growth rate in agricultural sectors means lower share of 2/3 population of the country in the overall GDP. The above simple mathematics shows that the growth of
the economy has not been inclusive. The higher GDP did not percolate downward as it would have been perceived. A data on poverty reduction might give a chance to policy planners to claim the overall reduction in poverty, but the quantum (in) and per capita expenditure during 2010 shows that inequalities of income have widened. The India Human Development Report 2011 also confirms the above observations. The Planning Commission’s affidavit in Supreme Court says that per capita per day expenditure of Rs. 32/- in urban areas and Rs. 22/- in rural areas is the poverty line. It is the mockery of the system that the cost of a drinking water bottle is Rs. 15/-, then the survival of the poor Rs. 32/- per day per capita is eye opening.

2. Methodology

The present paper is based on the secondary data collected from Ministry of finance, The Planning Commission, Ministry of Rural Development, and the UNDP and the World Bank. Data regarding poverty have been used from Tendulkar committee. Various statistical tools have been used as and where found necessary. The nature of paper is analytical.

3. Objectives of the Study

- To understand the basic obstacle in the rural development.
- To understand the gap in level of living between high income and low income.
- To analyse the impact of government programmes on poverty reduction.

4. Analysis of Growth and Poverty in India

It is a proven fact that growth is essential for poverty reduction. Experiences of many countries show that they reduced poverty successfully with higher growth rates of national income. But it is a million dollar question. How can we promote growth in which poor people are able to participate- in other words, pro poor growth? A strategic policy frame work for pro poor policies can be built upon the twin pillars of improving the investment climate to accelerate growth and empowering poor people to contribute to and benefit from the growth. Investment climate is concerned with the factors that determine the level of current investment, as well as productivity of ongoing
investments and the stability of those with returns over the medium term. The investment climate necessarily involves institutions, rules and governance as well as traditional questions of fiscal policy, public expenditure management and taxation. So far as the eradication of poverty is concerned the role of small and medium sized enterprises is critical. It they grow, it is likely that larger firms will benefit as well and the growth will precipitate downward. (i) Marco economic stability and openness (ii) Economic governance and institutions, including both implementation of efficiency-enhancing regulation and elimination of regulations that lead to waste and rent seeking behaviour and (iii) infrastructure and fundamental for the improvement of climate for investment.

Indian economy has grown at an average rate of 06.5 percent during the last twenty years. In per capita terms income growth has accelerate from the Hindu rate of less than 1 percent prior to the 1980s to 03.7 percent per annum since 1980-81.

In more specific terms the growth rate of GDP has reached to 8.6 percent plus level during 2005-06 to 2010-11. Even during the era of historic global recession in 2008-09 Indian economic grew by an impressive rate of 6.7 percent in comparison to negative growth rates in many developed countries. These achievements present a rosy picture of Indian Economy.

However, the acceptance is considerably different on the flip side of growth, poverty levels and changes in the levels of poverty. The definitional aspect in itself is a complicated issue. The accepted and official, definition of poverty in India, based on the recommended methodology of Expert Group (1993) ,consumption of goods worth Rs. 49 (per capita per month) in the rural areas and Rs. 57 in Urban areas according to 1993-94 prices-has been rejected by another expert group (2009) appointed by Planning Commission under the chairmanship of Prof. S.D. Tendulkar. As per the recommendations of Tendulkar Committee the all India rural poverty headcount ratio is 41.8 percent in 2004-05 (at 2004-05 prices) in comparison to 28.3 percent (at 1993-94 prices) of old methodology. By this exercise poverty at all India level in 1993-94 was 50.1 percent in rural areas, 31.8 percent in urban areas and 45.3 percent in the country
as a whole as compared to the 1993-94 official estimates of 37.2 percent rural, 32.6 percent urban and 36.0 percent combined. Expert group claims that even though the suggested new methodology gives higher estimates of rural head count ratio at the all India level for 2004-05, the extent of poverty reduction in comparable percentage point decline between 1993-94 and 2004-05 is not different form that inferred using the old methodology.²

As per the new methodology the reduction in poverty incidence in rural areas is 8.3 percentage points as compared to 5.0 percentage point according to old methodology. But, the reduction levels in urban areas and country as a whole are almost the same in both the methodology. But the reduction levels, in poverty incidence in different states is highly skewed.

Another expert group under the chairmanship of N.C. Saxena (Ministry of Rural Development, GOI) has pegged up poverty line to 50 percent for the purpose of below poverty line Census 2009. World Bank’s recent estimates states that 42 percent of Indian population is living below new poverty line of US $ 1.25 per day per capita income. Thus, there is no dearth of data on poverty and income levels of Indian households.³

Yet there is raging controversy about whether poverty levels in India have increased in the 1990s and post 1990s a period coincident with the ushering in of macro economic reforms. India, containing the largest number of poor in the world is an obvious test case for whether economic liberalisation work. Whether economic reforms have a human face etc.

Prof. Surjit S. Bhalla, came across a bizarre situation presented by NSS data. As per Planning Commission’s estimates of poverty reduction from 54 percent in 1973-74 to 43 percent in 1983-84 and further declined to 36 percent in 1993-94. However, for 1998, poverty was reported to have increased by about 6 percentage points to around 42 percent in spite of per capita consumption and income having grown by about 4.5 percent per annum or about 20 percent during the 4 years intervening period.⁴
Prof. Bhalla questioned the ‘findings’ of NSS on the ground of spurt in growth during 1980s and awards. Indian economy grew by an average rate of 5.5 percent during 1980s, 6 percent during 1990s and 7.56 percent during post 1990s, what is more relevant for the measurement of poverty point is the growth in per capita income (and/or consumption). Per capita growth has gone up from 3.6 percent in 1980s to 4.2 percent in the 1990s and further to 5.5 percent in post 1990s and further to 8 percent plus during the first decade of twentyfirst century. Thus, collecting the NSS data and National Accounts statistics, one is confirmed with a bizarre situation of accelerated growth higher per capita income and an increase in absolute poverty to levels observed in the early 1980s.¹

Datta (1999), Dubey and Gangopadhyay (1981), Deaton and Tarozzi (1991) also dis not indicate a wide acceptance of NSS data and the whole process of estimation of poverty incidence in India more over different set of estimation of poverty line and number of poverty head count has made the whole issue more complex and complicated.⁹

### Poverty Incidence and growth of the Indian Economy

#### Table No. 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Average annual growth rate of constant (2004-05) price constant</th>
<th>Poverty HCR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GDP</td>
<td>Per Capita NDP</td>
</tr>
<tr>
<td>1973 - 74</td>
<td>01.73</td>
<td>-0.73</td>
</tr>
<tr>
<td>1977- 78</td>
<td>04.53</td>
<td>02.43</td>
</tr>
<tr>
<td>1983</td>
<td>05.47</td>
<td>03.07</td>
</tr>
<tr>
<td>1987 - 88</td>
<td>06.00</td>
<td>03.57</td>
</tr>
<tr>
<td>1993 - 94</td>
<td>05.83</td>
<td>03.77</td>
</tr>
<tr>
<td>1999- 00</td>
<td>05.03</td>
<td>03.57</td>
</tr>
<tr>
<td>2004 - 05</td>
<td>06.50</td>
<td>04.87</td>
</tr>
<tr>
<td>2009-10</td>
<td>08.00</td>
<td>06.1</td>
</tr>
</tbody>
</table>

* Trinial average for GDP, per capita NDP and per capita income.
Source Vivek Oberai (2012), Planning Commission and Poverty blogs Economic Times, India Times.com
Poverty incidence in relation to growth to GDP and per capita NDP has been given in Table No. 1. The table shows that rural poverty has come down from 56.44 percent in 1974 to 33.8 in 2009-10; urban poverty declined from 49.0 percent to 20.9 percent and combined poverty incidence declining from 55.88 percent to 29.8 percent. It shows that incidence of poverty has a declining trend so far as the growth rate of GDP and per capita NDP is concerned both show arising trend. (Table No. 1)

Coefficient of correlation between real GDP growth and poverty HCR (%) in rural urban areas and in combined forms are highly negative (Table 1.) then also confirms hypothesis that higher growth rate leads to decline in poverty, But the resents of (Table 1.) should be considered cautiously because figures of poverty HCRs for 2004-05 are not strictly comparable with those of 1993-94 and 1999-2000. The poverty estimates in 2004-05 based on URP consumption distribution (27.05 percent) are comparable with the poverty estimates of 1993-94 (35.97%). The poverty estimates in 2004-05 based on MRP consumption (21.8%) are roughly (but not strictly) comparable with the poverty estimates of 1999-2000 (26.1%). Higher estimates of poverty incidence in 2004-05 by Expert Group (2008) made the whole issue more complicated and it is rather difficult to draw any conclusion, based on poverty data regarding the exact impact of growth on poverty, However it is beyond doubt that despite a high growth of real GDP and per capita NDP more than 40 crore people in India are still living below poverty line.

Table No. 2
COMPARISON OF POOR IN RURAL & URBAN AREAS

<table>
<thead>
<tr>
<th>Survey Years</th>
<th>Percent of BPL Population</th>
<th>Poverty line</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>1973-74</td>
<td>56.44</td>
<td>49.01</td>
</tr>
<tr>
<td>1977-78</td>
<td>53.1</td>
<td>45.24</td>
</tr>
<tr>
<td>1983-84</td>
<td>45.7</td>
<td>40.79</td>
</tr>
</tbody>
</table>
The Table No. 2 shows that poverty line in terms of Rs increased from Rs.49.63 for rural areas and Rs.56.76 for urban areas in 1973-74 to Rs.672.8 and Rs.859.56 respectively in 2009-10. The budget for the poverty line was undervalued in the previous survey years too. Comparison of Indian BPL estimates with the UNDP’s human Development Report (HDR) 2010 reveals sharp contrast with the national estimate that roughly half of India’s population suffers from poverty. HDR released two different dimension of poverty: one is Purchasing Power Parity (PPP) at $1.25 a day, an UN-calculated international line. It shows population below income poverty line is 41.6 percent. The second classification as per the national line is 28 percent. HDR data also estimates that the headcount of population with multi-dimensional poverty in India is 55.4 percent and intensity of deprivation is 53.5 percent. (Table No. 2)

Table No.3
POVERTY LINES AND BPL POPULATION
(Poverty Lines 2009-10, monthly per capita `)

<table>
<thead>
<tr>
<th>States</th>
<th>Rural</th>
<th>Urban</th>
<th>Total BPL Population (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2004-05</td>
<td>2009-10</td>
<td></td>
</tr>
<tr>
<td>Bihar</td>
<td>655.6</td>
<td>775.3</td>
<td>54.4</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>617.3</td>
<td>806.7</td>
<td>49.4</td>
</tr>
<tr>
<td>Manipur</td>
<td>871</td>
<td>855</td>
<td>37.9</td>
</tr>
<tr>
<td>State</td>
<td>Human Poverty Line</td>
<td>Rural Poverty Line</td>
<td>Urban Poverty Line</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------</td>
<td>--------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>616.3</td>
<td>831.2</td>
<td>45.3</td>
</tr>
<tr>
<td>Assam</td>
<td>691.7</td>
<td>871</td>
<td>34.4</td>
</tr>
<tr>
<td>J.P.</td>
<td>663.7</td>
<td>799.9</td>
<td>40.9</td>
</tr>
<tr>
<td>Orissa</td>
<td>567.1</td>
<td>736</td>
<td>57.2</td>
</tr>
<tr>
<td>M.P.</td>
<td>631.9</td>
<td>771.7</td>
<td>48.6</td>
</tr>
<tr>
<td>W. Bengal</td>
<td>643.2</td>
<td>830.6</td>
<td>34.2</td>
</tr>
<tr>
<td>Arunachal</td>
<td>773.7</td>
<td>925.2</td>
<td>31.4</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>755</td>
<td>846</td>
<td>34.4</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>743.7</td>
<td>961.1</td>
<td>38.2</td>
</tr>
<tr>
<td>Karnataka</td>
<td>629.4</td>
<td>908</td>
<td>33.3</td>
</tr>
<tr>
<td>Gujarat</td>
<td>725.9</td>
<td>951.4</td>
<td>31.6</td>
</tr>
<tr>
<td>Mizoram</td>
<td>850</td>
<td>939.3</td>
<td>15.4</td>
</tr>
<tr>
<td>Andhra</td>
<td>693.8</td>
<td>926.4</td>
<td>29.6</td>
</tr>
<tr>
<td>Nagaland</td>
<td>1016.8</td>
<td>1147.6</td>
<td>8.8</td>
</tr>
<tr>
<td>Haryana</td>
<td>791.6</td>
<td>975.4</td>
<td>24.1</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>719.5</td>
<td>898.6</td>
<td>32.7</td>
</tr>
<tr>
<td>Tripura</td>
<td>663.4</td>
<td>782.7</td>
<td>40</td>
</tr>
<tr>
<td>Meghalaya</td>
<td>686.9</td>
<td>989.8</td>
<td>16.1</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>639</td>
<td>800.8</td>
<td>29.4</td>
</tr>
<tr>
<td>Punjab</td>
<td>830</td>
<td>960.8</td>
<td>20.9</td>
</tr>
<tr>
<td>Delhi</td>
<td>747.8</td>
<td>1040.3</td>
<td>13</td>
</tr>
<tr>
<td>Sikkim</td>
<td>728.9</td>
<td>1035.2</td>
<td>30.9</td>
</tr>
<tr>
<td>Kerala</td>
<td>775.3</td>
<td>830.7</td>
<td>19.6</td>
</tr>
<tr>
<td>Himachal</td>
<td>708</td>
<td>888.3</td>
<td>22.9</td>
</tr>
<tr>
<td>J &amp; K</td>
<td>722.9</td>
<td>845.4</td>
<td>13.1</td>
</tr>
<tr>
<td>Goa</td>
<td>931</td>
<td>1025.4</td>
<td>24.9</td>
</tr>
<tr>
<td>Puducherry</td>
<td>641</td>
<td>777.7</td>
<td>14.2</td>
</tr>
</tbody>
</table>

20 March 2012. (Newspaper)
Table No.3 shows that the all-India poverty ratio declined from 37.2% in 2004-05 to 29.8% in 2009-10 by using the Tendulkar committee methodology. These data further reveal that Poverty ratio in Himachal, Madhya Pradesh, Maharashtra, Orissa, Sikkim, Tamil Nadu, Karnataka and Uttarakhand declined by about 10% or more. In Assam, Delhi, Manipur, Meghalaya, Mizoram and Nagaland, poverty increased in 2009-10.

**Rural Poverty**

The all-India poverty ratio declined from 37.2% in 2004-05 to 29.8% in 2009-10, by using the Tendulkar Committee Methodology. Poverty ratio in Himachal, MP, Maharashtra, Orissa, Sikkim, TN, Karnataka and Uttarakhand declined by about 10% or more. In Assam, Delhi, Manipur, Meghalaya, Mizoram and Nagaland poverty increased in 2009-10. Rural poverty has declined by eight percentage points, from 41.8 percent to 33.8 percent, and urban poverty by 4.8 percent, from 25.7 percent to 20.9 percent. At the national level, anyone earning Rs. 672.8 monthly that is earning Rs. 22.42 per day in the rural area and Rs. 859.6 monthly or Rs. 28.35 per day in the urban area is above the poverty line. Population as on March 1, 2010 has been used for estimating the number of persons below the poverty line.

The Total number of people below the poverty line in the country is 35.46 crore as against 40.72 crore in 2004-05. In rural areas, the number has come down from 32.58 crore five years ago to 27.82 crore and the urban BPL number stands at 7.64 crore as against 8.14 crore five years ago.

One of the most astonishing revelations is that poverty has actually gone up in the north-eastern States of Assam, Meghalaya, Manipur, Mizoram and Nagaland. Even big States such as Bihar, Chhattisgarh and Uttar Pradesh registered only a marginal decline in poverty ratio, particularly in the rural areas, whereas States such as Himachal Pradesh, Madhya Pradesh, Maharashtra, Odisha, Sikkim, Tamil Nadu, Karnataka and
Uttarakhand saw about 10 percent decline in poverty over the past years. States with high incidence of poverty are Bihar at (53.5 percent), Chhattisgarh (48.7 percent), Manipur (47.1 percent), Jharkhand (39.1), Assam (37.9 percent) and Uttar Pradesh (37.7 percent). However, it is in poverty-ridden Odisha that monthly per head expenditure of just Rs. 567.1 and Rs. 736 in rural and urban areas respectively puts one above the poverty line, while in Nagaland, where the incidence of poverty has gone up, the per capita consumption expenditure of Rs. 1016.8 and Rs. 1147.6 is rural and urban areas puts one above the poverty level.

Among social group in the rural areas, Scheduled Tribes (47.4 percent) suffer the highest level of poverty, followed by Scheduled Castes (42.3 percent), Other Backward Castes (31.9 percent) as against 33.8 percent for all classes. In rural Bihar and Chhattisgarh, nearly two-third of the SCs and the STs are poor where as in States like Manipur, Orissa and Uttar Pradesh It is more that 50 percent. In rural areas, 34.4 percent of SCs, 30.4 of STs and 24.3 percent OBCs fall under this category against 20.9 percent for all classes. (Table No. 3)

The behaviour of various measures of poverty and inequality in India are given in Table -4. The poverty Head Count Ratio, however, makes no distinction whether the broad category of the poor depending upon their actual levels of consumption and deprivation. As a result the poverty ratio fails to capture the depth and severity of poverty in an adequate manner. A measure of capturing the depth of poverty is the poverty gap (PG) index, which adjusts the poverty ratio with difference between the per capita consumption of the poor and poverty line expressed as a percentage of the poverty line. This is therefore a measure of the magnitude of the effort that would be requiring shifting.
Table 4
Indices of Poverty and Inequality in India

<table>
<thead>
<tr>
<th>Year</th>
<th>Rural</th>
<th>Urban</th>
<th>Total</th>
<th>Rural</th>
<th>Urban</th>
<th>Total</th>
<th>Rural</th>
<th>Urban</th>
<th>Total</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973-74</td>
<td>56.4</td>
<td>49.0</td>
<td>54.9</td>
<td>16.56</td>
<td>13.64</td>
<td>15.95</td>
<td>6.81</td>
<td>5.26</td>
<td>6.48</td>
<td>0.27581</td>
<td>0.30125</td>
</tr>
<tr>
<td>1977-78</td>
<td>53.1</td>
<td>45.2</td>
<td>51.3</td>
<td>15.73</td>
<td>13.13</td>
<td>15.15</td>
<td>6.48</td>
<td>5.25</td>
<td>6.21</td>
<td>0.33861</td>
<td>0.34483</td>
</tr>
<tr>
<td>1983-84</td>
<td>45.7</td>
<td>40.8</td>
<td>44.5</td>
<td>12.32</td>
<td>10.61</td>
<td>11.96</td>
<td>4.78</td>
<td>4.07</td>
<td>4.61</td>
<td>0.29759</td>
<td>0.33027</td>
</tr>
<tr>
<td>1987-88</td>
<td>39.1</td>
<td>38.2</td>
<td>38.9</td>
<td>9.11</td>
<td>9.94</td>
<td>9.32</td>
<td>3.15</td>
<td>3.60</td>
<td>3.26</td>
<td>0.29826</td>
<td>0.35369</td>
</tr>
<tr>
<td>1993-94</td>
<td>37.3</td>
<td>32.4</td>
<td>36.0</td>
<td>8.45</td>
<td>7.88</td>
<td>8.30</td>
<td>2.78</td>
<td>2.82</td>
<td>2.79</td>
<td>0.28190</td>
<td>0.33940</td>
</tr>
</tbody>
</table>


Rising inequality in both rural and urban India is reflected in consumer expenditure. During the period 1993-94 to 2004-05 there was an increase in consumptive income in both rural and urban areas both in terms of uniform (URB) as well as the mixed reference period (MRP). (Table No. 4) The difference in the consumption expenditure between the house hold concentrated at the top and these located at the bottom increased in both Rural & Urban areas. Vakula Bharnam (2010) found in an study that in rural area the gap between the rural elite (money lenders and absentee landlord and rural poor (marginal formers or agricultural labourers) has in creased in 2004-05 as compared to 1993-1994 likewise in urban India, the distance between the elite (represented by the owners, Manger & pro percent) and the poor had in increased in several year.³

Table-5 : Inequality in Monthly Per Capita Expenditure in Rural and Urban Areas based or URP and MRP (Gini Coefficient) 1993-94 and 2004-05.

<table>
<thead>
<tr>
<th>Year</th>
<th>Gini Coefficient Based on URP</th>
<th>Gini Coefficient Based on MRP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>1993-94</td>
<td>0.28</td>
<td>0.34</td>
</tr>
<tr>
<td>2004-05</td>
<td>0.30</td>
<td>0.37</td>
</tr>
</tbody>
</table>

As per NSS 66th data a compassion of MPCE across states during 1993-94 and 2004-05 reveals that average MPCEs (by URP) in Bihar, Orissa, and M.P have been the lowest as compared to other states, while Kerala and Punjab have consistently been on the higher end. (Table No. 4) In 2004-05, Kerala had highest MPCE for rural areas, which was 2.5 times higher than that of Odisha which had the lowest MPCE in urban areas, among the major states, Punjab had the highest average MPCE which was 1.9 times the average MPCE for Bihar (the state with the lowest average MPCE in 2004-05). Table-5 reveals that inequalities in monthly per capita expenditure based on URP and MRP have increased between 1993-94 to 2004-05.7

5. Conclusion

It can be said that there was a sharp increase in regional inequality in India during the 1990s. In 2002-03 the per capita Net State Domestic Product (NSDP) of the richest state, Punjab was about 4.7 times that of Bihar the poorest state. This ratio has increased from 4.2 in 1993 – 1994.5 A time series graph of this ratio shows that the disparity between the richest and poorest state shot up. This has been highlighted by Ghosh and Chandrashekhar, who showed that inter state inequality increased sharply in India during the reform period.6 It seems Marxian concept of capitalist society is true in the context of our society also. Rich are becoming richer and poor are becoming poorer that leads to a revolution. Government organized several schemes for removing poverty after that it remains, so much more has to be done to bring prosperity in the lives of people of rural areas.

References


(5) National Account Statistics Data. CS02008-09.


Study of Military System during Gupta Period

Dr. Manish Prakash
Department of History,
Dr. B.R. Ambedkar University, Agra

The Gupta rulers developed strong military setup in order to cope with the requirement of the time. During this period geographical boundaries of the Gupta empire extended up to beyond central India. The Gupta Empire (320 to 550 CE) is considered a golden age of Indian and Hindu history. This was a time when Indian culture flourished in all areas but like all empires it was made possible by a powerful military, clad and equipped by Kushans. However, despite the use of horse archers by their enemies such as the Scythian, Parthian, and Hepthalite (White Huns or Huna) they never developed their own. The Gupta favored armored cavalry forces that attacked with lances or swords.

The Gupta military continued to rely heavily on infantry archers, which was an effective counter to mounted archers. One advancement the Gupta military made they made in archery was creating the steel bow; this weapon could match the power of the composite bow while not being subject to the problem of warping due to humidity. This incredibly powerful bow was capable of excellent range and could penetrate thick armor. However, steel bows would have only been used by elite or noble class warriors while common archers continued to use the highly regarded bamboo longbow. Iron shafts were substituted for the long bamboo cane arrows when armor penetration was needed, particularly against armored elephants and cavalry. Fire arrows also were employed by the Gupta, their long bamboo cane arrows being particularly well suited for use in these operations.

[72]
Gupta archers were protected by infantry units equipped with shields, javelins and swords. They had no particular uniforms and dressed in accordance to their indigenous customs. Some warriors wore a type of tunic spotted with black aloe wood paste, which could be a type of tie-dye (or bandhni) that may have functioned as an early type of camouflage. Indian Gupta era infantry rarely wore pants, instead going into battle with bare legs. Skullcaps (more common) or thickly wrapped turbans were worn around the head to give some protection. Shields were generally curved or rectangular and featured intricate designs, sometimes decorated with a dragon’s head. The swords could be long swords, curved swords or daggers.

Elite troops and nobles would have had access to armor, such as chainmail, although the hot Indian climate can make heavy armor unbearable. Use of a breast plate and simple helmet would have been more common. They had access to better steel weapons as well, such as bradswrds, axes and the Khanda, a uniquely Indian sword with a broad double blade and blunt point. The Khanda was a slashing weapon and considered very prestigious. Steal was developed in the Tamil region of Southern India between 300 BC and the start of the common era. Steal weapons were highly prized and traded throughout the Near east and ancient Europe. Indian steal was legendary for its tensile strength and knowledge of it fueled a quest for improved metallurgy across the Near east and Europe. By the time of the Gupta’s steel weapons would have been more come common in Indian warfare, but still only used by elite warriors.

War elephants continued to be used and pacaderm armor was advanced throughout this a period. Elephants remained a component of the combined arms tactics employed by Gupta generals. The use of war elephants coordinated with armored cavalry and infantry supported foot archers is likely the reason for the
Gupta Empires success in war against both Hindu kingdoms and foreign armies invading from the Northwest. Another reason may have been a higher level of discipline compared to their tribal rivals. At its height the Gupta Empire had \( \frac{3}{4} \) million soldiers.

The Gupta empire also maintained a navy to control water ways and their coasts. They also had a high level of understanding of siege warfare, employing catapults and other sophisticated war machines.

The Gupta Empire eventually collapsed in the face of a Hepthalite (Huna or White Huns) onslaught. This was another of the Asiatic hordes and was probably a confederation of nomadic tribes. Their origins are obscure, although their language is likely of East Iranian origin. They may have gone by the name of White Huns in order to associate themselves with the feared Huns of Turkic origins. The Hepthalite were initially defeated by Skandagupta which has been seen to mean that militarily the Indian armies could defeat them and that the fall of the Gupta Empire was due to internal dissolution. However, the collapse of the Roman and Chinese empires at the same time and to branches of the same invaders seems to point to something more.

Reference
Recived on : 10 May, 2019  
Reviewed on : 28 May, 2019

Feminism in the English Novels of Indian Women Writers

Satya Deo  
Principal, Govt. High School,  
Jaupura, Agra

Abstract:
Feminism is a phenomenon of social change that attempts to believe liberation of women from the shackles and grip of male dominated society, enabling them to claim their right as free human beings. It intends to rebel against hostile environment in which a woman is forced to live. The main objective of feminism is to improve the status of women and to provide equal opportunity and dignity with men.  
Feminism aims at compulsory education for women and improved employment. The Indian women writers in English are influenced by the feminist ideas, these are involved in their writings which led to development of the feminist literature in India.

Keywords:- Feminism, Womanhood, Challenges, Characters.

Introduction
In India the post independence period marked the feminist awakening which extended as women prose writers, novelist as the main form of literature which gained popularity among the women readers as well as writers. It was a medium through which women writers communicated their feminist views, focusing on the injustice done to women in the society.

Women writers have been raising objections to unjust and unfair treatment in society through their novels. Their main themes attempt to inspire women to face the challenges and lead a meaningful life. A new kind of women writers have emerged as a result of various changes-honest and powerful in expressing their views and experiences slowly.
The popular one’s among them in English literature are Kamala Das, Gauri Deshpande, Shashi Deshpande, Kamala Markandaya, Nayantara Sahgal, Gita Hariharan, Gita Mehta, Nisha Guha and Shama Futehally. These novelists intended to project women as the central figure, highlighting their hopes and frustrations. Through their characters they presented the dilemmas that are faced by the modern women in traditional society. The female characters are portrayed as intellectuals responsible, courageous, devoted to their duties and longing for liberty. These characters represented the modern women.

Another feature of the women novelist is that they consistently make use of neurotic characters in their fictions, Kamala Markandaya investigates social and emotional bonds that shackle women. Her novels illustrate the ambivalence of change.

Novels of Kamala Markandaya express her feminist moral concern in her novels. She makes the traditional attitude of the society towards women. She points outs the need to believe the moral superiority of women in upholding the family. She exhibits an awareness regarding the fulfillment of feminine identities. Anita Desai is one of the major voices in modern English fiction. The securing theme in her novels is the agony of existence in male dominated and conservative society. She narrates a world of her own and analyses the complexities of men-women relationship in her novels like Cry the peacock, Voices in the city, Where shall we go this summer? etc.

Shashi Deshpande’s novels are concerned with the plight of the modern Indian women, who are trying to understand themselves. Shashi Deshpande reflects the crisis, situations faced by women in the changing social environment, focusing on the tensions in which the Indian woman is caught, struggling to find their own voices. Her novels start with the confused phase of the heroines like Indu, Jaya, Kshama, Manju. Gradually these characters become more confident and accretive, exhibiting better control on their objectives and actions.

Nayantara Sahgal’s novels portray women who are oppressed by marriage and by political circumstances. Characters in her novels question the existing moral codes
and values, while rebelling against the unacceptable social norms. They become aware of their emotional needs and continue to fight against the hostile social life.

The writings of feminist women English writers have led to new awakening and has made the women believe of their individuality as free human beings. They are awakened to face the challenges in order to lead a meaningful and dignified life irrespective of the public opinion. They challenge their problems through their writings irrespective of the criticism they receive.

Conclusion

In the post independence period of India, there emerged a group of feminist women writers in English, who have a distinct sense of their identity. They are not conventional, not influenced by sources like epics, myths, legends and folk tales. They are well educated, bold and convincing. They understand the meaning of male domination. This period also marked a change in the attitude, outlook, themes, imagination and use of language–clearly differing from their predecessors. These women writers articulate feminine experience and a new personal vision. They create their own literature by rehearsing relevant feministic thoughts and beliefs.

References:
सम्राट—जो एकता का मसीहा बन गया

—प्रो. (श्रीमती) प्रतिमा अस्थाना

युद्धों और कूटनीतिक दायेंभित्र में असफल हो कर सम्राट हुमायूं को बाबर द्वारा स्थापित भारतीय राज्य छोड़ना पड़ा। अपने कष्ट सहाता हुआ वह अमरकोट के दुर्ग में पहुँचा, जहाँ राणा ने सम्मानपूर्ण स्वागत किया। उसकी पत्नी हमीदा बानो बेगम गर्भवती थी। कहते हैं कि रेगिस्तान में भटकते हुये बेगम को अनाज खाने की इच्छा हुई। तभी एक व्यक्ति जवाब से भरा थैला लेकर आया। जब उसने थैला खाली किया तो उसमें रस से भरा हुआ एक बहुत बड़ा अनाज निकला जिसे बेगम की नजर किया गया। सभी कुरूस्त के चमकार पर आश्चर्यचकित थे। बेगम को अमरकोट में छोड़कर भाग्य से टकराया लेने के लिए हुमायूं आगे बढ़ गया। रविवार 5 जुलाई 949 हि. अश्विन 15 अक्टूबर, 1542 ई। को “दैवी नौरु द्वारा पूजित” पुत्र अकबर का जन्म हुआ, “ताकि संसार वालों के समस्त दुख स्थायी लुभ में बदल जायें और हजरत जहांबानी हुमायूं के उस हृदय को जिसमें कष्ट के फरोले पड़ गये थे, आराम का मरहम प्राप्त हो जाए...... ताकि वृद्धि को स्वामी, न्याय का दयालु पिता, विवेक की प्रतिमाशाली मित्र, न्यायकारिता को सच्चा बादशाह, प्रेम का गम्मीर पारस्की, कदरदानी, को प्रसिद्धि, सुलहकुल के लिए बुद्धि का आश्रयदाता मद्यस्थ, प्राप्त हो जाये।”
शुभ समायार लेकर दुर्गामनी दूत हुमायूं के पास पहुँचे। कृतज्ञ हृदय से हुमायूं ने ईस्वर के प्रति सिजादा किया और खुशी से भर उठा। उसने सभी साथियों को कस्तूरी बूटी थी कि उसकी सुगन्ध की तरह उसके पुत्र (अकबर) की ख्याति चुरान्दक फैल जाये।

जिस समय हुमायूं अपना राज्य पुन: प्राप्त करने के लिए कामरान से युद्ध कर रहा था, शिशु अकबर को कूर चाचा ने किले की दीवार पर खड़ा कर दिया था। युद्ध में हुमायूं निजी रहा। उसे शिया सेवक बैरितहां की भरपूर सहायता प्राप्त हुई। अकबर चार वर्ष का अवध बालक था। जब अपने माता-पिता से मिलना हुआ। एक बार बहार माहौल में पिता कह दी गई और बालक अकबर को हुमायूं मिला कि वह माता-पिता का दामन पकड़ ले। कहते हैं कि असाधारण प्रतिभा सम्पन्न बालक सीधा हमीदाबानो बेगम की गोद में बढ़ गया। वह केवल तरह वर्ष
का था कि पिता हुमायूं पुत्रकाल की सीढ़ियों से लड़खड़ा कर गिर पड़ और संसार से विदा हो गया। कलानीर के एक सादे किंतु भव्य समारोह में अकबर के विश्वसन संस्कार बैरामखां ने उसका राज्याधिकार किया। नग्न कन्नों पर बहुत बड़ा बोझ आ पड़ा। साम्राज्य के अभिजित भागों का पुनर्विज्ञान और प्रशासन के साथ ही विभिन्नताओं के देश भारत को एक सूत्र में बंध कर अपने बाबा बाबर और पिता हुमायूं के स्वामी को स्वीकार बनाने का। अकबर अपने भवन के सामने रिखत टीले पर बैठकर घंटों ध्यानमय रहता था। आत्मनी प्रेरणा से उद्देश्य उसका मन शान्ति हृदय, दो पृथक संस्कृतियों के मिलन के सूत्र पिरोता, समन्वय का मूल मन्त्र प्राप्त करने के लिए तपस्या करता रहा।

अकबर ने बाहर-बल से विशाल साम्राज्य की स्थापना की। बैरामखां की सहायता से उसने दिल्ली को जीत लिया। शेष भारत अभी अविचार था। 1561 में उसने मालवा विजय की तथा जोधपुर और चुनार पर भी अधिकार कर लिया। 1562 में उसने आमेठ और जयपुर के शासकों से सन्धि कर उन्हें अपने अधीन किया। इसी वर्ष उसने एएंडिता विजय की। 1564 में उसने गोडवाना के विस्तृत राज्य को जीत कर मुगल साम्राज्य की प्रतिष्ठा बढ़ाई। 1568 में उसने कर्तिजर नरेश रामवर्मा को पराजित किया। 1570 में जोधपुर, बीकानेर तथा जैसलमेर पर अधिकार किया। 1572-73 में उसने समूह मुजरात जीत लिया। 1574 और 1576 के मध्य उसने बिहार और बंगाल के प्रदेशों पर अधिकार कर लिया। 1581 में उसने काबुल पर विजय प्राप्त की। 1585 में उसने कश्मीर तथा 1592 में सिकंदर और उड़ीसा पर अधिकार प्राप्त किया। 1595 में समूह बलविस्टान एवं कन्नदार की विजय प्राप्त की। उसने 1593 और 1601 के मध्य दक्षिण भारत पर आक्रमण किया तथा खानदेश और अहमद नगर पर मुगल मुहूरत स्थापित की। उसने एक के बाद इन राज्यों पर राजनैतिक प्रभुत्व स्थापित कर लिया किंतु, उसका आत्मनी मन समग्र राष्ट्र को एकता के शक्तिशाली सूत्र में निबंध करने के लिए आतुर था। वह चाहता था कि इस पुरातन देश की गरीबार्थ हरसी से सामने चढ़ा कर हिन्दू-मुस्लिम समन्वय के उस सन्देश को सार्थकता प्रदान करे जो जनता के मध्य संत कबीर, गुरु नानक, देरई, मीराबाई और दादू, पलटू आदि अनेक वर्षों से दे रहे थे।
अकबर का उत्कर्ष जिस युग में हुआ वह चतुर्दिक नवीनीत और जागरण का युग था।
सुजनशील प्रवृत्तियों का प्रसारण हो रहा था। जहाँ एक ऑर ब्रज प्रदेश में सूरदास जैसे महाकवि अध्यात्मिक जागृति उपसन कर रहे थे और समाज हस्तियहरू भक्ति की सरस्ता को संगठन में उत्तर कर जन-मानस में आन्दोलन भर रहे थे वहीं भारतीय संस्कृति की अनुपम परंपराओं के वाक्य तुलसीदास अपनी अनुभूति रचना समर्थित दास लिख कर जन-जीवन को मर्यादा पुरुष सम 
रक में माध्यम से सजाय और चैतन्य बना रहे थे। भक्ति की इन दोनों सरस्ता धाराओं के द्वारा संकीर्ण 
विचारों का अन्त हो रहा था। व्यापक मानव-धर्म की विजय हो रही थी। अकबर के नवरात्रि अनुभु 
फलज, फैजी और शेख मुबारक उसके जिजासु मन-मस्तिष्क पर उदारता का गहरा पुंछ चढ़ने में 
व्यस्त थे। बैसमाह के साथ शिया विधाओं की चाप उसके बाल-बुद्धि पर पड़ चुकी थी। शिक्षक अनुभु लतीफ की उदार और व्यापक शिक्षाओं से अकबर को अद्वितीय प्रेरणा और शक्ति प्राप्त हुई 
थी। शेख सलीम चिश्ती की दरगाह पर वह नगे पैर चल कर अपनी श्रद्धा अर्पित करने के लिए 
गया था। पुत्र सलीम के जन्म के पश्चात् सत्ताओं के मार्ग की आत्मिक अनुभूति उसे साकार प्राप्त हो 
गई थी। फतहपुर सीकरी का निर्माण करने के बदले उसने वहाँ एक इबादतख़ाना बनवाया जहाँ सभी 
धर्मों के झालियों और दास्ताठियों को आगमित कर, वह विवाह-विवि, वार और वाद-विवाद 
करना था। वह एक जिजासु और सत्य का परम अवशेष था। वह इस निष्ठा पर पहुँचा कि 
मजहबी भेदभाव निर्धारित नहीं। वास्तव में सभी धर्म 'परम सत्य' तक पहुँचते हें। वह इसका 
निर्देशक है। धार्मिक विभिन्नता के बावजूद सभी भुगत समान हैं। इस्लामियत श्रम और भाईचारा सर्वधिक 
महत्वपूर्ण है। अकबर पूर्णत: मानवता और बन्दूल के आदर्श में विवाह करने लगा। राजसिहासन 
के चर्च्छुर्थ अवस्था पर बैट कर नव-प्रकाश और सत्य की सुनहरी किरणें विख्यात हुआ भारत के 
गोरखशाली अतीत से अध्यात्मिकता और साहित्यूर्ण के अनमोल मोटी बीन कर उसने राष्ट्रीय एकता 
और सम्बन्ध तथा शाहिनपुरा सह-अस्तित्व के लिए शाही चमन में सूलहकुल का अनमोल गुलाब 
खिला दिया जिसकी सुगम से देश की जनता न केवल फैज़ख़ाबाद हो उठी वर्ष जीने की बेहतर 
शैली विकसित कर सकी।

कौमी एकता का मसीहा समार को नहीं चाहता था कि कटर उनसे उलेमा वर्ग उसकी 
नीतियों के प्रति विरोधी अथवा उदासीन रहे। 1579 तक वह उस राजत्व सिद्धांत को क्रियाशील न
बना सका जिसका निरूपण 'आइन' में उसके प्रम मित्र अबुल फजल ने किया था। उसने उलेमा वर्ग को किसी प्रकार समझा—जुझाकर अपने पक्ष में कर लिया। 26 जून 1579 को शालीनता और पूर्ण गरिमा के साथ वह संघ जानी मस्जिद में गया जहाँ उसने राज कवि फैजी द्वारा लिखे खुलबे को पढ़ा। तीन महीने बाद उलेमा वर्ग ने उसके समक्ष एक प्रप्त्र प्रस्तुत किया जिसे 'महजर' कहा गया। इसके द्वारा पवित्र कुरान शरीफ के आदेशों की व्याख्या करने का अधिकार उलेमा ने स्वेच्छापूर्वक समाप्त को हस्तान्तरित कर दिया। अकबर अब मुस्लिम न्यायशास्त्रियों एवं परम्परा विरोधी व्याख्याओं में से किसी एक को चुन सकता था अथवा स्वयं व्याख्या कर सकता था। समाप्त के इस कार्य की प्रतिक्रिया में मिरजा हाफिज़ के नेतृत्व में कट्टर सुन्नी मुस्लिम वर्ग का मंडकर विद्रोह हुआ, जिससे अकबर का राजसिंहासन भी हिल उठा। अकबर ने फतेहपुर छोड़कर आगरा में निवास करना अधिक सुरुक्तित समझा। जब वह इस विद्रोह का दमन करने के बाद आगरा वापिस आया तब उसने 'सूलह—कुल' की उद्धोषणा साम्राज्य के व्यापक हित के उद्देश्य से जनता का समान नागरिकता को अधिकार देने के लिए की। उसने अबुलकज़ल द्वारा प्रतिपादित राजतंत्र सिद्धांत को दूसरा शरिक के साथ क्रियान्वित किया जिसमें कहा गया था 'मालिक की नजरों में कोई पद इतना महत्वपूर्ण नहीं है जितना कि बादशाह का। मानव—समाज में प्रचलित स्वाभाविक, कथियों और अवांछनीय महत्वाकांक्षाओं को समाप्त करने के लिए राजतंत्र अभिव्यक्त करता है। ....... राजतंत्र वह प्रकाश है जो मालिक से निःसृत होता है जैसे सूरज से किरण। यह मालिक के द्वारा 'बादशाह' को दिया जाता है। इस प्रकाश से युक्त बादशाह अमलित गुणों का बाहक है और चार प्रकाश से वह इस प्रकाश को अभिव्यक्त करता है—प्रकाश के प्रति पितृ तुल्य प्रेम, विशाल दृष्टि, मालिक में आस्था, प्रार्थना और भक्ति।'
के प्रतिष्ठित पद पर पहुँच गये जो अल्पत विश्वस्त एवं सर्वांच्छ पद था। 1594 में सम्राट अकबर ने फारस के शाह अब्बास को एक पत्र लिखवाया जिसमें सुलह कुल की विचार धारा व्यक्त करते हुए उसने स्वयं को मानवता के हित और शानि के लिए सेवारत बताया। उसकी विचार धारा थी कि “मानव समाज आध्यात्मिक दौलत से भरपूर है, अतः हृदयों के मिलन और पारस्परिक सहयोग पर बल देना चाहिए। दैवी अनुक्रम में प्रत्येक धर्म में निहित है। प्रयास होना चाहिए कि प्रत्येक मनुष्य उस सदाबहार चमन में प्रवेश कर सके जिस सुलहचुल कहते हैं।”

सुलहचुल द्वारा अकबर ने मानव एकता के स्वण को साकार करने का प्रयास किया। उसकी सुलहकुल की विचारधारा की पृथ्वभूमि में निरंतर ही सामाजिक समन्वय की अद्वैत पृथ्वभूमि थी, जो सत्ता कबीर जैसे दार्शनिक कवि एवं भक्त-सन्तों एवं सूफियों ने इस देश में वैचारिक एवं व्यावहारिक धरातल पर बहुत पहले सुजित कर उसका कार्य सरल कर दिया था।
ब्रजभाषा की रूप-स्वरीमिकी

डॉ विजेन्द्र प्रताप सिंह
सहायक प्रोफेसर (हिंदी),
राजकीय स्नातकोत्तर महाविद्यालय,
जलौसा, उत्तर प्रदेश

संक्षिप्ति :-

भाषा सम्प्रेषण का प्रभावशाली माध्यम है। इसी माध्यम से मानव समाज में अपने विचारों और भावों को सम्प्रेषित करता है। भाषा समस्त मानसिक व्यापारों, मनोभावों की अभिव्यक्ति का साधन है। भाषा सामाजिक संगठन, सामाजिक मान्यताओं और सामाजिक व्यवहार के विकास का एकमात्र साधन है। भाषा शिक्षण की दृष्टि से रूप-स्वरीमिकी का शिक्षण एवं उसकी अनिवार्यता निर्विवादित है। प्रस्तुत शोधालेख में ब्रजभाषा की रूप-स्वरीमिकी का विवेचन भाषा शिक्षण की दृष्टि से प्रस्तुत किया जा रहा है।

कुंजीशब्द :- भाषा शिक्षण, स्वरीमिकी, रूप-स्वरीमिकी, प्रत्यय, परप्रत्यय, पूर्व प्रत्यय, इस्तीकरण, दीर्घकरण, यौगिक शब्द, सामाजिक शब्द, ध्वनि परिवर्तन इत्यादि।
की शिक्षण पद्धतियों का जिक्र होता है, प्रथम वर्ण शिक्षण पद्धति द्वितीय शब्द शिक्षण पद्धति। प्रथम पद्धति वर्ण शिक्षण पद्धति प्राथमिक काल से प्रचलन में है। इसके अंतर्गत वर्णमाला ज्ञान से लेकर जटिल व्यक्तिगत संरचनाओं का प्रवेश किया जाता है। रूप स्विनिमिकी के अध्ययन से शिक्षा भाषा में घटित विभिन्न परिवर्तनों से परिचित होता है जिससे वह भाषा प्रयोग करने में बुद्धियों से न सिफ्र बदता है बल्कि उनका सटीक प्रयोग भी करता है।

पारिवारिक दृष्टि से ब्रजभाषा (ब्रजमंडल की भाषा) का संबंध शौरसेनी अप्रभृश के है। डॉ. सुनीति कुमार चट्टानी के शब्दों में “शौरसेनी अप्रभृश उन दिनों की अंत: प्रादेशिक भाषा ही थी और आजकल ब्रजभाषा, खड़ीबोली आदि विभिन्न प्रकार की हिंदी का उदय इस शौरसेनी अप्रभृश से ही हुआ। ऐसा जांचता है कि अपनी बेटी ब्रजभाषा में शौरसेनी अप्रभृश को नवीन कलेवर मिला। नए आयुकाल को उसने प्राप्त कर लिया।”(डॉ. सुनीति कुमार चट्टानी: पोदार अभिनन्दन ग्रंथ, पृष्ठ स. ८०) श्री मोतिलाल नेहरु ने ‘राजस्थान के पिंगल साहित्य’ में उल्लेख किया है कि “चौथवीं शताब्दी में जिस समय राजस्थानी भाषा का उदय हो रहा था, लगभग उसी समय शौरसेन देश अथवा ब्रज मंडल में ब्रजभाषा विकसित हो रही थी, जिसका आधार शौरसेनी अप्रभृश था। आरम्भ में यह शौरसेनी भाषा कहलाती थी, पर बाद में ब्रजभाषा नाम से पुकारी जा रही थी।” (लोकभाषा: पृष्ठ स. ६१) डॉ. भाटिया के अनुसार “शौरसेनी अप्रभृश जो नागर अप्रभृश भी कहलाने लगी, उत्तर भारत में एक विराट साहित्यिक भाषा के रूप में मान्य थी। चार-छह वर्षों तक सिंचु प्रदेश से पूर्वी बंगाल तक और कश्मीर, नेपाल, मिथिला से लेकर महाराष्ट्र और उड्डीसा तक तमाम आर्यवर्ती देश इस शौरसेनी अप्रभृश या नागर अप्रभृश का साहित्यिक भाषा क्षेत्र बन गया।” (डॉ. कैलाशचंद्र भाटिया: लोकभाषा, २००९, पृष्ठ स. ६२)
डॉ. धीरेन्द्र वर्मा ने 1951 की जनगणना के आधार पर ब्रजभाषा प्रयोगकर्ताओं
की संख्या 1 करोड़ 23 लाख बताई थी। (डॉ. धीरेन्द्र वर्मा: ब्रजभाषा, 1954, पृष्ठ सं.
33–34) डॉ. हरदेव बाहरी ने सन् 1966 में ‘हिंदी की ग्रामीण बोलियां’ नामक लेख
में इनकी संख्या 1 करोड़ 25 लाख मानी। वर्तमान में यदि मात्र ब्रज मंडल को ही
लिया जाए तो इसके बोलने वालों संख्या 24,58,9416 हैं। (2011 की जनगणना,
http://www-census2011.co.in) इस आंकड़े में मथुरा, आगरा, फिरोजाबाद, हाथरस,
कासगंज, एटा, मैनपुरी, अलीगढ़, बुलंदशहर, गोतमबुद्धनगर, बदायूं, बरेली,
उद्धमसिंहनगर, भरतपुर,धीरपुर, करोली, फरीदाबाद, गुजरात जिलों की जनसंख्या ही शामिल
है। इसके अतिरिक्त उत्तर भारत के बहुत से ब्रजभाषी अन्य राज्यों तथा दिव्यांगों में
चले गए हैं। यदि उनको शामिल किया जाए तो निश्चित रूप से यह संख्या और
अधिक होगी।

‘ध्वनि’ के बिना भाषा की कल्पना ही नहीं की जा सकती। बल्कि कहा जा
सकता है कि ध्वनि भाषा की आधारशिला है। वस्तुतः हम अपनी वाकनियों द्वारा जो
बोलते अथवा उच्चारण करते हैं, वह ध्वनि है। इस प्रकार मनुष्य की वाकनियों से
अभिव्यक्त सुनी जाने गोंगी वाणी ध्वनि हैं।’” (डॉ. हरिवंश तरुण:मानक हिंदी व्याकरण
और रचना, पृष्ठ सं.26) ध्वनि शब्द का सामान्य अर्थ आवाज़ है। ‘हिंदी
साहित्य—कोष’ में सामान्य व्यवहार में कानों के सुनाई पड़ने वाला नाद ध्वनि है।
ध्वनि सिद्धान्त के प्रतिपादक आनंदवर्धन हैं। ‘ध्वन्यालोक ’ में ध्वनि की परिभाषा
इस प्रकार ही गृहीत है— “यत्रार्थः शब्दों वा तमस्मात् प्रशासनिकृत स्वाभावः,
व्यक्तिकाव्यविषेषः स्त्रोतिरित सूरिघि: कथितिः। “अथात् । जहाँ शब्द और अर्थ
अपनी—अपनी सत्ता को गृहीत करके जिस विशेष अर्थ को प्रकाशित करते हैं वहाँ
ध्वनि अथवा व्यंग्यार्थ कहाता हैं।”(डॉ. अशोक के. शाह-भारतीय काव्यशास्त्र, पृष्ठ सं.
132) ध्वनि एक प्रकार का कम्पन या विश्वास है। जो किसी ठोस, द्रव या गैस से
होकर संबंधित होती हैं। किंतु मुख्य रूप से वह कम्पन ध्वनि हैं, जो मानव के कान से सुनायी गई होती है। प्रत्येक ध्वनि के उच्चारण के स्वरतत्त्वों की झंकार अधिक या कम होती हैं। अधिक झंकार होने पर सुर ऊँचा होता और कम झंकार होने से सुर नीचा होता है। स्वरतत्त्व यदि दीर्घकार हैं, तो झंकार कम होता हैं। पुरुष की तत्तत्त्वात्मक स्थितियों की अपेक्षा बड़ी होती है। इसलिए उनका सुर स्थितियों की अपेक्षा नीचा होता हैं। प्रत्येक ध्वनि के उच्चारण में कुछ समय लगता हैं। उच्चारण समय की माप, मात्रा के द्वारा की जाती हैं। इसका विभाजन हस्त स्वर, दीर्घ स्वर आदि रूपों में किया जाता हैं। जीवित भाषा।” भाषा की रक्षा, देश की सीमाओं की रक्षा से अधिक जरूरी है।” –भाषा वैज्ञानिक थॉमस डेविड

जीवित भाषा में परिवर्तन शास्त्रवाद है। परिवर्तन ही भाषा का विकार है। ध्वनि विकार मुख्यतः मुख–सुख और अपूर्ण अनुकरण से होता हैं। ब्रज में ध्वनि परिवर्तन बाह्य कारणों में भौगोलिक वातावरण समाज की राजनैतिक, सांस्कृतिक और धार्मिक अवस्थाएं प्रमुख, आंतरिक कारणों से प्रयोगाधिक स्वर्णाचार आदि को लिया जा सकता है। ध्वनि परिवर्तन कोई एक कारण से नहीं होता हैं। उसे बाह्य एवं आंतरिक कई कारण प्रभावित करते हैं। अझानता, शिक्षाएं एवं अवलंबित्व के कारण किन्हीं दो व्यक्तियों की भिन्नता के कारण किन्हीं दो व्यक्तियों का वाक्य ठीक–ठीक प्रकार का नहीं होता है। इसलिए एक ही ध्वनि के उच्चारण में एक से दूसरे से तीसरे व्यक्ति तक पहुँचते–पहुँचते कुछ न कुछ अंतर अवश्य पड़ता है। परिवर्तन ही भाषा का विकार है। ध्वनि विकार मुख्यतः मुख–सुख और अपूर्ण अनुकरण से होता हैं।

ध्वनि परिवर्तन बाह्य कारणों में भौगोलिक वातावरण समाज की राजनैतिक, सांस्कृतिक और धार्मिक अवस्थाएं प्रमुख, आंतरिक कारणों से प्रयोगाधिक स्वर्णाचार आदि को लिया जा सकता हैं। ध्वनि परिवर्तन कोई एक कारण से नहीं होता हैं। उसे बाह्य एवं आंतरिक कई कारण प्रभावित करते हैं।
परिवर्तन प्रकृति का नियम है। जिस प्रकार अन्य घटकों में परिवर्तन देखा जाता है वैसे ही भाषा में विभिन्न कारणों से परिवर्तन देखे जाते हैं। भाषा में परिवर्तन के मुख्य कारण होते हैं—

दो शब्दों के संयोग से होने वाला ध्वनि परिवर्तन होता है यह रूप संधि कहलाता है। संधियों के फलस्वरूप होने वाला परिवर्तन स्वन एवं रूप आश्रित होता है। ब्रज भाषा में ये परिवर्तन निम्नलिखित तीन रूप में पाया जाता है— 1. शब्द स्तर पर 2. पद स्तर पर तथा 3. वाक्य स्तर पर।

स्वन आश्रित :—

शब्द के गठन या निर्माण में ध्वनि परिवर्तन स्वरों तथा व्यंजनों के स्तर पर होता है। कहीं पर स्वर इस्झ रूप में परिवर्तित हो जाते हैं तो कहीं उनका दीर्घकरण हो जाता है। इस प्रकार की संधि को सामान्यतः स्वर संधि कहा जाता है।

1. दीर्घ स्वरों का इस्झकरण :—
/आ–अ/ :—

समास प्रक्रिया में किसी शब्द में अवस्थित /आ/ में यदि पर–प्रत्यय जोड़ा जाता है तो बलाघात से दीर्घ /आ/ इस्झ /अ/ में परिवर्तित हो जाता है, यथा—
भाड़ भूजा भड़भूजा
गां मारु गमारु
आम चूर अमचूर

/ई–इ/ :—

यदि शब्द ईकारांत या एकारांत हों तो प्रत्यय के संयोग के पश्चात संधि रूप में शब्द ‘ईकारांत’ हो जाता है, यथा—
पी + आस = पियास

[87]
यदि शब्द “उकारांत या ओकारांत” हो तो प्रत्यय के संयोग के पश्चात् संधि रूप में शब्द ‘उकारांत’ हो जाता है, यथा—

भूल + अकक्डु = भुलक्कडु
मोटो + आपो, आपो = मुटापो, मुटापो

‘अ’ का लोप :-

do वर्णों के मेल में यदि द्वितीय वर्ण में /अ/स्वर है तो स्वर से आरंभ होने वाले परप्रत्यय के संयोग की प्रक्रिया में द्वितीय वर्ण के /अ/लोप हो जाता है, यथा—

समज + औता = समजौता
सर + औता = सरौता
काजर + औटा = काजरौटा
मुख + औटा = मुखौटा

समीकरण :-

ब्रज में समीकरण की प्रकृति है, जिसे अग्रलिखित रूप में देखा जा सकता है—

1. वैष्णव शब्दों तथा समासों में समीकरण :-

ल + द = द : रात +दिनु = रादिन
च + सु = ससु : पांच +सरी = पससरी
र + स = सस : चार +सर = चाससर
ल + सु = सस : सात +सर = साससर

[88]
2. पदों में शब्द के अंतिम व्यंजन वर्ण तथा कारक परसर्ग के पूर्व समीकरण निम्नानुसार होता है—

\[ \text{ब} + \text{प} = \text{पा} : \text{सब} + \text{पै} = \text{सपै} \\
\text{त} + \text{स} = \text{सत} : \text{हात} + \text{से} = \text{हास्से, हाससे} \\
\text{स} + \text{स} = \text{सस} : \text{घर} + \text{से} = \text{घासे} \\
\text{स} + \text{स} = \text{सस} : \text{किस} + \text{से} = \text{किस्से} \\
\text{त} + \text{त} = \text{त्त} : \text{घर} + \text{ते} = \text{घाते} \\
\text{न} + \text{न} = \text{न्न} : \text{चौधरी+ ने} = \text{चौधने} \\
\text{ब} + \text{न} = \text{न्न} : \text{घर} + \text{नो} = \text{धन्नो} \\
\text{न} + \text{त} = \text{नत} : \text{कोन} + \text{ते} = \text{कोन्ते} \\

टिप्पणी:— रास्से, रास्से, हास्से, घरस्से, घर्ते, चौधनें, कोन्ते आदि अनुनासिक रूप भी प्रयोग में पाए जाते हैं। उदाहरण—

1. बु तौ रास्से चलो गयो।
2. हास्से खाए लेओ।
3. घरस्से लै आओ।
4. घर्तें ले गयीं आ।
5. चौधनें न्याउ करो।
6. कोन्तें ले आऊँ।
3. वाक्य स्तर पर समीकरण निम्नानुसार होता है—

क्र +ग्र = म्र : रुक + गाई = रुग्माई
श्रु +गई = श्रुगुई
कह + गई = कैगुई
एक + गाओ = एगा ओ

ग्र+क्र = क्र : साग + करी = साककरी
च+ढ = ढ : सच + डर लगतु ऐ = सधर लगतु ऐ
छ+ढ = ढ : कछु + डरी = कुढ़री
छ+ढ = ढ : कछु+ देशी = कुहेहो
ज+ढ = ढ : नाज+ डारी = नाड़री
ढ+जु = जु : बैठ + जाओ = बैजजाओ
त +च्र = च्ढ : हात + चलाओ = हाधचलाओ
भाजत+ चले = भाजजचले
हाँपत+ चले = हापचचले

त+ढ = ढ : भीत + ठीक = भीठीक
त+छ = छ : भीत + अच्छे = भीछे
र+ न = न्त : चोधरी + न = चोधनङ्गो
त+ड = ड : तोड़ + डारी = तोझारी
र + द = द : मार + दूंगी = माहूगी
र + ज = ज : मार + जा = मजजा
र + ल = ल्ल : टेट + ले = टेल्ले
र + ल = ल्ल : कराए+ लिंगे = कलाएलिंगे
टिथियों :-
1. रुग्गणाई, झुग्गमई, कौगोई, एमागौ आदि उदाहरणों से स्पष्ट होता है कि किसी परवर्ती शब्द में स्पर्श होने की दशा में शब्दांत में प्रयुक्त /ई/ अयोष स्पर्श की अनुरूपता उसी वर्ग के घोष स्पर्श से होती है। इसी प्रकार बाप गाओ का बाबगाओ हो जाता है।
2. /त/ तथा /ठ/ के अनुरूप भौतिकों ‘भौतिको’ हो जाता है परंतु यहां द्वितीय शब्द में अवस्थित स्वर की होती है।
3. जलेसर के उत्तरी भाग में /आ/ तथा /ओ/ के प्रयोग के फलस्वरूप /गयो/ रूप भी प्राप्त होते हैं,यथा— एमागौ इत्यादि।

रूप आश्रित :-
1. शब्द तथा प्रत्यय के योग के फलस्वरूप घटित ध्वनि परिवर्तन :-
   1.1 पूर्व प्रत्यय एवं शब्द संयोग के फलस्वरूप ध्वनि परिवर्तन—
      1. /सु/ /कु/ पूर्व प्रत्यय का संयोग /फल/ प्रात्यिक से होता है तो/फ/ /प/ के रूप में परिवर्तित हो जाता है,यथा— सुफल=सुपल, कुफल=कुपल इत्यादि।
      2. /उन/ पूर्व प्रत्यय के संख्यावाचक विशेषणों से संयोग पर /न/ संख्यात्मक परिवर्तन घटित होता है, यथा— बीस+उन=उन्नीस, अफसी+उन=उनासी इत्यादि।
      3. ओकारांत तथा उकारांत धातुओं के साथ /आई/ प्रत्यय के संयोग पर शब्द के मध्य में /ब/ का आगम हो जाता है, यथा— बो+आई=बुबाई, धा+आई=धुबाई इत्यादि।
4. /उ/ से प्रारंभ होने वाली धातु में /आई/ प्रत्यय के संयोग से ध्वनि परिवर्तन देखा जाता है यथा— रु+आई=रुबाई, खुदा+आई = खुदाई, जु+आई=जुताई इत्यादि।

5. आरू/प्रत्यय के संयोग से महाप्राणीकरण हो जाता है, यथा—दूंद+आरू=दुंधारु, जुजा (जुझा)+आरू=जुजारु(जुझारु) इत्यादि।

6. द्वित व्यंजनों में से एक ही रह जाता है, यथा— चच्वा+एरो =चचेरौ इत्यादि।

7. प्रत्यय के संयोग के पश्चात् अनुनासिकता समाप्त हो जाती है, यथा— रांड+आपो = रांडपो, पूंछ+अल्लो= पुछल्ला इत्यादि।

8. कुछ शब्दों में प्रत्यय जुड़ने से /उ/ का आगम हो जाता है, यथा— चुगली+खोरी=चुगुल इत्यादि।

9. स्वरांग शब्द व्यंजनांत हो जाते हैं, यथा— खट्ट+आस=खटास, बूंडी+आपो=बुंडपो, झागढा+एल=झागडेल इत्यादि।

10. व्यंजनांत शब्द स्वरांग हो जाते हैं, यथा— जवान+अनी =जवानी इत्यादि।

11. मूल धातुओं में प्रेरणाधर्म प्रत्ययों के प्रयोग से धातुएं हस्तीकृत रूप में परिवर्तित हो जाती हैं, यथा— काट > कट, पीट >पिट, लूट>लुट इत्यादि।

12. व्यंजन धातुएं भी हस्त हो जाती हैं, यथा— फोर>फूट, तोर>टुट इत्यादि।
13. /च/ के स्थान पर /क/ का आगम हो जाता है, यथा—
बेच>बिक,खेंच>खिच इत्यादि।
14. /डे/ के स्थान पर /ट/ का आगम हो जाता है, यथा—
छोड़>छूट इत्यादि।
15. संख्यावाचक विशेषण प्रातिपदिकों में /का, की, गी/प्रत्यय के संयोग
से ध्वनि परिवर्तन हो जाते हैं, यथा—दुक+की=दुक्की, छक+का=छक्का, तिग+गी=तिग्गी इत्यादि।
16. संख्या वाचक विशेषण प्रातिपदिक /आ/ प्रत्यय के जुड़ने से
परिवर्तित हो जाते हैं, यथा— चउ+आ=चउआ, पंज+आ=पंजा, सत+आ=सतास, अढ+आ=अढ़ा इत्यादि।
17. संख्यावाचक ‘दुर’ में भी प्रत्यय जुड़ने कई प्रकार के परिवर्तन हो जाते
हैं, यथा— दु+सौ=दूसौ, दो+बर=दोबर इत्यादि।
18. संख्यावाचक ‘तीन’ में भी प्रत्यय जुड़ने कई प्रकार के परिवर्तन हो जाते
हैं, यथा— तिस+गी=तिसगी, तिल्ल+अर=तिल्लर, तिह+सौ=तिहसौ इत्यादि।
19. संख्यावाचक ‘चार’ में प्रत्यय प्रयोग से परिवर्तन होते हैं, यथा—
चौ+लर=चौलर, चौ+थौ=चौथौ, चउ+आ=चउआ इत्यादि।
प्रत्यय जुड़ने से परिवर्तन होते हैं, यथा— एक+अदसी=एकादसी, दो+अदसी=दोआदसी, ती+ज=तीज, चौ+थ=चौथ, पाँच+ए=पाँचए, छ+अठ=छठ, सात+ए=सातें, आठ+ए=आठें, नव+अमी=नौमी, दस+मी=दसमी इत्यादि।

[93]
21. दो संख्यावाचक प्रातिपदिकों के संयोग से घटित होने वाले परिवर्तन को अग्रलिखित रूप में देखा जा सकता है, यथा— इक़-बीस=इक्कीस, इक़-चालीस=इक्कालीस, बा+सात= बासत, बि+चालीस=वियालीस, ते+बीस=तेएस, तिर+सात=तिरेसट, चौ+सत=चौसट, पैं+सट=पैंसट, छिय+चालीस=छियालीस, सात+नब्बे=सतानबे, आठ+नब्बे=अष्टानबे, नब+अस्सी=नवासी इत्यादि।

2. विभाजन प्रत्यय के संयोग के फलस्वरूप ध्वनि परिवर्तन :-

संज्ञा:—
बकरा अच्छी ऐ। बकरिया अच्छी ऐ। गाड़ी चली गई। रब्बा चली गयो। इत्यादि।

सर्वनाम:—
सर्वनाम प्रातिपदिकों में विभाजन प्रत्यय के मेल से ध्वनि परिवर्तन होता है, यथा—‘मैं’>'मिं’>मो>मो>में, ‘तू’>'तो’>ते, ‘तुम’>तोय>त्या, ‘कौन’>को, का>कहा, जि़>जो>जा, बुें>बे>बा, गो>ग्वा>वा, बे>बिन>बिनन इत्यादि।

क्रिया:—
जा>जाआ, फे>फरिचल>चल>चलि,आ>आओ, खा> खाओ इत्यादि।

निष्कर्ष:—
उपर्युक्त विवेचन से समझा जा सकता है कि ब्रजभाषा में किन-किन कारणों के फलस्वरूप ध्वनियों में परिवर्तन होता है। ध्वनि परिवर्तन संदर्भ एवं अर्थ में भी परिवर्तन का कारण बनते हैं। भाषा प्रयोगका का अच्छे भाषा प्रयोग के लिए इन शिक्षण बिन्दुओं पर सम्मक ध्यान देना चाहिए नहीं तो भाषा प्रयोग तुरंतपूर्ण रहेगा।
संदर्भ सूची  :-

1. डॉ. सुनीति कुमार चटर्जी: पोदर अभिनंदन ग्रंथ, अखिल भारतीय ब्रज साहित्य मंडल, मथुरा

2. डॉ. केलाशशंकर भाटिया: लोकभाषा, 2009, कुसुम प्रकाशन, अलीगढ़

3. डॉ. धीरेन्द्र वर्मा: ब्रजभाषा, 1954, हिंदुस्तान अकादमी, इलाहाबाद

4. 2011 की जनगणना, http://www-census2011.co.in

5. डॉ. हरिवंश तरंग: मानक हिंदी व्याकरण और रचना

6. डॉ. अशोक के. शाह: भारतीय काव्यशास्त्र

7. मिर्जा खाँ: ब्रजभाषा व्याकरण, मूल 1676 एडी, अनुवाद जियाउद्दीन सन् 1635, शांतिनिकेतन
सोशल मीडिया का भारतीय समाज पर पड़ने वाले प्रभावों का एक विश्लेषणात्मक अध्ययन

मानवेन्द्र सिंह
(शोधाधीकर्ता)
दयालुभाग एजुकेशनल इंस्टीट्यूट
(डीम्ब यूनिवर्सिटी), दयालुभाग, आगरा

सारांश

वर्तमान युग विज्ञान का युग है, जिसमें मानव के प्रत्येक पक्ष को प्रभावित किया है।
इसलिए सोशल मीडिया आज समाज को तीर्थ गतिविधियों से प्रभावित कर रहा है।
जन संचार के एक सशक्त माध्यम के रूप में आज यह उभरा है।
फेसबुक और ट्विटर जैसी सोशल साइट्स ने पैसिफिक स्तर पर विचारों के परस्पर समर्पण को नई ऊंचाई दी है।
प्रस्तुत माध्यम अलेक्स सोशल मीडिया के सकारात्मक और नकारात्मक प्रभावों को अध्ययन करता है।

कृत्रिम शब्द : सोशल, सोशल मीडिया, सोशल नेटवर्किंग साइट्स, सूचना प्रौद्योगिकी

प्रस्तावना

"संचार समानुभूति की प्रक्रिया है, जो समाज में रहने वाले सदस्यों को आपस में जोड़ती है।"

प्रसिद्ध संचार वैज्ञानिक मैगनेल्सन के इस कथन का भावार्थ यही है कि संचार ही वह माध्यम है, जो समाज में रहने वाले सदस्यों को आपस में जोड़ता है।
प्राचीन काल में विभिन्न क्षेत्रों में रहने वाले लोगों को आपस में जोड़ने का महत्वपूर्ण माध्यम कहूते थे।
इसलिए एक स्थान से दूसरे स्थान पर संदेश भेजने के लिए प्रथम में लाया जाता था।
इसके बाद संचार के साधन का कार्यान्वयन में और अधिक विकास हुआ और
इसमें टेलीग्राफ, डाक, रेडियो, टीवी. और ई—मेल जैसे माध्यम जुड़ गए।
21वीं शताब्दी में संचार के विभिन्न साधनों के इस क्रम क्रम में एक नाम और जुड़ा
जिसका नाम है 'सोशल नेटवर्किंग साइट्स' या 'सोशल मीडिया'।

सोशल मीडिया दो शब्द के योग से मिलकर बना है— ‘सोशल’ एवं ‘मीडिया’।
यहां सोशल का आशय ‘समाज’ से है और मीडिया का आशय ‘माध्यम’ या
’जनमाध्यम’ से है। इस प्रकार वर्तमान में सोशल मीडिया से आशय एक ऐसे
लोकप्रिय जनसंचार माध्यम से है, जिसमें समाज का प्रत्येक व्यक्ति एक ही समय पर एक ही साथ आत्मवादी रूप में अपने विचार प्रकट कर सके।

सोशल मीडिया, मीडिया का एक नया स्वरूप, जिसे समाज द्वारा गड़ा गया है। मीडिया का यह नया स्वरूप इस समय समाज में के तरिके अव्यंत महत्त्वपूर्ण भूमिका नभ रहा है, स्तर पर अपनी मजबूत स्थिति दर्ज कराया है। सबसे विशेष वस्त्र यह है कि सोशल मीडिया ने जन–जनारुकता को तो बढ़ाया ही है, सामाजिक स्तर पर इसने लोगों को सक्रिय भी बनाया है। यही कारण है कि सामाजिक सरोकारों के प्रति लोगों में सामाजिक एकजुटता की भावना भी बढ़ी है। जन आंदोलनों को सफल
बनाने में भी सोशल मीडिया केंद्रीय भूमिका निभा रहा है। ऐसा केवल भारत में नहीं,
बल्कि समस्त विश्व में देखने को मिल रहा है। फिर यह वह भारत में जन लोकप्रिय
के लिए छेड़ा गया। अभियान अन्य हजारों का आंदोलन हो अथवा ट्विटर सियासी को
क्रांति, सभी में सोशल मीडिया की भूमिका महत्त्वपूर्ण रही है। सूचना और संचार के
नये युग में सोशल मीडिया, अभियंति के एक सशक्त माध्यम के रूप में उभर कर
सामने आयी है।

सोशल मीडिया का फलक बहुत विस्तृत है, जिसमें निरंतर वृद्धि हो रहा है।
सोशल साइट्स की भूमिका बहुआयामी रही है। इनके माध्यम से आप विश्वभर में
दोस्त बना सकते हैं, दोस्तों की गतिविधियों को अपडेट रख सकते हैं। दोस्तों का
गुप्य व कम्युनिटी बना सकते हैं। फलतः में संदेशों का आदान–प्रदान कर सकते हैं।
दुनियाभर से प्राप्त होने वाले संदेशों या ज्ञात मुद्दों पर अपनी प्रतिक्रियाएं दे सकते हैं।
इन सब के आलावा न केवल आप ऑनलाइन चैटिंग कर सकते हैं, बल्कि अनेक
ऑनलाइन गेम्स खेल सकते हैं। इस प्रकार से सोशल साइट्स का फलक व्यापक
है।

सोशल मीडिया को एक सशक्त आधार सोशल साइट्स ने प्रदान किया है।
इस समय विश्व की कुछ प्रमुख साइटें अपनी सफलता की परंपर महरा रही है।
यहां इनकी जिक्र जरूरी है। फेसबुक ने वैश्विक स्तर पर अपनी सफलता के धारे
गाड़े हैं। यह वर्ल्ड वाइड वेब पर उपलब्ध दुनिया की सबसे बड़ी नेटवर्किंग साइट है।
इसके संस्थापक मार्क जुकरबर्ग हैं, जिन्होंने वर्ष 2004 में इसकी शुरुआत की थी।
इसी क्रम में ट्विटर भी एक महत्त्वपूर्ण सोशल साइट है। इसके माइक्रो ब्लॉगिंग भी
कहा जाता है। इस साइट पर भेजे जाने वाले संदेश ट्वीट कहलाते हैं। ट्विटर वेब साइट की शुरुआत वर्ष 2006 में जैक डोर्सी द्वारा की गई थी। इसी क्रम में गूगल इंक कंपनी द्वारा संचालित वीडियो शेयरिंग वेबसाइट ने खासी लोकप्रियता अर्जित की है। वर्ष 2005 में वाइंड हर्ली, स्टीव चेन तथा जावेद करीम द्वारा इसकी शुरुआत की गई थी, जो कि 'पे पाल' कंपनी से संबंधित है। अब तो वेब साइट्स का एक लंबा संदर्भ तेजार तो है।

सोशल नेटवर्किंग साइट्स की लोकप्रियता किस मूल से बढ़ रही है, इसका अनुपात कुछ प्रमुख साइट्स की सदस्य संख्या का जायजा लेकर लगाया जा सकता है। फेसबुक की सदस्य संख्या 50 करोड़ से भी ज्यादा है। सिर्फ भारत में लगभग 2.5 करोड़ लोग फेसबुक का इस्तेमाल कर रहे हैं। पिल्सटर की सदस्य संख्या 6.3 करोड़ से भी ज्यादा है। जीनी की सदस्य संख्या 1.5 करोड़ जो सिंक्ड्रॉन की सदस्य संख्या 8 करोड़ है। भारत की सोशल नेटवर्किंग साइट 'बिग आड्डा' की सदस्य संख्या 30 लाख के ऊपर पहुँच चुकी है। ऐसी अनेक साइट्स हैं, जिनकी सदस्य संख्या बराबर बढ़ रही है।

सोशल मीडिया अब व्यापारिक लाभ का भी साधन बन गया है। कारण, विज्ञापन के परंपरागत माध्यमों की तुलना में सोशल मीडिया कहाँ अधिक प्रभावी सिद्ध हो रही है। सोशल मीडिया के तालमेल तरह के जामोबारी लाभ भी हैं। एक तरह जहाँ इसके कारण विक्रेता में बढ़ती होती है, वहाँ दूसरी तरफ इसके माध्यम से प्रतिस्पर्धी कंपनियों की खूबियों खामियों का भी पता लगाया जाता है। प्रोडक्स्ट्स के बारे में जहाँ लोगों का रुझान का भी पता चलता है, वहाँ बाजार की मानसिकता के अनुरूप खुद को तैयार करने में मदद मिलती है। मुंबई, बंगलुरु व चेन्नई जैसे महानगरों में कंपनियों अब सोशल मीडिया से जुड़े पदों के लिए विज्ञापन निकालते हैं। इस प्रकार क्षेत्र में रोजगार की संभावनाएँ बढ़ी हैं।

फेसबुक और ट्विटर जैसी सोशल नेटवर्किंग साइट्स खबर देने और पाने में भी अहम भूमिका निभा रही हैं। इससे साथ ही, सोशल मीडिया के मंच, पारंपरिक मीडिया संस्थानों के लिए लोगों की प्रतिक्रिया जानने सायनसारी करने, अपनी ब्रांडिंग करने तथा फॉण्ड एक्ट्र करने का जरिया भी बन गए हैं। सोशल मीडिया के तालमेल माध्यम समाचार एक्ट्र करने का महत्वपूर्ण माध्यम बन गए हैं। ट्विटर और फेसबुक
जैसी सोशल नेटवर्किंग साइट्स समाचार पत्रों और टीवी चैनल्स की न्यूज साइट्स को बढ़ा ट्रैफिक प्रदान करता रही है।

सोशल मीडिया के जहाँ अनेक लाभ हैं, वहीं खतरे भी कम नहीं हैं। सोशल मीडिया के माध्यम से उन्मुक्त व अमलानित अभियंतित बढ़ी है। कुछ लोग विवाह रखते हुए अपना संयम खो देते हैं। अन्ध्र भाषा का प्रयोग करते हैं। इन्हीं वजहों से सोशल नेटवर्किंग पर संसर्गशिप की बात उठी है। यह उचित नहीं है कि सोशल मीडिया का लाभ उठाकर कुछ भी टिप्पणी कर दी जाए या इसकी आड़ में अश्लीलता और अभद्रता को बढ़ावा दिया जाए। ऐसी बातों से माहील बिगड़ता है।

इससे विश्वसनीयता का भी संकट बढ़ा है। यही कारण है सोशल मीडिया विवादस्पद भी हो रहा है। सोशल मीडिया के माध्यम से बढ़ती ऐसी प्रवृत्तियों पर अंकुश तो जरूरी है, लेकिन इसके लिए सोशल मीडिया को संसर्गशिप के दायरे में लाया जाना अभियंतित की उस स्वतंत्रता का हनन होगा, जो हमें भारतीय संविधान के अनुच्छेद 19 (1) (क) द्वारा प्रदान की गई है। विदित हो कि कुछ समय पूर्व धर्म व राजनीति से जुड़ी कुछ आपत्तिक बातें व चिंता आदि सोशल मीडिया के माध्यम से प्रसारित हुए थे और उसके बाद भारत सरकार द्वारा सोशल नेटवर्किंग को संसर्गशिप के दायरे में लाने की बात कही गई थी। इस पर तीव्र विरोधी प्रतिक्रियाएँ भी सामने आई थीं।

सोशल मीडिया जनित समस्याओं का सामना करने के लिए देश में सूचना प्रौद्योगिकी अधिनियम, 2000 आपराधिक प्रक्रिया संस्थान, 1973 तथा तार (टेलिग्राफ) अधिनियम, 1885 जैसे अधिनियम विधान हैं, जिनकी आवश्यता पड़ने पर समय-समय पर सरकार द्वारा इनका प्रयोग किया जाता है।

निष्कर्ष एवं सुझाव

सोशल मीडिया के विनियमन हेतु कुछ अन्य उपाय अमल में लाए जाने चाहिए। सोशल मीडिया को संचालित करने वाले प्रमुखों, एजेंसियों को सर्वप्रथम अपने स्तर पर ही इसका विनियमन करने हेतु कदम उठाए जाने चाहिए। सरकार द्वारा इन पर ऐसा करने के लिए पर्याप्त दबाव बनाया जाना चाहिए। वर्तमान में अधिकांश सोशल मीडिया एजेंसियों ने स्वच्छ रूप से अपने क्रिया-कलाओं का विनियमन कर रही है, जो एक एजेंसी से दूसरे एजेंसी से मिलन होता है। इनके विनियमन से संबंधित नियमावली में सामाजिक और निरंतरता लाने के लिए यह आवश्यक है कि
सोशल मीडिया के क्रिया-कलापों का कानून के जरिए विनियमन किया जाए। किसी भी गंभीर घटना या दुर्घटनाओं में संयुक्त क्षेत्र के संबंधित उद्देश्य को रोकने के लिए इसमें समृद्ध निवारक तंत्र की व्यवस्था भी होनी चाहिए। समाज में शासन एवं सुधार करने के लिए सोशल मीडिया एजेंसियों की हर सुझाव दी जा सकती है। जिन्हें सार्वजनिक सोशल मीडिया का समाज व लोगों के लिए अधिकारिक उपयोग बनाया जा सकता है।

संलेख ग्रंथ सूची
1. निबंध मंथन, 2016–17, पृष्ठ संख्या 356
2. सुमन, स्वर्ण, सोशल मीडिया, संपर्क क्रान्ति का कल, आज और कल
3. मीडिया पथ, अंक जनवरी–मार्च, शोध आलेख मुक्त अभियांत्रिक और सोशल मीडिया, शोधाध्यात्मक सूची तुम्हारा सल्लुडा, 2016
4. गुप्ता, विनोद, संचार और मीडिया शोध : नई दिल्ली, वाणी प्रकाशन, 2015
5. निबंध संग्रह, समसामयिक घटना चक्र, 2017–18
6. योजना अंक दिसंबर 2018
The Female Perspective in Shashi Deshpande’s
The Binding Vine

Dr. Anuradha Gaur
Head, Deptt. of English
Agra College, Agra

Abstract

Shashi Deshpande’s The Binding Vine is a wonderful novel that focuses on the inner world of the Indian woman. It presents a deep study of woman’s heart & mind. Through the story of urmi, the female protagonist in the novel Mrs. Deshpande has laid bare the innermost feelings, fears, frustrations, desires, hopes & longings, ambitions & aspirations of an Indian woman who tries to revolt against the patriarchal system of society in her own way but does not cross the boundaries like her western counterpart. Urmi is an awakened woman who realizes that ‘Love’ should not restrict the basic human urge for freedom.

Keywords : Women, freedom, complexities, psyche understanding, innerworld.

Introduction

In the galaxy of Indian women writing Shashi Deshpande occupies a significant position. Gifted with a sharp observation and keen insight into the subtleties of human mind, she presents them in a richly evocative, unassuming and unpretentious style in her fiction. She presents in her fiction the life of the middle class women in the fast changing socioeconomic world. Although she feels embarrassed to be called a woman writer and refuses to be labelled as ‘feminist’, she admits that her writings emerge from her own intense and long suppressed feelings about what is to be a woman in our society. Sarabjit Sandhu quotes her: “I realise that I write because I have to because it is within me. It’s one point of view, a world within the women, and I think that is my contribution to Indian writing.”

As it is evident from her own statement Shashi Deshpande focuses on the inner world of Indian women. All her novels are concerned with a woman’s inward journey. She presents a deep study of a woman’s psyche. In other words she has laid bare those innermost feelings, yearnings, aspirations, hopes and longings, fears and frustrations which are peculiar to women and which have never been given full vent in literature so
far. She presents a real and authentic picture of an Indian female placed under the pressure of critical human situations and complex web of human relationships.

The present paper aims at analysing the female perspective in Shashi Deshpande’s fourth novel *The Binding Vine.* It was published in 1993 by Penguin Books, India. Urmi, the female protagonist, is a confident and strong woman who is married to Kishore, a merchant navy officer. She herself is a lecturer in a college and is able to handle both her professional and familial duties very well even in the absence of her husband. However, the death of her one-year-old daughter Anu breaks her heart completely. She is unable to recover from this traumatic experience for a long time. She is extremely disturbed because the pain of the loss of her child is also the pain of the loss of the future within her, the future that will never open out now. However Urmi nourishes the ache within her for it allows her to be with her own child. She knows that the dead child can never be brought back to life but she cannot erase the memory of her child because “to forget is to betray” (p.21). When Inni, Urmi’s mother, asks her to put the picture of Anu on the wall, she is enraged. She bursts out:

```
I don’t need a picture to remember her I can remember every bit of her, every moment of her life. Flow can you imagine I need a picture ..?
To put my Anu on the wall, to place my child among dead, no more a part of my life, never more part of my world — how dare Inn!
How dare she think such a thing! (p.68)
```

The bruised soul of a mother who has lost her child has been depicted so realistically that not only female but even male readers are carried away by it. A strong-headed woman Urmi does not allow herself to be lost in her own grief because as a responsible mother she realises her duty towards her another child, her son Kartik. During the attack of asthma she assures him that nothing, not even death, can separate her from him. She has a strong urge to live: “No, Kartik, I won’t die, I promise I won’t die. I was working hard at not dying. Each breath I struggled to take was an affirmation of my will to live.” (p. 20)

The mother who bestows her love and affection upon her child also needs the support of her husband at this crucial moment of life. The one person with whom she wished to share her grief is her husband Kishore but unfortunately he is out most of the
time. The present novel beautifully describes the emotions of a woman whose husband is away from her almost throughout the year. Urmi married Kishore out of her own choice but very soon she realises that love, which she expected would fill her life with ecstasy and provide her immense strength to be fearless and confident, is nothing but a mirage. She feels she has married a man “who flits into her life a few months in a year and flits out again leaving nothing of himself.” (p. 164)

Whenever she tries to reveal her need for emotional security, Kishore responds back sexually. He doesn’t understand the depth of her feelings and there arises a ‘gap’ between them. It’s quite creditable that she makes herself strong enough to face life on her own. She makes herself independent, both economically and socially, but what to do to check her own erotic feelings? When Kishore is at sea, she craves for his physical presence but she does not tell it even to him.

When he goes away from me even in our few days together,
I never reveal my heart my longing to keep him by my side……
Fixed forever in our places
Face to face the two of us Like Siva and his nodding Bull. (p. 82)

This problem of confusion in sex has been highlighted by Deshpande in many of her novels but in the present novel it is analysed through the example of Urmi as well as her mother in law Mira who died after giving birth to Kishore. While she is struggling through her grief, she gets hold of Mira’s diaries and poems. The revelation of Mira’s sexual life via her documents open up several questions in front of Urmi. Hers was a case of molestation, a kind of rape in marriage, something which a woman cannot even talk about for the fear of being snickered at but a thing which leaves her completely shattered.

The following lines of Mira present before our eyes the deep pain and panic of a little girl who was married to a man much older than herself. She feared the “coming of the dark-cloud, engulfing night.”

Talk, he says to me. he goes on, dragging my day, my whole slf out of me. But I have my defenses; I give him facts, nothing more, never my feelings. I don’t mind his anger, it makes him leave me to myself,
and it is a bliss when he does that. But he comes back... ‘Please’...he says, ‘Please, I love you’. And over and over again until he has done. ‘I love you’ ‘Love & How I hate the word. If this is love it is a terrible thing. (pp. 66-67).

These lines show how there is a basic difference between male and female vision of love. Man connects it with the physical act of sex while woman associates it with emotions. Mira develops strange psychological fears in her mind towards sex because her husband treats her as a toy to play with, without caring for her consent.

Urmi comes across another poem of Mira which suggests that a man always imposes his own will upon his wife. He tries to possess her whole being, leaving no room for her own. In the patriarchal order an ideal wile is supposed to obey her husband blindly, and that is the only way to live life happily. The poem expresses the female agony thus:

‘Don’t tread paths barred to you
Obey, never utter a ‘no’;
Submit and your life will be
A paradise,’ she said and blessed me. (p. 83)

Mira, who represents the woman of the past generation, does not have the courage to rebel against the male domination. She tried to realise her own ‘Self’ through her writing. She wrote her poems in the silent and secret atmosphere of night stealthily when nobody could see her. She was a budding poet but she was not allowed to develop her poetic talent first because she was a woman. Deshpande very skilfully throws light upon an important dark aspect of male-chauvinistic society where man tries to suppress the artistic talent of a woman and discourages her growth as an artist because a woman can be a daughter, a wife and a mother but not more than that. Venu Gopal, a promising poet himself, tries to strangle her voice saying:

Why do you need to write poetry? It is enough for a young woman like you to give birth to children. That is your poetry. Leave the other poetry to us men. (p.127)

Though Mira felt herself entrapped and suffocated in her husband’s home, it was her writing that kept her alive. She had no existence of her own except in the pages of her diary. She was unable to bear the burden of life and ultimately died an untimely
and pathetic death. However, Urmi realises that death can never blot out the life; a woman’s sufferings cannot go unheeded for a long time; a woman’s tragedy can no longer be shrouded in silence. In spite of all the opposition of Vanna, her best friend, who did not like the idea of disgracing the honorable image of her family, Urmi decides to publish Mira’s poems so that her voice could be heard by one and all. She is highly disturbed by the tragic story of Mira’s life. The complexities of her life echo the sad songs in the lives of thousands of Indian women.

She identifies Mira’s story with that of Kalpana’s, a lower middle class rape victim. Kalpana, a young and attractive girl, is sexually assaulted by her own uncle, the husband of her mother’s sister and goes into coma, hanging between life and death.

Shakutai, Kalpana’s mother, seeks the help of Vanna, a medical social worker, and Urmi not to report to the police as it will defame her family and spoil the future matrimonial prospects of her two younger daughters. It is ironical that marriage which could give her nothing but misery is the ultimate purpose of life in the eyes of Shakutai because it is a shield which protects a girl from the -evil eyes of other men of the society. When Kalpana is about to be shifted to some other hospital for the lack of beds, Urmi comes forward, takes the initiative to sensitise this issue in the public and finally succeeds in getting her admitted in the same hospital for proper treatment. The novel emphasizes the most detestable aspect of the society in which instead of sympathising with the victim and punishing the victimiser, people try to put the blame on the women by saying “…there can be no rape, because it cannot be done unless the woman is willing. Rape happens because women go about exposing themselves….” (p.182)

Such illogical and inhuman thinking of patriarchal society compels Urmi to revolt against it. Urmi ‘s decision to publish Mira’s poems and to take the issue of Kalpana’s rape to streets is a pointer to her determination to fight against the patriarchal set up. She knows that the oppressions meted out to woman can not be put to an end overnight. It takes a long time to usher in a change in the society. Urmi herself takes a step to bring out this change. Experiencing death through the loss of her infant daughter Anu, Urmi’s reaction to death and the resultant depression, her own relations with Kishore and Shaskar and above all, her inward journey enable her to have a clearer vision of a woman’s life. Mira’s poems boost her confidence and she proclaims, “Mira had cleared my emotional life, swept away the confusing tangle of cobwebs” (P. 137)
She boldly discards every tradition that subordinates a woman and enjoys the freedom within the limitations of Indian cultural values. She ponders over the existential dilemma and Mira’s poem reverberates in her mind:

Desire, says the Buddha, is the cause of grief,
But how escape this chord
This binding vine of love? (p. 136)

Urmì discovers that the binding vine of love is the kernel of life. She realises that the most important need is to love. From the moment of our births, we struggle to find something with which we can anchor ourselves to this strange world. It is only when we love, we find this anchor. This is the spring of life. We can solve the mystery of life only through ‘Love’ as no woman, say no human being, wants to be dominated. Love should not restrict the basic human urge for freedom. When asked as to whether the females admire the men who crush them, Urmì replies:

I don’t like men who try to dominate women. I don’t like women who do it to men either. (p. 51)

Through Urmì’s character Deshpande makes it clear that the modern Indian woman has awakened. She is tender at heart but tough in mind. She has the guts to face all the problems and paradoxes of life. She has all the feminine virtues but she is not ready to reduce herself to the state of anonymity as a human being. In a personal interview taken at her residence, Deshpande said:

Being mother, daughter, and wife is important for a woman but ‘that is not’ to be the all and end of her existence. 2

The Binding Vine is an elaborate illustration of the author’s above ideology. It presents before us all the complexities in the life of a woman. Shashi Deshpande has unveiled in the language of a woman all those hidden feminine experiences which have not been touched so far. She has written the novel so beautifully that even the male readers are able to feel the pain and agony of Indian women. Rendering of inner life, the depiction of female psyche in words is quite difficult. While reading the novel we are transported to the innermost chamber of a woman’s world. This is Shashi Deshpande’s triumph as an artist, and perhaps this is the need of the hour that man should come forward to have a proper understanding of woman.

References


3. Deshpande Shashi, *The Binding Vine*, New Delhi: Penguin Books,1993. All the references to the text are from this edition and have been indicated by page numbers in parentheses.
पाणिनीय-शिक्षा के परिप्रेक्ष्य में मन्त्रों का सम्प्ल उच्चारण-एक समीक्षा

श्रीमती कमलेश दर्मा
संस्कृत विभाग,
आगरा कॉलेज, आगरा

सारांश:
पाणिनीय-शिक्षा महत्व पाणिनि के मन्त्रों को प्रतिपादित करने वाली शिक्षा है। इस शिक्षा नामक शास्त्र का वेद-पुरुष की भागीदारियों के रूप में परिकल्पित किया गया है। यह शिक्षा-शास्त्र महत्वपूर्ण संकल्प के अनुरूप का ही परिचालन है। व्यक्तित्व तथा शिक्षाशास्त्र का परस्पर अनुप्रयोग करता है। शिक्षाशास्त्र व्यक्तिगत तथा सामाजिक रूप से सत्य तथा क्षेत्र के लिए मूल स्तर की है। व्यक्तिगत शास्त्र का प्रभाव ज्ञान तथा धर्म की सिद्धि शास्त्रशास्त्र के माध्यम से तपस्विरों ज्ञान में अनुसन्धान रूप से वर्णित है। एक शब्द का भी सम्पक प्रश्न तथा समस्या ज्ञान तथा धर्म में अनुसन्धान के साथ साथ प्रश्न तथा धर्म का ज्ञान के लिए उपयोगी है। प्रश्नोत्तरी और धर्म के नामों से अभिव्यक्ति किया गया है। (पाणिनीय शिक्षा रलोक सं 41, 42)। वेदार्थ के यथार्थ बोध के लिये इन छः शास्त्रों का सम्पक परिप्रेक्ष्य निर्देश है।

शिक्षाशास्त्रकार महर्षि पाणिनि ने अपनी पाणिनीय-शिक्षा में स्पष्ट कहा है कि शिक्षाशास्त्र के ज्ञान के बिना मन्त्रों का वर्णवारण पुकार तथा धस अनुसंधान विद्या से सम्पक विद्या से उच्चारण समय नहीं है। क्योंकि तर्क तथा वर्णगत दोष से पुकार मन्त्र का प्रयोग अमीरित अर्थ को तो कभी प्रदान कर ही नहीं सकता, साथ ही वाक्यपद्धति बनकर यज्ञांकन का अवैश्विक कर देता है, जिस प्रकार ‘इन्द्रशु’ शब्द अनुसन्धान विद्या से समुच्छित होकर यावकार्य का विशिक्षा किया था। यथा- मन्त्रों हीन: स्वरसों वर्णतो व भिन्द्रायुक्तां न तत्तत्मायः। स वायुवः यज्ञांकन हिन्देतोऽयंदशुः स्वरस्तोडङ्गपरशात्।।

(रलोक सं 52 पाणिनीय शिक्षा)
अतः मन्त्र का प्रयोग स्वर्गत अथवा वर्णगत दोषों से सर्वथा मुक्त होना चाहिये अन्यथा जिसके लिये मिथ्या प्रयुक्त मन्त्र द्वारा यज्ञ सम्पन्न किया जाता है वह यज्ञमान निषिद्ध रूप से नष्ट हो जाता है। इसी प्रकार हस्तसंवादलार्डि से रहित उदात्तदिस्वर एवं वर्ण से भ्रष्ट होकर जो व्यक्ति वेद का पाठ करता है, वह 'ऋग्वे-यजु-साम' इन ब्रेद्वत्री रूप अर्थ से दर्श होकर सूक्ष्मदृष्टि निकृष्ट योगी को प्राप्त करता है। जैसा कि पाणिनि ने स्पष्ट लिखा है—

हस्तहीन तु योऽछीते स्वर्णम विवर्जितम।
ऋग्वे: साममित्याधो वियोनमित्याधमित।

(पाणिनीय शिक्षा रालोक सं 54)

महर्षि पाणिनि ने अपने शिक्षा त्त्त्र में उत्तममध्यम पाठकों के भेद का भी निरूपण किया है।

अधम पाठक वेदमन्त्रों का उच्चारण करने में अनेक त्रुटियाँ करते हैं। इन त्रुटियों की विशेषता के कारण अधम पाठक को महर्षि पाणिनि ने छः प्रकार का बताया है—

गीती शीर्षकम्पी तथा लिखितपाठक:।
अन्तर्यकाकण्ठच सहेते पाठकाद्यमः।

(पाणिनीय शिक्षा रालोक 32)

अर्थात् गानपूर्वक, त्वरा या जलदाय के, शिर कपाल हुये अपने लिखे को ही पढने वाले वास्तविक अर्थज्ञान से पुढ़कत तथा बिना अभ्यास के पाठ करने वाले ये छः पाठक अधम पाठकों की श्रेणी में परिगणित किये जाते हैं। वर्णगत दोष से मुक्त पाठ के लिये श्रीचित द्वारा अटबर्तर दोषों को महर्षि पाणिनि ने परीक्षानीय माना है। यथा संशययुक्त, भयसहित, उच्चवर्ग संयुक्त, असफळ, अनुसासिकम्य, कोवे की तरह करक्षण स्वयमुक्त, शिर को पीड़ित कर कहे गये, स्थान भ्रष्ट, मन्त्र स्वर्युक्त, शिष्प्रता पूर्वक, निचुर, अत्यन्त विलम से गदगद कण्ठ से गाते हुये, स्वर्य को दु-कह देकर कहे गये, बीच-बीच में वर्णों को व्यक्त किये बिना, दीननामपूर्वक तथा निरुख्तान्वित को भी सानुसारिक करके उच्छारित—ये सबी वर्णधार सवधा त्त्त्र हैं (रालोक 34-35 पालोशी)

महर्षि पाणिनि ने वर्णचारण की गुणवत्ता को दृष्टिगत रखते हुये उत्तम पाठक क्ष: प्रकार के बताये हैं—

माधुर्यम अध्यस्वार्थाय यजुददाता सुक्ष्मः।
बैरयम लयसमर्थ च सहेते पाठकः गुणः।।

(पाणिनीयशिक्षा—रालोक सं 33)
इन गुणों से पाठक के उच्चतम में उत्कर्ष की वृद्धि होती है। महर्षि पाणिनि द्वारा यह
उद्देश्य किया गया है कि जो पाठक स्वर, वर्ण तथा अर्थ सहित उद्विदादि स्वर सूचक हस्त
संचालन पूर्वक मनु का अध्ययन करता है वह अरुणजु-साम नामक वेदशास्त्री से पवित्र होकर
ब्रह्मलोक में प्रवेश करता है अर्थात् देवों द्वारा सम्पूर्णमान बन जाता है, यथा—
हसने वेद योऽविदीत स्वरवर्षप्यसुङ्क्तम्।
अरुणजु-सामसिद्ध पूतो ब्रह्मलोकों महोहते॥ (पाणिनी शिक्षा लोक सं 55)
पाणिनी शिक्षा में महर्षि पाणिनि ने स्पष्ट किया है कि स्वर-वर्णगत दोष जनित व्यापार से
बचने के लिये स्थान-प्रयास को दृढिक्षत रखते हुये वर्णों का सुस्पष्टतया उपचारण तथा उत्तरादि
स्वरों के संकेतान्तर हस्तसंचालन पूर्वक शुद्ध मन्त्रोचारण अभिप्रेत फल को प्रदान करता है।
न्यायवक्त भागवन शंकर के मुख कवल से प्रादुर्भत हुई इस पाणिनी-शिक्षा के नियमित पाठ के
माहत्य के विषय में कहा है कि जो शौकित नियमित रूप से पवित्रता होकर इस शिक्षा का पाठ
करता है उसे इस लोक में धन, धान्य तथा गवादि पशु एवं यश की प्राप्ति होती है, एवं स्वर्ग में
पहुँचकर भी अप्रभेद सुखस्रुववश्च का सतत उपयोग करता है। यथा—
स भवति धनवान्य पशुपुत्र कीर्तिमान अतुलं च सुक्ष्म समस्लूते दिविनित दिवीति॥ (पाणिनी शिक्षा लोक 60)
अतः मन्त्रों का शुद्धोचारण करना अति आवश्यक है।
निष्कर्ष:
प्रस्तुत शोधपत्र में ‘पाणिनी-शिक्षा’ में पाणिनि द्वारा शुद्धोचारण से होने वाले सुपरिणामों
तथा अशुद्धोचारण से होने वाले दुस्परिणामों एवं उनसे बचने के लिये बताये गये उपायों पर ही
प्रकाश डालने का प्रयास किया गया है।
सन्दर्भ ग्रंथ सूची:
1. महत०, दामोदर, विद्यासागर, पाणिनी शिक्षा, मोतीलाल बनारसीदास, दिल्ली, 2016
2. निमामालकार, सजयदेव, पाणिनी वैदिक सूची मोमांसा, दिल्ली, 2009
3. कुमार, अयोध्या, पाणिनी धातु-मुक्र-कोश, दिल्ली, 2014
4. पाणिनी शिक्षा, आचार्य, शिवराज : कोकिन्द्रायन, एंजोजिक इण्डिया, दिल्ली, 2011
5. शास्त्री, राकेश, पाणिनी शिक्षा, चौखम्बा ओसिन्झालिया, नई दिल्ली, 2014

[110]
चम्पू काव्य का उद्भव एवं विकास

डो (श्रीमती) दीपिका वर्मा
एसोसिएट प्रोफेसर, संस्कृत विभाग,
आईओएसपी0, उन्दरावन, मधुरा

सारांश :
चम्पूकाव्य के उद्भव पर भी यदि विचार किया जाता तो कुछ यदुवंशीय संहिताओं में गद्द-पद्द के मिश्रण के उदाहरण देखने को मिल जाते हैं। इससे सिद्ध होता है कि काव्य की यह विधा वैदिक काल में अस्तित्व में था। इसपर आरम्भिक काल के चम्पूकाव्य का अस्तित्व बता नहीं है। प्रथम चम्पूकाव्य नलचम्पू में है जिसकी रचना दशवीं शताब्दी में हुई थी। दण्डी ने अपने काव्यादर्श में चम्पू की परिभाषा दी है। इससे यह अनुमान लगाया जा सकता है कि उनसे (600 ई0) पूर्व चम्पू काव्य की रचना की जा चुकी थी। परन्तु सम्प्रति दशम शताब्दी से ही चम्पू काव्य की रचनायें उपलब्ध होती हैं।

यह कहना समीचीन होगा कि सर्वप्रथम वैदिक साहित्य एवं बौद्ध पालि जातकों में गद्द पद्ममयी मिश्र, शैली का प्रयोग किया गया है। बौद्ध मंग के इस पक्षार्थ को यह नीति प्रयुक्त हुई है। स्पष्ट है कि चम्पूकाव्य परम्परा के बीजाकुरण काल में माना जा सकता है। दण्डी के काव्यादर्श में लक्षण का प्रस्तुतिकरण इस परम्परा के अस्तित्व का प्रमाण है तथा दशम शताब्दी में चम्पू नलचम्पू इसकी सजीव उपलब्धि कही जा सकती है।
1. त्रिविक्रम भट्ट : नलचम्पू :—

इन्हें संस्कृत का प्रथम चम्पूकार माना जाता है। इनका ‘नल चम्पू’ ही चम्पूकाय का पहला उदाहरण है। त्रिविक्रम भट्ट राष्ट्रकूटवंश के शासक इन्द्र वृत्तीय के आचरण में 915 ई० में थे। इनके ‘नलचम्पू’ को ‘दमयतीचम्पू’ के नाम से भी जाना जाता है। इनकी दूसरी रचना ‘मदालसा चम्पू’ है।

नलचम्पू में महाभारत के वनपर्व के नलोपाख्यान से कथावस्तु ली की गई है। इसमें नलदयती की प्रगति कथा सात उच्चवासों में विभक्त है। इसमें नल का दमयती से प्रगति तथा नल द्वारा इन्द्रादि देवताओं के संदेश सुनाने तक की कथा वर्णित है।

प० बलदेव उपाध्याय के विचार में ‘नलचम्पू में जैसे सरस तथा प्रसन्न श्लेष पाये जाते हैं, उत्तरे समग्रिय तथा चमककारजनक श्लेष इतनी अधिकता से अन्यत्र समुपलब्ध नहीं होते।’ त्रिविक्रम भट्ट ने इस चम्पू काव्य में अप्रसिद्ध शब्दों का प्रयोग किया है। इनकी कविता के पद विन्यास नितांत मंजुल है। रचना भी मधुर है। ‘शय्या’ समग्रिय है कि किसी भी एक को पद अपने स्थान से हटाया नहीं जा सकता।'

सोमदेवसूरि दसम्श शताब्दी के जैन कवि हैं। इनके ‘यशस्त्तलकचम्पू’ की रचना 958 ई० में हुई।

सोमदेव के इस चम्पू काव्य के सात अवसरों में अवस्ति नरेश यशोधर की कथा वर्णित है। अपनी रानी की कपटपूर्ण चालों से विरक्त हो उनका जेनधर्म स्वीकार तथा उनके वध और पुनर्जन्म की घटनाओं का इसमें सरस वर्णन है। कवि ने इस रचना में यह प्रतिपादित किया है कि मनुष्य जेनधर्म का पालन कर किस प्रकार अपना कल्याण कर सकता है। ‘यशस्त्तलक’ की कथा रोचक है। लेखक की शैली नुस्सिधूर्याण है।

जैन कवि हरिश्चन्द्र : जीवनधरमचम्पू

कवि हरिश्चन्द्र ‘जीवनधर्म चम्पू’ की 11 लम्बाओं में गुणभद्र के उत्तरपुराण के आधार पर रचना की है। जिसमें राजा सत्यंगार और विजया के पुत्र राजकुमार जीवनधर की कथा वर्णित है। इसकी रचना ग्यारहवीं शताब्दी के आस–पास मानी जाती है। हरिश्चन्द्र की शैली पर माघ और वाक्यालय की छाप दिखाई पड़ती है।

[112]
यह विशालकाय ग्रन्थ है, इसमें कवि ने तत्कालीन समाज एवं उसकी समस्याओं का भी मामिक वर्णन प्रस्तुत किया है।

भोजराज : रामायण चम्पू –
ग्यारहवीं शताब्दी में धारानरेश भोजराज ने ‘रामायण चम्पू’ की रचना की। अनुश्रुति के अनुसार भोज की यह रचना अपूर्ण थी। जिसको पूर्ति किसी पश्चात्तात्त्विक कवि ने पूर्ण किया था। इस चम्पू में वालीकी रामायण के आधार पर राम कथा को प्रस्तुत किया है। इसके पदों में रामायण की अनुरूपता है।

सोदढल : उदयसुन्दरी कथा
अन्य चम्पूकाव्य ‘उदयसुन्दरीकथा’ है। इसमें ग्यारह शतक है। जिनमें नागराजकुमारी उदयसुन्दरी और प्रतिपादन के राजा मलयवाहन के विवाह का वर्णन है। इसकी रचना ग्यारहवीं शताब्दी की है। ये कोकण के मुम्मूणि राजा के दरबारी कवि थे। इन्होंने अपने चम्पूकाव्य में बाणमठ्ठ के वर्षारित का अनुकरण किया है।

अभिनव कालिदास : भागवतचम्पू
इस ‘भागवत चम्पू’ काव्य की रचना श्रीमदभागवत के दशम स्तंभ के आधार पर हुई है। इनका समय 11वीं शती के आस-पास माना जाता है। इनका चम्पू काव्य 44 स्तंबकों में विभक्त है। जिनमें सरथ का स्वकीया मानकर श्रीकृष्ण के साथ उनके विवाह एवं विलास का वर्णन है।

अनन्तमठ्ठ : भारतचम्पू
अनन्तमठ्ठ का समय 11वीं शताब्दी माना जाता है। इन्हें अभिनव कालिदास का प्रतिस्थापी कहा जाता है। इनके दो चम्पूकाव्यों ‘भारत चम्पू’ तथा ‘भागवत चम्पू’ में से केवल भारत चम्पू उपलब्ध है जिसमें महाभारत की कथा को संक्षेप में वास्तव स्तंबकों में 1000 श्लोक तथा गद्ध में बीरगाथा काव्य के रूप में प्रस्तुत किया है। यह वीर रस प्रधान काव्य है। इस चम्पू का गद्ध भी 100 पद की भाँति अलंकृत शैली में निबद्ध है।

आशाघरसूरि : भलतेश्वरामुदय चम्पू
आशाघरसूरि जैन तीर्थकर आदिनाथ के सुपुत्र सम्राट भरत का चरित्र अपने ‘भरतेश्वरामुदय चम्पू’ में प्रस्तुत किया है। इसमें जैनधर्म का वर्णन विशेष रूप से मिलता है। इनका रचनाकाल तेघवीं शताब्दी के अन्तर्गत है।
अर्थदास : पुरुदेव चम्पू
तेरहवीं शताब्दी के जैन कवि एवं आशाधर के शिष्य अर्थत या अर्थदास ने आदिनाथ तीर्थकर के सम्बन्ध में ‘पुरुदेव चम्पू’ की रचना की है। यह रचना गद्यकाव्य की सी अनुपासनयी समासबहुत पदावली में निबन्ध है। इसकी पदशाया बड़ी लिलित एवं कोमल है।
दिवाकर : अमोघराघव चम्पू
दिवाकर का समय तेरहवीं शती का अन्तिम काल है। इन्होने रामायण के आधार पर ‘अमोघराघव चम्पू’ की रचना की।
अहोबलसूरि : यतिराजविजय चम्पू
चौधरी शती के अहोबल सूरि ने ‘यतिराजविजय चम्पू’ और ‘विरुपाक्ष वस्तुतोत्सव चम्पू’ की रचना की। इसकी गद्य शैली बाण की शैली से प्रभावित है।
अमलाचार्य : रुविमणी-परिणय चम्पू
इन्होंने चौड़हवीं शताब्दी के उत्तरार्ध में हरिवंश पुराण के आधार पर ‘रुविमणी-परिणय चम्पू’ की अत्यंत प्राजल भाषा शैली में रचना की।
कविकर्णपूर : आनन्दवृण्डावन चम्पू
इनका समय सोलहवीं शताब्दी है। इनका ‘आनन्दवृण्डावन चम्पू’ श्रीकृष्ण के श्रुंगार का वर्णन करने वाला मनोहारी काव्य है। इसमें श्रुंगार रस प्रधान है तथा विभिन्न रासनृत्यों का सजीव जैसा वर्णन हुआ है। इसमें श्रीकृष्ण, राधा, चन्द्रावली, ललिता एवं स्थाना प्रमुख पात्र है।
तिरुमलाम्बा : वरदाम्बिका परिणय चम्पू
रानी तिरुमलाम्बा रचित ‘वरदाम्बिका परिणय चम्पू’ में अच्छुतराय और वरदाम्बिका के ब्याज से रानी ने अपनी ही प्रणय कथा प्रस्तुत की है। इनकी उद्वर कलपना एवं प्रोड शैली देखकर उनकी विद्वता का परिचय मिलता है। उनके काव्य में रसों की विविधता एवं मामिक व्यजना मनोहारी है।
अन्य चम्पूकार :
कवि विद्वन्त्र ने सोलहवीं शती के अन्त में ‘प चकल्याणचम्पू’ और ‘भागवतचम्पू’ की, शेष कृष्ण कवि ने 16वीं शती के उत्तरार्ध में ‘पारिजातहरणचम्पू’ की और इसी शताब्दी के देवज्ञ सूर्य ने ‘नृसिंह चम्पू’ की रचना की। सत्रहवीं शताब्दी के
‘वेंकटाध्वरि को तीन चम्पू रचनाएँ प्रसिद्ध है उनके नाम इस प्रकार है— विष्णुगुणदर्श
चम्पू, वरदमुदयचम्पू और उत्तरचम्पू। इनका समय 1650 ई0 है। इसमें प्राकृतिक दृष्टिय
शैलों के सुन्दर चित्र बढ़े ही मनोहारी है। नीलकण्ठ कवि ने सत्रहवीं शती में
‘नीलकण्ठविजय चम्पू’ में समुद्रमंथन आदि की पौराणिक कथा को निबद्ध किया है।
इनके काव्य में तत्कालीन विलासिता का वर्णन है, साथ ही कवि का उपदेश भी
जिसमें विलास को विगर्हणीय बताया है।

अठारहवीं शती के नल्ला दीक्षित ने ‘धर्मविजयचम्पू’ और कवि शंकर ने ‘शंकर
छेत्रविलास चम्पू’ की रचना की। श्रीनिवास कवि की रचना में तत्कालीन दक्षिण प्राप्त
की राजनीतिक स्थिति का मार्मिक चित्रण हुआ है।

निष्कर्ष :

इस प्रकार चम्पू काव्यों का रचनाकाल काफी विस्तृत है। चम्पू काव्यों की
रचना बीसवीं शताब्दी में भी हुई और अब भी संस्कृत विद्वान कवि चम्पू रचना करते
रहते हैं।

सन्दर्भ ग्रन्थ सूची
1. खण्डेलवाल, जे0के0 प्रसाद, संस्कृत साहित्य का सुबोध इतिहास, पृ0 92
2. उपाध्याय, बलदेव, चम्पू साहित्य, वाराणसी, 1952
3. कवि भोजराज, चम्पू रामायण, चौखम्बा विद्या भवन, वाराणसी, संवत् 2013
4. श्रीवास्तव, करूणा, चम्पूरामायण का साहित्यिक अध्ययन, बी0एच0यू अकाशी, 1968
5. वाल्मीकि रामायण, गीता प्रेस, गोरखपुर संवत्, 2009
6. लखनपाल, विजय कृष्णा, संस्कृत चंद्रिका, नई दिल्ली, 1998
Working and Management of SAPMB
(Uttar Pradesh Rajya Krishi Utpadan Mandi Parishad)

Rakesh Kumar Kulshreshtha\(^1\) and Parvendra Kumar Singh\(^2\)

\(^1\) 1. Asstt. Professor, Department of Agricultural Economics, R.B.S. College, Bichpuri, Agra (UP)
\(^2\) 2. Associate Professor, Deptt. of Rural Economics and Co-operation, B.V. Rural Institute, Bichpuri, Agra – 283105

Abstract

An attempt has been made in this paper to discuss the “Working and Management of SAPMB”. The study was conducted by Uttar Pradesh Rajya Krashi Utpadan Mandi Parishad. Present study, we only give the description of the state of affairs of the State Agricultural Produce Marketing Board in the context of the agricultural sector of Uttar Pradesh. The Secondary data were collected from the various sources of the year 2017-18 and 2018-19. In this study, total income Rs. 1888.00 crore in 2018-19. Mandi Vikas Nidhi Rs. 2615.91 crore and Expenditure Rs. 600.42 crore in 2018-19. Net working capital is Rs. 175.25 crores in 2017-18. It can also be concluded that Mandi Vikas Nidhi and Mandi Vikas Cess which are an important part of income of the SAPMB have increased in the current year. The current liabilities have decreased in the current year as compared to the previous year.

Key Words: Market committee, Agricultural produce, APMCs, SAPMB

Introduction:

The vast majority of this country’s population depends on agriculture for its livelihood. During the last few decades, there have been significant developments in this crucial sector resulting in higher food production. Green Revolution, coupled with other development programmes, has transformed the face of rural India along with the production of oilseeds, jute, cotton, sugarcane, wheat, rice, pulses, peanuts, fruits and vegetables etc. Global, as of 2020, India, had the biggest herd of buffalo and cattle, is the largest producer of milk and has one of the major and fastest budding poultry industries. India had a huge and diverse agricultural division, accounting, on an average for about 18% percent of GDP and 10 percent of export earnings. India’s arable land area of 156.46 million hectares is the second prevalent in the world, after the United States. Its gross irrigated yield area of 140.00 million hectares (51.2%) is the largest in the world.

[116]
For giving an organized and systematic shape to the marketing of agricultural produce in Uttar Pradesh, Agriculture Marketing Organization was set up within the state agriculture department in 1935. Its main objective was to formulate and implement marketing plan and disseminate all types of information related to agricultural marketing. The State Government decided to reorganize the agricultural marketing organization in 1957–58, when a new look was given to the organization. State Agricultural Produce Marketing Board (Rajya Krishi Utpadan Mandi Parishad) was established at the state level in the year of 1973 to organize, control and guide various activities & welfare schemes of market committees. The Board has played a very important role in implementing various acts in an impressive manner & to get fair behavior & appropriate support prices for their crops to the farmers. As a consequence, currently the operations and policies of State Agricultural Produce Marketing Board is carried out by its 251 Market Committees, scattered all over the state.

For development of agricultural Market Committees and strengthening them, the agricultural marketing organization was converted into a directorate by separating it from the agricultural department.

The State Agricultural Produce Marketing Board is an apex body under which is a wide network of two hundred fifty one Market Committees. These Market Committees are universally known as Mandi Samities. Market Committees are huge agricultural produce markets that trade grains, fruits, vegetables and the rest of the produce with the farmers and act as intermediaries between the farmers and the industry. Market Committees (Mandi Samities) provide an exclusive system of marketing that is beneficial for developing countries like India. The common objective of the various acts for straight agricultural produce markets is to bring both the parties viz. producer and buyer to the same level of improvement by eliminating all wrong practices and rationalizing market charges. They act as central hub and a router between farmers to towns. The Market Committees ensure a fair and level playing field for all the producers and buyers. This is done by eliminating the malpractice at the grass root level.

As per the Uttar Pradesh Krishi Utpadan Mandi Adhiniyam, the State has been divided under several Market Areas and for each Market Area one Market Committee has been set up. With the enforcement of Mandi rules in 1964 only two Market
Committees were brought under its ambit until 1965 – 1966. Presently two hundred fifty one main Market Committees are regulated by “The Marketing Committee Act” and three hundred fifty sixty Sub Committees also have been attached with these Committees.

An Act to provide for the regulation of sale and purchase of agricultural produce and for the establishment, superintendence and control of markets therefore in Uttar Pradesh. This Act may be called the Uttar Pradesh Krishi Utpadan Mandi Adhiniyam, 1964. The Uttar Pradesh Krishi Utpadan Mandi Samitis (alpakalik vyavastha) Adhiniyam, 1972 (U.P. Act No. 7 of 1972). An Act further to amend the Uttar Pradesh Krishi Utpadan Mandi Adhiniyam, 1964.

Materials and Method

Present research study can be categorized as Descriptive research. Moreover it is an Ex- post facto research. Some part of the research is applied in nature. In the present research, we only give the description of the state of affairs of State Agricultural Produce Marketing Board in the context of agricultural sector of Uttar Pradesh as it exists. Here the researcher had no control over the variables; he can only report what has happened or what is happening.

Research study is based on secondary data, for this we looked various sources to find the relevant data which posses the basic characteristics like- reliability of data and source, suitability and adequacy, some main data sources.

Result and Discussion

The financial growth of SAPMB (State Agricultural Produce Marketing Board) for the past few years can be analyzed in the table 1.

Mandi Shulk is the income of the State Agricultural Produce Marketing Board from the Market Committees (Mandi Samities). Mandi Shulk is an important part of the income of the State Agricultural Produce Marketing Board. It is clear from the above table that except in the agricultural year 2010-11 (586.81 crore) and 2018-19 (1305.46) the Mandi Shulk has been constantly increasing. This means that the income of the SAPMB from the various Market Committees is constantly rising. Mandi Shulk which was 586.81 crore in the agricultural year 2010-11 has increased to 1305.46 crore in the agricultural year 2018-19.
Table - 1 : Mandi Shulk and Total Income (Rs. in crore)

<table>
<thead>
<tr>
<th>Year</th>
<th>Mandi Shulk</th>
<th>Total Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>586.81</td>
<td>793.40</td>
</tr>
<tr>
<td>2011-12</td>
<td>688.34</td>
<td>946.63</td>
</tr>
<tr>
<td>2012-13</td>
<td>838.21</td>
<td>1147.80</td>
</tr>
<tr>
<td>2013-14</td>
<td>795.51</td>
<td>1168.75</td>
</tr>
<tr>
<td>2014-15</td>
<td>822.75</td>
<td>1155.76</td>
</tr>
<tr>
<td>2015-16</td>
<td>842.03</td>
<td>1160.61</td>
</tr>
<tr>
<td>2016-17</td>
<td>852.51</td>
<td>1209.86</td>
</tr>
<tr>
<td>2017-18</td>
<td>1075.92</td>
<td>1551.93</td>
</tr>
<tr>
<td>2018-19</td>
<td>1305.46</td>
<td>1888.00</td>
</tr>
</tbody>
</table>

(Source: Annual accounts, SAPMB)

The total income of the State Agricultural Produce Marketing Board has also been increasing; the total income of the State Agricultural Produce Marketing Board which was 793.40 crore in agricultural year 2010-11 has increased drastically to 1888.00 crore in the agricultural year 2018-19. This Table thus shows that there has been a remarkable financial growth of the State Agricultural Produce Marketing Board in the past few years.

The analysis of farmer`s interest in the State Agricultural Produce Marketing Board and its various Market Committees (Mandi Samities) can be done from the Table 2.

Table – 2 : Primary and Secondary Arrival in quintals

<table>
<thead>
<tr>
<th>Year</th>
<th>Primary Arrival</th>
<th>Secondary Arrival</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-14</td>
<td>384496312</td>
<td>104337812</td>
</tr>
<tr>
<td>2014-15</td>
<td>387902637</td>
<td>103026104</td>
</tr>
<tr>
<td>2015-16</td>
<td>408340361</td>
<td>98085362</td>
</tr>
<tr>
<td>2016-17</td>
<td>416549821</td>
<td>104612901</td>
</tr>
<tr>
<td>2017-18</td>
<td>475309865</td>
<td>116530994</td>
</tr>
</tbody>
</table>

(Source: Annual Report, SAPMB)

From the above table no. 2, it is clear that the interest of the farmer`s in the
State Agricultural Produce Marketing Board and its various Market Committees has been increasing in the past few years. The Primary Arrivals has been increasing in the Market Committees. The Primary arrivals which was (3,844,963,12) crore in the agricultural year 2013-14 has increased remarkably to (4,753,098,65) Quintals in the agricultural year 2017-18.

The Secondary Arrivals has also increased in the various Market Committee in the past few years, except in the agricultural years 2014-15, 2015-16 (1,030,261,04 Quintals, 9,808,536,2 Quintals). The Secondary Arrivals has increased from (1,043,378,12) Quintals in the agricultural year 2013-14 to (1,165,309,94) Quintals in the agricultural year 2017-18. This drastic increase in the Secondary Arrivals shows that the interest of the farmers of Uttar Pradesh in the SAPMB and Market Committees has been increasing constantly.

This is an important part of Mandi Shulk earned by the Market Committees (Mandi Samities). This Nidhi is utilized for development work like construction of link roads, construction of new market yards etc.

**Table - 3 : Valuation of Mandi Vikas Nidhi in Crore Rupees**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>2017-18</th>
<th>2018-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandi Vikas Nidhi</td>
<td>833.80</td>
<td>1060.27</td>
</tr>
<tr>
<td>ADD : Receipts During the Year Mandi Vikas Nidhi</td>
<td>856.47</td>
<td>1555.64</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1690.27</td>
<td>2615.91</td>
</tr>
<tr>
<td>LESS: Expenditure During the Year</td>
<td>1156.35</td>
<td>2015.49</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>533.92</td>
<td>600.42</td>
</tr>
</tbody>
</table>

(Source: Annual Reports, SAPMB)

From the above table it can be analyzed that Mandi Vikas Nidhi which is an important part of income has increased in the current year 66.5 crore in comparison to the previous year 2017-18.

One of the objectives of the research is to analyze the financial growth of the State Agricultural Produce Marketing Board. In this view, data of the past Five years has been taken to analyze whether there has been financial growth in the State Agricultural Produce Marketing Board and its various Market Committees or not. Data of past Five years viz. 2014-15 to 2018 -2019 has been taken for this purpose.
Table–5 : Year wise Growth of Income

<table>
<thead>
<tr>
<th>Years</th>
<th>Market Committee’s Income (Rs. in crore)</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>793.40</td>
<td>--</td>
</tr>
<tr>
<td>2011-12</td>
<td>946.63</td>
<td>19.3</td>
</tr>
<tr>
<td>2012-13</td>
<td>1147.80</td>
<td>21.3</td>
</tr>
<tr>
<td>2013-14</td>
<td>1168.75</td>
<td>1.82</td>
</tr>
<tr>
<td>2014-15</td>
<td>1155.76</td>
<td>1.11</td>
</tr>
<tr>
<td>2015-16</td>
<td>1160.61</td>
<td>0.42</td>
</tr>
<tr>
<td>2016-17</td>
<td>1209.86</td>
<td>4.3</td>
</tr>
<tr>
<td>2017-18</td>
<td>1551.93</td>
<td>28.27</td>
</tr>
<tr>
<td>2018-19</td>
<td>1888.00</td>
<td>21.69</td>
</tr>
<tr>
<td>Total</td>
<td>11022.74</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1224.74</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Annual reports, SAPMB)

From Table No.5.1 and it is clear that there has been continuous increase in Market Committee’s income in 2018-19.

Table – 6 : Market Committee’s Income in Crores Rupees

<table>
<thead>
<tr>
<th>Sections</th>
<th>Agriculture Year 2017-18 (Current year)</th>
<th>Agriculture Year 2018-19 (Previous year)</th>
<th>Increase in percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandi Shulk</td>
<td>1075.92</td>
<td>1305.46</td>
<td>21.32</td>
</tr>
<tr>
<td>Development Cass</td>
<td>278.65</td>
<td>339.22</td>
<td>21.59</td>
</tr>
<tr>
<td>Mandi Income (other Income)</td>
<td>197.36</td>
<td>243.32</td>
<td>23.27</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td><strong>1551.93</strong></td>
<td><strong>1888</strong></td>
<td><strong>21.66</strong></td>
</tr>
</tbody>
</table>

(Source: Work List of 150th Meeting Report of Sanchalak Mandal)

From table No. 5.2 it can be analyzed that there has been a positive growth in Mandi income (other income) in the year 2018-19 by 23.27% in comparison to previous year.
Table - 7: Financial Soundness of the SAPMB in Crores Rupees

<table>
<thead>
<tr>
<th>Particulars</th>
<th>2018-19</th>
<th>2017-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>General fund</td>
<td>1548.78</td>
<td>1326.16</td>
</tr>
<tr>
<td>Fixed assets</td>
<td>90.00</td>
<td>85.00</td>
</tr>
<tr>
<td>Current assets</td>
<td>280.86</td>
<td>238.00</td>
</tr>
<tr>
<td>Cash &amp; Bank balances</td>
<td>1897.00</td>
<td>1628.63</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>377.15</td>
<td>413.25</td>
</tr>
<tr>
<td>Investments</td>
<td>4.75</td>
<td>11.77</td>
</tr>
<tr>
<td>Surplus as per income &amp; exp.a/c</td>
<td>-230.26</td>
<td>-172.05</td>
</tr>
<tr>
<td>Mandi Vikas Nidhi</td>
<td>721.05</td>
<td>698.47</td>
</tr>
<tr>
<td>Mandi Vikas Cess</td>
<td>339.22</td>
<td>266.84</td>
</tr>
<tr>
<td><strong>Current Ratio CA/CL</strong></td>
<td><strong>0.74</strong></td>
<td><strong>0.57</strong></td>
</tr>
<tr>
<td><strong>Net Working Capital CA-CL</strong></td>
<td><strong>-96.29</strong></td>
<td><strong>-175.25</strong></td>
</tr>
</tbody>
</table>

(Source: Balance Sheet 2018-19, 2017-18)

From table no.7, it can be concluded that there has been increase in the current ratio from 0.57 to 0.74 from the previous year which has affected the working and liquidity position of the organization positively in the current year 2018-19.

There also has been increase in gap in the net working capital as compared to the previous year 2017-18. The difference between current assets and current liabilities has been increased, which is not good for the organization.

The table above also highlights the fact that the general fund of the State Agricultural Produce Marketing Board has increased in the year 2018-19 as compared to the previous year 2017-18. However the fixed and current assets have increased in the current year as compared to the previous year. There has been a substantial increase in the cash and bank balances in the year 2018-19 as compared to the previous year 2017-18. There has been a decrease in the investments done by the Board during the current year. The Mandi Vikas Nidhi and Mandi Vikas Cess which are important part of income of the SAPMB have increased in the current year. The current liabilities have decreased in the current year as compared to the previous year.
References:

1. “Agricultural advisory services and the market”, Overseas Development Institute, April 2008.
3. Agricultural and Food Marketing Association of Asia and the Pacific (AFMA).
4. The Indian Journal of Agricultural Economics.
Chemical Composition of Plane Burfi Purchased from Different Markets of Agra City

M.L. Bhaskar¹, S.S. Katiyar² and Om Prakash³

Abstract
An investigation was conducted in the dept. of A.H. & Dairying, R.B.S. College, Bichpuri, Agra to investigate the chemical composition of plane burfi purchased from different markets of Agra city. The four markets were tested i.e. Lohamandi, Khandari, Shahganj and Hari Parwat. The Plane burfi collected from Lohamandi, Khandari, Shahganj, Hariparwat and control samples were analysed and found acidity 0.32±0.02, 0.32±0.03, 0.31±0.04, 0.34±0.03 and 0.30±0.05, Fat 14.90±1.40, 16.40±1.60, 14.70±1.40, 16.20±1.50 and 20.40±1.60, Protein 9.65±0.70, 10.90±0.75, 11.10±0.80, 11.50±0.90 and 14.40±1.10, Lactose 15.15±1.10, 14.55±1.00, 14.75±1.00, 14.40±0.90 and 17.80±1.20, Ash 3.55±0.50, 4.20±0.50, 4.30±0.40 and 2.30±0.26,Sucrose 40.50±2.11, 38.05±2.00, 39.00±2.20, 37.65±1.19 and 30.00±0.96, Moisture- 16.25±1.30, 15.90±1.20, 16.10±1.40, 15.00±1.20 and 14.10±1.20 and total solids- 83.75±3.60, 84.10±3.80, 83.90±3.40, 85.00±3.90 and 85.90±2.80 percent, respectively. It is observed from the study that all sample of plane burfi purchased from different markets have differ chemical composition and poor than that of control samples. The composition of plane burfi significantly differ each markets. It is observed that good composition plane burfi can be prepared using good quality milk, care during preparation and hygienic condition during sale.
Key words : Burfi, chemical composition, markets, sucrose and T.S.

Introduction:
Milk is usually converted into the milk products as dahi, butter, ghee, chhena, cheese, ice-cream, Rabri, Khoa and Khoa based sweets like burfi, peda, gulabjamun, kalakand, milk cake etc. Burfi is a khoa based sweets and very popular in India. Several varieties of burfi are sold in market depending on additives present viz; plane or mavaburfi, fruit and nut burfi, chocolate burfi, saffron burfi and ravaburfi. Buffaloes milk are usually preferred over cow’s milk for burfi production, since former gives greater yield and more desirable body and texture. Good quality, burfi is however, characterized by moderately sweet taste, soft and slightly greasy body and smooth texture with fine grains (Bhaskar et.al; 2015). Colour of burfi should be white to slightly yellowish. About 7% of the quantity of milk produced in India is converted to Khoa and Khoa-based products. It is prepared by boiling milk in an open pan so as to obtain a semi-solid product called Khoa to which sugar is added in crystalline, power or syrup form (Wasnik et.al; 2015), Milk sweets are an integral part of the socio-cultural life in the Indian sub-continent. These are consumed on special religious occasions,

¹ Deptt. of A.H. & Dairying, R.B.S. College, Bichpuri, Agra
² Dept. of A.H. & Dairying, R.S.M. (PG) College, Dhampur, Bijnor (U.P.)
³ Dept. of A.H. & Dairying, Amar Singh (PG) College, Lakhaoiti, Bulandshahar (U.P.)
social events and at the end of our daily meals. In present era in addition to religious and social need, the milk sweet is prepared for value addition and earns profit to the traders. That is why, now their manufacture is not confined to only small confectioners (Halwaies) but many organized dairies and large players in the milk business have entered in this lucrative venture (Kumar et. al; 2016).

The chemical composition of burfi depends on quality and composition of milk, amount of sugar and other ingredients added and the extent of heating. The market samples varied widely in composition, the range being: moisture (30 to 31.4%), fat (4.10 to 27.0%), Sucrose (16.7 to 59.7%), Protein (1.40 to 20.5%), Lactose (5.60 to 21.06%) and ash (1.52 to 3.29%). The present study was carried out in the dept. of A.H. & Dairying, R.B.S. College, Bichpuri, Agra during session 2017-18 to assess the chemical composition of plane burfi marketed in Agra city.

Material and Methods:

The sample of plane burfi collected from Lohamandi, Khandari, Shahganj and Hari Parwat markets of Agra city were collected in clean and sterilized wide mouthed glass stoppard previously labeled bottle in 100gm. quantity. After collection, the sample were brought to the laboratory, dept. of A.H. & Dairying, R.B.S. College, Bichpuri, Agra and subjected to analysis. For the preparation of control sample of burfi in the laboratory, the buffaloes milk was collected from near villages in clean and sterilized stainless steel containers contain about 6% fat and having 0.12 to 0.14 acidity. The sugar was added @ 30% into Khoa. The chemical analysis of burfi samples was done in terms of Acidity, Fat, Protein, Lactose, Ash, Total solide, Moisture and sucrose by the methods cited by Srivastava (2010) and described in Hand Book of Food analysis, part XIth, Dairy products, BIS New Delhi. Investigation was replicated forth times and the data thus obtained were subjected to statistical analysis and tested at 5% and 1% level of significance.

Results and Discussion:

It is observed from the Table-1 that the chemical composition of plane burfi differ from market to market. The season was to use milk from various sources and practices experienced during its manufacture. The table revealed that the acidity content of plane burfi purchased from Lohamandi, Khandari, Shahganj and Hariparwat markets were found to be 0.32±0.02, 0.31±0.03, 0.33±0.04 and 0.34±0.03 percent, respectively. The control samples have 0.30±0.05 percent acidity. It observed from the study that difference in acidity in plane burfi was insignificant in all markets with control samples. The chemical composition of plane burfi in respect to fat, protein, lactose and ash percent were found to be 14.90±1.40, 9.65±0.70, 15.15±1.10 and 4.10±0.50 in Lohamandi market, 16.40±1.60, 10.90±0.75, 14.55±1.00 and 4.20±0.40 in Khandari markets and 14.70±1.40, 11.10±0.80, 14.75±1.10 and 4.35±0.50 in Shahganj markets and 16.20±1.50, 11.50±0.90, 14.40±0.90 and 4.30±0.40 in Hariparwat markets,
respectively. While the control samples contain 20.40±1.60, 14.40±1.10, 17.80±1.20 and 2.30±0.26 percent fat, protein, lactose and ash, respectively. It is observed from the percent investigation that the fat, protein and lactose content were significantly (p≤0.01) lower than control samples. It is also observed from the study that all market samples of plane burfi have poor composition as compared with control sample it is due to earn more money habits of the manufacturers of plane burfi.

**Table 1. Chemical Composition of Plane Burfi**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Markets</th>
<th>Acidity %</th>
<th>Fat%</th>
<th>Protein%</th>
<th>Lactose%</th>
<th>Ash%</th>
<th>Sucrose%</th>
<th>T.S.%</th>
<th>Moisture %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lohamandi</td>
<td>0.32±0.02</td>
<td>14.90±1.40</td>
<td>9.65±0.70</td>
<td>15.15±1.10</td>
<td>4.10±0.50</td>
<td>40.50±2.11</td>
<td>84.30±3.60</td>
<td>16.25±1.30</td>
</tr>
<tr>
<td>2</td>
<td>Khandari</td>
<td>0.31±0.03</td>
<td>16.40±1.60</td>
<td>10.90±0.75</td>
<td>14.55±1.00</td>
<td>4.20±0.40</td>
<td>38.05±2.00</td>
<td>84.10±3.80</td>
<td>15.90±1.20</td>
</tr>
<tr>
<td>3</td>
<td>Shahganj</td>
<td>0.33±0.04</td>
<td>14.70±1.40</td>
<td>11.10±0.80</td>
<td>14.75±1.10</td>
<td>4.35±0.50</td>
<td>39.00±2.20</td>
<td>83.90±3.40</td>
<td>16.10±1.40</td>
</tr>
<tr>
<td>4</td>
<td>Hariparwat</td>
<td>0.34±0.03</td>
<td>16.20±1.50</td>
<td>11.50±0.90</td>
<td>14.40±0.90</td>
<td>4.30±0.40</td>
<td>37.65±1.90</td>
<td>84.05±3.90</td>
<td>15.95±1.20</td>
</tr>
<tr>
<td>5</td>
<td>Control</td>
<td>0.30±0.05</td>
<td>20.40±0.60</td>
<td>14.40±0.40</td>
<td>17.80±1.20</td>
<td>2.30±0.26</td>
<td>30.00±0.40</td>
<td>84.90±2.80</td>
<td>15.10±1.20</td>
</tr>
</tbody>
</table>

**Calculated F Value:**

- NS = Non – Significant
- ++ = Significant at (p ≤ 0.01)

The total solids (T.S.), sucrose and moisture content of plane burfi were found to be 84.38±3.60, 40.50±2.11 and 16.25±1.30 in Lohamandi market, 84.10±3.80, 38.05±2.00 and 15.90±1.20 in Khandari market, 83.90±3.40, 39.00±2.20 and 16.10±1.40 in Shahganj market and 84.05±3.90, 37.65±1.91 and 15.95±1.20 percent in Hariparwat markets, respectively. However, control samples contain 84.90±2.80, 38.00±0.40 and 15.10±1.20 percent T.S., Sucrose and Moisture content, respectively. It is evident from the present study that T.S. percent in different markets samples of plane burfi was differ insignificantly with control samples. Whereas sucrose content was significantly much higher in market samples than control samples. It is due to addition of more sucrose in market samples for earning more profit. The moisture content was also differing insignificantly than control samples.

It is therefore; found in the present investigation that all samples of plane burfi collected from different markets contain lower composition as fat, protein and lactose than control samples. Ash control was higher than control samples due to adding more Sucrose. Our observations were related with findings of Sholeet. al.; 2012 and Bhaskaret al; 2015.

**References:**


Comparative Study of Conventional method and Lignin ratio technique to Estimate Dry matter and other nutrients Digestibility in Buffalo calves

Dr. Om Prakash, Dr. Bhimsen1, Dr. S.S. Katiyar2, Dr. Dashrath Singh3, Dr. Laxman Singh4

Department of Animal Husbandry & Dairying
Amar Singh (P.G.) College, Lakhaoti-203407, Bulandshahar (U.P.) INDIA

Abstracts:
Six murrah buffalo calves were taken for entire investigation and the selected animals were within 2 to 2½ years of age. The animals were fed wheat straw, green lucernes and concentrates mixture in the experimental period. In conventional method, the per cent digestibility of dry matter (DM), crude protein (CP), ether extract (EE), crude fibre (CF), nitrogen-free extract (NFE), total carbohydrates (TCHO), total ash, acid detergent fibre (ADF) and neutral detergent fibre (NDF) were recorded to be 59.41 ± 2.60, 65.17 ± 2.68, 50.07 ± 3.42, 59.69 ± 3.33, 65.06 ± 2.13, 60.00 ± 2.51, 33.85 ± 3.43, 53.93 ± 2.50 and 67.42 ± 3.12, respectively. In lignin ratio technique, the per cent digestibility of DM, CP, EE, CF, NFE, TCHO, total ash, ADF and NDF were recorded to be 59.26 ± 2.65, 65.04 ± 2.74, 49.89 ± 3.47, 59.29 ± 3.43, 64.94 ± 2.17, 62.87 ± 2.56, 33.59 ± 3.50, 53.49 ± 2.59 and 67.24 ± 3.18, respectively. The average dry matter and other feed nutrients/constituents digestibility recorded by conventional method and lignin ratio technique were statistically not significant.

Short running title: Comparative study of conventional method

Key words: Conventional, lignin, dry matter, calves, digestibility

Introduction:
The digestibility of feed determines the amount that is actually absorbed by an animal and therefore the availability of nutrients for growth, milk production and reproduction etc. Digestibility of feedstuff is determined to evaluate and quantify available nutrients from individual feed ingredient, to evaluate and quantify available nutrients from diet (complete food material) and to quantify available energy concentration of feedstuff. I nearly feed, evaluation of feedstuffs were analysed for six fractions viz., dry matter, crude protein, ether extract, crude fibre, nitrogen-free extract and ash. Inspite of several limitations in this system of analyser, it is widely used in nutritional studies. In recent development of feed analysis, Van Soest and Moore (1965) proposed a system where whole plant was divided in two parts (a) cell contents (soluble in neutral detergent) and (b) cell wall (soluble in acid detergent) which was superior over the existing method of fibre and lignin estimation for the purpose of determination of nutritive value. By conventional (direct collection) method,
experimental animals were generally fed one type of foodstuff of roughages to known the amount of digestible nutrients present in it. In conventional method digestibility, the daily feed intake and faeces voided quantitatively measured is very laborious and time consuming. In this direction indicator method (Hill and Anderson, 1958) will be less time consuming and provide better result than the conventional method.

Materials and Method:

Six murrah buffalo calves were taken for entire investigation and the selected animals were within 2 to 2½ years of age. Selection of calves was made on the basis of age, body weight and body conformation. Before the start of actual trial all the calves were dewormed and cure from external parasite before putting them in the experimental shed. Commercially available and widely used feedstuffs consisting of wheat straw, green lucernes and concentrates mixture were used in this experiment. After drying forage samples were milled through a 1-mm sieve for chemical analysis. Dry matter was determined by drying the samples at 105°C overnight and ashing the samples in a muffle furnace at 525°C for 8 hours. Nitrogen (N) content was measured by the Kjeldahl method (AOAC, 1990). Crude protein was calculated as N × 6.25. Neutral detergent fibre (NDF) and acid detergent fibre (ADF) contents were determined by the method of AOAC (1990). Starch content was determined by the method according to MacRea and Armstrong (1968).

Conventional (direct collection) method-

In this experiment concentrate mixture, green lucernes along with ad-libitum wheat straw were offered to all the calves. Of the total dry matter requirement, one-fourth dry matter was given through green lucernes. The remaining digestible crude protein (DCP) requirement was maintained through concentrate mixture. Concentrate mixture was provided before the feeding of roughages to the animals. Digestibility trials consist of two periods; 1st is adjustment period and 2nd is collection period. In adjustment period first 30 days are taken as adjustment days. It is to free the digestive tract of prior undigested feed and to accustom the animal to environment followed by a collection period of 10 days.

Lignin ratio technique

In this experiment lignin present in the feed (wheat straw and concentrate mixture) and the faeces were collected from the samples obtained from conventional method experiment. The digestibility coefficients of the dry matter and feed components were calculated by the conventional method of faecal collection and by lignin ratio technique using the following equation:

\[
\text{Digestibility} \% = 100 - \frac{(\% \text{ indicator in feed}) \times (\% \text{ nutrient in faeces})}{(\% \text{ indicator in faeces}) \times (\% \text{ nutrient in feed})} \times 100
\]
The observations recorded during the course of these investigations were summarized in the form of table for the analysis of mean and standard error. Paired ‘t’ test was applied to judge the differences in digestibility values found by Conventional (direct collection) method and Lignin ratio technique. The significant differences between the average values were tested against critical difference (CD) at 5 and 1 per cent level of probability.

Results and Discussion
Estimation of Digestibility by Conventional (direct collection) method

Dry matter (DM): The data presented in Table 1 depict that the average dry matter digestibility in animals was 59.41 ± 2.60 per cent with the minimum and the maximum digestibility 55.30 and 62.49 per cent, respectively. Some of the workers (Singh, 1975–78) found 56.2 to 60.4 per cent dry matter digestibility in cattle, (Mehra et al., 1990 and 1991) recorded dry matter digestibility from 53.34 to 59.84 per cent in buffaloes maintained on the different feeding schedules, Verk et al. (1993) recorded 55.11 to 59.75 per cent dry matter digestibility in the buffaloes fed with the concentrate mixture along with untreated and urea treated wheat straw, Murarilav et al. (1999) observed 56.3 ± 1.28 per cent DM digestibility where buffaloes fed wheat straw with oats green and Uriyapongson et al. (2013) recorded 53.23 to 60.44 per cent DM digestibility in buffaloes fed total mixed ration with different levels of citric waste, similar to DM digestibility found in the present case. However, lower DM digestibility was reported in buffaloes by Sharma et al. (1981) 49.4 to 52.4 per cent; and Chopra and Kurar (1983) 55.97 per cent than the results obtained in the present case. Gill and Gill (1979) and Goswami et al. (1997) reported comparatively higher DM digestibility, when buffaloes were maintained on maize Stover (63 to 65 per cent) and hybrid maize grass (68.18 per cent) along with concentrate mixture in their respective experiments than the result obtained in the present case.

Other feed nutrients/components: The other feed nutrients/constituents are crude protein (CP), ether extract (EE), crude fibre (CP), nitrogen-free extract (NFE), total carbohydrates (TCHO), total ash, acid detergent fibre (NDF) and neutral detergent fibre (NFE).

A critical examination of data presented in Table 1 indicates that the digestibility of crude protein (CP) was the maximum 68.42 per cent and the minimum 60.79 per cent with the mean value 65.17 ± 2.68 per cent in the animals. In the present study, the range of variations in the digestibility of CP were within the range reported by Sharma et al., 1981 (32.7 and 74.8 per cent), Goswami et al., 1997 (65.22 per cent), Murarilav et al., 1999 (63.6 ± 1.82) and Sastry et al., 1999 (61.9 to 63.9 per cent). The digestibility of CP ranging from 45 to 59 per cent have been reported by Singh (1975-78), Mudgal et al. (1981), Chopra and Kurar (1983), Mehra et al. (1990) and Teli et al. (1999), which were comparatively lower than the values found in
the present case. The present results also contradicted with the values reported by Gill and Gill (1979) and Mehra et al. (1991) Uriyapongson et al. (2013), who found that crude protein digestibility ranges from 67.13 to 71.00 per cent when rations of different combinations were fed to the buffaloes.

Table 1: Digestibility coefficient of feed components estimated by conventional (direct collection) method

<table>
<thead>
<tr>
<th>Groups of animals</th>
<th>Dry matter</th>
<th>Crude protein</th>
<th>Ether extract</th>
<th>Crude fibre</th>
<th>Nitrogen-free extract</th>
<th>Total carbohydrates</th>
<th>Total ash</th>
<th>Acid detergent fibre</th>
<th>Neutral detergent fibre</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>60.92</td>
<td>66.97</td>
<td>52.53</td>
<td>62.15</td>
<td>66.78</td>
<td>64.89</td>
<td>36.21</td>
<td>55.93</td>
<td>69.91</td>
</tr>
<tr>
<td>B</td>
<td>59.66</td>
<td>65.92</td>
<td>50.79</td>
<td>59.88</td>
<td>64.84</td>
<td>62.99</td>
<td>35.31</td>
<td>53.22</td>
<td>66.52</td>
</tr>
<tr>
<td>C</td>
<td>62.49</td>
<td>68.42</td>
<td>54.32</td>
<td>63.32</td>
<td>67.27</td>
<td>65.75</td>
<td>37.33</td>
<td>56.64</td>
<td>70.80</td>
</tr>
<tr>
<td>D</td>
<td>60.60</td>
<td>65.39</td>
<td>50.52</td>
<td>60.87</td>
<td>66.38</td>
<td>64.25</td>
<td>34.99</td>
<td>55.30</td>
<td>69.12</td>
</tr>
<tr>
<td>E</td>
<td>57.49</td>
<td>63.57</td>
<td>47.35</td>
<td>57.84</td>
<td>63.12</td>
<td>61.08</td>
<td>30.72</td>
<td>52.57</td>
<td>65.71</td>
</tr>
<tr>
<td>F</td>
<td>55.30</td>
<td>60.79</td>
<td>44.93</td>
<td>54.08</td>
<td>62.00</td>
<td>59.09</td>
<td>28.54</td>
<td>49.97</td>
<td>62.46</td>
</tr>
<tr>
<td>Average ± SE</td>
<td>59.41 ± 2.60</td>
<td>65.17 ± 2.68</td>
<td>50.07 ± 3.42</td>
<td>59.69 ± 3.33</td>
<td>65.06 ± 2.13</td>
<td>63.00 ± 3.34</td>
<td>33.85 ± 3.43</td>
<td>53.93 ± 2.50</td>
<td>67.42 ± 3.12</td>
</tr>
</tbody>
</table>

The data presented in Table 1 reveal that the EE digestibility range was 44.93 to 54.32 in buffalo calves. The average digestibility of ether extract (EE) in calves was (50.07 ± 3.42 percent). The present finding on the digestibility of ether extract stands in agreement with the results (41.1 to 55.62 per cent) reported by some of the previous workers (Sharma et al., 1981; Chopra and Kurar, 1983; Mehra et al., 1990 and 1991; Verk et al., 1993 and Goswami et al., 1997). The highest digestibility value obtained in the present investigation was even lower than the value recorded by the other workers (Gill and Gill, 1979; Murarilav et al., 1999 and Sastry et al., 1999) engaged in the field of buffalo nutrition research.

The data shown in the Table 1 indicate that the CF digestibility range from 54.08 to 63.32 per cent, the average value being 59.69 ± 3.33 per cent in the animals. These results are in accordance with the findings of earlier workers (Gill and Gill,
1979; Sharma et al., 1981; Mehra et al., 1991; Verk et al., 1993; Goswami et al., 1997 and Murarilav et al., 1999), who found that crude fibre (CF) digestibility ranges from 48.55 to 75.83 per cent. The CF digestibility estimates in the present case were found lower than the values (64.00 to 79.59 per cent) reported by Singh, 1975-78; Mudgal et al., 1981; Chopra and Kurar, 1983; Mehra et al., 1990 and Chauhan et al., 1997. Sastry et al. (1999) reported that the crude fibre digestibility ranges from 45.0 to 59.9 per cent, which was comparatively lower than the values obtained in the present investigation.

It is obviously clear from the data presented in Table 1 that the nitrogen-free extract (NFE) digestibility coefficient was (62.00 to 67.27 per cent with an average of 65.06 ± 2.13 per cent) in the animals. Singh (1975-78) and Mudgal et al. (1981) have reported similar NFE digestibility as recorded in this present study. However, higher NFE digestibility estimates than those obtained in the present investigation, were reported by several workers (Gill and Gill, 1979; Chauhan et al., 1997 and Goswami et al., 1997) engaged in this field. The NFE digestibility values obtained in the present study were comparatively higher than the values reported by Sharma et al., 1981 (45.1 to 50.37 per cent); Verk et al., 1993 (47.4 to 57.28 per cent), Murarilav et al., 1999 (57.0 ± 1.23 per cent) and Sastry et al., 1999 (55.0 to 61.6 per cent). The variation in the NFE digestibility in the present case may be due to the situation of experiments, metabolic behaviour of the animals and their feeding practices during the experimentation.

It is apparently visible from the data presented in Table 1, that the minimum and the maximum total carbohydrates (TCHO) digestibility values were 59.09 and 65.75 in buffalo calves, respectively. The average of TCHO digestibility was recorded 63.00 ± 2.51 per cent in the buffalo calves. The similar range of variations in the total TCHO digestibility (56.26 to 67.00 per cent) have also been reported by Singh (1975-78), Srivastava et al. (1985), Mehra et al. (1990) and Pathak et al. (1997). Nooruddin and Roy (1985) reported 60.09 per cent digestibility when Bachaur bullocks were fed ad lib. With Pusa Giant Anjan grass. Mehra et al. (1991) found 53.30 to 56.23 per cent digestibility whereas, Sastry et al. (1999) obtained 52.5 to 56.00 per cent digestibility, which were comparatively lower than the values recorded in the present investigation.
The digestibility coefficient of total ash ranges from 28.54 to 37.33 with an average of 33.85 ± 3.43 in the animals (Table 1). The digestibility values of total ash recorded in the present case was within the range reported by Singh (1980) when cattle were fed on the range and stall fed conditions. Srivastava et al. (1985) noted comparatively higher ash digestibility (38.35 and 39.90 per cent) than the results obtained in the present study.

The acid detergent fibre (ADF) digestibility varied between 49.97 and 56.64 per cent with an average of 53.93 ± 2.50 per cent in the buffalo calves (Table 1). The range of variations for the digestibility of ADF in the present study was within the range reported by Verk et al., 1993 (46.76 to 60.44 per cent). However, comparatively higher values (66.08 to 75.30 per cent) have been reported by Mehra et al. (1990), when buffaloes were given berseem hay, urea treated wheat straw and concentrate mixture in their diet than the results obtained in the present case. The ADF digestibility values estimated by Srivastava et al. (1985) were 46.77 and 49.10 per cent and the results of Teli et al. (1999) indicated the ADF digestibility from 49.70 to 47.30 per cent, which were comparatively lower than the values recorded in the present case. The variation in ADF digestibility in the present case may be due to difference in the nature of feed and quality of fibrous fractions in the diet feed to the animals under the experimentation.

It is obviously clear that the data presented in Table 1 that the lowest and the highest neutral detergent fibre (NDF) digestibility was 62.46 and 70.80 per cent, respectively, with the average value being 67.42 ± 3.12 per cent in the buffalo calves. Similar findings have also been reported by Mehra et al. (1990), Verk et al. (1993) and Negesse et al. (2017) in buffaloes. Srivastava et al. (1985) reported 54.73 and 60.18 per cent NDF digestibility whereas, Teli et al. (1999) reported the neutral detergent fibre digestibility ranging from 43.30 to 45.46 per cent in case of buffalo. These values were lower than the values recorded in the present study. The higher crude fibre content could be the possible reason for the higher digestibility of neutral detergent fibre in the present study.

**Estimation of Digestibility by Lignin ratio technique**

**Dry matter (DM):** The data shown in Table 2 indicate that the DM digestibility was recorded from 55.05 to 62.45 per cent with an average of 59.26 ± 2.65 per cent in buffalo calves. The DM digestibility obtained in the present study was
within the range (49.60 to 62.5 per cent) as reported earlier by Gupta and Majumdar (1962), Barsaul (1972), Singh (1975-78), Judkins et al. (1990), Mehra et al. (1990 and 1991) and Verk et al. (1993). Some of the workers (Krishna et al., 1981; Sharma et al., 1981; Sankhyan et al., 1997 and Sastry et al., 1999) reported lower values (48.86 to 55.1 per cent) than the DM digestibility found in present investigation. However, higher side of dry matter (DM) digestibility (63.0 to 68.18 percent) estimates have also been reported by some of the workers (Gill and Gill, 1979; Mostomoto et al., 1996 and Goswami et al., 1999) than the range of variations in the dry matter digestibility values reported in the present study.

**Table 2: Digestibility coefficient of feed components estimated by lignin ratio technique**

<table>
<thead>
<tr>
<th>Groups of animals</th>
<th>Dry matter</th>
<th>Crude protein</th>
<th>Ether extract</th>
<th>Crude fibre</th>
<th>Nitrogen-free extract</th>
<th>Total carbohydrates</th>
<th>Total ash</th>
<th>Acid detergent fibre</th>
<th>Neutral detergent fibre</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>60.81</td>
<td>66.87</td>
<td>52.39</td>
<td>62.04</td>
<td>66.69</td>
<td>64.79</td>
<td>36.04</td>
<td>55.57</td>
<td>69.78</td>
</tr>
<tr>
<td>B</td>
<td>59.47</td>
<td>65.76</td>
<td>50.55</td>
<td>58.19</td>
<td>64.68</td>
<td>62.81</td>
<td>34.92</td>
<td>52.71</td>
<td>66.30</td>
</tr>
<tr>
<td>C</td>
<td>62.45</td>
<td>68.38</td>
<td>54.26</td>
<td>63.28</td>
<td>67.23</td>
<td>65.71</td>
<td>37.26</td>
<td>56.34</td>
<td>70.75</td>
</tr>
<tr>
<td>D</td>
<td>60.41</td>
<td>65.22</td>
<td>50.29</td>
<td>60.68</td>
<td>66.22</td>
<td>64.07</td>
<td>34.68</td>
<td>54.82</td>
<td>68.90</td>
</tr>
<tr>
<td>E</td>
<td>57.38</td>
<td>63.47</td>
<td>47.28</td>
<td>57.73</td>
<td>63.03</td>
<td>60.98</td>
<td>30.54</td>
<td>52.18</td>
<td>65.58</td>
</tr>
<tr>
<td>F</td>
<td>55.05</td>
<td>60.56</td>
<td>44.62</td>
<td>53.82</td>
<td>61.79</td>
<td>58.86</td>
<td>28.14</td>
<td>49.36</td>
<td>62.17</td>
</tr>
<tr>
<td>Average ± SE</td>
<td>59.26 ±</td>
<td>65.04 ±</td>
<td>49.89 ±</td>
<td>59.29 ±</td>
<td>64.94 ±</td>
<td>62.87 ±</td>
<td>33.59 ±</td>
<td>53.49 ±</td>
<td>67.24 ±</td>
</tr>
<tr>
<td>± SE</td>
<td>2.65</td>
<td>2.74</td>
<td>3.47</td>
<td>3.43</td>
<td>2.17</td>
<td>2.56</td>
<td>3.50</td>
<td>2.59</td>
<td>3.18</td>
</tr>
</tbody>
</table>

Other feed nutrients/components

The crude protein (CP) digestibility ranged from 60.56 to 68.38 per cent in buffalo calves with respective mean value of 65.04 ± 2.74 per cent (Table 2). These results were in agreement with the findings of Gupta and Majumdar (1962), Barasaul (1972), Sharma et al. (1981), Goswami et al. (1997) and Sastry et al. (1999), who reported CP digestibility ranging from 32.7 to 74.8 per cent in buffaloes. Slightly lower range recorded by Singh (1975-78), Krishna et al. (1981), Mudgal et al. (1981), Chopra and Kurar et al. (1983), Mehra et al. (1990), Sankhyan et al. (1997) and Teli et al. (1999) than the crude protein (CP) digestibility values found in
the present study, however, the higher CP digestibility (68.2 to 70.9 per cent) have been reported by some of the workers like Gill and Gill (1979) and Mehra et al. (1991) than the value reported in the present study.

A perusal of data presented in Table 2 clearly depicts that the digestibility of ether extract (EE) ranged between 44.62 and 54.26 per cent in the buffalo calves. The average of EE digestibility was recorded to be 49.89 ± 3.47 per cent. The range of variation for the digestibility of EE found in the present study was within the same range (from 41.1 to 55.62 per cent) as reported earlier by Barsaul (1972), Sharma et al. (1981), Chopra and Kurar (1983), Mehra et al. (1990 and 1991), Verk et al. (1993) and Goswami et al. (1997). However, some of the previous experiments conducted by Gupta and Majumdar (1962), Gill and Gill (1979), Krishna et al. (1981), Mudgal et al. (1981), Chauhan et al. (1997) and Sastry et al. (1999) have recorded higher EE digestibility (54.11 to 84.95 per cent) than the value found in the present investigation.

It is obviously clear from the data presented in Table 2 that the maximum and the minimum crude fibre (CF) digestibility was found to be 63.28 and 53.82 per cent, respectively with an average of 59.29 ± 3.43 per cent in buffalo calves. Krishna et al. (1981) and Sastry et al. (1999) reported lower CF digestibility (from 45.0 to 55.48 per cent) than the value found in the present investigation. Barsaul (1972), Gill and Gill (1979), Sharma et al. (1981), Mehra et al. (1991) and Verk et al. (1993) have made similar observations (from 48.55 to 75.83 per cent) in relation to the CF digestibility in buffaloes. However, the higher CF digestibility estimates (64.0 to 79.59 per cent) were reported by some of the previous workers (Gupta and Majumdar, 1962; Singh, 1975-78; Mudgal et al., 1981; Chopra and Kurar, 1983; Mehra et al., 1990 and Chauhan et al., 1997) than the value obtained in the present investigation. The variations in the present CF digestibility as reported by various authors may be due to the chemical nature of feeds.

The nitrogen-free extract (NFE) digestibility were 66.69, 64.68, 67.23, 66.22, 63.03 and 61.79 per cent with an average of 64.94 ± 2.17 per cent in the buffalo calves (Table 2) The NFE digestibility obtained in the present study ranged within the values (from 42.33 to 82.35 per cent) reported by earlier workers (Barsaul, 1972; Singh, 1975-78; Krishna et al., 1981 and Mudgal et al., 1981) in the large ruminants. The NFE digestibility obtained in the present study were found to be lower than the values (from 68.5 to 76.5 per cent) reported by Gill and Gill (1979), Chauhan et al. (1997) and Goswami et al. (1997), but the present values were higher than the values (45.1 to 61.61 per cent) reported by Gupta and Majumdar (1962), Sharma et al. (1981),
Chopra and Kurar (1983), Mehra et al. (1990 and 1991), Verk et al. (1993) and Sastry et al. (1999). The higher digestibility coefficient of NFE in the present study might be due to higher amount of soluble carbohydrates available to the microbes in the rumen.

The total carbohydrates (TCHO) digestibility estimates varied from 58.86 to 67.71 per cent with an average of 62.87 ± 2.56 per cent in the experimental animals (Table 2). The TCHO digestibility values found in the present study was at par with the findings of Barsaul (1972), Singh (1975-78), Mehra et al. (1990) and Pathak et al. (1997), who found the TCHO digestibility range from 60.15 to 67.57 per cent. Nooruddin and Roy (1985), Mehra et al. (1991) and Sastry et al. (1999) reported comparatively lower TCHO digestibility values (from 52.5 to 60.09 per cent) than the values found in the present investigation.

A perusal of the data presented in Table 2 depict that the total ash digestibility coefficient ranged from 28.14 to 37.26 in buffalo animals, with respective mean values 33.59 ± 3.50 per cent. Singh (1980) reported that the digestibility of mineral constituents depends mainly on the types of feeds and their availability in the ration. The digestibility values of total ash found in the present study was within the range reported by Singh (1980), when cattle were fed on range and stall fed conditions. Srivastava et al. (1985) reported comparatively higher total ash digestibility (38.35 and 39.90 per cent) than it was found in the present investigation.

The acid detergent fibre (ADF) digestibility was recorded as 55.57, 52.71, 56.34, 54.82, 52.18 and 49.36 per cent in buffalo animals with concomitant average value of 53.49 ± 2.59 per cent (Table 2). Verk et al. (1993) have reported that ADF digestibility ranges from 46.76 to 60.49 per cent which were at par with the observation recorded in the present study. In one case where Mehra et al. (1990) has reported higher ADF digestibility than present findings, but results obtained by Sankhyan et al. (1997) and Teli et al. (1999) contradicted the present findings as they reported lower ADF digestibility values (39.70 to 47.37 per cent) than the values found in the present study.

It can be seen from the data presented in Table 2 that the highest and the lowest neutral detergent fibre (NDF) digestibility values were recorded to be 70.75 and 62.17 per cent, respectively in animals. The average NDF digestibility was 67.24 ± 3.18 per cent in buffalo calves. The average NDF digestibility was similar to the findings reported by Mehra et al. (1990) and Verk et al. (1993) in buffaloes. However, Sankhyan et al. (1997) and Teli et al. (1999) have reported comparatively lower values (43.30 to 60.18 per cent) than values obtained in the present study. The higher
crude fibre content could be the possible reason for the higher digestibility of neutral detergent fibre in the present study.

**Comparison of Conventional method and Lignin ratio technique for determination of digestibility**

In this study, the digestibility coefficient of feed components examined by conventional (direct collection) method and Lignin ratio technique compared with each other and the results have been as under:

**Dry matter (DM):** The average digestibility of dry matter (Table 3) was the higher (59.41 per cent) in the conventional method than the average value observed in the lignin ratio technique (59.26 per cent). It is observed that the DM digestibility values recorded by conventional method and lignin ratio technique did not show any statistical significant difference. Krishna *et al.* (1981) reported 42.42 per cent DM digestibility by the conventional method and 42.86 per cent DM digestibility estimated by lignin ratio technique, which are at par with the results observed in the present investigation.

**Other feed nutrients/components**

A perusal of the data presented in Table 3 depicts that the higher average crude protein (CP) digestibility was recorded in the conventional method (65.17 per cent) than the value obtained in lignin ratio technique (65.04 per cent). It is observed that the crude protein digestibility values recorded by conventional and lignin ratio technique did not show any statistical significant difference. Similarly, Krishna *et al.* (1981) did not find any significant difference between the values obtained by conventional (60.80 per cent) method and the lignin ratio (60.75 per cent) technique. The ether extract (EE) digestibility was recorded higher (50.07 per cent) in conventional method than the value observed by lignin ratio technique (49.89 per cent). The difference between the average digestibility of EE recorded by conventional method vs. lignin ratio technique was found to be statistically not significant. Barsaul (1972) could not observe any significant difference between the values estimated by conventional (69.27 per cent) and lignin (69.20 per cent) methods when paddy straw and conventional concentrates were fed to the cattle.

A perusal of the data presented in Table 3 clearly depicts that the average crude fibre (CF) digestibility was recorded more (59.69 per cent) in conventional method than average value observed in lignin ratio (59.29 per cent) technique. It also observed from
Table 3: Comparison of the average digestibility of feed constituents estimated by conventional method and lignin ratio technique did not differ.

<table>
<thead>
<tr>
<th>Animal No.</th>
<th>Average ± SE</th>
<th>Dry matter</th>
<th>Crude protein</th>
<th>Ether extract</th>
<th>Crude fibre</th>
<th>Nitrogen-free extract</th>
<th>Total carbohydrate</th>
<th>Total ash</th>
<th>Acid detergent fibre</th>
<th>Neutral detergent fibre</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>F</td>
<td>E</td>
<td>D</td>
<td>C</td>
<td>B</td>
<td>Conventional method</td>
<td>Lignin ratio technique</td>
<td>Conventional method</td>
<td>Lignin ratio technique</td>
<td>Conventional method</td>
</tr>
<tr>
<td>60.92</td>
<td>59.41 ± 2.60</td>
<td>55.30</td>
<td>57.49</td>
<td>66.60</td>
<td>60.41</td>
<td>62.45</td>
<td>65.96</td>
<td>60.81</td>
<td>66.39</td>
<td>65.96</td>
</tr>
<tr>
<td>60.17</td>
<td>59.26 ± 2.65</td>
<td>55.05</td>
<td>57.38</td>
<td>66.60</td>
<td>62.49</td>
<td>62.45</td>
<td>65.96</td>
<td>60.81</td>
<td>66.39</td>
<td>65.96</td>
</tr>
<tr>
<td>65.17</td>
<td>65.17 ± 2.74</td>
<td>60.79</td>
<td>63.57</td>
<td>66.60</td>
<td>68.42</td>
<td>65.92</td>
<td>65.96</td>
<td>66.39</td>
<td>66.97</td>
<td>65.96</td>
</tr>
<tr>
<td>66.04</td>
<td>50.07 ± 3.42</td>
<td>44.33</td>
<td>47.35</td>
<td>50.22</td>
<td>54.26</td>
<td>50.79</td>
<td>50.79</td>
<td>52.33</td>
<td>52.39</td>
<td>52.39</td>
</tr>
<tr>
<td>49.89</td>
<td>49.89 ± 3.48</td>
<td>44.62</td>
<td>47.28</td>
<td>50.29</td>
<td>54.26</td>
<td>50.79</td>
<td>50.79</td>
<td>52.33</td>
<td>52.39</td>
<td>52.39</td>
</tr>
<tr>
<td>60.68</td>
<td>59.69 ± 3.33</td>
<td>54.08</td>
<td>57.84</td>
<td>60.87</td>
<td>62.23</td>
<td>62.45</td>
<td>62.45</td>
<td>62.45</td>
<td>62.45</td>
<td>62.45</td>
</tr>
<tr>
<td>61.17</td>
<td>59.93 ± 3.48</td>
<td>53.82</td>
<td>57.73</td>
<td>60.88</td>
<td>63.28</td>
<td>63.28</td>
<td>63.28</td>
<td>63.28</td>
<td>63.28</td>
<td>63.28</td>
</tr>
<tr>
<td>62.13</td>
<td>65.06 ± 2.13</td>
<td>62.00</td>
<td>63.12</td>
<td>66.38</td>
<td>67.27</td>
<td>67.27</td>
<td>67.27</td>
<td>67.27</td>
<td>67.27</td>
<td>67.27</td>
</tr>
<tr>
<td>61.79</td>
<td>64.94 ± 2.17</td>
<td>61.79</td>
<td>63.03</td>
<td>66.22</td>
<td>67.23</td>
<td>67.23</td>
<td>67.23</td>
<td>67.23</td>
<td>67.23</td>
<td>67.23</td>
</tr>
<tr>
<td>64.69</td>
<td>63.00 ± 2.15</td>
<td>61.08</td>
<td>66.08</td>
<td>64.25</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
</tr>
<tr>
<td>64.89</td>
<td>61.00 ± 2.56</td>
<td>61.08</td>
<td>66.08</td>
<td>64.25</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
</tr>
<tr>
<td>64.79</td>
<td>62.97 ± 2.34</td>
<td>61.08</td>
<td>66.08</td>
<td>64.25</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
<td>65.76</td>
</tr>
<tr>
<td>36.21</td>
<td>33.65 ± 3.48</td>
<td>28.54</td>
<td>30.72</td>
<td>34.99</td>
<td>37.33</td>
<td>35.31</td>
<td>35.31</td>
<td>35.31</td>
<td>35.31</td>
<td>35.31</td>
</tr>
<tr>
<td>36.04</td>
<td>33.59 ± 3.50</td>
<td>28.14</td>
<td>30.54</td>
<td>34.48</td>
<td>37.26</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
</tr>
<tr>
<td>55.91</td>
<td>35.50 ± 2.90</td>
<td>28.14</td>
<td>30.54</td>
<td>34.48</td>
<td>37.26</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
</tr>
<tr>
<td>55.57</td>
<td>35.59 ± 2.99</td>
<td>28.14</td>
<td>30.54</td>
<td>34.48</td>
<td>37.26</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
</tr>
<tr>
<td>55.91</td>
<td>35.90 ± 3.42</td>
<td>28.14</td>
<td>30.54</td>
<td>34.48</td>
<td>37.26</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
<td>34.92</td>
</tr>
<tr>
<td>69.91</td>
<td>57.42 ± 3.12</td>
<td>69.12</td>
<td>65.71</td>
<td>69.12</td>
<td>70.90</td>
<td>66.32</td>
<td>66.32</td>
<td>66.32</td>
<td>66.32</td>
<td>66.32</td>
</tr>
<tr>
<td>78.78</td>
<td>62.94 ± 4.17</td>
<td>65.86</td>
<td>65.58</td>
<td>65.64</td>
<td>65.64</td>
<td>65.64</td>
<td>65.64</td>
<td>65.64</td>
<td>65.64</td>
<td>65.64</td>
</tr>
<tr>
<td>78.78</td>
<td>62.94 ± 4.17</td>
<td>65.86</td>
<td>65.58</td>
<td>65.64</td>
<td>65.64</td>
<td>65.64</td>
<td>65.64</td>
<td>65.64</td>
<td>65.64</td>
<td>65.64</td>
</tr>
</tbody>
</table>
significantly. Similarly, Krishna et al. (1981) have also observed insignificant change in the values estimated by conventional method (46.44 per cent) and lignin ratio (46.03 per cent) technique. The average total carbohydrates (TCHO) digestibility recorded by conventional method was higher (63.00 per cent) than the average value obtained by lignin ratio (62.87 per cent) technique. The average TCHO digestibility values obtained by conventional method vs. lignin ratio technique did not show any statistical significant difference. When the average TCHO digestibility estimated by conventional (65.07 per cent) and lignin (65.31 per cent) methods were compared with the findings reported Barsaul (1972), it was observed that the results obtained by these two methods did not differs each other.

The data presented in Table 3 clearly show that the average total ash digestibility estimated by conventional method was higher (33.85 per cent) than the average value recorded by lignin ratio technique (33.59 per cent). The difference between the total ash digestibility values estimated by conventional method vs. lignin ratio technique was statistically not significant. The average higher acid detergent fibre (ADF) digestibility (53.93 per cent) was obtained by the conventional method than the average value (53.49 per cent) estimated by lignin ratio technique. The difference in the ADF digestibility values recorded by conventional method vs. lignin ratio technique was not statistically significant. In contrast to the findings of the present study, Sankhyan et al. (1997) have obtained significant (P < 0.01) variation in the ADF digestibility values (50.7 per cent) by applying conventional and indicator (39.5 per cent) methods. The average ADF digestibility values estimated by these two methods were higher in the present study than the reported by Sankhyan et al. (1997).

It can be seen from the data presented in Table 3 that the highest and the lowest neutral detergent fibre digestibility values were recorded to be 70.75 to 62.17 per cent, respectively in buffalo calves. The average neutral detergent fibre digestibility was recorded to be 76.24 ± 3.18 per cent, which was similar to the findings reported by Mehra et al. (1990) and Verk et al. (1993) in buffaloes. However, Sankhyan et al. (1997) and Teli et al. (1999) have reported comparatively lower values (43.30 to 60.18 per cent) than the values obtained in the present study. The higher crude fibre content could be the possible reason for the higher digestibility of neutral detergent fibre in the present study.
Implications:

Including concentrates mixture, green lucernes and wheat straw samples with conventional nutrients digestibility analyze as standards will allow prediction of lignin nutrients digestibility for feedstuffs. This is important in research settings where a large number of samples are collected and cannot be included within the same conventional run. Samples can be analyzed at different times and the adjustment allows us to compare different runs.

References:


Contribution of Breast Feeding Among Infants to Increase Immunity

Dr. Renu Bala Garg
Associate Professor
Department of Home Science,
IOP College, Vrindavan, Mathura

Abstract

Breastfeeding or nursing is a process by which human breast milk is fed to child. Ever since birth, mother’s milk is an excellent nutrition necessary for every infant. Breast milk is the best food to help your baby grow and develop. It is custom-made by each mother for her own baby. Breast milk has the perfect amount of protein, carbohydrates, fat, vitamins and minerals, and is easy to digest.

The milk obtained from breast boosts the health and creates an emotional bond between the mother and the infant.

Breast feeding has immense benefits for both the mother and the infant wherein the benefits reaped to the infant due to breastfeeding are- 1. Improved immunity and body’s ability to fight off infections and pathogens. 2. Reduced risk to diseases such as diarrhea, asthma, diabetes type 1 otitis media lymphoma and leukemia. 3. Also helpful in reducing the risk of IMR (Infant Mortality Rate).

Keywords: Breastfeeding, breast milk, immunity, infants.

Introduction

Composition of Breast Milk: Breast milk contains complex proteins, lipids, carbohydrates and other biologically active components. The composition changes over a single feed as well as over the period of lactation milk contains 0.8% to 0.9% protein, 4.5% fat, 7.1% carbohydrates, and 0.2% ash (minerals). Carbohydrates are mainly lactose; several lactose-based oligosaccharides have been identified as minor components. The fat fraction contains specific triglycerides of palmitic and oleic acid (O-P-O triglycerides), and also lipids with trans bonds (see: trans fat).

Mother’s milk contains everything needed to mount immune responses, from antibodies to multiple types of immune cells and more. While they originate from the mother’s immune system, these components of milk appear to be curated rather than selected at random from the mother’s blood, although that mechanism remains poorly understood.
The Benefits of Breastfeeding for Mom:

Breastfeeding also can benefit mom by:

- Reducing her risk of developing osteoporosis
- Reducing her breast cancer risk
- Reducing her ovarian cancer risk
- Producing oxytocin, which helps contract the uterus back to its pre-pregnancy size
- Burning calories and using mom’s fat stores for her breast milk
- Lowering her chance of developing postpartum depression, since breastfeeding enables pregnancy hormones to decrease slowly, instead of abruptly
- Saving money, since breastfeeding is free!

The Benefits of Breastfeeding for Baby:

- Breast milk contains live immunity. When a baby consumes breast milk, he or she receives both immediate and lifelong immunities.
- Breast milk provides the specific nutrients that meet your baby’s needs. It’s pretty amazing: Your milk supply will fluctuate based on your baby’s demand. Your baby will communicate what she needs from your body, and your body will then produce the quality and quantity of milk to meet those requirements.
- Breastfeeding can reduce your baby’s risk of sudden infant death syndrome (SIDS). While the American Academy of Pediatrics recommends that mothers breastfeed for at least one year, research shows that breastfeeding as little as two months cuts the risk of SIDS in half.
- Breastfeeding allows babies to feel close to the “home base” that they’ve known while in the womb. Hearing your heartbeat and feeling your warm skin will help her transition from the inner world to the outer world.
- Docosahexaenoic acid (DHA), a polyunsaturated fatty acid found in breast milk, helps support proper brain development.
- Breastfeeding can reduce your baby’s risk of developing middle ear infections.
- Breastfeeding can reduce your baby’s chances of developing allergies.
- Breastfeeding can reduce your baby’s risk of developing diabetes, since breast milk contains no artificial sugar.

Best time to breastfeed

After delivery, breastfeed should be done eight to 12 times in a 24-hour period, which translates to about every two to three hours. In the first few days after birth, one
may need to feed every one to two hours. This ensures that one’s body produces enough milk and that the baby gets enough to eat.

Research-

Most of the lactating mothers were between 21 and 30 years (58.38%) of age and were housewives (94.86%). Over half of the lactating mothers (55.95%) were living in nuclear families and majority of them (75.68%) belonged to the Sikh community. Out of the total lactating mothers, 18.11% were illiterate, 21.62% and 32.7% were educated up to primary and secondary level respectively, while 14% were graduates. Most of the lactating women (61.89%) belonged to the lower socio-economic class and 83.78% of the mothers were antenatal care (ANC) registered.

Only 27.30% of the mothers knew that breastfeeding should be initiated within 1 hour of child birth. A total of 51.62% mothers considered prelacteal feed to be the right practice while 55.95% considered colostrum bad for the baby. Only 53.78% of the lactating mothers knew the correct meaning of exclusive breastfeeding and out of the total mother's half 48.90% of the lactating mothers knew that exclusive breastfeeding should be given till 6 months. Out of the total mothers, 60% of the mothers knew that complementary feeding should be initiated at 6 months while 27.03% of them had the misconception of it to be initiated before 6 months. Out of the total 370 lactating mothers only one-third (30.54%) of the mothers knew that breastfeeding should be continued till 24 months or beyond.

Distribution of lactating mothers based on knowledge regarding initiation of breast feeding distribution of lactating mothers based on knowledge regarding exclusive breast feeding. Out of total 370 lactating mothers, 24.86% mothers started breastfeeding within an hour after birth while 59.73% started breastfeeding within 1–6 hours of birth. Most common reasons for the delay in initiating breastfeeding were lack of knowledge which was found in 61.87% mothers. Colostrum was given by 42.71% of the lactating mothers to their babies. Most common reason for not giving colostrum was the misconception of it being bad among 41.51% of mothers. Pre lacteal feeds were given to 50.81% of the babies in the study. Most common pre lacteal feed given was honey. Exclusive breastfeeding till 6 months was given by 137 (45.67%) out of 300 lactating mothers (70 mothers with infants <6 months of age were excluded). Most common reason for the discontinuation of exclusive breastfeeding was inadequate milk output in 56.44% mothers. In 54.33% babies complementary feeding was started before completing 6 months of age.

Conclusion:
Nutrition is essential to the health and development of infants and children. Breastfeeding is superior to infant formula feeding because in addition to breastmilk’s nutritional advantages, it protects against infections through specific and non-specific immune factors and has long-term consequences for metabolism and disease later in life.

References:


प्राचीन भारत में सातवाहन कालीन आर्थिक व्यवस्था

डॉ. लक्ष्मी गोतम
एसोसिएट प्रोफेसर,
प्राचीन भारतीय इतिहास एवं संस्कृति विभाग,
आईआईटी वृद्धावन, मथुरा

सारांश:

ईसा की आर्थिक शास्त्रीयों में प्राचीन भारतीय आर्थिक व्यवस्था के स्वरूप में महत्वपूर्ण परिवर्तन दिखाई दिये। सातवाहन शासन में अर्थव्यवस्था मुख्यतः कृषि आधारित थी। लेकिन परिवर्तनों के चलते यह आर्थिक व्यवस्था व्यवसायिक बन गई। व्यापारिक गतिविधियों की वृद्धि, धार्मिक सिद्धांत के सिक्कों का चलन बढ़ने लगा। प्राचीन आर्थिक व्यवस्था के अन्तर्गत नगरीकरण के रूप में व्यवसायिक केंद्रों की स्थापना होने लगी। साथ ही व्यवसायिक संगठनों का भी प्रमुख बढ़ने लगा। जो श्रेणियों में संगठन के रूप में अर्थसम्बन्ध में आया। इस दौरान मान्यता मिलने लगी।

इन व्यापारिक संगठनों के महत्व को स्वयं भी निर्णय लेने का अधिकार था। यह सब इतना बढ़ने लगा कि इनको आधारित व्यापारिक उद्देश्य की प्रतिष्ठा के लिए दान भी दिये जाते थे। इन संस्थाओं द्वारा इस प्रकार के व्यवसायिक संगठन प्रवत्त (श्रेणियाँ) दीर्घ काल तक अस्तित्व में रहीं। इस अपनी जमायुंजी (अध्याविधि के मूलधर) व्यापारियों को पूर्वी के रूप में देने का अधिकार था। जिससे व्यापारी वर्ण अपना व्यापार कर सकें।

कुंजी शब्द: अध्याविधि, भजौं, फोटोकोसिला, गुड़, शातकर्णि, दसपुर, भलकच्छ, कन्यापुर, नानाघाट प्रस्तुतानवानः

प्राचीन भारत में दक्षिण के क्षेत्रों में भी आवश्यकता से अधिक खाद्यान्न उत्पादन एवं विनियम किया जाता था। इसके लिए धातु के सिक्कों का प्रचलन तेजी से बढ़ा। वहीं नगरीकरण की प्रविष्ट नहीं भारत में के कर्मचारी, नगरों, शहरों का एक जोड़ सा बन गया था। जहां से व्यवसायिक गतिविधियों का बड़ा स्तर पर क्रियान्वयन किया जाने लगा। व्यापारिक मार्गों का निर्माण तथा राज्य संस्करण के कारण व्यापार से पूर्वक क्रियाकलाप दूरस्थ प्रदेशों तथा देशों जैसे रोमन साम्राज्य तक से किये जाने लगे।

समुद्री व्यापार को बढ़ाने के लिए भी नये महासागरीय मार्ग खोजे जाने लगे। परिणामस्वरूप, व्यवसायिक, गतिविधियों का उत्थान बढ़ा। “पेरिल्स ऑफ द एशियन सी” के वर्णन से जाता होता

[148]
है कि सातवाहनों के शासन में परिवर्तन और पूर्वी मार्ग पर घनी आवादी थी। आमजन काफी समृद्ध थे। प्राचीन भारत के दक्षिण के आन्तरिक भागों में अधिक वन सम्पदा थी। दक्षिण पठार के परिवर्तनी भागों में कई प्रसिद्ध व्यापारिक नगरों जैसे–पैठन, जुननार नासिक, वैज्ञानिक विकसित हुए विदेशी यात्री ‘परिलस’ के विवरण से यह ज्ञात होता है कि समुद्री मार्ग से आयात किये गए लोगों का पैठन से वेरीगाजा (आधुनिक भाड़ीच) तक पहुँचने में 20 दिन का समय लगता था। भड़ीच की दक्षिणी दिशा में सातवाहनों के सोपारा और कल्याण बन्दरगाह थे। तत्कालीन अभियान में आविष्करों से ज्ञात होता है कि पूर्वी भाग के केंद्रों, विजयपुर और कुदर जैसे नगर व्यापार के केंद्र थे। इन रथों पर बड़े–बड़े व्यापारी रहा करते थे। टॉल्मी कोडटोडिया द्वारा फोटोक्रासिया, (आधुनिक गुज्रू) तथा अल्टीसीमे का वर्णन बन्दरगाहों के रूप में किया है। सातवाहनों के समय में कारवां तथा नावों द्वारा आवागमन किया जाता था। उदाहरण के लिए यज्ञी शातकर्णि के एक सिक्के पर जहाजों का एक बड़ा विहंग अंकित है। इससे प्रसिद्ध होता है कि सातवाहनों के शासनकाल में समुद्री गतिविधियाँ और व्यापारिक गतिविधियाँ विस्तारित थीं। भारत का रोम के साथ व्यापार तथा सांस्कृतिक आदान–प्रदान इस समय भी किया जाता था। उस समय श्रेणियों का व्यापारिक महत्त्व था। इस कारण ही इस प्रकार की मुद्राओं का चलन था। तत्कालीन व्यापारिक केंद्रों के मध्य निर्ततर सम्पर्क बना रहता था। उदाहरण के लिए नासिक में दस्पुर, कर्लें में वैज्ञानिक, धार्मिक और सूर्यपुरिक के जुनार में, भरुचच तथा कल्याण के नानागाथ में सूपरिक के व्यापारियों का व्यापार के लिए निर्ततर आना जाना रहता था।

व्यापारिक आवागमन के लिए थल तथा जल मार्गों में कई प्रकार के साधनों का प्रयोग किया जाता था। व्यापारियों को व्यापार में धन की आवश्यकता सदैव होती थी। ध्वनीय स्तर पर व्यापार में विनियम के लिए वस्तुओं का छोटी–छोटी मुद्राओं या अन्य प्रकार के विनियम माध्यमों के लिए उपयोग में लाया जाता था। उदाहरणार्थ सातवाहनों से पूर्व के ध्वनीय अभिज्ञात्वर्ग के निजी सिक्कों को दक्षिण भारत में व्यापक स्तर पर प्राप्त किया गया है। जिनकी तिथियों मिश्र–मिश्र पायी गयी है। सातवाहनों के सीपे (लेड) के सिक्के, पोटिं, तांबे तथा चांदी से बनाये जाते थे। यद्यपि सिक्कों की दलाई ठीक नहीं थी। शक राजा नहायान ने तांबे और चांदी दोनों धातुओं की मुद्राएं चलायी थी। तत्कालीन सातवाहन अभिलेखों में 'काहापण' (कार्षण्पण) का सन्दर्भ मिलता है। वह चांदी से निर्मित सिक्के थे। उपभोक्ता से प्राप्त एक अभिलेख से यह ज्ञात होता है कि 35 काहापण
का मूल्य एक सुवर्ण (जो उस समय का सोने की मुद्रा थी) के बराबर होता था। सातवाहनों के शासन में सीसे के सिक्कों का आर्थिक महत्व था। इसका मूल कारण यह था कि उस समय में दक्षिण भारत में चौंदी का अभाव था। फलस्वरूप, मुद्रा के चलन में सशक्तन रहने के लिए सीसे से बनी मुद्राओं का प्रयोग किया जाता था।

निष्कर्ष—
सातवाहन शासन काल में व्यापार की उत्तम व्यवस्था थी। समुद्र भार्ग से अंतर्राष्ट्रीय व्यापार किया जाता था। सातवाहन शासकों ने स्वर्ण मुद्राओं को चलाया जिससे ज्ञात होता है कि सातवाहन शासन काल में आर्थिक स्थिति संतोषजनक थी।

सूची—
1. ए लिस्ट ऑफ ब्राइंट इंस्ट्रक्शंस क्राम अर्लिस्ट टाइम्स टु अर्लिस्ट 400 एंडी. सं 1137, 1180, 1133 और 1165
2. मनोजदार, आरोंसी, कारपोरेट लाइफ इन एनालिटिक्स इंडिया, बम्बई, 1962, पृ 37–38
3. दुबे, एच0एन0, दक्षिण भारत का बहुसंस्कृत इतिहास, शारदा पुस्तक भवन, इलाहाबाद, 1996, पृ 272
4. याज्ञदानी, जी, दक्षिण का इतिहास, बम्बई, 1956, पृ 130
5. ओमप्रकाश, प्राचीन भारत का इतिहास, विकास प्रकाशिंग हाउस, नई दिल्ली, 1996, पृ 157
6. पांडे, चंद्रभान, आन्ध्र – सातवाहन साम्राज्य का इतिहास, नई दिल्ली, 1972, पृ 102