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UV-Light Induced Copolymerization Of Polyacrylamide Precursor To Synthesize Polyacrylamide-Block-Polyacrylonitrile.

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Abstract:
The dithiocarbamate groups are known to act as photoinitiators in the free radical polymerization of vinyl monomers. The photolability of this group is due to the rupture of the C – S bond by UV irradiation. The C – S bond is photo chemically cleaved at around 254 – 366 nm. Synthesis of polyacrylamide was initiated by the use of such photoinitiators through radical polymerization process. Living radical polymerization of acrylamide (AM) through the use of N,N-Diethyl dithiocarbamato-(1,2)-propanediol(DCPD) was also studied. The photoinitiator DCPD was synthesized from sodium N,N-Diethyldithiocarbamate(NaSR) and 3-chloro-1,2-propanediol(CPD).The role of the monomer concentration and reaction time on the conversion of acrylamide to polyacrylamide(PAM) was investigated. It was found that percentage conversion of AM increased both with the rise in concentration of monomer and reaction time. The living radical nature of the polyacrylamide (PAM) was ascertained by the polymerization of acrylonitrile(AN) with PAM to form PAM-b-PAN block copolymer. The PAM and PAM-b-PAN were characterized by FTIR, ^{1}H-NMR, Thermogravimetry.

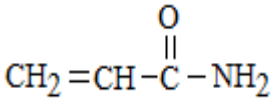
Keywords: Block copolymers; initiator; living radical; photopolymerization; thermogravimetric analysis (TGA).

Introduction:

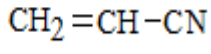
In recent years, free radical polymerization by the use of photoinitiator has vast commercial importance. Photopolymerization has always been attractive than by thermalinitiator. Although thermal decomposition is a common means of generating free radicals, it has a disadvantage in that the rate of generation of free radicals can not be controlled rapidly because of the heat capacity of the system. Photoinitiated polymerization **[1]**, on the other hand, can be controlled with high precision, since the generation of radicals can be made to vary instantaneously by controlling the intensity of the initiating light. A number of living radical polymerization have been developed based on a number of initiating systems having reversible termination of growing radicals**[2-4]**. The dithiocarbamate groups are known to act as photoinitiators in the free radical polymerization of vinyl monomers. For the photochemical decomposition of the C – S bond, UV light between 254 and 366 nm is necessary**[5]**. Besides, compounds having N,N-Diethyldithiocarbamate groups such as p-xylene bis(N-ethyldithiocarbamate), benzyl-N,N- diethyldithiocarbamate(BDC) etc serve as good photoiniferters**[6-7]**. The word iniferter was first employed by Otsu**[8]** in 1982where the same species served the purpose of an initiator, transfer agent and terminator in radical polymerization. The living radical mechanism **[9]** possible with the iniferters can be approached to achieve the synthesis of block copolymers. The polymerization of a vinyl monomer in the presence of an iniferter results in a polymer end-capped with a group, which reversibly reacts with the propagating chain. The capped chains, however, dissociate thermally or photochemically into the propagating chains and the capping agents. The propagating chains, therefore, can undergo further polymerization with the available monomers, and this leads to block copolymers.

This paper reports on the synthesis of polyacrylamide precursor (PAM) by the photoinitiator N,N-Diethyldithiocarbamato-(1,2)-propanediol (DCPD). The main

objective of this work was to study the role of the reaction time and monomer concentration, on the conversion percentage of the polyacrylamide (PAM) and hence to see whether the results indicated the iniferter nature of this photoinitiator. The block copolymerization of the resulting macromonomer(PAM) with the N,N-Diethyldithiocarbamyl(Et_2NCSS) end group was also investigated. The vinyl monomer used are-



Acrylamide



Acrylonitrile

2. Experimental:

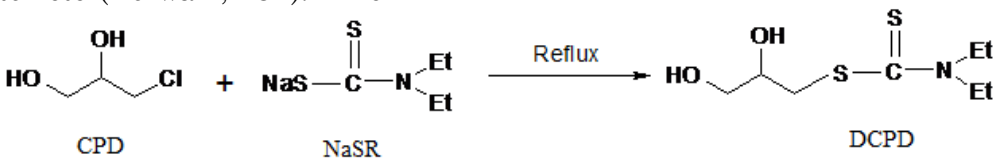
2.1 Materials :

Acrylamide (AM ; E.Merck) and acrylonitrile (AN ;Loba) were purified by standard procedures[**10**]. Dimethylsulphoxide(DMSO; E.Merck), N,N-dimethylformamide (DMF; E.Merck) were dried over barium oxide, distilled under reduced pressure and stored at 0-4^{0}C. Ethanol(absolute), methanol, acetone, n-hexane and cyclohexane were used as received.

The Fourier transform infrared(FTIR) spectra were recorded in Perkin Elmer spectrum RX1 FTIR spectrophotometer(Norwalk, CT). The ^{1}H-NMR spectra were recorded in a Varian FT NMR AS 400-MHz spectrometer(Netherlands).The thermogravimetric analysis(TGA) was carried out with a TA instruments series STD 2960(Switzerland).

2.2 Synthesis of N,N-Diethyldithiocarbamato-(1,2)-propanediol (DCPD):

N,N-Diethyldithiocarbamato-(1,2)-propanediol (DCPD) was synthesized from 3-chloro-1,2-propanediol (CPD) and sodium N,N-Diethyldithiocarbamate(NaSR), details of which are reported elsewhere [**11**].



CPD NaSR DCPD

+ NaCl

2.3 Photopolymerization of acrylamide (AM):

The photopolymerization of AM was carried out by changing

(i) the reaction time(hour)

(ii) the amount of monomer(AM)

The mixture of acrylamide (AM**)** and DCPD in dimethyl sulphoxide (DMSO) was first purged with dry nitrogen. The reaction tubes were then sealed and photoirradiated in a Heber multi lamp photochemical reactor at 254nm. At the end of the reaction, PAM were separated by adding the reaction mixture to methanol. It was then filtered and dried in a vacuum oven for several days.

2.4 Photoblock copolymerization:

Polyacrylmide (1.0056 g) was dissolved in DMSO (10ml) and then AN (0.1079 g) was added to the above mixture. The mixture was purged with dry nitrogen. The reaction tube was then sealed and photoirradiated in a Heber multilamp photochemical reactor at 254 nm for 9 h. The resultant polymer was precipitated in methanol and filtered. The block copolymer was then freed from poly acrylonitrile (PAN) homopolymers by partial dissolution technique and finally soxhlet extracted with acetone to remove the unreacted PAM. The block copolymer was then dried in a vacuum oven at 40^{o}C for several hours.

3. Results and discussion:

The free radical photopolymerization of polyacrylamide(PAM) was studied in presence of the photoinitiator N,N-Diethyldithiocarbamato-(1,2)-propanediol(DCPD). The polyacrylamide thus formed was characterized from its FTIR and ^{1}H-NMR spectral studies. Further the effect of reaction conditions on the photopolymerization process was also investigated. The photoinitiator DCPD is expected to behave as photoiniferter. So the PAM end up with a N,N-Diethyldithiocarbamate group should be able to initiate further polymerization of another

vinylic monomer to form a block copolymer. This feature was also studied by synthesizing PAM-b-PAN block copolymer, which was characterized by FTIR and ^{1}H-NMR, thermogravimetricanalysis(TGA) and SEM.

3.1 Characterization of Polyacrylamide (PAM):

i) The FTIR spectra of PAM is shown in Figure 1. The characteristic peak appeared at about 3432 cm $^{-1}$ is due to – NH_2 group. Which indicated the presence of hydrogen bonding in the PAM **[12]**. Peak due to asymmetric stretching of C –H bond in -CH_2 appeared at 2931 cm $^{-1}$. The bands observed at 1165 cm $^{-1}$ and 1656 cm $^{-1}$ were attributed to the ester C – O – C stretching and carbonyl(C = O) stretching in amide group respectively. A peak also appeared at 1445 cm $^{-1}$ due to C –N stretching. The characteristic peak due to – SC (S) N group from DCPD appeared at 1282 cm $^{-1}$.

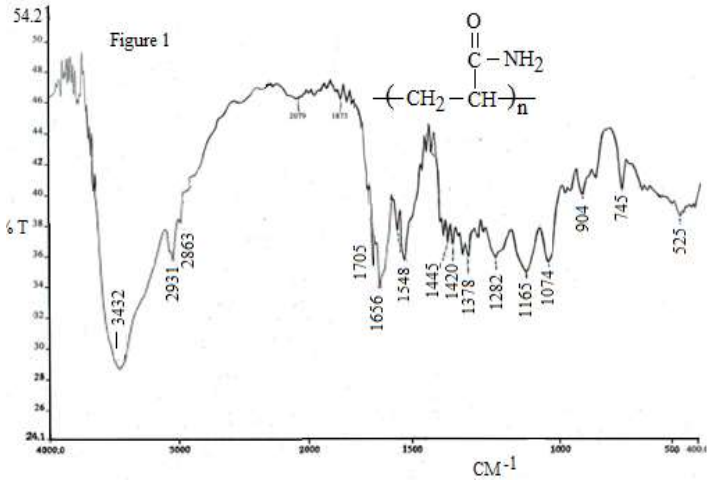


Fig. 1: FTIR Spectrum of PAM photopolymerized by DCPD.

ii) The ^{1}H-NMR spectrum of PAM was shown in Figure 2. The peak appeared at around 1.5 ppm was due to the – CH_2 proton of acrylamide(AM) unit. The protons from O = C – CH group in PAM showed a distinct peak at 2.25 ppm. The protons of O = C – NH_2 group of AM unit also resonated at 4.8 ppm. A broad peak appeared at 2.9 ppm - 3.5ppm which is probably due to overlapping of multiplets from methylene protons of –N-CH_2- unit of DCPD.

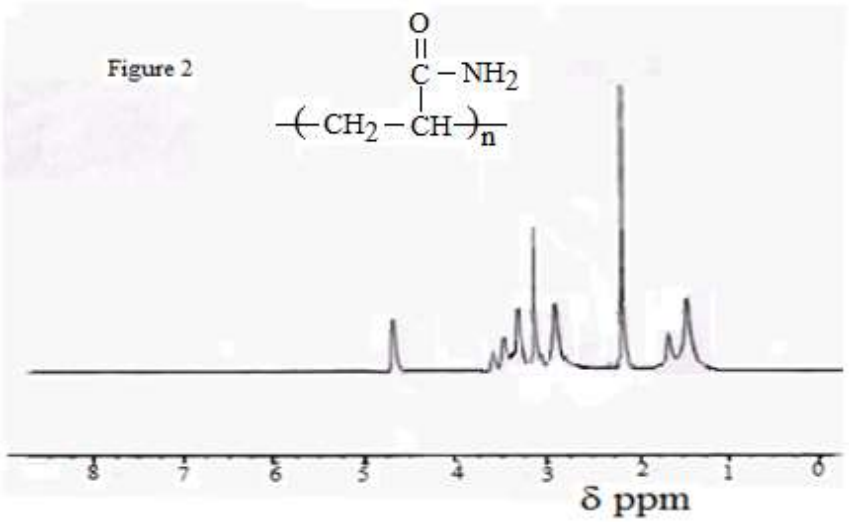


Fig. 2: ^{1}H-NMR Spectrum of PAM photopolymerized by DCPD.

3.2 Effect of the reaction conditions on the photopolymerization:

The percentage conversion of AM was studied by varying the reaction conditions. The conversion percentage of AM was determined from the dry weight of PAM.

% Conversion = (X – Y) / Z x 100

Where X = Total amount of product.

Y = Amount of initiator.

Z = Amount of monomer.

3.2.1 Effect of reaction time:

The percentage conversion of acrylamide(AM) with the reaction time is shown in the Figure 3. The conversion percentage of the monomer increased with increasing reaction time. This suggests that the polymerization proceeded through a controlled radical polymerization mechanism. In this polymerization, propagating chains were free from bimolecular termination. Hence the longer the reaction time was, the more monomer was consumed by the reactive propagating chains.

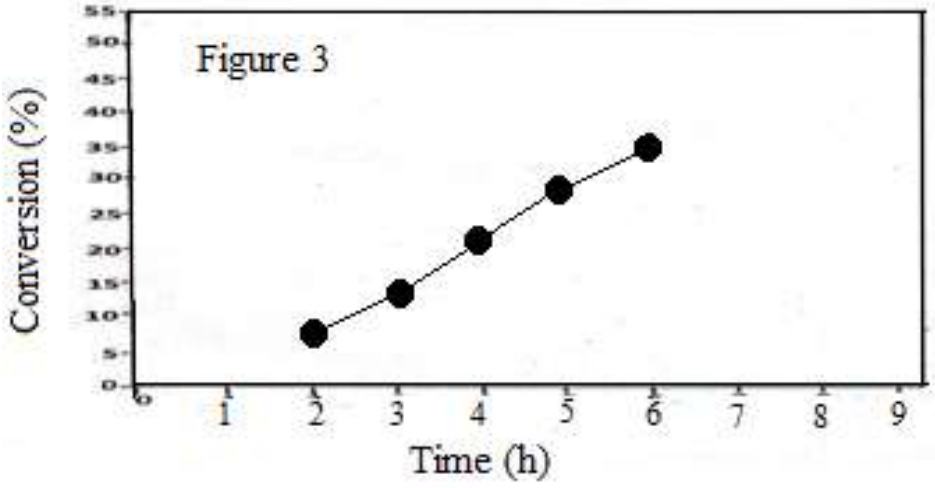


Fig. 3: Conversion of AM as a function of the reaction time ([AM]=1.6997 mol/L).

3.2.2 Effect of the monomer concentration:

Figure 4 shows the conversion percentage of acrylamide with increasing monomer concentration at a particular reaction time(6h). It was observed that the conversion percentage acrylamide increased with the monomer concentration. This was probably related to the effect of monomer concentration on the viscosity and the temperature in the polymerization reaction. A higher concentration means that increased exothermic heat and this rise in temperature increased the rate of reaction. So, more amount of monomer is consumed and as a result, there is an increase in the conversion percentage of the monomer.

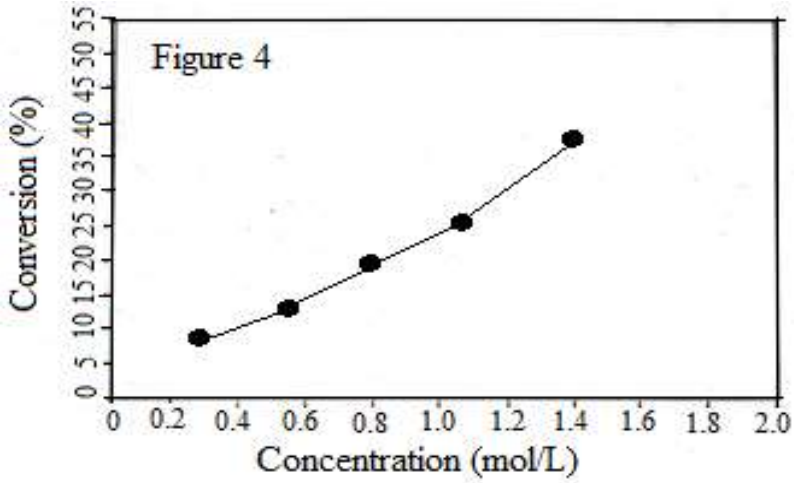


Fig. 4: Conversion of acrylamide as a function of the monomer concentration (mol/L).

3.3 Characterization of block copolymer

PAM formed through DCPD should end up with a – S – C (= S) – NEt_2 group, which can further polymerize other vinylic monomers upon irradiation **[11]** to form block copolymers. In our case, PAM was photoirradiated in the presence of AN. The formation PAM-block-PAN copolymer was observed from the FTIR spectrum (Figure 5) and ^{1}H-NMR spectrum(Figure 6). The comparison of FTIR spectrum of PAM-block-PAN copolymer with that of PAM reveals the presence of additional peaks due to PAN unit

at 2247 cm $^{-1}$. This was due to the presence of C –N group from polyacrylonitrile (PAN) unit.

The ^{1}H-NMR spectrum of PAM-b-PAN copolymer were recorded in D_6- DMSO. The ^{1}H-NMR spectrum of PAM-block-PMMA also displays the expected resonance for the – CH_3 protons at 0.73 ppm and 0.92 ppm, the – CH_2 protons around 1.02 ppm of the PAN and PAM backbone. A closed multiplets[**13-16]** appeared in the range 3.15 – 3.6 ppm in ^{1}H-NMR spectrum of PAM-b-PAN indicated the merging of N C – CH – and O=C-CH- protons contributed from both PAN and PAM unit in the PAM-b-PAN copolymer. The protons of O = C – NH_2 group of AM unit also resonated at 4.8 ppm. A broad peak appeared at 2.9 ppm -3.5ppm which is probably due to overlapping of multiplets from methylene protons of –N-CH_2- unit of DCPD.

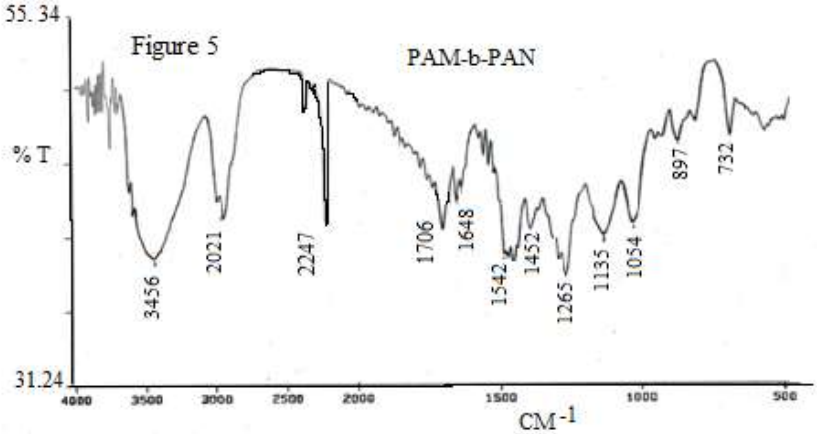


Fig. 5: FTIR Spectrum of PAM-b-PAN copolymer.

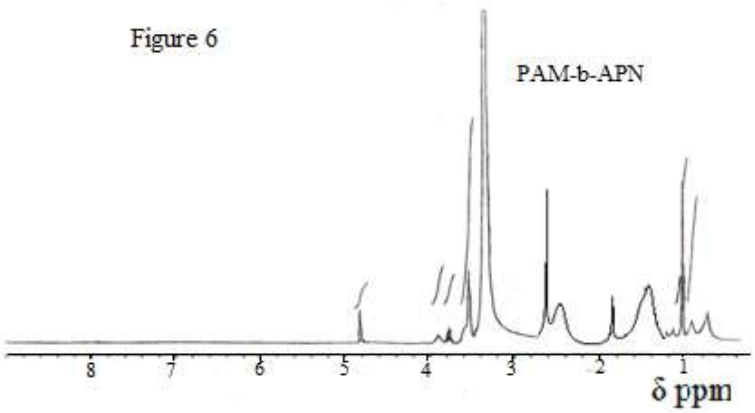


Fig. 6: ^{1}H-NMR Spectrum of PAM-b- PAN copolymer.

The TGA- thermograms of both PAM and PAM-b-PAN copolymer are shown in Figure 7. Both the TGA- thermograms have shown different weight loss with respect to the temperature range of 300^{0}C to 400^{0}C. The TGA-thermogram of PAM-b-PAN copolymer indicated a better thermal stability than that of the polyacrylamide(PAM). The differences in the nature of thermograms again can be considered as a proof of different chemical nature of the polymers which was the result of copolymerization process.

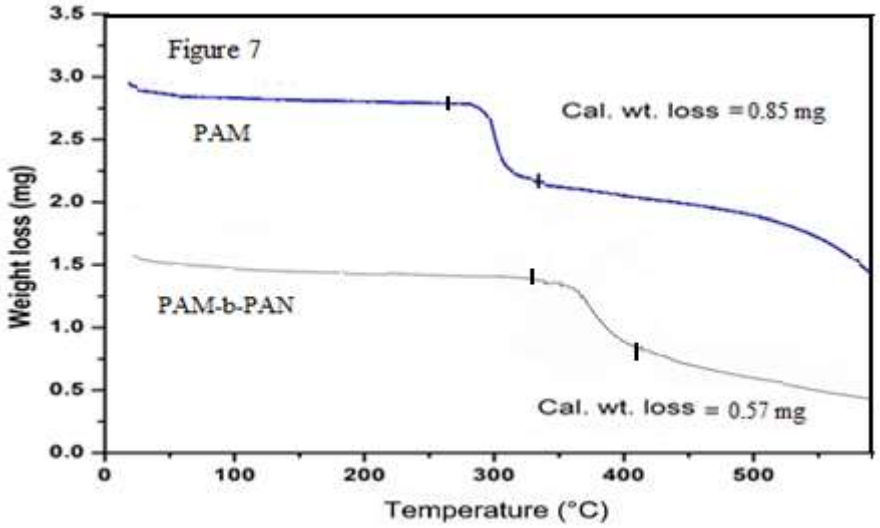


Fig. 7: TGA- thermograms of both PAM and PAM-b-PAN copo

4. Conclusions:

This paper presents the synthesis of the PAM initiated by photoinitiator DCPD. The effect of various reaction conditions on conversion percentage of AM were studied. The polymerization proceeds by a controlled radical polymerization process. The PAM formed was chain ended with a terminal [– S – C (= S) –N Et_2] group. AN could be polymerized in a living radical fashion with such a PAM precursor as the macroinitiator. It will be possible to apply this system to synthesize block copolymers of choice. The resultant polymers were successfully characterized by FTIR, ^{1}H-NMR and TGA. The TGA-thermogram of PAM-b-PAN copolymer indicated a better thermal stability than that of the polyacrylamide precursor.

Acknowledgement

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I express my sincere gratitude to the Principal, Kaliabor College for his good will. I also like to thank all the teachers in the Department of Chemistry, Kaliabor College for their cooperation during the entire work.

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An epic study of Violence versus non-violence in ManoharMalgonkar's novel A Bend in the Ganges

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Abstract :

ManoharMalgonkar's*A Bend in the Ganges* (1964) is a carefully written novel about India's partition. *A Bend in the Ganges* depicts one of the most violent periods in resent Indian history, the revolt against the British rule. During India's struggle for independence, the two forces of Gandhi and Subash Chandra Bose were working for the same goal. Malgonkar explores the influence of violence and non-violence on the nation and the individuals in the novels. ManoharMalgonkar has personal experience of partition which has been very clearly shown in his novel A *Bend in the Ganges*. He superbly presented the bloody communal clashes which occurred in the country during the tragic partition of India. People suffered more during the partition then in war. The Hindus and the Muslims became fierce enemy. India got the independence but it was very tragic and painful.

Key Words :Non-violence, Violence, Partition, Indian history, fiction, etc.

Introduction:

ManoharMalgonkar's novel "*A Bend in the Ganges*" (1964) is a carefully written novel about India's partition, the relevance of Gandhian principles of truth violence and non-violence in the aftermath of Hindu-Muslim riots, the life of convicts in the Cellular jail in the Andaman islands and the movement of millions of refugees from India to Pakistan and vice-versa. Malgonkar, with a good command of English, has written the novel on a theme and in a style befitting a great work of art. One of the results of British impact on India was the rise of the Indian novel in English as early as in 1864. Indian writers of fiction adapted the Western form and medium to their own tradition of storytelling. *A Bend in the Ganges* depicts one of the most violent periods in recent Indian history, the revolt against the British rule. During India's struggle for independence, the two forces of Gandhi and Subash Chandra Bose were working for the same goal. They were pulled in contrary directions, with the result that the ideals of their different ideologies came into conflict. The novel is an epic study of violence versus non-violence that crept into our national life.

ManoharMalgonkar (1913-2010), one of the leading Indian novelists in English, the grandson of the Prime Minister of a former princely state of Dewaswas born on July 12, 1913 in a royal family. He was a prolific writer. He grew up in aprincely family and he was part of an elite culture. He had his graduation in Bombay University where he studied English and Sanskrit. Before becoming a professional writer in his forties, he worked as a big-game hunting guide, an army officer, an executive at a tea plantation, and in politics. Primarily hailed as a Maratha historian, he turned to fiction writing with a purpose of pure entertainment. Yet his roots are in history and his fictional world traces the tensions of Indian political history. During the Second World War, he joined the Indian Army and enjoyed the position of Lieutenant-Colonel for quite some time. In 1952 he had his own business and started operating manganese mines. On being presented with a typewriter by his wife on his birthday, he took the clue and launched upon the career of a creative writer; till then his hobbies had been music, painting and hunting. This opened up a new window for his creative genius, and he has justified the hopes of his wife.

The publication of *A Bend in the Ganges*(1964) by ManoharMalgonkar is a major event in the history of the Indo-

Anglian literature. Even his first novel *Distant Drum*(1960) was lauded by Iyengar as a novel of unusual distinction. Within the span of four years he has produced four novels, the other two being *Combat of Shadows*(1962) and *The Princes*(1963) then *The Devil's Wind* (1972) each successive novel has claimed better critical attention than the earlier ones. Already known for his books on the Maratha period of Indian history when he started his career as a fiction writer, he did not have to formulate his views about the cultural heritage of India and its present politics; his views were definite and had the authenticity of a true participant.

About the Novel:

A Bend in the Ganges has the freedom movement, partition and the resultant violence as its theme. This is the fourth of his 1960s novels and is often hailed as an epic study of violence versus non-violence. Sensitive issues like spurt of violence, revolutionary zeal of some sections of the youth, communal divide and the efficacy of Gandhian principles of non-violence are at the basis of its structure. It is a cleverly crafted work that paints a vivid picture of the decade prior to the partition of the country, bringing out the realities that led to rift in the hearts of the common man, the partition of the country and the anarchy that followed. When the masses are in frenzy, violence spares none – whether it is Gian, the Gandhian or Debi Dayal, the revolutionary. In its wake it implicates everybody: Sundari, Gopal, Shafi, the Tekchand and all others;

The story of *A Bend in the Ganges* moves from personal vendetta to national bloodshed and illustrates the unreality of non-violence and the reality of insolence reaching its climax in the partition holocaust. It depicts one of the most violent periods in recent Indian history, the revolt against the British rule, which is handled creatively by the artistic imagination of the writer. The writer"s artistic imagination works upon the historical event of the past, till the dry bones of the bygone days live once again in his pages. He has displayed remarkable fidelity to fact and on the independence, the two forces—one of Gandhi and other of Subash Chandra Bose—working for the same goal pulled in contrary directions. The result was that ideals of their different ideologies come into conflict and the young men who matured during the years of the war and the Japanese invasion of Burma doubted their own connections of the earlier years. The issues were thus complicated and created confusion and chaos.The novel starts with Gandhi's bonfire of the British clothes and ends with the violence and bloodshed that marked „The sunrise of our freedom. Thus, it presents the whole struggle for Indian independence and its aftermath.

Malgonkar takes an objective view of the turbulent years of struggle and independence and resolutely stands outside the subject to examine these conflicting ideologies. The sharply drawn ideological conflict is projected through Malgonkar's two protagonists, GianTalwar and Debi-dayal. The novel opens dramatically. GianTawar, an educated young man, flings his elegant blazer in a moment of irrational impulse—the blazer which is his most prized possession—into the bone-fire of foreign goods. This happenswhen a slim young man who looks like JawaharLal Nehru addresses the crowd referring to those who believed in violence as a means to achieve freedom for country and emphasizing that: "Our non-violence is the non-violence of the brave, arising not from cowardice but from courage, demanding greater sacrifice than ordinary fighting men are called upon to make" (Malgonkar 2). Malgonkar's novels being attuned to the portrayal of historical developments in India at the time of the British and soon after it, some may not take a study of the human relationships in his fictional world as relevant as in Anita Desai's, for example. This is only a superficial view, for in spite of the temporal and spatial constrictions, his fiction has a universal relevance beneath it as stated above.

The novelist for the progress of the story has employed the device of double hero. GianTalwar, a young collegiate from a poor peasant family, who has come to Duriabad in West Punjab for college studies, impulsively becomes a follower of Mahatma Gandhi. His college-mate, Debi-dayal, the scion of the rich aristocratic family of Duriabad, has joined the terrorist movement directed against the British regime in India. Once Gian is invited by Debi-dayal to go on a picnic with him so that he could be inducted in the group. Debi's sister Sundari, Shafi Usman, the leader of the terrorist group and Basu, another member of the terrorist group, are also in the party. Shafi Usman makes fun of Gandhi's creed of non-violence calling it the philosophy of sheep, a creed for cowards. "They will end

up making us a nation of sheep. That is what Gandhi and his followers want. That is exactly what the British want us to be—three hundred million sheep" (P57). The most common device which Malgonkar has used is the verbal imagery— mostly similes and metaphors. Even though the novel is full of serious images a few of which could fall into the category of epic similes, there are others which are tampered with comic touches by juxtaposing two objects altogether different in nature. Such images contrast two worlds, two periods, or two objects which are so dissimilar that their juxtaposition provokes laughter Malgonkar picked up some characters for caricature, such as Panditji. His aim here appears to be two-fold: to satirize the Brahmins whose rigid interpretation of religious tenets about untouchables and Muslims has been partly responsible for disaffection among the two communities resulting in the partition of the country; and to inject comic touches in the novel.

Moreover, voluntary non-violence can be relevant if and only if, it is followed in the true spirits. Partial or superficial adherence to it does not last long. Thus, Malgonkar attempts a pinpoint in the novel, the inadmissibility of any ideology being valid for the many unpredictable and inexplicable situations of life. It is his conviction that freedom has to be won by sacrifice and by giving blood and not by Gandhi's Ahimsa. But Gian's faith in non-violence remains unshaken.

After the college examinations, Gian goes back to his village Konshet. He is fully aware of the fact that his elder brother, Hari, has made great financial sacrifice to send him to college for higher studies and to settle the case of Piploda Land against the Big house. Gian's faith in non-violence is put on trial as soon as he goes back to his village. In his efforts of taking possession of the disputed land, Hari is killed by Vishnu Dutt. Through his killing Malgonkar tries to unfold the idea that land disputes were seldom resolved by decisions of the courts in India. However, after sometime, despite his faith in non-violence, Gian pursues the family feud and commits the vengeful murder of Vishnu Dutt. He confesses his guilt to the police is rewarded life-sentence and is condemned to the Andamans.

Debi-dayal's father TekchandKerwad, a rich business magnate of Duriabad, is British in his sympathies. But Debi hates the British and has joined a terrorist group called Ram-Rahim Club. The leader of the group is Shafi Usman, the most wanted man in the state of Punjab. Although there are sharp differences between the Hindus and Muslims, the terrorist movement is still free from this poison of communalism. Under Shafi's able guidance and leadership, the terrorists indulge in acts of sabotage. They burn down government buildings; blow up railway lines and bridges. As a cover up plan they have opened the Human Physical Culture Club, where they hold secret meetings. The CID. keeps a strict watch on the club.

Although, in the beginning, the revolutionaries are not poisoned by the communal finalism but soon, communalism starts raising its ugly head amongst them too. Its seeds are sown when, on getting scent of an impending police raid from CID. inspectorManzoor, Shafi escapes from Duriabad along with other Muslim members. But Debi-dayal and other Hindu members are arrested. Debi-dayal is accused of sabotage of British Military property and is condemned to the Andamans. With Gian and Debi-dayal is yet another lifer, RamoshiGhasita, who is going to the penal settlement for the second time for murdering the man who had betrayed him to the police. Malgonkar shows that the three men—Gian, a follower of non-violence, Debi-dayal, a staunch believer of violent means, and Ghasita, a man impartial of both ideologies—are destined to share the same future in the Andamans, owing to their compelling circumstances. Thus, Malgonkar has succeeded in capturing as well as portraying the true spirit of those days—the days of coexistence of conflicting ideologies. Gian is deeply impressed and repeats to himself that "the path of Ahimsa is not for cowards" (P3). This is the non-violence of Gandhi, and in order to show his total adherence to it, Gian not only gives up his foreign garments and dressed in Khaddar but also becomes a follower of Gandhi. The next we see him is when he answers the rich young man of his college, Debi-dayal's group. Debidayal's friend Singh who turns out, later on, to be Shafi, challenges Gian's belief in non-violence and says that non-violence is the philosophy of the sheep, a creed for cowards.

Gian believed himself to be a true follower of Gandhi's movement on non-violence but the moment he has to confront a

situation in his personal life which provokes hatred and anger in him, he realises that gaining an end by peaceful means is not really for people like him. He discovers that ironically enough nonviolence is for those who are really strong in spirit, and not for those who use it a shield against decisive action. Gian's first encounter with life is the first of his convictions.ManoharMalgonkar has pictured Gian's psychological realism very well through this episode which is the turning point in Gian's life. He has made it very plain that Gian's belief is not firm. His first encounter with life is fully exploited to examine the creed of non-violence. In these novels violence is certainly not an alternative to non-violence. The value that the novel seeks to affirm is the value of love, which transcends violence and non-violence—the real and the unreal—and bring about freedom and fulfillment to the individual. This is the value that Gian, the emphatic hero and Debi-Dayal, the heroic hero discover in the act of living out of their lives separately, yet strangely involved living.

Conclusion:

A Bend in the Ganges (1964) serves as an interesting illustration of his vision of human nature. As regards violence, Malgonkar views it as the essence of human nature. His novels depict outdoor life, action, adventure and violence. A major element that contributes to continuous external action, violence and adventure in his fiction is the theme of revenge. It is a recurrent feature of his novels and it ultimately acquires the status of a major motif in them. It is in *A Bend in the Ganges* that Manohar Malgonkar uses violence, extreme sufferings, action and revenge articulating his vision of human nature and as an integral part of his technique.*A Bend in the Ganges* shows a nation in transition and uses stark realism to expose the human catastrophe of a historical event of as great a dimension as the partition. It gives a glimpse of the philosophy of non-violence and its implications in a strife-torn world. Malgonkar's novel stands out distinctly in denouncing a concept that is widely accepted and much extolled. Non-violence, he shows, has scant meaning in the hands of the uninitiated like Gian and his ilk.

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Dr. Babu Jagjivan Ram (Babuji) Contribution to Indian Society

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Abstract:

Jagjivan Ram, affectionately known as Babuji, was a champion of social justice and a liberation warrior. A prominent and well-liked political figure who spent his entire life working for the welfare of the nation, he rose to public prominence quickly. He was a representative of traditional Indian politics. He had a commanding presence and contributed significantly to Indian politics over the course of a half-century as a national leader, member of parliament, Union Minister, and defender of the oppressed classes. His long and distinctly twentieth-century political legacy serves as a reminder of the zeal, idealism, and unflappable spirit of the political leadership in India, which not only battled for and won the nation's liberation but also created the solid groundwork for a contemporary, democratic politics. Babu Jagjivan Ram, who was endowed with a passion for political leadership and inspired by the principles and purposes of the sociopolitical events that engulfed the nation, made a substantial contribution to the shaping of our country's political and constitutional development as well as social change. He was a passionate leader who devoted his life to serving the public and who was well respected by all. He was widely acclaimed for his organisational skills and leadership ability, and he was a political force to be reckoned with in India.

Keyword's: Contribution, Society, Constitution, Laboure Laws

Introduction:

Jagjivan Ram was born into the Chamar caste of the Indian caste system in Chandwa, close to Arrah, in the state of Bihar. Sant Lal, his older brother, and three sisters were his siblings. His father, Sobhi Ram, served in the British Indian Army and was stationed in Peshawar, but he eventually left the army owing to personal reasons. He then acquired a piece of land in his home village of Chandwa and moved there. He then rose to the position of Mahant in the Shiv Narayani sect and, using his calligraphy skills, illustrated a number of publications for the sects that were distributed in the area.

In January 1914, young Jagjivan enrolled in a nearby school. After his father passed away too soon, Jagjivan and his mother Vasanti Devi were left in a precarious financial condition. He enrolled in Arrah's Aggrawal Middle School in 1920, when English was used as the primary language of instruction for the first time, and Arrah Town School in 1922. He encountered caste prejudice for the first time in this situation, but he didn't let it bother him. A well-known occurrence happened at this school; it was customary to have two water pots there, one for Muslims and one for Hindus. A third pot for untouchables was added to the school after the administrator learned that Jagjivan was drinking water from the Hindu pot and that he belonged to the untouchable class. Before the principal chose to forego placing the third pot, Jagjivan shattered this pot twice in protest. When Pt. Madan Mohan Malviya visited his school in 1925 and was moved by his welcoming speech, he extended an invitation for him to enrol in the Banaras Hindu University, which marked a turning point in his life.

Journey into Politics of Dr. Babu Jagjivan Ram

Babuji was elected to the Bihar Legislative Council in April 1936. Elections under the 1935 Government of India Act were slated to take place in 1936–1937. Babuji's political savvy and prominence were such that no one put out a candidate to

challenge him. Babuji was elected to the Bihar Legislative Assembly in December 1936 as a candidate for the Bhartiya Depressed Classes League (BDCL), his group, without any opposition. He also made sure that 14 other BDCL candidates running in reserved constituencies won their elections without any opposition. He was only 28 years old at the time. Later, he and his 14 MLAs joined Congress at the invitation of that body. He was elected as a Congress candidate without opposition and took office as the Minister of Labor in the Interim Government at the Center in 1946. Of the two interim governments, he was the youngest member. He won every Lok Sabha election in India after independence: in 952, 1957 (unopposed), 1962, 1967, 1971, 1977, 11980, and 984 from the same Sasaram constituency. Sasaram's inhabitants resembled his family. He was there for them at all times. They too constantly supported him in return. In the same way as Sher Shah Suri had in the past, he brought honour to Sasaram. His uninterrupted parliamentary career of 50 years, which spanned from 1936 until his death in 1986, is a world record.

Steps of Babuji:

He was forced to drink water from a different pot since he was regarded as a "untouchable." Breaking the pot in protest, Jagjivan Ram voiced his disapproval. The separate pot had to be taken out of the classroom by the principal.

When Jagjivan Ram first saw Pandit Madan Mohan Malaviya in 1925, he was immensely inspired. He enrolled in the Banaras Hindu University at Malaviya's invitation.

Jagjivan Ram was discriminated against even at the university. This motivated him to fight such social boycotts of a group in the community.

To oppose injustice, he also organised the scheduled castes.

Following his time at BHU, he enrolled at the University of Calcutta, where he graduated with a B.Sc. in 1931.

Jagjivan Ram had held a number of Ravidas Sammelans and observed Guru Ravidas Jayanti in various locations throughout Calcutta (Kolkata).

Administrative tasks for Dr. Babu Jagjivan Ram

He had a stellar track record, spending 31 years as the Central Cabinet's Deputy Prime Minister. He not only overcame the difficulties of nation-building because to his amazing administrative skills, but he also effectively streamlined the ministries he occupied.

1. From 15 August 1947 to 13 May 1952, the Labor Minister was He drafted numerous important pieces of legislation, including the Labor Act of 1951, the Employees Provident Fund Act of 1952, the Minimum Wages Act of 1948, the Employees State Insurance Act of 1948, and the Industrial Disputes Act of 1947. He presided over an ILO meeting in Geneva for the first time as an Indian labour minister.
2. From 13 May 1952 until 7 December 1956, he served as minister of communication. In 1953, he nationalised private airlines and founded Indian Airlines Corporation and Air India International. Additionally, he expanded the postal, telegraph, and communications networks into isolated village regions.
3. From 7 December 1956 to 17 April 1957, he served as Minister of Rail and Transport, reviewing previous rules and enhancing the working conditions for rail and transportation personnel.
4. From 17 April 1957 until 10 April 1962, he served as the country's railway minister, modernising and expanding the system. Orders granting reservations for Scheduled Castes and Scheduled Tribes in promotions were first issued in 1957.
5. Metrology was first utilised in river valley projects, irrigation projects, and in the navy. This occurred from 10 April 1962 to 31 August 1963. For the first time, a scholarship was made available for pilot training at flying clubs. The ports of Kandla, Haldia, Madras, Vishakhapatnam, and Haldia were all greatly expanded. On a massive scale, state-level roadways were transformed into national highways.
6. Mines Vocational Training Rules, 1966 were created by the Labour, Employment, and Rehabilitation Minister from 24 January 1966 to 13 March 1967 in order to give security to those working in mines and related industries. He reevaluated the previous labour laws and improved their application.
7. From 13 March 1967 until 27 June 1970, he served as Minister of Food, Agriculture, Community Development, and Cooperatives. He faced the worst drought of 1967 head-on and made sure no one went hungry. The "produce more crops scheme" and the "reen revolution" were both started by him. In

addition to reaching its initial level of food grain self-sufficiency, our nation also began exporting food.

8. Additional Responsibility for the Ministry of Labor, Employment, and Rehabilitation from November 15, 1969, to February 18, 1970. He strictly applied the labour laws.

9. Defence Minister (27 June 1970–10 October 1974): He oversaw the Indo-Pak War, which resulted in Bangladesh's creation, and insured Bangladesh's historic triumph. India had never previously prevailed in battle. He generously donated money and gave martyrs' families and wounded people access to better jobs.

10. Food, Agriculture, and Irrigation Minister—10 October 1974–2 February 1977: He once more assumed leadership of the Food and Agriculture Ministry in an effort to address the failing food situation. He reached agreements with Bangladesh about the distribution of the Ganga's waters in international water issues. At the federal level, disagreements between states on the distribution of Ganga water were resolved. He also established a commission to resolve any future conflicts.

11. He introduced the cutting-edge fighter jet Jaguar into the Air Force while serving as Defense Minister from 28 March 1977 to 24 January 1979. He raised the pay and facilities for Army, Air Force, and Naval personnel while also improving their working circumstances.

Contributions made before independence by Dr. Babu Jagjivan Ram

His membership in the Indian National Congress began in 1931. (Congress Party).

He played a key role in the establishment of the All India Depressed Classes League, a group fighting for untouchables' equality, between 1934–1955. He spoke up for social justice and the rights of the lower classes.

At a Hindu Mahasabha meeting in 1935, he suggested allowing untouchables access to temples and drinking water wells. Babuji also came before the Hammond Commission in Ranchi in 1935 and initially urged that Dalits be granted the right to vote. He served two terms in prison for his political involvement in the Quit India movement against British authority at the beginning of the 1940s.

Dr. Babu Jagjivan Ra Post Independence Contributions:

When Jawaharlal Nehru formed the provisional government, Jagjivan Ram became its youngest minister.

After independence, he held the labor portfolio until 1952. Thereafter, he served in Nehru's cabinet in the posts of minister for communications (1952–56), transport and railways (1956–62), and transport and communications (1962–63).

He served as minister for food and agriculture (1967–70), and in 1970 he was made minister of defence.

The Indo-Pakistan War of 1971 was fought when he was the defence minister.

He left Congress in 1977 and joined the Janata Party alliance, along with his Congress for Democracy (new party). He later served as the Deputy Prime Minister of India (1977–79).

Jagjivan Ram was a member of the Parliament uninterrupted from 1936 to 1986 (40 years) and this is a world record.

He also holds another record for being the longest-serving cabinet minister in India (30 years).

Results achieved by Dr. Babu Jagjivan Ram

1. The Messiah of the Scorned Since his school days, Babuji has pushed for social justice, and he has fought his entire life for a better life for the less fortunate. When he was 14 years old, he convinced the Town School Principal, Arrah, to halt the abhorrent practise of keeping a separate pitcher for the supposedly untouchable pupils. He founded the Ravidas Mahasabha while still a college student in Calcutta. He was appointed Secretary-General of the Gandhiji-founded Harijan Sevak Sangh in 1934. In 1935, he established the Bhartiya Depressed Classes League. Through these groups, he organised the Dalits.

2. Meeting with Gandhiji while providing assistance to earthquake victims: When the Bihar earthquake of 1934 brought unspeakable terror and devastation, Babuji completely devoted himself to relief efforts. Gandhi sped off to Bihar. Babuji first met him at that time and joined his group of volunteers for the relief effort. On Dr. Rajendra Prasad's request, Babuji spent 10 days in Wardha Ashram in October 1941, when he had extensive discussions with Gandhiji about the plight of Dalits and the fight for freedom.

3. Democratic rights: In 1935, Babuji spoke before the British-based Hammond

Commission and fervently argued that Dalits should cast ballots in the 1936–1937 elections. Dalits have been granted the right to vote ever since.

4. Reservation: The Constitution's reservation clause was not so readily added. Strong undercurrents of opposition were present. Babuji, the most prominent and senior leader among Dalits, had the ultimate obligation at that time for gaining support. With his innate intellect and cunning, Babuji was able to achieve agreement, which led to the passage of the reservation clause.

5. Temple Entry: According to him, caste did not change as a result of a shift in religion. No matter what faith they choose, Dalits will still be seen with contempt. Dalits who adopted Buddhism would not have felt the need for a reservation if that had not been the case. He desired Dalits to retain their religious traditions and struggle for their civil rights.

6. Landless Farmers: Babuji was aware that the reservation would only help a small number of Dalits in our agrarian community. Numerous landless Dalits would continue to live in poverty as a result of discrimination, the Zamindari and Jagirdari systems, and other societal ills. A Dalit should have the right to inherit the land that a landless labourer had been tilling thanks to a provision granted by Babuji. Since then, land has occasionally been given to agricultural labourers who are without land and their heirs. As a result, many previously landless farmers now own land.

7. The Green Revolution: Babuji is credited for saving the nation from the devastating drought of 1967 and making it the first time in its history that it was self-sufficient in food as the Minister for Food and Agriculture. Under the humiliating terms of P.L. 480, he ceased importing wheat from the US. In his wake, the "Green Revolution" began. India started exporting food grains for the first time as a result of record output.

8. Educational avenues: Babuji placed a specific emphasis on educating Dalits. He established numerous schools and dormitories in the areas controlled by Harijan during the period he was active in the liberation movement, as well as secured stipends for students. All educational institutions opened their doors to Dalits. Millions of Dalit kids have begun their educational journey.

Conclusion

At the age of 78, Jagjivan Ram passed away in New Delhi on July 6, 1986, following a protracted illness. He left a lasting impression on Indian politics as a political figure who worked with numerous generations, from Mahatma Gandhi to Rajiv Gandhi. He was a pillar of his era's leaders and the head of the Indian Parliament. Leaders, the media, the general public, and the entire country expressed their sorrow over Jagjivan Ram's passing. Throughout times of great hardship and upheaval, he served as a pillar of support for the Indian polity. He significantly contributed to the emancipation of the downtrodden and the underprivileged, the improvement of the nation's infrastructure, and India's progress toward becoming a more potent global force. The nation lost a special leader, a patriot, a visionary, and a great nationalist with his demise. His legacy will endure and serve as inspiration for upcoming generations to engage in social and political activism and to never stop working toward a more just society.

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Impact of Social Media in promoting the Library Services in Bharatiya Mahavidyalaya, Morshi, Dist Amravati

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Abstract :-

With the development of modern technology the college library is trying to reach as many as readers possible through the use of information technology in a form of digital library services. The services offered within the four walls of the library with the increasing use of social media and information technology have made it possible to provide library services to any reader, in any corner of the world at any time. The paper outlines how the Bhartiya Mahavidyalaya, Morshi recognized the important of social media and its utilization for conducting on line surveys and providing various library services during outbreak covid-19 pandemic. The BMV Library & knowledge resource centre, Morshi have created its own Facebook page with 289 jointed active members. Also have WhatsApp group name as 'BMVM LIBR. READER CLUB' having 234 members.

Keyword: Social Media, , Facebook, WhatsApp, Library services

Introduction :-

Library is considered to be a storehouse of knowledge that stores, preserves and disseminates information. The success of any library service depends on the satisfaction of the readers. In order to satisfy the reader or researcher, the library plays an important role for providing accurate information in minimum time at one place. In 21 Century, when everything is going to be digital then how can a library service is on back foot. With digital library facility huge storage of information is disseminated through various means and easily accessible to the users. The internet helps people to share their ideas , thoughts and information. The rise of social media and its rapid growth has now affected almost all sectors in good and bad ways and the library is no exception to it. Library of this contemporary age have a challenging role to play. Now day's Facebook and WhatsApp are important tools to promote library products and services.

Bhartiya Mahavidyalaya, library and knowledge Resource centre Morshi has its own social media account on facebook and whatsApp, where a facebook page created in year 2016 named as 'BMV Library & Knowledge resource centre Morshi, Dist Amravati' also with WhatsApp group, where all the important notice and information about the college, institutions and Universities,,study related material, important websites, videos, news, lectures, information about college activities etc. posted by group members and students of BMV Morshi. The participation and responses of readers is found very good on post sent by the library personel. In the outbreak of Covid-19 pandemic situation when all the students, professors and researchers are present at home, the social media accounts of library played important role for creating awareness about covid 19 ; spreading and providing necessary information about college, exams, various notices by administrative authorities, government, electronic resources and many more to the readers through library Facebook page and WhatsApp groups.

Social media :-

Social media is an interactive digital-mediated technology that facilitates the creation or sharing of information, ideas, career interest and other forms of expression through virtual communities and networks. There are some common features

1. Social media are interactive web 2.0 internet based application.

2. Users generated content such as text, photo, video post.
3. User create service-specific profile.
4. Development of online social networks.

Facebook :-

Facebook is an internet based free social networking service. Is one of the world's leading and most popular social networking site having approximately 2.74 billion monthly active users. Mark Zuckerberg is the founder of this social networking site. It is essential to have an e-mail or registered mobile number to open an account. Through this, we can share our thoughts with our loved ones, friends , reader and researcher, create events, start online campaigns, awareness about current issues .

WhatsApp :-

WhatsApp is one of the most popular messaging system in the world today. This allows you to send instant messages to other whatsApp users using the internet via a smartphone. WhatsApp uses the internet to send Picture, songs, audio, video, massage and other types of files can be shared among users.

Objectives :-

To interpret information about the efficiency, potential and working of social networking accounts on facebook and WhatsApp Groups created by BMV Library & Knowledge Resource Centre, Morshi and responses of active joined user members on both the social networking sites to the various post sent by admin.

Scope :

The Bharatiya Mahvidyalaya Library and knowledge Resource Centre at Morshi is limited services for this research.

Various Social Media :-

Social Media is a means of communication that keeps readers connected. The role of these social media networking sites is increasing day by day cause of expansion of internet service provided by various telecom operators and development technology. Social media seems to be influencing our entire lifestyle. Every Aspects of life can be learned though this social media. More than five hundred social tools from various fields are available on the internet. Through this we can transmit text, audio, video to each other by creating a virtual society. Now days social media is becoming a medium to convey various information to the reader. Some of the Major social media networking sites are facebook, whatsApp, Twitter, You Tube, Messenger, QZone, WeChat, Tumblr and Instagram etc…

*Information about facebook handle of Bharatiya Mahavidyalaya Library and Knowledge **Resource Centre, Morshi :-**

Various activities are carried out by Bharatiya Mahavidyalay library Morshi by posting various posts on the library's Facebook page. The Facebook page has followers predominantly from Morshi taluka and adjacent area and different places within India. It has 289 followers among which 85 percent are male and rest 15 percent are female with maximum proportion of youth aged between 18 to 34. Information about this is available on the college library Facebook page (https://www.facebook.com/Bmv-Library-Knowledge-Resource-Centre-Morshi-Dist-Amravati-1365581403472469).

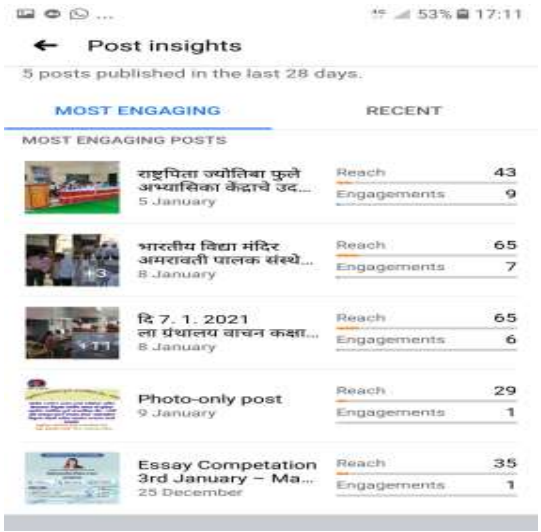
The information is displayed below.

Main page

Library User

Citywise User

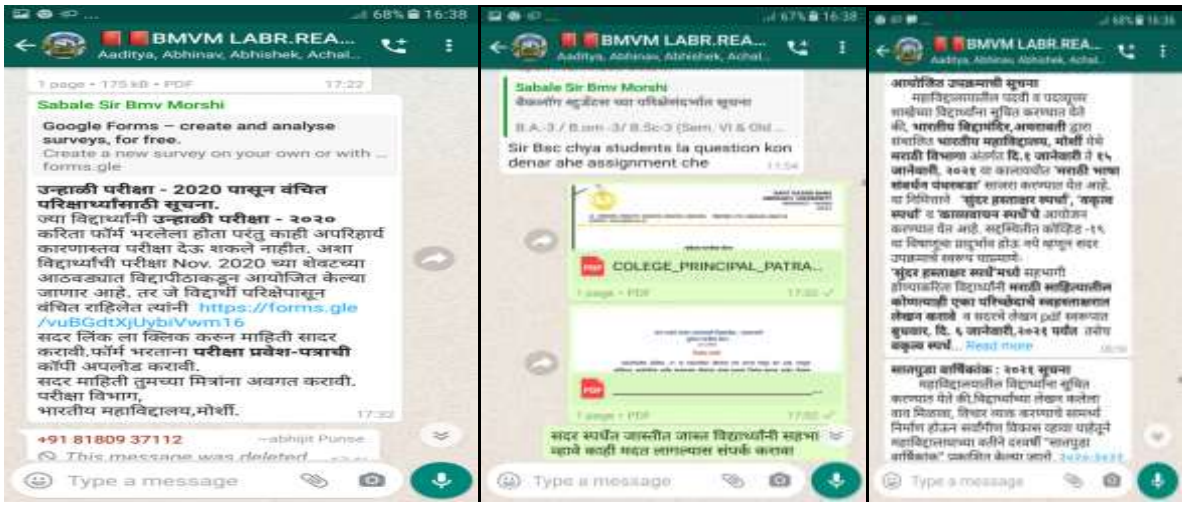
Popular post



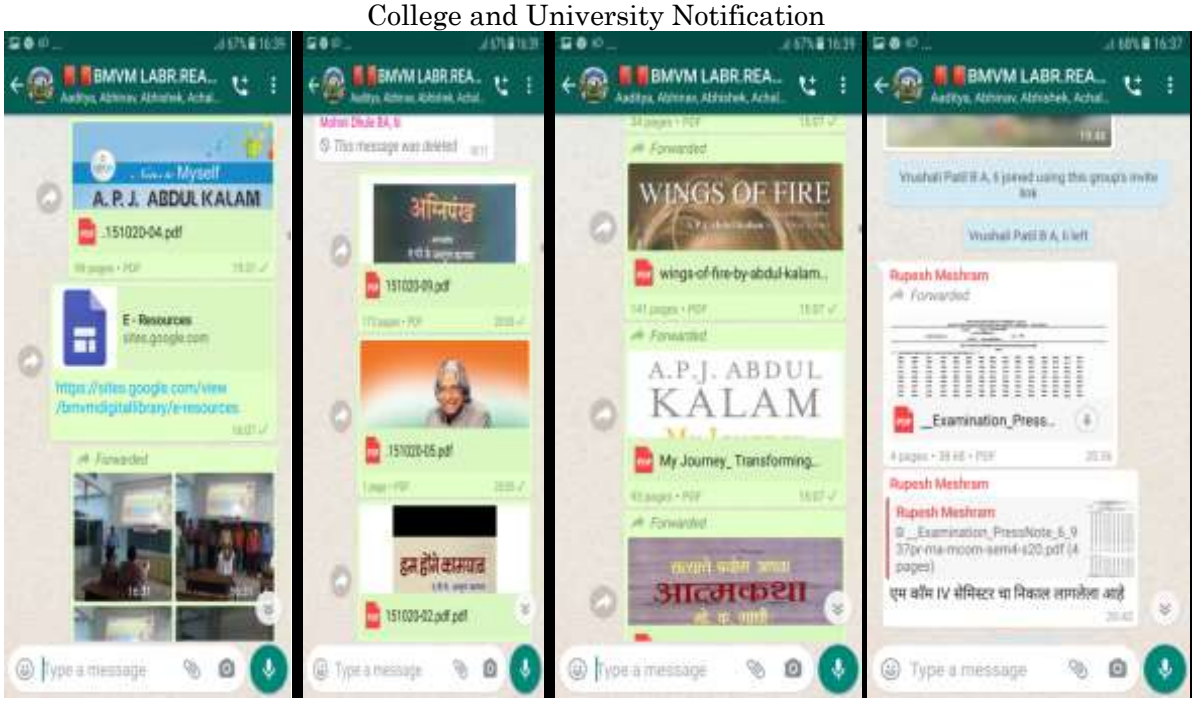
Most Engaging Post

Age & Genderwise User

Information about BMVM Library Reader Club's WhatsApp Group :- The BMVM Library Reader Club's (https://chat.whatsapp.com/FCNplVvPIb5HBfZGpZY66F) WhatsApp group has professors, alumni and admitted students as participating members. This group has 234 readers. Students, professors, staff and group admins send information regarding competetive exams, university notifications, pdf books, pdf newspapers, e-journals, college notifications etc. to this group. Information in that context is displayed below.



College and University Notification



College library Activity photo,PDF Books & SGBAU University Result

Conclusion :- Social media has revolutionized means and modes of communication and has created a new informative culture. As such, social media has to be integrated in promoting library services and resources of the college libraries. This article is an attempt to explore the usage of social media by college library of Bharatiya Mahavidyalaya, Morshi was taken into consideration. The objectives of the study were to explore social networking tool usage for providing library services. The article shows use of facebook and whatsApp for promoting library services.

The Bharatiya Mahavidyalaya' Library Morshi provided various information to the readers through the BMV Library and Knowledge Resource Center Morshi Facebook page while everyone was sitting at home during the Covid 19 pandemic period. The Facebook page has 289 viewers. The college is located at Morshi due to that the FB page gained popularity and have maximum members from Morshi and its adjacent area of Amravati District Maharashtra. Page's followers are 85 percent male and 15 percent female. Most of the followers are in the age group of 18 to 34 years. Popular posts are displayed along with it. The WhatsApp group has a total of 234 members, including professors, alumni and new admitted students. The respective FB Page and WhatsApp group helped students as well as college faculty and Administration for resolving queries/problems and to get aware by spreading education material and notices by different authorities like university, colleges and Government as posting on it.

Everyday members of FB page and WhatApp Group post information about competitive exam, general knowledge, recruitment ads, questions papers of government exams etc… The facebook page and WhasApp group promote library services. At the same time, it opened the door to online learning.

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6. The impact of Facebook on libraries and librarians: a review of the literature
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Abstract
Purpose – Social networking sites are becoming more and more popular triggering an increase in
published research and impacting different aspects of daily life. One such aspect concerns libraries and
librarians and the way they have adopted social networking sites. The purpose of this paper is to
present a selective review on libraries' adoption and use of a specific social

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Gross Enrollment Ratio of Scheduled Caste students in Higher Education in India (2015-16 to 2019-20)

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Abstract

Higher education (HE) plays a key role in achieving the 2030 Agenda for Sustainable Development (SD) and the 17 Sustainable Development Goals (SGDs) which aim to end poverty, protect the planet, foster gender equality, defend and promote cultures and cultural understanding, and ensure prosperity for all. Indian constitution ensures all people the right of justice, liberty, equality and fraternity among the citizens of multilingual, multi-religious and multi-ethnic country. Higher education plays important role to change the social and economic condition of the country. Mahatma Jyotiba Phule, Dr. Babasaheb Ambedkar and other thinkers had studied caste system from all the aspects. They found that 'rejection of fundamental right to education' as an important reason of backwardness among this social group and hence they suggest the program of spread of education, mainly higher education among the Scheduled Castes and all other backward castes in the nation. Education is considered as the most powerful instrument of social change and development in any society. The researcher has the research problem- How much Gross Enrollment Ratio of Scheduled Caste students is there in Higher Education in India? So the researcher tries to find out the solution to the problem through this research paper. The five AY Gross enrollment ratio of SC students was analyzed. The researcher observes that the government implemented reservation policy and program for higher educational development of scheduled caste students in India. But the expected target was not achieved.

Key words: Higher Education, Schedule Caste, Gross Enrollment Ratio, Academic Year

1. Introduction

Since ancient time, the Scheduled Castes were known as Dasas, Shudras, Anaryas Dalits, Pad-Dalitas, Harijans, Untouchables, Depressed castes, backward castes etc. The practice of untouchability and the concept of impurity have denied the untouchable caste members the ownership of productive assets like land, as well as basic rights like education and equality, which resulted in extreme socio-economic deprivation of these castes.

Mahatama Jyotiba Phule and Dr. Babasaheb Ambedkar studied the caste system from all the aspects. They found that 'rejection of fundamental right to education' as an important reason of backwardness among this social group and hence they suggest the program of spread of education, mainly higher education among the Shudras, Atisudras and women i.e. untouchables or Scheduled Castes. "Scheduled Caste" means such castes, races or tribes or parts of or groups within such castes, races or tribes as are notified to be Scheduled Castes under Article 341 of the Constitution of India. Education is considered as the most powerful instrument of social change and development in any society. In modern times Government both Union and State have the financial responsibility for the higher education of the Scheduled Castes.

Importance

Higher education (HE) plays a key role in achieving the 2030 Agenda for Sustainable Development (SD) and the 17 Sustainable Development Goals (SGDs) which aim to end poverty, protect the planet, foster gender equality, defend and promote cultures and cultural understanding, and ensure prosperity for all. Higher education offers disciplinary and trans- disciplinary teaching and research, generates and contributes to the development of new and

innovative approaches to global, regional and local issues. It calls for strong national and international teaching and research cooperation in order to give rise to unformulated solutions to new and older problems.

The researcher has the research problem- How much Gross Enrollment Ratio of Scheduled Caste students in Higher Education does India have? So the researcher tries to find out the solution to the problem through this research paper.

2. Review of Literature

1. Lata Digambar Dhende

Lata Digambar Dhende attempted to study the research problem on "A Study of Scheduled Caste and Higher Education Scenario in India" in 2017. The researcher studies higher education scenario among Scheduled Caste, constitutional provisions for the educational development of Scheduled Caste and factors influencing higher education status among the students of Scheduled Caste. The study reflects that enrollment in the higher education is lower compared to primary and secondary level of education. The study finds that enrollment among Scheduled Caste students in higher education in India is showing positive trend but the increase in Gross Enrollment Ratio is gradual.

2. Dilip Kumar

Dilip Kumar highlighted the research problem "Access of Scheduled Caste across Indian Higher Education: Issues and Challenges". The study shows that the existing caste system and hierarchical society's access to educational opportunities are unequal and unfair of Scheduled Caste and higher education. It is examined Scheduled Caste's higher education scenario, constitutional requirements for Scheduled Caste educational growth, and variables affecting Scheduled Caste's higher education status. The researcher concludes that the government implements reservation policy, different educational development programs and policies for Scheduled Castes students for getting equal status in the society and educational institution. It is found that Scheduled caste students gain significant attention in higher education in India, but the rise in the gross enrolment ratio is incremental. There is a positive trend in literacy and higher education enrollment among Scheduled Caste students in India, but the rise in the Gross Enrolment Ratio is slow.

3. Minakshi Das

Minakshi Das in her research paper entitled "A Study on the Educational Problems of Scheduled Caste People with Special Reference to Biswanath Gaon Panchayat" examined the educational problem, opportunities of scheduled castes students in Biswanthgaon. The author observes that scheduled caste people do not conscious in getting education and also unaware about the value of education for their lives. They do not give priority to send their children in school or colleges. Poverty, illiteracy, poor social environment, lack of general awareness etc. are the problem of scheduled caste people. The author shows that the Government of India has special schemes to enable access to opportunities including scholarship for education, various educational facilities, financial support and skill building for setting up their lives, reservation in jobs, reservation for getting education and special courts to address instances of atrocities and violence. The study finds the affirmative action with various educational development programmes and policies. The status of scheduled caste people has not improved to the desired level in the studied area.

4. Santu Biswas

Santu Biswas studied the research problem "Educational Status of Schedule Caste (Sc) & Schedule Tribe (St) In West Bengal- a Brief Study" in the research article. The study highlights the educational status of Scheduled Caste & Scheduled Tribe in West Bengal from the year 1951 to 2011.The author says that Literacy is considered as one of the indicators of educational development of a nation and an essential but necessary step towards education. The UNESCO says "Literacy is a human right, a tool of personal empowerment and a means for social and human development. Educational opportunities depend on literacy. The analysis of the study shows, according to 2011 census reports the SCs, STs Literacy rate in India male 75.20% & 68.50% and female 56.50% & 49.40%. The west Bengal SCs & STs literacy rate of male was 84.54% & 74.15% and female literacy rate 64.9% & 43.51%. The highest SC male literacy is appeared in North 24 Parganas 85.37% and the highest ST male literacy is appeared in Kolkata 86.81%, where the %. The highest

SC female literacy is North 24 Parganas 73.69% and the highest ST female literacy is Kolkata 76.57% in West Bengal. It's concluded that the trend of SC & ST literacy rate in West Bengal has been increased and it is the highest improvement for Scheduled Caste & Scheduled Tribe literacy rate in West Bengal.

5. Raghavendra R. H.

Raghavendra R. H. conducted the study with research problem "Literacy and Health Status of Scheduled Castes in India". The study evaluates the different human development factors like literacy and health status of the Scheduled Caste population in India. The study finds the fact that various policies and actions adopted have seen a positive outcome in various aspects and have led to the improvement of the conditions of literacy and health of SC population.

3. Objectives

1) To study Gross Enrollment Ratio (GER) of Scheduled Caste students in Higher Education in India.
2) To study the trend of SC students enrollment in higher education at various educational levels in India.

Hypotheses:

1) There is a positive trend of enrollment of scheduled castes students in higher education in India during 2015-16 to 2019-20.

4. Research Methodology

It has been adopted the survey method of research to find out the solution to the problem.

4.1 Sample Selection

The study was conducted the data regarding enrolled students' of Scheduled Castes in higher education in India. There is the population of the research that is grand total enrolled students at various levels in India from the academic year 2015-16 to 2019-20. Such as: Ph.D., M.Phil., Post Graduate, Under Graduate, PG Diploma, Diploma, Certificate and Integrated.

4.2 Data Source

The study is purely based on secondary data that have been collected from annual reports of All India Survey on Higher Education - AISHE (2015-16 to 2019-20), Books, Newspapers, Magazines, Journals, Research Papers, Websites and other published information.

4.3 Tools used for analysis

Gross enrollment Ratio was computed by using the following formula.

$$\textbf{i. Gross enrollment Ratio} = \frac{\text{Total Number of student in higher education}}{\text{Total population that age in the country}} \times 100$$

$$\textbf{ii. Growth Rate Percentage} = \frac{\text{Current Year Total Number of Scheduled Caste students in higher education}}{\text{Previous Year Total Number of Scheduled Caste students in higher education}} \times 100$$

5. Data Analysis

Data were analyzed and Interpreted through the tabular classification and column graphs.

5.1 Gross Enrollment Ratio (GER) of Scheduled Castes (SC) in Higher Education in India

Gross Enrollment Ratio (GER) of all students in Higher Education in India was 24.5%, 25.2%, 25.8%, 26.30% and 27.10% for the year 2015-16, 2016-17, 2017-18, 2018-19 and 2019-20 respectively, which has been calculated for 18-23 years of age group SC students. The detail has been given in the table no.01.

Table No. 01

Gross Enrollment Ratio (GER) of Scheduled Caste students (SC) in Higher Education in India

Year	All Students (India)			All SC Students (India)		
	Male %	Female %	Total %	Male %	Female %	Total %
2015-16	25.4	23.5	24.5	20.8	19.0	19.9
2016-17	26.0	24.5	25.2	21.8	20.2	21.1

2017-18	26.3	25.4	25.8	22.2	21.4	21.8
2018-19	26.3	26.4	26.3	22.7	23.3	23.0
2019-20	26.9	27.3	27.1	22.8	24.1	23.4

Source: Gross enrollment Ratio: All India Survey on Higher Education reports - 2015-16 to 2019-20

The table no. 01 shows that, there is 19.9 % Gross Enrollment Ratio (GER) of Scheduled Caste (SC) students in higher education in India in the academic year 2015-16. There is 20.8% GER of scheduled castes for male students and 19% of female students. During the academic year 2016-17, there is a 21.1% GER of SC students including male 21.8% & female 20.2%. During the academic year 2017-18, there is 21.8% GER of SC students including male 22.2% & female 21.4%. During the academic year 2018-19, there is 23% GER of SC students including male 22.7% & female 23.3%. During the academic year 2019-20, there is 23.4% GER of SC students including male 22.8% & female 24.1%. The data show that the Gross Enrollment Ratio of Scheduled caste students in higher education, is increasing continuously from academic year 2015-16 to 2019-20. But the increase is very slow.

5.2 Level-wise Gross Enrollment of All students in India

There are various level of higher education courses in which the students were enrolled. Such as : Ph.D., M.Phil., Post Graduate, Under Graduate, PG Diploma, Diploma, Certificate and Integrated. Level wise Gross Enrollment of all students in India from the academic year 2015-16 to 2019-20, has been given in the table no.02.

Table No. 02

Level-wise Gross Enrollment of All students in India

Year	Ph.D.	M.Phil	Post Graduate	Under Graduate	PG Diploma	Diploma	Certificate	Integrated	Grand Total
2015-16	126451	42523	3917156	27420450	229559	2549160	144060	155422	34584781
2016-17	141037	43267	4007570	28348197	213051	2612209	166617	173957	35705905
2017-18	161412	34109	4114310	29016350	235263	2707934	177223	195777	36642378
2018-19	169170	30692	4042522	29829075	224711	2699395	162697	241126	37399388
2019-20	202550	23934	4312535	30647287	217249	2672562	159869	300373	38536359

Sources: All India Survey on Higher Education reports (AISHE) - 2015-16 to 2019-20

The table no. 02 shows that, during the academic year 2015-16, there were 34584781 grand total students of all categories enrolled for Ph.D., M.Phil., Post Graduate, Under Graduate, PG Diploma, Diploma, Certificate and Integrated course. During the academic year 2016-17, there were 35705905 grand total students of all categories enrolled for Ph.D., M.Phil., Post Graduate, Under Graduate, PG Diploma, Diploma, Certificate and Integrated course. During the academic year 2017-18, there were 36642378 grand total students of all categories enrolled for Ph.D., M.Phil., Post Graduate, Under Graduate, PG Diploma, Diploma, Certificate and Integrated course. During the academic year 2018-19, there were 37399388 grand total students of all categories enrolled for Ph.D., M.Phil., Post Graduate, Under Graduate, PG Diploma, Diploma, Certificate and Integrated course. During the academic year 2019-20, there were 38536359 grand total students of all categories enrolled for Ph.D., M.Phil., Post Graduate, Under Graduate, PG Diploma, Diploma, Certificate and Integrated course. The data show that the level-wise Gross Enrollment Ratio of all category students in higher education is increasing continuously from academic year 2015-16 to 2019-20. But the increase is very slow.

5.3 Level wise Gross Enrollment of Scheduled Caste students in India

Level wise Gross Enrollment of Scheduled Caste students in higher education in India from the academic year

2015-16 to 2019-20, has been given in the table no.03.

Table No. 03

Level wise Gross Enrollment of Scheduled Caste students in India

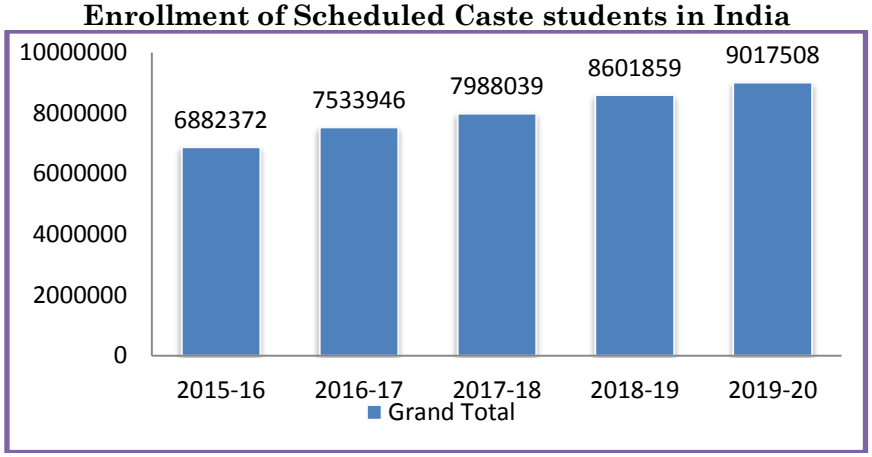
Year	Ph.D.	M.Phil	Post Graduate	Under Graduate	PG Diploma	Diploma	Certificate	Integrated	Grand Total
2015-16	25164	8462	779514	5456670	45682	507283	28668	30929	6882372
2016-17	29759	9129	845597	5981470	44954	551176	35156	36705	7533946
2017-18	35188	7436	896920	6325564	51287	590330	38635	42679	7988039
2018-19	38909	7059	929780	6860687	51684	620861	37420	55459	8601859
2019-20	47397	5601	1009133	7171465	50836	625380	37409	70287	9017508

Sources: All India Survey on Higher Education reports (AISHE) - 2015-16 to 2019-20

The table no. 03 and Graph no. 01 show that, during the academic year 2015-16, there were 25164 students enrolled for Ph.D. course. There were 8462 students enrolled for M.Phil course. There were 779514 students enrolled for Post Graduate course. There were 5456670 students enrolled for Under Graduate course. There were 45682 students enrolled for PG Diploma course. There were 507283 students enrolled for Diploma course. There were 28668 students enrolled for Certificate course. There were 30929 students enrolled for Integrated course. The grand total 6882372 SC students took admission in the various courses.

During the academic year 2016-17, there were 29759 students enrolled for Ph.D. course. There were 9129 students enrolled for M.Phil course. There were 845597 students enrolled for Post Graduate course. There were 5981470 students enrolled for Under Graduate course. There were 44954 students enrolled for PG Diploma course. There were 551176 students enrolled for Diploma course. There were 35156 students enrolled for Certificate course. There were 36705 students enrolled for Integrated course. The grand total 7533946 SC students took admission in the various courses. During the academic year 2017-18, there were 35188 students enrolled for Ph.D. course. There were 7436 students enrolled for M.Phil course. There were 896920 students enrolled for Post Graduate course. There were 6325564 students enrolled for Under Graduate course. There were 51287 students enrolled for PG Diploma course. There were 590330 students enrolled for Diploma course. There were 38635 students enrolled for Certificate course. There were 42679 students enrolled for Integrated course. The grand total 7988039 SC students took admission in the various courses. During the academic year 2018-19, there were 38909 students enrolled for Ph.D. course. There were 7059 students enrolled for M.Phil course. There were 929780 students enrolled for Post Graduate course. There were 6860687 students enrolled for Under Graduate course. There were 51684 students enrolled for PG Diploma course. There were 620861 students enrolled for Diploma course. There were 37420 students enrolled for Certificate course. There were 55459 students enrolled for Integrated course. The grand total 8601859 SC students took admission in the various courses. During the academic year 2019-20, there were 47397 students enrolled for Ph.D. course. There were 5601 students enrolled for M.Phil course. There were 1009133 students enrolled for Post Graduate course. There were 7171465 students enrolled for Under Graduate course. There were 50836 students enrolled for PG Diploma course. There were 625380 students enrolled for Diploma course. There were 37409 students enrolled for Certificate course. There were 70287 students enrolled for Integrated course. The grand total 9017508 SC students were enrolled in the various courses. The data show that the level wise Gross Enrollment Ratio of scheduled caste students in higher education is fluctuating during the five academic years.

Graph No. 01
Enrollment of Scheduled Caste students in India



5.4 Growth Rate % of Scheduled Caste students in Higher Education in India

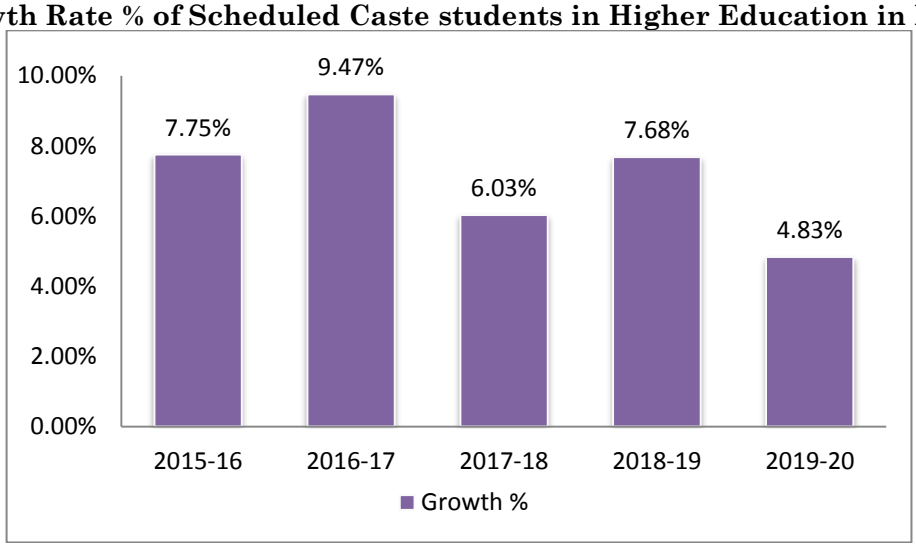
Table no. 04
Growth Rate % of Scheduled Caste students in Higher Education in India

Year	Total SC Students	Growth	Growth %
2015-16	6882372	495117	7.75%
2016-17	7533946	651574	9.47%
2017-18	7988039	454093	6.03%
2018-19	8601859	613820	7.68%
2019-20	9017508	415649	4.83%

Sources: All India Survey on Higher Education reports (AISHE) - 2015-16 to 2019-20

Table no. 04 and Graph no. 02 show that, growth rate of the enrollment of Scheduled caste students in higher education was 7.75% for the AY 2015-16. In the 2016-17, it was 9.47%, in the year 2017-18, it was 6.03%, in the year 2018-19, it was 7.68% and in the year 2019-20, it was 4.83%. It is observed that the growth rate of gross enrollment of Scheduled caste students in higher education is fluctuating from the AY 2015-16 to 2019-20.

Graph No.02
Growth Rate % of Scheduled Caste students in Higher Education in India



Conclusion

The study shows that the trend of the Gross Enrollment of scheduled caste students in higher education in India is positive. But growth rate of the gross enrollment of Scheduled caste students in higher education is fluctuating from the AY 2015-16 to 2019-20. It is 7.75%, 9.47%, 6.03%, 7.68% and 4.83% from the AY 2015-16, 2016-17, 2017-18, 2018-19 and 2019-20 respectively.

It is observed that the government implemented reservation policy and program for higher educational development of scheduled caste students in India. But the expected target was not achieved. It is concluded that very few students of Scheduled caste students are able to upgrade their educational standard.

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Comparison of Traditional Method, Web Based Learning And Gamification on Achievement of Senior Secondary School Students

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Abstract:
Gamification is new trend in the field of educational technology. This paper analyses the trend of achievement of primary students when they are taught with traditional method, web-based instructions and a combination of the web-based instruction and gamification of those web-based instructions. For these three groups were made and the first group is taught with traditional lecture method, the second group is taught with web-based instructions and the third group was taught with the combination of traditional lecture method and gamification of those instructions. Each group contains 20 students. Purposive random sampling was used. the total sample size is of 60 students of primary classes. Finding shows that there is a sharp increase in the trend of achievement when they are taught with the combination of traditional lecture method and gamification of those instructions.

Introduction:
Nowadays the children struggle with being bored at school. The reason for this might vary from children to children. Some students say that classes are monotonous, and they are very ineffective and there are lots of unimaginative things. The reason for this may be due to the teachers are really in expert or maybe the children do not wish to study. The students are not being sufficiently challenged they have a learning difference or mentally health conditions or they are simply not motivated by the subject matter it could just be that it is hard for them to sit through so much this time. So, the time needs an introduction of fun to the teaching. Children love games in any form. Not even children but elders also enjoy games. And if the studies are mixed with games, then it makes environment light and helpful in learning. Adding games to the teaching is gamification. Gamification is adding game mechanics into nongame environments, like a website, online community, learning management system or business' intranet to increase participation.
Game design elements that can be used in education are like this:

1. Points:
The point system functions as a measure of success or achievement. These points may be used as rewards, as a form of investment for further progression towards the goals, or to indicate one is standing. There are different types of points, and they vary across games. For example, Experience Points (XP) (i.e., points earned by completing tasks) and Steam Points (i.e., points that correspond to in-game currency) were used for some of the role-playing games in education. Points can also be considered as credits in an academic environment.

2. Levels/Stages:
The level system is used in various game designs to give players a sense of progression in the game. Initial levels tend to require less effort and are quicker to achieve, whereas the advanced levels require more effort and skills. Even though levels/stages are a widespread and popular gamification concept, and they serve as a form of rewards for task or assignment completion, students' learning abilities may not progress or improve because of levelling.

3. Badges:
Badges are recognized as a mark of appreciation or task accomplishment during the process of goal achievement. To maintain learners' motivation, the use of badges is helpful for engaging the learners in subsequent learning tasks. Badges are effective in inspiring learners to work towards future goals. Most of the student

respondents in Santos et al.'s survey also felt that badges helped to keep them engaged, especially in the classroom context, and motivate them to carry out future learning tasks.

4. Leader boards:

The objective of a leader board is to keep the learners motivated and create a sense of eagerness to advance their names for the achievements they have accomplished. Leader boards are used to create a competitive environment among students. A leader board is used to display the current levels of high scorers and the overall scores. To avoid demotivation for those who are lower ranked, leader boards usually display the top 5 or 10 scorers only. The survey findings by O'Donovon et al. suggest that leader boards rank highest in motivating learners.

5. Prizes and Rewards:

The use of prizes has been found to be effective in motivating learner. The timing and scale of rewards can also affect learner motivation. In general, it is better to give multiple small rewards than one big reward. Also, the schedule for giving out rewards should be evenly distributed throughout the learning process. An example of in-game rewards is character upgrades. A character upgrade is a way to motivate learners by displaying their progress in the form of characters. It allows others to recognize the amount of effort a learner has spent to reach his or her current level. To use character upgrades as a game design element, one must be given a virtual character which allows him or her to upgrade from time-to time by means of the points or rewards earned.

6. Progress bars:

Several researchers have utilized progress bars to gamify education. While badges demonstrate achievements towards a particular level/goal, progress bars are used to track and display the overall goal progression. In an educational game, progress bars are used as a display mechanism to motivate people who are close to achieving their educational goal or sub-goals. Progress bars can also encourage them if they are falling behind in their progress.

7. Storyline:

Storyline refers to the narrative or story in the game. Kapp suggests that a good storyline can help learners to achieve an ideal interest curve, where interest peaks around the beginning and end of the learning process, and to stay motivated throughout the learning process. A storyline also provides a context for learning and problem solving as well as helps to illustrate the applicability of concepts to real-life.

8. Feedback:

The frequency, intensity, and immediacy of feedback are helpful for learner engagement. The more frequent and immediate the feedback is, the greater the learning effectiveness and learner engagement. Clear and immediate feedback has been shown to be important for attaining the flow state, which is a state of engagement and immersion in an activity. Hence, feedback is an important criterion for performance and engagement.

This Make the environment fun filled, light and stress free so that the students or the consumer or customer or anyone can choose purchase or learn anything without any stress.

The gamification of learning is an educational approach that seeks to motivate students by using video game design and game elements in learning environments. The goal is to maximize enjoyment and engagement by capturing the interest of learners and inspiring them to continue learning. Gamification, broadly defined, is the process of defining the elements which comprise games, make those games fun, and motivate players to continue playing, then using those same elements in a non-game context to influence behaviour. In other words, gamification is the introduction of game elements into a traditionally non-game situation. Smiderle et.al. (2020) found the effect of gamification depends on the specific characteristics of users and studied the impact of gamification on learning and engagement based on personality traits of students

Dicheva (2017) found gamification of education is a strategy for increasing engagement by incorporating game elements into an educational environmental

Fardo (2014) stated that the goal is to generate levels of involvement equal to what games can usually produce. Christy and fox 2014 found that ranking affects women in various ways. Antonio F., et.al (2021) studied gamification as online teaching strategy during COVID 19 found that gamification can be implemented together with traditional lectures and can be a valuable instrument

during the post COVID Times Johnson et.al. (2020) found almost all teaching has quickly transitioned to distance education to provide appropriate social distancing.

Above scenario reflects that a very few studies have been conducted comparing the traditional methods with Gamification of study material.

Thus, there was a gap, requiring further studies in this area. Keeping this in mind the researcher decided to undertake the present study.

Statement Of Problem

The problem was worded as given below:

Comparison of Traditional method, web-based learning and gamification on achievement of senior secondary school student

Objective:

The objective of the study was:

1. Effect of Methods of Teaching on the mean scores of achievements of senior secondary school students

Hypothesis:

The objective of the study was:

1. There is no effect of Methods of Teaching on the mean scores of achievements of senior secondary school students

Methodology:

1. SAMPLE:

The sample of the research comprised of 60 class IXth students belonging to a Private school of Indore city. The sample was selected using Stratified Purposive Sampling Technique.

2. **TYPE OF RESEARCH**

Present study is an Experimental Study, in which, three groups were taken for research work. For this, three groups were made, and the first group is taught with traditional lecture method, the second group is taught with web-based instructions and the third group was taught with the combination of traditional lecture method and gamification of those instructions. Each group contains 20 students.

R X_1 O_1
R X_2 O_2
R X_3 O_3

3. Tools

The data was collected in respect of Achievement in Science with the help of Achievement test made by the researcher.

4. **Procedure Of Data Collection**

First, the permission from the principals of Gyanodaya school was taken and the students were briefed about the objectives of the study and a rapport was established with the students. The students were made aware about the procedure of teaching through all the methods and taking exam, time of tests and day and date of tests. On completion of the test, the booklets and copies were collected back. The collection of data from a single group took about four weeks. The entire data collection process was completed within 25 working days. The collected data were analysed with the help of appropriate statistical technique(s).

ANALYSIS:

Influence of Methods of Teaching on Mean Achievement scores of science

The objective was to study the influence of Methods of Teaching on Mean Achievement scores of science. The Methods of the students was categorized into three levels namely, Traditional Method of teaching, Web based learning and Gamification of topic. Since method has three levels, the data were analysed with the help of one way ANOVA. The results are given in table 1.

Table 1

Summary of One Way ANOVA test of Academic Stress of students of different levels of Intelligence

1. **Summary of Data**				
	Treatments			
	1	2	3	Total
N	20	20	20	60

∑X	532	771	862	2165
Mean	26.6	38.55	43.1	36.083
$\sum X^2$	15074	30319	37510	82903
Std.Dev.	6.9691	5.6052	4.3395	9.0034

Result Details

Source	***SS***	***df***	***MS***	
treatment	2905.0333	2	1452.5167	*F* = 44.09654
Error	1877.55	57	32.9395	
Total	4782.5833	59		

**Significant at 0.01 level of significance

From table, it can be seen that the F-value is 44.09654, which is significant at 0.01 level of significance with df=2,57. It indicates that the mean scores of Achievement in Science of Traditional Method group, Web-based instruction group and Gamification method group differ significantly. In the light of this, the null hypothesis that "There is no significant difference in mean scores of Achievement in Science of Traditional Method group, Web-based instruction group and Gamification method group" is rejected. Hence, Post Hoc Test is conducted to see where the difference occurs.

POST HOC TUKEY HSD (BETA)

Pairwise Comparisons		$HSD_{.05}$ = 4.3675 $HSD_{.01}$ = 5.5068	$Q_{.05}$ = 3.4032 $Q_{.01}$ = 4.2910
T_1:T_2	M_1 = 26.60 M_2 = 38.55	11.95	Q = 9.31 (*p* = .00000)
T_1:T_3	M_1 = 26.60 M_3 = 43.10	16.50	Q = 12.86 (*p* = .00000)
T_2:T_3	M_2 = 38.55 M_3 = 43.10	4.55	Q = 3.55 (*p* = .03936)

Further, the HSD score of achievement in Science of Traditional Method group and Web -Based instructional Method Group is 9.31, which is significant at 0.01 level of significance. Further, the mean score of Traditional Method group is 26.60 which is significantly lower than the mean score of Web -Based instructional Method Group

38.55. Hence, Web -Based instructional Method Group performed better in science.

Further, the HSD score of achievement in Science of Traditional Method Group and Gamification Method Group is 12.86, which is significant at 0.01 level of significance. Further, the mean score of Traditional Method group is 26.60 which is significantly lower than the mean score of Gamification Method Group 43.10. Hence, Gamification Method Group performed better in science.

Further, the HSD score of achievement in Science of Gamification Method Group and Web -Based instructional Method Group is 3.55, which is significant at 0.05 level of significance. Further, the mean score of Gamification Method group is 43.10 which is significantly higher than the mean score of Web -Based instructional Method Group which is 38.55. Hence, Gamification Method Group performed better in science than Web -Based instructional Method Group.

It reflects that the treatment of Gamification of Instructional Material was found to be significantly superior to the Web -Based Instruction and Traditional Method of teaching Science. It may, therefore be concluded that Gamification of Instructional Material Method was found to be superior to Web -Based Instruction and Traditional Method in facilitating Achievement in science of students.

Conclusion:

This study demonstrates some pedagogical implications of gamification by showcasing the academic test result of class ixth students. The program underlines the importance of facilitators in the classroom, where they let students become active learners once they click the button and enter the realm of edutainment. The program can transform the classroom spoon-feeding pedagogy into active learning pedagogy instructed by the program. Acting as facilitators, teachers can monitor the student progress on their result card and can focus more on the student performance. Moreover, the reward and ranking system can draw the best ability of the students as they can see that the outcome would impact the number of coins that can be used for new items. Gamification could play a vital role in Science education where the following issues are of concern, including the inadequate number of Science teachers, the lack of access to reliable Science materials, and the passivity of the local students. It can be seen from the findings, the students become more participatory and developed better attitudes towards Science lessons, which would be the essence of Teaching.

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2. Gamification of Education: A Review of Literature Fiona Fui-Hoon Nah1,*, Qing Zeng1, Venkata Rajasekhar Telaprolu1, Abhishek Padmanabhuni Ayyappa1, and Brenda Eschenbrenner1 1 Department of Business and Information Technology, Missouri University of Science and Technology, Rolla, Missouri, United States {nahf,qzdg9,vtfnd,apt59}@mst.edu 2 College of Business and Technology, University of Nebraska at Kearney, Kearney, Nebraska, United States eschenbrenbl@unk.edu
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Role of Water Management in Agriculture Development:Special reference of Maharashtra

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Introduction:

Maharashtra is the third largest State in Union of India considering population as well as area. The population of the state is about 112 million. Nearly 58% of population lives in rural area which depends largely on agriculture for their livelihood. Geographical area of State is 30.7 M ha. out of which cultivable area is 22.5 Mha. The rainfall varies from 400 mm to 6000 mm. Entire state is traversed by five river basins viz. Krishna, Godavari, Tapi, Narmada, and West Flowing rivers in Konkan region. Annual average available yield for entire Maharashtra state drained by above river basins is to the tune of 163820 mm (5785 TMC). The geographical area of Maharashtra has been divided into 36 districts & 358 Talukas for administrative purposes. The agriculture suffers due to vagaries of monsoon. Nearly 148 Talukas are drought prone. The Water and Irrigation Commission appointed by GoM has estimated the water resources of the State and has assessed the ultimate irrigation potential through flow irrigation at 8.5 M ha which can be increased to 12.6M ha by using advanced irrigation techniques, watershed development and improving water distribution system. An Irrigation Potential of 4.825 M ha has been created through an investment of Rs. 71,000 Crore. The State has corporatised the irrigation sector and construction of irrigation projects is being carried out through five irrigation development Corporations set up in the State. Apart from this, 1.00 Mha of Irrigation Potential is created on projects below Irrigation Potential of 250 Ha which are with Rural Development and Water Conservation Department. An installed capacity of 3605 MW has been created through 58 Hydropower projects which generate approximately 4000 Million units annually. State government has adopted policy of privatization of small hydel projects. (below 25 MW) **Water Sector Reform Initiatives undertaken by the state in Irrigation Sector :**

The Government of Maharashtra has undertaken a number of bold and path breaking water sector reform Initiatives, in the last 10 years to involve public participation in water management sector, many of which are for the first time in India and in fact in South Asia and major part of the world. These include.

Policy Reforms:

State of Maharashtra has formulated its State Water Policy in year 2003. Main features of this policy are Integrated and multi-sectoral approach in planning, development & management of water resources. Transfer of water management responsibilities to legally empowered Water Users Associations (WUAs) Determination and administration of water entitlements to water users. Rationalization of water charges& charging on bulk/volumetric basis Establishment of legal frame work The state has passed the following 2 major legislation. Maharashtra Water Resources Regulatory Authority (MWRRA) Act 2005, enabling establishment of Maharashtra Water Resources Regulatory Authority in September 2005 Maharashtra Management of Irrigation Systems by Farmers (MMISF) Act 2005, enabling formation of legally empowered WUAs in irrigation scheme and transfer of irrigation system management responsibilities to WUAs.

Institutional Reforms:

MaharashtraWater ResourcesRegulatory Authority (MWRRA) was formedin September 2005, The key functions of the Authority are :

- To determine, regulate and enforce the distribution of water entitlements for various category of

uses at basin /projects levels

- To regulate seasonal / annual water entitlements
- To establish and regulate water tariff system for various uses of water with the view to ensure

full operation and maintenance needs of irrigation / water utilities **Adoption of new management practices:**

For efficient use of water and optimum use of water distribution system, state of Maharashtra has adopted following new management practices which are recognized worldwide.

These are:

Management, including O&M of irrigation systems by elected Water User Association (WUA) Charging of water tariff on volumetric/ bulk basis

- Publishing annual water audit report for each irrigation/ multipurpose project
- Benchmarking of irrigation / multipurpose project
- Promotion of new technology with Integrated Computerized information Systems (ICIS)**Major achievements in the Water Sector by the State:**
- Development of 4.825 M ha. of irrigation potential through investment of Rs. 71,000cr.
- Maharashtra is the only state in the country which has achieved the distinction of covering full maintenance cost of irrigation projects through collection of water charges .
- First State in India to constitute Water Resources Regulatory Authority for regulation of water resources.
- Formation of 1545 Water User association under Maharashtra Management of Irrigation Systems by Farmers (MMISF) Act, which cover0. 6.70 Mha area.
- Formation of 1375 Water User association under co-oprative act wich cover 0.471Mha. area.• Maharashtra Water Sector Improvement Project has commissioned with the help of World Bank for rehabilitation of 286 completed irrigation project to stabiles 0.67 Mha of command area. • Publication of Irrigation Status Report, Water audit Report and Benchmarking Report annually.
- The State can boost of it's capacity building through establishment of National Level institutes Like Maharashtra Engineering Research Institute, Cental Designs Organization, Water and Land Management Institute , Mechanical Organisation & Hydroelectric wing and independent Quality Control Organisation.
- Lake Tapping stage IV and IVB is completed in Koyna Dam for first time in Asia to generate additional capacity of 1000 MW.
- The task of strengthening spillway of Koyna hydroelectric project is completed in record time by placing 65,000 m3 of thermally controlled concrete using pre and post cooling arrangements.

This is one of the first instance in Asia.

- Completion of India's first of its kind Roller Compacted Concrete dam at Ghatghar pumped storage scheme in Thane district.
- Encouraging response to PPP in development of small hydel project up to 25 MW capacity. So far 76 small hydel projects of 201.20 MW capacity being developed.

Various Organisations Of Water Resources Department

1. Maharashtra Engineering Research Institute, Nasik
2. Water and Land Management Institute, Aurangabad
3. Maharashtra Engineering Training Academy, Nasik
4. Hydrology Project, Nasik
5. Central Design Organisation, Nasik
6. Dam Safety Organisation, Nasik
7. Quality Control Organisation, Pune
8. Mechanical Organisation, Nashik
9. Director of Irrigation Research and Development, Pune

Corporations Of Water Re Sources Department

1. Maharashtra Krishna Valley Development Corporation, Pune
2. Godawari Marathwada Irrigation Development Corporation, Aurangabad
3. Vidarbha Irrigation Development Corporation, Nagpur
4. Tapi Irrigation Development Corporation, Jalgaon
5. Konkan Irrigation Development Corporation, Thane

Maharashtra Engineering Research Institute, Nashik Established In 1959

Functions

- To carry out Applied Research in the field of
- Hydro-dynamics (model testing) Roads& Buildings
- Water Supply & Sanitary Engineering
- Remote Sensing
- Earthquake Engineering Material testing

Maharashtra Engineering Training Academy, Nashik (Meta)

(Established in 1964)

Functions

- Impart Induction training to direct recruit engineers from Irrigation & Public

Works Departments

- Impart training to in-service enginee Works Departments in the field of

Development of Irrigation Projects, Roads & Buildings

- Administration
- Personnel Management,etc.
- Conduct Professional Examinations

Central Designs Organisation, Nashik (Cdo)

(Established in 1957)

Functions

- Design of Earthen Dams and Masonry Dams
- Design of Lift Irrigation Schemes
- Design of Hydro Electric Projects
- Design of major canal structures including gates and outlets
- Consultancy services to other government organizations like Brihan Mumbai
- Municipal Corporation, Maharashtra Jeevan Pradhikaran, MSEB and other
- State Govt. Water Resources Department

Dam Safety Organization, Nashik (Dso)

(Established in 1980)

Functions

- Pre and post monsoon inspections of Large Dams
- Monitoring of pre and post-monsoon inspections carried out by field officers• Analysis of deficiencies observed during the inspections and suggesting remedial measures

Hydrology Project, Nashik

(Established in 1996)

Functions

- River gauging & Rain gauging
- Compilation & Analysis of data & Dissemination of data
- Creation of hydrological network in the State
- Improve Hydrological data base
- Assessment of basin / sub basin wise water availability

Quality Control Organisation

(Established in 1979)

Three Circles headed by Superintending Engineer with headquarters at Pune, Aurangabad and Nagpur.

Functions

• Quality Control of on-going projects

Mechanical Organisation (Established In 1959) Functions

- Management of Earth Moving Machinery
- Management of Hydraulic Gates & Hoists
- Management of Pumping Machineries in Lift Irrigation Schemes.
- Management of Mechanical Workshops.
- Management of Stores.
- Emergency Services.

Directorate Of Irrigation Research & Development, Pune (Dird) Functions

- Pre-Irrigation Projects Soil Survey in commands of projects.
- Periodical Monitoring and demarcation of water logged and salt affected area ofproject command.
- Execution and Maintenance of surface, sub-surface drainage Schemes forreclamation of water logged and Salt affected areas.
- To carryout Post-Project soil survey & lab testing of soil samples.

Water And Land Management Institute (Walmi), Aurangabad (Maharashtra) India

(Water Resources Department, Govt. Of Maharashtra Undertaking)

(Established in 1980)

Objectives

- To provide in-service training of interdisciplinary nature to staff engaged inirrigation water management and land development in irrigation and agriculture departments.
- Action and adaptive research pertaining to irrigation project commands.
- Providing consultancy services, production of training materials (in print and electronic media), conducting seminars /workshops and organizing farmer's training programmes.

Maharashtra Water Resources Regulatory Authority Objectives

- To regulate water resources within the State as per State Water Policy
- Integrated State water Plan as prepared by State Water Board (Section 15)

andapproved by State Water Council (Section 16)

- Directives of the Governor of Maharashtra (Section11(f) and Section 21) • Directives of the State Govt.(Sec.23) To facilitate & ensure judicious , equitable and sustainable management, allocation and utilization of water resources * To fix the rates for use of water for various purposes.
- To determine, issue, enforce and monitor Water Use
- Entitlements Fixing the water quota principles
- Every land holder in the command area shall be given water quota.
- Water quota shall be fixed on the basis of land in the command area
- Water quota adequate to irrigate at least one acre of land during scarcity shallbe given to each land holder.
- In order to share the distress in the river basin, the percentage of utilizablewater including kharif use, shall for all reservoirs approximately be the same
- Drip /Sprinkler shall be made compulsory for crops like sugarcane in water deficitProjects

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An Evaluation Over The Methodological Efficiency In Groundwater Contamination Studies: A Case Study From Wardha Valley Coalfields.

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Abstract
The coalfields are very usual with the groundwater contaminations and a proficient methodology is always sought by the researchers. The present article deals with the evaluation of methodology adopted in the heavy metals contamination studies in the Wardha valley coalfields, Maharashtra. On evaluating the methodology with the respective outcomes and other related works, it is suggestive to inflate the heavy metal contamination analysis by including the hydro-geochemical approach, which ultimately contributes an understanding of accountability for the contamination. The hydro-geochemical parameters not only disclose the groundwater chemistry but also illustrate the geological influence. The statistical approach like of Principal Component Analysis (PCA) augmented with an interpolation technique executed by the ArcGIS is evident to be a competent tool to approximate the source of contamination spatially. The interpolation of factor loadings generated from the PCA on the study area maps aids in sorting spatial contamination hotspots. The petrography and mineral chemistry study of the rock taken from spatially located contamination points validates the source. The cumulative effect of all such versatile methods could be apparently reflected in the designing of the mitigation policy. The study evidently supports the adopted methodology for the fruitful groundwater contamination studies but also suggests the flexibility.

Keywords – Groundwater contamination, Wardha valley coalfields, Geographical Information System, Principal Component Analysis.

1. Introduction

The Wardha valley coalfields are the active and one of the most coal producing belts in the central India. Since the inception of the coal exploration after its report in 1831 near the Kumbhari village; the Wardha valley coalfields has gain a certain significance in impending years (Raja Rao 1982). The unceasing mining activity in the Wardha valley coalfields has not only altered its geomorphology but has also shaped a realm of contaminations in all domains and the groundwater contamination is one of them. The groundwater contamination is much common and intensely studied aspect in and around coalfields, where heavy metals and other hydro-geochemical parameters are commonly acts as contaminants. The disturbed of hydrology, pollution of water bodies and descending of groundwater level are the major quantifiable effects of mining activity on the water realm (Pulles *et al.,* 1995; Younger *et al.,* 2002). The contaminated groundwater's quality cannot be reinstated by ceasing the pollutants; hence its regular monitoring to device ways and means to protect it is must (Mufid al-hadithi, 2012). The present article deals with the evaluation of methodology adopted for the groundwater contamination studies done in the Wardha valley coalfields. This article will reveal the probable pros and cons of the approach adopted.

2. Methodology

To evaluate the methodology in the groundwater contamination study in the Wardha valley coalfield, it has been coordinated with the respective objectives attainments. The convergence of results and interpretations into a fruitful outcome has also been conducted and the respective outcomes were verified with the similar

works to validate the methodology. The approach has also been corresponded with a bunch of articles that deals with the similar kind of problem. The evaluation of the adopted approach has been finally done to derive the gist from all above correlations.

3. Depiction of adopted approach

A vigorous literature review has been done from all the probable relevant articles to sort the line of approach for the groundwater contamination study in the Wardha valley coalfield. Accordingly the line of action was proposed to achieve the pre-determined objectives viz., heavy metal contamination extent in groundwater, its source approximation and probable remediation.

3.1 Literature Survey: A detailed literature survey has been done to develop a comprehensive vision for the groundwater contamination studies. A special preference has been given to the studies done on the various Indian coalfields like those of; Raja Rao (1982), Singh *et al.,* (1983), Singh (1987; 1990; 1994), Choubey and Sankaranarayana (1990), Choubey (1991), Pathak and Banerjee (1992), Soman and Kale (1992), Tiwary and Dhar (1994), Gupta (1999) and Prasad and Jaiprakas (1999) as pioneering workers; whereas, Tiwary (2001), Khan *et al.,* (2005), Tiwary and Sinha (2006), Warhate *et al.,* (2007), Satapathy *et al.,* (2009), Singh *et al.,* (2010), Tripathy (2010), Murkute and Badhan (2011), Singh *et al.,* (2011), Kale and Soman (2012), Khan *et al.,* (2013), Chandra and Jain (2013), Singh *et al.,* (2013), Adhikari *et al.,* (2013), Murkute (2014), Tiwari *et al.,* (2014), Singh *et al.,* (2015), Saini and others (2016), Mahato *et al.,* (2016), Kumar and Singh (2016), Neogi *et al.,* (2017), Singh *et al.,* (2017), Mahato *et al.,* (2017), Tiwari *et al.,* (2017), Neogi *et al.,* (2018) and Shylla *et al.,* (2020) as the exceptional workers. On vigorous review of above cited articles, the objective and methodology to attain them was sorted out.

3.2 Field and GIS Procedures: The detailed observation was done by multiple field visits. These observations not only help to delineate the study area but also gave a deep understanding of it. The toposheet no. 55L/16, 55 P/4, 55 P/8, 56 I/13, 56 M/1 and 56 M/5 were used to trace and review the study area (Figure 1). With the help of field observation and outputs from ArcGIS software, the sampling locations of groundwater were selected to generate a uniform representation of the study area.

3.2.1 Groundwater sampling: To represent the groundwater situation of the study area 45 groundwater sample locations were selected by area sampling (sub-type of cluster sampling) with specially consideration to the mining sites, urban settlements and agricultural lands. To achieve the maximum precision in terms of the sampling hygiene and sampling techniques, the procedures suggested by the American Public Health Association (APHA) were adopted. The non-stagnant samples were collected in pre-washed narrow mouth polyethylene bottles, which were thoroughly rinsed by sample water before final sealing (Plate 1) for pre- and post-monsoon seasons of 2019 and 2020. As the objective includes heavy metals/trace metals, being very fragile to changed chemical environment, they were made stable by acidification to as low as pH of 2 by Conc. HNO_3 (Plate 1). The immediate preservation in the cold storage (4^0C) was done after systematic labelling.

3.2.2 Rock sampling: To develop a sound representation of the groundwater chemistry of any area, the study of the respective aquifers is requisite. The stratigraphic sequence depicted in the work of Raja Rao (1982) and the base map of the GSI was kept in consideration before picking the rock sampling locations. The intention behind rock sampling is the petrography and mineral chemistry and hence, the samples were taken so. The samples of fresh and non-weathered outcrop with an approximate size of 12 cm X 12 cm were taken by grab sampling method from pre-selected locations (Plate 2). The rock samples were then labelled in accordance with the locations. The initial results of the groundwater analysis also narrowed the rock sampling locations to certain contaminated zones.

3.3 Analytical Procedure: The analytical part has been done in two steps viz., groundwater and rock sample analysis. The rock sampling analysis is somewhat motivated from the opening groundwater results too.

3.3.1 Groundwater analysis: The analytical part of groundwater was executed into two parts viz., spot and laboratory. The collected samples were then immediately subjected to the spot analysis which includes pH, EC and TDS measurement by digital meters. The laboratory analytical part includes the determination of major cations, anions and

trace metals with respective methods (Table 1).

3.3.2 Rock sample analysis: On classification of the collected rock samples by megascopic approach, they were sorted for the petrographic study. The samples near to groundwater contamination zones were prioritized and dressed accordingly. The standard procedure for thin section preparation was followed. On thin sectional studies, some samples were selected for mineral chemistry and hence, polished and prepared accordingly as per Electron Probe Micro-analyser (EPMA) requirements (Plate 3).

3.4 Statistical and GIS Analysis: To deduce multifaceted outputs from the data, the statistical analysis was performed. The software named XLSTAT was used to perform various statistical analyses including the Principal Component Analysis (PCA). To enhance the representation of the outcomes, the ArcGIS software was used for the preparation of ordinary kriging interpolation maps and respective prediction standard error maps.

4. Discussion

The above methodology adopted in the groundwater contamination study of the Wardha valley coalfield had direct implication over the quality and rationality of outcomes. Let us observe some of them;

4.1 Precision in results: The caution in sample selections may it be location wise or the collection wise, the utmost accuracy was achieved. The standard procedure followed in the study imbibes a confidence in the consequential analysis. The results so derived can be put in a high confidence frame irrespective to the agreement or disagreement with the hypothesis. Hence, the standard procedures like suggested by APHA must be adopted with due consideration.

4.2 Inclusive groundwater sympathetic: Though the present groundwater contamination study was focused over the heavy metal contaminations, the evaluation of hydro-geochemical parameters generates a comprehensive depiction of the groundwater chemistry. Such depiction has not only revealed the groundwater facies but has also aided in understanding the process responsible for the heavy metal contamination (Ganvir and Guhey, 2022). The facies analysis done on behalf of hydro-geochemical results, disclosed the dominance of the strong acids (SO_4^{2-}-Cl^-- NO_3^-) over weak acids (HCO_3^-), which implies towards the role of acidic environment in the groundwater. As the study area is a coalfield, the existence of acid mine drainage cannot be denied (Ganvir and Guhey, 2020). In such manner the cationic-anionic determination aids in source approximation.

4.3 Effectual data manifestation: The PCA is an efficient method to determine the contamination sources (Facchinelli *et al.,* 2001). The trace metal data generated in the present study was subjected to the PCA and as a result, a comprehensive correlation has been obtained for the assessed trace metals. These correlations disclosed the various close associations among the trace metals, which implies towards the common source. In the present study the metals Cd, Fe, Ni and Pb were found to be closely associated (Ganvir and Guhey, 2020). Apart from them, multiple weak-moderate associations were also derived among trace metals which help in understanding the co-existence. The factor loadings derived from the PCA has been used in ArcGIS software for further source approximation.

4.4 Spatial source approximation: The ordinary kriging interpolation is not only meant for the unsampled regions, but also is useful for the probabilistic simulations of vagueness about the anonymous by estimated predicted values (Deutsch and Journel, 1998). The trace metal data generated from the groundwater analysis has been subjected to the ordinary kriging interpolation done by ArcGIS. This has developed a map for each and every assessed metal representing the spatial dispersal of it on the study area map. The map clearly manifests contamination zones which directly sorts the contamination source. The factor loadings for observation derived from the PCA were also subjected to the interpolation and has shown agreement with the contamination sources manifested in individual contaminated metal maps.

4.5 Geological source approximation: Once the source approximation was done, the sampled rocks from the source region was analysed with due precision. As a consequence, the white and grey sandstone belonging to the Barakar formation disclosed the presence of Pyrite (FeS_2) in thin section and was confirmed in the EPMA study (Ganvir and Guhey 2021). Similarly, the other sampled rock like carbonaceous shale

has also indicated the presence of considerable sulphur content in mineral chemistry analysis. This sulphur presence ultimately supports the role of acid mine drainage, which was also manifested in hydro-geochemical facies analysis. On a similar line of action, the presence of high iron content in the Kamthi sandstone was confirmed. In contrast to this, the EPMA is very useful in mantle petrography and sometimes may not be much fruitful in case of sedimentary rocks.

5. Conclusion

The evaluation of the methodology adopted during the contamination study in the Wardha valley coalfield clearly indicates the efficiency of it. The augmentation of heavy metal contamination study by the hydro-geochemistry assists in understanding the process accountable for the contamination. The statistical tools resolve the chaos in the data to an evident representation. The PCA amplified with GIS tools has proved to be one of the most efficient tools to approximate the source of contamination spatially. The petrography and mineral chemistry study (especially from contamination zones) adds robust evidence to the source approximation. Hence, to perform a fruitful groundwater contamination studies, the above methodology is suggestive, but may vary as per situatedness.

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TABLES

Table 1: Methodology adopted for groundwater analysis.

Parameter	Method	Instrument	Remark
Ca^{2+}	Titrimetric	-	EDTA with P & R indicator
Total Hardness	Titrimetric	-	EDTA with Eriochrome Black-T indicator
Mg^{2+}	Calculation	-	Subtracted Ca^{2+} from TH
Na^{+}	Photometric	flame photometer	589 nm
K^{+}	Photometric	flame photometer	766 nm
HCO_3^{-}	Acid Titrimetric	-	Methyl red and bromocresol green
SO_4^{2-}	Spectrophotometric	UV-Vis spectrophotometer	By barium chloride-gelatin reagent/420 nm

NO_3^-	Spectrophotometric	UV-Vis spectrophotometer	220 nm
Cl^-	Titrimetric	-	Potassium chromate indicator
Trace metals (Al, Cd, Cr, Cu, Fe, Ni, Pb and Zn)	Spectrophotometric	Atomic Absorption Spectrophotometer	Respective Std. wavelengths

FIGURES

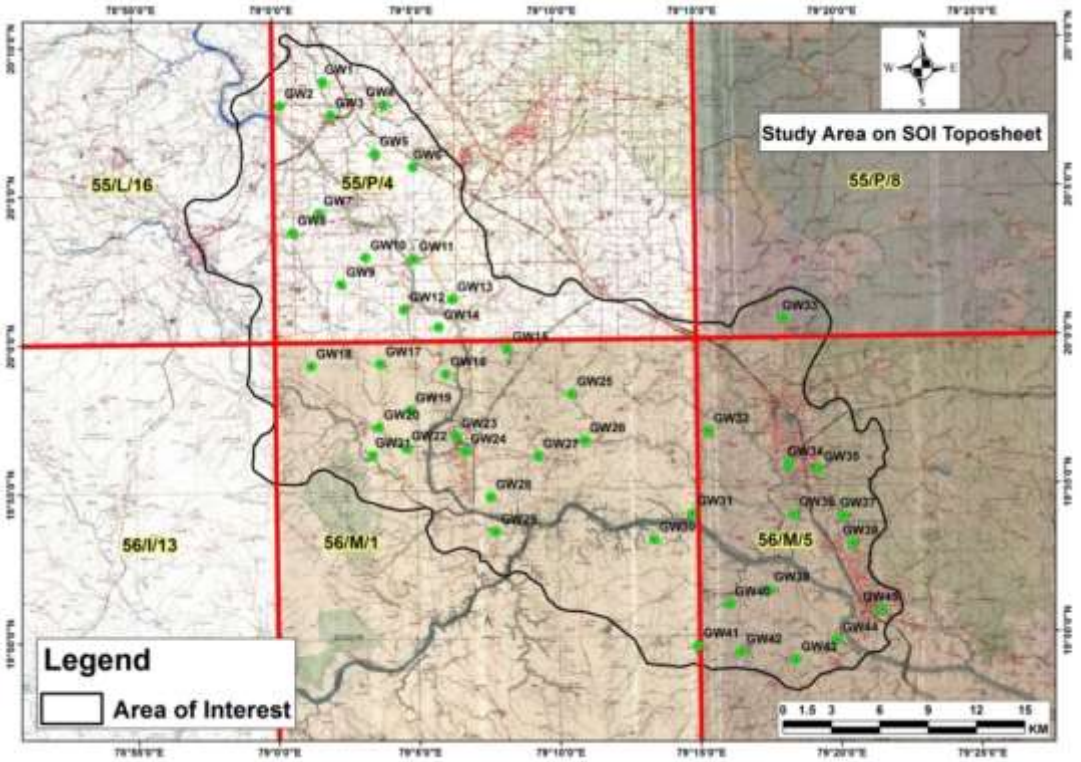

Figure 1: Map with toposheets coverage and groundwater sampling locations in the study area.

PLATES

Plate 1: Photograph indicating groundwater sampling procedures.

Plate 2: Photograph indicating rock sampling locations.

Plate 3: Photograph indicating petrographic and EPMA analysis.

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National Education Policy (2020) & Inclusive Education

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Abstract
As per Indian Constitution Primary Education is the fundamental right of every child. Free and compulsory education up to age of 14 and up to 18 for disabled students. For inclusive education various education commissions as well as National Education policy (2020). In Inclusive Education, both normal and disabled students learn together. In modern age, we have to take care of students as per needs of students. Sarva Shiksha Abhiya, Samagra Shiksha, RTE Act 2009 these are the some efforts which taken by government. Teacher should take care of normal as well as disabled students. He must use proper methods for both the students for teaching. Inclusive education is the tool of making unity and equality in society.

Key Words – Disabled students, RTE Act, Inclusive Education, Unity and equality.

Introduction

Education is the basic need of every child. As per Indian Constitution Primary, education is the fundamental right of every child. Free and compulsory education up to age of 14 and up to 18 for disabled students. Indian government start Sarva Shiksha Abhiyan, samagra Shiksha, Inclusive education for disabled for the students. In modern ages, we have to take care of needs of students and as per needs of students the education must be inclusive.

Definitions Of Inclusive Education

Advani and Chadha "Inclusive Education describes the restructuring of special education to permit all or most students to be integrated in mainstream classes through reorganization and instruction innovations (e.g., cooperative learning, collaborative consultation and team teaching)"

Stephan and Blackhurt "Inclusive Education is a set of values, principles and practices that seeks more effective and meaningful education for all students, regardless of whether they have exceptionality labels or not." Michael F. Giangreco "Inclusive school or set up may be defined as a place where everyone belongs, is accepted, supports and is supported by his or her peers and other members of the school community in the course of having his/her educational needs met." Rehman Hiffr "Mainstreaming is the education of mildly handicapped children in the regular classroom. It is based on the philosophy of "equal opportunity" implemented through individual planning to promote appropriate learning achievement and social normalization"

Kauffman "The term mainstreaming is used to mean an integration of regular and exceptional children in a school setting where all children share the same resources and opportunities for learning and full time basis."

Objectives

1. To give education to all.
2. To protect human rights.
3. To identify various skills among students.
4. To develop social consciousness among students
5. To prepare students for new challenges.
6. To develop equality principle among students.
7. To improve the quality of education.
8. To develop professional efficiency.

Need And Importance Of Inclusive Education

Disabled children gets opportunity to learn new things with normal students - First disabled students get separate education. These students think that they have some problems. But when they take education with normal students they also learn new things properly.

Equality principle followed - Inclusive education followed equality principle. They do not make difference between normal and disabled students. Equality principle encourage students for learning.

Natural Environment created - Inclusive education creates natural environment between normal students and disabled students. This method gives same or equal treatment for all students. Develop brotherhood, unity and equality – Inclusive education gives equal treatment to all students. With the help of this method we can develop brotherhood, unity and equality among students.

Less Expenditure – In this system disabled and normal students get education combinely. Therefore, there is no extra expenditure for any student. It will save our time, money and energy also.

Identify and determine the needs of all children – Each child is different from others. Need of the students are different from other students. We must know needs of the students for teaching and learning. If we know every child then we use proper method for teaching.

Innovative method – In this method disabled and normal students combines for teaching and learning. For combine teaching we have to use innovative methods for all students.

Rehabilitation of Disabled students – Disabled student teach separately because we think that they are different from us. They also feel that we are different so they are away from the society. However in Inclusive education disabled and normal students will get combine education. Due to this, they get new opportunity for development of self.

To development of positive understanding – In inclusive education all students are same. This system follow equality principle. Disabled students learn various new thins with normal students. They feel that we also same as like normal students.

To develop sensitivity –Disabled students have different problems. Normal students must know the problems of disabled students. When normal students know the difficulties of disabled students. They will try to solve the problems of disabled students.

Help teachers to identify the strengths and weaknesses of each students – With the help of inclusive education teacher knows the strength and weaknesses of all students. Teacher will make necessary changes as per needs of students.

Barriers In Inclusive Education

Negative Approach –

In inclusive education normal and disabled students learn together. It is good for disabled students but sometimes it is not good for normal students. Due to togetherness normal students approach will become negative. Negative approach is harmful for normal as well as disabled students.

Lack of Physical facilities

Generally, schools are for the normal students. In old schools there is no any physical facility for disabled students. Due to some limitation, it is not possible to make changes in infrastructures. Physical facilities are very necessary for normal as well as disabled students.

Lack of funds

Government provides funds for the schools. Government provides funds for aided schools. What about non-aided schools? Due to lot of population, government is not able to provide lot of funds to all schools. Non-aided schools have lot of problems about funds. It effects on teaching and learning very badly.

Lack of Trained Teachers

In inclusion education both normal and disabled students are included. Need of normal and disabled students are different. For disabled students there should be different teacher. Because there needs are different from normal students. If teacher do not understand the problem of disabled students then how he will he solve the problem.

Social Discrimination

In India there are number of religions, castes are there. Each religion think that they are superior from others. Due to social status some people discriminate others. It is very harmful for society as well as our nation. There are 28 states and 8 union territories, which are full of varieties. Rules, regulation, tradition are different from each others.

Emotional Problems

Disabled students have various problems like physical, emotional. How to solve emotional problems this is very big issue. Emotional problems are related to learning process. If

we cannot solve emotional problems these students cannot learn properly.

Educational problems

In Inclusive education, normal and disabled students learn combine. Both the groups' needs are different. The speed of understanding, reading, writing, etc. of both are different. Therefore, they face lot of educational difficulties.

Attitudinal problems

Positive attitude is very much necessary in teaching and learning. Disabled students have different issues about learning. Normal students are not understand their issues. They neglect disabled students.

Inappropriate curriculum

Curriculum is made for students. While making curriculum disabled and special children are generally neglected. Curriculum is not sufficient to solve the problems of disabled and special students.

Social attitude

Social status is very important for every person. For keeping social status higher every person try his level best. Social attitude and learning these are two different things. Social attitude is the major difficulty in inclusive education.

Physical barrier

Special students and disabled students have lot of physical barriers. Due to physical problems, there are lot of difficulties in teaching and learning. Physically fit person can do every activity. Disabled person have physical barriers in learning.

Government Initatives For Inclusive Education

The Constitution Of India (26 November, 1949)

Preamble states that "Right of Equality".

Article 41 – Support right to work, to education and to public in certain cases.

Article 45 – free and compulsory education up to the age of 14.

Act 2002 – Education is the fundamental right of children up to the age of 6 to 14 years.

Kothari Commission Or Education Commission (1964)

Recommendation –

Equalisation of Educational opportunity

Educational Structure

Curricular Improvement

Improvement in the methods of teaching

The National Policy On Education, 1986 (Npe, 1986), And The Programme Of Action (1992)

Objective – "To integrate the physically and mentally handicapped with general community as equal partners, to prepare them for normal growth and to enable to face life with courage and confidence"

This policy gives stress the need for integrity children with disability with other groups.

National Policy For Persons With Disabilities 2006

This policy deals with physical, educational and economic rehabilitation of person with disabilities. This policy also focus on woman and children with disabilities.

Rehabitlition Of Council Of India Act, 1992

This act regulate the training of rehabilitation of professionals and to maintain a central rehabilitation register to certify rehabilitation professionals.

The Persons With Disabilities (Equal Opportnities, Protections Of Right And Full Participation) Act, 1995

This act gives focus on need to provide free of cost to all children in an appropriate environment up to 18 years.

National Trust For Welfare Of Person With Austn, Cerebral Palsy, Mental Retardation And Multiple Disabilities Act, 1999

This act focus on equal opportunities, protection of right, full participation of person with disability.

Right To Education Act (2009 And 2012)

This act come in to force on 1 April 2010.

25 % seats in private schools are reserved.

Free and compulsory education up to 6 to 14 years.

The Sarva Shiksha Abhiyan

This scheme is launched to achieve the goal of universalization of elementary education. This scheme adopt zero rejection policy.

Rmsa – Rashtriya Madhyamik Abhiyan 2009

This abhiyan focus on equality, efficient growth and development of all students.

National Education Policy 2020 & Inclusive Education

National Education Policy gives universal access at all levels of schooling. (Pre – primary to Grade 12).

Quality education from early childhood.

New curricular and pedagogical structure – 5+3+3+4. No separate streams like arts and science. Promote multilingualism and Indian languages. Equitable and Inclusive education – special emphasis given on socially and economically disadvantaged groups (SEDGs). A separate gender inclusion fund and special education zones for disadvantaged regions or groups. Availability of all resources. Holistic and multidisciplinary education with multiple entry and exit point. Expansion of open and distance learning. Multidisciplinary institutions. These are the new changes in New Education policy 2020 for inclusive education.

How To Promote Inclusive Education Strategies

The following are the strategies for promoting inclusive education.

1. **Elevate Curriculum**

Curriculum is the mirror of society. First, we have to make sure that our syllabus is for all the students. It also represents all the perspectives. Curriculum does not exclude any particular caste, religion.

For Example – for family unit – all family structure should be included. Give good information about every religion. Teacher must give multiple examples also gives extra information about historical events.

2. **Use Inclusive Language**

We have to use soft language to every person. Your language show your personality. Teacher must use proper language while teaching. While explaining new concepts explain with proper language. Native as well as non-native student must understand the language. So use inclusive language.

3. **Create and Enforce Class Values and behavior standards**

Rules and regulations are very important for children. Therefore, we have to inculcate values among students. With the help of values, we can live peacefully in the society also everyone feel respected and safe. Behavior is important for every person

4. **Create Space for Students to practice Empathy**

Teacher must create space for students to live respectfully but do not force them. Student listen to others and learn from one another with empathy. Student also must understand others emotions and how to behave with others. Give respect to others.

5. **Focus on Global Competence**

In curriculum various competency should be included. Globally competence should be used for all round development of students. Global competence are useful for the skills and knowledge to learn about the world. We have to encourage students to know about world and teach them about various world events and culture.

6. **Avoid Making Assumptions Based on Stereotypes**

Fact is very important for taking any decision. We have to know the truth in everywhere. Do not assume things, which we heard only. For Example – Disabled students are not dumb. Make positive mind set.

7. **Educate Yourself**

As a teacher, you have to teach students. While teaching we have to learn various new things. Do your best while teaching. Do not make negative assumptions. Learn about various cultural groups, social issues. Teacher educate himself about diversity, social justice and inclusion.

Conclusion

Education is the basic need of every child. As per Indian Constitution Primary, education is the fundamental right of every child. Free and compulsory education up to age of 14 and up to 18 for disabled students. Article 41, article 45 give focus on equality education. National Education policy 2020 focus on Inclusive education. In inclusive education, normal as well as disabled students learn together. It is very useful for all the students. Inclusive education inculcate value of equality.

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Conservation of water and emergence of technologies for environmental sustainability

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Abstract: - Water is the main component of the nature and living organisms. As we know water is continuously decreasing in our planet. Key reason behind this problem is human being and their continuously increasing water use. Sustainable development is all about to keep balanced water amount and water resources without degrading ecosystem. We need to conserve the water for balanced ecosystem. This article reviews recent advancements in environmental sustainability and conservation of water. Several innovative approaches and technologies are available to improve sustainable development. While many remains to be understood and to be implemented.

Keywords: water loss, scarcity, water conservation, environmental sustainability.

Introduction

Humans and other terrestrial animals must maintain a balance of water gain and water loss each day to sustain life. So, they maintain balance of water by daily water intake. [1-2] As we know excessive use of water by majority of human population leading water scarcity. Water Research Institute has analysed and attempts to reveal global water stress situations by categorizing the leading water-stressed nations by 2040 and concluded that, around 33 countries will experience very high-water stress by 2040.[3] So, to avoid this problem we have to focus on conservation and their technologies to save water for present and for future generation. For sake of ecosystem and future generation we have to take steps towards new approaches to conserve water as much as possible. Here, now we will discuss about water conservation techniques, which can contribute to save water and balance ecosystem or sustain environment. Now, from household use, agricultural irrigation to industrial activities, excessive amount of water has been using. Apart from human activities, natural disasters such as flood are also responsible for water scarcity. Result is imbalanced ecosystem and climatic change. [4]

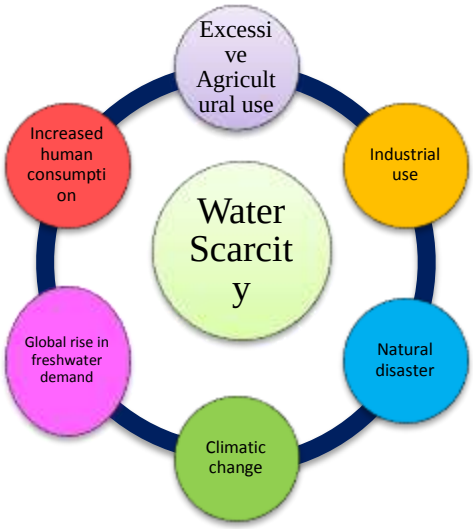

Fig: 1 Factors of water scarcity.

Aim of water conservation

Water conservation is all about to sustainable management of the natural resource of fresh water, to maintain water quality, to protect the hydrosphere, and to fulfil the requirement of current and future generation.[5]

The key approaches to conserve water are:

beneficial reduction in water loss
reduce use and waste of resources
prevent any damage to water quality
improving quality of water management techniques
use of technologies for commercial and agricultural activities
social involvement. [6-7]

Recently, need for developing emerging and innovative environmental technologies has been showing a significant growth for the sustainability of the water and environment conservation like wastewater treatment processes, water quality control. [8] Here we only discuss about technologies for water conservation.

Emerging technologies for water conservation

1) Rain water harvesting

One strategy is rain water harvesting. Rainwater harvesting is the collection and storage of rain from roof like surfaces. It is simple and old method for household level water conservation. With many methods like digging lakes, canals, ponds, wells and installing rain water catching ducts, filtration systems are different methods of harvesting rain water. Many countries people use clean containers so they can boil and drink it. Harvested and filtered rain water can be used for toilets, home gardening, lawn irrigation, and agricultural use.[9].

- However, optimized real-time control lets detention basin infrastructure double as a source of rainwater harvesting without compromising the existing detention capacity.
- Check dams are constructed to enhance the percolation of surface water into the subsoil strata. [10-11]
- Solar panels can also be used for harvesting most of the rainwater falling on them and drinking quality water can be generated by simple filtration and disinfection processes as rainwater is very low in salinity.
- Using rain saucer, looks like an upside-down umbrella, collects rain directly. This decreases the potential for contamination and makes Rain saucer a potential application for potable water in developing countries.

2) Protecting groundwater resources

Saving groundwater resources is another strategy to conserve the water. By precipitation infiltrates the soil and goes underground. saturated water is called groundwater. Some potential sources which contaminate groundwater are storage tanks, septic systems, hazardous waste, landfills and agricultural chemicals. So, some techniques and practices can help to protect groundwater like, Dispose of chemicals properly. Use limited amount of fertilizer in agriculture, use water in limit for household requirements. [11] groundwater use should sustainable. It is necessary in water conservation.

3) Commercial applications

Some water-saving technology can be used commercially like waterless urinals, Waterless car washes Infrared or foot-operated taps, X-ray film processor re-circulation systems, Cooling tower conductivity controllers, Water-saving steam sterilizers, in hospital facilities, exchanger of water. Agricultural applications can be used such as Drip irrigation. It is very expensive. But it is more beneficial because it provides water to the roots of plant with minimal water loss. Up to 30,000 gallons of water can save per year by using drip irrigation. [12]

4) Wastewater treatment (algal biofuel)

Another source is wastewater. Wastewater treatment can also be a worthy approach to prevention of water. [13] The utilization of wastewater and ocean water is strongly supported due to the continuing depletion of freshwater resources. However, contamination like heavy metals is the main problem to deal with. But in pond systems the using algae strains can deal with high concentrations of heavy metals. It could prevent other organisms from hazards. Even it has been shown that in short periods of time, algae strains can remove over 90% of nickel and zinc from industrial wastewater. [14] Some other new techniques like Tree water-use strategies to improve stormwater retention performance of biofiltration systems, outdoor water use restrictions, sustainable drainage system, water sense are the good strategies for water conservation.[15]

Conclusion

The conservation of water is extremely important in order to preserve wildlife ecosystem. In every activity we use energy resources. In the next few decades, water and energy requirement will increase significantly. And it will affect ecosystem adversely. Due to rapid population growth pure water demand increased. We have to look into advanced technologies to conserve water properly and to control wastage of water as well. Here some technologies are discussed and more technologies are to be discovered. So, we can conserve the water and work on environmental sustainability.

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A Scrutiny on Swachh Bharat Abhiyan's Social Effects in India

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Abstract:

The Swachh Bharat Mission must continue to operate in India till its objective is met. Having a genuine sense of physical, mental, social, and intellectual well-being is crucial for the people of India. The goal is to improve living conditions in India by practical measures, and bringing about general cleanliness is a good place to start. The Swachh Bharat Mission for urban areas intends to provide 2.6 lakh public restrooms, 2.5 lakh community restrooms, and solid waste management in every town to over 1.04 crore homes. The Gramin Swachh Bharat Mission carries out cleanliness campaigns in rural regions. The Nirmal Bharat Abhiyan, formerly known as the Total Sanitation Campaign (TSC), was started by the Indian government in 1999 to clean up rural regions; however, it has since been reorganised into the Swachh Bharat Mission (Gramin). This campaign's goal is to end open defecation in rural regions by 2019. It is anticipated that building 11 crore 11 lakh toilets across the nation will cost one lakh thirty four thousand crore rupees. The conversion of trash into biofertilizer and usable energy sources is a major goal. Participating in this endeavour are the Gram Panchayat, Panchayat Samiti, and Zila Parishad.

Keywords: Impact, Abhiyan, Society.

Introduction:

To develop a Clean India, our Prime Minister Sri Narendra Modi launched the Swachh Bharat mission. Swachh Bharat Mission, which was established on October 2, 2014, urged every Indian citizen to take charge of keeping the nation clean. The Prime Minister declared that the best homage to the Father of our Nation on the occasion of his 150th birthday would be a clean India, and he urged everyone to do their part to eradicate garbage and waste by the year 2019. He urged everyone to commit 100 hours annually, or two hours every week, to cleanliness. In accordance with his own statements, the PM carried out the task by grabbing a broom and independently cleaning a section of the city. Additionally, he suggested famous people and notable figures from other fields continue this tradition. A significant decrease in waste and pollution would result from this community effort to clean up homes, workplaces, towns, and cities. The counsel and initiative of the Prime Minister should not be dismissed out of hand but rather adopted with a shift in the collective mindset of the populace and all levels of government authorities. Systems for disposing of trash and maintaining cleanliness should be in place, along with proper sanitation. Anti-litter initiatives ought to be run to raise public awareness and inspire people to pick up rubbish. Strict enforcement of the law is also required to sustain this mentality and cleanliness. To establish proper sewage systems, public restrooms, and garbage disposals around the nation, funds should be raised and distributed. Since improper waste disposal has the most negative impact on urban areas, residents can help keep their cities clean by educating one another. The Swachh Bharat Mission is a sizable initiative that, if carried out, has the potential to significantly alter both the view of the nation and the attitudes of its people. Pollution, littering, and waste reduction will all make way for a happier, more productive frame of mind.

- ***Mentalities need to change***: If Mahatma Gandhi and the Prime Minister could do it, why can't we keep things clean?

- ***Anti-litter campaigns:*** Raise awareness in our apartment, neighborhood, and community and encourage people to pick up litter.
- ***Share Pictures:*** Locals can post images of dirty areas in their communities before and after a cleanup initiative.
- The mantra for the Swachh Bharat Mission's success should be ***"Stop whining and start doing."***

Collisions of Swachh Bharat Abhiyan:

Really having a significant effect on Indian society is Swachchhta Abhiyan. Cleaning efforts are being made in towns, societies, colonies, cities, railroad platforms, etc. People were made aware of the dangers of pollution through a series of awareness efforts by the district administration, state government, and federal government. The Swachh Bharat Mission seeks to reduce financial losses related to health issues and relieve the strain on current medical facilities, both of which will support the growth of the Indian economy. The Swachh Bharat Mission will increase tourism in our country. The number of tourists will undoubtedly rise as a result of the improved surroundings. Our income will increase as tourism grows. However, there are still a lot of people who are unaware. People in villages, especially the less educated ones, spit tobacco, gutkha, and other substances on the streets and in public areas. They consume food in buses and trains and discard the wrappers on the road rather than in trash cans. Some individuals have not altered their routines. More awareness-raising campaigns are necessary for the Swachchhta Abhiyan to be successful.

Objectives:

- To evaluate how the Swachh Bharat Abhiyan has affected children, seniors, women, and men.
- The effects of Swachh Bharat Abhiyan practises and their uptake at the family, community, societal, institutional, and educational levels.

Research Methodology:

The Vijayapur district of Karnataka was the site of this study. The Zones would provide a list of various locales, and 30 localities would be chosen at random from the list. The chosen localities would be used to create a list of respondents. From a total of 400 people, 100 men, 100 women, 100 children (between the ages of 5 and 11), and 100 seniors were randomly chosen for the study. Age, sex, education, caste, religion, occupation, income, family type, sustainability, impact, society, adoption, awareness, sanitation, hygiene, knowledge, practises, disease, cause, community, etc. were chosen as dependent and independent factors in this study. The correlation coefficient, rank, and statistical tools were applied.

Interpretations:

Table 1: Distribution of respondents according to education, N = 400

Education	Male	Female	Children	Senior citizen	Total
Up to high school	-	-	100 (100.0)	2 (2.0)	102 (25.5)
Intermediate	52 (52.0)	6 (6.0)	-	6 (6.0)	22 (5.5)
Graduation	52 (52.0)	46 (46.0)	-	60 (60.0)	158 (39.5)
Post graduate	12 (12.0)	30 (30.0)	-	25 (25.0)	67 (16.7)
Professional	26 (26.0)	18 (18.0)	-	7 (7.0)	51 (12.8)
Total	100 (100.0)	100 (100.0)	100 (100.0)	100 (100.0)	400 (100.0)

(Parenthesis around numbers indicate what % of each value they represent.)

Education is a crucial instrument for implementing any habits. People become more conscious through education, which also inspires them to adopt new behaviours. People with education can comprehend anything extremely quickly.

Table 2: Distribution of respondents based on knowledge of Swachh Bharat Abhiyan's launch date and year, N = 400

Date/Year	Male	Female	Children	Senior citizen	Total
2 October, 2009	-	10 (10.0)	-	-	10 (2.5)
2 October, 2014	100 (100.0)	85 (85.0)	90 (90.0)	100 (100.0)	375 (93.8)
2 October, 2015	-	5 (5.0)	5 (5.0)	-	10 (2.5)
2 October, 2016	-	-	5 (5.0)	-	5 (5.0)
Total	100 (100.0)	100 (100.0)	100 (100.0)	100 (100.0)	400 (100.0)

(Parenthesis around numbers indicate what % of each value they represent.)

The Clean India Mission, Clean India Drive, and Swachh Bharat Campaign are other names for Swachh Bharat Abhiyan. The Indian government is waging a nationwide push to clean up all of the backward statutory towns. In order to move the nation forward, this campaign entails improving the infrastructure of the nation as well as building latrines and promoting sanitation programs in rural areas. On October 2, 2014, the 145th anniversary of Mahatma Gandhi's birth, the Prime Minister of India, Narendra Modi, officially started this campaign at Rajghat in New Delhi. Mahatma Gandhi always intended for India to be a clean nation, and Mr. Narendra Modi stated that there is no other day that can be as meaningful as his birthday to pay our unique homage to the "Father of our Nation." This is why the campaign was launched on October 2, 2014. In order for every Indian citizen to remember this day as something really unique, the campaign was formally started on this day.

Table 3: Responses by respondents' sanitation knowledge distribution

Type of sanitation	Male		Female		Children		Senior citizen		Total	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Dry sanitation	50.0	50.0	20.0	80.0	-	100.0	20.0	80.0	90 (22.5)	310 (77.5)
Ecological sanitation	-	100.0	-	100.0	-	100.0	10.0	90.0	10 (2.5)	390 (97.5)
Environmental Sanitation	40.0	60.0	60.0	40.0	20.0	80.0	40.0	60.0	160 (40.0)	240 (60.0)
On Site sanitation	-	100.0	-	100.0	-	100.0	40.0	60.0	40 (10.0)	360 (90.0)
Improved and unimproved sanitation	20.0	80.0	10.0	90.0	-	100.0	-	100.0	30 (7.5)	370 (92.5)
Lack of sanitation	30.0	70.0	10.0	90.0	-	100.0	-	100.0	40 (10.0)	360 (90.0)
Solid waste	40.0	60.0	15.0	85.0	5.0	95.0	10.0	90.0	70 (17.5)	330 (82.5)
Food Preparation sanitation	50.0	50.0	20.0	80.0	40.0	60.0	5.0	95.0	115 (28.7)	285 (71.3)
Community-led-total sanitation	-	100.0	-	100.0	5.0	95.0	10.0	90.0	15 (3.7)	385 (96.3)
Sustainable sanitation	10.0	90.0	5.0	95.0	15.0	85.0	20.0	80.0	50 (12.5)	350 (87.5)

(Parenthesis around numbers indicate what % of each value they represent.)

Sanitation is the sanitary practice of promoting health by avoiding human contact with hazardous wastes and properly treating and discarding sewage and wastewater. All across the world, cities, and counties provide a variety of sanitation services. In addition to offering convenience to residents, they help improve the health and cleanliness of societies. These services ensure that managing and controlling liquid and solid wastes is done as effectively and safely as feasible.

1. Dry Sanitation, first
2. Environmental sanitation
3. Sanitation of the environment
   - Management of solid waste,
   - water resources,
   - industrial waste,
   - noise reduction, and
   - pollution prevention
4. Site-specific sanitation
5. Sanitation, both improved and not
6. General Hygiene
7. Food Hygiene
8. Total Sanitation Driven by the Community
9. Ecological Sanitation

Table 4: Distribution of respondents by type of hygiene habits knowledge (Parenthesis around numbers indicate what % of each value they represent.)

Type of hygiene	Male		Female		Children		Senior citizen		Total	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Home and everyday life hygiene	80.0	20.0	100.0	-	-	100.0	100.0	-	280 (70.0)	120 (30.0)
Medical hygiene	25.0	75.0	20.0	80.0	-	100.0	90.0	10.0	135 (33.7)	265 (66.3)
Hand hygiene	30.0	70.0	40.0	60.0	90.0	10.0	100.0	-	260 (65.0)	140 (35.0)
Respiratory hygiene	5.0	95.0	3.0	97.0	-	100.0	100.0	-	108 (27.0)	292 (73.0)
Food hygiene	50.0	50.0	10.0	90.0	20.0	80.0	90.0	10.0	170 (42.5)	230 (57.5)
Water treatment and safe storage	90.0	10.0	80.0	20.0	75.0	25.0	100.0	-	345 (86.3)	55 (13.7)
Kitchen, bathroom, toilet	55.0	45.0	70.0	30.0	-	100.0	85.0	15.0	210 (52.5)	190 (47.5)
Laundry hygiene	60.0	40.0	80.0	20.0	10.0	90.0	100.0	-	250 (62.5)	150 (37.5)
Personal hygiene	80.0	20.0	90.0	10.0	95.0	5.0	100.0	-	365 (91.3)	35 (8.7)

Home hygiene refers to the hygiene routines that stop or reduce illness and its transmission in domestic settings, as well as in settings encountered every day, such as social situations, public transportation, the workplace, and other public locations. In order to stop the transmission of infectious diseases, it's crucial to practice good hygiene at home and in everyday situations. It encompasses practices used in a range of domestic contexts such as hand washing, respiratory washing, food and water washing, basic home cleaning, caring for pets, and home healthcare, which is the care of persons who are more susceptible to illness. The key to maintaining proper cleanliness at the family level is women. Her primary duty is to maintain the cleanliness of her home, kids, and surroundings by following basic cleaning procedures including dusting, sweeping, mopping, cleaning utensils, washing clothes, bathing kids, etc. She invests a lot of energy, time, and money in a variety of cleaning products. Although all of these aspects of hygiene are founded on the same fundamental microbiological principles, they are currently often treated as different problems. In order to break the chain of infection, or to get rid of germs before they can spread further, good home hygiene involves focusing hygiene operations at key areas and at the proper times. 'Hygienic cleaning' processes should be sufficient to get rid of pathogens from important surfaces because the 'infectious dosage' for some pathogens can be extremely small and infection can arise through direct transfer from surfaces via hands or food to the mouth, nasal mucosa, or the eye. Cleaning using soap or detergent or mechanical removal can be used to perform hygienic cleaning.

Table 5: Respondents' distribution based on how Swachh Bharat Abhiyan activities have affected them at the household level

Household level practices	Male		Female		Children		Senior citizen		Total
	Yes	No	Yes	No	Yes	No	Yes	No	
Cleaning of toilets	100.0	-	100.0	-	100.0	-	100.0	-	400 (100.0)
Cleaning of house	100.0	-	100.0	-	100.0	-	100.0	-	400 (100.0)
Washing of floor	100.0	-	100.0	-	-	100.0	100.0	-	400 (75.0)

Cleaning of kitchen	100.0	-	100.0	-	50.0	50.0	100.0	-	350 (87.5)
Cleaning of utensils	100.0	-	100.0	-	40.0	60.0	100.0	-	340 (85.0)
Cleaning of clothes	100.0	-	100.0	-	100.0	-	100.0	-	400 (100.0)
Cleaning of outdoor	100.0	-	100.0	-	20.0	80.0	100.0	-	320 (80.0)
Purification of water	100.0	-	100.0	-	100.0	-	100.0	-	400 (100.0)
Use of energy saving devices	20.0	80.0	-	100.0	-	100.0	-	100.0	20 (5.0)
Drainage of water in household level	100.0	-	100.0	-	100.0	-	50.0	50.0	250 (62.5.0)
Uses of dustbin	100.0	-	100.0	-	100.0	-	100.0	-	400 (100.0)
Use of waste water	100.0	-	100.0	-	100.0	-	100.0	-	400 (100.0)

(Parenthesis around numbers indicate what % of each value they represent.)

Regular home cleaning is essential in a place like Vijayapur where dusty winds can bring a lot of filth inside the house, particularly in the summer. Dust is not only irritating to the eyes but also dangerous. They transport pathogens that can harm our and our family members' health in a variety of ways. Our homes' accumulated dust, mess, and grime can hurt us more than we can think. Home cleaning should undoubtedly come first, but professional house cleaning does wonders for the cleanliness of our surroundings and home. The housewife either does the cleaning herself or hires a maid to do it for her. In either case, maintaining cleanliness is the main goal. The assumption is that the only person responsible for keeping the house tidy is the housewife. Due to security concerns, it is impossible to have maids or outside cleaners clean a toilet that is linked to a bedroom in a modern home. Every family member needs to understand that keeping the home clean is not just the responsibility of the homemaker, but rather requires equal participation from all family members. Every person should develop and practice the habit of cleanliness in their daily lives because it is an innate practice. Some individuals have reusable cloths for wiping the outside of the toilet, but it's more hygienic and practical to use paper towels or disposable wipes that can be thrown away after use. The top five health benefits of routine home cleaning include preventing infections, managing allergies, and keeping out pests, mosquitoes, and flies, among other things. a calm environment and healthy children.

Community level practices	**Male**		**Female**		**Children**		**Senior citizen**		**Total**
	Yes	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	
Park cleaning	100.0	-	80.0	20.0	50.0	50.0	100.0	-	330 (82.5)
Uses of dustbin in common places	100.0	-	100.0	-	100.0	-	100.0	-	400 (100.0)
Sense of responsibility	80.0	20.0	20.0	80.0	-	100.0	100.0	-	200 (50.0)
Roads cleaning	100.0	-	100.0	-	100.0	-	100.0	-	400 (100.0)
Demonstration	100.0	-	25.0	75.0	-	100.0	100.0	-	225 (56.2)
Walk to talk	100.0	-	30.0	70.0	-	100.0	100.0	-	230 (57.5)

Table 6: Respondents' distribution based on how Swachh Bharat Abhiyan practises have affected them at the local level

(Parenthesis around numbers indicate what % of each value they represent.)

Any civilization must recognize the importance of cleanliness and hygiene. Every religion and culture emphasizes the value of cleanliness. In the past, people have valued cleanliness as one of the key indicators of a society's or civilization's progress. Garbage throwing in parks, streets, and other public spaces has become customary in our culture. While visiting parks with friends and family, people frequently neglect to maintain them tidy. Without realizing it, they eat foods like chips, cookies, and chocolates and then throw the packaging outdoors. Their kids will undoubtedly pick up these same poor behaviors from them. Public trash cans are rarely found. Dustbins are installed, however, people do not properly use them. Instead, they favor tossing trash outside of them. Additionally, it has been noticed that people clean their homes and businesses before dumping their trash on the street without thinking about the consequences. It is obvious that even pupils at prestigious institutions will trash onto the ground when trash cans are nearby. Maintaining our community's cleanliness and upkeep can occasionally seem like a losing battle. This demonstrates how we feel about cleanliness and hygiene. The practice of openly spitting is another one that is widespread in our society. People spit paan and gutka from moving cars without taking into account the pedestrians using the road. This behavior is unsightly in addition to having an impact on the environment. The awful state of public restrooms is another issue that needs attention. Because there aren't enough public restrooms, it's difficult for people to satisfy their need for the outdoors. The few restrooms that do exist are in such terrible shape that no one can use them. Our basic feeling of duty should be to maintain our neighborhood clean. Anti-litter initiatives ought to be run to raise public awareness and inspire people to pick up rubbish. One of the best methods to raise awareness and encourage the general people to become involved in making our city a better place to live is through demonstration. The government can play a significant role in maintaining public spaces, setting up trash cans, collecting waste, and enforcing rules against littering, among other things. It is imperative to maintain cleanliness both privately and in public. It is necessary for human health and spiritual growth on the one hand, and it is crucial for environmental development on the other.

Conclusion:

The best homage to the country would be a clean, pollution-free India. A nationwide campaign to promote cleanliness has been launched by the Indian government under the leadership of Prime Minister Narendra Modi. For India's bright future, everyone needs to be aware of this crucial mission. This campaign is a nonpartisan political effort that places a strong emphasis on the well-being of the nation. This acclaimed campaign's main objective is to inspire people to make India spotless and clean. With heavy blows and fire, teachers, students, and the general public are taking part in this "Swachh Bharat Abhiyan." The primary goal of the cleanliness campaign is to spread the mission as a global awareness effort. With the help of this initiative, public restrooms will be built, sanitation awareness will be raised in rural areas, streets will be cleaned, people will modify their behavior, and India will become an ideal nation in the eyes of the rest of the world. By agreeing to this campaign, nine people would be the first to be invited to the program, and the chain would then continue in a similar manner, creating a vast network of participants who may help this campaign succeed. When the cleanliness initiative is finished, it will inadvertently attract the interest of business investors in India and increase global visitor attraction. This would enable a more serious outcome for India's economic development. The Prime Minister has suggested a number of brand ambassadors for this occasion in order to make it a success. The private sector's participation in the cleanliness campaign is made easier by this mission.

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Small Scale Organisations and their Contribution to the Economic Growth

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Abstract:

Essentially the small scale organisations are generally comprised of those industries which manufacture, produce and render services with the help of small machines and less manpower. These enterprises must fall under the guidelines, set by the Government of India. The performance of the small-scale organisations has a direct impact on the growth of the overall economy in terms of number of units, production, employment and exports. It may help to understand its role in the economic development of the country. The role of small-scale organisations has always been supported in a country like India with various opinions such as employment, equality, latent resource, trickling effect, insurance against social tension, distributive effect, creation of social eco-system and decentralization etc. **The small scale organisation sector continues to remain an integral part of Indian economy with significant contribution to GDP, industrial production and employment generation in India.**

Key Words: Small scale organisations, economy, GDP etc.

Introduction:

Small scale organisations are those industries in which the manufacturing, production and rendering of services are done on a small or micro scale. These industries make a one-time investment in machinery, plant, and equipment, but it does not exceed Rs.10 crore and annual turnover does not exceed Rs.50 crore. The small scale organisations are the lifeline of the economy, especially in developing countries like India. These industries are generally labour-intensive, and hence they play an important role in the creation of employment. SSI's are a crucial sector of the economy both from a financial and social point of view, as they help with the per capita income and resource utilisation in the economy.

Small Scale Industries in India and their growth is one of the most significant features of the planned economic development of the country. These SSIs have provided opportunities for self-employment for educated young people and created employment opportunities for millions of Indians. Presently, SSIs are regarded as an inevitable instrument for balanced regional economic development due to their dynamic enterprising spirit. One of the major milestones of the Indian Economy was merging the Ministry of Small Scale Industries and the Ministry of Agro and Rural Industries and framing of Ministry of Micro, Small and Medium Enterprises (MSME) on 9 May 2007. The main duty of the ministry is to design policies, facilitate programmes, promote projects/schemes and monitor their implementation, with a view to assisting MSMEs and helping them to scale up.

Review of Literature:

Thilaka 2017: in her study "A Study of Financing of Select Small-Scale Industries by Commercial Banks in Tamil Nadu", stated that one of the important problems of the small-scale industries was bank finance. Restriction on term on loan facilities small-scale industries acted as a stumbling block in the promotion of SSIs units. She stated that commercial banks provided only 75 percent of the financial needs of the small-scale industrial units. Further the borrowers complained that they had to visit the bank more than ten times for getting their loans.

Khan, 2019: in his article entitled "Financing of Small-Scale Industries in Maharashtra",

found that there was an urgent need to review the labour provisions for small units and bring about simplicity and transparency. The issues of labour laws assumed significance for the small industry. The multiplicity of labour Act and legislation enacted and administered by the State Government had neither proved useful to the workers nor to the industry. He suggested that the Central Government should come out with a single comprehensive labour act for the small sector as a model and the State Government may be asked to implement the same in the place of the existing labour legislation.

Objectives of the Study:

- To explore the profile of small scale organisations in India.
- To analyze the contribution of small scale organisations towards Indian economy.
- To identify the role of small scale organisations in economic development.

Methodology:

The present study is a descriptive study which is verified through published data. The study is confined to understanding the profile and contribution of Small Scale Industries to Indian economy. Data required for the study were collected through secondary sources like annual reports of Ministry of MSMEs, RBI bulletin and other published information. The collected data were analysed using the appropriate statistical tools.

Role of small scale organizations in the economic growth:

The small scale organisation sector has recorded a high growth rate since independence in spite of stiff competition from the large sector and not so encouraging support from the government. This is evidenced by the number of registered units which went up from mere 16,000 units in 1950 to 36,000 units in 1961 and to 133.67 lakh units in 2007-08. During the last decade alone, the SSI sector has progressed from production of simple consumer goods to the manufacture of many sophisticated and precision products like electronics control systems, micro-wave components, electro-medical equipments, T.V. sets etc.

Employment: Small scale organisations are a major source of employment for developing countries like India. Because of the limited technology and resource availability, they tend to use labour and manpower for their production activities.

Total Production: These enterprises account for almost 40% of the total production of goods and services in India. They are one of the main reasons for the growth and strengthening of the economy.

Make in India: Small scale organisations are the best examples for the Make in India initiative. They focus on the mission to manufacture in India and sell the products worldwide. This also helps create more demands from all over the world.

Export Contribution: India's export industry majorly relies on these small industries for their growth and development. Nearly half of the goods that are exported from India are manufactured or produced by these industries.

Public Welfare: These industries have an opportunity to earn wealth and create employment. SSIs are also important for the social growth and development of our country.

Seedbed for Large Scale Industries: Small scale organisations act as the seedbed for Large Scale Industries (LSI) as it provides conducive conditions for the development and growth of entrepreneurs. Small enterprises require low investment and simple technology and use local resources to meet local demands through personal contacts. Thus, it creates scope for the growth and development of LSI.

Less Capital Requirement: Small scale industries are less capital intensive than the large scale industries. Capital is scarce in developing countries like India and therefore, small scale industries are most suitable for maintaining the balance.

Use of resources and development of entrepreneurial skills: Small scale industries allow for the development of entrepreneurial skills among the rural population which is not having the scope of large scale industries. These industries help in the appropriate use of the resources available in the rural areas, which leads to development of rural areas.

Equal income distribution: Small scale industries by generating employment opportunities create equal income opportunities for the youth of the underdeveloped areas. This leads to the growth of the nation in terms of employment, human development.

Maintain regional balance: It has been seen that large scale industries are mostly concentrated in the large cities or restricted

to areas which leads to migration of people in search of employment to these cities. The result of such a migration is overcrowding of the city and damage to the environment. For sustaining a large population, more of natural resources need to be utilised.

Short production time: Small scale industries have a shorter production time than the large scale industries which results in flow of money in the economy.

Supporting the large scale industries: Small scale industries help in the growth of the large scale industries by producing ancillary products for the large industries or producing small components that will be useful for the assembling of final products by the large scale industries.

Improvement in Export: Small scale industries contribute to around 40% of the total exports done by India, which forms a significant part of the revenue earned from the exports. Small scale industries work towards increasing the forex reserves of the country that reduces the load on balance of payment of the country.

Reduce the dependence of agriculture: Most of the rural population will be dependent on agriculture and this creates a burden on the agricultural sector. Small scale industries by providing employment opportunities to the rural population provides more avenues for growth and also paves way for a more arranged distribution of occupation.

Table 1: Contribution of small scale organisations to economic growth

(Figures in Rs. Crores at current prices)						
Year	**GVA**	**Growth(%)**	**Total GVA**	**Share of SSI in GVA (%)**	**Total GDP**	**Share of SSIin GDP (in %)**
2011-12	2622574	-	8106946	32.35	8736329	30.00
2012-13	3020528	15.17	9202692	32.82	9944013	30.40
2013-14	3389922	12.23	10363153	32.71	11233522	30.20
2014-15	3704956	9.29	11504279	32.21	12467959	29.70
2015-16	4025595	8.65	12566646	32.03	13764037	29.20
2016-17	4405753	9.44	13841591	31.83	15253714	28.90

Source: Central Statistics Office (CSO), Ministry of Statistics & Programme Implementation, 2018-19

Table 1 shows the contribution of small scale organizations to economic growth of India. The contribution of small scale organizations to total GDP has increased from Rs. 8736329 crores in 2011-12 to Rs. 15253714 crores in 2016-17. The share of SSIs in GDP has decreased from 30% in 2011-12 to 28.90% in 2016-17 as the contribution from other sectors of the economy has increased. This shows that even though there is decrease in the percentage share there is an increase in the total amount of contribution from small scale organizations to Indian GDP which is a very remarkable achievement of the small scale organizations that is aiding the development of our country.

Table 2: Contribution of small scale organisations in creating Employment in different sectors and areas

Broad Activity Category	**Employment (in lakh)**			**Share (%)**
	Rural	**Urban**	**Total**	
Manufacturing	186.56	173.86	360.41	32
Trade	160.64	226.54	387.18	35
Other	150.53	211.69	362.22	33

Services				
Electricity*	0.06	0.02	0.07	0
All	**497.78**	**612.10**	**1109.89**	**100**

Source: Annual report 2018-19, ministry of micro, small and medium enterprises, GOI

The employment offered in small scale organizations sector in India as per the annual report of Ministry of MSME is shown in table 2. The MSME sector has helped in the generation of 1109.89 lakh employment in India, out of which 360.41 lakh were from manufacturing sector, 387.18 lakh were from trade sector, 362.22 lakh were from services and 0.07 lakh were from electricity sector. Nearly 497.78 lakh employment were generated in rural areas and 612.10 lakh employment were generated in urban areas which indicates that the MSME sector is supporting the overall development of the country without regional disparities.

Here it is observed that most of the population of India is directly or indirectly associated with agriculture or their allied sector and Small scale Industry provide huge support for busting the employment generation to rural as well as urban sector. Due to small scale organisation Approximately 45 million rural women across India are mobilized and start up with their new venture and with this positive gesture Small Sale Industries have empowered them with skills, access to finance, markets, and business development services. Small Scale Industries serves as a catalyst of economic development of the country. It is one of the largest sections for capital accumulation. In fact economic growth is the result of the efforts taken by the entrepreneurs. Similarly entrepreneurs can dictate the economic growth by their actions and decisions. Now many have begun to realize that for achieving the goal of economic development, it is necessary to promote small scale organizations both qualitatively and quantitatively in the country.

Conclusion:

The small scale organizations have been considered as the engine of growth throughout the world. Indian economy is also developing due to the contribution of MSME in employment generation and reduction of regional disparities. The small scale organizations today constitute a very important segment of the Indian economy. The development of this sector came about primarily due to the vision of our late Prime Minister Jawaharlal Nehru who sought to develop core industry and have a supporting sector in the form of small scale enterprises. Small scale organizations Sector has emerged as a dynamic and vibrant sector of the economy. Today, it accounts for nearly 35% of the gross value of output in the manufacturing sector and over 40% of the total exports from the country. In terms of value added this sector accounts for about 40% of the value added in the manufacturing sector. The sector's contribution to employment is next only to agriculture in India. It is therefore an excellent sector of economy for investment.

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A Review on Impact of Education on a Individual Socialization

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Abstract:

People acquire the information, language, social skills, and values important to conform to the norms and roles necessary for integration into a community or group through socialization. This recognizes how critical faculties are to getting ready students for social life. One of the groups that have the greatest impact on socialization philosophy and lessons is teachers. The meaning of giving and kindness will be taught to the learners through instruction and socialization role models. They will then be prepared to enter society and make a meaningful, productive contribution. The processes that directly affect a person's entire development include socialization and education. These procedures equip people, guarantee their acceptance in various social circles, and promote cultural integration. The impact of socialization on how society is shaped is thoroughly examined in this study. It outlines the characteristics of the socialization of an individual and the function of education in societal socialization.

Keywords: education, personality development, and socialization of an individual.

Introduction:

The processes that take place in contact between society and the person are referred to as socialization. A person's socialization, on the other hand, is a process that affects things like family, formal and informal social groups, educational systems, upbringing, etc., and lasts their entire lives. It involves molding a person's functional behavior to fit the expectations of the culture or society in which they live. Every civilization creates its own culture by upholding and adhering to norms, conventions, values, traditions, social roles, symbols, and languages, and socialization aids a person in learning, acquiring, keeping, and passing these values down the generations. Additionally, it aids in his development of fresh habits and abilities necessary for successful integration into society. In other words, socialization aids in the process of a person being accepted by society by fostering a particular value system. We might say that socialization is the mechanism that keeps society and culture alive. It focuses on the processes, patterns, and models by which society develops and regulates people by enforcing specific norms, standards, and values. It is not just a goal in itself. It has to do with teaching, internalizing, and passing down social norms, conventions, and culture to younger generations. It also has a lot to do with getting a young man ready to participate actively in a variety of social structures and relationships.

Objectives:

- To investigate the idea of socializing.
- To comprehend how education affects a person's socialization.
- To understand the socializing strategy used.

Research Methodology:

Exploratory research served as the foundation for the creation of this study. The information for the examination is acquired from a variety of other sources, including journals, websites, e-books, and other materials, via the internet.

Education in Individual Socialization:

The word "socialization" has been used in a variety of contexts over the years, each with its own definition. Violeta Georgieva compiles the most recent theories in her report "Socialization as an ongoing understanding," which defines socialization as a "method of transformation of a person into personality, acquisition with the aid of using a person of social values and experience (norms, attitudes, patterns of

behavior), the culture that exists in certain societies, social communities and groups, enrichment of social relations and social experience" (Mardahev, 2003a); as well as "acquisition by an individual of social values and experience (norms, attitudes communication idioms (Georgieva). The social structure is strongly influenced by a person's socialization. Members of society transmit their knowledge, skills, beliefs, and behavioral patterns to new generations through education. This ensures knowledge, self-preservation, and continuance. According to this perspective, education is a socialization process. A person learns to follow social norms, be paid for their work, and act decently in public through the process of socialization. Friendships, family ties, and subsequently education serve as the three whales from which people learn these talents.

Education's role in a person's socialization:

We must provide answers to two crucial questions, "What are the characteristics of an individual's socialization?" and "What is the role of education in one's socialization," in order to more clearly study the role of education in society's evolution. We'll begin by defining socializing, or more specifically, how someone is socialised. Philosophers have talked extensively about how they view the socializing process. Plato, Montaigne, and Rousseau all presented diverse socialization ideas in their books. In a dictionary from 1828, the word "socialise" is described as "becoming suitable for life in society." However, it was only Georg Simmel who made the concept well-known; it later made its way into a number of anthropological and psychological subfields. The six guiding principles of socialization are:

- Elementary socialization,
- Optional socialization,
- Formative socialization,
- Expectant socialization,
- Re-socialization, and
- Authoritative socialization.

Elementary socialization is the process by which children learn about the values and customs shared by members of the same social group and cultural group. Family connections and community interactions are how it first manifests themselves. Children emulate their parents' actions, and their worldview has an effect on how they perceive the world. As a result, the kids consider certain behaviours and opinions of their parents and neighbours to be acceptable. Elementary socialization is the process by which kids learn or acquire a certain behaviour, opinion, or habit.

Optional socialization is that a person learns about appropriate and acceptable norms of behavior for one individual as a member of a smaller group in society through the process of secondary socialization. Typically, adults and teenagers are assumed to go through secondary socialization.

Expectant socialization is the process by which a person prepares readily for impending social interactions, roles, and vocations is known as anticipatory socialization.

Formative socialization is the process of developing social skills or learning social institutional norms of behavior is known as developmental socialization.

Re-socialization: In addition to the socialization process that a person goes through, there is a re-socialization process. And there is nothing wrong with that since a person's behavior and beliefs from their past are always being rejected or learned from as they go through life.

In order to re-socialize, one must let go of old behavioural patterns and accept new ones as a necessary component of a life shift. Dissociation during re-socialization can be a very challenging experience (Tumbaach, 2021a). Socialization can also be seen as a sort of social control. Culture is not something that is inherited at birth. The person becomes a social creature as they mature, and it is the responsibility of parents, teachers, friends, and others for this to happen. The following are the precept goals of socialization:

- Through frequent engagement, which promotes cultural and social integration, to "teach" language from the society wherein we're born in addition to the jobs we "play" in our lives.
- To teach us about the obligations we have as professionals in our daily lives;
- Through socializing, a person normally acquires and accepts cultural norms.

The general process of integrating culture and adopting social norms is referred to as "socialization." The ideas about appropriate or anticipated behaviour that the majority of people in a society uphold are known as norms. The cultural norm is the

way the group as a whole expects its members to think and behave. These expectations and desired behaviours frequently vary from culture to culture. They also come in a wide variety of shapes, such as values, norms, language, customs, and more. Just two examples of morally repugnant behaviour that results in punishment are murder and robbery. This promotes knowledge of and adherence to the law. A person's socialization is the process through which the social roles they perform, the values and customs they are exposed to and observe, are ingrained and mould them as individuals. An individual's "normative orientation," which is influenced by their social makeup, defines their social behaviour and promotes the social structures and efficient functioning of the social system. In this sense, it is important to realise that many social groups create their own norms that contribute to socialization.

A social and historical category is education. It deserves special attention because it is a resource that all communities require. The claim that education is an activity, a procedure, and a result highlights how difficult this issue is. By advancing knowledge, abilities, the arts, and comprehension, education aims to promote the desired transformation toward a better society. Basic social paradigms change in a variety of ways due to a number of reasons, including the historical transformation of society and the idea of education. First and foremost, education is a phenomenon of society that stands for an immutable social ideal.

Education levels are closely tied to a society's potential in terms of morals, intelligence, science and technology, spirituality, culture, and economy. Education is social and historical in nature, hence it is determined by the historical kind of society that satisfies this social aim. Goals for social growth, economic and cultural levels, the nature of societal political and ideological convictions, and the public relations objectives of teachers and students are all reflected in it. Through education, society assures its own progress (OSCE Office for Democratic Institutions and Human Rights, 2021b). In addition to being an objective social value, personality development is a social phenomenon that depends on socialization and education. It reflects the aims of social growth, the extent of a society's economy and culture, the nature of political and ideological viewpoints, and interpersonal and personal ties. Education, whether or not it is secular, is viewed as an intentional process as opposed to socialization, which is a link that occurs naturally between a person and their surroundings.

Education's role in socialization, regardless of where, by whom, or under what circumstances each member of the community was raised, is to create the conditions for overcoming disparities, for integration, and, if necessary, for adaptation. Education encourages a person's socialization by supplying the fundamental knowledge needed for communication, interpersonal relationships, and general - understanding, acceptance, and communication in the surrounding environment. The essential process through which children begin to develop the skills necessary to present themselves as a fully competent member of society at an early age is socialization. These are thought to be the most significant educational opportunities available.

As a social phenomenon, education serves the objective of transferring to its participants certain knowledge (primarily scientific), values, abilities, and skills as well as social conventions. The social, economic, and political structure of a society, as well as the extent of its material and technological progress, all have an impact on the educational content. On the one hand, education might expand a person's alternatives for careers and, as a result, their social position. On the other side, social interaction is hampered by socioeconomic disparity, a lack of funding for high-quality education, or both.

When examining and presenting the role of education in a person's socialization, we can choose between two approaches: When examining and presenting the role of education in a person's socialization, we can choose between two approaches:

- The sociological method, which is viewed from the perspective of society, and
- The psychological approach or strategy, which is based on the viewpoint of the person.

In the first scenario, participants are socialized by means of social institutions that affect them. In order to exert influence, the sociological approach uses the individual's responsibility to society. The psychological approach to socialization explains how people

move from having exterior social structures to having internal social structures. In educational institutions, socialization is typically a relative process. The grounds for this relativity are as follows:

- Individual peculiarities not only of each learner (pupil, student) but also of a group of learners who share comparable qualities.
- Personality traits that are significant from a teaching standpoint.

In this process of interplay between socialization and individualization, education plays a unique and vital role.

Schools, colleges, universities, institutes, and academies all play a significant part in a person's socialization in today's culture. Children leave their families and go to school, which has an impact on how they interact with other people. A person learns to interact with others and has the opportunity to demonstrate his skills, talents, and instincts in school and later at a higher education institution.

Students are encouraged and supported by the school in developing their personalities, and teachers serve as role models for them. Students remember every single thing their teachers say, do or do not do. In addition to the teacher, the student's peers and organizations also have an impact on the children. These partners or organizations will have a significant impact on the roles that the children will play in society in the future. The personalities of those that growing youngsters interact with during their education have an impact on their personalities. The cultural programs offered by the school also help kids adopt more positive views. The goal of education is to teach pupils knowledge and skills that will help them face the obstacles that life will provide to them.

Our perception of the world in which we grow and develop is influenced by the information flows listed below:

- The immediate social context;
- Is the knowledge, standards, and guidelines acquired during the training and educational process.

Education today unquestionably plays a role in socializing as well as personality development. The following are the main distinguishing and essential components of education's engagement in a person's socialization, according to Lora Rashkova:

- The development of one's body and spirit, as well as the personal growth necessary for acquiring knowledge, talents, and a positive view on life that are relevant to society;
- Intentional education and training for the benefit of a person, society, and the state, as well as the acknowledgment of achievements (educational credentials);
- Is a social institution that assists in training a person for inclusion in various elements of society and blending into its culture. It is based on the needs of production, the state of science, technology, culture, and public relations.

The author states in his conclusion that "education must be tailored to the needs of the developing individual and take into account scientific advancements" (Rashkova, 2017). The terms education, upbringing, and socialization are now extensively used in pedagogy, sociology, psychology, and other sciences. It should go without saying that a solid education facilitates young people's effective insertion into society. If socialization sees the relationship as "man-society," education is tied to the "man-man" relationship.

In the framework of socialization, education aims to familiarise incoming members of society—those who will acquire an education—with societal customs, norms, habits, etc. In other words, when society works to create a solid social framework and forbids its members from renunciation their social traditions, it sets a high value on the social purpose of education. Both socializing and education involve learning, but there is a key distinction. It cannot be planned and is a natural process that occurs in daily life. Socialization helps us learn who we are, what the world is like, and how to get along with others.

Socialization is unorganized, usually involves a formal organization that is in charge of guiding and monitoring the learning process, and focuses on general knowledge and skills. In other words, socialization is the process of a person becoming a part of society through interaction. It is an educational procedure that aims to prepare students for the variety of occupations they will hold in the future.

The most fruitful and interesting research, however, focuses on how a person develops as well as how their social environment and various human

characteristics interact. The degree of knowledge individualization is established as a result. How education affects human socialization depends on a person's awareness of his environment, the impact of his immediate social milieu, and - most importantly - the results of the knowledge and norms he has acquired.

Conclusion:

A person's overall growth is directly impacted by their education and socialization. These steps enable cultural mixing and position a person for success in a variety of social circumstances. To have a positive effect, education must be in harmony with developmental processes, individual features and ages, and the distinctiveness of macro and micro surroundings. The importance of global education should be stressed, as should its adaptation to the needs of the evolving human, and last but not least, its consideration of modern scientific and technical developments.

The importance of education in socialization is beyond dispute. Giving someone the opportunity to decide and find their own path is more important, whether that person has special educational needs, is a parent, a group of children, a class, a school, a city, a state, etc. Only in the process of each person's socialization and fulfillment can education serve its primary purpose, enhancing education as a social phenomenon.

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Rudiments Of Risk Management

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Abstract
As the technology is increasing more number of companies are establishing themselves in the corporate world, and there are some big corporate, Giants are achieving success in a very short span of time parallelly it is not easy for such companies to patch of success little span of time, they will definitely take risk (financial) in a calculated manner so that they can attain profits and improve their cash flow's increase the wealth of their organization. So ultimately, the risk is an important component in business, as well as for different corporate giants. Risk is the part and parcel of every entity so management of risk is mandatory so that the company does not move into liquidation state. There are various risks by which the companies can get affected like inflation risk, political risk, etc. so the concept of financial risk management has drawn attention in the current era. In this article, we are going to see how to manage risk, and how important risk can be essential to an organization. The data for the analysis is collected from various students, teachers, employees, financial analyst, risk managers.

Keywords: Risk management, Liquidation, Financial risk management, Inflation risk, Cash flow

Introduction

Risk management can be referred to as application of management principles i.e., planning, organising, controlling of risk in the organisation whereas financial risk management can be referred as application of management principles i.e., planning, organising, controlling of risk arising from financial markets in the organisation. Financial risk management is the process to deal with uncertainties resulting from financial markets. There are various strategies involved in risk management like derivatives such as futures, forwards, options and swaps. Risk in finance can be classified into systematic risk and unsystematic risk, systematic risk or uncontrollable by organization where is unsystematic risk, are controllable by the organization. Various types of systematic risk are interest, rate, risk, market risk, inflationary risk, where is unsystematic risk includes liquidity, risk, credit risk, operational risk. All these types of risk are interlinked with each other, which will ultimately affect the organization in a negative manner, so what is management in finance is a core element of the complete finance department, the organization risk management aims at controlling the risk exposure of a firm. Risk varies from individual to individual and every organization has its own perception and ways to manage the risk episode to be an evolving science while a distinct minority feel that it will disappear or incoming years risk management helps to decide which risk or worth taking, and which should be shunned. Risk management is a very needful function for every organization helps to make jobs safer i.e risk, managers, use data analysis to identify loss and injury, trends and implement strategies to prevent them from reoccurring in the organization with management also reduces unexpected events, helps in decision making and also creates financial benefits by saving time and effort. Risk management protects and add values to the organization and its residual claimants. The risk management process includes five steps, and the first includes the establishment of context which means the risk managers, should identify the particular risk in the organization. In the second step, the identification of the main risk takes place and in the assessment stage the analysis of

the risk is taken place, then in the next step potential risk treatment, and finally the review and evaluation of plan takes place. There are various tools and approaches for risk management, brainstorming, root cause analysis, SWOT analysis, impact matrix, variance & trend analysis and result analysis come under tools of risk management. Hedging, diversification, separation, duplication, loss prevention, and loss reduction are the various approaches for financial risk management. There are two other approaches, which help in measurement and management of risk they are VAR (value at risk) and CAR (cash flow at risk).

Objective Of The Study

- To study various categories of risk and approaches to risk management.
- To evaluate the various categories of risk and approaches to risk management.

Research Methodology

Sources Of Data:

The data has been collected from 2 main sources:

Primary source: The primary data is collected from marketers, entrepreneurs, faculty and students.

Secondary source: The Secondary data has been obtained from blogs, internet websites, articles and research journals, college magazines.

Sample Size: The data was collected from 50 respondents who included employees, students, teachers, financial analyst, risk managers etc..

Analysis & Discussion

Objective: To Study Various Categories Of Risk And Approaches To Risk Management.

To study & understand the various categories of risk management and approaches to risk management a questionnaire with set of 3 questions has been circulated to 50 respondents and various output and results have been obtained pertaining to each and every question.

1. In financial risk management which category of risk is more menacing/dangerous.

RESPONSE	NO. OF RESPONSES	PERCENTAGE
Market risk	20	40%
Inflationary risk	6	12%
Interest rate risk	6	12%
Credit risk	11	22%
Political risk	7	14%
TOTAL	**50**	**100%**

Table 1: Showing most dangerous type of risk in financial risk management

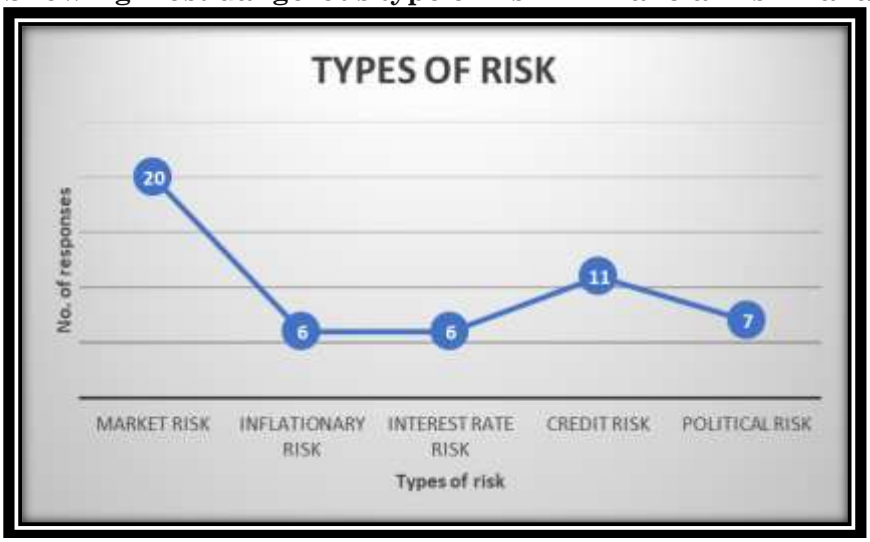

Figure 1: Most dangerous type of risk in financial risk management

Interpretation

From the above table and chart it can inferred that 40% of the respondents believe that market risk is most dangerous risk in financial risk management whereas 12% of the respondents believe that inflation rate is an interest rate risk are menacing for risk management, 22% of the respondents believe that credit risk is more dangerous and 14% believe that political risk is more dangerous than compared to other categories of risk management.

2. Do you think hedging and diversification are effective approaches for financial risk management

RESPONSE	NO. OF RESPONSES	PERCENTAGE
Highly Agree	12	24%
Agree	20	40%
Neutral	9	18%
Disagree	5	10%
Highly Disagree	4	8%
TOTAL	**50**	**100%**

Table 2: Effective approaches for financial risk management

Figure 2: Effective approaches for financial risk management

Interpretation:

From the above table and chart, it can be inferred that 40% of the people agree that hedging and diversification are effective approaches for financial risk management and 24% of the people strongly believe that they are the effective approaches for risk management, whereas 18% of the respondents are having a balanced opinion on hedging and diversification , 10% of the respondents disagree that teaching and diversification are not affective approaches for financial risk management and 8% of the respondents strongly disagree that hatching and diversification are not at all effective approaches for financial risk management.

3. Does inflationary risk increase the rise in credit interest rates (credit risk)

RESPONSE	NO. OF RESPONSES	PERCENTAGE
Strongly Agree	13	26%
Agree	15	30%
Neutral	12	24%
Disagree	5	10%
Strongly Disagree	5	10%
TOTAL	**50**	**100%**

Table 3: Showing relationship between Inflationary risk & credit risk

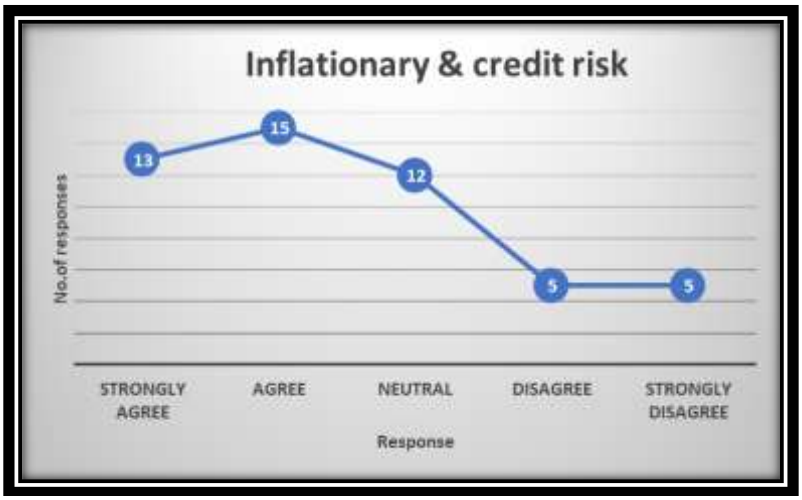

Figure 3: Relationship between Inflationary risk & credit risk

Interpretation:

From the above table and chart, it can be inferred that 30% of the respondents agree to the statement that inflationary risk will increase the credit interest rates which will give rise to credit risk. 26% of the respondents strongly agree that creditors will be evolved by inflationary risk. 24% of the respondents have a balanced opinion that inflation risk and credit risk move parallelly where as 20% of the respondents strongly disagree and disagree that inflationary risk is not responsible for increase in rise of credit interest rates.

Objective 2: To Evaluate The Various Categories Of Risk And Approaches To Risk Management.

Hypothesis Testing:

As per the data to test the significance Chi-square test was applied

Ho: Hedging and diversification are not effective approaches for financial risk management

H1: Hedging and diversification are effective approaches for financial risk management

Response	Oi	Ei	(Oi-Ei)	$(Oi-Ei)^2$	$(Oi-Ei)^2/Ei$
1	12	10	2	4	0.4
2	20	10	10	100	10
3	9	10	-1	1	0.1
4	5	10	-5	25	2.5
5	4	10	-6	36	3.6
TOTAL	**50**				**16.6**

Level of Significance (LOS) = 5%

Ei = 50/5 = 10

Calculated value (X^2 Cal) **=** 16.6

Degree of freedom (dof) = n-1 = 4

X^2 Cal for dof = 4 at 5% LOS = 9.4

Result: Calculated value is greater than tabulated value, Reject Ho and Accept H1

Decision: Hedging and diversification are effective approaches for financial risk management.

Ho: Inflationary risk increases credit interest rates (Credit risk)

H1: Inflationary risk does not increase credit interest rates (Credit risk)

Response	Oi	Ei	(Oi-Ei)	$(Oi-Ei)^2$	$(Oi-Ei)^2/Ei$
1	13	10	3	9	0.9
2	15	10	5	25	2.5
3	12	10	2	4	0.4
4	5	10	-5	25	2.5
5	5	10	-5	25	2.5
TOTAL	**50**				**8.8**

Level of Significance (LOS) = 5%
Ei = 50/5 = 10
Calculated value (X^2 Cal) **=** 8.8
Degree of freedom (dof) = n-1 = 4
X^2 Cal for dof = 4 at 5% LOS = 9.4
Result: Tabulated value is greater than calculated value, Reject H1 and Accept Ho
Decision: Inflationary risk increases credit interest rates (Credit risk).
Findings:

- From table no. 2 it can be inferred that 40% of the people agree that hedging and diversification are effective approaches for financial risk management and after testing of hypothesis using chi-square test, we can come to a decision that Hedging and diversification are effective approaches for financial risk management.
- From table no.3 it can be inferred that 30% of the respondents agree to the statement that inflationary risk will increase the credit interest rates which will give rise to credit risk & 26% of the respondents strongly agree that creditors will be evolved by inflationary risk and after hypothesis testing using chi-square test, we can come to an decision that Inflationary risk increases credit interest rates (Credit risk).

Conclusion

From the above research paper, we can conclude that financial risk management is an important function in every organization risk management is a concept that will affect each and every business function, and is interlinked with all the operations of the business. And after the statistical analysis, we are observe that hedging and diversification are the effective approaches to minimize risk in financial aspects, because they will help to avoid the risk rather than completely eliminating it so it becomes easier for the organizations to handle a risk, and we also observed that inflation will increase the credit risk in the economy, because as a price of a product goes up, the consumers have to pay more for the product, which implies they may borrow from Bank as a loan, with the credit interest rate will be higher when compared to pre-inflation. In the economy. Henceforth financial risk management, the very broad concept, and an evolving science, which can be improved more accurately in the coming generations, with the implementation of artificial intelligence and various other techniques might come into practice after the adoption of AI and risk management concept.

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A Study Of Female Agricultural Labours In Sangli District : Geographical Analysis

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Abstract:
Agriculture plays a vital role as the backbone of a nation's economy. Rural sectors of India completely depend upon agriculture as their basic livelihood. Here Women's agricultural labour force plays the most important contribution to the farming of the nation. Women agricultural labourers are socially and financially the poorest section of society. Unemployment, illiteracy, under nutrition, dual responsibility, shortage of wage, lack of access to resources, indecisive behaviour, and lack of efficiency in handling technology are major drawbacks of women agricultural labourers which create major hindrances in their working conditions In most of the developing societies, it is common to find a large number of poor people who are living out with a subsistence level of income could not able to come out of the grip of poverty. A multitude of factors– economic and non–economic are responsible for the problem of poverty. Any discussion on the problem of poverty in the Indian context is incomplete without references to landless agricultural workers, who are facing several problems on many fronts, are inevitably more vulnerable to the malice of unemployment, inequality and poverty. Faced with the seasonal nature of employment along with their poor resource capacity, they are forced to work very hard to make a decent life. In most cases, a typical Indian agricultural labour's households contain more than one earning member and more dependent members. The need for women members of the Indian agricultural labourer's family to go in work is forced because of inadequate employment opportunities and not that much.

Keywords :- Socio-economic status,working condition female agricultural labourer

Introduction:-
Agriculture is our country's backbone and provides a basic livelihood to the rural economy. Rural India completely depends upon farming for their employment and basic livelihood. In India, women in agriculture labour comprise about 2/3rd of the total labour force. The women agricultural labourers still face several challenges and hurdles but are still majorly responsible for farm production and home maintenanc Dave (2012) conducted the study on women workers engaged in unorganized sector to know about the socioeconomic background, working conditions, wage rates, living conditions of women workers engaged in unorganized sectors like construction, domestic and agriculture in three districts of Haryana . She concluded that women labourers face problems like excessive work burden, wage discrimination, exploitation, untimely wage payment, seasonal unemployment, job insecurity, health problems. Lal and Khurana (2011) discussed about multidimensional roles and obstacles faced by women in terms of employment, wages, dual responsibility, education level. Though women share is very high in agricultural and they are spending more hours for work on farm than men still they are paid less than males for the same work. Women are undervalued because of the predetermined notion that women's basic role is of homemaker.

Objectives:
1) to analysis socio- economic status of female agricultural labours in atpadi tahsil
2) to syudy the working condition of female agricultural laborers

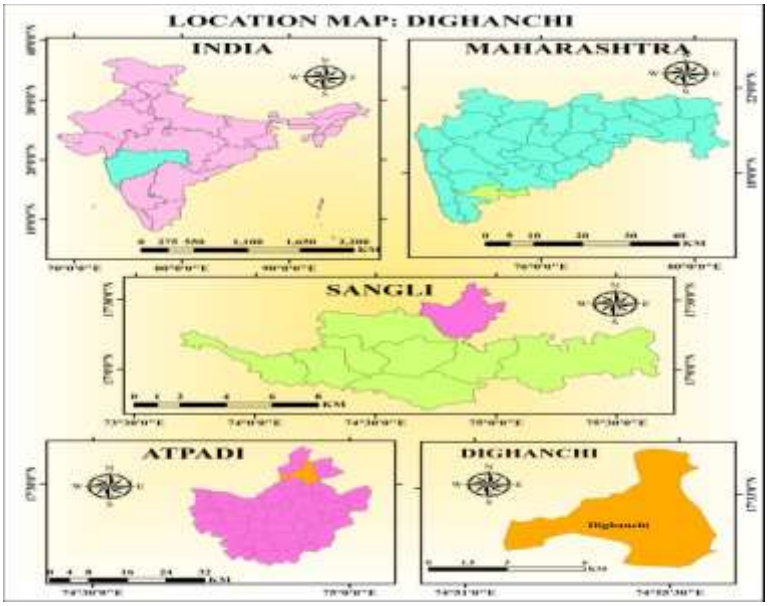
SOURCES OF DATA:
The present study was based on the primary as well as secondary data. Primary data are

collected through field work and secondary data are obtained with help of unpublished and published literature concerned with the topic.

Research Design: Descriptive as well as empirical research design is adopted for the present study.

Study Area:

Dighanchi village is located in Atpadi tahsil of sangli district it belong s to desh or western maharastra .



Location Map

Methodology of study

Women in Dighanchi village are of distinct types. Some women workers are members of family forms a unit. Some women work as independent labours and undertake different activities independently. This independent labours coming from different social divisions are specific in that independent living is virtue.

The economic status of groups of individuals can be studied by household survey. The researcher asks the question method for collecting information of working women labour. The study consists of simple random method was used for the study. There were 40 sample respondents of the women agriculture labours

Sources of Data:

The present study was based on the primary as well as secondary datawere selected by using convenient sampling method

Data Processing:

The quantifiable data were coded and codebook was prepared. The coded data were entered into the computer and have been processed with the help of SPSS software, and made ready for interpretation. The computer generated out-put is used for tabulation, analysis and interpretation

Statistical Techniques:

Descriptive statistics is used. Single frequency tables are used for data analysis and interpretation:

Socio-Economic Profile Of Female Agricultural Labourers

Results and Discussions

Age of Respondents

Let us now look at the age of the respondents. The distribution of the respondents according to the age group categories to which they belong at present has been presented in the table no.1.1 below

Table no.1.1. Distribution of the respondents according to their Age-Group

Sr.no	Age group	Respondents	percentages
1	18-30	15	37.5
2	31-45	20	50
3	**46-60**	**5**	**12.5**
4	**Above 60**	**-**	**-**
	Total	**40**	**100**

Source Based on Field survey

The tabale represent a mejority50 percentof the respondents belong to the age group 31-45,followed by 37.5 percent of the respondents who belong to the age-group of 18-30, another 12.5percent of the respondents belong to age-group of 46-60,

The detailed analysis of the socio-economic condition of the women agricultural labours and also their work efficiency has been indicated in table-1

Table-1.2: Caste Groups of the Households

Sr.no .	Cast group	No .of households	Percentages
1.	Sc /ST	25	62.5
2.	Obc	13	32.5
3.	Open	2	5
4.	Others	-	-
	Total	40	100

Source Based on field survey

In the above table shows that SC and ST households were 62.5 per cent and OBC was 32.5 per cent and opens were 2 per cent. The majority group of households were belongs to SC/ST.

Let us now look at the religious background of the respondents of the present study. The data regarding the religious background of the respondents are presented in the table no.1.2 below**.**

Religion Groups of the respodents

Table 1.3 religion group

Sr.no	Religion Groups	N0 of respondent	Percentages
1.	Hindu	38	95
2.	Muslim	02	5
	Total	40	100

Source Based Field survey

The tabale 1.2presents ,majority found to belong to a 95 percent respondent were hindu ,only 5 percent found to muslim

Educational Status

Your educational status determines your entry into the occupation. Therefore in a present study, respondent's educational status has been assessed. Educational status of the respondents is presented in table no.1.3below

Table no.1.4 Educational Status of Respondents

Sr.no	Education level	Respondents	Percentages
1	below 7th	20	50
2	Up to 10th	5	12.5
3	Up to 12th	2	5
4	Illiterate	13	32.5
	Total	40	100

Source Based on Field survey

The tabale 1.4, presented in the indicates that 50 percent of the respondents were found to be educated only below 7th std, another 32.5 percent respondents were found to be illiterate and 12.5 percent of the respondents were found to be educated up to 10th std. Only 5 percent of the respondents were found to be educated up to 12th std. In the present study, it clearly reveals that an overwhelming majority (79 percent Illiterate, up to 7th) of the respondents were found to be less educated or illiterate which forced her to do agricultural work where no skill is required**.**

Type of Family

It is important to understand the family structure of the respondents while studying women labourers in agricultural sector. The data regarding the kind of family structure were collected in the present study and it is presented in the table no.1.4 below

Tabale 1.5 Family structure

Sr. No	Types	Respondents	Percentages
1	Joint	25	62.5
2	Nuclear	15	37.5
	Total	40	100

Source Based on field survey

The tabale show the family structure of the respondent,62.5 percent respondenents were found to joint family remaining 37.5 percent were found to nuclear family

Marital Status

Let us now look at the marital status of the respondents. The data regarding the marital status of the respondents are presented in the table no.1.5 below.

Table no.1.6. Distribution of Respondents According to Their Marital Status

Sr.no	Marital status	Respondents	Percentage
1	Married	28	70
2	Divorce	5	12.5
3	Widow	7	17.5
	Total	40	100

Source Based on field survey

The table no 1.6 show that ,70 percent respondent married ,12.5 percent respondent divorce,remaining 17.5 percent respondent were widow

Income

To understand the monthly income of the respondents, three categories of income have been given to the respondents. The data regarding the total monthly family income of the respondents' family were collected and are presented in the table no.1.7 below.

Table-1.7Income Groups of respondents

Sr,no	Income group	No. Of respondents	Percentage
1	Below 5000	32	80
2	5000-8000	07	17.5
3	8000-10000	01	2.5
	Total	40	100

Source Based on field survey

In this table-1,8 analysis that various steps of income groups, no. of members and per cent of different income groups. So first group bellow 5000 Rs, in 32 members of 80 per cent, second group 5000-8000 Rs in 7 members of 17.5. per cent, and third group 8000-10,000 Rs in 1 members of 2.5per cent and overall 40 members sampling in Dighanchi village.

Numbers of hours in the field

The data regarding the number of hours these female agricultural labourers work in the field were collected in the present study and presented in the table no. 2.2 below.

Table no1.9. Total Number of Hours they Work in the Field

Sr.no	Numbers of hours working	Respondents	Percentage
1	6	30	75
2	8	10	25
	Total	40	100

Source Based on field survey

The table no0 1.9 indicates that, an overwhelming majority of the respondents 75 percent opined that they work hours a day in the field and only 25 percent of the respondents opined that they work atleast 8 hours a day in the field. It is clearly revealed in the present study that these female labourers have to work minimum 6 hours and maximum 8 houres in the feild

Wage payment mode

The data regarding the wage payment mode of female agricultural labours get, a question asked was, how frequently do you get your wages? The responses given by the respondents are presented in the table no.1.10 below.

Table 1.10 Wage payment method

Sr.no	Wage payment method	Respondent	Percentage
1	Daily	2	5
2	Once in week	38	95
3	Once in 15 days	-	-
4	Once in month	-	-
	Total	40	100

Source Based on field survey

It can be seen from the data presented in the table no.1.10 that, majority of the respondents 5 percent receives wages daily, another 95 percent of respondents receives wages once in a week, the number of respondents who receives wages daily and once in a month was found to be insignificant

Health problems

A question was asked to the respondents about the health problems they are facing due to the nature of their work. The responses collected were presented in the table no.2.5 below. The data presented in the table no. 2.5 revealed that, a majority 90 percent of the respondents opined that they are facing any health problems due their nature of work but 10 percent of the respondents opined that they are not facing health problems due to nature of their work.

Table no.1.11.any health problem due to work

Sr.no	Health problems	Respondents	Percentage
1	Yes	36	90
2	No	4	10
	Total	40	100

Source Based on field survey

Findings

Majority of women respondents 62.5 percentage found the sc categories Due to their economic backwardness these people are landless and found to be engaged in the labour activity .the majority of respondent found to belong to 90 percent hindu religion of the present study. It clearly reveals that overwhelming majority (79 percent Illiterate, up to 7th) of the respondents found to be less educated or illiterate which forced him to do agricultural work where no skill is required. It is clearly indicated in the present study that respondents belongs to both joint and nuclear family structure It clearly reveals that married women (70 percent) freely engaged in the agricultural activity as a labour force as compare to divorced or widow women. majority of the respondents (80percent) selected in the sample could be said to belong to Rs.5000 income groups against this background. It means they are economically poor. It is clearly revealed in the present study that these female labourers have to work minimum 6 hours a day in the field. It clearly revealed that 90% of female agricultural labourers face some health problems due to kind of work they do. Wage payment mode majority 90 percent respondent receive one week theire wage majority of them get it once in in a week

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Assessment of Acute Toxicity Effect Of Heavy Metal ($Hgcl_2$ & $Cuso_4$) To The Fresh Water Crab, Barytelphusa Guerini

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Abstract:
The toxicity of mercury chloride and copper sulphate to the fresh water crab, *Barytelphusa guerini* was studied seasonally by using static bioassay test. The LC_{50} values of $HgCl_2$ and $CuSO_4$ for 24, 48, 72 and 96 hrs were 2.75, 2.5, 2.25 and 2.00 ppm and 14.00, 13.5, 13.00 and 12.50 ppm for monsoon season. For winter season, the concentrations were 3.00, 2.75, 2.5, 2.25 ppm and 14.50, 14.00, 13.50 and 13.00 ppm. The concentrations were 1.75, 1.4, 1.25, 1.15 ppm and 9.00, 8.5, 8.00 and 7.5 ppm for summer season respectively. The 96 hrs LC_{50} is assumed as a standard exposure period for toxicity of test material because it covers the period of acute lethal action. It was found that the $HgCl_2$ toxicity is more lethal to *Barytelphusa guerini* than that of $CuSO_4$ at very low concentration.

Keywords: Acute Toxicity, Mercury chloride, copper sulphate, *Barytelphusa guerini.*

Introduction:
Through various human activities toxicants come in the course of food chain directly or indirectly and disturb the ecosystem. It may cause the serious hazard to the aquatic biota as well as human kind directly or indirectly. Such toxic compounds or chemicals are not susceptible to degradation and eventually accumulate in the food chain. The freshwater animals are threatened by hazardous pollutant. Because fish, crab, prawn and other non-target animals are very sensitive to various pesticides and chemicals. Not all the organisms are having the same tolerance limit for a particular toxicant.

Hence some workers on some freshwater crustaceans have studied effect of some toxic heavy metal and pesticides. Nagabhushanam and Kulkarni (1981) have observed effect of copper and zinc on the survival of freshwater prawn, *M. kistnensis.* Balavenkatasubhaiah *et al.* (1982) studied various metal toxicities to some freshwater organisms. Bodkhe (1983) have studied the toxicity of survival on freshwater crab, *B. cunicularis.* Nagabhushanam *et al.* (1986) studied the acute toxicity of three metals to marine edible crab, *Scylla serrata.* Hence the present investigation is undertaken to determine the toxicity (LC_{50} values) level of $HgCl_2$ and $CuSO_4$. Which is highly useful in evaluation of safe level or tolerance of pollutant and it provides fundamental data for the design of more complex disposal models.

Material and method:
In the present investigation the freshwater crab *Barytelphusa guerini* were selected and brought to the laboratory for acute experiments from Paithan region near Aurangabad city. Crabs were maintained in plastic troughs containing dechlorinated tap water for two to four days to acclimatize at laboratory conditions. Water from plastic troughs was changed daily and crabs were fed with small pieces of earthworm or bivalves to avoid starvation stress. The static method is used to run the experiment of toxicity evaluation upon 96 hrs as described by Finney (1971). The method used for the evaluation of the toxicity of a pollutant (heavy metal) is to expose the animals in successive batches to different desired concentrations of heavy metal ($HgCl_2$ and $CuSO_4$) as acute toxicity test. The exposed animals were not fed during the experiment or feeding was stopped one day before the experiment to avoid metabolic difference due

to differential feeding. A control set was maintained with similar number of animals and metal free tap water.

A stock solution of the toxicants ($HgCl_2$ and $CuSO_4$) were prepared in double glass-distilled water and added to the test medium as per requirement. The water is renewed at every 24 hrs along with toxicant to maintain concentration of $HgCl_2$ and $CuSO_4$. Dead animals were removed and maintained record of survival and mortality of test animals. The resulting average mortality was noted for each concentration at 24, 48, 72 and 96hrs duration. Each experiment was repeated twice to obtain constant result.

The corrected percentage mortality values were converted to probit values, which were then plotted in the graph against log of respective concentration. From the graph required concentration of pollutant was obtained which produced 50% mortality and thus the susceptibility of the animal to the pollutant was determined. These results were expressed in terms of lethal concentration (i.e. mg/lit. or ppm).

Table 1: Relative toxicity of $HgCl_2$ and $CuSO_4$ to freshwater crab, *Barytelphusa guerini* in monsoon season.

Heavy metal	Exposure period	Regression equation $Y = \bar{Y} + b(x-\bar{x})$	LC_{50} Value	Variance 'V'	$\chi 2$ Value	Fiducial limit (ppm)		Lethal dose	Safe conc. (ppm)
						m_1	m_2		
$HgCl_2$	24 hrs	8.686x(+4.6217)	2.820	0.0005	0.092	0.348	0.438	67.680	
	48 hrs	7.044x(+4.7407)	2.480	0.0007	0.295	0.292	0.400	119.04	0.38
	72 hrs	7.0219x(+4.6934)	2.257	0.0007	0.128	0.238	0.349	162.50	
	96 hrs	7.0770x(+4.6888)	1.980	0.0008	0.257	0.177	0.289	190.08	
$CuSO_4$	24 hrs	32.795x(+4.752)	14.02	3.214	0.020	1.127	1.149	336.48	
	48 hrs	48.804x(+4.6072)	13.56	1.663	0.135	1.114	1.130	650.88	2.53
	72 hrs	38.192x(+4.8103)	12.91	2.399	0.150	1.095	1.114	929.52	
	96 hrs	36.692x(+4.8103)	12.41	2.6	0.150	1.077	1.097	1191.36	

Table 2: Relative toxicity of $HgCl_2$ and $CuSO_4$ to freshwater crab, *Barytelphusa guerini* in winter season.

Heavy metal	Exposure period	Regression equation $Y = \bar{Y} + b(x-\bar{x})$	LC_{50} Value	Variance 'V'	$\chi 2$ Value	Fiducial limit (ppm)		Lethal dose	Safe conc. (ppm)
						m_1	m_2		
$HgCl_2$	24 hrs	4.3249x(+4.6349)	3.09	0.0021	0.131	0.288	0.469	74.160	
	48 hrs	8.8039x(+4.69)	2.6	0.0005	0.150	0.349	0.437	124.80	0.36
	72 hrs	8.0390x(+4.6349)	2.54	0.0006	0.076	0.298	0.395	182.88	
	96 hrs	7.12363x(+4.634)	2.29	0.0007	0.081	0.239	0.348	219.84	
$CuSO_4$	24 hrs	35.4448x(+4.7634)	14.49	2.751	0.006	1.143	1.163	347.76	
	48 hrs	41.1984x(+4.8114)	13.91	2.07	0.148	1.129	1.147	667.68	2.56
	72 hrs	46.517x(+4.691)	13.52	1.79	0.230	1.113	1.130	973.44	
	96 hrs	38.1924x(+4.8103)	12.91	2.39	0.150	1.095	1.114	1239.36	

Table 3: Relative toxicity of $HgCl_2$ and $CuSO_4$ to freshwater crab, *Barytelphusa guerini* in summer season.

Heavy metal	Exposure period	Regression equation $Y = \bar{Y} + b(x-\bar{x})$	LC_{50} Value	Variance 'V'	$\chi 2$ Value	Fiducial limit (ppm)		Lethal dose	Safe conc. (ppm)
						m_1	m_2		
$HgCl_2$	24 hrs	29.8705x(+4.6934)	1.75	4.357	0.229	0.217	0.243	42.070	
	48 hrs	27.9518x(+4.6848)	1.39	5.139	0.119	0.115	0.143	66.720	0.87
	72 hrs	21.572x(+4.6349)	1.26	8.548	0.070	0.060	0.096	90.720	
	96 hrs	22.7624x(+4.6848)	1.14	7.752	0.129	0.023	0.057	110.01	
$CuSO_4$	24 hrs	30.745x(+4.6934)	9.01	4.113	0.230	0.929	0.954	216.24	
	48 hrs	28.9955x(+4.6934)	8.51	4.624	0.228	0.902	0.929	408.48	7.59
	72 hrs	23.1848x(+4.8103)	7.91	6.511	0.160	0.873	0.904	569.52	
	96 hrs	21.6856(+4.81152)	7.41	7.472	0.162	0.842	0.876	711.36	

Result and discussion:

The toxicity of $HgCl_2$ and $CuSO_4$ has been studied to determine the lethality at 96hrs (acute test) for the freshwater crab, *Barytelphusa guerini* at laboratory condition. Toxicity tests were conducted by the method of Finney (1951) and simplified by Busvine (1971). The order of toxicity according to tolerance limit, mercuric chloride is highly toxic than that of copper sulphate. The results are shown in table 1-3 for $HgCl_2$ and $CuSO_4$ in monsoon, winter and summer season respectively.

The LC_{50} values of $HgCl_2$ and $CuSO_4$ for 24, 48, 72 and 96 hrs were 2.75, 2.5, 2.25 and 2.00 ppm and 14.00, 13.5, 13.00 and 12.50 ppm for monsoon season. For winter season, the concentrations were 3.00, 2.75, 2.5, 2.25 and 14.50, 14.00, 13.50 and 13.00 ppm. The concentrations were 1.75, 1.4, 1.25, 1.15 ppm and 9.00, 8.5, 8.00 and 7.5 ppm for summer season respectively. The LC_{50} values were found more during winter season and less in monsoon and summer season respectively.

From the above results, it is evident that LC_{50} values for 24 hrs in all season are highest, followed by 48, 72 and 96 hrs at all exposure periods. Similar observation made by Sarojini *et al.* (1987) on freshwater prawn, *M. lamerii*. The present study showed that the toxicity increases with increasing exposure, since the LC_{50} values decrease with the increasing exposure period. Similar observation has been made. Sambasivarao *et al.* (1988) Studied heavy metal ($HgCl_2$, $CuSO_4$ and $ZnSO_4$) toxicity to marine crab, *Ozius rugulsus*. Sarojini *et al.* (1989), Shibu (2002), Arnott and Ahsanullah (1979), Ahsanullah (1981). Mary (1984) reported that the LC_{50} value depends on the concentrations of toxic pesticides, chemicals and with the time of exposure. Srinivasulu Reddy *et al.* (1985) reported that the LC_{50} values and the exposure period showed inverse relation. Nagabhushanam *et al.* (1987) after exposing *Penaeus monodon* and *Penaeus indicus* to heavy metal $HgCl_2$, $CuSO_4$ and $ZnSO_4$ reported that the order of heavy metal toxicity to both the prawns was mercury > copper >zinc. From the results it is clear that mercury is the most toxic metal for *Barytelphusa guerini* as evidenced from the present study and previous reports (Decoursey and vernberg, 1972; Ahsanullah and Arnott, 1978), Deshmukh (1995), Patil (1998), Uma Devi (1987).

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A Geographical Study of Self Help Groups (SHGS) in Solapur District

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Abstract:-

The present paper has been attempted to study, 'A Geographical Study of Self Help Groups (SHGs) in Solapur District'. In a self-help group, people come voluntarily together to save the amount which they can save in a suitable manner out of their earnings, to mutually agree for the contribution to a common fund and lend to the members for meeting their dynamic and emergent needs. SHG generally provides help to the smaller section of society. The performance of the self-help group programme in the area of rural development and women's empowerment has been excellent. Self Help Groups (SHGs) Members may also make small regular savings contributions over a few months until there is sufficient money in the group to begin lending. Funds may then be lent back to the members or to others in the village for any purpose. In India, many SHGs are linked with banks for the delivery of micro-credit. In the recent years microfinance became an important intervention as a tool for rural development and poverty alleviation. In India, many a number of microfinance institutions including Non-Governmental Organizations (NGOs) and Government agencies had intensively intervened. In the recent years microfinance became an important intervention as a tool for rural development and poverty alleviation. In India, many a number of microfinance institutions including Non-Governmental Organizations (NGOs), NBFIs and Government agencies had intensively intervened In India, usually self-help groups are women-oriented and most of their activities are concentrated towards savings and credit activities apart from other activities focusing on women's empowerment, health and educational attainment, etc. There is a common perception in development literature that increased participation of women in savings and credit activities or economic attainment will empower women. Thus, self-help groups are seen as an important tool for empowering women. There is also the perception that economic attainment will empower women's status in family and in the community, giving them more power to participate indecision-making process Self Help Group (SHGs) are formed with the aim of helping their members. Self Help Group (SHGs) are often a voluntary association of individuals who come together with the purpose to work together and to encourage their economic interest. These group works on the principle of self-help as well as mutual help. The primary goal of Self Help Groups (SHGs) is to provide support to the members.

Keywords: Self Help Group (SHG), Below Poverty Line (BPL), Non-Governmental Organizations (NGOs).

1. Introduction:

Self Help Groups (SHGs) has been playing a crucial role in the overall development of the rural as well urban region. Self Help Groups (SHGs) has been confers equal rights to all its members without considering their holding of share and their social standing. Self-Help Groups (SHGs) are informal associations of people who choose to come together to find ways to improve their living conditions. It can be defined as self-governed, peer controlled information group of people with similar socio-economic background and having a desire to collectively perform common purpose. The conceptual thinking behind the SHG initiative is that self-help supplemented by mutual help can be a powerful vehicle in the upward socio-economic transition of the poor. NABARD has played a key role not only

in promoting SHGs but also in standing behind the SHG-Bank Linkage Programme. Self-Help Group (SHG) program is a practical approach to eradicate poverty. Self-help groups are informal groups of people who come together to address their common problems. SHGs play a vital role in giving credit access to the poor and this is extremely crucial in poverty alleviation. They also play a great role in empowering women because SHGs help women from economically weaker sections build social capital. SHGs have played an important role in enabling financial inclusion in rural areas. It has financially empowered rural women within the family and in local community. Self-Help Groups (SHGs) are small voluntary association of people from the same socio-economic background with a purpose of solving their common problems through self-help and mutual help. In other words, it is an association of people who have common problems that cannot be solved individually, but only through joint action. These groups are known by different names in different places. Some of the terms used in India for these groups are - Sangha, Samooh, Mandal, Dangham, and Samiti etc. depending upon the region.

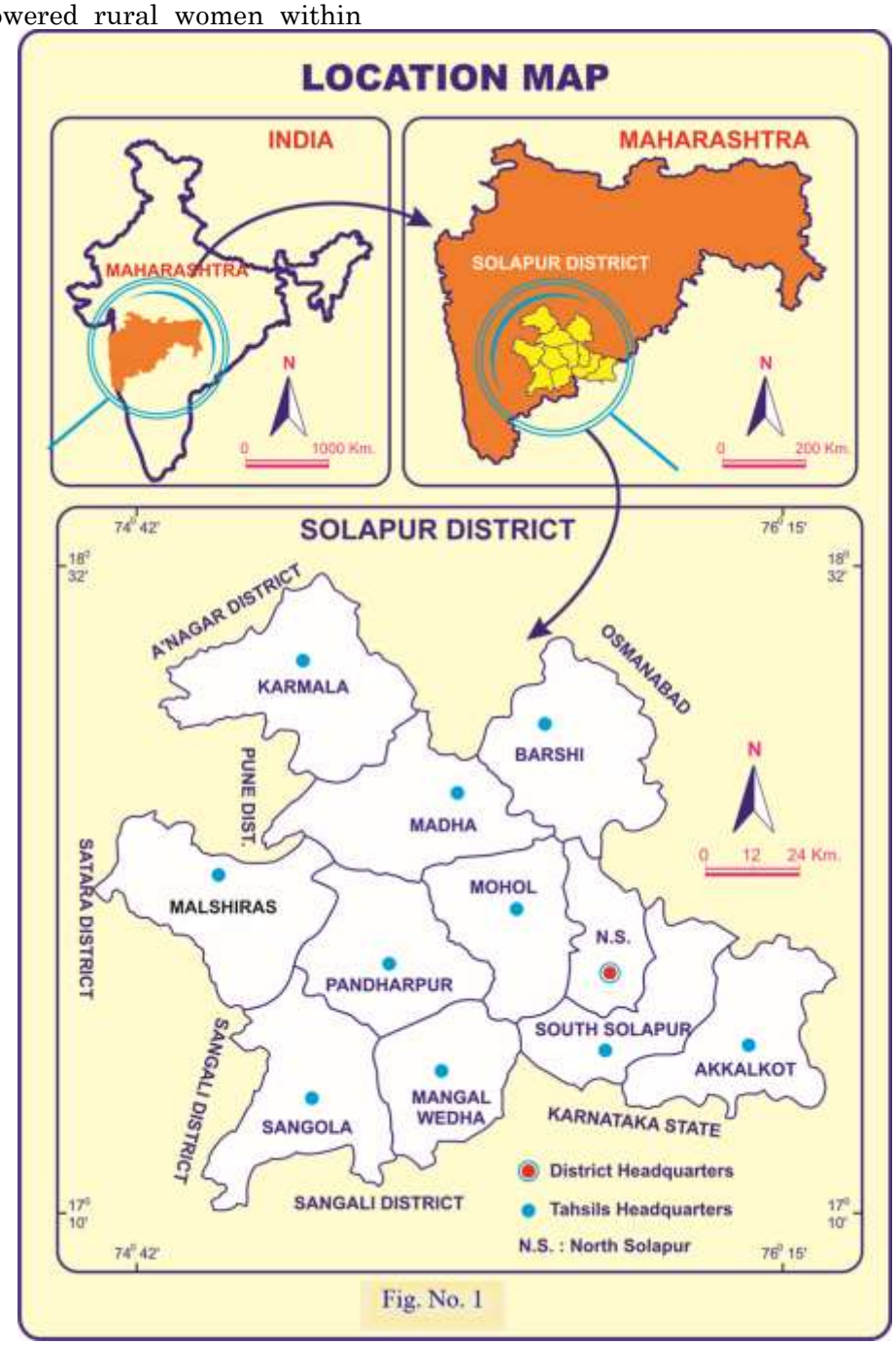

Fig. No. 1

The present paper mainly studied on the Self Help Groups (SHGs) in the Solapur district. For this purpose the Self Help Groups (SHGs) in the year 2011 has been taken in to the consideration.

2. Study Area:-

Solapur district is one of the important districts in Maharashtra. It lies entirely in the Bhima-Sina-Man basins. The district of Solapur is located between 17^0 10' North and 18^0 32' North latitudes and 74^0 42' East and 76^0 15' East longitudes. The East-West length of the district is about 200 kilometer and North-South width is about 150 kilometer. The total geographical area of the Solapur district is about 14895 square kilometer and population is 43,17,756 according to 2011 census. In term of area, Karmala is the largest tehsil and the lowest is North Solapur tehsil in the Solapur district. Solapur district plays significant role in the fields of agriculture, economics, industrial and social fields.

3. Objective:-

The important objectives of the present research paper are as follows

To study the Self Help Groups (SHGs) in Solapur district.

4. Database and Methodology:-

The present paper depends on the secondary data. It has been collected through District Census Handbook, Social Economic Review and other materials used. The study has been concentrated in the analysis of Self Help Groups (SHGs) in Solapur district. Some other sources of information are used for the present research, like unpublished material.

The collected information from the different sources is processed and percentage calculated. Final results are presented in the form of tables with help of these tables different diagrams, graphs are made and analyzed.

5. Distribution of Self Help Groups (SHGs) in Solapur District:-

Self Help Groups (SHGs) are basic unit and the grass root level organization to helping their members. Self Help Group's (SHG's) are necessary in the development of a nation and more so in a planned rural development. Self Help Group's (SHG's) have played a vital role in the socio-economic transformation of rural area.

There has been a rapid increase in the number of Self Help Group's (SHG's) in the study region. In the year 2011, total number of Self Help Group's (SHG's) in Solapur district 33046. It has been observed that the highest number of Self Help Group's (SHG's) in the tehsil of Akkalkot that is 4266, while the lowest number of Self Help Group's (SHG's) in the tehsil of North Solapur that is only 1429. Because of rural area most of the Self Help Group's (SHG's) are formed, but in urban area rare Self Help Group's (SHG's) are developed.

Table -1

Distribution of Self Help Group (SHG's) in Solapur District, 2011-2012

Sr. No.	Name of Tehsil	Total Number of Self Help Group			Turnover During the Financial year (Figures in Lakhs)
		SHG's Below poverty Line	SHG's Above poverty Line	Total SHG's	
1.	Karmala	999	892	1891	64.8
2.	Madha	1228	1713	2941	133.92
3.	Barshi	1944	1931	3875	306.72
4.	North Solapur	665	764	1429	56.16
5.	Mohol	1034	2144	3178	159.84
6.	Pandharpur	1412	1702	3114	207.36
7.	Malshiras	2091	2105	4196	228.96
8.	Sangola	1614	1358	2972	164.16
9.	Mangalwedha	947	1363	2310	120.96
10.	South Solapur	1202	1672	2874	125.28
11.	Akkalkot	2439	1827	4266	263.52
District Total		**15575**	**17471**	**33046**	**1831.68**

Source: Socio-Economic Abstract of Solapur District, 2012

Self Help Group's (SHG's) in the study region divided in to the two sub category that is below poverty line Self Help Group's (SHG's) and above poverty line Self Help Group's (SHG's). In the year 2011, total number of below poverty line Self Help

Group's (SHG's) in Solapur district 15575. It has been observed that the highest below poverty line Self Help Group's (SHG's) are in the tehsils of Akkalkot that is 2439, while the below poverty line lowest number of Self Help Group's (SHG's) in the tehsils of North Solapur that is only 665. It has been concluded that the rural area is favorable for the development of Self Help Group's (SHG's) in the study region.

The anther factor taking into the consideration that is Self Help Group's (SHG's) above poverty line. In the study region total number of Self Help Group's (SHG's) in above poverty line that is 17471. When we have studied the highest and lowest Self Help Group's (SHG's) in above poverty line in the study region, it has been observed that highest above poverty line Self Help Group's (SHG's) are in the tehsils of Mohol that is 2144, while the above poverty line lowest number of Self Help Group's (SHG's) in the tehsils of North Solapur that is only 764.

6. Self Help Group (SHG's) Turnover During the Financial Year:-

It has been seen that the turnover of the Self Help Group's (SHG's) is very important for the overall development of the region. For that purpose the financial year 2011-12 taking in to the consideration.

(Fig. No.2)

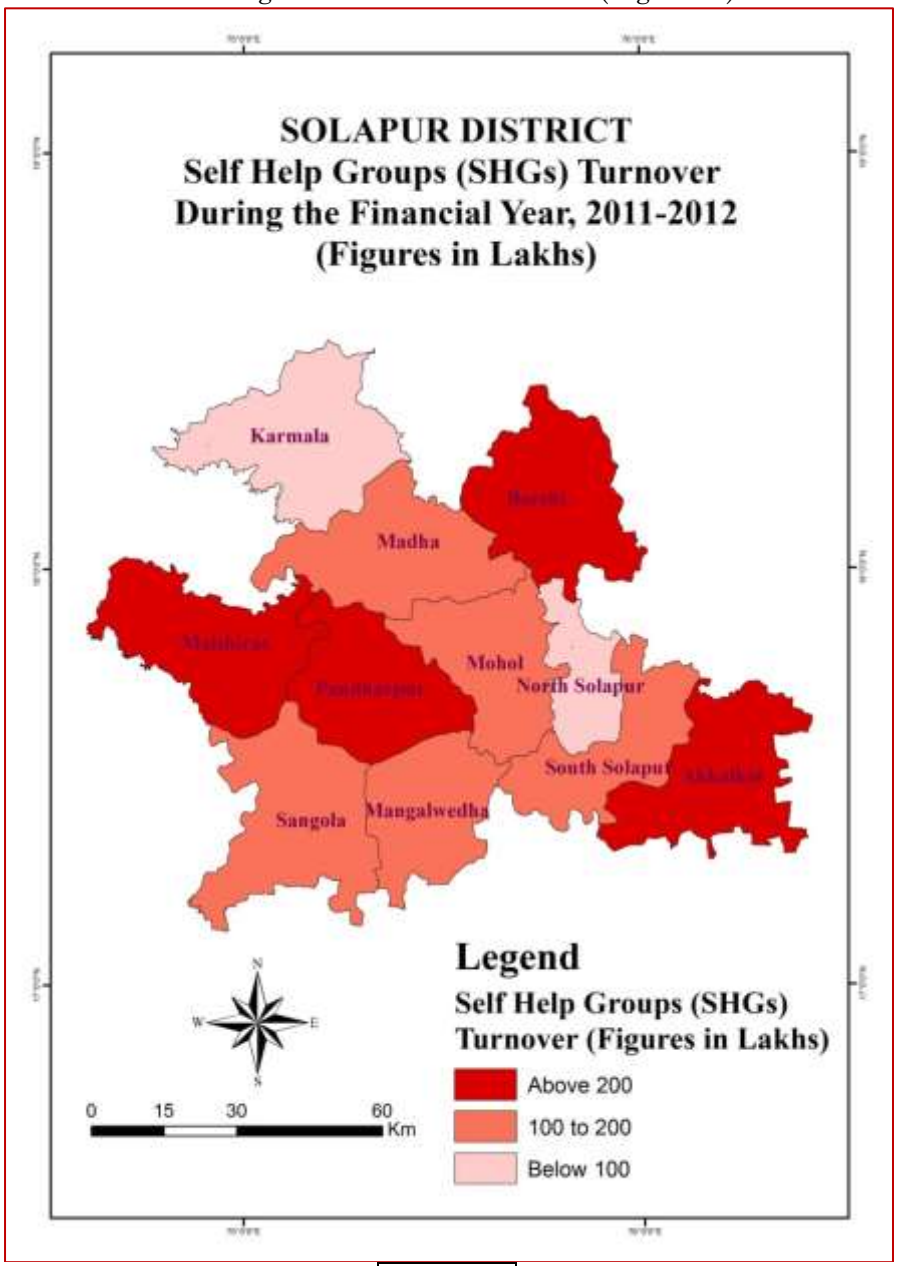

Fig. No. 2

a) **Highest Turnover (Above 200) :-**
It has been observed that the highest turnover mean during the financial year above 200 lakhs turnover taking in to the consideration. In this category Barshi, Pandharpur, Malshiras and Akkalkot tehsils are included. These are rural dominate tehsils and two tehsils are pilgrim centers, so highest turnover during the financial year has been observed.

b) **Medium Turnover (100 to 200) :-**
It has been seen that turnover during the financial year between 100 to 200 lakhs it the tehsils of Madha, Mohol. Sangola, Mangalvedha and South Solapur. The highest tehsils are seen in this category.

c) **Lowest Turnover (Below 100) :-**
It has been observed that the lowest turnover in the tehsils of Karmala and North Solapur. In these two tehsil below 100 lakhs turnover seen in the financial year. Because of Karmala is not favorable for the Self Help Group's (SHG's) development, so turnover is very low. While North Solapur is urban area so Self Help Group's (SHG's) as well as turnover is very low observed.

7. Conclusion:-

"Self-Help through Mutual Help" the logical concept was initially developed by women. In male dominated society, women have no money or source of income for their personal expenditures or to spend on their own choices. A sincere effort has been being made by the Govt. to bring more women under SHG movement to empower them politically, socially, psychologically and economically in the state, in general, and in the district, in particular. Though the SHG programme has spread rapidly too many parts of the country, its success has been uneven.

It has been concluded that the highest number of Self Help Group's (SHG's) in the tehsils of Akkalkot, while the lowest number of Self Help Group's (SHG's) in the tehsils of North Solapur. Because of rural area most of the Self Help Group's (SHG's) are formed, but in urban area rare Self Help Group's (SHG's) are developed.

It has been observed that the highest below poverty line Self Help Group's (SHG's) are in the tehsils of Akkalkot, while the below poverty line lowest number of Self Help Group's (SHG's) in the tehsils of North Solapur. It has been concluded that the rural area is favorable for the development of Self Help Group's (SHG's) in the study region. It has been observed that highest above poverty line Self Help Group's (SHG's) are in the tehsils of Mohol, while the above poverty line lowest number of Self Help Group's (SHG's) in the tehsils of North Solapur. The condition has been seen in both BPL Self Help Group's (SHG's) and APL Self Help Group's (SHG's) in the study region.

It has been observed that the highest turnover mean above 200 lakhs turnover has been seen in the tehsils of Barshi, Pandharpur, Malshiras and Akkalkot. These are rural dominate tehsils and two tehsils are pilgrim centers, so highest turnover during the financial year has been observed. While the lowest turnover in the tehsils of Karmala and North Solapur has been seen. In these two tehsil below 100 lakhs turnover seen in the financial year. Because of Karmala is not favorable for the Self Help Group's (SHG's) development, so turnover is very low. While North Solapur is urban area so Self Help Group's (SHG's) as well as turnover is very low observed.

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Women's Political Empowerment In Indian Democracy-A Study

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Abstract

Women and children represent more than two-thirds of the country's population. Therefore, the need to bring women into the mainstream of the development is the prime concern of the country today-i.e., because they are the principal providers of 'care' and ' support' to infants and children. Thus, investment towards women's capacity building and empowering them to exercise their choice is not only valuable in it self, Pt. Jawahar Lal Nehru once said: *"To awaken the people, it is women who must be awakened; once she is on the move, the family moves, the village moves and the nation moves".* Therefore, declaring Year 2001 as 'Women Empowerment Year' and celebrating 8th March as 'Women's Day' will not do anything, unless real efforts are made for women's empowerment through access to basic needs, so that their minimum quality of life is improved.

Key Words: Empowerment, capacity building, mobilization, political participation

Women and children represent more than two-thirds of the country's population. Therefore, the need to bring women into the mainstream of the development is the prime concern of the country today-i.e., because they are the principal providers of 'care' and ' support' to infants and children. Thus, investment towards women's capacity building and empowering them to exercise their choice is not only valuable in it self, but is also the surest way tomcontribute to economic growth and over all development of society.

Dramatic changes have taken place in the legal, political, educational and social status of women since independence. This was not unexpected, since the question of the improvement of the position of women had been at the heart of the social reform movements from the first quarter of the 19th century, when Raja Ram Mohan Roy started his questioning of social orthodoxy. Besides, the freedom struggle since the 1920s and especially since the 1930s had partaken amply of the creative energies of the Indian women. Gandhiji's statement in the mid 1930s to Mridula Sarabhai-a valiant fighter in the context of women and freedom-"I have brought the Indian women out of the kitchen. It is up to you (the women activist) to see that they don't go back", was no empty boast and no thoughtless exhortatrion.

In order to improve the well being of women and children in the society, the government has madea significant shift in the approach from 'welfare during the 1950s to development during the 1970s and the empowerment during the 1990s. During the 1990s, the major thrust with respect to women was to make them economically independent and self-reliant. For children, it was to ensure their survival, protection and development with a special focus on the girl child and adolescent girl.

Many programmes and schemes have been launched by central government to develop the women 'human resource'. Stare governments have also made efforts to raise the social, economic and political status of women. Still, the empowerment of women is an uphill task to be achieved. The ultimate goal of the government is to ensure that women fully participate in the political and social decision-making process at the local, regional and national level with a view to achieving political empowerment and gain over household resources. But it is not as simple as it sounds. Empowerment is not something that can be transferred from one segment of society. It is to be acquired and

one acquired, it needs to be preserved, exercised and sustained. It is the women themselves who have to realize their capacity and capabilities to get empowered at all socio-economic and political levels. Laws, policies and technologies can only provide an environment to facilitate their empowerment.

'Woman' in Indian mythology is believed to represent 'power' in her various religious manifestations of goddess (as Durga, Kali, Chandi etc.,)which evoke both fear and reverence. In contrast, there has been the 'deprived majority' of women, who struggle hard for empowerment, even today. From years, women in India have been suffering silently behind the veil of silence in the name of cultural norms and values. It was after the 1920s that the ruling elite started talking about the welfare of women and people's movement through participation in the freedom struggle. Generally, women started entering into the mainstream of politics and development. But the development is primarily concentrated in socio-economic relief to women, which proves of no use in raising their status and condition in the society. Then during 1990s, it was realized that until or unless women play an effective role in decision-making and policy-making, their status can not be improved. Thus the focus shifted from 'welfare' to 'development' and from 'development' to 'empowerment'.

Women's development is primarily socio-economic, while women's empowerment is essentially political. Clearly, a women's empowerment prospective I different from a women's development perspective in some very important ways. Empowerment mainly emphasizes gender equality. Sharma considers conscientization as the key element to women's empowerment. Conscientization implies acquisition of critical awareness about the structure of discrimination, exploitation and opposition in which one is placed. It has three aspects:

1. Awareness generation about gender gap among women;
2. Debunking of the belief that these gender gaps are God given and
3. Organization and mobilization of women to meet the end of gender equality

Thus it is awareness about discrimination that needs to be generated first and then the organization and mobilisatiuon of women to fight against this discrimination to get equality in all walks of life and hence empowerment. According to Usha Sarma, there are seven major areas of discrimination against women in India.

1. Malnutrition
2. Poor health
3. Lack of education
4. Over work
5. Lack of skills
6. Mistreatment and
7. Powerlessness

So abolish this discrimination. Some of the indicators of empowerment of women could be:

1. Enhanced political participation
2. Enhanced economic participation
3. Enhanced social participation
4. Eradication of all forms of violence against women
5. Enhanced concern about hygiene living
6. Enhanced cooperative attitude of males and
7. Raising self-confidence

On the basis of above, we shall now analyse government efforts to achieve the goal of women's empowerment.

Empowerment Of Women : Governmental Efforts

The principle of gender equality and justice, and protection of women's rights have been prime concerns in Indian thinking from the day of Independence. Accordingly, the country's concern in safeguarding the rights and privileges of women found its best expression in the Indian Constitution.

1. Article 14 confers equal rights and opportunities both to men and women in the political, economic and social spheres.
2. Article prohibits discrimination against any citizen on the grounds of sex, religion, race, caste etc.,
3. Article 15(3) empowers the State to make any special provision in favour of women and children.
4. Article 16 provides equal opportunities in the matter of public appointments for all citizens
5. Article 39 mentions that the State shall directs its policy towards providing to men and women equally the rights to means of livelihood and equal pay for equal work and
6. Article 42 directs the State to make provisions for ensuring just and humane conditions of work and maternity relief.

Certain legislations related to safeguarding the interests of women and girls has also come about in recent times. For example:

1. Dowry Prohibition Act, 1961
2. The Child Marriage Restraint Act, 1929 (as amended in 1986)
3. The Immoral Traffic (Prevention) Act, 1956 (as amended in 1986)
4. Indecent Representation of Women (Prevention) Act, 1986.

The landmark achievement of both the 73rd and 74 the Constitutional Amendment Acts in the year 1992 have also empowered women through participation in the gross roots democracy as represented by the Panchayati Raj Institutions. These amendments ensures that women shall constitute at least one-third of the total number of punches. It is a step in the right direction. These women punches can act as intermediaries between the government and the public and can serve as the vanguard of the movement opposing crimes against women. They can also work for the proper implementation of the existing laws protecting women's interests as well as on their rights under the Constitution and work to bring about self-confidence. Gender equality and women's development were being give newer dimensions on the international stage after the Beijing Conference in 1995. Being a signature to the Non-Aligned Summit, India had to concerned to these issues and some programmes were specially framed for women. It was realized that there are five different modes in uplifting women.

1. Welfare mode
2. Equity mode
3. Anti poverty mode
4. Efficiency mode and
5. Empowerment mode

Realizing the goals of uplifting of women, 2001 was observed as ***'WOMEN EMPOERMENT YEAR'*** by the Government of India and a ***National Policy for Empowerment of Women*** was announced on 20th March, 2001. Women's empowerment Year was celebrated with the following objectives:

1. To create and raise large-scale awareness of women's issues with active participation and involvement of all women and men
2. To initiate and accelerate action to improve access to and control of resources by women
3. To create an enabling environment to enhance self-confidence and autonomy of women

An integrated programme for women's empowerment named ***'SWAYAMSIDHA'*** was launched in September, 2001. The long-term objective of the programme was the all round empowerment of women-especially social and economic by ensuring their direct access and control over resources through a sustained process of mobilization and convergence of all ongoing sectoral programmes. To provide economic support and to develop entrepreneurship capoabilities among women. **Rashtriya Mahila Kosh (RMK)** was launched in 1993 which extends credit facilities to women through Intermediate Micro Credit Organisations who also lend money to **Self Help Groups (SHGs)** of women. **SWADHAR** was a programme started to address to the needs of women in difficult circumstances who are not covered by other schemes (Example widows, destitute women, women prisoners, migrants etc.,).

A Women's Economic Programme was launched in 1982 with the assistance from Norwegian Agency for Development Corporation. Under this pprogramme , grants are given to voluntary women organizations to train poor women. Support to training and Employment Programme for Women (STEP) was lanched in 1987 to provide new knowledge and update the skills of poor and asset –less women in traditional sectors such as agriculture and animal husbandry. At the legislative level, the Domestic Violence Against Women (Prevention) Bill, 2000 has been drafted in consultation with National Commission for Women (NCW). Along the same lines, the state governments restored to several women development programs. For example Haryana State Government Scheme "Our Daughter Our Wealth Scheme" for SC and ST girls in 1994; Kunwar Bai Nu Mameru Yojana in the state of Gujarat; Kamadhenu Yojana in Maharastra; Balika Samrakshana Yojana in the state of Andhra Pradesh and in the state of Uttar Pradesh, the centrally sponsored Indira Women Scheme was launched in August 1995.

Political Empowerment Of Women –A Bird's Eye View:

Self –confidence and participation in decision-making are the real tools of empowerment of women. "If women are self dependent only then it is up liftment of the

society possible. The following data focuses on parameters.

Women in Central Council of Ministers

In 2014, women occupied only 7 out of 45 ministerial positions in the Central Council of Ministers which is a little more than 15 % against around 10% women participation in 2004. 62 females have been elected in 2014 elections constituting more than 11% share in the Lower House. Details mentioned in Table-1.

Table 1 : Representation of Women in the Central Council of Ministers

Year	Number of Ministers			Number of Women Ministers		
	Cabinet Ministers	Ministers of State	Deputy Ministers	Cabinet Ministers	Ministers of State	Deputy Ministers
1985	15	25	0	1	3	0
1990	17	17	5	0	1	1
1995	12	37	3	1	4	1
1996	18	21	0	0	1	0
1997	20	24	0	0	5	0
1998	21	21	0	1	3	0
2002	32	41	0	2	6	0
2004	29	39	0	1	6	0
2006	30	48	0	1	5	0
2009	40	38	0	3	4	0
2011	32	44	0	2	6	0
2012	31	43	0	2	6	0
2013	31	47	0	3	9	0
2014	23	22	0	6	1	0

Source: Lok Sabha Secretariat, New Delhi

General Elections 2014

Female participation in elections has gone up from 56% in 15th General Elections to 66% in the 16th General Elections in 2014. The male participation has also improved from 60% to 67% during the same period. In the 16th General Elections, women turn out is maximum in Lakshadweep and Nagaland where as lowest in Jammu and Kashmir (48%) against total turn-out of 50 %. 40 of the 62 women MPs have been elected for the first time whereas total 315 members have been elected for the first time in the 16th Lok Sabha.

Out of 62 women MPs, 20 are in the age group of 41-50 and 34% of the women MPs are social and political workers and 44% are post graduates. Among male members, maximum 31% are from agriculture background and maximum 42% are graduates and only 29% are postgraduates. Details may be shown here in Table-2 to 7.

Table 2: Number of Electors and Percentage Voting in Various General Elections

General Election	Year	Total Number of Electors (in Millions)			Percentage of Electors participating in the elections		
		Female	Male	Total	Female	Male	Total
First	1952	NA	NA	173.2	NA	NA	61.2
Second	1957	NA	NA	193.7	NA	NA	62.2
Third	1962	102.4	113.9	216.4	46.6	62.0	55.0
Fourth	1967	119.4	129.6	249	55.5	66.7	61.3
Fifth	1971	NA	NA	274.1	NA	NA	55.3
Sixth	1977	154.2	167.0	321.2	54.9	65.6	60.5
Seventh	1980	170.3	185.2	355.6	51.2	62.2	56.9
Eighth	1984	192.3	208.0	400.3	59.2	68.4	64.0
Ninth	1989	236.9	262.0	498.9	57.3		61.9
Tenth	1991	234.5	261.8	498.4	51.4	61.6	56.7
Eleventh	1996	282.8	309.8	592.6	53.4	62.1	57.9
Twelfth	1998	289.2	316.7	605.9	57.9	65.7	61.9
Thirteenth	1999	295.7	323.8	619.5	55.6	63.9	59.9

Fourteenth	2004	322.0	349.5	671.5	53.6	62.2	58.1
Fifteenth	2009	342.2	374.7	716.9	55.8	60.3	58.1
Sixteenth	2014	397.0	437.0	834.1	65.6	67.1	66.4

Source: Lok Sabha Secretariat, New Delhi

Table 3: Number of Persons Contesting and Elected in Various Lok Sabha Elections

Lok Sabha Election	Year	Number of Seats available for Election	Total Number contesting	Average number of contestants	Female			Male		
					Total number contesting	Elected	Percentage Winning	Total	Elected	Percentage Winning
First	1952	489	1874	3.8	NA	NA	NA	NA	NA	NA
Second	1957	494	1518	3.1	45	27	60.0	1473	467	31.7
Third	1962	494	1985	4.0	70	35	50	1915	459	24
Fourth	1967	520	2369	4.6	67	30	44.8	2302	490	21.3
Fifth	1971	520	2784	5.4	86	21	24.4	2698	499	18.5
Sixth	1977	542	2439	4.5	70	19	27.1	2369	523	22.1
Seventh	1980	542	4620	8.5	142	28	19.7	4478	514	11.5
Eighth	1984	542	5574	10.3	164	42	25.6	5406	500	9.2
Ninth	1989	529	6160	11.6	198	27	13.6	5962	502	8.4
Tenth	1991	521	8699	16.7	325	37	11.4	8374	484	5.8
Eleventh	1996	543	13952	25.7	599	40	6.7	13353	503	3.8
Twelfth	1998	543	4750	8.7	274	43	15.7	4476	500	11.2
Thirteenth	1999	543	5155	9.5	296	52	17.6	4859	494	10.2
Fourteenth	2004	543	5435	10.0	355	45	12.7	5080	498	9.8
Fifteenth	2009	543	8070	14.9	556	59	10.6	7514	484	6.4
Sixteenth	2014	543	8251	15.2		62			481	

Source: Election Commission of India, New Delhi and Sabha Secretariat, New Delhi

Table 4: State-wise Turnout of Women Voters for General Elections-2014

State /UT	Women Electors	Women Voters	Women Turn out	Total Electors	Total Voters	Total turn out (in %)
Andaman & Nicobar	1,26,578	89,150	70	2,69,360	1,90,328	71
Andhra Pradesh	322,67,820	240,05,632	74	649,38,750	483,58,545	74
Arunachal Pradesh	3,79,760	3,07,665	81	7,59,387	5,96,956	79
Assam	90,98,065	72,09,120	79	188,85,274	150,85,883	80
Bihar	296,68,858	171,06,136	58	637,61,796	358,85,366	56
Chandigarh	2,81,593	2,08,499	74	6,15,214	4,53,455	74
Chattisgarh	87,07,266	59,34,886	68	176,23,049	122,55,579	70
Dadra & Nagar Haveli	90,402	77,486	85	1,96,617	1,65,286	84
Daman & Diu	54,816	44,855	82	1,11,827	87,233	78
Goa	5,32,469	4,21,234	79	10,60,777	8,17,000	77
Gujarat	193,74,012	115,64,888	60	406,03,104	258,24,003	64
Haryana	73,81,137	51,43,566	70	160,97,749	114,95,150	71
Himachal	23,35,641	15,28,869	55	48,10,071	30,98,501	64

Pradesh						
Jammu & Kashmir	34,00,142	16,39,279	48	72,032,163	35,66,863	50
Jharkhand	96,41,594	61,22,464	64	203,26,743	129,82,940	64
Karnataka	226,25,886	148,73,056	66	462,12,109	310,38,888	67
Kerala	125,92,391	92,97,708	74	243,26,649	179,75,893	74
Lakshadweep	24,489	21,654	88	49,922	43,239	87
Madhya Pradesh	228,08,210	129,05,240	57	481,18,040	296,39,796	62
Maharastra	379,74,127	220,04,266	58	807,17,283	487,18,844	60
Manipur	9,02,894	7,27,210	81	17,74,325	14,12,637	80
Meghalaya	7,89,602	5,53,284	70	15,67,241	10,78,058	69
Mizoram	3,55,951	2,17,034	61	7,02,170	4,33,201	62
Nagaland	5,82,458	5,09,585	87	11,82,948	10,38,910	88
Delhi	56,60,138	36,18,244	64	127,11,236	82,71,766	65
Odissa	140,01,732	104,99,752	75	291,96,041	215,32,275	74
Puducherry	4,69,309	3,88,657	83	9,01,357	7,40,017	82
Punjab	92,80,892	65,82,507	71	196,08,008	138,45,132	71
Rajasthan	203,31,124	124,82,068	61	429,69,447	271,10,044	63
Sikkim	1,79,725	1,50,745	84	3,70,611	3,08,967	83
Tamilnadu	275,42,720	203,70,491	74	551,14,505	406,20,440	74
Tripura	11,71,244	9,88,137	84	23,88,819	20,23,859	85
Uttar Pradesh	628,94,376	361,12,683	57	1389,65,820	810,92,302	58
Uttarakhand	33,78,841	21,23,123	63	71,29,939	43,91,890	62
West Bengal	301,43,679	247,35,849	82	628,33,128	516,22,555	82
India	***3970,49,941***	***2605,65,022***	***66***	***8341,01,479***	***8341,01,479***	***66***

Source: Election Commission of India, New Delhi.

Table 5: State-wise Women participation in 16th Lok Sabha

State / UT	Women MPs	Total Seats	Percentage %	First Time Elected		
				Women	Total	Percentage %
Andhra Pradesh	2	25	8	2	18	11
Assam	2	14	14	1	8	13
Bihar	3	40	8	1	17	6
Chandigarh	1	1	100	1	1	100
Chattisgarh	1	11	9	0	6	0
Delhi	1	7	14	1	7	14
Goa		2	0	0	1	0
Gujarat	4	26	15	2	15	13
Haryana		10	0	0	7	0
Himachal Pradesh		4	0	0	1	0
Jammu & Kashmir	1	6	17	0	4	0
Jharkhand		14	0	0	6	0
Karnataka	1	28	4	1	11	9
Kerala	1	20	5	1	4	25
Lakshadweep		1	0	0	1	0
Madhya Pradesh	5	29	17	2	14	14
Maharastra	5	48	10	3	29	10
Nagaland		1	0	0	1	0
Odissa	2	21	10	2	12	17
Puducherry		1	0	0	1	0
Punjab	1	13	8	0	6	0

Rajasthan	1	25	4	1	18	6
Tamilnadu	4	39	10	4	35	11
Telangana	1	17	6	1	10	10
Tripura		2	0	0	2	0
Uttar Pradesh	13	80	16	9	54	17
Uttarakhand	1	5	20	0	3	0
West Bengal	12	42	29	8	23	35

Source: Election Commission of India, New Delhi.

Table 6: Different Age Groups of Members of the Parliament

Age Group	Women MPs	First Time
25-30	5	12
31-35	7	17
36-40	8	27
41-45	10	41
46-50	10	49
51-55	7	46
56-60	2	53
61-65	6	40
66-70	4	15
71-75	3	12
76-80	0	3

Source: Lok Sabha Secretariat, New Delhi.

Table 7 : Occupational and Educational Background of Members of 16th Parliament

Occupation	Women MPs		Total MPs		Percentage of Women to Total
	Number	Percentage	Number	Percentage	
Agriculturist Farmers	11	18	166	31	7
Social and Political Worker	21	34	133	24	16
Business Person, Trader, Transporter	6	10	79	15	8
Advocate	5	8	54	10	9
Medical Practitioner	6	10	26	5	23
Artist, Film Artist	6	10	17	3	35
Professor, Educationalist, Teacher, Teacher (Retired)	5	8	26	5	19
Industrialist, Builder			10	2	
Journalist, Writer			7	1	
Civil Police, Military Services, Diplomat			7	1	
Religious Missionary, Social Reformer			2	0	
Sports Person, Cricketer			2	0	
Strategy Consultant			5	1	
Engineer, Chartered Accountant			5	1	
Others including House wife, Retired Government Employee	2	3	4	1	50

Source: Lok Sabha Secretariat, New Delhi

Educational Qualification	Women MPs		Total MPs		Percentage of Women to Total
	Number	Percentage	Number	Percentage	
Under Matriculate /Certified Courses /Others	3	5	17	3	18
Matric, Inter /Higher Secondary	13	21	92	17	14
Under Graduate	1	2	15	3	7
Graduate including those with equivalent	18	29	226	42	8

technical /Professional qualification					
Post graduate including those with equivalent technical /Professional qualification	27	44	160	29	17
Doctorate	0	0	33	6	0
Total	**62**		**543**		**11**

Source: Lok Sabha Secretariat, New Delhi

Conclusion:

Empowerment is still a distant dream for the adolescent girl forced into early marriage and child bearing at the cost of her own physical and mental development. The removal of sex imbalance is also an important factor in gender empowerment. To tackle the growing violence against women is necessary to help them develop. Governments may offer welfare schemes for women. They may float anti-poverty programmes. They may launch projects for their improvement. They may enact legislation to safeguard women's rights. Government policies can only facilitate the process, reduces the hurdles, and create an atmosphere conducive to transformation. But it is the women who have to empower themselves. Unless they themselves become conscious of their oppression and slow initiative, and seize the opportunities, it will not be possible to change their status.

Pt. Jawahar Lal Nehru once said: *"To awaken the people, it is women who must be awakened; once she is on the move, the family moves, the village moves and the nation moves".* Therefore, declaring Year 2001 as 'Women Empowerment Year' and celebrating 8th March as 'Women's Day' will not do anything, unless real efforts are made for women's empowerment through access to basic needs, so that their minimum quality of life is improved.

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The Medicinal Properties And Phytochemical components present in Five medicinal plants -Alove vera, Azadirachta indica (Neem), Withania somnifera L.(Ashwagandha), Ocimum sanctum (Tulsi), Adhatoda Vasica(Adulsa)

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Abstract :

Phytochemicals are chemicals of plant origin. Phytochemicals (from Greek phyto, meaning "plant") are chemicals produced by plants through primary or secondary metabolism. They generally have biological activity in the plant host and play a role in plant growth or defense against competitors, pathogens, or predators. Phytochemicals are produced by plants as a defence mechanism against pathogens. They are used to treat various metabolic, immunological and neurological disorders in humans in various parts of the world as a part of traditional medicine.The use of indigenous plants in commercial medicine is rising with increasing population. The antimicrobial properties of plant extracts led to increased demands. Plant tissue culture on the other hand, has proved to be a reliable alternative for the production of bioactive compounds from plants. Artificial plant culture can enhance the production of phytochemicals in medicinal plants. This review focuses on the medicinal properties of phytochemicals and their in-vitro production. The main phytochemical components, present in medicinal plants are tannins, alkaloids, saponins, cardiac glycosides, steroids, terpenoids, flavonoids, phlobatannins, anthraquinones, and reducing sugars.

1.Aloe Vera-Aloe vera is well known its for its medicinal properties against hepatic steatosis and it has also been demonstrated that extract improves this condition in rats. Kaempferol is a bioactive compound in A. vera which exhibits hepatoprotective activity . Lophenol and cycloartenol are some other A. vera phytosterols which when administered to Zucker diabetic fatty rats shows significant decrease of lipogenic gene expression and reduced hepatic lipid accumulation.

2. (Azadirachta indica) Neem - Neem is a useful traditional medicinal plant growing in Nigeria, India, and America. The phytochemicals and the biopesticidal components present were ascertained. The results showed that saponins, steroids and terpenes were mostly present, while tannins and glycosides were moderately present, and alkaloids, flavonoids, phenols and oxalic acid were least present. The presence of these phytochemical could account for the therapeutic uses of neem.Neem shows therapeutics role in health management due to rich source of various types of ingredients. The most important active constituent is azadirachtin and the others are nimbolinin, nimbin, nimbidin, nimbidol, sodium nimbinate, gedunin, salannin, and quercetin.

3.Withania somnifera L (Ashwagandha).- It is a multipurpose medicinal plant of family Solanaceae occurring abundantly in sub-tropical regions of the world. The folk healers used the plant to treat several diseases such as fever, cancer, asthma, diabetes, ulcer, hepatitis, eyesores, arthritis, heart problems, and hemorrhoids. The plant is famous for the anti-cancerous activity, low back pain treatment, and muscle

strengthening, which may be attributed to the withanolide alkaloids. W. somnifera is also rich in numerous valued secondary metabolites such as steroids, alkaloids, flavonoids, phenolics, saponins, and glycosides. A wide range of preclinical trials such as cardioprotective, anticancer, antioxidant, antibacterial, antifungal, anti-inflammatory, hepatoprotective, anti-depressant, and hypoglycemic have been attributed to various parts of the plant. Different parts of the plant have also been evaluated for the clinical trials such as male infertility, obsessive-compulsive disorder, antianxiety, bone and muscle strengthening potential, hypolipidemic, and antidiabetic. This review focuses on folk medicinal uses, phytochemistry, pharmacological, and nutrapharmaceutical potential of the versatile plant.

the Ayurvedic system of medicines, roots and leaves of the plant were considered phytotherapeutic agents to cure various ailments. Various clinical and preclinical trials exhibited the plant's potential in curing hepatotoxicity , neurological disorders , anxiety , Parkinson's disease and hyperlipidemia .The fruits contained considerable amounts of saponins and leaves possessed insect repellent properties .

Phytochemical analysis of W. somnifera revealed the presence of pharmacologically active steroidal lactones named withanolides .Withanine, a group of alkaloids isolated from the roots of the plant, forms 38% of the total weight of alkaloids .The principal withanolides extracted from W. somnifera in India were withanolide D and withaferin A which exhibited antitumor and cytotoxic properties . In addition to alkaloids, the plant also consisted of steroids, saponins, phenolics, flavonoids, phytophenols, and glycosides . Also, it is widely used in traditional medicine formulations as an antipyretic, analgesic, adaptogenic, and anti-inflammatory agent.

4.Ocimum sanctum (Tulsi)- It is an aromatic plant. Plants have served human kind as sources of medicinal agents since its earliest beginnings. In fact natural product once served as the source of all drugs. The main chemical constituents of Tulsi are: Oleanolic acid, Ursolic acid, Rosmarinic acid, Eugenol, Carvacrol, Linalool, and ß-caryophyllene, have been used extensively for many years in food products, perfumery, and dental and oral products and plant extract continues the numerous searches for more effective drugs of plant origin which are less toxic and available for low socio-economic population in the treatment of diseases caused by pathogenic bacteria. Recent studies suggest that Tulsi may be a COX-2 inhibitor, like many modern painkillers, due to its high concentration of eugenol. The present study was to evaluate the phytochemical screening of aqueous extracts of leaves of Ocimum. Study has been shown that this medicinal herbs can be used as pharmaceutical adjuvants in the formulation of various dosage form.

5. Adhatoda Vasica(Adulsa)-

The Adulsa Leaves is native to India, although it can also be found in Nepal, Sri Lanka, Pakistan, Malaysia, Indonesia, and China. This Vasaka plant is recognizable by its yellow bark, crossbow leaves, white and purple flowers, and pubescent club-shaped capsular fruits.

Adhatoda vasica mainly consists of alkaloids containing pyrroquinazoline ring derivatives like vasicine, vasicol, vasicinone along with other miner constituents. The decoction of Adoosa leaves is used to manage cough and cold due to its expectorant property. A paste of Adoosa leaves is applied on the wounds to promote healing due to its quick healing and anti-inflammatory properties. It also helps to manage skin infections due to its antibacterial property[

Conclusion- Phytochemicals are produced by plants as a defence mechanism against pathogens. The main phytochemical components, present inthis Five medicinal plants are tannins, alkaloids, saponins, cardiac glycosides, steroids, terpenoids,

flavonoids, phlobatannins, anthraquinones, and reducing sugars.

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Present Status of Organic Agriculture in India: A Geographical Analysis

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Abstract:

Organic farming is well-defined as the farming should be done by using the natural fertilizer and not use artificial fertilizer, pesticides and insecticides. India is a native country of the organic farming. Today's more than 134 countries of the world are growing organic food. India is also one of the major country of the word which growing organic foods. Madhya Pradesh is leading state of the organic farming in India, out the total organic production of India 31.84 percent area and 41.37 percent production noticed in Madhya Pradesh and Maharashtra is second place. According to 2021-22, in India 9119865.91 ha. area and 3410195.02 MT production is under organic farming. Organic farming method is very useful to prevent various types of pollutions and prevent the deferent types of food residues.

Key Words: Organic Farming, Agriculture, Environment, Pollution.

Introduction:

Organic farming is native to India. The farmers of ancient India are known to have evolved nature friendly farming systems and practices such as mixed farming, mixed cropping and crop rotation. The first "scientific" approach to organic farming can be quoted back to the Vedas of the "Later Vedic Period", 1000 BC to 600 BC (Randhawa, 1986; and Pereira, 1993). The essence is to live in partnership with, rather than exploit, nature. In this regard, the "Vrikshayurveda" (Science of plants), the "Krishisastra" (Science of agriculture) and the "Mrugayurveda" (Animal Science) are the main works (Mahale and Soree, 1999). Organic movement owes its origin primarily to the work of Sir Albert Howard, often referred to as the father of modern organic agriculture, who believed that a shift from nature's methods of crop production to adoption of newer methods leads to the loss of soil fertility (Howard, 1943).

Objectives:

1. To geographical analysis of the present status of organic farming in India.
2. To examine organic farming production of the study area.
3. To cateagrewise analysis of the organic production and worldwide export.

Database and Methodology:

The present paper is based Secondary data. The secondary data is collected from various sources which includes both published and unpublished books, government publication and private publications, Newspapers and Statistical glans of India 2021-22. Collected data is processed and presented in the form of tabular and graphical method

Study Area:

India located to the south central part of the Asia at the head of the Indian Ocean. The mainland bounded from about 8˚ 4' North to 37˚6' North latitude and 68˚7 East to 97˚25' East longitude and covering a distance of about 3200km with 30 degrees a part. It is the seventh largest nation of the world. Total geographical area is 3287263sq.km. and share about 2.4 percentage area of the world. It spread from snow covered Himalayas in the north to the southern trip at Kanyakumari. The east-west extent is 2933km. It has a land frontier of 15200km and coastline are 7516.6km. Long and its territory comprises 1256 Islands.

Result and Discussion:

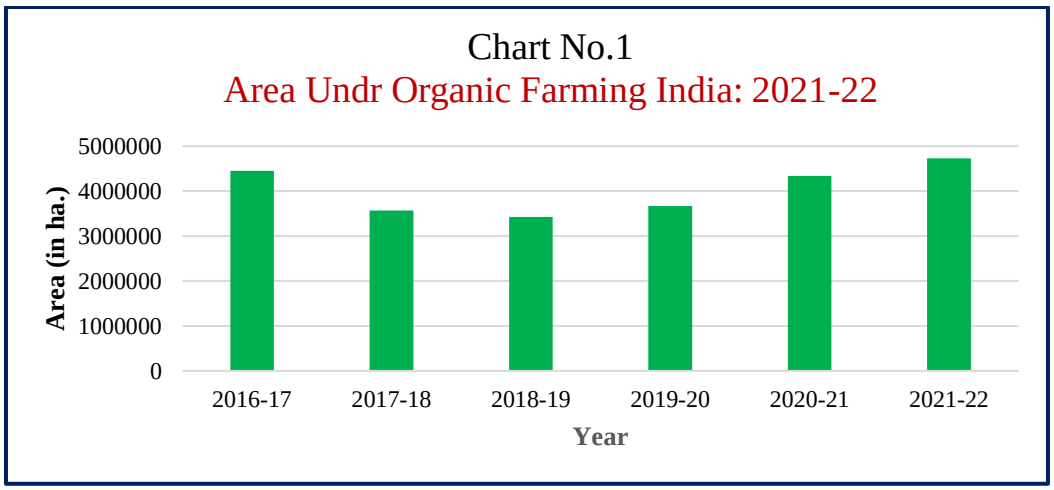
Organic farming is one of the best method of agriculture to decrease the cost of the agriculture production and increase the quality of the product. Organic farming is well-defined as the farming should be done by using the natural fertilizer and not use

artificial fertilizer, pesticides and insecticides. India is a native country of the organic farming. Table No.1. shows the Area Under Organic Farming 201617 to 2021-22. It indicates that the area of the organic farming declined 2016-17 to 2018-19 but it was increased from 2018-19 to 2021-22.

Table No. 1. Area Under Organic Farming 2016-17 to 2021-22

Area Under Organic Farming			
S. No.	**Year**	**Area (Ha.)**	**Change**
1	2016-17	4452987.20	-
2	2017-18	3566538.79	-886448.41
3	2018-19	3428639	-137899.79
4	2019-20	3669801	241162
5	2020-21	4339184.93	669383.93
6	2021-22	4726714.74	387529.8

Source: Statistical Research Report India, 2022.



India is one of the leading country of the word which practice organic farming. The last some year the area of organic farming cultivation is increased because of in the modern farming the cost of production is increased and nonrenewable sources are used and soil become an infertility. The many advantages of organic farming hence the farmers attract to organic farming. According to 2016-17, the total area of organic farming was 4452987.20 ha. which was declined in with 3566538.79 in 2017-18 and 3428639 in 2018-19. It was increased compare to 2018-19 in 2021-22 with 4726714.74 ha. Since the last five to six year 6.15 percent area of the organic cultivation was is increased.

Table No.2: State-wise Organic Cultivated Area and Production (2021-22)

1	Madhya Pradesh	1504950.14	31.84	Madhya Pradesh	1410894.49	41.37
2	Maharashtra	1133570.3	23.98	Maharashtra	691419.72	20.27
3	Gujarat	602248.5	12.74	Rajasthan	346961.32	10.17
4	Rajasthan	488904.77	10.34	Karnataka	150653.05	4.41
5	Odisha	180422.29	3.82	Odisha	183604.02	5.38
6	Karnataka	96188.88	2.04	Uttar Pradesh	131812.92	3.86
7	Uttarakhand	89670.88	1.90	Gujarat	258674.03	7.58
8	Sikkim	75475.28	1.60	Jammu & Kashmir	38640.64	1.13
9	Uttar Pradesh	70946.65	1.50	Kerala	31965.48	0.93
10	Jharkhand	58870.14	1.25	Uttarakhand	31719.74	0.93
11	Other State	484337.05	10.25	Other State	133849.64	3.92
Total		**4726714.74**	**100.00**	**Total**	**3410195.02**	**100.00**

Source: Statistical Research Report India, 2022.

Table no. 2 shows the top ten states in terms area under organic farming and its production in the India for year 2021-22. As per 2021-22 data the total area under organic framing of India is about 4726714.74 hectors and total production is 3410195.02. According to Research Institute of Organic Agriculture, India ranks fourth place in terms of certified area of organic cultivation. Madhya Pradesh is one of the leading state

area under organic farming, in which found 31.84 percent area to the total organic farming area of India, followed by Maharashtra (23.58), Gujarat (12.74), Rajasthan (10.34) and Odisha (3.82), Karnataka (2.4), Uttarakhand (1.90), Sikkim (1.60), Uttar Pradesh (1.50) and Jharkhand (1.25). Other reaming states account 10.25 percent to the total area of the country.

As per 2021-22 organic farming production data, Madhya Pradesh (41.37), Maharashtra (20.27) and Rajasthan (10.17) are leading state of India for the organic cultivation production, followed by Odisha, Uttar Pradesh, Gujarat, Jammu Kashmir, Kerala, Uttarakhand and other reaming states account was 3.92 percent to the total production of the country. Madhya Pradesh is first state of India to implement first time organic farming, Madhya Pradesh government has taken several effective stapeses to organic farming, it motivated to farmers to produce organic foods

Table. No. 3: Category Wise Organic Export: 2021-22

Sr. No.	Category Name	Exported Qt. (In MT)	Percentage	Total Value (In INR Lac)
1	Processed Food	281190.452	61.09	236977.048
2	Oil Seeds	59168.419	12.85	52954.197
3	Cereals & Millets	58513.835	12.71	47876.99
4	Sugar	21932.591	4.76	11197.995
5	Spices & Condiments	7957.918	1.73	31483.935
6	Other	31557.185	6.86	144442.109
Total		**460320.4**	**100.00**	**524932.274**

Source: Statistical Research Report India, 2022.

India is one of the major country of the world they are export verities of production whole of the world. As per 2021-22 data, the total 460320.40 MT organic farming production export to various countries of the world and its total Values is 524932.274 Crore rupees. Madhya Pradesh is leading state of India they export 38.32 percent production and its value is 1292.55 Crore rupees, followed by Maharashtra (18.58) Gujarat (13.04), Karnataka (4.80) and Uttar Pradesh (1.51) and other remaining state share 23.75 percent.

Table No. 4: Export of Organic Farm Production 2021:22

Country Name	Exported Qt. (In MT)	Percentage	Total Value (In Crore)
U.S.A.	186339.21	40.48	2217.84
European Union	170762.22	37.10	2056.24
Canada	40677.47	8.84	333.24
Great Britain	30221.77	6.57	282.69
Switzerland	5142.11	1.12	73.72
Other	6157.12	1.34	105.22
Total	**460320.41**	100.00	**5249.32**

Source: Statistical Research Report India, 2022.

Deferent types of organic farming products export by India in various country of the world, these types are processed foods, oil Seeds, Cereals and Millets, Sugar and other organic products. India export 61.09 percent processed food, 12.085 percent Oils Seeds, 12.71 percent Cereals and Millets, 1.73 percent spices and Condiments and 6.86 percent other organic products. The total value of exporting organic products are 5249.32 Crore rupees. India export 40.48 percent organic farming production to USA followed by European Union, and Canada.

Advantages of Organic Farming:

Organic farming is one of the best farming method which increasing the quality of agriculture product and decrease the cost of the production. The organic farming prevents different types of the food pollutions and also prevent toxic material present in the food material. Due to organic farming the foods become healthier, natural and tasty. This method of farming would be eco-friendly and not affect the environment. It should be decline the soil degradation. No influence to the biotic diversity in the environment. By the organic agriculture we should foodstuffs, they could not have any chemical toxic materials

Conclusion:

India is one of the leading country of the word which practice organic farming. As

per 2021-22 data the total area under organic framing of India is about 4726714.74 hectors and total production is 3410195.02. Since the last five to six year 6.15 percent area of the organic cultivation was is increased. Madhya Pradesh (41.37), Maharashtra (20.27) and Rajasthan (10.17) are leading state of India for the organic cultivation production. India is one of the major country of the world they are export verities of production whole of the world. As per 2021-22 data, the total 460320.40 MT organic farming production export to various countries of the world and its total Values is 524932.274 Crore rupees. India export most of the organic product by USA followed by European Union

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Management of Water and Crisis in Latur City: A Geographical Study

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Abstract:

For the present study in Latur city- the administrative headquarters of Latur district of Marathwada region has been selected. It lies between 18^0 24' 0" North latitudes and 76^0 35' 0" East longitudes. The study region area as 32.56 sq. km. which contribute (1.64 percent of district area) According to 2011 census the population of Latur city is 382754. The present paper tries to study to understand crisis and management of water in Latur city.

Key word: -LMC (Latur Municipal Corporation MJP (Maharashtra Jeevan Pradhikaran.)

Introduction:

Since 2013 rainfall has been consistently low in Maharashtra. The extreme weather events mean for peninsular India is that the dry region will become dryer, drought will be frequent and rainfall events will become extreme. Maharashtra with 1800 big dams has more dams than any other state- second- ranked Madhya Pradesh has just half of this number. Due to subsequent droughts reservoirs in the Marathwada region had just13% live storage (Feb.2016) compared with 30% at this time last year and 56% in 2013. Official statistics show that Beed is the most dependent on tanker water, followed by Osmanabad and Latur (city)

Objective of the Study:

i) To study water management and crisis in Latur city

Data Base:

The data have been collected from District Census Handbook 2011, Socio-economic Abstract of Latur District 2014-15, Everything about water September, 2011 and information from newspapers and media articles.

Water supply system in the city:

The water supply system of the city consists of intake works from 3 locations namely Sai head works, Nagzari head works and Dhanegaon head works.

The Sai head works scheme is located at a distance 08 km. from the city and has weir on the river manjra. The Nagzari KT weir is locate at a distance of 12 km on the Manjara river and the two sources together can supply about 35 MLD water to the city. There has been number of up-gradation and expansion after the original scheme by works executed under stage – II , part – I (1970) and stage – III (1989) and stage – IV, part II (2001). The third source Dhanegaon was commenced in 2005 and is located at a distance of 60 km. from the city with intake on Manjara Dam. LMC has undertaken a source augmentation project under stage V. This scheme involved bulk water transmission over 60 km to address the ever increasing demands. There has been rehabilitation of old water works and distribution system expansion.

Water crisis in the city:

Latur is the administrative headquarters of Latur district, located in the Marathwada region of Maharashtra. It has an area of 32.56 sq. km. and a steadily growing population of about 5 lakh. Apart from the resident population, Latur has a floating population of about 25-30 thousand people that visit the city every day for various trade and commerce relate activities. Latur also houses many regional offices of the state government and has reputed educational institutes, quality health care facilities and infrastructure services.

The water supply to the Latur city was previously managed by Latur Muncipal Corporation (LMC) and faced major problems because of source limitations and very poor

water supply accounting. During the summer season the water supply was reduced to about 40 liters per capita per day and 30 to 40 tankers per day were engaged to manage the shortfall of water supply. The residents faced extreme water shortages and on many occasions, violence erupted over water.

The water management function was transferred from LMC to Maharashtra Jeevan Pradhikaran to infuse operational improvements and finance various capital schemes.

Recommendations:

1. The entire region is underlain by the Deccan Trap Basalt where only dug wells are most feasible structures for ground water development. The sites for bore well need to be selected only after proper scientific investigation.
2. Bore wells generally tap deeper fractures, which may not be sustainable. Besides, the bore wells should only be used for drinking water supply and not for irrigation.
3. The existing village pounds need to be rejuvenated for water conservation and recharge.
4. Improvement in the quality of water being supplied have been achieved through continuous Laboratory analysis, proper operation of chemical dosing system and replacement, repair and clearing choked pipelines, to maintain a uniform and consistent quality water supply to the residents.

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Water Conservation: A step to conserve water is the step to secure the future…..

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Abstract:
The most essential among all the natural resources on earth is water. A drop of water is worth more than a sack of gold for the thirsty man. If each one of us makes efforts to save water today, it will save us later. Water conservation is the most effective and environmentally sound method to fight global warming. Water conservation is what that can reduce the scarcity of water. It aims to improve the efficiency of use of water, and reduce losses and waste.

Key Words: Scarcity of Water, use, resources, Conservation.

Introduction:

Water has emerged as one of the primary environmental concerns for the 21st century. Many parts of the world are currently facing water shortages, while others must contend with severe water pollution. The consequences are bleak: social, economic and political instability leading, in the worst case scenario, to violence over dwindling water resources. Immediate action is needed to stall the emerging crisis and to begin reversing many of the trends we have set over time. A number of organizations around the world are working towards resolving these issues. It becomes apparent, though, that there are no easy solutions. Since water flows irrespective of political and even cultural borders, cooperation amongst the various stakeholders must become an essential part of the global effort.

Objectives:

The research paper is related to water conservation. That the aim of the paper to avoid leakages of water from the taps. To tips to save water, benefits to conserve water, technical method to conserve water etc.

Source of data:

Thus the data was collected in various journals, books, research papers, census, newspapers, government reports, abstracts etc. this data adopted to the paper was kindly and clearly shows which steps applying to water conservation.

Tips to Save Water :

1. Avoid leakage of water from the taps.
2. Turn the tap off when not in use especially when you brush your teeth or wash clothes.
3. Rainwater harvesting is the method to conserve water.
4. The water supply should be limited in those areas which enjoys the unlimited water supplies.
5. Check the leakage of water in the toilets. Also get check the hidden water leaks.
6. Educate the mind of the people in the rural areas to save the water.
7. Promote the conservation of water through media and wall posters.
8. Never throw the water unnecessary on roads which can be used for gardening and cleaning.
9. Avoid unnecessary flushing the toilets. Dispose off the tissues, cigarettes and other waste into the bin instead of toilets.
10. Use minimum amount of water to bath.
11. Water Waste restrictions.
12. Improvement in the water distribution system.
13. Water your lawn only when it is needed.
14. Use a broom instead of hose to clean the sidewalks or to wash the car.
15. Capture the water that is leaking and repair it as soon as possible.
16. You can use washing machine to wash clothes that does not consume much water.
17. Don't leave the tap running while washing the dishes in the kitchen.

18. Install small shower heads to reduce the flow of water.

Benefits to Conserve Water:

1. If you save water it can save your money bills.
2. Reduction in interior water use cuts waste water flows, especially overflowing of gutters which contaminates the environment.
3. Environment benefits include eco system and habitat protection.
4. Water conservation helps in improving the quality of your drinking water.

Technical Methods to Conserve Water:

Rainwater Harvesting:

Rainwater harvesting is the gathering and collection of water from the rooftop. The traditional method of rain water harvesting is the most effective and simple way to conserve the water. It means utilization of rain water for the domestic as well as agricultural purposes. There are three technical methods of rain water harvesting such as Catchment, Conveyance and storage.

Historical Water Bodies:

There are many traditional water bodies which have been in disuse for the longer time. These bodies can be reused as the recharging points.

Ponds:

Steps should be taken to avoid dumping of sewage into the village ponds. Efforts need to be made to deepen these ponds with the dragline machines. Garbage and other waste sholud not be dumped into the ponds.

Water Conservation:

Our ancient religious texts and epics give a good insight into the water storage and conservation systems that prevailed in those days. Over the years rising populations, growing industrialization, and expanding agriculture have pushed up the demand for water. Efforts have been made to collect water by building dams and reservoirs and digging wells; some countries have also tried to recycle and desalinate (remove salts) water. Water conservation has become the need of the day. The idea of ground water recharging by harvesting rainwater is gaining importance in many cities.

In the forests, water seeps gently into the ground as vegetation breaks the fall. This groundwater in turn feeds wells, lakes, and rivers. Protecting forests means protecting water 'catchments'. In ancient India, people believed that forests were the 'mothers' of rivers and worshipped the sources of these water bodies.

Some ancient Indian methods of water conservation:

The Indus Valley Civilization, that flourished along the banks of the river Indus and other parts of western and northern India about 5,000 years ago, had one of the most sophisticated urban water supply and sewage systems in the world. The fact that the people were well acquainted with hygiene can be seen from the covered drains running beneath the streets of the ruins at both Mohenjodaro and Harappa. Another very good example is the well-planned city of Dholavira, on Khadir Bet, a low plateau in the Rann in Gujarat. One of the oldest water harvesting systems is found about 130 km from Pune along Naneghat in the Western Ghats. A large number of tanks were cut in the rocks to provide drinking water to tradesmen who used to travel along this ancient trade route. Each fort in the area had its own water harvesting and storage system in the form of rock-cut cisterns, ponds, tanks and wells that are still in use today. A large number of forts like Raigad had tanks that supplied water.

1. In ancient times, houses in parts of western Rajasthan were built so that each had a rooftop water harvesting system. Rainwater from these rooftops was directed into underground tanks. This system can be seen even today in all the forts, palaces and houses of the region.
2. Underground baked earthen pipes and tunnels to maintain the flow of water and to transport it to distant places, are still functional at Burhanpur in Madhya Pradesh, Golkunda and Bijapur in Karnataka, and Aurangabad in Maharashtra.

Rainwater harvesting:

In urban areas, the construction of houses, footpaths and roads has left little exposed earth for water to soak in. In parts of the rural areas of India, floodwater quickly flows to the rivers, which then dry up soon after the rains stop. If this water can be held back, it can seep into the ground and

recharge the groundwater supply.

This has become a very popular method of conserving water especially in the urban areas. Rainwater harvesting essentially means collecting rainwater on the roofs of building and storing it underground for later use. Not only does this recharging arrest groundwater depletion, it also raises the declining water table and can help augment water supply. Rainwater harvesting and artificial recharging are becoming very important issues. It is essential to stop the decline in groundwater levels, arrest sea-water ingress, i.e. prevent sea-water from moving landward, and conserve surface water run-off during the rainy season. Town planners and civic authority in many cities in India are introducing bylaws making rainwater harvesting compulsory in all new structures. No water or sewage connection would be given if a new building did not have provisions for rainwater harvesting. Such rules should also be implemented in all the other cities to ensure a rise in the groundwater level.Realizing the importance of recharging groundwater, the CGWB (Central Ground Water Board) is taking steps to encourage it through rainwater harvesting in the capital and elsewhere. A number of government buildings have been asked to go in for water harvesting in Delhi and other cities of India.

All you need for a water harvesting system is rain, and a place to collect it! Typically, rain is collected on rooftops and other surfaces, and the water is carried down to where it can be used immediately or stored. You can direct water run-off from this surface to plants, trees or lawns or even to the aquifer.

Some of the benefits of rainwater harvesting are as follows:

1. Increases water availability
2. Checks the declining water table
3. Is environmentally friendly
4. Improves the quality of groundwater through the dilution of fluoride, nitrate, and salinity
   Prevents soil erosion and flooding especially in urban areas

Agriculture:

Conservation of water in the agricultural sector is essential since water is necessary for the growth of plants and crops. A depleting water table and a rise in salinity due to overuse of chemical fertilizers and pesticides has made matters serious. Various methods of water harvesting and recharging have been and are being applied all over the world to tackle the problem. In areas where rainfall is low and water is scarce, the local people have used simple techniques that are suited to their region and reduce the demand for water. In India's arid and semi-arid areas, the 'tank' system is traditionally the backbone of agricultural production. Tanks are constructed either by bunding or by excavating the ground and collecting rainwater.Rajasthan, located in the Great Indian Desert, receives hardly any rainfall, but people have adapted to the harsh conditions by collecting whatever rain falls. Large bunds to create reservoirs known as khadin, dams called johads, tanks, and other methods were applied to check water flow and accumulate run-off. At the end of the monsoon season, water from these structures was used to cultivate crops. Similar systems were developed in other parts of the country. These are known by various local names ¾ jal talais in Uttar Pradesh, the haveli system in Madhya Pradesh, ahar in Bihar, and so on.

Reducing water demand:

Simple techniques can be used to reduce the demand for water. The underlying principle is that only part of the rainfall or irrigation water is taken up by plants, the rest percolates into the deep groundwater, or is lost by evaporation from the surface. Therefore, by improving the efficiency of water use, and by reducing its loss due to evaporation, we can reduce water demand. There are numerous methods to reduce such losses and to improve soil moisture. Some of them are listed below.

1. Mulching, i.e., the application of organic or inorganic material such as plant debris, compost, etc., slows down the surface run-off, improves the soil moisture, reduces evaporation losses and improves soil fertility.
2. Soil covered by crops, slows down run-off and minimizes evaporation losses. Hence, fields should not be left bare for long periods of time.
3. Ploughing helps to move the soil around. As a consequence it retains more water thereby reducing evaporation.
4. Shelter belts of trees and bushes along the edge of agricultural fields slow down

the wind speed and reduce evaporation and erosion.

5. Planting of trees, grass, and bushes breaks the force of rain and helps rainwater penetrate the soil. Fog and dew contain substantial amounts of water that can be used directly by adapted plant species. Artificial surfaces such as netting-surfaced traps or polyethylene sheets can be exposed to fog and dew. The resulting water can be used for crops.
6. Contour farming is adopted in hilly areas and in lowland areas for paddy fields. Farmers recognize the efficiency of contour-based systems for conserving soil and water.
7. Salt-resistant varieties of crops have also been developed recently. Because these grow in saline areas, overall agricultural productivity is increased without making additional demands on freshwater sources. Thus, this is a good water conservation strategy.
8. Transfer of water from surplus areas to deficit areas by inter-linking water systems through canals, etc.
9. Desalination technologies such as distillation, electro-dialysis and reverse osmosis are available. Use of efficient watering systems such as drip irrigation and sprinklers will reduce the water consumption by plants.

Conclusions:

The most important step in the direction of finding solutions to issues of water and environmental conservation is to change people's attitudes and habits¾this includes each one of us. Conserve water because it is the right thing to do. We can follow some of the simple things that have been listed below and contribute to water conservation.

1. Try to do one thing each day that will result in saving water. Don't worry if the savings are minimal ¾ every drop counts! You can make a difference.
2. Remember to use only the amount you actually need.
3. Form a group of water-conscious people and encourage your friends and neighbours to be part of this group. Promote water conservation in community newsletters and on bulletin boards. Encourage your friends, neighbours and co-workers to also contribute.
4. Encourage your family to keep looking for new ways to conserve water in and around your home.
5. Make sure that your home is leak-free. Many homes have leaking pipes that go unnoticed.
   Do not leave the tap running while you are brushing your teeth or soaping your face.
   See that there are no leaks in the toilet tank. You can check this by adding colour to the tank. If there is a leak, colour will appear in the toilet bowl within 30 minutes. (Flush as soon as the test is done, since food colouring may stain the tank.)
6. Avoid flushing the toilet unnecessarily. Put a brick or any other device that occupies space to cut down on the amount of water needed for each flush.
7. When washing the car, use water from a bucket and not a hosepipe.
8. Do not throw away water that has been used for washing vegetables, rice or dals ¾ use it to water plants or to clean the floors, etc.

You can store water in a variety of ways. A simple method is to place a drum on a raised platform directly under the rainwater collection source. You can also collect water in a bucket during the rainy season.

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General Landuse in Osmanabad District: A Geographical Analysis

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Abstract:
In this study an effort to analysis the general landuse pattern in Osmanabad district at micro level. The term 'Landuse' means generally, land utilization. The various factors are effects on general landuse, like a physiography, climate, soil, Irrigation and some socio-economical elements. This study is based on secondary data; data is obtained from governmental record. In the study area agriculture is dominant economic activity and their account is more in general landuse. Out of the district geographical area 76.97 percent area under net sown area followed by follow land, cultivable waste and forest cover share very less amount with 0.86 percent.

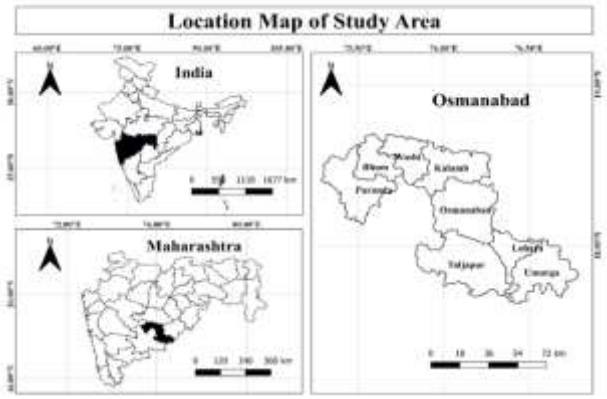
Key Words: Landuse, Fallow Land, Net sown area, Cultivation.

Introduction:
One of the most significant natural resource available for the man is Landuse. It is play a crucial role of region's economy. Particularly land use means the utilization of land in deferent way. Today in the word the landuse pattern is varies in one nation to another. In underdeveloped, developed and developing countries it is also deferent. In India most of the area is covered by agricultural land because India is one of the rural country of the word more than seventy percent people engaged in agriculture sector. The variation of the landuse pattern in deferent part of the country is mainly physical factors like a topography, climate, soils, rainfall, are the major factors affects. Other hand nature of economy, technological development and social development also affect the variation of landuse pattern. In India the pattern of landuse classified in to five categories they are forest, land not available for cultivation, cultivable waste land, follow land and net shown area.

Objective: The main objective of the present study is to geographical analysis of general landuse pattern in Osmanabad district.

Database and Methodology:
The present paper is based Secondary Source of data. The secondary data is collected from various sources which includes both published and unpublished books, government publication and private publications. District census handbook, district statistical department, socio economic review and district statistical abstract of Osmanabad district. Collected data is processed and presented in the form of tabular and graphical method.

Study Area:
Osmanabad district is located in the southern portion of the Maharashtra state it is stretched between 17° 37' to 18° 42' north latitude and 75° 16' to 76° 47' east longitude. Osmanabad district bounded Latur district in



the East, Beed district in the north side, Solapur district in the south west and West, Karnataka state in the South East and Ahmednagar district in the North West. The total area of Osmanabad district is 7569 sq. km. Total population of the district is 1657579 persons in census year 2011.

General Landuse Pattern:
Table No. 1. Shows the general landuse pattern of Osmanabad district. In the present

study general landuse of the study region classified in to five categories they are forest, land not available for cultivation, cultivable waste land, follow land and net shown area. According 2012-13 data the total geographical area of the district is 779500 hectors; in which net son area share most of the area of the study region.

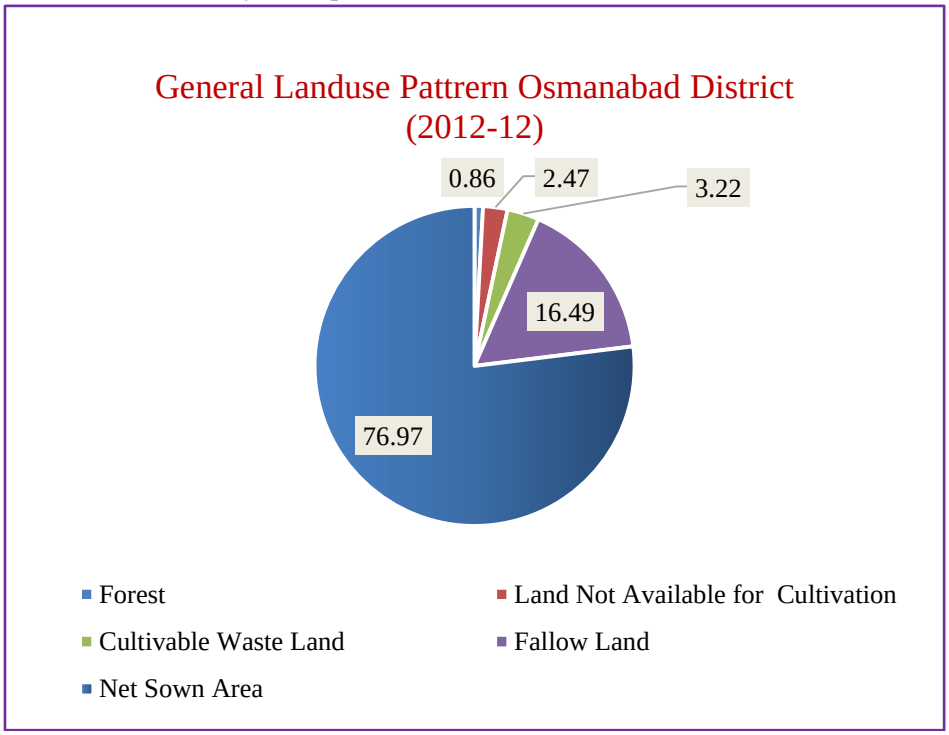
Table No. 1 General Landuse Pattern of Osmanabad District: 2012-13

Sr. No.	Landuse Category	Area (in hectors)	% of Area
1	Forest	6700	0.86
2	Land Not Available for Cultivation	19226	2.47
3	Cultivable Waste Land	25082	3.22
4	Fallow Land	128542	16.49
5	Net Sown Area	599950	76.97
Total Geographical Area		**779500**	**100.00**

Source: *Socio-economic abstract of Osmanabad district, 2012-13.*

1. **Forest:**
   Physiography and climate play a vital role of the distribution pattern of the any region. Forest covers play significant role of environmental and ecological balance while forest area of the study region very less due to the study area falls the under the rain shadow area. Out of total geographical area share only 0.86 percent area this is very less than the state average and ecological balance.

2. **Cultivable Waste Land:**
   This category is suitable for the agriculture but it is recently waste. Most of the area under this categories, it account is 3.22 geographical percent area of the study region due to physiographical, climatically and socio-economic causes.



1. **Fallow Land:**
   The fallow land includes not only current follow land while consist of other follow land. Fallow land is second largest categories, most of the area is covered by this category due to hilly terrain, undulating land, unfertile land, rain shadow area and some socio-economic causes. Its account is 16.49 percent area of the study region.

2. **Land Not Available for Cultivation:**
   Nonagricultural uses cultivable waste land and barren land including in this categories. Out of

total geographical area of the study region this category shares 2.47 percent area.

3. **Net Sown Area:**
   Net sown area means those areas sown in one time in the same year. It is a largest area of the study region. Agriculture is a dominant economy of the study area especially in rural area, hence the maximum area consists of this category. Out of total geographical area 76.97 percent area share this category. Climate, soils, drainage pattern, technological development socio-economic condition of the people are the major factors effects on the higher land of this category.

Conclusions:

Agriculture is a dominant economy of the study area especially in rural area, hence the maximum area consists of this category. Out of total geographical area net sown area share 76.97 percent area of the study region. Fallow land is second largest categories, most of the area is covered by this category due to hilly terrain, unfertile land, rain shadow area and some socio-economic causes. The account of forest land of the study region is very less due to this area found in drought prone zone. The account of land not available for cultivation and cultivable waste land is very less with 2.47 and 3.42 percent to the total geographical area of the study region.

References:

1. Socio-economic abstract of Osmanabad district 2012-13.
2. Statistical abstract Maharashtra State 2012-13.
3. District census Handbook, Osmanabad District 2011.
4. Human Geography Majid Husain, Rawat publication New Delhi.

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Management of Water and Crisis in Latur City: A Geographical Study

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DOI- 10.5281/zenodo.7648189

Abstract:

For the present study in Latur city- the administrative headquarters of Latur district of Marathwada region has been selected. It lies between 18^0 24' 0" North latitudes and 76^0 35' 0" East longitudes. The study region area as 32.56 sq. km. which contribute (1.64 percent of district area) According to 2011 census the population of Latur city is 382754. The present paper tries to study to understand crisis and management of water in Latur city.

Key word: -LMC (Latur Municipal Corporation MJP (Maharashtra Jeevan Pradhikaran.)

Introduction:

Since 2013 rainfall has been consistently low in Maharashtra. The extreme weather events mean for peninsular India is that the dry region will become dryer, drought will be frequent and rainfall events will become extreme. Maharashtra with 1800 big dams has more dams than any other state- second-ranked Madhya Pradesh has just half of this number. Due to subsequent droughts reservoirs in the Marathwada region had just13% live storage (Feb.2016) compared with 30% at this time last year and 56% in 2013. Official statistics show that Beed is the most dependent on tanker water, followed by Osmanabad and Latur (city)

Objective of the Study:

1. To study water management and crisis in Latur city

Data Base:

The data have been collected from District Census Handbook 2011, Socio-economic Abstract of Latur District 2014-15, Everything about water September, 2011 and information from newspapers and media articles.

Water supply system in the city:

The water supply system of the city consists of intake works from 3 locations namely Sai head works, Nagzari head works and Dhanegaon head works. The Sai head works scheme is located at a distance 08 km. from the city and has weir on the river manjra. The Nagzari KT weir is locate at a distance of 12 km on the Manjara river and the two sources together can supply about 35 MLD water to the city. There has been number of up-gradation and expansion after the original scheme by works executed under stage – II , part – I (1970) and stage – III (1989) and stage – IV, part II (2001). The third source Dhanegaon was commenced in 2005 and is located at a distance of 60 km. from the city with intake on Manjara Dam. LMC has undertaken a source augmentation project under stage V. This scheme involved bulk water transmission over 60 km to address the ever increasing demands. There has been rehabilitation of old water works and distribution system expansion.

Water crisis in the city:

Latur is the administrative headquarters of Latur district, located in the Marathwada region of Maharashtra. It has an area of 32.56 sq. km. and a steadily growing population of about 5 lakh. Apart from the resident population, Latur has a floating population of about 25-30 thousand people that visit the city every day for various trade and commerce relate activities. Latur also houses many regional offices of the state government and has reputed educational institutes, quality health care facilities and infrastructure services.

The water supply to the Latur city was previously managed by Latur Muncipal Corporation (LMC) and faced major problems because of source limitations and very poor water supply accounting. During the summer season the water supply was reduced to about 40 liters per capita per day and 30 to 40 tankers per day were engaged to manage

the shortfall of water supply. The residents faced extreme water shortages and on many occasions, violence erupted over water.The water management function was transferred from LMC to Maharashtra Jeevan Pradhikaran to infuse operational improvements and finance various capital schemes.

Recommendations:

1. The entire region is underlain by the Deccan Trap Basalt where only dug wells are most feasible structures for ground water development. The sites for bore well need to be selected only after proper scientific investigation.
2. Bore wells generally tap deeper fractures, which may not be sustainable. Besides, the bore wells should only be used for drinking water supply and not for irrigation.
3. The existing village pounds need to be rejuvenated for water conservation and recharge.
4. Improvement in the quality of water being supplied have been achieved through continuous Laboratory analysis, proper operation of chemical dosing system and replacement, repair and clearing choked pipelines, to maintain a uniform and consistent quality water supply to the residents.

References:

1. District Census Handbook 2011.
2. Socio-economic Abstract of Latur District 2014-15.
3. Everything about water September, 2011.
4. Aqua fed private operators delivering performance.

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APPLICATIONS OF CHROMONES: RECENT TRENDS

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Abstract:
The rigid bicyclic chromone fragment has been classified as a privileged structure in drug discovery, due to its use in a wide variety of pharmacologically active compounds; few examples as therapeutic agents chromones are used as scaffolds for the development of bioactive compounds, the application in medicinal chemistry, such as preparation of fluorescence probes, due to photochemical properties of chromones have been also mentioned.

Keywords: *Flavonoids, Chromone, Biological Activity, Anti- Cancer, Anti-HIV, Applications, Drugs.*

1.INTRODUCTION

Chromone chemistry has been widely explored and extensively reviewed over the past few years. The following review is intended to give a broad overview of the applications of chromones.

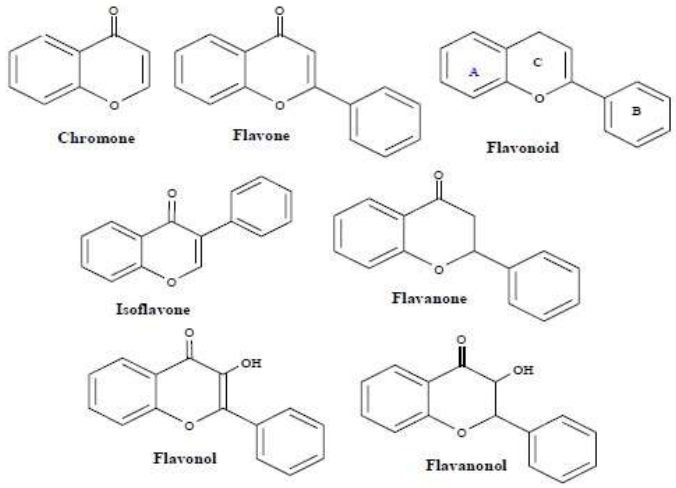


Fig. 1: Examples of common chromones(flavonoids) and their derivatives

The chromone ring system, 1-benzopyran-4-one (Figure 2), is the core fragment in several flavonoids, such as flavones, flavonols and isoflavones1. The word chromones is derived from the Greek word chroma, meaning "color", which indicates that many chromone derivatives exhibit a broad variation of colors. The rigid bicyclic chromone fragment has been classified as a privileged structure in drug discovery, due to its use in a wide variety of pharmacologically active compounds such as anticancer2, anti-HIV, antibacterial and anti-inflammatory agents3-12. Several chromone derivatives have also been reported to act as kinase inhibitors, to bind to benzodiazepine receptors and as efficient agents in the treatment of cystic fibrosis [13-15].

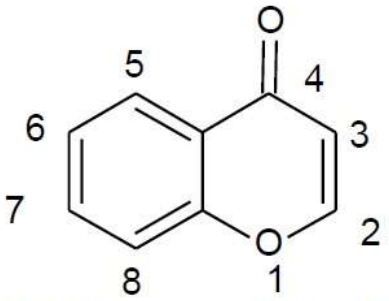


Fig. 2: The general structure and numbering of chromones

Although there are a large number of chromone derivatives known for their pharmacological properties there are only a few examples that have been or that are used as therapeutic agents today. Khellin as an example extracted from the seeds of the plant Ammi visnaga, was the first chromone in clinical practice and it has been used for centuries in the Mediterranean area as a diuretic to relieve renal colic[16]. Around the 1950s, khellin was used as a smooth muscle relaxant in the treatment of angina pectoris and asthma[17]. However, present use of khellin as a therapeutic agent focuses on the treatment of vitiligo, a pigmentation disorder[18]. Other current medical treatments with chromone derivatives is exemplified by sodium cromoglycate used as a mast cell stabilizer in allergic rhinitis, asthma and allergic conjunctivitis; diosmin for the treatment of venous diseases; flavoxate as smooth muscle relaxant to treat urge incontinence [16,19-23].

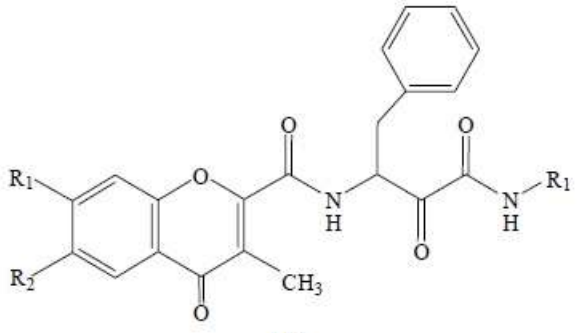
Beside their diversity as structural scaffolds possible to modify to achieve different pharmacological activities, several chromone derivatives exhibit a wide range of fluorescent properties. In particular, the 3-hydroxyflavones have been used as hydrogen bonding sensors, fluorescent probes for DNA-binding affinity studies and as fluorophores for protein labeling and apoptosis [24-27]. Chromones are used as scaffolds for the development of bioactive compounds.

2.Biological Activity

Heterocycles play an important role in the design and discovery of new physiological/pharmacologically active compounds[28]. Chemically, chromones (4H-chromen-4-ones) are heterocyclic compounds with the benzo-c-pyrone framework. Molecules containing the chromone or benzopyranone ring have a wide range of biological activities. They have been shown to be tyrosine and protein kinase inhibitors [29], as well as anti-inflammatory[30], antiviral[31], antioxidant[32,33], antihypertensive agents [31] and Chromone derivatives are also active at benzodiazepine receptors[34]. In addition to this, they have been shown to be anticancer agents[35], and possessing antimutagenic properties36. Chromones may also have application in cystic fibrosis treatment, as they activate the cystic fibrosis transmembrane conductance regulator[37].

2.1. Antioxidant

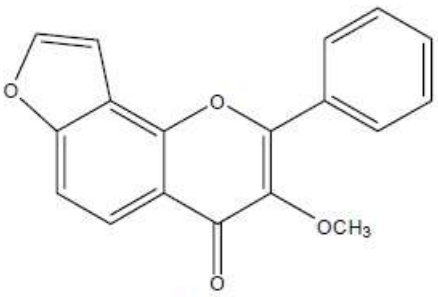
Lee and coworkers (2011), reported that new chromone carboxamide derivatives [1] were synthesized as conformationally constrained structural variants of MDL, to provide alternative μ- calpain inhibitors and antioxidant activities in DPPH scavenging and lipid peroxidation inhibitory effects[38].



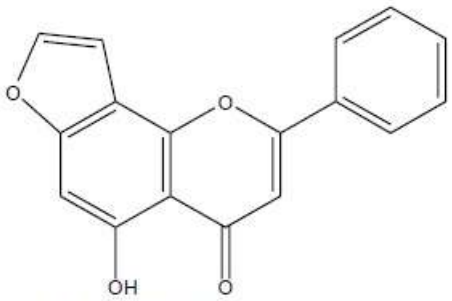
[1]

2.2. Antibacterial Activity

Pongaglabol 3 exhibited activity against the bacteria Shigella dysenteriae, Streptococcus ß- haemolyticus, and Staphylococcus aureus; the lowest concentration for inhibition of the first two types of bacteria amounts to 64 µg/ml[39] Methanol and ethyl acetate extracts from Pongamia pinnata plants in mixture with karangin [2][40] exhibited antibacterial activity.

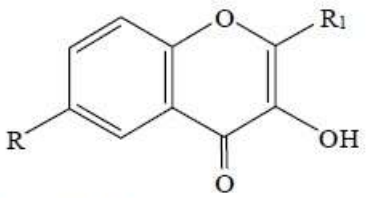


[2] Karangin



[3] Pongaglabol

Gharpure, et al[41] synthesized and evaluated 3-hydroxy-2-phenyl-4H-chromen-4-ones [4] asantibacterial activity. 3-Hydroxy-2-phenyl-4H-chromen-4-ones have been synthesized from appropriate 1-(2-hydroxyphenyl)-3-phenylprop-2-en-1-one. All compounds were evaluated for antibacterial activity against S. Aureus, B. Subtilis, E. Coli and P. Aerugenosa as well as fungi.



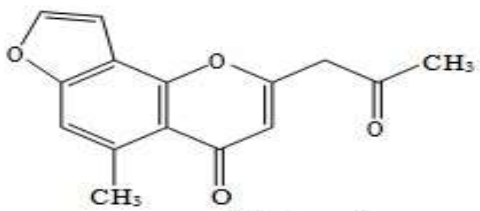
R = i) H, ii) Cl; R_1 = i) C_6H_5 ii) 4-$CH_3C_6H_4$ iii) 3,4-$(OCH_3)C_6H_3$

iv) 4-Cl C_6H_4 v) 4-$N(CH_3)_2C_6H_4$ vi) C_4H_3O vii) 4-F C_6H_5 viii) 4-$OCH_3C_6H_4$

[4] 3-Hydroxy-2-phenyl-4H-chromen-4-ones

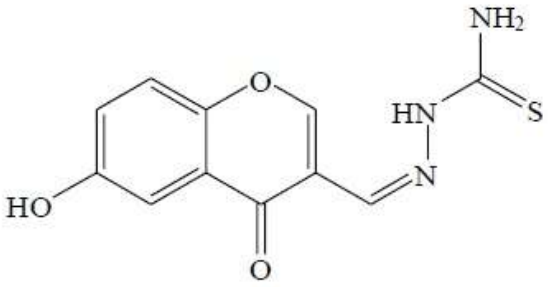
2.3. Anticancer Activity

Furoaloesone [5][42], isolated from the plant Cape aloe, is capable to inhibit the growth of cancer cells of the Ehrlich ascitic carcinoma type [127]. (−)-Sumatrol and (±)-villosinol from Lonchacarpus aff. fluvialisrind exhibited significant cytotoxicity against the cells of human oral epidermal carcinoma. Low toxicity in conjunction with high antitumor activity are also known for the pyrano[2,3-e]indol-4(7H)-one system[43].



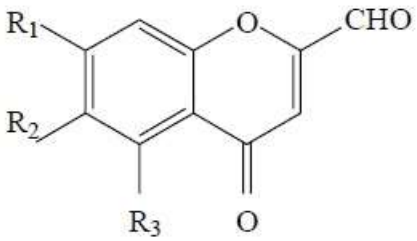
[5] Furoaloesone

A new ligand L, 6-hydroxy chromone-3-carbaldehyde thiosemicarbazone [6] and its Ni(II) complex have been synthesized and characterized. Ni(II) complex and ligand L were subjected to biological tests in vitro using THP-1, Raji and Hela cancer cell lines. Compared with the ligand, Ni(II) complex showed significant cytotoxic activity against these three cancer cell lines.



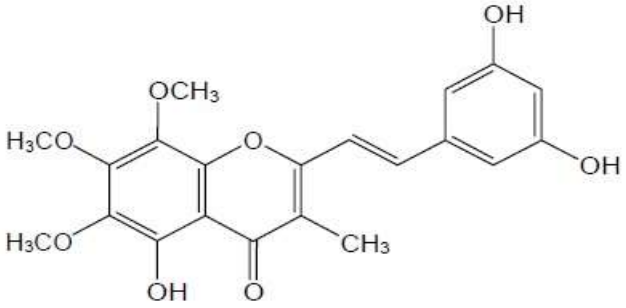
[6]

Several 3-formylchromone derivatives [7] were examined for their tumor cell-cytotoxic, anti- Helicobacter pylori, urease inhibitory and anti-HIV activity. Comparing their relative cytotoxicity against four human tumor cell lines and three normal human cells, tumor cell-specific cytotoxicity was detected in some 3-formylchromone derivatives. There was no clear-cut relationship between the cytotoxicity and the chemical structures of the compounds.

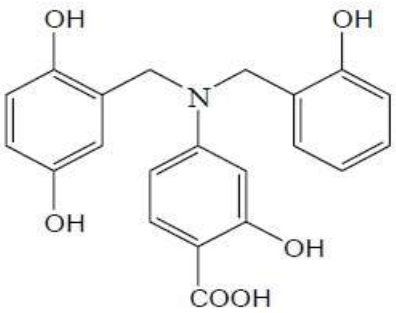


[7]

Hormothamnione [8] and Lavendustin A [9] were reported to exhibit cytotoxic effects on tumor cell lines. In the present studies, a series of chromone-based lavendustin analogs were synthesized as a simplified hybrid of hormothamnione and lavendustin A by the reductive-amination of formyl- chromone with various amines followed by aminoalkylation. Most compounds synthesized showed significantly improved potencies compared to the standard compound against most of cancer cell lines tested indicating that the removal of styryl group enhanced cancer cell growth inhibitory activities.

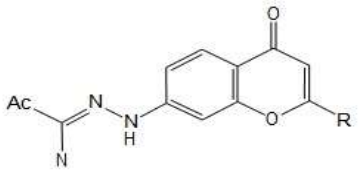


[8] Hormothamnione



[9] Lavendustin A

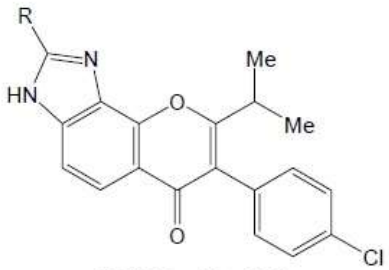
A series of new N-1-(flavon-7-yl)amidrazones incorporating N-piperazines [10]and related congeners were synthesized by reacting the hydrazonoyl chloride derived from 7-aminoflavone and 7-amino-2-methylchromen-4-one with the appropriate piperazine. The antitumor activity of these compounds was evaluated on breast cancer (MCF-7 and T47D) and Leukemic (K562) cell lines by a cell viability assay utilizing the tetrazolium dye 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT). Although with varying degrees, a significant growth inhibitory and cytotoxic effect was observed on all three cancer cell lines[44].



[10]

2.4. Psychotropic Activity

Representatives of the pyrano [2,3- e]indol-4(7H)-one [11] system are not encountered in nature and are synthetic analogs of natural chromones. The aza analogs of this system showed significant activity as antagonists of vanilloid receptors TRPV-1[45]. This is important primarily in the treatment of osteoarthritis, pains that accompany cancer, fibromyalgia, and pains during operations of general and gynecological type.



[11] R = MeCF2

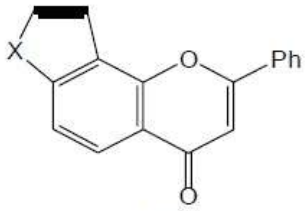
2.5. Insecticidal Activity

Zhao and coworkers[46] prepared a series of chromanone and chromone analogues of diacylhydrazine derivatives. Some of the chromanone analogues exhibited a good insecticidal activity against Mythima separate at the dosage of 500mg/L

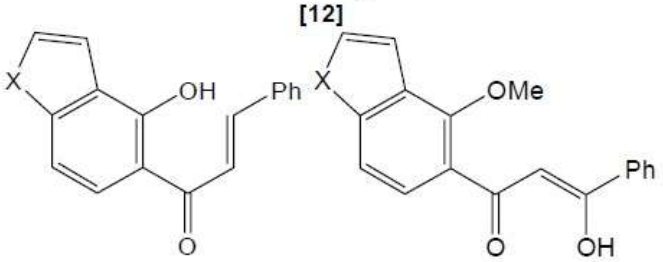
2.6. Fungicidal Activity

The methyl ether of pongaglabol is more active than karangin [2] and lanceolatin B[47]. The latter also displayed fungicidal activity against the fungi Erysiphe polygoni and Ustilago tritici[47]. Antifungal activity was also found in the N-methyl derivatives of pyrano[2,3-e]indol-4(7H)-ones and the thiophene analogs of karangin and pongamol [3].

The flavone [12] exhibited fungicidal activity exclusively, while its corresponding chalcone exhibited both fungicidal and antibacterial activity1. Antibacterial properties also appeared as a result of replacement of the N-methyl group in the ß-hydroxychalcone by sulfur in compound [13]1.



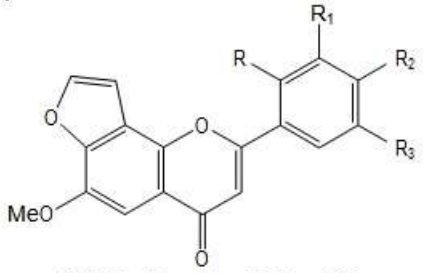
[12]



[13] X = NMe, X = S

2.7. Antiviral Activity

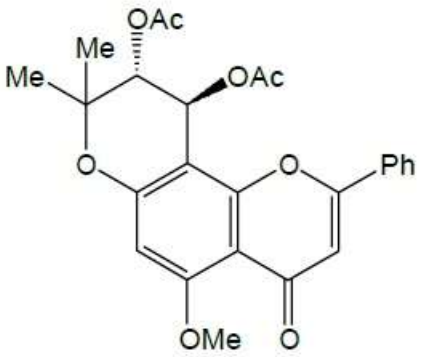
The methyl ether of pongol [14] isolated from the plant Millettia erythrocalyx, exhibited activity against both types of herpes virus HSV-1 and HSV-2[48]. Activity against human immunodeficiency virus (HIV) and herpes virus was found in alkaloids from the Schumanniophyton plants. The presence of the piperidine ring and unsubstituted hydroxyl groups in their molecules is responsible for the activity against HIV[49].



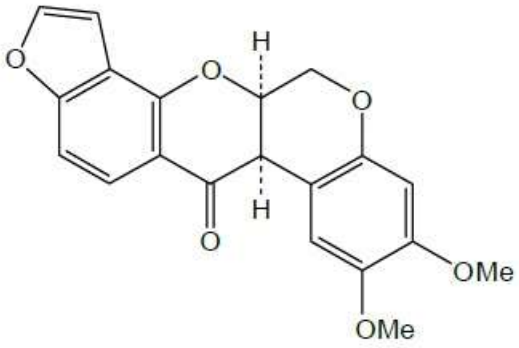
[14] R = R2 = R3 = H, R1 = OH

2.8. Interaction with NADPH-dependent Quinone Reductase

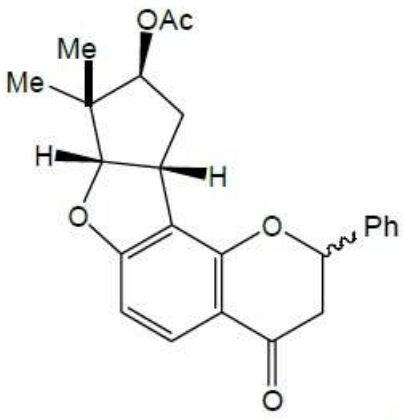
Trials carried out on the action of an extract from the root of the plant Pongamia pinnata in petroleum ether, containing a compound (a derivative of 4H,8H-pyrano[2,3-f]chromene-4,8-dione) [15] showed that the substances from the extract activate NADPH-dependent quinone reductase[50]. The inhibition of the latter explains the ability of 1-elliptone [16] present in the plants of the Tephrosia genus, to attack neuron mitochondria, which makes it an excellent piscicide (a substance capable of fish poisoning; it is used to control the number of fish in water reservoirs or in the fight against invasions of fish parasites). Trials on an extract from a plant of the Tephrosia purpurea genus, containing lanceolatin B, lanceolatin C (pongamol), and also purpurin [17] karangin [2] and kanjone [18] carried out on the cells of rat hepatoma Hepa 1c1c7 showed that it is capable of activating quinone reductase[50].



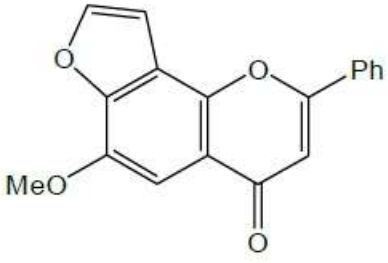
Kanjone



Elliptone



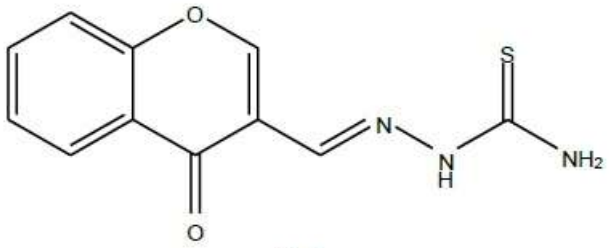
Purpurin



[15] – [18]: 4*H*,8*H*-pyrano[2,3-*f*]chromene-4,8-dione derivatives

2.9. DNA binding and fluorescence

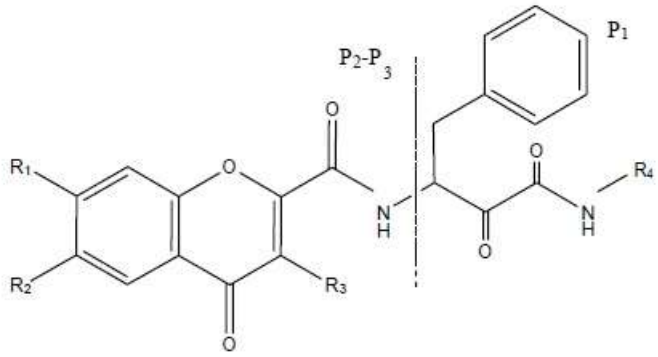
Yong and co-workers[51] showed that 3-carbaldehyde chromone thiosemicarbazone (L) [19] and its transition metal complexes were synthesized and characterized systematically. Interactions of ligand and Cu(II), Zn(II) and Ni(II) complexes with DNA were investigated by spectral and viscosity studies, indicating the compounds bind to DNA via intercalation and Zn(II) complex binds to DNA most strongly.



[19]

2.10. Calpain inhibitors

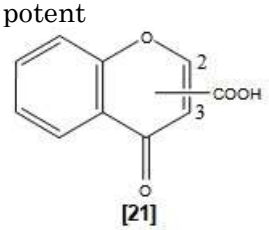
Excessive calpain activations contribute to serious cellular damage and have been found in many pathological conditions. Novel chromone carboxamides [20] derived from ketoamides were prepared and evaluated for μ-calpain inhibition[52].



[20]

2.10.1. As potent and selective MAO inhibitor

The biological data indicated that only chromone-3-carboxylic acid [21] is a potent hMAO-B inhibitor, with a high degree of selectivity for hMAO-B compared to hMAO-A.



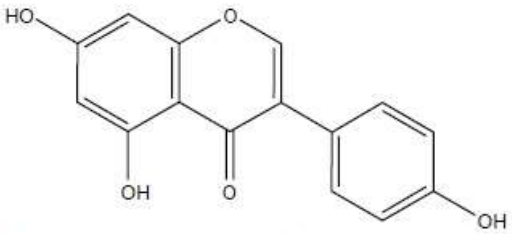
[21]

3.Recent drugs having chromone structures

Current medical treatments with chromone derivatives can be exemplified by:

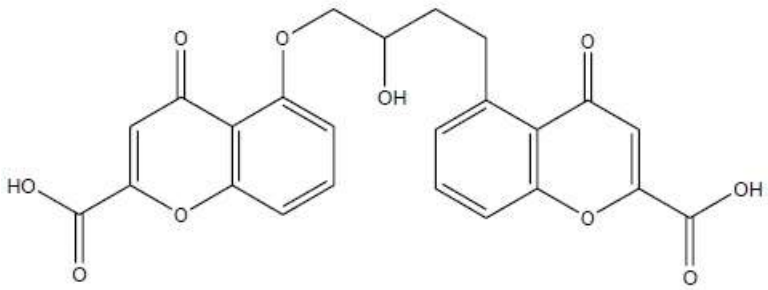
- Sodium cromoglycate: used as a mast cell stabilizer in allergic rhinitis, asthma and allergic conjunctivitis [16, 19-23].It prevents the release of histamine from mast cells and is administrated as a disodium salt.
- Diosmin : for the treatment of venous diseases16, 19-23.
- Flavoxate: a smooth muscle relaxant to treat urge incontinence16, 19-23.
- Nabilone : which is a cannabinoid used as an antiemetic drug.

- Alvocidib : It is a cyclin-dependent kinase inhibitor under clinical development for the treatment of chronic lymphocytic leukemia.
- Genistein (5,7-Dihydroxy-3-(4-hydroxyphenyl)chromen-4-one) Isoflavones, such as genistein is found in a number of plants including lupin, fava beans, soybeans, kudzu, and psoralea being the primary food source,53,54 also in the medicinal plant, Flemingia vestita53 and coffee54. Besides functioning as antioxidant and anthelmintic, many isoflavones have been shown to interact with animal and humanestrogen receptors, causing effects in the body similar to those caused by the hormone estrogen. Isoflavones also produce non-hormonal effects.



Genistein is one of several known isoflavones

Cromoglicic acid : This drug prevents the release of inflammatory chemicals such as histamine from mast cells. Because of their convenience, leukotriene receptor antagonists have largely replaced it as the non-corticosteroid treatment of choice in the treatment of asthma.



5,5′-(2-hydroxypropane-1,3-diyl)bis(oxy) bis(4-oxo-4*H*-chromene-2-carboxylic acid)

4.CONCLUSION

The present review represents that the rigid bicyclic chromone fragment has been classified as a privileged structure in drug discovery, due to its use in a wide variety of pharmacologically active compounds; few examples as therapeutic agents chromones are used as scaffolds for the development of bioactive compounds, the application in medicinal chemistry, such as preparation of fluorescence probes, due to photochemical properties of chromones have been also mentioned.

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