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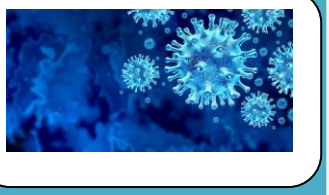

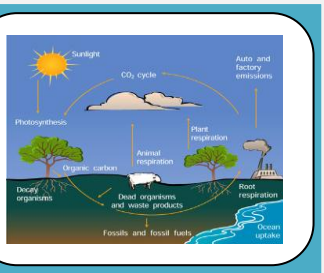

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Impact of Environment on Agriculture, Health, Water Resources, Social Life & Industrial Development

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CONTENTS

Difficulties of E-Learning in Tribal India

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Abstract:

Cell phones, the web, tablets, IPads, their applications, web-based media in any event, voyaging, cooking, correspondence, and so on are important for our lives from the beginning till the day's end. Innovation is contacting each part of society and transforming it drastically. However, there is one vital and vital piece of the general public that has likewise been tapped by new developments and disclosures and that is training with the idea of E-learning. Like any remaining territories, for this situation, additionally metropolitan regions are impacted to a more noteworthy degree than provincial ones. Quite a lot more might have been done to acquire the unrest the learning cycle in rustic regions of India. In this examination paper advancement through E-learning in rustic India is noticed. In the event that it arranged appropriately, legitimate outcomes will be influencing decidedly. In this exploration paper, we saw that E-learning is a compelling instrument for the advancement of the instructive area in India. E-learning will be picking up, using electronic innovations to get to instructive educational program outside of a customary study hall. As a rule, it alludes to a course, program or degree conveyed totally on the web. The essential target of this exploration paper is to comprehend the idea of e-learning and to inspect the kind of e-learning. The exploration paper zeroed in on study hall learning and e-learning in rustic India.

Keywords: *Education, instructive turns of events, e-learning, formal e-learning, casual e-learning.*

Introduction:

India is a youthful country moving. The greater part of the country's populace is under 25 years old and consistently 10 million individuals join the labor force. India as of now has one of the biggest training frameworks on the planet. The nation has 1.4 million schools, 35,500 schools, and 600 colleges. The right to Education is the essential right of each resident of India, regardless of whether a kid dwells in a prominent society or on the other hand in a distant not so created separated town, as indicated by Article 45 of the Indian Constitution the fundamental rudimentary training should be given to every one of the kids up to the age of fourteen years. Even following 68 years of freedom, a few States in India are as yet attempting to accomplish Universal enrolment, maintenance, and quality training. There are more than 1,000,000 country schools among 6,38,000 towns in India. Schools in country zones are elevated to raise the degree of instruction and proficiency in rustic India. The primary point of running these kinds of schools in India is to build the pace of proficiency in country regions. In excess of 30% of India's populace is uneducated and can't peruse or compose. Schools in country regions are insufficient and frequently comparable to being non-existent. Hence, the public authority's drive to set up schools in rustic zones came into the image. India's schooling area is being upset by fast expansions in Internet entrance and the accessibility of minimal effort portable gadgets. Innovation can possibly duplicate reach. E-learning is a blend of learning administrations and innovation to give high qualities. The Internet assumes an essential part of e-learning. E-learning is achieving importance in the realm of the web. Because of the benefits of in web, e-learning came to whenever and anyplace. E-adapting unmistakably has a task to carry out in settling the issue. The area is relied upon to develop quickly at a CAG of 18.3 percent somewhere in the range of 2014 and 2018. To place things in context the market in India is anticipated to develop more than twice as quickly as the worldwide normal of 6.8 percent.

Issues Faced in Rural Education in India:

Instructors of provincial schools in towns and modest communities get low pay so there is a likelihood that educators concentrate on youngsters. The vast majority of the schools don't have a legitimate framework. So they don't get the majority of the offices like PC schooling, sports instruction, and extra-curricular exercises. There could be no appropriate vehicle offices so youngsters don't care to take a trip mile to come to class. There is no admittance to supplemental training. Giving quality training to a developing number of understudies mean more instructors should be prepared to keep up satisfactory degrees of customized understudy educator commitment.

The present status of E-learning in India:

Albeit the establishment of schooling is as yet perusing, composing, and number-crunching, the present understudies need more extensive training. Contemporary homeroom, henceforth, necessities to convey live guidance, video content conveyance, understudy to-understudy collaborations by means of videoconferencing, distant test organization, modern materials, self-learning, and so forth The Digital India crusade is probably going to profit instruction by bringing large numbers of these and other significant components together. Indeed, even as the past government attempted to connect the computerized

partition, Modi's masterstroke offers a ton of energy for the Indian schooling market which is assessed to be worth Rs 5.9 trillion of every 2014-15 against Rs. 3.33 trillion of every 2012-13. With almost a large portion of the number of inhabitants in India beneath the age of 25 and expanding entrance of Internet and cell phones in this demography which is relied upon to arrive at 250 million soon, equaling the US and second just to China, India's potential as a colossal market for e-learning is tremendous. Indian corporate area having a hang on the tech world, for example, Intel, Qualcomm, and Tata are additionally making progress toward this path. Intel as of late dispatched the 'Computerized Skills for India' activity under which it presented Digital Skills Training Application that is contained modules on Digital Literacy, Financial Inclusion, Healthcare, and Cleanliness in five Indian dialects. Qualcomm has dispatched Play 'n' Learn program for younger students ages 5-8. It is giving 3G tablets under the Qualcomm Wireless Reach activity. Essentially, Samsung as of late began a Smart Learning activity to give intelligent examination materials to understudies. Similarly, Tata, Reliance, and BSNL are among the conspicuous Indian names that are pulling out all the stops in this area. While Tata is growing its school training arrangement, 'Classed', Reliance has gotten over 38.5 percent stake in advanced instruction organization, Extra stamps Education Private Limited, through its auxiliary, Infotel Broadband Services Limited. Government-claimed undertaking BSNL has tied up with Gray cell 18 Media Private Limited, to dispatch its online schooling administration 'Clincher Education'. Other imperative names in this portion incorporate any semblance of Data Wind, Merit country, and Class instructor. Indeed, even a portion of the online business players has communicated their readiness in this section. Obviously, if the e-learning/schooling market flourishes in the country, it will improve the training situation which frantically needs a purge.

Indeed, even the public authority is in the solid ally of e-learning and the Department of Electronics and Information Technology (Deity) has been effectively creating instruments and advances to advance it, what we need are more gadgets and a biological system. There is a requirement for more noteworthy cooperation from the business and partners. For this to occur, the tech organizations need to start to lead the pack and help empower a solid environment. We additionally need more applications and administrations to reinforce the biological system. The engineers and substance suppliers will be energized just when there is a lot of gadgets, all the more critically interest of tech organizations. Obviously, there is an enormous chance yet to be tapped, even as foundation and guideline issues may be hindering the in any case speeding up training space in India. Computerized India (DI) program is a GoI activity to electronically coordinate the public authority offices and individuals of India. This move targets guaranteeing those taxpayer-supported organizations are made accessible to residents electronically. It likewise incorporates a monstrous arrangement to interface provincial territories with rapid web organizations. Computerized India has three centre segments. These incorporate Digital framework, Digital help conveyance, and Digital education the task was formally dispatched on July 01, 2015, and is scheduled for fruition by 2019. The plan will be observed and constrained by the Digital India Advisory gathering which will be led by the Ministry of Communications and IT. It will be a between clerical activity where all services and divisions will offer their own administrations to the public Healthcare, Education, Judicial administrations and so on The activity is estimable and requests the full help and certainty, everything being equal. Nonetheless, it has scope for upgrades in regards to numerous vital parts like a lawful structure, security and information assurance laws, shaky Indian the internet, and so forth So these issues should be overseen all the while. In any case, notwithstanding its weaknesses, the Digital India project merits investigating and execution and will raise India to fresher statures on the worldwide scene. The accessibility of fast web to each resident, simple admittance to taxpayer-supported organizations through CSCs, and designation of private space on the public cloud are a portion of the DI highlights that will alter the existences of country populaces dish India While the public authority's forceful National Optical Fibre Network (NOFN) is good to go to be the spine of the Digital India drive, fanning out of broadband availability will help the development of e-learning. There are three segments of innovation that empowered present-day schooling; Digital Content, Technology stage, and conveyance framework, or say the Internet. However, there is a shortage of web frameworks. Accessibility of top-notch remote web speed is as yet a test. Infiltration is likewise an issue. The right environment can be made when we will actually want to engage better quality portable-based Internet. Expanding web impression will likewise assist with making the correct biological system which can be handily accomplished through Gi-Fi innovation as it gives rapid information move, low force utilization, high security, minimal effort, and a significant degree of recurrence re-utilize empowered. It tends to be utilized to meet the correspondence needs of various clients inside a little geographic district can be fulfilled subsequently making it helpful to country India where still there are issues of force supply, private telecom organization is hesitant to offer serious types of assistance.

Difficulties:

1. Absence of Infrastructure and equipment offices which hamper the unwavering quality of e-learning
2. Absence of approaches, systems, plans, observing, and control that guarantee cross-sectoral and multi-partner inclusion
3. Absence of mindfulness about E-learning material utilization and administrations advertised.
4. Absence of resident (client) centre in G2C2G activities. for example administrations which tune in and change according to individuals' assumptions. Items with a centre would build up a feeling of "possession" in nearby provincial administration
5. Issue in discovering willing gifted labour to preparing ignorant country zones of India.
6. No PC based courses/abilities educated to understudies in grade schools to expand their insight about ICT's significance in provincial turn of events.
7. Absence of abilities in coach or stand administrators
8. Local area based cooperation (which completely comprehends and conveys the client needs) isn't energized.
9. Content improvement isn't pertinent and participatory.
10. Administrations conveyed to provincial territories are not accessible utilizing the neighbourhood language and this will influence their drawn out food because of low interest in their use
11. Capacities are not sufficiently moved to the end-client. This keeps them from utilizing the applications autonomously.

Conclusion:

The advancement of any general public relies upon its admittance to data and the equivalent is relevant to provincial India as well. E-learning can do some incredible things toward this path and assist the socially underestimated local area with achieving their qualifications. Dispatch of Digital India Program is an inviting step toward this path. It is expected that with devoted administration, resolution, and control, and an incorporated structure involving the public authority, innovation industry, and society, E-learning mediations in the provincial territories will without a doubt prepare towards maintainable development.

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Significance of Plant Fossil Evidence to trace Evolution and Palaeoclimate

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Abstract

Plant fossils are of great value because they give us an idea of the past geographical distribution of plant groups, introducing us to numerous extinct plant groups. The morpho-anatomical data derived from the study of plant fossils are also of paramount importance with regard to phylogeny and evolution among the plants. The distributions of land and sea during the geologic past and the changes in climate have been brought forward by the study of fossil plants. They store significant information about phytogeography, evolution, paleoecology and paleoclimate.

Introduction

The study of fossil plants is known as palaeobotany. It deals with the plant remains of the geologic past. The word fossil is derived from the Latin verb fodre which means "to dig" and implies anything one might remove from the earth. In modern language, its usage is restricted to organic remains taken out from the earth. Through a billion years of earth's history, many forms of plants originated on the earth and disappeared subsequently due to a climatic change or catastrophes like earthquakes, volcanic eruptions, meteorite impact etc. Although most of the plants of geological periods were decomposed by bacteria after their death, a few plants or their parts were buried deep in the soil and they did not decompose. These plants/parts are preserved in sedimentary rocks of various ages, referred to as fossils. Fossil plants are usually found in stratified rocks which are built up of sediments that accumulate in the bottoms of seas, lakes, lagoons, swamps, subsiding beaches and flooded valleys. Fossils are formed from those organisms or fragments of plants which became entombed in the accumulating sediments before they had a chance to disintegrate completely by microbial action or autolytic decomposition. As soon as wind or stream borne plant material is brought into quiet water, it becomes saturated and begins to sink when the progress of decay is retarded. If mud or sand is also present it will settle with the plants and separate them. As the sediments increase in thickness, compaction results and the buried remains of plants, even as the sediments in course of time hardens and changes to rock. Occasionally plants also become fossilized when buried in volcanic ash. Subsequently, due to earth movements the bottoms of seas, lakes and ponds are raised forming mountains or hillocks where fossils lie embedded. These stratified rocks get exposed in the process of erosion through natural agents releasing the plant fossils. In addition to the work of natural forces, the activities of man have also uncovered the strata by means of drill holes, mine shafts, quarries and railroad and highway excavations. It is very rare that a plant is preserved all in one piece with its several parts (leaves, seeds, fruits) attached and all tissues intact. Usually softer tissues decay. Therefore, the study of fossil plant is mainly one of unconnected parts. Plants are preserved in the earth's crust in various ways and each of the different types of preservation requires its own techniques for study. These can be classified by following types according to their mode of preservation.

Impression-When the sediments increase in the thickness with untamed plant material, compression results and the less resistant and more compressible plant part is flattened to a mere fraction of its original thickness. If there are a number of leaves in the sediment in which the organic matter of the leaves has decayed, leaving the imprints of its form and veins, the fossil is a typical impression.

Compression - In those cases where much of the organic matter of the plant is preserved with the impression of the plant, the fossils are known as compressions. Here the organic matter retained on the surface may be a layer of structure less carbon, although sometimes the cell pattern of the cutinized epidermis is retained and may be studied by maceration or film transfer.

Inconstructions and Casts- An incrustation may be defined as an external mould of a plant usually in some uncompressible material such as sandstone, ironstone or tufa which undergoes very little subsequent compression. As a rule the plant substance disappears and a cavity is left which has the form of the original plant. When this cavity is filled up with mineral matter, it forms a cast of the original plant. The surrounding material of the mould forms the incrustation. Casts of whole trunks, or of stumps or seeds, are frequently formed when the plant part decays

Petrifactions- In this group is included those fossils preserving the external form, the internal structure, and sometimes substance of the original plant. The original cell structure is retained by means of some mineral that has infiltrated the tissues. These permit morphological studies of plant parts which could not be made from impressions, casts or compressions.

Compactions or mummified plants- are those plants or plant fragments compressed by vertical pressure. Masses of plant fragments without intervening matrix, such as are found in peat, lignite and coal, are large scale compactions. Occasionally, especially with leathery leaves or tough fruits, the tissues are retained in a mummified condition which can be embedded and sectioned for microscopic studies.

A wide variety of plant organs such as roots, stems, leaves, flowers and fruits are found preserved in various forms of fossils, including impressions, compressions, molds and petrifactions. However, petrified (permineralized) woods included fossils that preserve the external form, the internal structure and sometimes the substance of the original plant. The original cellular structure is conserved with the help of some minerals that have infiltrated the tissue. These enable morpho-anatomical studies of plant parts that could not be made from other forms of fossils. Based on these microscopic observations of internal characters, fossil woods can be identified and classified under various and groups to generic and specific level.

Method of analysis

There are special palaeobotanical techniques which are employed in the study of fossil plants. Since 1920 many new techniques suggested by and developed from earlier discoveries have enriched the methodology of palaebotany and have brought a revolution in the interpretation of fossil plants. The common methods of study are:1) the thin or ground section, and 2) the film or peel technique, both being employed in the case of petrifactions such as fossilized woods and coal balls. Coal can also be studied by grinding thin sections. The thin sections are prepared from the petrified plant material first by sectioning and then grinding the material to requisite thickness so as to make it translucent when the cellular framework of the tissues may be observed. The so-called film or peel technique is a method by which serial sections can be taken cut from petrified specimens and is of utmost importance in case of small fragmentary materials and those which need serial studies. Here first the surface of the materials is etched with a mineral acid. Then a commercial acetate film or a solution of nitrocellulose is spread over the etched surface and is peeled off when dried. The film transfer method has also been used with excellent results on compressions partially mineralized with calcite, bituminous and anthracite coals, and fine-grained sediments, 3) Maceration technique used commonly in the case of peat, lignite and coal. This is done by treatment with a mineral acid or other suitable reagents which separates large fragments or even complete organs of fossil plants from the rocks for microscopic investigations.4)Transfer technique, used in case of compression is a notable contribution to the methodology of palaeobotany. In fossil plant transfers, structural features such as course of the veins, the nature of vascular elements and the structure of the epidermis with clear stoma may sometimes be observed. The spores from the sporangium may be extracted from this method. For description of the fossil organ genera the following method/steps are generally adopted in describing the petrified woods: (i) Morphology and anatomical description of the fossil.(ii) Comparison with the fossil and /or living members,(iii) Discussion, and (iv) Diagnosis, if any.

In describing the stem, root and petiole woods , the characters such as type of sclerenchyma in the fibrovascular bundles, presence or absence of fibre bundles, stegmata, auricular sinus, auricular lobes, tabular and radiating parenchyma, f/v ratio, distribution of vascular bundles, included or excluded nature of vascular part of fibrovascular bundles, number of vessels in the fibrovascular bundle, vessel endplate characters, size and shape of phloem tissue, nature of ground tissue, divisions of the cortical region, size of stele, presence or absence of the medullar bundles are considered.

Figures and Illustration

Fig-1

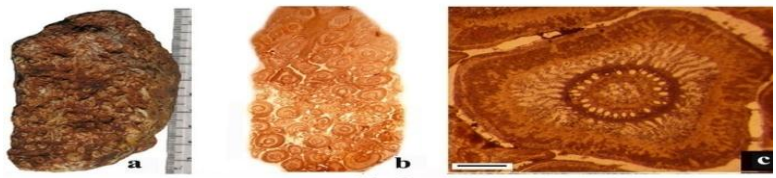

Fig-2

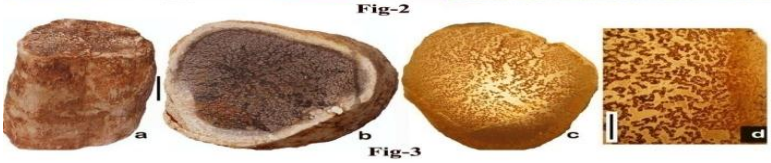

Fig-3

Fig-1(a-d): Fossil Palm leaf impressions; Fig-2(a-c): a-Fossilized Chert matrix containing petrified adventitious roots, b-roots in transverse section, c- magnified single root in transverse section showing morpho-anatomical details; Fig-3(a-d): a-Petrified Palm stem, b- Fossilized stem cut in to slice, c&d-morpho-anatomical details of the stem in transverse section.(Fossil specimens from Umaria which is one of the well known plant fossils locality which have been dated 65 million years old. Fossils were scattered in a large areas of Umaria, Dindori and Mandla districts of Madhya Pradesh, India.)

Conclusions and Discussion

The study of fossil plants can be put to many uses. The chief utility of fossil floras is in the geological and phytogeographical problems. The geological approach to the subject of palaeobotany is mainly from the standpoint of the correlation of the rock formations. Fossils are the markers of geological time. Rocks in widely separated localities with similar floras are usually assumed to be of approximately same age. It thus helps in correlation of coal seams and the exploration of oil, two important mineral resources of the country. From the botanical standpoint the plant fossils are of great utility in so far as they give us an insight in to the history and past geographical distribution of the plant groups introducing us to many extinct types. Fossil evidences suggest that it was during the early Pre-Cambrian about three billion years ago that we come across the earliest evidence of plant life represented by alga-like organism. Then come the Palaeozoic era with Lycopods, scouring rushes and ferns and naked- seeded plants belonging to Pteridospermae and Cordaitales group of plants. However during the early or middle Palaeozoic that vegetation first appeared upon the earth. The Mesozoic was an age of gymnosperms as evidence by the abundance of Cycadophytes and Conifers. It was towered the end of Mesozoic that the flowering plants underwent a phenomenal development to become a dominant plant group that they are today. Fossil records show that the continent of Africa and the subcontinent of India once possessed much richer palm floras than at present. Leaves, stems and pollen are particularly abundant in the fossil record, but there are also numerous records of fruits and seeds, rhizomes and roots. Rarely, rachillae, inflorescences or individual flowers are recovered (Harley, 2006).

As the Deccan Intertrappean flora of India is dominated by angiosperms, it is presumed that the Deccan area was closer to the Tethys shore enjoying luxuriant and dense forest cover towards late Cretaceous period contrary to the topography of Central India. The abundance of palm fossils and other angiosperms suggests that the Deccan area had been enjoying a coastal environment linking with the Tethyan Sea. The abundance of fossil remains, got deposited after the volcanic eruptions reveal that the vegetation scenario of a dense forest covers, with high humidity. Occurrence of fossils of *Phytelephas* in the Deccan Intertrappean beds of India and their present distribution and fossil occurrence in South America and Panama suggests a phytogeographical link. These two areas must have been in very close contact during the late Cretaceous period and drifted apart in the later geological periods and or else *Phytelephas* must have two centers of origin. Geologic history is punctuated with climatic fluctuations of major proportions. There were times when much of the surface was covered with ice and at other times and at other times luxuriant vegetation thrived almost at the poles. The morphological data derived from the study of fossil plants are also of paramount importance with regard to phylogeny and evolution among the plants. To a certain degree fossil plants may also indicate climate and environment. The distribution of land and sea during the geologic past and the changes in climate has been brought forward by the study of fossil plants.

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First Record of the Genus *Angaeus* (Arachnida, Araneae, Thomisidae) from Gujarat – India

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Abstract

While undertaking the study on diversity of spiders in different parts of Navsari District (Gujarat), a very rare species of Thomisidae family and genus Angaeus (Thorell, 1881) commonly known as Diamond- bellied Crab spider female specimen was collected from the surface of the under lying low shrubs Discorea bulbifera (Yam family Discoreaceae) in one of the Sapota (Chiku plant) agro-systems in early morning during monsoon season of the year 2016. Male spider was not found. Moreover, the researchers have not come across any past records or evidences of finding this extremely rare spider in the state of Gujarat (India) till date. Only one species of Angaeus pentagonaalis was so far reported by Pocock, 1901 in India (Sebastian and Peter, 2012; Keswaniat. al. 2012).

Key words: *Crab spider, agricultural ecosystem, diversity, sapota, taxonomy.*

Introduction

Arachnids inhabit the whole world and are believed to be the first land animals from the fossils discovered so far. Small and insignificant looking carnivorous spiders, members of Araneae order, class Arachnida, are very important predators and prey to multitude of other animals. Thomisidae, the sixth largest family, includes 7 subfamilies, 170 genera and 2154 species, of which 40 genera and 176 species were recorded from India (WSC, MNBE, 2020 Ver. 21; ISC, 2012). The crab spider genus *Angaeus* presently includes 10 species; *A. canalis*, Tang and Li, 2010; *A. christa* Banjamin, 2013; *A. comotulu* Simon, 1909; *A. lelniculosus* Simon, 1903; *A. Liangweii* Tang and Li, 2010; *A. pentagonalis* Pocock, 1901; *A. pudicus* Thoell, 188; *A. rhombifer* Thorell, 1890; *A. rhombus* Tang and Li, 2009; and *A. zhengi* Tang and Li, 2009 (WSC, NMBE, 2020 Version 21). This type of species *A. puducus* is known from male; *A. comolutus* from juvenile; the three species *A. canalis, A.lelniculosus* and *A. pentagonalis* from female and the five remaining species are from both males and females. All species are restricted to tropical Asia, majority are from China. Only one species *A. pentagonalis*is reported from India, Andaman Islands and Karnataka. Other than these, *A. zhengi* is reported for first time as new species *Paraborboropactus canalis* in Xishuangbanna, Yunnan, China, by Tang and Li, 2009. Benjamin S.P., 2013; Tang and Li, 2009, 2010 described morphological description, illustrations and photographs of the Angaeus species. It is important to mention that this species is reported for the first time in India which is illustrated in this paper. The spiders work as guards and check the population of number of insects in various food chains and food webs of different ecosystems. With this view, the present study was undertaken to understand the diversity and role spiders play, in an agricultural ecosystem.

Materials and Methods

A female specimen were collected by hand picking from the surface of the under lying low shrubs *Discorea bulbifera* (Yam family Discoreaceae) in *Sappota* (Chiku plant) agro ecosystem in rainy season at early morning during 20th August, 2016 from District Navsari, (Gujarat- India). The male spider was not found. The photographs of live specimen were taken with 16 megapixel Gionee S-plus mobile camera. The material was preserved in 70% alcohol with all legs spread properly. The detail examination were carried out by an Olympus SZ 4E Binocular Stereomicroscope, attached with Cat Cam I-30 camera bearing measurement scale (to the nearest 0.01 mm). All measurements are in millimeter scale. The taxonomic studies and identification of the specimen were done by using the methods as suggested by different scientists like B. Tikader,1980; Joseph K.H. Koh and Leong Tzi Ming, 2014; Suresh P. Benjamin, 2013; Tang and Li, 2009, 2010. Under this taxonomical study the salient features of the spiders along with ecological habitat and different morphological characters were recorded.

Abbreviations used: AER = anterior eye row; PER = posterior eye row; AME = anterior median eyes; ALE = anterior lateral eyes; PME = posterior median eyes; PLE = posterior lateral eyes; MOA = median ocular area; AS = anterior spinnerets; PS = posterior spinnerets; MS = median spinnerets

Taxonomy

Family *Thomisidae*, Sundevall, 1833

Genus *Angaeus* Thorell, 1881

Angaeus Thorell, 1881: 346
Paraborboropactus Tang and Li, 2009 713, = *Angaeus* Thorell, 1881: 346 (Benjamin, 2013:720)
2010a: 49, 2010b: 44

Entomology: The generic name is a compound word with the prefix *para* and the generic name of *Borboropactus*, referring to its similarity to the genus *Borboropactus* Simon, 1884.

Identifiacation:

Morphologically the genus *Angaeus* Thorell, 1881 related to the senior synonym of the *Paraborboropactus*, and can be separated from other thomisids, except for *Borboropoactus* Simon, 1884 by the presence of epigynal teeth in females (Benjamin 2013: figs 2D, 5C). Separated from *Borboropoactus* by the absence of a sensory patch on tarsi (Benjamin 2011: figs 24C-E), and by the presence of an anterior epigynal cavity or hood (Benjamin 2013: figs 1C, 3D, 4B, 5C). *Angaeus and Borboropoactus* possess chelicerae with teeth, femur swollen in the median and bear spurs, palp with a soft tegular apophysis, epigynum with epigynal teeth, median epigynal septum and terminal epigynal fold (Benjamin 2011, Tang and Li, 2009).

Description:

***Angaeus zhengi* Tang and Li, 2009 (Plates 1: a-d)**

Paraborboropactus zhengi trasfered to *Angaeus zhengi* by Benjamin, 2013.

Type material: Isotype / Syntype of female *Angaeus zhengi*

Morphology:

Natural habitat: Body of spider appears rough and warty, blackish brown with whitish cream colored pinchs under microscope. The body is actually covered with a densely packed setae or hairs of different shapes (**Plate -1a**). In resting condition, legs I and II are always drawn toward cephalic region. When disturbed, it moves like Crab, at that time first two legs lies nearer to each other in forward direction. When collected it mimics the fruits of *Discorea bulbifera* (Yam family Discoreaceae) plant (**Plate -1b**).

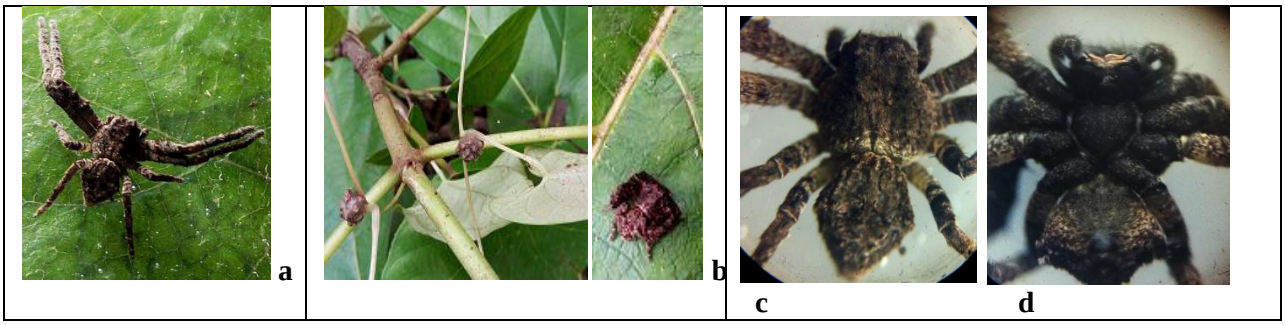

Plate 1: a to d, Habitat: *Angaeus zhengi:* a- dorsal view, **b-** Mimics with fruits of *Discorea bulbifera*, **c-** Lateral view, **d-** Ventral view

Female: Total Body length: 6.57 mm; Prosoma flat, clung with dense short and clustered hairs, radish brown in colour, slightly longer than wide (3.36 L/ 3.19 W), narrowing anteriorly, cephalic region elevated, thoracic fovea distinct, thorax with dark chevron or stripe (**Plate - 2a**). Eyes area elevated, AER slightly recurved, PER recurved, tubercle of ALE with clustered hairs. Eye measurements; AME 0.10; ALE 0.22; PME 0.18; PLE 0.23; AME-AME 0.33; AME-ALE 0.34; PME-PME 0.59; PME-PLE 0.55; AME-PME 0.42; AME-ALE 076; ALE-ALE 1.15; ALE-PLE 0.57; AME-PLE 0.39; PLE-PLE 1.49; PLE-ALE 0.57. MOA length 0.42mm with front width 0.33mm and back width 0.59mm (**Plate - 2a**). Sternum blackish brown, heart shaped, distinctly bordered, wider than long (1.48L/1.51W); Labium blackish brown, wider than long (0.55L/0.63), distally with bifurcate clustered hairs, triangular in outline (**Plate - 2b**); Maxillae longer than wide (0.85/0.61), blackish brown with three promarginal and three retromarginal teeth, the basal of the 2 large retromarginal teeth combined (**Plate - 2c**). Legs long, robust, dark brown with white patches or spots, covered with hairs and clusters of hairs (nodes) with spines; Femora of all legs ventrally creams white while III and IV only dorsally creams white, whereas femora I slightly swollen and bears 8 thick spines with clusters of hairs, tibia and metatarsi of I and II with 4, 3 pairs of ventral spines respectively (**Plate - 2d & e**). Formula of Leg is II, I, IV, III (**Table -1**).

Table - 1 Measurement of leg segments (in mm)

Leg	Coxa	Trochanter	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	1.14	0.39	3.62	1.35	3.24	1.31	0.79	11.84
II	1.17	0.31	3.78	1.24	3.27	1.37	1.00	12.14
III	1.10	0.36	2.10	0.82	1.30	0.71	1.02	07.41
IV	0.84	0.34	2.39	0.93	1.58	0.68	0.79	07.55

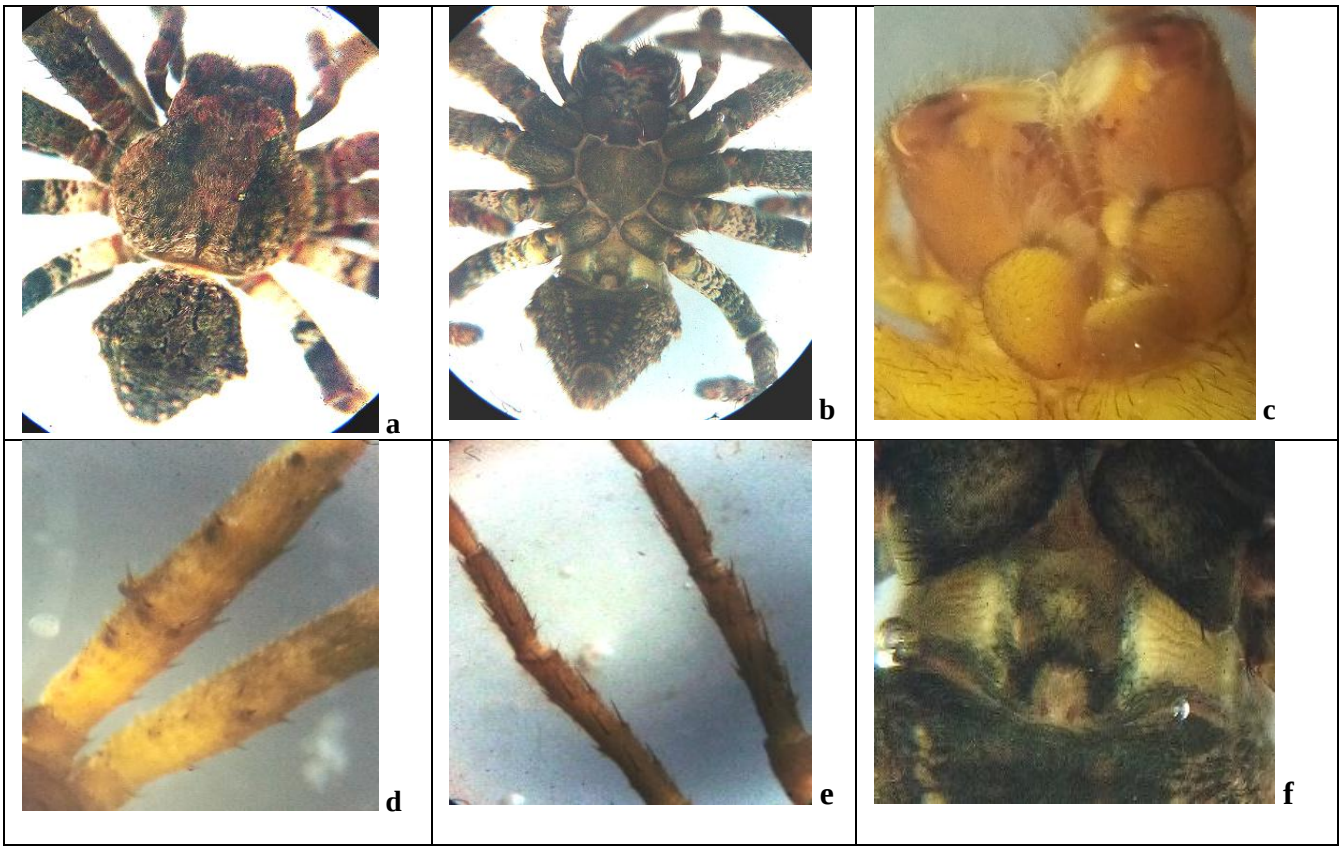

Plate - 2: a-f *Angaeus zhengi* Female: a. Dorsal view **b.** Ventral view **c.** Chelicerae ventral view **d.** Dorsal part of femur I & II **e.** Ventral part of Tibia and Metatarsus of I & II **f.** Epigynal ventral view

Opisthosoma longer than wide (3.36 L/3.19 W), blackish brown, and diamond shaped or nearly pentagonal with blunt posterior end; dorsally with 2 pairs of sagilla and a pair of longitudinal break lines antero-dorsally and toward posterior side bearing 2 pairs of rows of clustered hairs, dorsolaterally (**Plate 2a**). The Ventrum dark brown, with two pairs of yellowish white rows with spotted lines. Spinnerets surrounded with yellowish border (**Plate - 2b)**. Epigynum with an anterior cavity or hood and a pair of epigynal teeth medially and pointed backwardly, copulatory duct invisible, Spermatheca convoluted, with longitudinal epigynal ridge slender anteriorly and wide posteriorly (**Plate - 2f)**.

Distribution: Yunnan (China) and now in Dist. Navsari (Gujarat, India).

Remarks: So far crab spider ***Angaeus zhengi*** was not recorded anywhere in the world except China. Now it was found in Navsari (Gujarat state –India) for the first time. So after confirming with the experts, it was found that in India this spider ***Angaeus zhengi*** is a new record. But presently it's difficult to state anything about the history of crab spider ***Angaeus zhengi*** distribution in India. And it's a matter of further research about the biodiversity of this spider in India. Moreover, no details are available regarding the orchards or plants of China (Yunnan) where this spider normally mimics. Still we found only female specimen in Navsari. So if male specimen of crab spider is found than it can unfold much important information.

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Water Conservation is an Essential thing for Agriculture and Biota

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Abstract

Due to scarcity of water in forest land wild animals entered in villages and cities for drinking water. Water is the life .Water is fundamental need. Water is essential for the all types of development.Hence there is a need of conservation and management of water. We know well that there is lot of scarsity of water in the year 2012-2013 in Marathwada region. Due to this adverse effects on the life style of animals and humanbeings. To fulfill the demand of water there is lot of expenditure of Govrnment of Maharashtra though there are no of dams,it is due to the non-management of rain water. No of discussions was arranged on T.V.Channels for the water management. Due to this scarsity of water yield of crop production become less which affect the economy of nation,prises of daily needs becomes very high for ex. Onion – 80 Rs/Kg. Criminal events increased which is not convenient for healthy life.Water is essential for drinking, washing,cleaning agriculture , building purposes etc. Hence there is a need to harvest rain water to fulfill the water related demands by implementing prosses like microaerigation,Settale,PaniAdvaPaniJirva, for this a need of awareness in the people regarding water harvesting.

Key words : *Harvesting,Conservation,Microaerigation etc.*

Introduction:

No of social activities are implemented for birds,animals drinking water.Famine is the most burning problem in our Maharashtraand also in Marathwada region in1993 as equal to 1972.From our government to all the peoples of this region are youngage to fight against the famine of water.It is not new for us hence we want to planning against it.All the peoples of urban to rural area aware regarding this issue of waterharvesting.Each and every person,family ,village,towen,state have its own planning to overcome the problem of famine.There is a need of "Water Budget" .We get near about 4 abj,ghan meter water from rain and snow ball,ice ball melting.Then also we cant get the sufficient drinking water to all the peoples.,it is a sad factor unfortunate to us.Regarding population we are at the second level in whole world.but related to water famine we are at the108thno.So it is very bad for us.In world we get half water from rain only during 15 days.Hence we should think that flood water is natural resource during rainy seasonfor that we want to conserve this water.

Method:

Hanging of water pots on trees for birds. Preraion of PANWATHA for wild animals.If we want to overcome the water famine,Then there is a need of revolution regarding water literacy among the people by arranging different camp through youth ,NSS,NCC,Monoactplay,ralyetc.Rain water harvesting experiment is essential at the level of rural and urban people. We also overcome this problem by participation of people or lay man,need of special instructionsfrom expert scientists.We want to implement "Vision document"Different steps related to water conservation like rain water harvesting,aerigationsector,waterconservation,on these applications we want to become active.In every year deep ploughing is essential in the field so that more rain water will be perforated in the deep soil, which is very beneficial long time for crop.To construct the horizontal bunds on the stream,riveretc,which is usefulto conserve back water.To construct the small sized dams in the field according to PanchayetSameteeScheme.Water harvesting from the roof is possible in lessexpenditure.Again we want to afforestation in barren land which is beneficial for more rain.

Experimental work:

If there is effective planning we can manage water for agriculture,drinkingwater,industry in less quantity also. To observe the water model of Ralegansidhi in Nagerdistrict,due to this model villages become water rich sources.Each and every day water should be conserved for this the pioneer is Shri Anna Hajare.Some restrictions on cattle feeding,cutting of woodinspire for plantation and water conservation.For this event it is now identified that holy plce for village developmentis Sivani from district Jalna is also famous for water conservation.We want to visit such spots,observe carefully and implement effectively.Social forest development by peoples,bundsconstruction.At the slope of mountain dig the canals at some intervals which helps for water harvesting.State commissioner ChandrakantDalvi are the pioneer for this activity.For the agricultural water planningto introduce drip,sprinklerprogrammes.In some villages only 198mm rain water then also there is no water famine. In Rajasthan Sr.social worker Rajendra Sinha awarded by *Panipurush*(Waterman) develops thousands of Johad(water dam) in 1985 for this work Rajendra Sinha

got"NemenMagasesAward"in 2001."Burhani knowledge Foundation and Power Deal CompanyIntrnational Foundation" develop water well in Nashikdistrict.Soil at bottem of dam should be removed which help to increase the water level.To observe Sirpur pattern for water conservation in Dhuledistrict.Roof water harvesting in Chennai,in 2001 is implemented and result is to increase water level.

Borewell harvesting with the help of canals or streames.Around the borewell dig 2x2mm area ,make the holes to casing pipe of borewell,around these holes wrap the covering of coconut hairs purpose is to filter the water.Divide this 2x2mm area vertically in the four regions like at the bottemstones,above this a layer of rock,brickpieces,above this layer there is a sand and at the top a layer of soil.Weast water in the farm should be diverted in the well.To construct the stone bunds on the streame,river.In this method large sized stone should be at the bottem and small sized stone should be at thetop.Around this there should be a net of iron wire to avoid flow of stones due to large force of water.To avoid the evapouration of water by sun, use covering of polythene or organic matter. Hanging of water pots on trees for birds. Preraion of PANWATHA for wild animals

Result and discussion:

Related to this famine of water we want plan our agricultural crop method according to D.M. More .region and crop area one hector.Horticulture-30 lakh,sugarcane-07 lakh,rice-02 lakh,cotton-40 lakh,pulses-40 lakh,oil seeds-40 –lakh and grains-40- lakh.In our state wells and borewells are like;Well-1676217,Industrial well-179,Drinking water well-158441,Agricultural bore-191396,Industrial bore-621,Drinking water bore-161922.Due to increase in industrialization water from agriculture is diverted to fulfill the drinking water demand.In relation to increasing the urbanization and industrialization need of water also increases..Water is raw material for mineral water,winemanufacturing,medicinemanufacturing,varnishes,powder coating hence need of water increases in industries.Totalindustries-167912,minor and medium industries-162927,major industries-4915.Industries in Mumbai and Konkan-11125,Pune-9272,Nashik-6135,Aurangabad-4577,Nagpur-2687,Amravati-1589,.Need of water for industry is 194crore liter/day.Recent use is 128.6 crore liter/day.Water sources for industry from agriculture-65%,industrial water project-34%and other 01%.In our country 80% water is used from soil water.In soil water impurities are like Arseni,Nitrate,Flourides,Lead ,Cadmium,Cromium.On earth population is about 7.7 abja,it should be 9-10 abjain 2030.Now a day people get 20 liter less water per day.There is no supply of tap water to 46% people.To fulfill the demand of water womens expend lot of time and walk about 6km/day.Population increase 8.3 crore/year.Near about 33 lakh peoples die due to water related diseases.Due to the construction of dams 8 crore people are disturbed in life.

Conclusion:

In some water famine regions traditional water sources when become dry then water will be supplied by tankers,for this expenditure is like near about 20ps/lit.We know well in urban area water rates are 15-20rs/lit.which is waste expenditure or non essential.Due to scarsity of water in some region there is war for water,watertheft,increase criminal nature in human beings,which lead to disturb the social life,healthylife,expend lot of time,mind of youth is youngage in such events.Biodiversity of nation also become extinct due to scarsity of water.Then how we become super-power(Mahasatta).To avoid this we want to conserve each and every drop of water.Lastly I hope that"Save water save life"

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Studies on aflatoxins production by seed borne *Aspergillus flavus* in pulses seeds

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Abstract:

*Mycotoxins, especially the group called aflatoxins, are small molecules toxic to both humans and animals. They are produced by two fungi, **Aspergillus flavus** & **A.Parasiticus.** In pulses, **A. flavus** is dominant fungi which produces aflatoxins. A. flavus is the most common specis in Africa and Asia. aflatoxins in seeds make them unpalatable to herbivores. They also show inhibitory effect on seed germination. Aflatoxins are potent toxic, carcinogenic, mutagenic, immunosuppressive agents, produced as secondary metabolites by **A. flavus**.*

*To study aflatoxins in pulses seeds, the different isolates of **Aspergillus flavus** were grown on liquid medium by phytotoxin production method. The analysis of aflatoxins was done by using TLC method (Jones ,1972). Totally fifteen isolates of **A. flavus** isolated from five different pulses seed crops were screened for their efficiency to produce aflatoxin on substrate (seed meal) and non-substrate GN medium. It is clear that the results regarding production of aflatoxin by different isolates of **A. flavus** that though majority of isolates of **A. flavus** showed positive test for aflatoxigenic nature, they also varied in their degree of aflatoxin production. This clearly suggests existence of aflatoxigenic strains in **A. flavus**.*

*The results regarding aflatoxin production on different substrates gives an idea that **A. flavus** might be very much specific for quality of substrate for aflatoxin production, as seed meal of gram and pigeon pea supported maximum aflatoxin production while, that of black gram proved inferior.*

Keywords: *Isolates of A. flavus, Phytotoxin method &TLC method.*

Introduction:

The study of mycoflora associated with seeds of five pulses namely gram, pigeon pea, green gram, black gram & lentil reveals that ***Aspergillus flavus*** is one of the dominant fungi changing the biochemical composition of pulses seeds.

This change in biochemical composition of seed is due to toxin called aflatoxin. So the present investigation is studies aflatoxins production in selected pulses.

Material and methods:

a) Production of Phytotoxins:

The test fungi isolated from pulses seeds were grown on liquid medium containing glucose 1 %, KNO3 0.25 %, KH_2Po_4 0.1 % and $MgSo_4.7H_2O$ 0.05 %. 25 mL of the medium was added in 100 mL conical flask and autoclaved at 15 lb pressure for 15 min. On cooling, flasks were inoculated separately with one mL of spore suspension of test fungi prepared from 7 day old cultures grown on PDA slants. The flasks were incubated at 25 ± 2^0C for nine days and were harvested by filtering their contents through Whatman filter paper No. 1. The filtrates were collected in presterilized culture bottles and termed as crude toxin preparations. The preparations were tested for their toxicity. *(Mungikar A. M., 1982)*

b) Assay of Aflatoxins (TLC Method)

The analysis of aflatoxins was done by using the method of Jones (1972). 30 gm of silica gel a (with $CaSo_4$ as binder) was taken in a stoppered flasks and mixed with 60 mL of distilled water, the slurry was uniformly spread using applicator on a clean glass plate keeping the thickness of layer 0.25 mm. The dry plate was activated at 110^0 C for 30 min. in hot air oven. The gel on plate was divided into number of lanes by drawing lines with a sharp needle.

The Chloroform extract of toxins were then spotted in known volume in various lanes carefully with micro capillary tube on an imaginary line 2.5 cm away from one end of the plate. The plate was developed in solvent system of toulene : ethyl acetate : formic acid (6 : 3: 1) in a chromatographic tank for 50 minutes till solvent reached up to 20 mm below the top end of the plate. Plate was dried at room temperature and the fluorescing spots of toxins were visualized with UV lamp in UV cabinet (360 nm). The blue fluorescent spots were identified as aflatoxin B_1 and B_2 on the basis of the intensity of the fluorescent spots.

Result and discussion:

Totally fifteen isolates of ***A. flavus*** isolated from five different pulses seed crops were screened for their efficiency to produce aflatoxin on substrate (seed meal) and non-substrate GN medium. The results are summarised in Table 30 and Fig. 45.

Among three isolates of ***A. flavus*** from gram, GRAF – 1 gave maximum production of aflatoxin which was followed by isolate GRAF – 2. The isolate GRAF – 3 did not produce aflatoxin on seed meal but it has shown production on GN medium.

Among the three isolates of ***A. flavus*** from pigeon pea, isolates PPAF – 1 and PPAF – 2 were found to be highly aflatoxigenic in nature while, isolate PPAF – 3 produce more amount of aflatoxin on GN medium.

The three isolates of ***A. flavus*** from green gram seeds, there was no production of aflatoxin by GGAF – 3 on substrate medium. Similarly among two isolates of ***A. flavus*** from black gram seeds, isolate BGAF – 1 produced very low amount of aflatoxin.

Among three isolates of ***A. flavus*** from lentil, LAF – 1 gave maximum production of aflatoxin which was followed by isolate LAF – 2. The isolate LAF – 3 did not produce aflatoxin on seed meal but it has shown production on GN medium.

Table 30: Production of aflatoxin in different isolates of *A. flavus*.

Name of isolate with source	GN medium		Seed meal medium	
	B_1	B_2	B_1	B_2
Gram				
GRAF – 1	+++	+++	++	+
GRAF – 2	++	++	+	+
GRAF – 3	+	+	-	-
Pigeon pea				
PPAF – 1	++++	+++	++	+
PPAF – 2	+++	++++	+	+
PPAF – 3	++	++	-	+
Green gram				
GGAF – 1	+	+	+	-
GGAF – 2	++	+++	+	+
GGAF – 3	+	+	-	-
Black gram				
BGAF – 1	-	-	+	-
BGAF – 2	+	+++	-	+
Lentil				
LAF-1	+++	++	+	+
LAF-2	++	+	+	+
LAF-3	+	+	-	-

+ = Very poor, ++ = Poor, +++ = Moderate, ++++ = High,
+++++ = Luxuriant

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COVID19 Stress, Psychological Wellbeing and Sleep Quality

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Abstract

The World Health Organization (WHO) had declared the outbreak of COVID 19 as a Public Health Emergency of International Concern on 30 January 2020, and a pandemic on 11 March 2020. This outbreak has inflicted medical, financial and psychological distress on people globally. The ongoing pandemic and the resurgence of the second wave in India, has led to much loss and grief. There are also concerns on lack of accessible vaccinations, the emergence of new diseases like 'Black Fungus' and the instability of the public health care infrastructure. Students have also suffered immensely due to this pandemic. Moving of education to online mode, inaccessibility to resources, uncertainty regarding the future has caused enormous psychological and physiological stress. This is reflected in poor sleep quality and psychological wellbeing.
The current paper aimed to study the relationship between COVID19 Stress and Sleep Quality and Psychological Wellbeing among college students. The study was conducted through an online survey method, using standardised questionnaires. The study used the COVID19 Stress Scale (Taylor et al, 2020), Pittsburgh Sleep Quality Index (Buysse et al, 1989) and Ryff's Psychological Wellbeing Scale (Ryff & Keyes, 1995). The data was collected from college students between the ages of 18 to 22 years. The collected data were analysed using Pearson Product Moment Correlation.

Introduction

The COVID 19 stress syndrome, rooted by the pandemic since March 2020 is majorly identified with the population being alarmed by the perilousness of the deadly virus for their near and dear ones; additionally being strained by pecuniary concerns for their basic needs. According to our preliminary research, more than 50% of the young population had a disturbed mindset. In other words, their mental wellbeing was affected negatively: happens when major aspects of a person's life are chaotic and unbalanced. Hence, the current distressing situation led to youngsters having poor mental state and sleep quality. By this route, poor sleep quality is indicated either by sleeping too much or too little plus not being satisfied with the experience.

Rationale of Study

The present study was conducted to understand the impact of COVID19 stress on the sleep quality and psychological well being of college students. The current ongoing lockdown in various parts of the country due to the second wave, and also the news about the upcoming third wave has caused emotional stress among the people. Students, especially, are concerned as their entire education has moved online and there is large uncertainty about their future. This has had a significant impact on their mental and physical health.

Aim and Objectives

Aim: To study the relationship between COVID19 Stress, Psychological Wellbeing and Sleep Quality among College Students.

Objectives:

1. To measure the COVID19 Stress among College students.
2. To measure the Psychological well-being of College students.
3. To measure the Sleep Quality of College students.
4. To find the relationship between COVID19 Stress and Sleep Quality.
5. To find the relationship between COVID19 Stress and Psychological Wellbeing.

Hypothesis

Alternative Hypothesis:

H_1 – There is a positive correlation between COVID19 Stress and Disturbed Sleep among College Students

H_2- There is a negative correlation between COVID19 Stress and Psychological Wellbeing.

Methodology

Sample:

The research was conducted on a sample population of young adults attending college between the age of 18-22 years. Data was collected from all genders across various states of India. The sampling used was Convenient Sampling and Snowball sampling, using the online mode of data collection.

Research Design:

The current study employed a quantitative correlational design. The research explored the nature of the relationship between COVID19 Stress and Sleep Quality and the relationship between COVID19 Stress and Psychological Wellbeing among college students.

Variables:

COVID19 Stress- It refers to the stress experienced by a person in the context of the ongoing pandemic related to COVID19. It was measured using the COVID19 Stress Scale (Taylor et al, 2020).

Sleep Quality- It refers to the quality of sleep experienced by a person. It was measured using Pittsburgh Sleep Quality Index (Buysse et al, 1989).

Psychological Wellbeing- It refers to the state of balance experienced by a person, positive life outcomes and contentment. It is a positive indicator of mental health. It was measured using Ryff's Psychological Wellbeing Scale (Ryff & Keyes, 1995).

Tools:

COVID19 Stress Scale- The COVID-19 Stress Scales (CSS) was developed to measure the aforementioned features as well as to better understand and assess COVID-19-related distress. It is a 58 item self-report scale with a 5-point Likert scale. In our present study, the component of Xenophobia was not included. So, the scale used had 52 items (Taylor et al., 2020).

Pittsburgh Sleep Quality Index- this scale was developed by Buysse, Reynolds, Monk, Berman and Kupfer in 1989. It contains 19 self-rated questions. It yields one global score with a range of 0-21 with 0 indicating no sleep disturbance and 21 indicating severe sleep disturbance.

Ryff's 18 items Psychological Wellbeing Scale- It is a modified version of the original scale developed by Carol Ryff (1995) consisting of 6 dimensions i.e. autonomy, environmental, mastery, personal growth, positive relations with others, purpose in life, self-acceptance. It is a 7-point Likert Scale with 18 items. Higher scores indicate greater well-being.

Results

Table 1

Descriptive Statistics for COVID19 Stress, Sleep Quality, Psychological Wellbeing

	Mean	Standard Deviation	*N*
COVID19 Stress	58.24	22.64	99
Sleep Quality	8.82	3.69	99
Psychological Wellbeing	85.60	14.84	99

Table 2

Correlation for COVID19 Stress and Sleep Quality

R	0.4421
R^2	0.1955
P-Value	< .00001

The result is significant at $p < 0.05$

Table 3

Correlation for COVID19 Stress and Psychological Wellbeing

R	-0.2309
R^2	0.0533
P-Value	.02201

The result is significant at $p < 0.05$

Discussion

The mean age of students who answered the questionnaire was 19.9 years. From the data collected, 89% of participants were females and 10.10% of participants were males. The data included participants from the states of Maharashtra, Punjab, Tamil Nadu, Karnataka, Delhi, West Bengal.

The Pearson Correlation was calculated between COVID19 Stress and Sleep Quality (Disturbance). The r-value calculated was 0.4421 which was found to be significant at 0.05 level. This indicates a moderate positive correlation between the two variables. This suggests that the higher the COVID19 stress experienced, the higher was the sleep disturbance reported by the students. Studies have shown that stress has biological symptoms which include disturbed sleep. In a study done in Bangladesh, a high prevalence of sleep disturbance was found during the COVID19 pandemic (Ara T, Rahman MM, et al, 2020). The changes in

routine, lack of movements outside of homes, lack of social interaction and intellectual stimulation caused young adults to seek sources of entertainment through online medium of social media and OTT platforms. This mindless scrolling of social media and online entertainment is one way of coping with the stress related to the pandemic. This is playing havoc with their sleep schedules, some reporting extremely disturbed sleep. The anxiety and stress regarding their prospects and career have caused young adults to panic and affected their sleep-wake cycle.

The Pearson Correlation was calculated between COVID19 Stress and Psychological Wellbeing. The r-value calculated was -0.2309 which was found to be significant at 0.05 level. This indicates a mild negative correlation between the two variables. This suggests that the higher the COVID19 stress experienced, the lower was the psychological wellbeing reported by the students. Psychological wellbeing is a significant indicator of mental health. As the stress related to COVID19 increases, it impacts the psychological wellbeing of people, including young adults pursuing higher education. This was reflected in a study done on Chinese college students to understand the role of Psychological Well-being during the COVID19 pandemic. It was found that COVID19 stress did affect the well-being of college students. The resilience of the students played an important role in reducing the impact of stress (Tan, Y., Huang, C. et al, 2021).

In a Turkish study conducted among college students in universities across various countries, it was found that the stressors of the pandemic and lockdown, including the social isolation, uncertainty about the future, unemployment and financial difficulties added to the stress experienced by the students. This affected their overall psychological well-being (Li H, Hafeez H and Zaheer MA, 2021).

Conclusions

The current paper found a moderate positive correlation between COVID19 Stress and Sleep Quality (Disturbance) and a moderate negative correlation between COVID19 Stress and Psychological Wellbeing.

Recommendations

It is recommended for Higher Educational Institutes to set up mental health care initiatives to address the concerns of students. It is also suggested to incorporate inclusive practices, to help students better cope with the stress of COVID19 and online education.

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"Spatio-Temporal Changes of Agricultural Workers to Total Workers in Northern part of Nandurbar district in Maharashtra"

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Abstract

The research paper deals with the "Spatio-Temporal Changes of Agricultural Workers to Total Workers in Northern part of Nandurbar district in Maharashtra" Occupational structure this refers to the aggregate distribution of occupations in society, classified according to skill level, economic function or social status. The distribution of the population according to the different types of occupations is referred to as the occupational structure. Occupational structures are generally classified as primary, secondary and tertiary. The main objectives in this research paper to analyze the circle wise Spatio-Temporal changes of agriculture workers to total working population in the study region in northern part of Nandurbar district for the year 1991 to 2001. Near about 90 percent population, depend on agriculture sectors in the study region. The agricultural workers in percent decreased considerably during the study period by 7.64 percent in the study area. It is seen from this exhibit that the northern, central and western parts are observed in the percentage of agricultural workers increased in eight circles during the study period of ten years from 1991 to 2001. The northern part is observed at Valfali circle (9.14 percent to total workers) it shows low proportion of agricultural workers in 1991, but it is greatly increased in the percentage of agricultural workers by 42.07 percent after decade (1991 to 2001). The maximum agricultural workers is found at Kalsadi circle (71.74 percent to total working population) in the southern part whereas minimum is recorded at Roshmal Bk. (8.73 percent to total working population) in northern part in the study region. The main workers have been again grouped into four sub groups as Cultivators, Agricultural Laboure's, Workers engaged in household industry, and other workers such as trade and transport. The physical as well as socio-economic factors determinants are responsible for the changes of occupational structure in the study region.

Introduction:-

The occupational structure of a nation refers to the percentage of its workforce employed in the various economic ventures. To put in the other words, articulating the number of the total working population employed in agriculture and associated activities and the number of them involved in the manufacturing and service sectors can be identified from the occupational structure of the nation. Predominant of the agricultural sectors agriculture was the principal source of occupation as well as near about 75% of the population was engaged in agriculture, resulting in the backwardness in the India's economy at the time of India's independence. The distribution of the population according to the different types of occupations is referred to as the occupational structure. Occupational structure are generally classified as primary, secondary and tertiary. As per definition main workers are those who are engaged in economic product activity for a major part of the preceding year (at least six months or 180 days) while marginal workers means, those who work for sometime but not for the entire year (census of India, 1981). The availability of labour resource and its involvement in various activities in agriculture represent the scenario of development of the region. The population can be generally grouped into two groups a) working population and b) Non-working population. The working population means participation in economically productive activity either physical or mental in nature. This involves not only actual work, but also supervise and direct whereas non-working population means those who did not work at all during the preceding year (census of India, 1981). The working population owns special significance as it is directly involved in economic productive activity. The proportion of population, demographic characteristics and economic composition has a bearing on the landuse pattern. The agricultural workers in percent decreased considerably during the study period by 7.64 percent in the study area. It is seen from this exhibit that the northern, central and western parts are observed in the percentage of agricultural workers increased in eight circles during the study period of ten years from 1991 to 2001. The northern part is observed at Valfali circle (9.14 percent to total workers) it shows low proportion of agricultural workers in 1991, but it is greatly increased in the percentage of agricultural workers by 42.07 percent after decade (1991 to 2001). The main workers have been again grouped into four sub groups as Cultivators, Agricultural Laboure's, Workers engaged in household industry, and other workers such as trade and transport.

Keywords:-
Occupation Structure, agricultural workers, marginal workers, general landuse, decade changes.

Objectives:

The research paper following main objectives-

To analyze the circle wise Spatio-Temporal changes of agriculture workers to total workers in the study region.

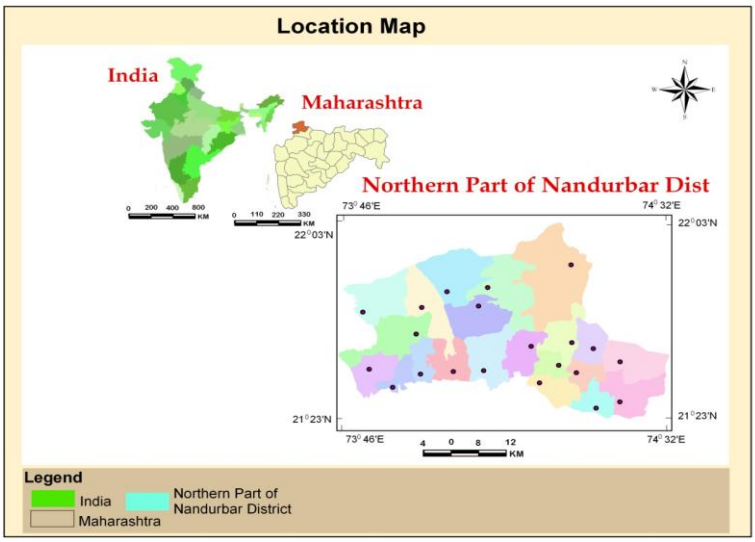
To examine the causes responsible for changing occupational structure in the study region.

Study Region:-

The study region is at the North-West part of Maharashtra. It is lies between $21^0.23'$ N. to $22^0.03'$ N. latitude and $73^0.46'$ E. to $74^0.32'$ E. longitude. The northern part of the study region is occupied by Satpuda Mountain, southern part covers by Tapi basin. The Tapi and Narmada are main rivers; both are flowing east to west. In river basin black soil and mountainous region bared and low quality of soil is found. The west and south-western boundaries covered by Gujrath, towards the southern part is Nandurbar tahsil and south-eastern part is the Dhule district. The northern boundaries occupied by Madhy Pradesh state.Climate of the study region are dry except monsoon period. Daily range of temperature is higher, May is the hottest month of the year and December is the coldest month in the year. The average annual rainfall of the study region is about 800 to 900 m.m. The amount of rainfall increases in the northern part of the study area. In the present research paper of the study area we are selected 21 circles and four tahsils, namely Akrani, Akkalkuwa, Taloda and Shahada. According to two decades the study region having 59.10 percent of net sown area in Nandurbar district. Particularly it is unique area of tribal region in the study area and topographically it is uneven distributed. Most of the northern area is occupied by the Satpura ranges. The whole area is divided in to mountain and piedmont zone.

Methodology and data base:

The present study is entirely based on secondary data. Data was collected from the Google www.nandurbarcensus 1991 and 2001, district census handbook of Nandurbar district, census abstract of Maharashtra state and socio-economic review and statistical abstract of Nandurbar district. Circles are considered as basic unit of investigation. Two-decade period of spatio-temporal variation of occupational structure pattern has been taken into consideration, i.e 1991 and 2001. The data thus collected will be processed, analyzed by using different quantitative statistical techniques the table is used are calculated with the help of excel computer software and used the Arc GIS software.



Result and Discussion:-

The percentage of agricultural workers to total working population has been worked out of circle level for the study region and it was then mapped in exhibit for showing spatial distribution of percent of agricultural workers to total workers for 1991 and 2001. The agricultural workers in percent decreased considerably during the study period by 7.64 percent in the study area.

A)Spatial Distribution:-

The spatial distribution of agricultural workers to total workers is shown in table and map for 1991 in the area under study. It is obvious from this exhibit that the southern and south-eastern parts have high percentage of agricultural workers to total working population in the study region (more than 50 percent to

total population). The maximum agricultural workers is found at Kalsadi circle (71.74 percent to total working population) in the southern part whereas minimum is recorded at Roshmal Bk. (8.73 percent to total working population) in northern part in the study region. This high percentage of agricultural labours were found in these circles namely Taloda (62.92), Borad (63.46), Vadali (55.64), Sarangkheda (63.74), Prakasha (68.69) and Kalsadi (71.74) are covered in southern part and eastern part are observed Mhasavad (65.47), Bramhanpuri (64.96), Aslod (52.62) circles in the study region. These circles are situated with medium to deep black soils, piedmont plane, irrigation facilities etc. Because of these reasons the income source from agriculture is satisfactory hence the workers from the surrounding region are migrated in this area.

Table: Northern Part of Nandurbar District: - Circlewise Proportion of Agricultural Workers to Total Workers (1991-2001).

Sr.No.	Name of Circle	Total Workers		Agricultural Workers		% of Agricultural Workers to Total Workers		Variation (2001-1991)
		1991	2001	1991	2001	1991	2001	
1	Akkalkuwa	8202	15065	3517	5311	42.88	35.25	-7.63
2	Khapar	9643	15343	3076	4949	31.90	32.26	0.36
3	Valfali	3577	8533	327	4370	9.14	51.21	42.07
4	Moramba	9827	15827	3817	7022	38.84	44.37	5.53
5	Dab	9842	16304	1858	6533	18.88	40.07	21.19
6	Molgi	11563	17205	1197	6292	10.35	36.57	26.22
7	Taloda	8527	19320	5365	8189	62.92	42.39	-20.53
8	Borad	17005	27522	10791	9135	63.46	33.19	-30.27
9	Somaval	8577	20185	2636	8931	30.73	44.25	13.51
10	Shahada	12796	20103	5866	5019	45.84	24.97	-20.88
11	Brahmanpuri	15749	20915	10231	9505	64.96	45.45	-19.52
12	Aslod	18002	25135	9473	10931	52.62	43.49	-9.13
13	Vadali	12344	22930	6868	9530	55.64	41.56	-14.08
14	Sarankheda	10705	16520	6823	6008	63.74	36.37	-27.37
15	Prakasha	13330	18230	9130	6010	68.49	32.97	-35.52
16	Kalsadi	9537	15931	6842	5155	71.74	32.36	-39.38
17	Mhasavad	21030	26405	13769	8990	65.47	34.05	-31.43
18	Roshmal Bk.	10309	24120	900	12030	8.73	49.88	41.15
19	Chulwad	6700	13120	1086	4988	16.21	38.02	21.81
20	Khuntamodi	5257	12540	725	4130	13.79	32.93	19.14
21	Toranmal	6298	13580	905	4500	14.37	33.14	18.77
Rigion		**228820**	**384833**	**105202**	**147528**	**45.98**	**38.34**	**-7.64**

Source: Computed by Researcher

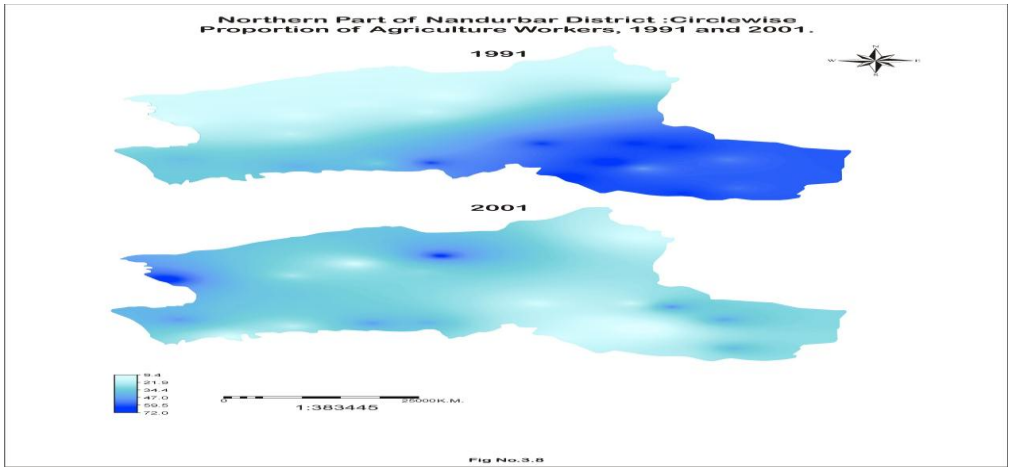


Fig No.3.8

The northern, central and western parts of the study region have less agricultural workers (less than 20 percent). They are namely Valfali (9.14), Dab (18.81), Molgi (10.35), Roshmal Bk (8.73), Chulwad (16.21), Khuntamodi (13.79) and Toranmal (14.37). These circles are situated in hilly and terrain region with steep slope, heavy rainfall, fragmentation of farm etc. Remaining parts of the study region the proportion of agricultural workers ranges from 40 to 50 percent found in only two circles are namely Akkalkuwa (42.88) and Shahada (42.84) circles in southern part of the study region.

Displays the maps spatial distribution of agricultural workers to total workers in 2001 in the area under study. The main future of agricultural workers decreased considerably during the study period of 1991 to 2001. The spatial distribution of agricultural workers to total workers is shown in exhibit map for 2001 in the study area. The study area has 147528 agricultural workers accounting for 38.34 percent of the total workers. The maximum agricultural workers are found at Valfali circle (51.21 percent to total workers) in the north-western part, whereas minimum is recorded at Shahada (24.97 percent to total workers) in southern part in the study region. It is observed that the proportion of agricultural workers to total workers has considerably changed the nature of spatial distribution than the pattern that of 1991 to 2001. About 40 to 50 percent agricultural workers were found in many patches in the southern, western and northern part in the study region. More than 50 percent agricultural workers are recorded at Valfali circle (51.21 percent to total workers) in north-western part in the study region. In remaining circles the proportion of agricultural workers is less than 40 percent to total workers in northern and southern part in the study region. These circles are namely Akkalkuwa (35.25), Khapar (32.26), Borad (33.19), Shahada (24.97), Sarangkheda (36.37), Prakasha (32.97) and Kalsadi (32.36) in the southern part, Mhasavad (34.05) in eastern part, Khuntamodi (32.93), Toranmal (33.14), Molgi (36.57) occur in northern part and central part is found in Chulwad circle (38.02) in the study region.

B)Temporal Variation:- On the table shown the temporal variation of agricultural workers to total workers in 1991 to 2001 is shown in exhibit table. The percentage of agricultural workers to total working population has been worked out of circle level for the study region and it was then mapped in exhibit for showing spatial distribution of percentage of agricultural workers to total workers for 1991 and 2001. The agriculture workers in percentage decreased are considerably during the study period by 7.64 percent in the study area. It is seen from this exhibit that the northern, central and western parts are observed in the percentage of agricultural workers increased in eight circles during the study period of ten years from 1991 to 2001. The northern part is observed at Valfali circle (9.14 percent to total workers) it shows low proportion of agricultural workers in 1991, but it is greatly increased in the percentage of agricultural workers by 42.07 percent after decade (1991 to 2001). Also, in Roshmal Bk. the 49.88 percent shows the proportion of agricultural workers in 1991, but it is increased in the percentage by 41.15 percent as compared to the period of 1991. Kalsadi circle (71.74 percent to total workers) showed high proportion of agricultural workers in 1991, but it shows greater decreased in the percentage of agricultural workers by 39.38 percent as compared to the period of 1991. Except Somawal circle (13.51 percent to total workers) in the southern part, all circles in the study region have shown decrease in the percentage of agricultural workers in the study region.

Conclusion:-

At present observed table whole, study region one decade period of ten years the main future of agricultural workers decreased considerably during the study period of 1991 to 2001. The maximum agricultural workers is found at Kalsadi circle (71.74 percent to total working population) in the southern part whereas minimum is recorded at Roshmal Bk. (8.73 percent to total working population) in northern part in the study region. This high percentage of agricultural labours were found in these circles namely Taloda (62.92), Borad (63.46), Vadali (55.64), Sarangkheda (63.74), Prakasha (68.69) and Kalsadi (71.74) are covered in southern part and eastern part are observed Mhasavad (65.47), Bramhanpuri (64.96), Aslod (52.62) circles in the study region. These circles are situated with medium to deep black soils, piedmont plane, irrigation facilities etc The northern, central and western parts of the study region have less agricultural workers (less than 20 percent). They are namely Valfali (9.14), Dab (18.81), Molgi (10.35), Roshmal Bk (8.73), Chulwad (16.21), Khuntamodi (13.79) and Toranmal (14.37). These circles are situated in hilly and terrain region with steep slope, heavy rainfall, fragmentation of farm etc. The maximum agricultural workers are found at Valfali circle (51.21 percent to total workers) in the north-western part, whereas minimum is recorded at Shahada (24.97 percent to total workers) in southern part in the study region. It is observed that the proportion of agricultural workers to total workers has considerably changed the nature of spatial distribution than the pattern that of 1991 to 2001. The agriculture workers in percentage decreased are considerably during the study period by 7.64 percent in the study area. It is seen from this exhibit that the northern, central and western parts are observed in the percentage of agricultural

workers increased in eight circles during the study period of ten years from 1991 to 2001. Except Somawal circle (13.51 percent to total workers) in the southern part, all circles in the study region have shown decrease in the percentage of agricultural workers in the study region.

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A BRIEF Study on Wastes-Its Disposal and Management

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Abstract

Waste management *(or* ***waste disposal****) includes the activities and actions required to manage* ***waste*** *from its inception to its final disposal. This paper outlines the brief introduction and awareness for study of wastes and it's effective way of management system with modern era technologies.*

Introduction

Wastes are unwanted or unusable materials. Waste is any substance which is discarded after primary use, or is worthless, defective and of no use. A by-product by contrast is a joint product of relatively minor economic value.

TYPES OF WASTE

1. Liquid waste. Liquid waste refers to all grease, oil, sludges, wash water, waste detergents and dirty water that have been thrown away. ...
2. Solid Waste. ...
3. Organic Waste. ...
4. Recyclable Waste. ...
5. Hazardous Waste
6. Toxic waste causes serious problem to our health and to the environment. Examples: dried paint, old bulbs and old batteries.

E-waste consists of dismantled parts of computers, electronic appliances, mobile phones, TV, floppy discs, pen drives. In India E-wastes are dumped into unsafe and unauthorized dumping yards where they are dismantled manually and unscientifically, causing great environmental and health risks as they contain dangerous contaminants.

Hospital wastes or soiled waste Consists of various components containing infected human tissues or body fluids and are called bio-hazardous. The needles, surgical knives, and other surgical instruments called 'sharps' have to be disposed of carefully, but many a time we find this does not happen. Being pricked with infected needles can transmit diseases like HIV, Hepatitis B and C.

Body/Text

Waste management term has been widely accepted as a sum of measures and solutions for waste avoidance, treatment, recovery, reuse and least but not last, final disposal with consideration to ecological and economical aspects.1 However, waste disposal to controlled landfills should only be a final option, adopted when further treatment of waste is neither economically nor technically possible. Unfortunately, uncontrolled waste dumping on the land is the first option for many regions in Asian continent due to very low costs. Over years, this was leading to two main problems: 1) dumped waste has generated liquid and gaseous emissions making the area out of use, and 2) dump sites rapidly became a breeding and hosting place for large amounts of disease-bearing organisms, posing a high threat to humans' health and safety living nearby the respective areas, and as well for the surrounding environment. Nevertheless, carefully managed sanitary landfills should replace the open dumps to significantly reduce the contact between the waste and the environment by concentrating the waste in a well defined and managed area [UNEP, 2005]

For a good planning of a sanitary landfill, representative statistical data on waste quantity generated and its composition are needed. These design parameters are linked with the level of development of the local community, with the demographic predictions and also with climatic and geographic factors. Unfortunately, for most situations this is a difficult aim since the waste generation and composition varies significantly from country to country and from

one area to another, thus it is not always possible to use much of the available data. Detailed and expensive studies have to be performed for a proper characterization of waste properties
Landfill closure starts when the planned landfill capacity is reached but the closure can also be done progressively, while still adding waste to new cells. However, a completed landfill is not going to become an abandoned place. The management of landfill gas, leachate, as well as environmental monitoring will continue for long periods of time (even 20-30 years or more) and this should be well considered at the planning stage because the costs for these activities will not be incurred on a revenue basis. The rehabilitation of a landfill means using the site for a variety of functions, among them being: Residential development (houses and annexes, green spaces) Commercial development (storage areas, parking lots, etc) Active recreation areas (sport) Passive recreation areas and open space (parks, green areas) The garbage that we generate every day has not only increased in volume phenomenally, but has also changed its composition due to changes in our lifestyles and consumption patterns. For instance, there is now an increasing use of non-biodegradable materials such as plastics, metals and glass, specifically in urban areas. Technological advancement has further brought in an increasing use of electronic items and gadgets. These are useful for us, but when discarded (known as E-Waste) they can be harmful to the environment and human health, particularly for the workers associated with this occupation.
Effects of Undisposed or Unattended Garbage Open and unattended garbage is a common sight in the market, streets or in the vicinity of our homes. Most often, it emits such a foul smell that we have to cover our noses with a cloth. Have you ever stopped to think how unattended garbage can affect our health and our environment? If you observe carefully, you will notice that when garbage is allowed to collect in the open for a long time, it attracts flies, cockroaches and other insects. It also attracts rats and stray dogs. In fact, moist or fermenting garbage, particularly when organic waste such as kitchen waste is thrown, becomes a perfect breeding place for flies. When we eat the food, which has been contaminated by these flies, we are likely to fall ill. Water and food borne diseases such as dysentery, cholera and gastroenteritis are some of the diseases that can be transmitted by flies. Moreover, since accumulated garbage emits foul smell, it also causes air pollution.

Conclusion

Wastes control and measures with latest technology is to be adopted on a periodic basis for proper carry out, otherwise it is a vast and elaborative process, so control and check with effective study will give fruitful and effective solutions to this mass project for the sake of people.

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Changes of Cotton Cropping Pattern in Amravati District – 2007 to 2014

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Abstract: -

Amravati district is a major cotton-producing district from western Vidarbha. It is generally known as black cotton soil. Amravati district has a total of 14 Talukas where there is a diversity of cotton production. Cotton is a Kharip crop that is largely affected by the factors like climate & soil. Cotton farming is a traditional one & cotton is commonly called white gold. The farmers produce cotton as an important cash crop. But today Cotton productivity of the Amravati district is also found affected by climate change and global warming.

Keywords: -

Climatic condition of cotton crop & Climatic condition of Amravati District, Cropping pattern.

Introduction: -

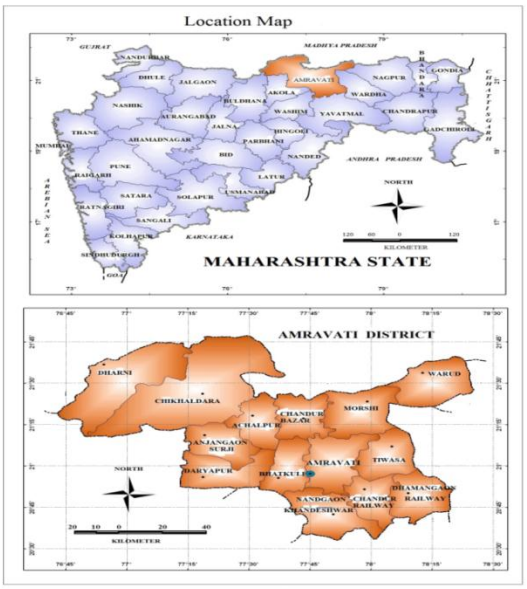
Cotton cropping pattern has been studied with 10 various crops in Amravati district. The study of cotton cropping pattern is done referring total of 14 talukas of the district. These crops include cotton, Jowar, Rice, Wheat, Pigeon, Groundnut, Fruit & Vegetable, Gram, Spices, Sugarcane out of 10 crops cotton cropping area is selected for details studies. It is found that the cropping pattern is generally affected by the farmer's choice of the crops but the physical, social, economic & political factor also affects a cropping pattern and hence cotton area has been lessened and other crops production has been increased. The crop productivity of Amravati district is also found affected by climate change and global warming. Cotton production of Amravati district during 1998 to 2006 is largely affected

Climatic Condition for Cotton Crop: -

Cotton can be profitably grown in regions with rainfall of 850 - 1100 mm. However, economic yields cannot be realized in the region with rainfall less than 500 mm. cotton production depends on the vagaries of monsoon since 2/3 cotton area is rained. Very sensitive to low temperature during the period of floral bud initiation during which temperatures of 21^{O}C and above are desirable. During flowering and fruiting, temperatures of 26-32^{O} C are desirable during the daytime, but the nights above 35^{O} C are not desirable, however, when the moisture supply is favourable, the cotton plant is capable of enduring without permanent injury, very high temperatures (up to 43-45^{O} C) for short periods. If these high temperatures persist for several days, however, the yields will be adversely affected. When soil temperature falls below 20^{O} C, even for short periods, the uptake of water is slowed down, and the cotton plants may wilt even when there is ample soil moisture. At still lower soil temperatures (below 10^{O} C) the geotropism of the cotton roots is affected and abnormal root-growth results. Excessively high soil temperatures (> 40^{O} C) also have adverse effect

Study Area:

Amravati from Maharashtra state is an important cotton-producing district. This district is located on the North boundary of Maharashtra State. The location of this district is 23^{0} 32^{1} north to 21^{0} 46^{1} North latitude and between 76^{0} 37^{1} East to 78^{0} 27^{1} East longitude. The total area of Amravati district is 12210 sq. km. The soil from Amravati district is black cotton soil which is favourable for cotton production. There are Amravati, Bhatkuli, Nandgaon Khandeshwar, Daryapur, Chandur Rly., Dhamangaon Rly., Tiwasa, Dharni, Chikhaldara and Anjangaon Surji.



Objective: -

To find out decrease or increase in cotton area & growth in other crops

To study the impact of change in temperature and climate on cotton crop.

To study the increase in temperature and variation in rainfall of Amravati District.

1. To find out new genres of cotton that would be able to face increasing temperature.
2. To study the farmer's trend to cultivate various other crops, govt. policy & the impact of geographical factor, climatic changes on cotton cropping pattern.

Methodology: -

The research is based on the secondary data of the meteorological department and district gazetteer of Amravati District. Agriculture data is used in the socio-economic survey & statistical department of Amravati District. And implementing a general cropping pattern method. Statistical information from 2007 to 2017 is derived from the socio-economic survey of Amravati District.

Taluka wise cotton cropping pattern in Amravati District: -

The cropping pattern of 10 crops that were selected for Taluka wise cropping pattern from Amravati district are divided in the division- very high (above -60%), high (40-60%), medium (20-40%), & low (0-20%). The following formula is used for getting a cotton cropping pattern.

Formula: - CP = Ca ÷ N × 100 **Cp** = cropping pattern

Ca = cotton crop area in the study area

N = total cropping area in selected region for study

Taluka wise cotton cropping pattern in Amravati district- 2007 & 2014

Talukas	Year 2007			Year 2014		
	Total area under crops	Area under cotton crop	Cotton cropping pattern	Total area under crops	Area under cotton crop	Cotton cropping pattern
Dharni	11859	2345	19.77	43011	4956	11.52
Chikhaldara	29172	526	1.80	30355	773	2.54
Anjangaon Surji	48413	20566	42.48	53126	12250	23.05
Achalpur	54891	21998	40.07	61284	16100	26.27
Chandur Bazar	30094	7501	24.92	63715	18514	29.05
Morshi	61994	17270	27.85	58236	19030	32.67
Warud	56530	6859	12.13	56260	000	00
Tiwasa	39871	13663	34.26	42731	9270	21.69
Amravati	69941	23095	33.02	65693	9560	14.55
Bhatkuli	58750	000	00	54024	4352	8.05
Daryapur	82727	38485	46.52	78054	16975	21.74
Nandgaon Khandeshwar	68746	38790	56.42	64880	15950	24.58
Chandur Rly.	39757	23260	58.50	40227	5416	13.46
Dhaman.Rly	59178	000	00	57520	17229	29.95
Total	**711923**	**214359**	**30.10**	**769121**	**150377**	**19.55**

Source: District Socio - Economic Survey, Amravati District.2007,2010,2014,2016,2017

A comparative study of cropping pattern has been carried out between the crop year 2007 and 2014 in the Amravati district. During 2007 highest cropping pattern was (40 - 60%) in Anjangaon Surji, Achalpur, Nandgaon Khandeshwar, Chandur Rly. & Daryapur talukas. There was a medium cropping pattern (20 - 40%) of cotton seen in talukas like Morshi, Chandur Bazar, Tiwasa and Amravati . The lowest cotton cropping pattern (0-20%) was seen in Dharni, Chikhaldara, Warud and Bhatkuli. Based on the study of the cotton cropping pattern of the Amravati district; it is seen that during 2007 cotton cropping pattern was in the medium range.

During 2014 the highest cropping pattern of cotton was (40 - 60%) is not seen. in any talukas, it seen that Anjangaon Surji, Achalpur, Morshi, Chandur Bazar, Tiwasa, Nandgaon Khandeshwar, Dhamangaon Rly. & Daryapur these talukas were in the medium range (20 - 40%) cotton cropping pattern and the lowest cotton cropping pattern (0-20%) was seen in Dharni, Chikhaldara, Warud and Bhatkuli. It is also seen that during 2014 cotton cropping pattern was medium & low range in total Amravati district.

As per the comparison of both crop years, it is seen that the cropping pattern of cotton is negatively changed during 2014 than 2007 in Amravati district because cotton cropping area is 20% in all various crops. cotton cropping pattern in Amravati district is seen higher in 2007 compared to 2014. In the

conclusion; the cropping pattern of cotton is very bad in 2014 than in 2007. In 2014 other crop growth like oilseed crop – (soybean, groundnut & sunflower) compared to cotton crop

Conclusion: -

1. In Amravati district, cotton crop seems to have been replaced by total oilseed (soybean, sunflower, groundnut & safflower) etc. crop in 2014 compared to 2007.
2. In 2007, a high and medium cropping pattern is seen in 10 out of 14 talukas in Amravati district.
3. In 2014, a very high and high cropping pattern is not seen but only medium and low cropping pattern is seen in Amravati district.
4. The 2014 cotton cropping pattern show a significant increase in the area under oilseeds instead of cotton 2014.
5. This show that the farmers tend to go for another high yielding crop as there is a big difference between the cost of cotton and its production and price.
6. Due to unpredictable monsoon rains and frequent diseases on the cotton crop, farmers seem to be inclined to take other crops.

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Diversity of Fleshy Mushroom in Dry Decidous Forest in Sangali District, Maharashtra. (India)

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Abstract :
During the floristic study of the mushroom of this region author come across a number of mushroom species . In this study five species of mushroom are being discussed. 1. Marasmius conigenus, 2. Inocybe corydalina Quelet, 3. Polyporus perennis (L.) Fr., 4. Panaeolus papilionaceous (Fries) Quelet and 5. Coprinus niveus (Pers. Fr.)Fr., are being discussed with different five genus and species. All the different genus and species are being reported for the first time from this region .

Key Words : *Mushroom.*

Introduction :

The soil is one of the most important and interesting factor and is the most characteristics feature of terrestrial environment in which study of soil increase knowledge and helpful in practice of Agriculture , Horticulture and Forestry. The soil is the earthy material in which plants grow. The science deals with study soil is called as soil science. The soil is thin covering over the land consisting of mixture of minerals, organic materials, living organisms, air and water that together support the growth of plant life. Soil is the mixture weathered rock material and organic detritus both of which are formed through the physical, chemical and biological processes occurring slowly and slowly for a long periods at earth surface .On the soil consists number of micro organisms like bacteria, viruses, fungus, protozoa and algae nutrients released in detritus are decomposed by various soil microbes like bacteria, algae, fungi and protozoa etc. bound in or on soil particles and taken back into plants through their root system. Soil (mud) also main source of nutrients for all aquatic plants. In addition soil is the means of support for all terrestrial organisms. Fungi plays very important role in decay and decomposition of plants and animal particles and also decomposed dead bodies of plants, animals and their waste. Our paper focuses on the macromycetes fungi. This large group includes a majority of the species of the class basidiomycetes. Macromycetes constitute a large part of Sangali fungal reserve and are important components of its natural ecosystem. They create a secondary product beneficial to both animals and people in the form of fruiting bodies the yields of which the forests may reach over a ton of fresh weight per hectare. Macromycetes or mushrooms tremendously valuable food products. Mushroom is technically confined to members of a fungi with gills of thousands of species of mushrooms know throughout the world. A few species produce death or serious illness when eaten.

The number of poisonous fungus species is probably more than 200 many mushrooms formerly considered doubtful or poisonous have been found to be edible. Fungal species are especially important components of biodiversity in tropical forest. Mushrooms are unique they are neither animal or plant. Some people consider them plants for various reasons but they differ from plants in plants in that they lack the green chlorophyll that plants use to manufacture their own food and energy for this reason they are placed in a kingdom of their own the kingdom of fungi. The above described mushrooms are called saprophytic fungi due to their feeding habits. Fungi are beneficial organisms we have derived number of useful antibiotics from them, including the wonder drugs penicillin. Fungi are play important role in industrial fermentation they contains various types of enzymes ,vitamins, folic acid and vitamin B-12 absents in other foods are present in mushrooms. Due to low starch /sugar content mushrooms are ideal food for diabetic patient. Fat content of mushroom is rich in linoleic acid an essential fatty acid since they do not produce cholesterol there are good for heart patients. Due to their alkalines ash high potassium, sodium ratio and high fiber content mushroom are ideal food for those sufferings. Organic acid fungi are cause pathogen and fungi perform great role in medicine as a source antibiotic. This paper introduced from sangli district of three different region that have been grown naturally on various types of natural biological media. Terrestrial mushroom are included. Many workers reported fungi from decaying log, humus, dung, rhizosphere(Alexopoulos and Mims 1979, Alexopoulos 1962, Lincoff G. and Mitchel D.H. 1977,Lincoff Garry H. 1981, Ainsworth G.G.,Sparrow F.K.and Sussman 1973, Miller O.K.1975,1977, Smith A.H. 1947,1968, 1971,1973,

1979, Snail 1970,1971 Peter Jordan1995,1996 and 2000, Augusto Rinaldi Vassali Tyndalo 1985, Jacob E.Lange and Morten Lange 1961).

Material And Method :

All the sample were collected from different areas of Sangli district . The three region were taken into consideration. These were Sagareshwar from kadegaon taluka , Vita ghat from Vita taluka and Sukarachri from Atapadi taluka. From each three region sample were collected from different localities. Total 48 fleshy mushroom sample were collected. All the fleshy mushroom sample were grow on natural media .The source of natural media on which fleshy mushroom grown are humus, deadwood debris, decaying logs, wood decomposing fungi ,dung ,dying tree roots, roots of living plants, exterior and interior humus contain soil, lawn and garden , health forest and landscape , dead plant material , living plant material, bark of trees , living and non-living host of plants biomass ,topsoil. All the fleshy mushroom collected from wild area of Vita, Sagareshwar and Sukarachari during month of September 2007 from the different localities and material deposited in the formalin and photographs it, listed it according to index of preservation and studied. Identification of all mushroom is carried out with the help of movable suiting, stopper photographs , preserve material and following mushroom to taking a refrecnes of Simon and Schusters Guide to mushroom by Giovanni Pacioni, U.S. editor: Gary Lincoff., The mushroom guide and identifier by Peter Jordan, Augusto Rinaldi, Vassili Tyndalo-The complete book of mushrooms,Mushroom of the great lakes region by Verne ovid Graham, Collins Guide to mushrooms and Toadstools by morten lange and F.Bayard Hora. This is the important method are use for the identification of fleshy mushroom.

Result And Discussions:

1. *Marasmius conigenus*

Collection Examined : RRT/121, Sept.-2007, Vita, Dist.-Sangli. On decaying wood.

Distirbution : India : M. S. (Tem, 2007), India, Central America and South Africa.

Cap blackish brown, rounded, smooth, slightly hard, arise in cluster, near about 1-3 cm; Stipe 2-3 cm long, thin, cylindrical, brown in color, velvety, flesh tough, solid, hard, outer smooth; Gills are arise at lower side of the pileus, smooth, many, bears a spores, brown in color; Rainy season on wood; Spores are brown in color, 5-6 microns, spherical in shape.

2. *Inocybe corydalina* Quelet

Collectiion Examined : RRT/122, Sept.-2007, Vita, Dist.-Sangli, On moist grassy soil.

Distribution : India : M. S. (Tem, 2007), Europe and the British Isles.

Cap roundish sometime irregular in shape, dome shape, smooth, brownish white in color, 3-6 cm, then hazel, squamose sometimes, slightly greenish umbo; Stipe long, solid, white tint reddish in color when expose in air, cylindrical, broad at the base, narrow at the apex, thick, 4-5 cm long; Spores are globose, brown in color 3-5 micron; season rainy on moist soil, poisonous.

3. *Polyporus perennis* (L.) Fr.

Collection Examined : RRT/123, Sept.-2007, Vita, Dist.-Sangli. On moist soil.

Distirbution : India : M. S. (Tem, 2007), Britain, Ireland, Europe and North America.

Cap plate like, flat, hard, woody, shallow, thin flesh, 2.9-7 cm in diameter, wavy, irregular at maturity, velvety upper surface, smooth, reddish brown or yellwish, rusty or brown with radial striae and darker concentric circles, glabrous, margins are arise at upper surface of pileus, lower surface cover grayish brown pores, fan shape; Stipe thick, long, cylindrical, smooth, reddish brown or dark brown, velvety then rusty and glabrous, fibrous, solid, hard, woody, 2-4.9 cm long, swollen at the base and narrow at the apex, stuffed, flesh thin, tough, odor or not distinctive and flavor soft; Pores small, round then angular, uneven, first pruinose and whitish then grayish brown in color; Tubules short, decurrent, grayish brown; Spores are golden brown or yellowish, clusters, joined with cap, viable several years, globose or broadly ellipsoidal, smooth, 5-6.9 x 3.6-4 microns; rainy season, on soid and wood, not edible.

4. *Panaeolus papilionaceous* (Fries) Quelet

Collection Examined : RRT /124, Sept.–2007, Vita, Dist.-Sangli. On moist soil.

Distribution : India : M. S. (Tem. 2007), North America, Canada, South Africa and US.

Cap hemispheric or campanulate, slightly more open, first brownish pink or grayish brown, then dry, lucid, white tinged with pink, but still brownish at the centre, where it easily crack, margin extending

over the gills, near about, 2-5 cm across; Stipe long, thin, cylindrical, stiff, smooth, gray-brown, fibrous, solid or hallow, flexible, bent, 6-12 cm in length; Flesh thin, odor and flavor mild; Gills are attached to the stem, broad, yellowish brown then olivaceous, adnate to close crowded; Spores are 6.9-10 micron; Non edible, rainy season on moist soil.

5. *Coprinus niveus (Pers: Fr.)Fr.*

Collection Examined : RRT/125, Sept.–2007, Vita, Dist.-Sangli. On moist soil.

Distribution : India : M. S. (Tem. 2007), Europ, North and Central America.

Cap 1.5–3cm high, ovoid to conical at first, bell-shaped when expanded with split or rolled-back margin, white covered in chalk-white meal or ash, whitish pink in color. Stipe 4–5 cm, white pink, slightly thickened at the cottony base, cylindrical, smooth, solid, flexible. Smell none. Gills white or brwon, rapidly greying and finally black. Spore print black. Spores ellipsoid or slightly almond-shaped, 15–19 x 11–13um. Mealy covering of cap consisting of thin-walled, smooth globose calls. Habitat on cow or horse dung, soil. Season rainy, summer to autumn. Occasional. Edibility unknown - avoid.

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1. *Marasmius conigenus*

2. *Inocybe corydalina*

3. *Polyporus perennis*

4. *Panaeolus papilionaceous*

5. *Coprinus niveus*

"A Role of Foreign Direct Investment in the Development of Hospitality Industry in Pune City"

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Introduction

The economy of India, as it obtains at present, is the result of the culmination of forces extending over a period of about last two decades beginning with the arrival of the British East India Company around in 18th century. The single biggest event was the building of railways during the middle of the Nineteenth Century. The Railway released the latent potentialities for industrial advance. Slowly and gradually, along with commercialization of agriculture, capitalist enterprise, both Indian and foreign owned, emerged. These marked the beginning of industrial growth of the Indian economy.

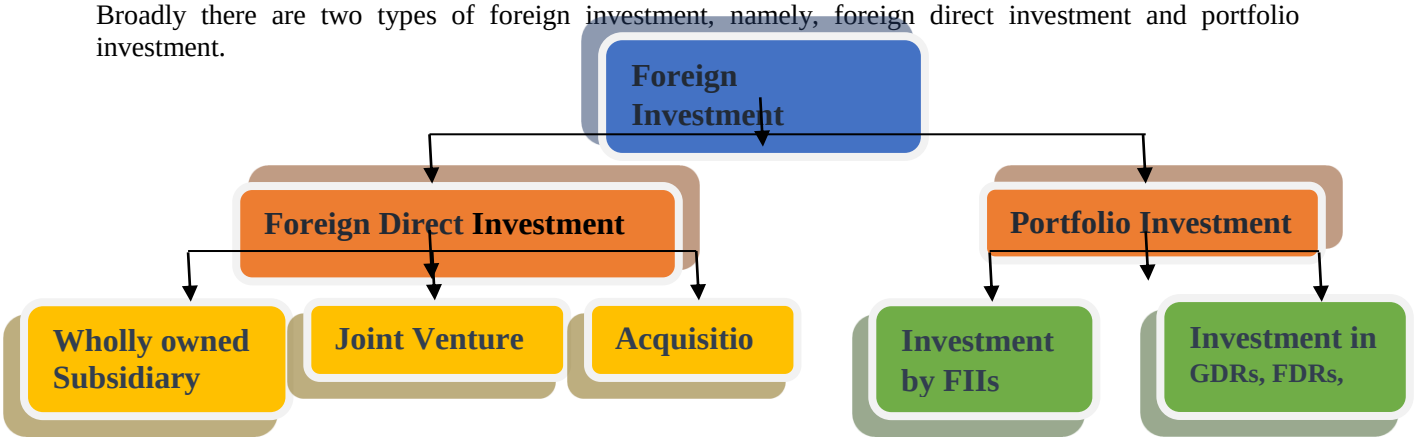
After the Independence- era Indian economy was inspired by the Soviet model of economic development, with a largest public sector, high import duties combined with interventionist policies, leading to massive inefficiencies and widespread corruption. However, later on India adopted free market principles and liberalized its economy to international trade under the guidance of ***Dr. Manmohan Singh,*** *who then was the Financial Minister of India and under the leadership of* ***Prime Minister, P.V. Narsimha Rao,*** *Following these strong economic reforms, the country's economic growth took place with a large increase in the income of people. India recorded the highest growth rates in the mid-2000s and is one of the fastest growing economies in the world. The growth was led primarily due to a huge increase in the size of the middle class consumer, a large labour force and considerable foreign investment. India is the Nineteenth largest exporter and Tenth largest importer in the world. In India foreign direct investment inflow made its beginning in the period of 1991-1992, with the goal to bring combination the intended investment and the actual saving of the country. Hence foreign direct investment is considered as one of the most significant development tools for economic growth of the country. In the last few years foreign direct investment has played a significant role in the process of globalization. The rapid growth and expansion in foreign direct investment by multinational enterprises since the duration of the eighties may be given to important changes in technology, investment regimes and liberalization in trade and privatization of markets in various developed and under developed countries.*

Meaning of Foreign Investment

Foreign investment means the investment which is obtained from other countries. The foreign investment is the investment obtained from foreign citizens, foreign government and international financial institutes [IFIs]. Such investment is in nature of direct investment, loan, and grants in any other form.

Types of Foreign Investment

Broadly there are two types of foreign investment, namely, foreign direct investment and portfolio investment.



Research Methodology

The study of the research methodology has become increasingly important in the face of the fast moving technology and increasing complexities in the trade and commerce. The research methodology is considered as on the effective aid towards solving social and economic problems. Research methodology is way to systematically solve the business problems. It may be understood as the science of studying how research is done scientifically. According to Prof. C.R. Kothari, "research methodology refers to the various sequence steps to be adopted by researcher in studying a problem with the certain objects in view." The research methodology deals with the social and the business phenomenon. It studies behaviour of

human being as member of society and their feelings, response, attitude in a different circumstance. Research methodology is carried on both for the discovering new facts and verification of the old one. The researchers not only need to know how to develop certain tests , how to calculate the mean , mode and median and the standard deviation on chi square test , how to apply particular techniques but they also needs to know how which of these methods are relevant and which are not relevant and what would they mean and indicate and why . the researchers also needs to understands the assumptions underlying various techniques and they need to know the criteria by which they can decides that certain techniques and procedure which will be applicable to certain the problem and other will not . All this means that it is necessary for the modern researcher to design this methodology for his social or business problems as the same may differ from problem to problems.

Statement of the Problems

However the hospitality industry is not developed up to the mark. There are so many difficulties in the development of hospitality industry, they are

1. Difficulties in the improvement of employability in Hospitality Industry
2. Defects in providing quality food and quick service to the customers
3. Improving hospitality facility to arrive domestic and foreign tourist in Pune City
4. Problems of providing educational facilities
5. Hospitality Industries are not developed their infrastructure
6. Lack of economic stability in Hospitality industries
7. Develop the tourism sector in Pune City

Need and Significance of the Study

The role of Foreign Direct Investment in the development economy like India can never be undervalued. It works like a medicine for the poor economics. Concerning about the need and significance of Foreign Direct Investment in the development of Hospitality industry in Pune City, there are many things that come before us. It helps to enhance the standard of the industry to face the global challenges. The improvement of in food quality, facilities and correlated services is possible due to that.

The growing need for the skilled staff of the industry can be provided by the Education institutes. These institutes need to give quality education to meet needs of the time. By their means students can get opportunities of training and placement in India and Abroad. Foreign Direct Investment in the sector of Hospitality Industry will develop the infrastructure. The overall growth will attract the Foreigners in not only Pune City but also Maharashtra. The present work will also focus on the difference in the condition before and after the Foreign Direct Investment in the Hospitality and Tourism sector. Foreign Direct Investment helps to connect different industry and sectors together into one thread. That will enhance their performance and interdependence. Foreign direct investment in hospitality industry helps in the increase of employment ability, restaurants and accommodation facility, foreign exchange, infrastructure, economic growth in India.

Objectives of the study

Considering the need and significance of the study following objectives are formulated

1. To study of the opportunities available to the Hospitality industry in Pune City.
2. To assess the existing facilities available for Hospitality industry in Pune City.
3. To study the function performed by the Hospitality industry.
4. To examine the need of Foreign Direct Investment in required for Hospitality industry.
5. To investigate available facilities of education, service, training and placement for Hospitality industry.
6. To evaluate the role of Foreign Direct Investment in the development of Hospitality industry.
7. To suggest the measures to improve the hospitality industry through FDI

Hypothesis of the Research

To evaluate the role of foreign direct investment in the development of hospitality industry in Pune City, following prepositions are made to examine the role of foreign direct investment in the development of hospitality industry in Pune City. By considering the objectives of the study the following hypothesis are formulated for the investigation and solutions to the hypothesis are discussed below. At this point hypothesis are accepted. These hypotheses are proved in respective chapters in the thesis report.

1. Hospitality industry improves their services, food quality and tourism through FDI
2. Hotel management institutes are providing quality education, training and placement etc. for the students.
3. FDI playing a crucial role in the development of Hospitality Industry in Pune City

Data Collection

The data and information is collected for the present study through two main sources

1. Primary sources
2. Secondary sources

Primary Sources

Primary source includes the survey conducted for collected data and also opinions of Hoteliers, Employees, Customers, Staff of educational Institution and the Students. Also questionnaires and interviews used for collecting the primary data.

The **primary data** would be collective with the help of following category:

Sr. No	Category	Data collection
1	Hotelier	25
2	Employees	25
3	Visitors/guest/Tourist	25
Total		75

Secondary Sources

Secondary source includes the voucher for various Hotels records and the printed materials, advertising materials of hotels, various books and journals, Magazine, Newspapers, Articles and various published documents and different records related, FDI books, broachers in tourism, Government FDI policies of Hospitality Industry for the present study.

Sampling Selection

The researcher will use the sampling selection for analysing the data as follows. In the area of Pune City there are 25 hotels are selected for collecting data and information related to the heritage, unrecognized, one star, two star, three star, four star and five star deluxe hotel out of these 05 hotels for domestic hospitality industry and 05 hotels for foreign hospitality industry, hotels are randomly selected for the study. Collected data are presented, analysed and interpreted through the various statistical tools and techniques such as

Tabulation Method

After the plan is execute and data is classified in the form of tables. The simple countable tables will be prepared and classified manually.

Statistical Tools

The conclusions will be drawn by utilizing various statistical tools such as correlation, percentage, growth rates, average, graphs, ratios, pie charts etc.

Scope and Limitation of Study

The scope of the study is limited to the role of Foreign Direct Investment in the development of Hospitality Industry in Pune City, by providing development of hospitality industry in Pune City. Considering the limitations such as individual researcher, time limit, money and the period for research only hotels of FDI in hospitality industry in Pune City are selected and the period for the study is confined only 2012-13 to 2014-15. Only star categories of hotels are selected for the study. In the collection of 25 hotels has been surveyed in Pune City and out of these 05 hotels for domestic hospitality industry and 05 hotels for foreign hospitality industry has been randomly selected for the study. The study is focused on the aspects role of FDI in the development of employment, service, facility, infrastructure, restaurant and accommodation of hospitality industry in Pune City. This study totally depends on the primary and secondary data collection and this study only for Pune City aspects are focused. The area of Foreign Direct Investment has very wide scope under its different sectors. Therefore, the researcher has selected Hospitality Industries for the proposed research work. In this research, Foreign Direct Investment in selected hotel industries from Pune City will be investigated. The study confines the Foreign Direct Investment in Hospitality Industries in Pune City. Foreign Direct Investment is one of the most important factors in developing Hospitality Industry; therefore we need to collect fresh data for our present research. The researcher will select randomly hotels from Pune City for showing the role of FDI, giving logical representation to all geographical areas of Pune City in the duration of 2014-2015.

Review of Research and development of subject

Foreign Direct Investment has become a very important spring and engine of economic growth in developing countries that have shortage of resources. Foreign direct investment contributes to international trade addition, emerging technology extends, assurance of human capital structure, to create an extra global competitive business environment and development of enterprises. This is the majority essential tool for improving poverty in assorted developing countries. As per the various “authors” and “scientists” outlook, the hospitality industry is a grooming industry in India. Hospitality industry in India is one of the

major sources of increasing revenue. Today it is creating various job opportunities for employee in India as well as abroad. The foreign direct investment put in hospitality industry likely to convey host country capital, for the vaccination of international competitiveness. Foreign direct investment contributes their capital to another country's generally economic growth and the development of hospitality industry throughout its assorted channels.

The concern of economic prosperity is regularly linked to massive inflow of foreign direct investment into a nation. The impression of foreign direct investment on economic growth has been disputed considerably in the economic progress literature since many years. Many researchers have conducted studies to investigate the fundamental theories of foreign direct investment, various macro-economic variables that influence foreign direct investment and impact of economic incorporation on the associations of foreign direct investment. In this chapter, review of literature was collected on the basis of different opinions, views and work completed on this selected topic.

Conclusions

The present study researcher has made his own finding and conclusion with the help of interpretation of all the compile chapters for this thesis. The present study to find out the emerging trends of FDI inflows in hotel industry and FDI has played a significant role in development of hospitality industry in Pune City. Some of the findings and conclusion are given below

100% FDI permitted in the hospitality industry under automatic route

Hospitality industry attracted US$ 11.14 billion FDI in various modes

1. FDI through record 22% growth of hospitality industry in Maharashtra
2. FDI is one of the key factor for 12% growth of hospitality industry in Pune City
3. FDI having US$ 6.23 million profitability in hospitality industry in Pune City
4. FDI inflow of hospitality industry has developed infrastructure, restaurant, employment, services and also economic growth in this industry
5. Mauritius country invested US$ 50,164 million in Indian hospitality industry
6. 12.23 billions of tourist arrival from America that placed number one rank for arrival tourist in India.
7. Mauritius country invested US$ 83.73 billion in Maharashtra
8. FDI hospitality industry was created 13.45 million job opportunities in Indian peoples.
9. FDI is economic engine for the development of hospitality industry
10. In 2016, 8.4 million of foreign tourist arrived in India

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Chemical Parameters of Drinking Water Quality in Rahuri Tahsil of Ahmednagar District (M.S.)

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Abstract: *As stated earlier, water is the most vital source for all kinds of life on this planet is also the resource, adversely affected both quantitatively and qualitatively by all kinds of human activities on land, in air or in water. Chemical parameters of the surface water on 19th and 20th September 2009.The chemical analysis includes major captions, anions and trace elements. In the present research work the absorption of different chemical parameters like DO, hardness, chloride, nitrate and residual chlorine were estimated from selected thirty-two sites continuously for the period of two years from Rahuri Tahsil during February 2018 to January2019.*

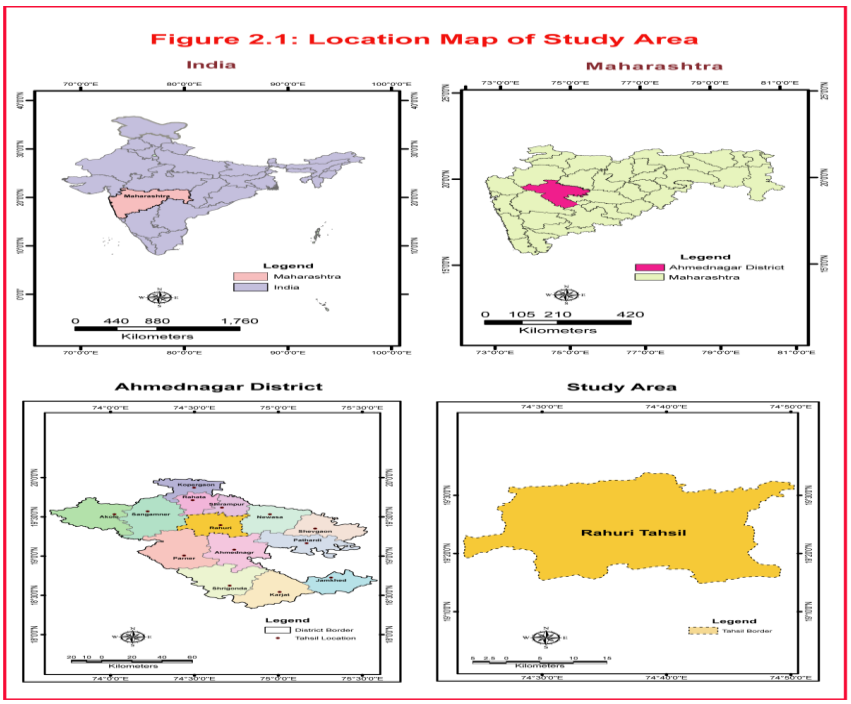
An investigated outcome of all thirty-two water samples according to WHO and Indian Standard Specifications for drinking water IS: 10500 as described below. The results of parameters expressed as mg/Lit. The most important results of the study area have described underneath:

Keywords: *Physico-Chemical Parameters, Permissible Limit, Chemical standards of drinking water, Total Dissolved Solids.*

Introduction

Water is the world's most precious resource because the life of animals and plants depends on it. Around 71% of Earth surface is cover by water. Industries also require water for various applications, so the global economy depends on it as well. Springs are the places where ground water is discharged at specific locations on the earth and they vary dramatically as to the type of water they discharge. Many of the springs are the result of long cracks or joints in sedimentary rock. (Young, 2007 Hardness is an important property, is mainly caused by the cautions of Calcium and Magnesium. It is defined as the sum of concentration of Calcium and Magnesium ions and is expressed in mg/l as $CaCO_3$. The total hardness in groundwater was found to vary from minimum value 50 mg/lit and most value 580 mg/lit

Study Area : The Rahuri Tehsil in Ahmednagar district of Maharashtra has been selected for the present investigation work. The tehsil comprises of 95 villages and two urban centers spread over an area of 1, 00,898 hectares. The geographical extension of the study area is form 19°15' N to 19°34' North latitude and 74°23' E to74°50' East Longitude. The Rahuri tehsil lies in the rain shadow zone of the Western Ghats in Mula and Pravara basin.



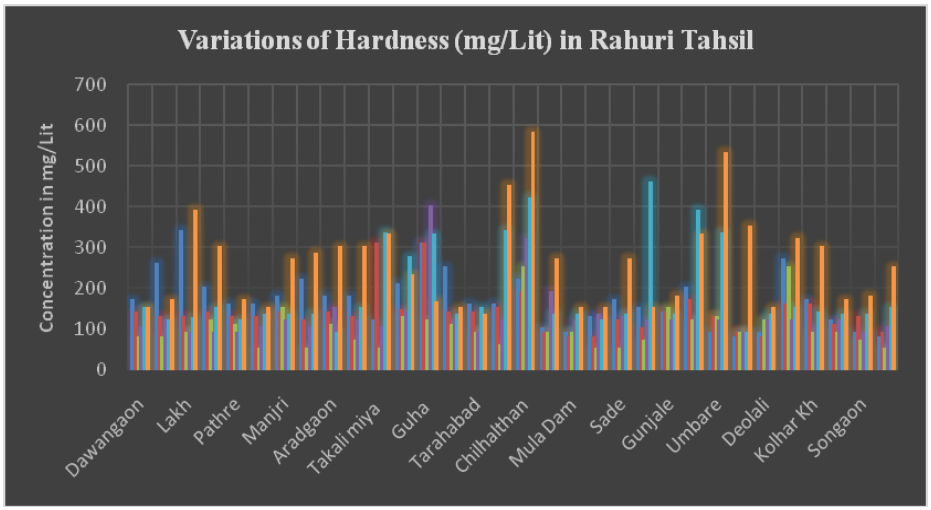
Sampling Methods

The water quality parameters estimated by the standard methods given by APHA (American Public Health Association) (1998). For the present investigation groundwater amples were collected every month during the study year from June 2018 to May 2019 from different sampling stations of Rahuri tehsil. The water samples collected in pre-cleaned 32 Table showing variation of Hardness (mg/Lit) during 2018- 2019 in Rahuri Tahsil of Ahmednagar

Years	2018			2019		
Village Name	Apr - May	Aug - Sep	Jan - Feb	Apr - May	Aug - Sep	Jan - Feb
Dawangaon	170	140	80	105	150	150
Belapur	260	130	80	120	120	170
Lakh	340	130	90	90	125	390
Mahegaon	200	140	120	90	150	300
Pathre	160	130	110	90	120	170
Tilapur	160	130	50	105	135	150
Manjri	180	140	150	120	135	270
Manori	220	120	50	105	135	285
Aradgaon	180	140	110	150	90	300
Musalwadi	180	130	70	120	150	300
Takalimiya	120	310	50	105	335	330
Chincholi	210	145	130	140	275	230
Guha	310	310	120	400	330	165
Kangar Bk	250	140	110	120	135	150
Tarahabad	160	140	90	90	150	135
Mhaisgaon	160	150	60	120	340	450
Chilhalthan	220	190	250	320	420	580
Rahuri	100	90	90	190	135	270
Mula Dam	90	80	90	120	135	150
Avghad	130	80	50	135	120	150
Sade	170	120	50	130	135	270
Wambori	150	100	70	120	460	150
Gunjale	140	140	150	120	135	180
Bhramhni	200	170	120	120	390	330
Umbare	90	130	130	120	335	530
Rahuri Kh	80	90	90	90	90	350
Deolali	90	80	120	120	135	150
Tandulner	270	160	250	120	150	320
KolharKh	170	160	90	105	140	300
Rampur	120	110	90	120	135	170
Songaon	90	130	70	90	135	180
Nimbhere	80	90	50	105	150	250

Table: Variation of Hardness (mg/Lit) in Rahuri Tahsil of Ahmednagar

Variation of Hardness (mg/Lit) in water samples in Rahuri



Result and Discussion .

The average hardness obtained from 32 villages of Rahuri tehsil of water sample is 310 mg/L maximum and 80 mg/L minimum with the mean value of 80 mg/L. Singh et al. (2005), found hardness level as 243 mg/L, 180 mg/L and 149 mg/L during June 1999 from the wells, springs and the rivers in Udhampur, Jammu and Kashmir respectively Also they found hardness 194 mg/L, 179 mg/L and 146 mg/L in October 1999 from same water sampling sites.

Acknowledgement

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Bibliometrics examination of the Annals of Library and Information Studies from 2007 to 2012, with a focus on authorship patterns and collaborative research output.

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Abstract:

The purpose of this study is to look at the bibliometrics of the 203 articles that appeared in the undefined The number of publications discovered among them in 2010 was 43 (21, 19%). The majority of contributions (88%) are written by two individuals (43.35 percent). It was also discovered that just one author wrote 72 (35.46 percent) of the 203 pieces, with the rest 131 written by others (64.46 percent). Co-authors provide 54 percent of the articles. The degree of collaboration ranges from 057 to 0.82, with 0.64 being the average, and 1.87 being the average total number of writers for each work. The average productivity per author is 0.53 hours per week.

Keywords: Bibliometrics; Authorship Pattern; Degree of Collaboration; Annals of Library and Information Studies; Publication Analysis; NISCAIR.

Introduction:

The Annals of Library and Information Studies, formerly known as the Annals of Library Science and Documentation, is a journal dedicated to the study of libraries and information. is a well-known major journal in the subject of library and information science published in India. The National Institute of Science Communication and Information Resources (NISCAIR), New Delhi, publishes it as a major quarterly magazine. NISCAIR publishes original articles, survey reports, reviews, brief messages, and letters on library and information science, as well as computer applications in these domains. In 1964, the journal's name was changed to Annals of Library Science and Documentation, and it was renamed again in 2001 to Annals of Library and Information Studies.

Related Studies

Thanuskodi S (2011) analyzed the magazine entitled "Library Herald" for the period between 2006 and 2010. The analysis mainly comprised the number of articles, the pattern of authorship, the thematic distribution of the articles, the average number of references per article, Forms of cited documents, annual mailing of cited journals, etc. it was found that all studies point to the merits and weaknesses of the journal, which will be useful for its further development. The result showed that of 138 articles, a single author contributed 72 (52.17%) articles, while the remaining 66 (47.83%) articles were contributed by co-authors. The study found that most of the contributions came from India at 89.85% and the remainder at 10.15% from foreign sources only.) and Mahmood (Khalid) (2009) discussed and concluded that bibliometrics studies were very useful for LIS professionals in providing library services, inventory development, policy formulation and refinement, decision-making, resource allocation, analysis of the curriculum and assessment of the quality of the research results. These studies have the potential to identify the root causes of the problems facing the LIS profession. The LIS profession in Pakistan was found to need statistical data compiled using bibliometric methods to solve the problems that are hindering its growth. The study examines the bibliometric characteristics of the Journal of Information Science (JIS) and the relationship of the subject to other disciplines through the analysis of citations. The citation data was extracted from the references of each JIS article in 1998 and 2008. To identify the major classes, subclasses, and subjects of the journals and books cited, the Directory, the Subject Heading of the Library of Congress, was used the WorldCat and LISA databases. Chapters, electronic resources and conference proceedings. Davarpanah MR and Aslekia (2008) examined the productivity, characteristics and various aspects of global publication in the field of library and information science (LIS). In 2000, a total of 894

articles in 56 LIS journals indexed in SSCI were analyzed -2004. In the five years, a total of 1,361 authors contributed publications, the overwhelming majority (89th93%) of them wrote an article. The average number of authors per article is 1.52. The sum of the research achievements of the US and UK authors makes up 70% of total productivity. Most of the articles received only a few citations. 1.6 citations average and LIS researchers mostly cite the most recent articles. About 48% of the authors cited tended to self-cite. Gupta, BM; Bala, A and Kshitig, A (2013), analyzed the production of global publications on cataract research over the period 2002-2011 on various parameters, including the contribution and effect of citations from the 15 most productive countries, different types of cataract research, research production by age group of the population, thematic structure of research results, connection of various diseases with cataract research, contribution to research. The Scopus Citation Database was used for 10 years (2002-11) to retrieve data by searching for the keywords "cataract" in the combined fields of title, abstract, and keywords. Worldwide publication production in cataract research comprised 27,053 articles in the period 2002-11, which increased from 2,025 articles in 2002 to 3,080 articles in 2011, which corresponds to an average annual growth rate of 4.89%. 6.94 in 2002-11, down from 7.82 in 2002-06 to 5.21 in 2007-11 Thavamani, K. (2013) Identified and analyzed the growth pattern and authorship of the articles in Source magazine "DESIDOC Journal of Library". & Information Technology ". The study shows that 2008 was the year with the highest participation in the 2007-2011 study period.

Objectives Of The Study

To Identifying the year-by-year contributions for a research period Analyzing the authorship pattern

To investigate the authorship pattern by era and volume.

To investigate the author's productivity

To examine the journal's single and multi-authored pieces and

To determine the level of collaboration

Methodology

For the study, 24 six-volume editions from 2007 to 2012 were selected over a period of six years. For each article, the annual distribution of the contributions, the number of authors, the volume of the authors, the productivity of the authors and the articles of one or more authors were noted. The data was taken from the Annals of Library and Information Studies website http://www.niscair.res.in/ for the period 2007-2012. These data were organized, calculated, tabulated, analyzed and presented for their results using simple arithmetic and statistical methods. 24 six-volume editions from 2007 to 2012 over a period of six years were selected for the study. For the study, the annual distribution of the contributions, the number of authorships, the extent of the authorship, the productivity of the author and articles by single and multiple authors were evaluated for each article. The data was obtained from the Annals of Library and Information Studies website http: // www.niscair.res.in/ corresponds to the period 2007-2012.

Results And Discussion

Table 1. Year wise Distributions

S. No	Year	No. of Articles	% of Records
1	2007	28	13.79
2	2008	35	17.24
3	2009	34	16.74
4	2010	43	21.19
5	2011	36	17.73
6	2012	27	13.31
	Total	203	100.00

The year-by-year distributions of papers are shown in table-1, which reveals that the year 2010 had the most contributions, with 43 (21.19 percent) published. In the year 2012, a minimum of 27 (13.31 percent) were published.

Table 2. Authorship Pattern

S. No	No. of Authors	Total no. of Contributions	% of Records
1	Single Author	72	35.46
2	Double Authors	88	43.35
3	Three Authors	39	19.22
4	Multiple Authors	4	1.97
	Total	203	100.00

The data concerning the authorship pattern of publications published throughout the study period are shown in table.2. Out of a total of 203 articles, the single author contributed the most, 88 (43.35 percent), followed by 72 (35.46 percent) and 39 (19.22 percent), while the four writers provided the least, 4 (1.97 percent).

Table. 3. Period / Volume wise Authorship Pattern

S. No	Year	Volume	Single Author	Two Authors	Three Authors	More than Three	Total Authors	% of Records
1	2007	54	12	10	6	0	28	13.79
2	2008	55	12	16	6	1	35	17.24
3	2009	56	6	19	9	0	34	16.74
4	2010	57	17	18	6	2	43	21.19
5	2011	58	14	15	6	1	36	17.73
6	2012	59	11	10	6	0	27	13.31
	Total		72	88	39	4	203	100.00
Percentage (%)			35.46	43.35	19.22	1.97	100.00	

The table shows the pattern of authorship in terms of contribution volume and shows that of the 72 contributions by a single author, Volume 57 has the highest number i. 17 (23. 61%), while Volume 56 has the lowest number i, 6. (8.33%).) Of the 88 contributions by two authors, vol. 56 has the highest i.19 (21.59%) & vol.54 and 59 had the fewest posts, 10 (11.36 percent); of 39 articles by three authors, Vol. 56 has the highest i. 9 (23.07%) and Vol. 54, 55, 57, 58 and 59 have the lowest number i., 6 (15.38%) contributions. of 4 contributions by more than three authors, volumes 57 have the highest i.2 (50.00%) and vol. 55 and 58 each have 1 (25.00%) of the lowest authors.

Table. 4. Authorship pattern of single and joint contributions

Years	2007	2008	2009	2010	2011	2012	No of Articles	% of Records
Single	12	12	6	17	14	11	72	35.46
Joint	16	23	28	26	22	16	131	64.54
Total	28	35	34	43	36	27	203	100.00

Graph 2. Authorship pattern of single and joint contributions

According to Table 4, only 72 (35.46%) of the 203 articles were written by a single author, while the remaining 131 (64.54%) were written by joint writers. It was discovered that the majority of the articles were written collaboratively by many authors.

Table. 7. Institutions – wise Distribution of Contributions

Institutions		No of Articles	% age
Academic Institution		167	82.26
Research Institution		24	11.82
Special Institution		12	5.92
	Total	**203**	**100.00**

Graph. 3. Institutions – wise Distribution of Contributions

Table 7 indicates the kind of institutions with which the writers of the papers were linked. The biggest number of contributions, 167 (82.26 percent), came from writers connected with Academic Institutes, while the lowest number, 12 (5.92 percent), came from Special Institutions.

Table 8. Degree of Collaboration

S. No	Year	Single Authored Paper (N_s)	Multi Authored Papers (N_m)	Total ($N_m + N_s$)	Degree of Collaboration
1	2007	12	16	28	0.57
2	2008	12	23	35	0.65
3	2009	6	28	34	0.82
4	2010	17	26	43	0.60
5	2011	14	22	36	0.61
6	2012	11	16	27	0.59
	Total	**72**	**131**	**203**	**0.64**

The article provides information regarding the level of participation. The degree of cooperation is a significant field of inquiry in bibliometrics studies, as seen in Table, which shows trends in single and joint authorship from 2002 to 2012. The degree of collaboration runs from 057 to 0.82, with 0.64 being the average. The following formula (K. Subramanyam, 1982) is used to calculate the degree of collaboration:

The formula is Where

C= Degree of Collaboration
Nm = Number of multiple authors
Ns = Number of single authors

$$C = \frac{N_m}{N_m + N_s}$$

$$C = \frac{131}{131 + 72 = 203}$$

In the present study the value of **C** is $C = 0.64$

As a consequence, it was discovered that the degree of cooperation in the Annals of Library and Information Studies is 0.64, indicating its reliance on various contributions.

Conclusion

Annals of Library and Information Research is an Indian journal and the preferred peer-reviewed journal

for communication between librarians and information professionals. The lowest figure for 2010 of 27 (13.31%) was released in 2012. Only 72 of the 203 papers (35.46%) were from one author, and 131 papers (64.54%) were from multiple authors. Donations totalled i.167 articles (82.26%) written by authors affiliated with academic institutions, and i.12 (5.92%) contributed by professional institutions. The degree of collaboration ranges from 057 to 0.82, and the average degree of collaboration during the study period was 0.64.

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The Impact of Covid19 Pandemic on Mental Health

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Abstract:

The COVID-19 pandemic is considered as the most crucial global health calamity of the century and the greatest challenge that the human kind faced since the 2nd World War. In December 2019, a new infectious respiratory disease emerged in Wuhan, Hubei province, China and was named by the World Health Organization as COVID-19 (corona virus disease 2019). As far as the history of human civilization is concerned there are instances of severe outbreaks of diseases caused by a number of viruses. According to the report of the World Health Organization (WHO as of April 18 2020), the current outbreak of COVID-19, has affected over 2164111 people and killed more than 146,198 people in more than 200 countries throughout the world. Till now there is no report of any clinically approved antiviral drugs or vaccines that are effective against COVID-19. It has rapidly spread around the world, posing enormous health, economic, environmental and social challenges to the entire human population. The corona virus outbreak is severely disrupting the global economy and also on mental health of peoples around the globe. Almost all the nations are struggling to slow down the transmission of the disease by testing & treating patients, quarantining suspected persons through contact tracing, restricting large gatherings, maintaining complete or partial lock down etc. This research paper describes the Factors impacting on Human psychology during this Pandemic Situation and to understand Emotions Management process. Likewise, it also emphasis the essential of psychological health.

Key words: *COVID19, Mental Peace, Outbreaks, Emotions Management, Lockdown, Psychological health.*

Introduction:

These can be difficult times for all of us as we hear about spread of COVID-19 from all over the world, through television, social media, newspapers, family and friends and other sources. The most common emotion faced by all is Fear. It makes us anxious, panicky and can even possibly make us think, say or do things that we might not consider appropriate under normal circumstances. How do we keep our mind "clean and healthy"? It's not like we could brush it like teeth or wash it with soap like our bodies. But just like our teeth and bodies, our minds can be prone to emotional clutter. This can bog us down and prevent us from living our best life if we don't practice psychological hygiene regularly. Emotional health means "Being mindful of our psychological health and adopting brief daily habits to monitor and address psychological wounds when we sustain them" (Guy Winch, Ph.D., **Psychology Today**). Many of us have no idea how to do this. Dr. Guy Winch in his **TED Talk** said that we prioritize more on the state of our physical health than our psychological health. For example, when we get a wound, we are taught that we must disinfect and treat it so that it will heal. Nobody would poke or cut the wound deeper! But when we are facing an emotional wound, let's say a failure, many of us wallow in self-pity or blame ourselves over and over again for failing, making ourselves feel even worse. We don't know that when we leave an emotional wound untreated, we keep our self-esteem down. When this happens, we tend to run into the same trouble over and over again. It can escalate into a worse state of mind (for example, depression, suicidal thoughts) and damage ourselves further. Hence, mental health is a crucial element in the life of mankind. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood.

Objective of the study:

1. To study to the Factors impacting on mental health during this Pandemic Situation.
2. To emphasis the essentials of Psychological health.
3. To understand Emotions Management during COVID19 outbreak.

Research Methodology:

This research paper is based on the secondary data. The secondary data was collected from various published sources like information of various departments, magazines, journals, newspapers, articles, research papers, websites, and educational videos on YouTube etc.

Factors impacting on Mental health during this Pandemic Situation:

This pandemic situation has changed lifestyle and perceptions of many peoples. Several factors affects on their way of living and the way of thinking. This pandemic situation created many challenges as well as

opportunities in front of all the human beings. Few factors are highlighted below which impacting tremendously on mental health of people.

- Fear and Risk of life.
- Disturb daily life.
- Migration.
- Loss of job.
- Lost income sources.
- Loss of vision.
- Anxiety and panic emotions instead of caution.
- No thoughtful acceptance of situation.
- Feeling of lost everything.

Therefore, This situation impacting on mental health of human beings as peoples are thinking this situation as full stop of life where is just a pause for upcoming better life.

Essentials of Psychological Health:

Psychological Health is essential element in everyone's life. As it enhance our capability and our mental immune system so we all have take proper care of our mental health. In the same way that dental hygiene involves brushing our teeth and flossing every day and personal hygiene involves cleaning ourselves and taking care of physical injuries when we sustain them, so emotional health refers to being mindful of our psychological health and adopting brief daily habits to monitor and address psychological wounds we sustain them. Currently, our general neglect of our emotional hygiene is profound. How is it we spend more time each day taking care of our teeth than our mind? We brush and floss but what daily activity do we do to maintain our psychological health? Aside from failure, other psychological wounds we might face include trauma (loss of a loved one, abuse or violence, major accident, etc.), rejection (social or professional) or abandonment and isolation. In our lives as newcomers, we'll experience these emotional wounds in the course of our settlement and integration. Some of us may have even suffered trauma before coming here. Many of us carry the pain as emotional baggage for years. The strain can manifest both psychologically (stress, anxiety, depression) and physically (headaches, hypertension and other diseases). In fact, experts found that chronic loneliness resulting in emotional and social disconnect increases the likelihood of an early death by 14%. This is why emotional hygiene is essential; when we address psychological wounds properly and work daily at building emotional resilience, our quality of life increases. Dr. Winch calls it "Emotional First-Aid."

Clean Your emotions:

Just like you clean your teeth, you need to cleanse your emotions. Emotional hygiene refers to being mindful of our stress, motional-traumas, suffering and pain. Adopt daily monitors to deal with psychological pain and wounds when you sustain them. It requires daily focus, time and energy. The Dalai Lama urges people to get rid of disturbing emotions like anger, frustration and anxiety.

Recognize when you're in emotional pain:

Pay attention when you don't feel well emotionally. Don't ignore it and let it fester; it will be harder to deal with it later. For example, take action when you feel lonely. Ask yourself the reasons for feeling this way. Isolated? Try talking to a friend. Heartbroken? Reach out to someone who may have good advice for you. Whatever the reason for the pain, pay attention. Assess it and do what you can to ease it as soon as you can. If you can't figure it out or have no energy and means to ease your pain, ask for help. Don't hesitate to seek a counselor, advisor or doctor. It takes patience to work on emotional wounds, Dr. Winch says, "Once you get better control over your emotions, you don't lose it easily".

Stop emotional bleeding:

Don't keep poking your emotional wounds and psychologically hurting yourself on a day-to-day basis. If you can't control an outside situation, withdraw from it, with time. It's important to keep a check on our negative cycles. So the idea is not to poke our emotional wounds- regrets & rejections. Just as in the case of physical injury, we need to need to apply emotional band-aids on emotional pain.

Protect your emotions:

We all have emotional immune systems, and we must make sure we keep it health and intact. Work on building your emotional strength and resilience. Don't talk or think negatively about any life event. Therefore, health emotional immune system can raise our self esteem and confidence. Battle out negative thinking from your mind consciously. Do not belittle yourself or indulge in guilt trips and self blame. It can be lethal for your health in the long run.

Practice compassion:

It time to work on own passion, our knowledge domain and sharpening extraordinary abilities within us. It is the way to heal damaged self-esteem is to practice self-compassion. It is helpful to cope up over emotional drawbacks in life. And emotional recovering takes patience, time and self love. Self love will raise our resilience and help us to get through turbulence with ease. If we treat us kindly, we will feel stronger and get emotionally healed.

How to keep mental Health during COVID19 Outbreak?

In the midst of managing a situation like the COVID-19 outbreak, it is easy to feel overwhelmed and worried. Focusing on how to slow the spread of the virus is important for our physical health, however, identifying ways to manage our mental health is also crucial. We may experience increased feelings of anxiety, powerlessness, impatience, irritability or frustration. We may feel uncertainty about the future or worry about isolation amidst rapidly changing schedules and social plans. While feeling worried is normal and expected, there are many ways by which we can increase our resilience during this time:

Take breaks from the news because misinterpretation of reality can raise rumors so we should be choosy towards source of information.

Take care of physical health by proper nutrition.

Manage your expectations and accept the reality.

Proactively manage your stress threshold.

Manage moments of distress.

Be compassionate with yourself and others.

Work on Relationship management.

Meditate yourself with Yoga and Dyansadhana.

Work on your passions.

Boost your and your near one's positivity.

Conclusion:

Hence the study reveals that mental health is not the factor of negligence it is the most important element for peaceful life. Therefore for taking proper care of mental health your should aware about emotions management and have to work on it for better life. This pandemic has changed life of many people's but we all have to see this time span as an opportunity to know our own self in very better way. No doubt this situation is crucial challenge for all of us but every cloud has a silver line of positivity so we have to accept this situation very scientifically and thoughtfully.

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Human Resource Planning for Future Prospects during Covid19

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Abstract:
As we all know, change is inevitable. It will keep taking place by virtue of certain triggers, whether internal or external or whether we are prepared for it or not! The biggest change or trigger for change that the entire world is experiencing right now is the Covid-19 crisis. It has certainly affected the way we live and work. There is literally a 180 degrees turn. No organization has been left untouched by the impact of Covid-19. Not only the organization, the entire sectors have been badly hit. The businesses are facing the rage of the pandemic and HR cannot stay unaffected as an organization is an ecosystem and everything is interconnected and interdependent. Now that the fact that HR's role will undergo a change has been established, it is imperative to understand what and how of this changes impacting on Human Resources. The impact of Covid-19 on health, economies, and markets is an unfolding story that is complex and fluid in its ever-changing dimensions. One of the biggest visible impacts of the virus has been on the organizations and the nature of workplaces. As the corona virus spread invisibly across the globe, nation after nation has declared lockdowns, and organizations have scrambled to comply with lockdown restrictions while striving to keep operations going. Work-from-home (WFH) became the immediate solution to business continuity. Agility, creativity, flexibility - these are the attributes demonstrated by HR in the lockdown scenario. As employees started logging in remotely, HR functions stepped up to transform brick-and-mortar offices into virtual workplaces almost overnight. Guidelines to ensure that employees could manage WFH seamlessly and securely had to be quickly defined and disseminated. In many cases, employees had to be supported with digital infrastructure - laptops, data cards - to ensure that business continuity could be maintained. Hence this study focusing on the changed scenario of HRD practices during this pandemic situation. It also have the objectives like to understand the impact of Covid19 on HR, and searching for the innovative practices which will be helpful to prepare HR for Future prospects.

Key words: *Covid19 Crisis, HR Functions, Lockdown Scenario, HRD Practices, Future prospects, WFH (Work From Home)*

Introduction:

HRM deals with creating conditions that enable people to get the best on of themselves and their lives. Development is an unending process. As people develop themselves in new directions, new problems and issues arise, requiring them to develop new competencies to meet the changing requirements, aspirations and problems. There is however some universal goals towards which all human resource development efforts should aim to achieve. At the individual level these goals may include developing capabilities for ensuring a happy and healthy living. The dimensions of such happiness may vary from individual to individual. These may include a good education or skill base that may be the key to income-generation and fulfillment of many other social needs; A good income base itself, self esteem, security, status and recognition in the society, good family and a sense of belongingness to a group, society or organization. At the organizational level the goal of HRD is normally to have competent and motivated people to ensure higher levels of productivity, profitability and growth of the organization. Organizations' normally direct their HRD efforts towards the development of competencies, work culture & commitment among employees individually and/or in groups. Organizations' use many mechanisms to achieve HRD goals, as without competent and committed employees, organizations can achieve very little even they have excellent technological and other resource bases. The organizations which were prepared for the work from home were better equipped to deal with the nationwide situation without any significant impact on productivity. The HR department of every organization has been in the frontline, leading the efforts to facilitate employees. In situations like these, HR, in addition to handling the business requirements, is also responsible for managing concerns and apprehensions of their employees. HR has to step up and support their employees and prioritize their mental and emotional wellbeing.

Objective of the study:

1. To know the changed scenario of HRD practices during this pandemic situation.
2. To understand the impact of Covid19 on HR Functions.
3. To suggest the HRD practices this will be helpful to prepare HR for Future implications.

Research Methodology:

This research paper is based on the secondary data. The secondary data was collected from various published sources like information of various departments, magazines, journals, newspapers, articles, research papers, websites etc.

The Future Organizations look like:

Working hours, locations, and even the work arrangements to become more fluid.
Remote working to be an integral part of every organization.
The popularity of contractual jobs and freelancers to grow.
Workforce to constantly upgrade and work on capability enhancement to remain competitive.
Focus on learning and development to increase to make employees future-ready.

Human Resource Management for Future Prospects:

Over the past couple of years, the HR function has experienced drastic changes, particularly in the way employees work, learn, and communicate. The pace of change has been exponential, with enterprises pushing for digitalization. However, no one would have imagined that a single global event, the COVID-19 outbreak, would accelerate one of the greatest workplace transformations of our times. Digitalization is crucial, as it will help companies enable their internal functions with collaboration and productivity tools for employees and improve operational efficiency with agile business continuity plans.

Incorporate policy changes for the next normal: With the strain of the corona virus confining everyone to their homes, companies across the globe have mandated or are encouraging employees to work from home. And this model is expected to stay. Even after the pandemic ends and employees return to their workplaces, remote work will continue to hold significant relevance as enterprises realize its cost-benefit and commit to finding other methods to support business continuity. To ensure its success, companies will have to develop processes and inculcate policies that enable flexible working – establishing guidelines for working remotely, managing employee productivity in physical and digital workspaces, and formulating guidance for managers handling a distributed workforce. Further, the use of digital workers and bots will increase, which will, in turn, result in an urgent need to develop policies regarding cyber security, auditing, and redefining instances of human intervention.

Ensure undisrupted workflow: With the new and restructured workforce, companies are also looking to digitize the workplace and automating various processes and workflows to increase efficiency. Thus, HR solutions for automated employee on boarding, automated helpdesk, and productivity tools, along with communication and collaboration tools, are gaining traction in the market. For instance, the adoption of Microsoft Teams and Zoom has dramatically increased, and the uptake will continue.

Utilize the power of virtual learning: Businesses that have typically relied on face-to-face/classroom learning will have to develop a proof of concept for learning using the latest online technologies. The remote working model and increased leverage of digital technologies will also increase the need to up skill and re skill the workforce. In light of COVID-19, enterprises have become extremely cautious with their spending and are seeking cost-effective solutions for their workforces, which add to the appeal of remote learning. To derive maximum benefit, organizations will have to look not only for relevant skills and talent but also for tools to enable smart learning, as well as enter into partnerships with traditional and non-traditional learning organizations.

Focus on health and well-being: COVID-19 has brought the importance of employee well-being, which encompasses physical, mental, and emotional health, to the forefront. The HR wellness agenda for the future will have two facets: One, the employee side, which includes tools and policies that help employees plan their day-to-day activities, particularly when working remotely and have to deal with increased stress and added concerns of changing benefits ranging from health and hazard to leave policies; and, two, the operations side, which includes tools that track employee sentiment and help improve employee support, thereby ensuring better employee engagement.

Develop new talent acquisition and workforce management practices: Every process in the acquisition value chain will be overhauled to make it more efficient – from the use of AI and Machine Learning (ML) algorithms to source and screen candidates to the use of video interviewing tools to enable remote presence, and chatbots to ensure a superior candidate experience and engagement. Following the COVID-19 crisis, the job market is also set to undergo massive changes; while the demand for some jobs will increase, the overall job market will slow. Enterprises will need to conduct powerful workforce planning to ensure their access to the right talent, and strategically structure existing talent to ensure maximum engagement and productivity.

Use analytics to track workforce- and engagement-related data: As the workforce becomes increasingly (and literally) spread out, and as new ways of working emerge, HR leaders will have to keep track of their organizations' pulses. Efficient data collection and mining tools will be key to understanding

the nature of changes. Organizations will increasingly adopt tools that track how employees work, perform, collaborate, and feel to derive insights to improve operations and engagement. These tools, along with advanced AI capabilities, will also deliver actionable insights for more informed decision-making in a shorter time.

Keep employees motivated: With increasing instances of pay cuts and the uncertainty of the current situation, enterprises are looking for effective strategies to keep their employees engaged and motivated. Deploying a robust R&R solution that quickly recognizes and rewards valuable employees for their effort and commitment to work can help organizations mitigate some of the impacts of the ongoing pandemic and the slowdown, and as a result, boost employee morale.

Emphasize on financial wellness: With the increasing number of layoffs, instances of pay cuts, and market fluctuations, financial security is a significant concern for many employees. To curb these types of fears within the workforce, companies can provide employees with financial wellness options. Features such as budget management tools, financial coaching, and financial stress management tools, as well as the offer of paid leave, on-demand paychecks, and pre-paid cards, can help during these unprecedented and trying times.

Automate tasks, humanize processes: While HR must redesign processes to make them more efficient, it is far more important to keep the employee at the center of these processes rather than the function. This crisis is an opportunity to redesign around the central stakeholder – the employee. These strategies will help enterprises survive in the new normal while keeping their employees engaged and satisfied, whether they develop them in-house or partner with service providers to deliver them.

Conclusion:

According to WHO Chief, Covid-19 crisis will not end anytime soon. All we can do is change the way we live and the way organizations function. Not only HR, all the functions in an organization are undergoing a change and it is imperative to adapt to new ways of working. In this situation we can only keep improvising our approach and implementing the right steps to ensure the survival of the organization in the long run, because we aren't getting rid of this virus anytime soon!

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Biochemical Altrations In Dna Content Of Mantle And Gonad Tissues Of *Parreysia Corrugata* Due To 5- Fluorouracil Toxicity.

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Abstract

This is the study of DNA contents of Mantle and Gonad tissues in Parreysia Corrugata shows significant decrease in Mantle from 2.23±0.059 to 1.98±0.094 for 15th day and on 30th day. There is significant decrease from 1.75±0.113 to 1.41± 0.0896*on gonad shows significant and decrease from 8.16±0.951 to 7.16± 0.256 ** on 15th days and on 30th days there is a significant decrease from 7.33±0.654 to 5.80 ± 0.258 ** on 30th day. This is due to toxicity of 5- Fluorouracil and mobilization of tissue in the metabolism.*

Key Words: *DNA Content, Parreysia Corrugata, 5- Fluorouracil.*

Introduction:

Biochemical aspect there is a protective mechanism of the body to resist and combat the toxic effect of the pollutant like heavy metals and their derivatives. Besides it is observed that some biochemical alterations occurring in the body give alarming first indication of stress condition. However they have many serious side effects which need to be studied with some biological systems. The main conclusion is that properly applied biochemical modulation schedules may lead to successful use in the clinic (Peter, 1991). Pollutants comprising heavy metals may alter cellular functions, ultimately affecting physiological and biochemical mechanisms of animals it has been observed that heavy metals can cause biochemical alterations such as inhibition of enzymes, metabolic disorder, genetic damage, hypertension and cancer. (Underwood, 1971; Zemasky, 1974; Lucky and Venugopal, 1977). In the light of above fact that *Parreysia Corrugata* was selected for biochemical study under sublethal concentration of Cisplatin for the subchronic (15 days) and chronic (30 days) period.

Materials And Methods

Attempts will be made in this study to select Fresh water bivalves, *Parreysia Corrugata* were collected from of Jayakwadi dam which is about at the distance of 50 K.M. away from Aurangabad City of Maharashtra state. First they are made acclimatized to laboratory condition and they are washed. The water in the aquarium was changed regularly after every 24 hours. After the acclimatization, bivalves , *Parreysia Corrugata* were divided into two groups with equal numbers of animals They were kept in separate aquarium for 15 and 30 days out of remaining one groups treated by chronic Concentration $LC_{50/10}$ value of 96 hrs.). Of 5- Fluorouracil (0.836 ppm). On 15th and 30th day of exposure, bivalves from each experimental group were sacrificed and Mantle and gonad, were removed. These tissues were dried in oven at 75 ^{0}C to 80 ^{0}C till constant weight was obtained and blended into dry powder. These powders were used for the estimation of biochemical components of DNA to observe efficacy of 5- Fluorouracil.

Discussion

DNA is the chemical basis of heredity and may be regarded as reserve bank of genetic information .DNA is exclusively responsible for maintaining the identity of different species. Further, every aspect of cellular function is under control of the DNA as the genetic material carries information to specify mono acid sequences in proteins (Satyanarayana, 1999). Structurally DNA is linear polymer composed of monomer called nucleotides, i.e. Four nitrogen bases, two purines; adenine, guanine and two pyramidine cytosine, thymine. Double helical structure of DNA consist of two polynucleotide strands that winds together to form double helical structure.Nucleic acid polymers of nucleotides held by 3' and 5' phosphate bridge. In other words nucleic acids are built up by the monomeric units of nucleotides it is recalled of polymer of amino acids. Nucleic acid reflects the ability of an organism for synthesis of important biomolecule like proteins. Different toxic levels and stressed condition may alter or damage activity of nucleic acid. Genetic information transformation and genome functioning is caused due to nucleic acid composition of DNA and sequences of the nucleotides in the DNA. Hence it becomes important to study the DNA and RNA under stressed condition in various tissues (Khanduja, *et.al.,* 1999).

Results:

The above Experiment has concluded that the result obtained on 15th & 30th days of Mantle and gonad with 5- Fluorouracil are as Follows.

15th Days Treatment Period (Subchronic)

The Mantle and gonad of *Parreysia Corrugata* shows a significant ($P < 0.01$) decrease. The Mantle shows control 2.23±0.059 to treated with 5- Fluorouracil 1.98±0.094*mg/g wet tissues in treated .The total DNA content in Mantle and gonad corresponds to an decrease by 11.21% to 12..25**%** The profile of total

DNA content in gonad shows significant decrease from 8.16±0.951 to 7.16±0.256** mg/g wet tissues in gonad respectively .The gonad shows a decrease 11.21%. In both cases significantly decreases is recorded.

30th Days Treatment Period (Chronic)

The total DNA content of gill and gonad in control *Parreysia Corrugata* has been assessed. The result obtained 30th day after treating Mantle with the dose has shown significant in from 1.75±0.113 to 1.41± 0.0896*mg/g wet tissues. Secondly the result of gonad treated with 5- Fluorouracil is significant decreases 7.33±0.654 to 5.80 ±0.258** mg/g wet tissues respectively .similarly 15 days subchronic exposure of treatment as compare to 30 days exposure shown that they are both tissues reveals significant depletion in DNA content. In the present comparative study gill and gonad shows significant elevation in to the DNA level depletion in the exposure periods. This reveals a large variety of chemotherapeutic drugs used to treat cancer, but unfortunately many organic compounds shows limited efficacy problems of delivery and development of 5- Fluorouracil is a conventional chemotherapeutic agent that binds co-valently to purine RNA bases and cellular apoptosis (Kerbel 1997). A better understanding of the downstream cellular targets of 5- Fluorouracil provides information on its mechanism of action and help to understand the mechanism of drug resistance. Malignant neoplasm including sarcomas. 5- Fluorouracil causes cytotoxicity by DNA injury by means of DNA platination (Gately D.P.*et.al*., (1993**)**).

TABLE No.-1 – Alterations in the DNA content mg/100mg dry weight+ S.E. *in Mantle,* and Gonad tissues of *Parreysia Corrugata* Treatment with 5- Fluorouracil.

Sr no.	Tissues	Days	Control	Experimental	Student 't' test 'p' value	% increases (+) or decreases (-)
1	Mantle	15 30	2.23±0.059 1.75±0.113 4.61± 0.451	1.98±0.094* 1.41± 0.0896*	P < 0.01 P < 0.01	11.21% 19.42%
2	Gonad	15 30	8.16±0.951 7.33±0.654	7.16 ± 0.256** 5.80 ± 0.258 **	P < 0.01 P < 0.001	12.25% 18.14%

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A Review Article on Application of Pyridyl-Thiazole In The Pharmaceutical Industries

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Abstract:-
The present review attempts to bring out some important and significant developments of pyridyl-thiazole heterocyclic compounds in pharmaceutical sector, within the world of thiopeptide antibiotics, within the area of luminescence and pyridyl-thiazole.The final purpose of this appraisal is to present an exhaustive and clear picture about the applicatio biheteroaryl, thiazole-pyridyl in the area natural products, pharmaceuticals, catalyst, ligands and materials. Accordingly, this review aims to systematize the present information during this field and supply some perspectives for possible applications of this important class of coordination compounds.

Key Words:-Biheteroaryl, Luminescence, Antitubercular, Fatostatin, Micrococcine P1, Thiostrepton, etc

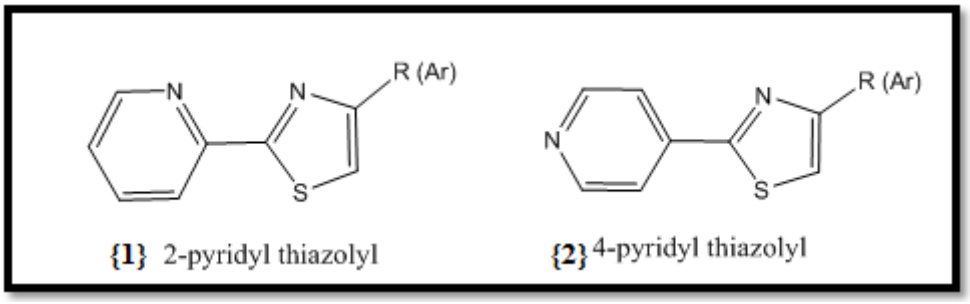
Introduction:-

In past few years, organic chemists are enormously taking efforts to reinforce a latest study in the area of scope of bioheteroaryl compounds in pharmaceutical industries.. In different branches of chemistry like in medicinal chemistry, polymers, various natural products, co-ordination complexes, etc the biheteroaryl compounds play cruicial role.Although the thiazole - pyridine isn't the amongst the chief studied biheteroaryls but it plays significant role within the pharmaceuticals. The properties of the biheteroaryls vary as fungicide[1] or prohibitors for 5-lipogenase[2]on the premise of what variety of substitution they need. Also the bihetereoaryl compounds like pyridyl thiazole are cytotoxic to human cells but when they are coordinated with ruthenium (II) precursor $[Ru(\eta6\text{-p-cymene})Cl2]_2$ strongly increase their cytoprotective activity[3]. The biheteroaryl ligand particularly the pyridyl-thiazole is extremely luminous in nature and since of this it are often beneficial for the chemical analysis of complex formation.Iron is one in every of the foremost abundant elements in physical body & the imbalance of Iron in chassis causes cell damage or maybe death so to see the proportion of Iron in body using these fluorescent sensors[4]. The overall intension of this review is to supply thorough and comprehensible idea about the varied applications of pyridyl-thiazole and its derivatives as multidisciplinary drugs.

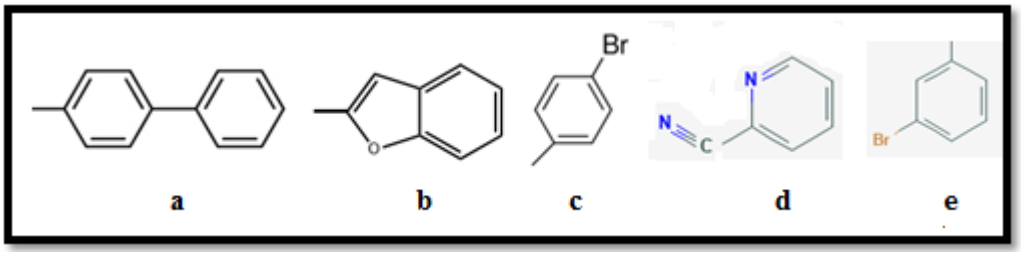
Biological Importance Of Biheteroaryl-Pyridyl Thiazole:-

I. <u>Antimicrobial activity of pyridyl-thiazole derivatives :-</u>

The biological activity properties of 2-pyridine substituted and 4-pyridine substituted thiazole derivatives were determined by antimicrobial activity[5] with Gram positive, Gram negative, Yeast by using minimal inhibitory concentration (MIC) method and DNA cleavage activity[5] studies. The most noticeable findings came out from these studies are that on the basis of both biological activity and chemical reactivity 4-pyridine thiazole hybrid compounds 1a-e showed more powerful activity than 2a-e. In most of the cases, the compounds 1a-e & 2a-e shows antimicrobial activity towards various bacterium as shown ***Bacillus cereus>Staphylococcus aureus>Candid albicans>Escherichiacoli>Pseudomonas aeruginosa*** .



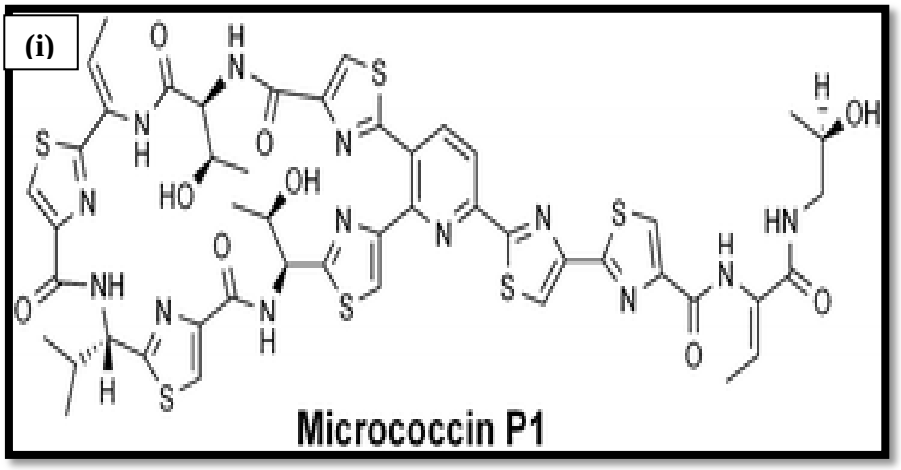
{1} 2-pyridyl thiazolyl **{2}** 4-pyridyl thiazolyl



This study resulted that when the pyridyl thiazole is substituted by halogen containing aromatic ring, there is increase in the antagonistic properties of the drug towards *Staphylococcus aureus* and *Bacillus cereus* bacterium.

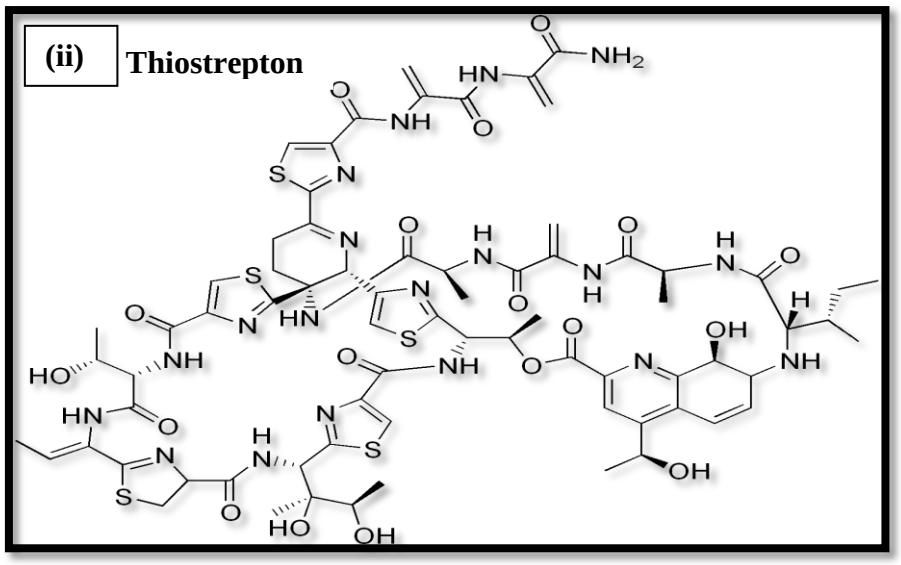
II. As Anti-tubercular drugs :-

Among the contagious diseases affecting humankind, tuberculosis (TB) still on the top for having the life threatening effects[6].Globalization and recent tendencies of immigration are drastically changing the epidemiology of TB worldwide and the disclosure of multi-drug resistant (MDR), extensively resistant (XDR)[7] and totally resistant (TDR) strains[8] is raising severe concern among health supremacy. The development of new drugs, better prophylactic medicine measures are needed straight away to control the TB pandemic at a global level Early studies on **Micrococcin P1**(i), showed activity against M. tuberculosis, but its development as an anti-tubercular agent was banned due to its poor solubility in water[8].But the development of better purification measures and the innovation of biological active fragments of the similar compound **thiostrepton**[9](ii), mutually with their entire explanation about its synthesis[10], suggested that its development might be continued.



Thiostrepton [Fig (ii)] was initially isolated from *Streptomyces azureus* ATCC 14921 and subsequently from *Streptomyces hawaiiensis* ATCC12236 and *Streptomyces laurentii* ATCC 31255 and its biological activities have a significant importance.Among thiostrepton's biological properties, those properties against bacteria tumor cells[12] and *Plasmodium falciparum* the parasite responsible for human malaria, are the most well-known; immunosuppressive properties have also been reported, this thiopeptide antibiotic[13] has recently yielded the total synthesis in the laboratories.[14]

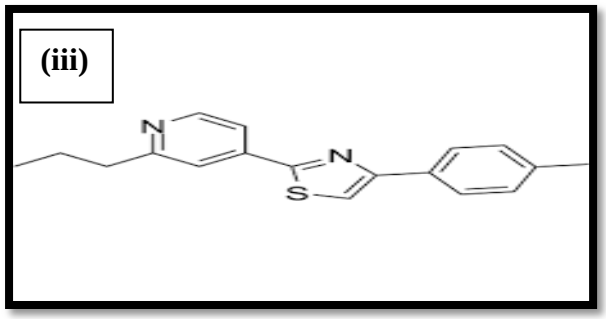
Even though the antibacterial action of thiostrepton was credited to its binding to the 23S region of the bacterial ribosomal RNA and protein L11, thereby reducing the GTPase-dependent function of the 50S ribosomal RNA and thus prohibiting protein biosynthesis[15] information relating to the accurate nature of the binding and structure activity relationships within this area is missing.



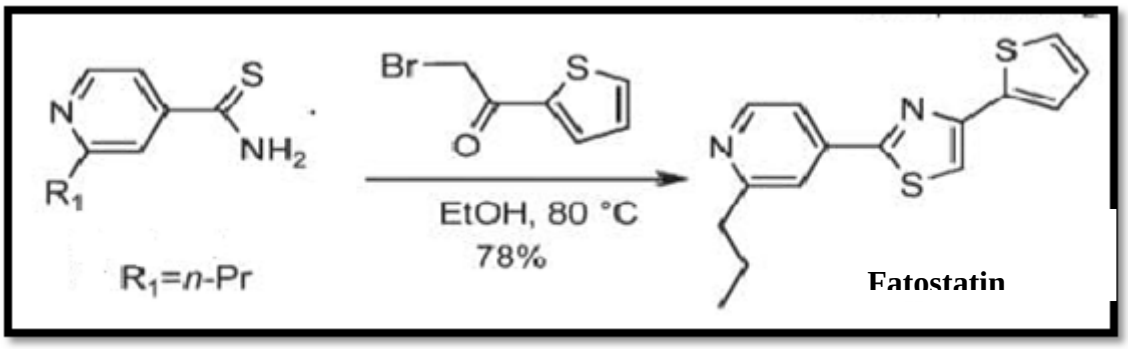
III. As Anticancer drugs:-

Cancer cell spread depends on their ability to reprogram their metabolic pathways to meet the biosynthetic and bio-energetic requirements for rapid cell divisions[16,17,18]

Consequently,the lipid metabolic pathway, which is significant for lipid balance, often get irregulated in cancer. Key regulators of the lipid metabolic pathway include **sterol regulatory element-binding proteins** (SREBP) 1a, 1c and 2, which their major role is transcription factors to control the expression of genes involved in fatty acid and cholesterol synthesis[23].SREBP is prepared as an inactive precursor that is incorporated into the membrane of endoplasmic reticulum and when the cellular lipid levels lowers SREBP is transported to the Golgi membrane through a SREBP cleavage-activating protein (SCAP)-dependent process[19,20] Several studies showed that **Fatostatin**(iii) has anticancer properties in



cell culture and in Prostate and brain cancers'[21,22,23] *in vivo*. *In vivo* Fatostatin is very well tolerated, it suppress lipid metabolism through its inhibition of SREBP maturation, and has great antitumor activity[21-24]



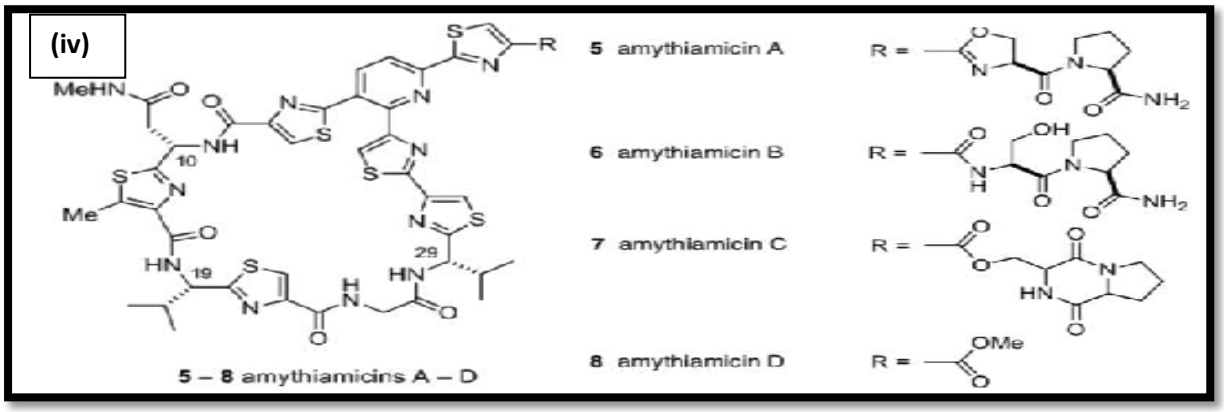
General scheme for synthesis of fatostatin

Fatostatin activates the spindle gathering checkpoint to arrest cells in mitosis.It also prohibits Tubulin polymerization, which disturbs the mitotic spindle assembly and leads to mitotic catastrophe. Additionally, Fatostatin has ability to inhibit lipid metabolism and cell division, is predominantly functional for targeting aggressive types of cancers which has ability to

reprogram their metabolic pathways and undergo rapid cell divisions like **glioblastomas** ,in such cases Fatostatin can be efficient for reducing tumor *in vivo*[23].

IV. As Antimalarial Drug :-

The amythiamicins (A-D)[25] (iv) are among the most worthy of note thiopeptide antibiotics, and were isolated from a strain of Amycolatopsis sp., and degradative and spectroscopic techniques can be used to determine their structures. They are one of the very few thiopeptides that do not contain a dehydroalanine residue and also are biologically active. These are known to prohibit the growth of Gram-positive bacteria, including methicillin-resistant Staphylococcus aureus (MRSA), as well as they have been known to prohibit the action of elongation factor,a GTP dependent translation factor. Such prohibitors exhibit **antimalarial** activity against *Plasmodium falciparum*,the parasite that causes the majority of malarial infections in humans. The most powerful drug used as antimalarial drug among these is amythiamicin A. It was shown that the thiopeptide binds to P. falciparum and blocks the protein synthesis in the parasite, and is signifying that drugs which target this mechanism might be useful in the treatment of malarial disease.



Conclusion:-

The present study strongly suggest that biheteroaryl compounds and their analogues have a pivotal role as precursor for synthesizing drugs showing antimicrobial, Anticancer, Antibiotic, Antitubercular activity.

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A study of parent's opinion on online teaching in Mumbai's schools.

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Chembur Welfare Marathi Shala, Chembur, Mumbai.

Abstract

To explore the challenges parents face when their children study online their views and opinions on the efficiency of the online learning program and the attributes of virtual classes are sought. In the study a survey study was conducted with an online questionnaire administered to 75 parents of secondary classes from private schools of Mumbai. More that 55% of the parents surveyed are satisfied with the online classes taking place and believe that it is working for them. 31% off of the parents are of the opinion that teaching methodology is the most important factor enhancing the teaching learning process in virtual mode for the parents.12% of the parents believe that the personalized attention given to the children can improve the system. These findings help in strengthening the process of online teaching in the recent month a lot of research has been happening in India on the visibility and efficiency of the online classes opening to the closure of the school after the outbreak of pandemic where most of the Caesar does not take into account the digital divide and parents face. The current study addresses this gap and looks at the online teaching learning process from the parent's point of view which can assist the policy makers.

***Keywords**: Online teaching, parent's opinion, parent's intervention, secondary classes*

Introduction

Education has been badly hit due to the outbreak of corona pandemic millions of to stranded at home starting at the screen and receiving instruction passively. Covid-19 has caused huge disruption with tough challenges for the entire education system across the world. Since Indian teachers and students are habituated to everyday meetings and interactions carrying out the teaching and learning activities in the classroom. It is particularly difficult to engage young children's parents of secondary classes try to drag the toddlers and the young back to the computer screen trying to get them interested in what happening. Many feel exasperated thinking that when it don't even understand half of the activities in real classroom how will computer speak screen make any sense of day they continue to get the kids to sit for the virtual classes to get value for the fee paid .Some parents believe that what happened during their classes is potentially more destructive done constructing .Conditions in the government run school ,even in cities are like to be worse where neither the school nor the student can afford the luxury of e-learning. Across the board parents are of the opinion that online classes can never make up for the real classroom experience. Young students' engagement particularly depends on their willingness, need and desire to participate in the learning process. school leaders think that there is possibility is to take class to every student sitting at home to work device but even they attend that the classes all round holistic development of the students cannot be achieved .A typical report card generated from such cases does not include assessment of communications vocabulary critical thinking and scientific attitude in all of this was not be moralising in a parent also are not on the side of the schools they have numerous grievances about online teaching both structure and methodology many refused to pay the fees at all and most in that they do not received enough value for money they are of the opinion that online classes in terms of number of hours of screen time each day to give balance to study and play many studies have been conducted recently by schools and NGOs but there is a lack of favourable opinion from parents side who are an important stakeholders in the learning system more so when it is happening from the home the current study focuses on the views of parents of secondary classes taking place in virtual mode since they control the learning environment at home and support setting up of physical space intended for learning to encourage the children to study seamlessly.

One of the biggest challenge faced by parents today is how to maximize the benefits and minimise the risk of internet use among young children and teenagers effective parental mediation is one of the important action for promoting children safe and responsible use of internet which affects the online education prevailing today research has found that indiscriminate use of computers leads to this distance in between family members adolescence is a period when social relationship for of the children expand to build during enduring relationship parental mediation plays an important role in this process at this stage since they may limit the child's amount of time spent on digital devices or set some rules regarding the time spent on internet as well as placing some websites under ban for the children it is not surprising them that many student complain of noise distraction in the studying environment does parents on attitude knowledge and experience of internet use affect their perceptions of the virtual classes which are now de -rigueur, knowledge the availability of technology for the vulnerable section of the society is limited.

Objectives:

1. To study challenges facing by students in online Education
2. To study parent's opinion on online teaching in Mumbai's School

Hypothesis:

What challenges were faced by students during online education and parent's opinion on online teaching in the present pandemic situation?

Methodology:

Method

This research falls under descriptive research. The data was collected online through the google form using a questionnaire developed by the investigators.

Research Design:

A self-design online questionnaire was used to find out the parent's opinion on online teaching.

Sampling:

Purposive sampling technique was used to select as those parents were required who were involved in online learning of their children. A sample of 105 parents of school going children who were experiencing online learning were selected from Mumbai.

Tool used:

A self-developed questionnaire having 25questions eliciting information regarding challenge faced by school going children during online education and parents opinion on online teaching was used to collect data. The questionnaire was sent through google form to the selected sample.

Data analysis:

The survey was conducted for schools of Mumbai region, focusing only on secondary classes. The total number of parents in this category was 105.The survey questionnaire was sent to all the parents, requesting them to feel it for the purpose of assisting the schools to improve online education system. It was done on voluntary basis and out of approximately 96 parents, 2032 responded. It was administered through google classroom on which the students were taking online classes. As it was a voluntary survey, only those parents responded who wanted to participate in the study. To keep up with the ethics of taking survey study, it remained anonymous and parents were neither asked to write their names nor email id. They also didn't have to write the child's name and class since the teachers collected the responses which came on their google classroom platform. Utmost care was taken neither to send a reminder to the parents nor were they coaxed through the child studying in the respective class. Data was collected on google form and then analysed through graphical representation with the help of percentage for each category/question asked.

Around76 %believe that the online program is working for them, showing their satisfaction with the current educational setting. However, 55% of the respondents opine that the duration of the classes should only be one hour with about 36.5%saying that they prefer a duration of two hours for the class. Clearly, parents are willing to send their children for three to four hours in the regular school where they also spend time playing in open spaces and interacting with peers in the class. However, they prefer to limit the screen time for their children. Teaching method is the most important factor to 41.7% of the parents for enhancing the teaching-learning process, with around 30% saying that personalised attention can improve the process. Personalised learning experience and experiential learning go a long way in making learning effective for such young students. since they lead to a deeper level of understanding. So far as the ill-effects of online classes on children's health, more than 74% do not think this to be true and 76% agree or strongly agree with the need of online classes.

Conclusion:

An effective online engagement between school, students and parents can work only with the confluence of relationships among them. School and parents have to work together for building a learning environment for their children, particularly when they are dependent on them for resources and learning ambience. Schools should share a part of this responsibility for educating parents on the use of digital tools since young children depend on their parents for facilitating online learning for them. Virtual classes are here to stay, much longer than the school authorities and parents had ever anticipated. Teachers got adequate opportunities for training themselves on the use of virtual platforms but it's time we start looking at the issue from parents' perspective. When parents have to fill children's time in a closed space of the home, without contact with peers and teachers, it generates many tensions and conflicts, making everyday life difficult. Parents are unable to cope with the tasks suddenly entrusted to them for academic support at home. Therefore, an extremely important task for future is to prepare the parents for emotional and technological skills to face future potential events. It's time the government also noticed this to take steps for encouraging them to learn.

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Nanoparticles - A typical example for topical drug delivery

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Abstract:

Topical drug delivery is still a challenge due to the difficulties in controlling the active pharmaceutical ingredient (API) fate within the skin. Due to the safety of the component material and controlled release abilities, nanoparticles offer an excellent opportunity for the rational delivery of drugs to the desired target site and hence these carrier systems are effectively used for topical delivery of variety of active principles for both pharmaceutical as well as cosmetic purposes. Recently, solid lipid nanoparticles (SLNs) have shown a great potential as carriers for topical administration of active substances, principally owing to the possible targeting effect and controlled release in different skin strata. Also, nanostructured lipid carriers (NLCs) are a new type of topical delivery system offering improved performance in terms of drug loading and long-term stability with the ability to form highly concentrated dispersions. Another invention in the field of topical drug delivery is the use of micellar nanoparticles (MNPs) that offer a potentially fast and inexpensive pharmaceutical development model by using drugs already proven safe and effective to create new proprietary formulations. These novel drug delivery systems have gained much interest as they combine both the technology of lipid sciences and nanosciences, and hence may be better alternative carriers.

Key words:

Carrier systems, lipid nanoparticles, topical drug delivery

Introduction:

Nanotechnology has evolved to be an integral part of the twenty-first century. Nanotech-enabled products find applicability in almost everything we touch on a day-today basis, such as medicines, pharmaceuticals, chemicals, biologics, and information technology. In particular, the pharmaceutical industry has been energized with breakthroughs in nano-engineering, especially in the fields of drug delivery and formulation development.[1] Nanopharmaceuticals have blossomed into a billiondollar industry because of these compounds' inherent ability to overcome solubility and stability issues, localize drug delivery, as well as to diagnose via *in vivo* imaging. A budding interest in nanopharmaceuticals has generated a number of advancements throughout recent years with a focus on engineering novel approaches to drug delivery and formulation. During the past two decades, researchers involved in the development of pharmaceuticals have understood that drug delivery is a fundamental part of drug development, and a wide range of drug delivery systems have thus been designed. Ideally, all these systems improve the stability, absorption, and therapeutic concentration of the drug within the target tissue, as well as permit reproducible and long-term release of the drug at the target site. In addition to reducing the frequency of drug administration and thus improving patient comfort, novel drug delivery systems offer protection and improve the pharmacokinetics of easily degradable peptides and proteins, which often have short half-lives *in vivo*. For the pharmaceutical industry the field of drug delivery represents a strategic tool for expanding drug markets, because new delivery technologies could repackage classical drugs, offering a competitive edge after the expiry of patents and avoiding competition from generics. Demonstrating this advantage clearly, 13% of the current global pharmaceutical market is related to the sale of products that include a drug delivery system.[2] These advancements in drug delivery have facilitated the targeting of specific tissues. With the advent of nanotechnology; these targeted tissues are now becoming specific organelles within individualized cells.[3]

Nanotechnology in Topical Drug Delivery:

Topical administration of drugs is still a challenge in pharmaceutics and drug delivery due to the difficulties in controlling and determining the exact amount of drug that reaches the different skin layers. The physicochemical characteristics of the active pharmaceutical ingredient (API) as well as vehicle are responsible for the drug differential distribution in the skin. Different strategies have been used to increase local soft tissue bioavailability of a number of drugs for topical administration. One such strategy includes formulation of API within nanometric particulate carriers, in particular of lipid origin, more precisely referred as lipid nanoparticles. Due to the safety of the component materials and controlled as well as prolonged release abilities, these nanodevices possess a great potential and have generated a large interest in the industrial and academic worlds. In fact, they have been proposed and investigated for many different applications and all the administration routes.[4] For prolonged topical drug delivery, the novel lipid nanoparticles, i.e., solid lipid nanoparticles (SLNs), nanostructured lipid carriers (NLCs) and micellar

nanoparticles (MNPs) have a promising potential as new drug delivery systems.[5] The present article deals in detail with the above mentioned drug delivery systems including their description, potential advantages and applications.

Solid Lipid Nanoparticles:

Solid lipid nanoparticles (SLNs) were introduced at the beginning of the 1990s. These are sub-micron size range colloidal carriers (50□1000 nm) for prolonged drug delivery which combine several advantages of other innovative carrier systems like polymeric nanoparticles, emulsions and liposomes. The main features of SLN are the excellent physical stability, protection of incorporated labile drugs from degradation, good tolerability, biodegradation and site-specific targeting. A clear advantage of SLNs over polymeric nanoparticles is associated with the fact that the lipid matrix is made from physiological lipids, which decreases the danger of acute and chronic toxicity. Different approaches are available for the production of finely dispersed SLN dispersions, viz. high-pressure homogenization (hot or cold), micro emulsion-based SLNs preparations, solvent emulsification evaporation, solvent emulsification diffusion technique, using a membrane contactor, ultrasonication, double emulsion method or supercritical technique.[6] Literature studies reveal that SLNs as a topical carrier were used for topical delivery of several drugs including clotrimazole, prednicarbate betamethasone 17-valerate, glucocorticoids, podophyllotoxin, and isotretinoin.[6-8] Mei *et al.* reported that triptolide topical anti-inflammatory therapy was favored by its entrapment in SLN. This strategy guaranteed an improved availability of the drug at the site of action, reducing contemporary the needed dose and thus, dose dependent side effects like irritation and staining [9] Suthanut, *et al.* and Bhalekar, *et al.* formulated SLNs using extracts of Kaempferia parviflora and miconazole nitrate, respectively. The SLN formulations were evaluated for their transdermal permeability as well as skin targeting effect in comparison with conventional gel formulations. The results indicated that the SLN formulations with skin targeting may be a promising carrier for topical delivery. [10,11]

The ability of SLNs as a promising particulate carrier having controlled drug release, improved skin hydration, and potential to localize the drug in the skin with no skin irritation was demonstrated by Pallavi Pople and Kamalinder Singh.[12] Jenning *et al.* proved that sustained release becomes important with active ingredients that are irritating at high concentrations or to supply the skin over a prolonged period of time with a drug To demonstrate this effect Glyceryl behenate SLN were loaded with vitamin A and the release profiles were studied using Franz diffusion cells. A good correlation between polymorphic transitions and increased drug release was observed in this study.[13] Though SLN have the chance to be exploited as delivery system in commercial products, they have some limitations, which include-

• Limitation of drug load by the solubility of the drug in the solid lipid.
• Drug expulsion phenomenon when lipid crystallizes to the stable b-form
• Particle concentration in the aqueous dispersions

ranging from about 1% to a maximum of only 30%. Hence in order to overcome these limitations a new lipid carrier, the NLC was developed.[14]

Nanostructured Lipid Carriers:

Nanostructured lipid carriers (NLCs) consist of a lipid matrix with a special nanostructure. This nanostructure improves drug loading and firmly incorporates the drug during storage. These NLCs can be produced by high pressure homogenization and the process can be modified to yield lipid particle dispersions with solid contents from 30– 80%. Because of the high consistency of NLC dispersions, they can be used as topical dosage forms without further processing. Drug release from NLCs occurs by diffusion and simultaneously by lipid particle degradation in the body. In some cases it might be desirable to have a controlled fast release going beyond diffusion and degradation. Increase in temperature and water evaporation leads to an increase in drug release rate Based on these cyclosporine-lipid particles were developed to treat psoriasis.[15] Souto *et al*. studied the promising potential of NLCs as new drug delivery systems for antifungal agents. In his study, two different imidazole antifungals (clotrimazole and ketoconazole) have been used as model drugs for the study of the topical features of aqueous NLC dispersions.[5] NLCs containing ketoprofen and Naproxen as the APIs provide supplementary evidences that these delivery systems have a targeting and prolonged release effect with great potentials in dermal delivery.[4] Ricci *et al.* carried out the *in vitro* and *in vivo* evaluation of indomethacin (IND) release through the skin from NLCs prepared by ultrasonication.[16] Uner, *et al.* worked on improving the chemical stability of ascorbyl palmitate (AP) in a colloidal lipid carrier for its topical use. For this purpose, AP-loaded NLC and for comparison, a nano emulsion (NE) were prepared employing the high-pressure homogenization technique AP was found most stable in the NLC formulation indicating importance of the carrier structure.[17]

Micellar nanoparticles:

Although the transdermal drug delivery field has enjoyed a significant amount of research effort and technological breakthrough, there has not been much corresponding innovation taking place in the field of topical drug delivery. The majority of the dosage forms are limited to traditional creams, ointments, and gels. Some of the new additions have been sprays, foams, and patches. MNP technology can be exploited to design improved topical dosage forms that deliver the API locally in an efficient and controlled manner. Micellar nanoparticle (MNP) technology was invented in the mid-1990s Scientists at Novavax developed and patented MNP technology and subsequently rolled out the first nano-engineered transdermal lotion product (Estrasorb) in 2003. MNP is a nanotechnology-based formulation that has achieved a breakthrough in transdermal therapeutics. The formulation represents a robust and versatile delivery system that can accommodate a range of therapeutic compounds having varying physicochemical properties. MNP-based emulsions (lotions) are attractive alternatives for systemic drug delivery via topical application. The technology allows high concentrations of drug to penetrate the skin and functionally create a drug depot in the stratum corneum and epidermis. This route of delivery provides similar advantages of patch technology in avoiding both contact with the gastrointestinal tract and hepatic firstpass effects, and is cosmetically more acceptable to many patients. In broad terms, MNP is a multiphasic nano emulsion which presents the API in a more readily bioavailable form. There are five basic components of an MNP system: (i) one or more APIs; (ii) solvent; (iii) stabilizer; (iv) oil; and (v) aqueous medium. Depending upon the physicochemical properties of the API and the dose requirements, drug loading up to 20% (w/w) can be achieved. For topical or transdermal administration, MNPs can be classified as a type of microreservoir-dissolution-controlled system that can be tailored to deliver drugs topically. MNP technology has been applied for estrogen replacement therapy with 17b-estradiol in Estrasorb A constant and controlled infusion of the drug from the topically applied estradiol emulsion maintained the drug at therapeutic levels for prolonged periods of time providing a ‘‘depot effect’’. Several small-molecular weight compounds have been evaluated to prove the versatility and expandability of the MNP technology. A testosterone MNP formulation (Androsorb) has completed phase I clinical evaluation for two indications: hormone replacement therapy in hypogonadal males, and to treat sexual dysfunction in females. Using MNP technology, it is possible to tailor drug deposition, disposition, and permeation kinetics through altered composition, drug loading, droplet size, etc. This concept has been demonstrated using acyclovir as the model drug. Commercially, Zovirax cream, a topical acyclovir product indicated for the treatment of recurrent herpes labialis (cold sores) is available. The product needs to be applied topically five to seven times a day for 4–7 days. A comparative investigation (*in vitro* using Franz cell–cadaver skin assembly) was carried out with a MNP formulations and Zovirax cream. Both the formulations had a drug loading of 5% w/w. The product was applied to the skin (donor
compartment), and drug that permeated across the skin as well as that retained within skin layers was estimated. It was clear from the data that the amount of drug retained within skin was about twofold higher for the MNP formulation than the commercial cream. In addition, the inherent antimicrobial nature of the MNP vehicle would be beneficial from a therapeutic and packaging perspective. Based on these benefits, the MNP technology could offer a novel perspective to the field of topical drug delivery – especially for non-steroidal anti-inflammatory drugs (NSAIDs), antifungals, antibacterial, antivirals, antispasmodics, and vasodilatory drugs.[18]

Conclusion:

The success of a new developed pharmaceutical formulation is related to the fact that it is able to deliver the active substance to the target organ at therapeutically relevant levels, with negligible discomfort and side effects, increasing the patient compliance to the therapeutics. Regarding this respect, the route of administration is of major relevance. Topical administration of active substances offers several attractions compared to traditional routes, e.g., it avoids the hepatic first-pass metabolism, it has the potential of long-term controlled release with avoidance of the topical peak through plasma profiles associated with frequent dosage regiments, Direct as well as indirect evidences substantiate the early reports on the usefulness of nanoparticles as carriers for topical administration, stimulating new and deeper investigations in the field. Even though, the mechanisms by which prolonged release occurs are not completely understood, the novel approaches in nanomedicines were able to extend the therapeutic effect of the embedded active molecules providing their prolonged release in the epidermis. The current review provides supplementary evidences that the novel nanoparticulate delivery systems have a targeting and prolonged release effect with great potentials in dermal delivery. As we achieve greater disease understanding, especially at the molecular level, there will be greater opportunity for targeted delivery of therapeutic agents by discovering differences between normal and diseased tissues and cells. Together with these advances and developments

of newer generations of 'design-specific' nanomaterials, the future of nanotechnology for delivery of drugs looks very bright.

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Stephen in A Portrait of the Artist as a Young Man is the hunt of an Artist or conflict between Irish politics and Irish history

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Abstract:

James Joyce's semi-autobiographical narrative A Portrait of the Artist as a Young Man follows the main personality Stephen Dedalus as he matures in early twentieth century Ireland. Irish-born Stephen Dedalus begins his life at residence with his parents, who send him to Conglowes, a boarding school. There, he gets his first flavour of communal life, though he becomes the weakling that everybody likes to pick on. Early on, Stephen feels that he differs from his age group. Preferring to stay away from the throng and think about his earlier period, he questions everything. Stephen leaves there and goes to one more school, Belvedere. Here, the changes from his boyhood stand out obviously. He loses his confidence in religion, resorting to pleasures of the flesh. Though he finally repents his sins, Stephen falls out of elegance again. He worries over the financial dilemma and breakdown of his family. He ultimately goes to university, where he makes some friends who contribute to his developing thoughts on politics and the arts. Though he at last meets Emma, his crush, he decides to leave Ireland to go aboard on unwritten paths.

Keywords: *Catholic, community, language, Daedalus, artist, Christian*

Introduction:

A portrait is narrated, for the most part, in the limited omniscient aim of view; at the same time, it progresses in shape from the lyrical and epical modes of expression and moves finally into the dramatic mode of look. (These "modes of appearance" are Stephen's own terms, defining the various kinds of creative writing; when we meet them in the novel, we should write down Stephen's definitions and attempt to diagram the course of this novel according to its developing lyrical, epical, and dramatic levels.)It again known as interior monologue because Stephen's opinion, relations, judgment, and language (both intellectual and verbal) serve as the main vehicles by which the reader shares with Stephen the pain and pleasures of teens, as well as the thrilling experiences of intellectual, sexual, and saintly discoveries. In the first chapter, the very young Stephen is only able to describing his world in simple language and phrases. The feelings that he experiences are all disorderly together with a child's lack of attention to cause and effect. Later, when Stephen is a adolescent obsessed with religious conviction, he is able to think in a clearer, more adult manner. Paragraphs are more rationally ordered than in the opening sections of the novel, and feelings progress rationally. Stephen's mind is more mature and he is now more articulately aware of his environs. However, he still trusts blindly in the church, and his fervent emotions of guilt and religious happiness are so strong that they get in the way of rational thought. It is only in the final chapter, when Stephen is in the university, that he seems truly logical. By the end of the novel, Joyce renders a description of a mind that has achieved exciting, rational, and artistic maturity. Brought up in a religious Catholic family, Stephen initially ascribes to an unlimited belief in the morals of the church. As a teenager, this belief leads him to two opposite boundaries, both of which are damaging. At first, he falls into the extreme of sin, frequently sleeping with prostitutes and intentionally turning his back on religion. Though Stephen sins errantly, he is always aware that he acts in infringement of the church's rules. Then, when Father Arnall's speech prompts him to go back to Catholicism, he bounces to the other extreme, becoming a perfect, near zealous model of religious devotion and respect. Finally, however, Stephen realizes that both of these lifestyles—the totally sinful and the completely devout—are extremes that have been bogus and injurious. He does not want to lead a completely evil life, but also rejects strict Catholicism because he feels that it does not permit him the full knowledge of being human. Stephen ultimately reaches a decision to embrace life and celebrate civilization after seeing a young girl wading at a seaside. To him, the girl is a symbol of pure decency and of life lived to the fullest. The development of Stephen's awareness in A Portrait of the Artist as a Young Man is chiefly attractive because, insofar as Stephen is a portrait of Joyce himself, Stephen's expansion gives us insight into the development of a literary mastermind. Stephen's experiences hint at the influences that malformed Joyce himself into the great writer he is considered today: Stephen's fascination with language; his nervous relations with religion, family, and culture; and his

perseverance to forging an aesthetic of his own mirror the ways in which Joyce related to the different tensions in his life during his seminal years. In the last chapter of the novel, we also learn that genius, though in many ways a calling also requires great effort and considerable forfeit. Watching Stephen's daily fight to puzzle out his visual philosophy, we get a sense of the great task that awaits him. However, though the artist is a remote figure, Stephen's final goal is to give a voice to the very community that he is leaving. In the last few lines of the novel, Stephen depicts his desire to "forge in the smithy of my soul the uncreated conscience of my race." He recognizes that his community will always be an element of him, as it has created and shaped his individuality. When he creatively expresses his own ideas, he will also convey the voice of his entire community. Even as Stephen turns his back on the conventional forms of contribution and membership in a community, he envisions his script as a service to the community.

Search of an artist: In A Portrait of the Artist as a Young Man, the hero moves from 'childhood' to 'manhood', learning his own fate as artist and as exile. Again, of all the characters in the novel, Stephen Dedalus is the only one whose representation is fully realized. His most close 'thoughts', 'memories' and 'sensations' are exposed to us throughout; all the other characters exist for the reader only in so far as they matter to Stephen. Stephen is tied by 'family', 'country' and 'religion', but one by one he releases himself from those bonds to discover his 'true vocation' on the free and casual life of the artist. Stephen tends to view his life in conditions of a heroic struggle to free himself from the various confinements he feels his national city imposes upon him—the "nets" of politics, 'religion' and 'family'. The church was the mostly rival to the world of art: it, too promised aloneness and power. But he understood at last that "he was destined to learn his own wisdom apart from others or to learn the wisdom of others himself wandering among the snares of the world". The peak of the book comes soon after Stephen's comprehension of his true destiny. He is wandering alone by "the shore alone and young and wilful and hardhearted, alone amid a waste of wild air and brackish water and the sea-harvest of shells and tangle and veiled grey sunlight and gay clad and light clad figures of children and girls and voices childish and girlish in the air". He sees a girl standing in full flow, "alone and still, gazing out to sea" and he contemplates her, closely, frankly, without desire or hidden motive of any kind he is relishing the artist's insight of life. And as he looks, he is conquer by joy: "Heavenly God! Cried Stephen's soul, in an outburst of profane joy". It is blasphemous joy, the artist's joy in life. Stephen is troubled by the sea-gulls flying overhead in the evening sky. They symbolize escape for the artist, flee from the cramping surroundings where other claims on his loyalty coerce him. Like the Greek Daedalus who made the maze for king Minos and afterwards made wings to enable him to run away across the sea from the web of life and claims of Dublin. Daedalus, too, was the first craftsman, 'old artificer'. As epigraph to the book, Joyce has quoted a line from Ovid's description of Daedalus's building of the labyrinth: "And he turned his mind to unknown arts". So Joyce would turn his mind to enlarge the surname is that of the Old artificer, his Christian name is that of the first Christian martyr. Thus, the artist is both crafts man and martyr. However, Stephen identifies with the classical hero whose name he bears, but he is more like the son Icarus, who flew too close to the sun and came crashing down into the sea, than the father Daedalus, whose cunning enabled him to forge the wings that permitted his escape from Minos's prison.

So Stephen works out his theory of the artist as exile. "The artist like the God of creation, remains within or behind or beyond or above his handiwork, invisible, refined out of existence, indifferent, paring his fingernails". Stephen refuses to serve that in which he no longer believes – home, country, church; he will express himself freely, using for his defense the weapons of ' silence, exile and cunning'. He is prepared to take the risk of separating himself from others and of having not even one friend.

As its title suggests, A Portrait of the Artist as a Young Man is a kind of self-portrait, a novel that traces the development of its central character and struggling with the social, religious, and political currents of late 19th-century Ireland. While Joyce clearly bases Stephen on his younger self, he maintains an ironic distance from his character, implying at the end of the novel that his youthful alter ego still has much to learn about both life and the art that he dreams of making. A Portrait of the Artist as a Young Man is thus an important document in the history of the artist as exile. But it is also a remarkable work of art in

its own right: ""When the soul of a man is born in this country there are nets flung at it to hold it back from flight. You talk to me of nationality, language, religion. I shall try to fly by those nets".

Conclusionor the significance and myth of the name:

In A Portrait, the reader learns through the particular experiences of Stephen Dedalus how an artist perceives his surroundings, as well as his views on 'faith', 'family', and 'country', and how these perceptions often conflict with those prescribed for him by society. As a result, the artist feels distanced from the world. Unfortunately, this feeling of distance and detachment is misconstrued by others to be the prideful attitude of an egoist. Thus the artist, already feeling isolated, is increasingly aware of a certain growing, painful social alienation. In addition, Stephen's natural, maturing sexual urges confuse him even further. Stephen is a keenly intelligent, sensitive, and eloquent young man, but he also possesses the feelings of urgent sexuality, self doubt, and insecurity — all universal emotions which are experienced during the development of the average adolescent male. Joyce reveals these tumultuous adolescent feelings through a narrative technique called stream-of-consciousness. He takes the reader into both the conscious mind and the subconscious mind, showing him the subjective and the objective realities of a situation. Using Stephen Dedalus, he explores the depths of the human heart. Stephen's thoughts, associations, feelings, and language serve as the primary vehicles by which the reader shares with Stephen the pain and pleasures of adolescence, as well as the exhilarating experiences of intellectual, sexual, and spiritual discoveries. In order to highlight the importance of Stephen's aesthetic experiences, Joyce borrowed a word from the Catholic faith in order to create a literary term of his own. Some of Stephen's earliest epiphanies come from his acute sensory awareness and are recorded through Joyce's masterful use of imagery. In the novel, repeated patterns of sounds and remembrances of tastes, touches, and smells are all emphasized. Stephen's eyesight (like Joyce's) is weak; therefore, Joyce emphasizes other senses, and in doing so, he employs the valuable motif method of narration, wherein he records recurrent images of hot/cold, wet/dry, and light/dark images, as well as recurring symbols. He also uses dramatic irony to identify Stephen's basic conflicts and emphasize significant events in his life.

Although several themes such as alienation and betrayal exist in the novel, Ellman states that Joyce originally recognized the work's main theme as "the portrait of the renegade Catholic artist as hero." Certainly, evidence from Joyce's life mirrors Stephen's need to escape the bonds of Irish nationalism and Catholicism. The hero's name — Stephen Dedalus, which combines significant elements of both Greek and Christian myths. "Stephen" is the name of the first Christian martyr who was persecuted for reasons of faith. Joyce's hero identifies with his patron's martyrdom by recalling an early reprimand against marrying a Protestant, the unjust pandying incident, and a variety of instances wherein he was ostracized or made to feel guilty by his peers and older people. It is, however, the author's choice of his character's family name — Dedalus — which reveals to readers the source of the novel's greatest thematic parallel. The myth of Daedalus and Icarus, the story of the cunning Greek inventor and his ill-fated, impetuous son, is the framework responsible for the major imagery and symbolism which pervade the novel. Daedalus, an architect commissioned by King Minos, designed an elaborate labyrinth in which the king planned to confine the monstrous Minotaur. However, ill-fortune soon caused Daedalus and Icarus to be imprisoned in the labyrinth, from which they were forced to contrive a daring and ingenious escape. The final and most dramatic parallel associates Stephen with his mythic namesake Daedalus — the "great artificer." Like Daedalus, Stephen succeeds in escaping the labyrinth of cultural restraints.

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Formulation and Evaluation of Sustained Release Matrix Tablets of Anti-Diabetics with Processed Aloe Vera Mucilage as Release Modifier

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Abstract

The main aim of present research was to formulate and evaluate the sustained release matrix tablets of Repaglinide (RPGN) using processed Aloe vera mucilage as release modifier. A sustained release tablet should release the desired quantity of drug with predetermined kinetics to maintain effective plasma concentration which can be done by formulating a tablet that releases the drug in a predetermined and reproducible manner. These matrix tablets were compressed using direct compression technique. Different tablet formulations were prepared using different drug: polymer ratio viz, 1:1, 1:2, 1:3, 1:4, and 1:5. Dry powdered mucilage extracted from Aloe vera leaves was evaluated for angle of repose, LBD, TBD, Carr's index, and Hausner's ratio. The prepared tablets were evaluated according to pharmacopoeial standards. It was observed from the kinetic studies that all the formulations followed first order kinetics and particularly the drug release from its dosage form. The present work clearly indicates the possible use of processed aloe vera gel (PAG) for modulating the drug release by using in varying ratios. We can conclude that the prepared matrix tablets using PAG as mucilage can be used as a release retardant in the formulation of sustained release matrix tablets.

Key words*: Sustained release matrix tablets, natural polymers, repaglinide, synthetic polymers, PAG*

General Introduction

The conventional dosage forms such as tablets and capsules are the major oral preparations and have wide acceptance up to 50-60% of total dosage forms. Solid dosage forms are popular because of ease of administration, accurate dosage, self-medication, pain avoidance and most importantly the patient compliance in last two decades. Repaglinide i.e. (+) 2-ethoxy-4(2((3-methyl-1-(2- (1-piperidinyl) phenyl)-butyl) amino)-2-oxoethyl) benzoic acid is an oral anti-hyperglycemic agent used for the treatment of non insulin dependent diabetes mellitus (NIDDM). It belongs to the meglitinide class of short acting insulin secretagogues, which act by binding to the β cells of the pancreas to stimulate the insulin release. Considerable research had been done on the drug RPGN for sustained release and from the literature, it was found that they were developed sustained release matrix tablets of Repaglinide (RPGN) with Aloe vera as release modifier. The most commonly using method of modulating the drug release is matrix system and an effort was therefore made to develop simple and effective sustained release Repaglinide tablets using a polymer matrix system. In the present study, an attempt has been made to develop sustained release matrix tablets of Repaglinide using processed aloe vera mucilage as release modifier. The Aloe vera mucilage is well studied for its application in cosmetics. In the line the polysaccharide fraction present in the Aloe vera extract is finding new insights in the drug delivery technology. Aloe vera has a history of its use in folk medicine for skin and other disorders which goes back over thousands of years. Many scientific reports established the health beneficial effects of inner leaf gel and the high molecular weight polysaccharides attributes to the effects. The possible use of PAG for modulating the drug release by using in varying ratios. We can finally conclude that the prepared matrix tablets using PAG as mucilage can be used as a release retardant in the formulation of sustained release matrix tablets.

Material and Methods

Materials:

RPGN, HPMC K4M and HPMC 100M GG , CG and PVP , Magnesium stearate (MS) Talc Lactose was obtained.

100 tablets of Repaglinide were obtained

- Drug excipient compatibility studies were conducted.
- The pure drug and its physical mixtures were subjected to IR spectral studies using FTIR spectrophotometer in the wave number region from 4000 cm-1 to 400 cm-1. The spectra obtained for pure drug and the physical mixtures were compared.
- Evaluation studies.
- Drug Content (Assay).
- Kinetic analysis of dissolution data.
- Stability studies.
- Compatibility studies

1. Extraction of aloevera mucilage

- Aloevera fresh plant leaves were collected and washed with water to remove dirt and debris.
- Incisions to be made on leaves and soaked in water for 5-6 hrs, and boiled for 30 mins and allowed to stand for 1hr for release of mucilage in water.
- The material was then squeezed from cloth to remove marc from the solution.
- Three volumes of acetone were added to the filtrate to precipitate the mucilage.
- The mucilage was separated and dried in an oven at a temperature of <50 degree celcius.
- Dried powder was passed through No. 80 sieve and to be storedin dessiccator for further use.
- Flow properties were evaluated.
- Bulk density was evaluated.
- Compressibility index

2. Preparation of matrix tablets: Different tablet formulations to be prepared using different drug: polymer ratio viz,1:1,1:2,1:3,1:4,1:5. Powder blend was evaluated before compression.
3. Evaluation of powder blend.
4. Evaluation of tablets Thickness.
5. Weight variation test.
6. Hardness and friability.
7. Drug content.
8. Swelling characteristics.
9. In vitro release studies.
10. Kinetic release profile.
11. Accelerated stability studies

Summary And Conclusion:

Diabetes Mellitus is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar. Hyperglycemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels. Glinides, a new class of short acting insulin secretagogues act directly on the pancreatic beta cell to stimulate rapid insulin secretion Repaglinide is the first oral agent of the meglitinide class to become available for the treatment of type 2 diabetes. One of the many advantages of Repaglinide is that it is one of the few oral agents that can be used in chronic renal failure. The greatest disadvantage of Repaglinide is that it has a very short elimination half-life (1 h) hence it is challenge in development of oral controlled release drug is not just to sustain the drug release but also to prolong the presence of the dosage form within the gastrointestinal tract until all the drug is completely released at the desired period of time. Aloevera is known for many health benefits including wound healing, antifungal activity, hypoglycemic or antidiabetic effects anti-inflammatory, anticancer, immunomodulatory and gastroprotective properties. Recently is has been discovered that both the A. vera gel and whole leaf extract have the ability to improve the bioavailability of co-administered vitamins in human subjects. Hence the aim of this study to develop and evaluate sustained release matrix tablets of repaglinide using processed aloe Vera mucilage as release modifier. Different tablet formulations were prepared using different drug: polymer ratio viz, 1:1, 1:2, 1:3, 1:4, 1:5. dry powdered mucilage extracted from A. vera leaves was evaluated for angle of repose, LBD, TBD, Carr's index, and Hausner's ratio. The flow properties of the powder blend was also determined. The results of angle of repose (<30) indicate good flow properties of the granules. Compressibility index values in our result showed excellent flow properties. Tablets with different formulation codes were subjected to various evaluation tests, such as thickness, hardness, friability, and uniformity of drug content. All the formulations showed uniform thickness (CV <0.5%), uniform weight with little significance difference (P > 0.1) were observed with varying formulation code. The percentage friability for all the tablet formulations was below 1%. Drug content was found to be uniform among different batches. It was observed that swelling index increased with time but later on it decreased. The kinetics data obtained from the studies reveals that formulations follow zero-order release kinetics and the rate of drug release is independent of concentration.

Our results clearly indicate the possible use of PAG for modulating the drug release by using in varying ratios. From the above studies, we can finally conclude that the prepared matrix tablets using PAG as mucilage can be used as a release retardant in the formulation of sustained release matrix tablets.

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Economic and Environmental Implications of Cahange in Cropping Pattern- A Study of Kodagu District in Karnataka

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Environmental problems are really social problems.... They begin with the people with the cause, and end with people as victims.[1]

- **Sir Edmund Hillary**

Abstract

Before the advent of coffee plantation in Kodagu, in the later half of the 19th century, agriculture was the major source of livelihood for the population with paddy being the staple crop. It is said that there was time when Kodagu produced surplus paddy even for exports and sometimes the excess was never utilized and hence was wasted due to lack of transport and marketing facilities. Farmers could not even winnow and store the paddy.[2] *However, things changed with the increase in population. The area under cultivation of coffee expanded at the cost of deforestation, which in turn is costing heavily now in the form of reduced number of rainy days, erratic and untimely rainfall leading to seasonal water scarcity. Besides, the advent of ginger cultivation in the recent years has led to further deforestation and conversion of paddy fields into ginger growing beds. In the process of ginger cultivation the water which otherwise used to get collected in the paddy fields is drained out to save the ginger rhizomes from rotting. This has affected the percolation process and led to decline in the water table. The ramification is, drying of wells and farm ponds in the surrounding area. Hence, the crop budgeting of paddy and ginger is calculated to find out the reasons for the shift in the cropping pattern, its implications on income and employment. Besides, this change in cropping pattern has further led to shift to banana and areca nut plantation leaving a negative impact on water availability in the study area.*

Introduction

Sustainable agriculture is that form of farming, which produces sufficient food and other crops to meet the requirements of the present without harming the ecological assets and the productivity of life supporting system of the future generation. A new strategy for sustainable development is outlined by the World Conservation Union, in *Caring for the Earth*, as improving the quality of human life by living within the carrying capacity of supporting ecosystem. Reaching the goal of sustainable development requires simultaneous progress along the critical and interacting dimensions - economic, human, environmental and technological, where actions in one area can reinforce goals in another. What we need to sustain is human life to which, the whole of development effort is addressed. An effort has been made to link environment and development. Agricultural production must further be boosted to feed the teeming population. **Shortage of food supply** is a major impediment to the pursuit of development, while population growth magnifies the problems. Hence, this paper highlights the causes and consequences of change in cropping pattern from food crop to cash crop on the economy of Kodagu and its environment. This paper intends to create awareness among the people to adopt strategies towards sustainable water use and its management since water is a fixed resource and an inescapable necessity; and importance of growing paddy, before it is too late to act upon to attain sustainable development for which, the entire economic activities are addressed.

Scope and Methodology

The study covers 2 taluks out of three viz. Madikeri and Virajpet since paddy is grown extensively in these two taluks. The primary survey is done through questionnaire schedule covering 118 randomly selected farmers covering 9838.7 acres of which 889.2 acres are of paddy fields. Out of 453 acres of ginger cultivation, 341.5 acres were paddy fields which are converted to ginger cultivation and only 21 acres were cultivated by local people (respondents). The rest of the land was leased out for ginger cultivation to outsiders usually from neighbouring states of Kerala and Tamil Nadu. Apart from this, 13.5 acres are in newly planted coffee plots, and 98 acres are from uncultivated land which is brought under ginger cultivation by clearing the vegetation cover enforcing further expansion of plantation by deforestation. The paper is both analytical and descriptive using the primary and secondary data. To deal with the objective of the study and its relative hypothesis viz., tables are used

[1] Karpagam M., 1991, **Environmental Economics**, Sterling Publishers Private Ltd., New Delhi, p 53

[2] Kamath Suryakanth U., (ed) 1993, **Gazetteer of India, Karnataka State**, **Kodagu District** (revised edition), A Government of Karnataka Publication, Bangalore, pp 210-220

Objectives	Hypotheses
To analyze the economic and environmental factors inducing economic scarcity of water.	Change in market forces (price) has led to shift in cropping pattern (from paddy to ginger) inducing water scarcity.
To analyze the economic and environmental implications of change in cropping pattern on water availability, employment and income	Change in cropping pattern from paddy to ginger increases the income and employment but, aggravates water scarcity and degrades soil fertility.

to support the analysis. Economic tools like crop budgeting (economics of crops and partial budgeting techniques are employed to compare the cost of production and returns under two different situations viz., paddy and ginger. To summarize the paper SWOT analysis is adopted. It is an acronym with stands for strength, weakness, opportunity and threats.

Results and Discussions

For the last two decades, Kodagu district has been witnessing changes in the cropping pattern. The major shift is from paddy to ginger cultivation and the recent trend is still disheartening. Due to the ban on the cultivation of ginger in the neighbouring state Kerala, ginger cultivators have migrated to Kodagu in large members to raise the crop with a high profit motive.

The trend in the cropping pattern (Vide Table 1) clearly indicates the **positive growth for coffee and ginger cultivation but, a negative trend for paddy cultivation.** The area under coffee plantation has been steadily increasing every year. It has increased by 51.4 per cent in Madikeri and by 3.1 per cent in Virajpet between 1986 and 2003. This increase of more than double has been **at the cost of deforestation as to expand the plantation.** Ginger, being a cash crop, has replaced paddy cultivation since 1986. There is a declining trend in paddy cultivation, by -18.3 per cent in Madikeri -14.8 per cent in Virajpet and -21.5 per cent in Somwarpet from 1986 to 2003 since the advent of ginger cultivation. This has led to shortage of food grain. **Ginger cultivation has increased by 4011 per cent in Madikeri, 4067 per cent in Virajpet and 7281 per cent in Somwarpet during the same period.** This has its own significance in altering the water availability. Though ginger can fetch the grower **monetary benefits**, it has **negative impact on water percolation and fertility of the soil.** To protect the rhizome from rotting, the paddy fields are **converted to high beds to help draining of water out of the fields**. **No effort is being made to store this water. This has lead to poor ground water recharge, where as paddy fields facilitated ground water recharge, by capturing water. Thus paddy fields are more a water harvesting structure than paddy cultivation.**[3] Besides creating water scarcity, the **use of chemical fertilizers** mixed with high dose of salt (to arrest rhizome rot), the soil gets burnt leading the land not fit for cultivation for at least two years. During this period, the land is neither ploughed nor levelled. Hence, the process of percolation is reduced due to continued draining of rainwater from the fields. This also leads to scarcity of water as hypothesized. Due to increased application of chemical fertilizers and salt, the land becomes unfertile for the next crop. Hence, ginger is grown only once on a particular plot of land and ginger growers keep shifting their cultivation to new plots each time increasing the area .

Table 1: Cropping Pattern in Kodagu (1986-2003) (in hectares)

YEAR	TALUKS								
	MADIKERI			VIRAJPET			SOMWARPET		
	COFFEE	PADDY	GINGER	COFFEE	PADDY	GINGER	COFFEE	PADDY	GINGER
1986	13605	10260	18	23332	12221	33	34495	21076	21
1987	15669	10488	22	23382	12560	33	34579	22059	23

[3] Chattopadhijaya Srikumar, 2001, *Community Inventorisation*, in Agrwal Anil, Sunitha Narain and Indira Khurana, (eds), **Making Water Everybody's Business - Practicing and Policy of Water Harvesting,** Centre for Science and Environment, New Delhi, p 143

1988	15681	9253	28	23392	8149	33	34579	17937	23
1989	15715	10061	25	23392	11845	28	34630	22392	35
1990	15760	10337	28	23497	12844	29	34800	22384	19
1991	15900	10399	26	23510	12252	29	34862	22618	22
1992	16270	9949	22	23600	12222	28	35112	22545	20
1993	16365	9856	14	23608	12586	34	35125	22647	25
1994	16441	9842	25	23620	12450	56	35170	22568	60
1995	17277	9891	25	23633	11930	326	35300	22430	280
1996	17327	9396	76	23708	9644	320	35445	21743	256
1997	17418	9156	60	23910	10469	300	35715	19596	270
1998	17430	9507	45	23920	10615	200	35745	20210	200
1999	17450	9507	51	23920	10615	350	36010	20210	250
2000	18978	9338	772	23950	11870	1400	38010	19428	1500
2001	20539	8098	990	23980	11207	1200	38100	17650	2010
2002	20540	7899	860	24020	11600	1100	38160	16765	1600
2003	20600	8384	740	24050	10413	1375	38180	16550	1550
% □ *	**51.4**	**-18.3**	**4011**	**3.1**	**-14.8**	**4067**	**10.68**	**-21.5**	**7281**

Note: *denotes the percentage change in cropping pattern over the years.

Percentage change from 1986 to 2003 (%□) is calculated (for 17 years) by taking 1986 as base year

$$\% \square = \frac{\text{values of year 2003 - values of year 1986}}{\text{values of year 1986 (base year)}} \times 100$$

For example in Madikeri $\frac{20600 - 13605}{13605} \times 100 = 51.4\%$ **in coffee plantation**

Source: Compiled from the **Yearly District Statistical View of Kodagu**, Zilla Panchayat, Madikeri

Cultivation of paddy, the traditional staple crop, both for subsistence and commercial purpose is less preferred for cultivation because **ginger has emerged to be more remunerative than paddy**. Paddy has been facing a threat due to high factor price and reduced product price as the former is more remunerative and less cumbersome. This is analyzed in the Table 2.

Table 2: Economics of Paddy and Ginger - A Comparison (in Rupees)

		PADDY		GINGER		
Sl.	**PARAMETERS**	**Cost of**	**Average**	**Cost of**	**Average**	**Additional cost and income of ginger over paddy**

No		Variables	Cost	Variables	Cost	(difference)
	FACTOR PRICE					
1	Cost of human labour	2516850	**2,830.5**	250130	11911	9080.5
2	Cost of Draft Power *	1871467	2105	0	0	-2104.7
3	Cost of seed material	355810	400	167000	7952.4	7552.3
4	Cost of Manure	971250	1092	56400	2686	1593.7
5	Cost of fertilizers and plant protection	688297	774	63430	3021	2246.9
6	Transportation cost	0	0	6780	325	325
Total Expenditure		6403674	**7202**	543740	**25895**	**18693.4**
	PRODUCT PRICE					
1	Price of Main product	12382350	**13925**	1191600	56743	42814
2	Price of By products	736565	**828**	0	0	-828
Gross income		**13118915**	**14754**	**1191600**	**56743**	**41990**
Net income		**6715241**	**7552**	**647860**	**30848**	**23298**
Leased out amount per acre		1035000	**9383*1**	4769000	**11,039 *2**	1656
Total area in acres		**889.2**		**21**		

Note: * Bullock and other farm machineries.

*1 is calculated for 110.3 acres which has been leased out for paddy cultivation

*2 is calculated for 432 acres of land which has been leased out for ginger cultivation

Source: Tabulated from the primary data collected through the Questionnaire Schedule

Table 2 presents the result of the survey on the economics of paddy and ginger (crop budget) in the study area. The average values are derived by dividing the total variable cost by the area under each crop.

For example for paddy,

$$\frac{\text{Total human labour cost (Rs.)}}{\text{Total paddy area (acres)}} = \textbf{Average Cost of Human Labour per Acre}$$

$$\frac{\text{Rs. 2,516,850}}{\text{889.2 acres.}} = \textbf{Rs. 2,830.5} \text{ is the average cost of human labour per acre}$$

In deriving the gross income, price of by-product (hay) and price of main products (paddy or ginger) are added up and net income is derived by deducting total expenditure from the gross income.

Out of **453 acres** of ginger cultivation, **only 21 acres** were cultivated by local people (respondents). The rest of the land was leased out for ginger cultivation to outsiders usually from neighbouring states of Kerala and Tamil Nadu.

Leased out amount per acre is obtained by the following method.

$$\frac{\text{Total leased amount (in Rs.)}}{\text{Total area leased out (acres)}} = \textbf{Average Leased Value (in Rs.) per Acre}$$

For example for Ginger,

$$\frac{\text{Rs. 4,769,000}}{\text{432 acre}} = \textbf{Rs. 11,039} \text{ is leased out amount per acre per year}$$

It appears from comparative results that ginger cultivation is not cost effective than paddy. Because, if ginger could earn more returns at same cost as paddy or same returns at lesser cost than paddy it could have been cost effective but, amidst high investment there is high return, as high as thrice the paddy production cost and income. It is further clear from the table that the paddy cultivation compared to ginger has low risk factor, low investment and low profit amidst cumbersome process of production. Whereas ginger is a gamble, as it not only demands greater investment but yields greater profit at high risk of crop failure due to diseases discussed before. Therefore, paddy growers seem to be attracted to lease out their

paddy fields to ginger cultivation, as the lease amount is higher than returns from paddy cultivation (Rs. 11,040 against Rs. 9,383.5). The only advantage that the paddy growers have is that, they get by-products like hay for cattle and domestic consumption of rice is taken care of, where as in ginger, there are no by-products and if the crop fails, it is a total loss. Out of 453 acres of ginger cultivation, 341.5 acres are the paddy fields that are converted. Of which, 110.3 acres were brought back under paddy cultivation only after leaving the field (fallow) uncultivated for two years. Because, the fertility would be totally lost after ginger cultivation due to application of salt to the field to arrest rhizome rot. Besides, the cost of bringing the paddy fields back to the original shape is high according to the respondents. The rest of 231.2 acres was converted to banana and areca nut plantation. This does not help the replenishment of groundwater, which is leading to water scarcity. This scarcity is reflected in borewell failures, deepening of wells, drying up of farm ponds in the study area. Ginger cultivation is not only spreading in the paddy fields but also taken up by clearing uncultivated vegetative land since they are more fertile. Further, ginger cultivation in the paddy fields has affected the ground water recharge, since the fields are not ploughed for paddy cultivation and percolation is reduced. As more and more paddy fields come under ginger cultivation, trenches are dug (drains the water out) to arrest rhizome rot in ginger. Drained out water from the paddy field is not stored or collected to use it for other purposes. This has aggravated the water scarcity in the study area. This is again reflected in dried up wells, ponds, and borewells, which is mainly intensified due to ginger cultivation in the paddy fields. Apart from this, out of 453 acres of ginger cultivation, 13.5 acres are in newly planted coffee plots, and 98 acres are from uncultivated land which is brought under ginger cultivation by clearing the vegetation cover. Thus, it has enforced further expansion of by deforestation.

The water loss due to ginger cultivation is to the tune of water drained out of paddy field for the duration of total number of months under paddy cultivation. Hence, it is calculated as, (inches of rainfall x total paddy area converted to ginger x number of months under paddy cultivation) = **Total inches of water loss due to ginger cultivation**

$$\frac{\text{Total inches of water loss due to ginger cultivation}}{\text{Total area converted from paddy to ginger cultivation}} = \textbf{Total Acre-Inch of Water Lost}$$

For example in the study area,

2 inches X 341.5 acres X 6 months = **4,098 inches** of water loss due to ginger cultivation

$$\frac{4{,}098 \text{ inches}}{341.5 \text{ acres}} = \textbf{12 acre-inches}$$ of water loss due to ginger cultivation in the paddy field

The entire acreage of paddy field which is converted to ginger cultivation loses the recharging capacity of the groundwater. During monsoon, rainwater is stored in the paddy fields to maintain 2 inches of standing water required for paddy cultivation. This is used to act as a ground water recharge structure. Since the adoption of ginger cultivation, the water is drained out of the paddy field without storing. This has affected the percolating process for 6-7 months (duration of paddy cultivation for two crops). In the study area, a minimum of 12 acre-inches of water is lost due to draining out the water from the paddy fields without storing. This has affected the water level in the farm ponds, dug in the paddy fields for the purpose of sprinkler irrigation to robusta coffee plantation.

According to the hypotheses, the shift in cropping pattern from paddy to ginger is certainly due to the high product price of ginger and high price of leasing compared to paddy. The **difference of net income** from paddy and ginger is as high as **Rs.23,298** per acre (Vide Table 2). This difference has encouraged the farmers to shift from paddy to ginger, which could fetch them higher profits. The leasing price difference of Rs. 1,656 per acre also have motivated the farmers to lease the paddy fields for ginger cultivation. In spite of higher returns by self cultivation, farmers chose to lease out the land for lesser price because, cultivation of ginger is more than a gamble due to diseases associated with it. Apart from this, the farmers could save the investment, time and strain due to cumbersome work in the paddy fields.

The landlords are persuaded to lease out their vegetative virgin land (not cultivated even once) for ginger cultivation which in turn helps the landlords to take up coffee plantation after the lease period or simultaneously. Landlords are benefited to the extent of clearing of vegetation and preparing the land for plantation along with the lease money. But, landlords have failed to take notice of the fact that **ginger cultivation leaves the soil unfertile and reduce the water bearing capacity of the soil.** Ginger cultivation is also taken up in the new coffee plantation areas. The coffee plants need continuous nourishment for 4 to 5 years until they bear the yield. During this period, planters lease out their plantation for ginger cultivation since manuring and watering for ginger would take care of the coffee plants too. But,

application of high doses of chemical fertilizers and salt has a negative impact on the fertility of the soil which has gone unnoticed. This further affects the coffee plants too. When enquired, farmers did admit that, cultivating ginger is more than a gamble. They earn higher profits amidst high risk of diseases and unassured markets. However, according to a large number of respondents, the shift towards ginger cultivation is mainly due to higher profits compared to paddy, no responsibility of maintaining of farm due to leasing and also due to existence of labour problem. According to the respondents, several factors influence them to shift the cropping pattern. Working for long hours in the slush in the paddy field is cumbersome. The farmers have to cook food for the labourers during transplanting and harvesting period. Apart from this, wages have increased considerably. Farmers, who have the paddy fields, beside the rivers and streams, face two types of problems in two different seasons. During monsoon, **swollen rivers flood** the low lying paddy fields and ruin the crops. In summer, when the level of water in the river goes down, it sucks the water from the nearby paddy fields. Hence, farmers cannot grow paddy more than once a year. Therefore, they have opted to shift to ginger cultivation and later the same land is converted to banana / arecanut plantation.

Elephant menace is another grave problem faced by the farmers forcing them to shift the crop from paddy to arecanut and before that, ginger is grown at least once. It is the same practice while paddy fields are converted for banana cultivation. These are some of the reasons which indirectly affect the availability of water at present and in the future. Another most important aspect to be noted is, the conversion of paddy fields into farm ponds, reducing the paddy grown area. **284.66 lakh cubic feet of farm ponds are constructed in the paddy fields** in the study area to facilitate sprinkler irrigation for coffee plantation during its critical growth period of blossom and berry, for 15 to 20 days in a year. This is due to change in rainfall pattern leading to seasonal scarcity of water in the months of late February and early March. Just to provide 50 mm of shower for blossom in February and 25 mm of shower for back up in the month of March, without which the robusta coffee yield, which is the mainstay of Kodagu's economy, fails. This extra cost which is incurred to provide sprinkler irrigation as a mechanism, to combat the seasonal scarcity of water has led to the economic scarcity of water. That is when is incurred to make good of the unavailability of water. Being a water sumptuous district with places receiving highest rainfall in the country and before entering into physical scarcity of water Kodagu is experiencing economic scarcity of water due to seasonal failure of rainfall which was otherwise normal before 1970's.

Thus, the change in cropping pattern from paddy to ginger is found to have the implication on increase in income, employment, and in turn water scarcity along with soil degradation, as hypothesized.

This is analyzed in the Table 3, where the capacity of paddy and ginger to generate income and provide **employment,** (by the production of respective crops in a year) in the study area.

Table 3: Income and Employment Generation under existing Cropping Pattern

(per acre)

Sl. No	Crops	Income (in rupees)	Employment (man days)
1	**Paddy**	7,552	48
2	**Ginger**	30,848	199

Source: Tabulated from the primary data, Table 2, for paddy and ginger

Average employment per acre is calculated as,

$$\frac{\text{Average cost on labour (in Rs.)}}{\text{Rs. 60}} = \text{Average Employment in Man days (per acre per year)}$$

The income generated through paddy cultivation for one season of seven months is Rs.7,552 per acre. The employment generated is to the tune of 48 man days per acre in paddy at the rate of Rs. 60. This includes all the work in the paddy field like: ploughing, building proper ridges for the standing water, sowing *(bith)*[*], the process of transplanting *(aage, nere and naati)*[$] spraying of pesticides, weeding and harvesting, bagging, loading for transportation and storing the paddy in *thuiah*[#] for the domestic use till the next harvest.

Local labour and labour from outside the district who normally migrate during harvest get employment. It provides 199 man days of employment, which is four times more than paddy (the duration of crop and harvest is three months more than that of paddy). Land preparation takes more labour which includes preparing of raised beds and give proper drainage. There is continuous work to maintain the beds weed free till the harvest.

The disadvantage in the production of ginger is that, the growers cannot wait for a better price, once the crop has come to harvest. Because the crop losses its weight if kept after harvesting, and cannot delay the harvest since it becomes hallow. In case if it is attacked by any disease like rhizome rot, then the complete crop is a failure. Therefore, majority of the farmers lease their land for ginger cultivation without wanting to the risk (out of 453 acres of ginger cultivation 432 acres is leased out as shown in the Vide Table 2).

Synonymous in the native language, Kodava

* Bith - seedlings

$ aage - Process of removing seedlings from seed beds
nere - making bundles of seedlings
naati - transplanting

\# thuiah - Paddy storing structure made out of slit bamboo

In spite of this, few farmers in the study area (to the tune of 21 acres) (Vide Table 2), chose to cultivate ginger and **gamble** due to its higher returns. **Besides, the production cost is four times higher than that of paddy and the risk factor is to the tune of total investment** (having no by product). Therefore, they intend not to leave the field uncultivated for two years, without having a thought about groundwater recharge as discussed before. Thus, local employment is lost for 3 years i.e., without having paddy work for one year and by not cultivating anything on the same land for another 2 years. Besides, ginger growers from outside the district / state usually employ their own labour force from their own place / outside and keep on shifting the cultivation area.

Conclusion

Chart 1: SWOT Analysis on the Economic and Environmental Implications of Water Scarcity on Cropping Pattern, Employment and Income.

Hypothetical Characteristics	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
11. Change in cropping pattern from paddy to ginger increases the income, employment but aggravates water scarcity and degrades soil resources.	*Increases income *Increases employment *Earns foreign exchange *Relief from cumbersome paddy work	*Investment on ginger is a gamble due to high risk of disease (rhizome rot) *No by-products in ginger *Increased use of fertilizer & pesticide ***Local employment** is lost due to leasing out the land to the outside investors, who employ their own labours *No crop rotation followed *Land left uncultivated for two years for rejuvenation *Employment lost for two years	*To halt conversion of paddy fields to ginger	*Water scarcity *Shortage of food crops *Water pollution *Soil degradation due to decline in the activities of soil micro flora *Unproductive land *Ground water depletion due to lack of recharge from the fields.

12. Paddy is grown twice a year only in areas where there is conjunctive use of rain water and perennial stream (fetching more income and employment)	*More income *More employment *Food security *Optimum utilization of water resources	*Profits re-invested for the 2nd crop *Increased application of fertilizer due to increased **cropping intensity** *Cumbersome work	Nil	*Early occurrence of diminishing returns to scale *Insufficient water to adopt coping mechanism for critical growth period of coffee
13. Due to water scarcity profitability from plantation is reduced.	Nil	*Higher investment *Profit is re-invested *Burden of debt *Profit is reduced *Water is a fixed resource	*Rainwater harvesting *Watershed management	*Re-investment cycle perpetuates

1. **Income** = ***f*(**employment opportunities**)**
2. **Employment = *f*(**investment on coping mechanism, change in crop pattern from paddy to ginger**)**
3. **Profit = *f*(**water**) Recommendations**

Recommendations

1. Legal ban on further deforestation with immediate effect.
2. Steps towards afforestation.
3. Insurance to crops to be made compulsory (especially paddy and ginger).
4. Paddy cultivation to be encouraged.
5. Ginger cultivation to be limited to some areas with organic farming methods to
6. restore the lost fertility of land.
7. Water drained from the ginger field is to be stored.
8. Compulsory steps to be taken towards percolation and storing of rain water. Adequate credit facility are to be provided for rain water harvesting structures at
9. low interest rates.
10. Awareness to be created among people regarding the problem and scarcity and
11. intensity of water problems immediately (spreading water literacy amongst the
12. masses.
13. Permission to rig borewells to be linked to rain water harvesting (extraction of
14. groundwater should be regulated with respect to recharge).
15. The possibility of adopting co-operative water management is to be looked into
16. with community and people's participation at large.
17. Policy changes in all sectors with respect to their development and to their
18. impacts on other sectors' development to be made possible.
19. Strong leadership and continued efforts of people are necessary to bring in
20. fundamental changes in the policies and practices.

The Impact Of Climate Change On The Tourism Sector In Maharashtra. (India)

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Abstract :-

Tourism is an important source of economic growth in the Maharashtra. What needs to be considered is how many of those potential tourists would visit the Maharashtra and what impact climate change would have on that figure. There is no doubt that climate is an important influence on the tourism sector. Numerous studies that analyze climate data indicate that our climate is changing; for example, the average global temperature has increased by approximately 0.6 C during the twentieth century. Climate and weather are important factors in tourists' decision making and also influence the successful operation of tourism businesses. More specifically, climate is defined as the prevailing condition observed as a long term average in a location. In contrast, weather is the manifestation of climate at a specific point in time and place. So, while tourists might expect certain climatic conditions when they travel to a place, they will experience the actual weather, which might deviate quite substantially from the average conditions. Hence, in the first place tourists and tourism businesses are likely to be affected by weather conditions, although in the long term these will follow systematic changes as projected under different climate change scenarios. For example, surface and sea temperatures are generally forecast to increase, rain patterns will change with some areas becoming wetter and others driers, and the occurrence of extreme events is likely to increase. For this reason, tourist destinations will benefit from understanding potential climatic changes in their area and how they might impact on their operations. This section provides a review of the international literature on the importance of climate and weather for tourism demand. First, climatic conditions influence destination choice and as a result national and global tourist flows. They also are important factors in tourists' satisfaction and activity participation, as well as safety. Finally, the role of weather/climate information for tourism is discussed briefly.

Introduction:-

Climate change is one of the complex problems facing mankind today.The overriding complexity of the problem is attributed to its deeper global ramifications on a vast range of issues impacting the very survival of life on Earth. Understanding such a complex issue with vast and varied dimensions and implications, assumes greater significance for all stakeholders, especially for our policy makers. There are varieties of perceptions regarding the exact size and consequences of climate change. Yet, it is no secret that risks emanating from climate change are indeed profound, which call for urgent mitigation. There is now strong evidence that climate change is a reality. Today, it has been scientifically established that significant global warming is occurring. Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level. There is no denying the fact that the problem exists and it is assuming alarming proportions, each passing day. Therefore, there is an imperative need to take urgent and strong measures in the interest of calibrating an appropriate response to meet the emerging challenges of climate change. Climate change is not an isolated issue. It has several aspects and inter-linkages namely, science and technology, economy and trade, diplomacy and politics - that makes it not just another issue in this complicated world of proliferating issues, but the mother of all issues. Climate change, however, is different from other problems facing humanity and it compels us to think differently at many levels. It obliges us to think about what it means to live as part of an ecologically interdependent human community. In the face of many diversities that characterize human society, climate change provides a potent reminder of one thing that we share in common - the planet Earth. All nations and all people share the same atmosphere. And, we only have one. Addressing the climate chaos by all the countries both individually and collectively, will be critical to the human well-being and prosperity of the present as well as the future generations.

Key Words:-

Global warming. Climate change, Tourism, Temperature rise, Environmental change, Impact on tourism sector.

Impact of Climate Change on Tourism:-

This category discussion of the impacts and consequences of climate change on tourism are provided. Articles presented in this category ranged from discussions of the effects of a carbon tax on international tourism to the environmental consequences of what tourism does and will continue to do if not addressed.

Impacts and Adaptation at Tourism Destinations:-

The tourism industry and destinations are clearly sensitive to climate variability and Change. Climate defines the length and quality of tourism seasons and plays a major role in destination choice and tourist spending. In many destinations tourism is closely linked with the natural environment. Climate affects a wide range of the environmental resources that are critical attractions for tourism, such as snow conditions, wildlife productivity and biodiversity, water levels and quality. Climate also has an important influence on environmental conditions that can deter tourists, including infectious disease, wildfires, insect or waterborne pests (e.g., jellyfish, algae blooms), and extreme events such as tropical cyclones. There are four broad categories of climate change impacts that will affect tourism destinations, their competitiveness and sustainability.

Direct climatic impacts:-

Climate is a principal resource for tourism, as it code termines the suitability of locations for a wide range of tourist activities, is a principal driver of global seasonality in tourism demand, and has an important influence on operating costs, such as heating, cooling, snowmaking, irrigation, food and water supply, and insurance costs. Thus, changes in the length and quality of climate dependent tourism seasons (i.e., sun and sea or winter sports holidays) could have considerable implications for competitive relationships between destinations and therefore the profitability of tourism enterprises. Studies indicate that a shift of attractive climatic conditions for tourism towards higher latitudes and altitudes is very likely. As a result, the competitive position of some popular holiday areas are anticipated to decline (e.g., the Mediterranean in summer), whereas other areas (e.g. southern England or southern Canada) are expected to improve. Uncertainties related to tourist climat e preference and destination loyalty require attention if the implications for the geographic and seasonal redistribution of visitor flows are to be projected. There are well established vulnerabilities among winter sports destinations to projected declines in natural snowfall. Even with increased snowmaking, contractions in the ski industry are very likely in the European Alps, Eastern and Western North America, Australia, and Japan, although projected impacts on destinations in these nations vary in magnitude and over different time horizons. The IPCC 1 has concluded that changes in a number of weather extremes are probable as a result of projected climate change, including: higher maximum temperature and more hot days over nearly all land areas (very likely), greater tropical storm intensity and peak winds (likely), more intense precipitation events over many land areas (very likely), and longer and more severe droughts in many midlatitude continental interiors (likely). Such changes will affect the tourism industry through increased infrastructure damage, additional emergency preparedness requirements, higher operating expenses (e.g., insurance, backup water and power systems, and evacuations), and business interruptions.

Indirect environmental change impacts:-

Because environmental conditions are such a critical resource for tourism, a widerange of climateinduced environmental changes will have profound effects on tourism at the destination and regional level. Changes in water availability, biodiversity loss, reduced landscape aesthetic, altered agricultural production (e.g., wine tourism), increased natural hazards, coastal erosion and inundation, damage to infrastructure and the increasing incidence of vectorborne diseases will all impact tourism to varying degrees. In contrast to the varied impacts of a changed climate on tourism, the indirect effects of climate induced environmental change are likely to be largely negative. Mountain, island, and coastal destinations are considered particularly sensitive to climat einduced environmental change, as are naturebased tourism market segments. UNESCO has also identified several World Heritage Sites that are critical tourist destinations, to be vulnerable to climat einduced environmental change (e.g., Venice, Italy sea level rise, Great Barrier Reef, Australia coral bleaching and mortality, GlacierWaterton International Peace Park, USA and Canada glacier retreat, Chan Chan Archaeological Zone, Peru El NiñoSouthern Oscillation (ENSO) caused flooding and eroding). 25 While our understanding of the impacts of climate change for various destination types has improved since the Djerba Conference, it is important to emphasize that there remain major regional gaps in our knowledge of how climate change will affect the natural and cultural resources critical for tourism in Africa, the Caribbean, South America, the Middle East and largeparts of East Asia.

Impacts of mitigation policies on tourist mobility:-

National or international mitigation policies – that is policies that seek to reduce GHG emissions – are likely to have an impact on tourist flows. They will lead to an increase in transport costs and may foster environmental attitudes that lead tourists to change their travel patterns (e.g., shift transport mode or destination choices). There has been substantial recent media coverage on this topic, specifically as it relates to air travel. Longhaul destinations can be particularly affected and officials in Southeast Asia, AustraliaNew Zealand, and the Caribbean have expressed concern that mitigation policies could adversely

impact their national tourism economy. On the other hand, emission scenario projections developed for this report indicate that opportunities may arise for low carbon emission transport modes like coach and rail. This may
also help to revitalize destinations that are nearer to the main markets.

Indirect societal change impacts:-

Climate change is thought to pose a risk to future economic growth and to the political stability of some nations. The Stern Report on the Economics of Climate Change concluded that although a global warming of only 1ºC might benefit global GDP, greater climate change would eventually damage economic growth at the global scale, including the stark conclusion that unmitigated climate change could cause a reduction in consumption per capita of 20% later in the 21 st century or early 22 nd century. 4 Any such reduction of global GDP due to climate change would reduce the discretionary wealth available to consumers for tourism and have negative implications for anticipated future growth in tourism; however there has been no indepth interpretation of the Stern Report 4 for the tourism sector.

Weather Experience :-

Weather conditions experienced by tourists at the destination are important for many reasons. Foremost, weather allows for an activity to be undertaken, or likewise may act as an inhibitor to participation. For example, wind speeds over 15 km/h were found to be detrimental to fishing or water skiing, whereas motor boating could be undertaken up to wind speeds of 50 km/h. Weather will also influence how enjoyable an experience is and therefore tourists' satisfaction is likely to be at least partly weather dependent. Finally, tourists' safety can depend on the weather for example in relation to heatwaves, extreme wind events or avalanches. classified the different facets of tourism climate into aesthetic, physical, and thermal . The thermal component describes how comfortable the tourist feels. The physical dimension relates to non-temperature climatic conditions such as wind and rain and is important to assess whether a certain activity is possible or not. The aesthetic aspect describes a psychological perspective as the tourist enjoys certain climatic conditions, for example the light or formation of clouds.

Table 1 Facets of climate and impact on tourists (Becken & Hay, 2007, after de Freitas, 2001)

Facet of climate	**Impact on tourists**
Aesthetic	
Sunshine/cloudiness	Enjoyment, attractiveness of site
Visibility	Enjoyment, attractiveness of site
Day length	Hours of daylight available
Physical	
Wind	Blown belongings, sand, dust etc.
Rain	Wetting, reduced visibility
Snow	Participation in activities
Ice	Personal injury, damage to property
Air quality	Health, physical well-being, allergies
Ultraviolet radiation	Health, suntan, sunburn
Thermal	
Integrated effects of air temperature, wind, solar radiation, humidity, longwave radiation, metabolic rate	Environmental stress, heat stress Physiological strain, Hypothermia Potential for therapeutic recuperation

Impacts on Coastal States in India:-

The coastal states of Maharashtra, Goa and Gujarat face a grave risk from the sea level rise, which could flood land (including agricultural land) and cause damage to coastal infrastructure and other property. Goa will be the worst hit, losing a large percentage of its total land area, including many of its famous beaches and tourist infrastructure. Mumbai's northern suburbs like Versova beach and other populated areas along tidal mud flats and creeks are also vulnerable to land loss and increased flooding due to sea level rise. Flooding will displace a large number of people from the coasts putting a greater pressure on the civic amenities and rapid urbanisation. Sea water percolation due to inundations can diminish freshwater supplies making water scarcer. The states along the coasts like Orissa will experience worse cyclones. Many species living along the coastline are also threatened. The coral reefs that India has in its biosphere reserves are also saline sensitive and thus the rising sea level threatens their existence too, not only the coral reefs but the phytoplankton, the fish stocks and the human lives that are dependent on it are also in grave danger. Ecosystems and Bio-diversity Climate Change has the potential to cause immense

biodiversity loss, affecting both individual species and their ecosystems that support economic growth and human well being. It is difficult to predict the overall result of climate changes on animal and plant kingdom. Devastating effects on the native habitats of many animals and plants due to global warming is likely to drive a considerable number of today's known animal and plant species to extinction. Mass extinctions of the Earth's flora and fauna have occurred before also but those were driven by natural factors. However, the projected extinctions of flora and fauna in the future will be human driven i.e. due to adverse impact of human activities. The growth of human populations around the world, along with attendant pollution and loss of habitat, has set the stage for mass extinctions and large scale alterations in the flora and fauna.

Climate Change, Tourist behavior and Effect:-

The main ideas in this category included assessment of travelers' attitudes toward climate change, business owner attitudes, and willingness to address climate change. Travelers seem to be well aware of climate change issues but most are not willing to change their travel. Behavioral change by business owners tends to occur when it affects their bottom line – either through the demands of their clients or through savings in energy and other resources. In order to be effective, educational campaigns on climate change require different approaches for different people. Other studies showed that when the desired attributes of a destination changed, travelers would prefer to go elsewhere. Climates have an impact on tourist demand which will affect destination choice and duration of travel. To some extent, publications that fell into this category generally touched on many topics of climate within the same article. A few articles called for more climate change and tourism research. One article discussed a historical review of climate change, and another gave examples of how climate is an economic engine.

Environmental change:-

The IPCC (2007) stated that "Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate changes, particularly temperature increases". More specifically, there is very high confidence that • Changes in snow, ice and frozen ground have increased the number and size of glacial lakes, increased ground instability in mountain and other permafrost regions and led to ecosystem changes in the Arctic and Antarctic. • Some hydrological systems have also been affected through increased runoff and earlier spring peak discharge in many glacier- and snow-fed rivers and through effects of warming rivers and lakes. • Warming resulted in earlier timing of spring events and poleward and upward shifts in plant and animal ranges. • Some marine and freshwater systems have seen shifts in ranges and changes in algal, plankton and fish abundance due to warmer water temperatures, as well as related changes in ice cover, salinity, oxygen levels and circulation.All of the above ecosystem changes are indirectly affecting tourism, especially in destinations where nature is a key attractor for tourists, as in the case of World Heritage Areas (e.g. Sagarmatha National Park in Nepal, Kilimanjaro National Park in Tanzanai, the Wet Tropics of Queensland, Australia or Ichkeul National Park in Tunisia, UNESCO, 2007). Comparative research on tourists in Bonaire and Barbados in the Caribbean revealed that visitors to Bonaire were motivated by environmental attributes such as coral and fish diversity and abundance, whereas those to Barbados preferred beach features and other components of the terrestrial environment (Uyarra et al., 2005). The impacts of climate change will therefore likely be different in these two destinations.Climate change is likely to have a significant influence.

Conclusion:-

Both weather and climate are extremely important for tourism, and it is often the perception of climate that may be more important than the reality. Tourists make decisions based on what they believe the climatic conditions of a destination are. As a result tourists will learn over time and adjust their decision making (Ehmer & Heymann, 2008). This is not only relevant with respects to perceived temperature and precipitation (e.g. "too hot", Gossling & Hall, 2006) but also in relation to perceived safety, for example in response to the (perceived) risk of hurricanes or other extreme events. As such there may well be "Winners and Losers" as suggested in a Deutsche Bank (2008) report. Actual impacts of climate change on tourist destinations are potentially much further reaching, as they affect the resource base of tourism, both directly and indirectly. Already, challenges such as water shortages or increased incidence of forest fires pose themselves to destinations. Environmental changes, for example the distribution of wildlife or coral bleaching, are also of fundamental importance for tourism. Understanding these changes is a first step towards managing them and adapting to new circumstances.

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Industrial Development in India

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Abstract:

Before the arrival of Britishers, India was industrially more advanced as compared to the economies of the West European Countries. The Britishers systematically destroyed the industrial base of India. As a result, India inherited a weak industrial base, underdeveloped infrastructural facilities and a stagnant economy at the time of Independence. The government called an Industries Conference in December 1947 to consider ways and means to utilize the existing capacity more fully and to harness industry to the growing requirements of the people. The Conference was attended by the representatives of the Central and Provincial Governments, Industrialists and Labour. To ensure better relations between management and employees, a tripartite agreement was entered into which provided for three-year industrial truce between the management and labourers. With the purpose of assisting industrial development, the government granted certain tax concessions to industry in 1948-49 and passed the Bill to establish the Industrial Finance Corporation of India. The Industrial policy resolution was also passed in 1948. These factors had a favourable impact on industrial development. In this paper we will discuss about causes of unsatisfactory industrial performance, changes in the industrial pattern, problems of industrial development in India and Measures to overcome the problem of Industrial Development in India.

Keywords*: Industrial Development, Developed Economy, Developing Economy.*

Introduction:

The industrial development in India was confined largely to the consumer goods sector, the important industries being cotton textiles, sugar, salt, soap, leather goods and paper. Thus, the industrial structure exhibited the features of an underdeveloped economy. Industries manufacturing 'intermediate products' like coal, cement, steel, power, alcohol, non-ferrous metals, chemicals etc. were also established but their production was small as productive capacity was considerably below the requirements. As far as the capital goods sector is concerned, only a small beginning had been made. On the whole, while consumer goods industries were well established, producer goods industries lagged considerably behind. A large number of industries have been established in the post-independence India in Private, Public and Joint sectors. There are a lot of industrial resources and raw materials available in India. Bhilai, Bokaro, Rourekla, Ranchi, Jamshedpur, Renukoot, etc, emerged as major centres during the first one and a half decades of independence. However, later on, industrialization at medium and small scale was taken up in all the states. The main sectors of industrialization today are electronics, transport and telecommunication. Compared to advanced countries, there is very little industrialization in India. About 10 per cent of the total workers are employed in the organized industrial sectors have grown side by side since independence. However, production of luxury goods, control of monopolies, sluggish rate of agricultural development, etc. have come as obstacles in industrial development. Despite these factors, investments in private sector have been increasing. Collaborations with industrially advanced countries like the USA, UK, Russia, Japan, etc. are a clear testimony of India's industrial progress.

Objectives of the Study: The present paper aimed to study the following objectives-

1. To know the causes of unsatisfactory industrial performance.
2. To know about changes in the industrial pattern during the plans.
3. To know the problems of industrial development in India.
4. To study the Measures to overcome the problems of Industrial Development in India.

Hypothesis of the Study:

The Proper implementation of suggested measures will be help to boost the Industrial Development in India.

Limitations of the Study:

The proposed study is confined only to "Industrial Development in India" the other issues of development like, agricultural, service sector are not included in this study.

Data Collection:

This study is done with the maximum usage of secondary data. Secondary information has been made available from published sources like, library books, journals, newspapers, magazines, government publication.

Findings of the Study:

To know the causes of unsatisfactory industrial performance:

1. **Exposure to External Competition:** According to the Planning Commission, the most important reason for lower growth rate during the Eighth Plan period as compared to the earlier one seems to be that 'the industrial sector, which had been almost totally protected from both industrial as well as external competition during the previous four decades, was suddenly exposed to foreign competition through a significant liberalization of imports and drastic reduction in import duties. The industry was hardly prepared for it and the slowdown was only to be expected.
2. **Slowdown in Investment:** An important reason for the slowdown of industrial growth in 1990's was the slowdown of investment. It is a known fact that capital formation in the public and private sectors provides a stimulus for industrial growth in the form of both the direct demand or purchases that such expenditures involves, and the indirect demand resulting from income generations by investments.
3. **The infrastructural Constraints:** Perhaps the most important reason for unsatisfactory performance of the industrial sector was the deteriorating state of infrastructure. Industrial production suffered not only on account of inadequate availability of infrastructure like power and transportation bottlenecks, inadequate handling facilities at ports etc, but also to poor quality of infrastructure like frequent and unscheduled power breakdowns, poor road conditions, unduly ling handling time at ports etc. All these factors added to the real costs of manufacture and thus adversely affected the competitiveness of domestic industry.
4. **Difficulties in Obtaining Funds for Expansion:** Orderly development of capital market is an important condition for industrial growth because in its absence, the private sector capitalists will face difficulties in raising resources for expansion. The period since 1991 has witnessed two stock market scams – one in 1992 and the other in March –April 2001. These scams seriously eroded investor confidence.
5. **Sluggish Growth in Exports:** In a number of years during 1990s exports grew at a very low rate. This was due to increasing competition in the international market on the one hand and inability of domestic industry to meet external competition by ensuring quality products, keeping to delivery schedule etc. On the other hand. The outbreak of the East-Asian crisis in mid-1997 compounded the problems for Indian exporters as there was a sharp depreciation in the external value of the currencies of this region. This made Indian exports uncompetitive in international markets as against the exports from countries belonging to the East Asian region.
6. **Anomalies in Tariff Structure.** According to the Ninth Five Year Plan, there were anomalies in tariff structure leading to large-scale imports of second-hand machinery, basic materials and intermediate products. This adversely affected industrial growth in these sectors. In the case of fertilizer sector and refineries, while the finished capital goods enjoyed 'zero' rate of import duty, the domestic manufacturers were subject to taxes and duties and import duties on intermediates and components.
7. **Contraction in Consumer Demand:** There was acute contraction in consumer demand in 1990s. There were distinct signs of growing inequalities in the distribution of income, and in the face of reduced employment growth as well as deterioration in the quality of employment, purchasing power in the hands of the vast masses of urban population possibly declined.

A) To know about changes in the industrial pattern during the plans:

Increase in the Share of Industrial Sector in GDP: The share of the industrial sector in Gross Domestic Products has slowly but consistently increased over the planning period. For instance, the share of industry in GDP at factor cost increased from 16.6 percent in 1950-51 to 27.7 percent in 1990-91. The new series on National accounts released by CSO in January 2015, presents data on GVA (Gross Value Added) at basic prices with base year 2011-12. According to this series, the share of industry in GVA at basic prices was 31.5 percent in 2016-17 and 31.2 percent in 2017-18.

Changing Sectoral Composition: As stated earlier the three sectors in IIP are manufacturing, mining and electricity. In 1956, manufacturing had the highest weight with 88.85 percent of the total. Though this sector continues to dominate the industrial scene, its weight has gradually come down to 75.53 percent in 2004-05, but slightly edged up to 77.63 percent in 2011-12.

Building up of Heavy and Capital Goods Industries: The Mahalanobis model gave pride of place to the development of heavy machine building industries and capital goods industries with a view to strengthening the industrial base of the economy. Accordingly heavy investments were made in the capital goods industries and this enabled the country to expand the production of a wide range of engineering goods, iron and steel, metals and metal based products, etc.

Rapid Growth of Consumer Durables: Due to the policy of liberalization pursued with great vigor by the government in recent period, the output of consumer durable goods has expanded at a fast pace. During 1981-85, the rate of growth of this segment was 14.4 percent per annum which rose further to 16.9 percent per annum during 1985-90. After a brief set-back in 1991-92 and 1992-93 the consumer durables sector again registered significant increases.

Basic Goods Industries: Between 1956 and 2004-05, the weights of basic goods industries had nearly doubled from 22.33 percent to 45.68 percent. As noted earlier, the practice of compiling index values for basic goods industries has been discontinued in the new IIP (base 2011-12) and the category of primary goods industries has been introduce with weights of 34.05 percent. Since, there has been reshuffling of products form one group to another, one cannot firmly say if basic goods industries category has become less important or not.

Increasing Importance of Core Industries: The relative importance of eight core industries or what was called infrastructure industries shows a rise in the new IIP with their weights having gone up from 37.90 percent in 2004-05 to 40.27 percent in2011-12. According to the new IIP, refinery industry has become far more important core industry replacing the hitherto dominant ones such as electricity and steel industries.

Emergence of Public Sector: There was no public sector worth the name in the pre-Independence period. The entire range of activities in the industrial sector was controlled by the private sector. The post-Independence period saw the emergence and massive expansion of public sector.

To know the problems of industrial development in India:

The following are the major problems of industrial development in India-

1. The Gap between targets and achievements.
2. The missing middle sector.
3. Underutilization of Capacity.
4. Bad performance of Public Sector.
5. Infrastructural Constraints.
6. Growth of Regional Imbalances.
7. Industrial Sickness.
8. Emerging Challenges to the industrial development.

To study the Measures to overcome the problems of Industrial Development in India:

In developed countries, there are several favorable conditions for industrial development, but in poor and developing countries there are several problems in its development. Even after some significant developments in the field of Industrialization in India, the country is still an agricultural country and 38% of the national income and 70% of the population depends on the land.

Suppression of Industrial Disputes: It is completely true that satisfied labor is a valuable wealth of an organization. A satisfactory and efficient system of arbitration of industrial disputes is very necessary. Through the Industrial Disputes Act of, 1947 efforts are made to establish industrial peace but it is insufficient. Efforts should be made to popularize the Group Discussion method. The policy of Worker's participation in management should be strictly followed. The reasons for the disputes should be analyzed impartially and methods should be developed accordingly for their solution.

Development of Research and Technology: In Developed Countries, continuous research is done on industrial problems and production processes, etc. New avenues of development are explored through research on scientific and technical subjects. Now, work has been started on this subject here also.

Increase in Power Resources: India has insufficient power resources. Thus, the expansion of power resources and the establishment of new units should be done. The government should pay attention to this site to encourage industrial development. Power units have to be done from time to time which adversely affects production. Thus, the solution to this problem is necessary.

Proper Use of Natural Resources: India has sufficient natural resources but due to their improper use industrial development has not been done. Thus, for industrial development proper use of natural resources is necessary. Those areas should be explored where possibilities of industrial development are more.

Establishment of Specialized Institutions: Much importance has been paid to the establishment of specialized organizations and institutions to provide steadiness to industrial development. Various institutions are established in several states for the development of special industries, but various other organizations are required in relation to this.

Efficient System of Industrial Management: Educated and skilled managers are required to run the industrial organizations properly, who are able to understand the complicated problems of industrialization and solve them quickly.

Encourage Capital Formation: For industrial development, funds are very necessary, though India completely lacks it. Thus, savings should be encouraged more for capital formation.

Encouragement to Private Sector: The government should provide more and more facilities to the private sector so that the entrepreneurs come forward to invest more and new industries can be established and old industries are modernized.

Earnings in Foreign Exchange: India lacks funds completely. Thus, to establish industries in India, foreign investors should be attracted. For this, the government should provide them better facilities. In this way, new industries would be established, unemployment would be eliminated and foreign exchange is earned.

Rational Taxation Policy: A proper taxation policy also has an important place in industrial development. Inappropriate taxation causes problems for industrial organizations, in their development. It is necessary that the needed areas have a liberal taxation policy to motivate them.

These measures are quite challenging in nature but these are expected to do much headway in removing various obstacles mentioned above and also in attaining industrial development of the country further in the years to come.

Glossary:

1. **CSO:** Central Statistical Office
2. **GDP:** Gross Domestic Product
3. **GVA:** Gross Value Added

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Unexplored or less known tourist destination in Maharashtra: A review

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***Abstract**:*

The study of this paper aims to study the various unexplored destination of Maharashtra. Tourism in India is important for the country's economy and its sectors growing rapidly. Tourism around the world is considered a major tool of economic growth and development. Currently, Indian tourism has a share of 6.7% in its GDP, which is increasing it is roughly $120 billion industry, employ 37 million people. Tourism means the act and process of spending time away from home in pursuit of recreation relaxation and pleasure while making use of the commercial provision. This research paper includes references to the promotion of less known places in Maharashtra which have more potential to develop a big tourist destination in Maharashtra it has lately become alive to need for boosting tourism. Maharashtra is the third largest state in terms of population .tourism being regional Maharashtra is creating its special packages to sell its advantages as tourism. Blessed with stunning beauty that is diverse culture. Also, have hundreds of secret places which are still far away from the eyes of a common tourist and subsequently from the influence of commercialization. these hidden beauties are characterized by pleasant weather natural setting and tranquil aura and are perfect stoppages for those unconventional travelers bitten by the travel bug. From lakes to hills forest to temples valley to rivers and waterfalls to meadow these less known places in Maharashtra host everything a nature lover and travelers would wish for so these. There is a lot of scope for the development of unexplored tourist sites in Maharashtra but taking some efforts and specific solutions to developed unexplored tourist sites in Maharashtra. For this paper used secondary research methodology has been used for research for data collection, secondary data collected from, the literature

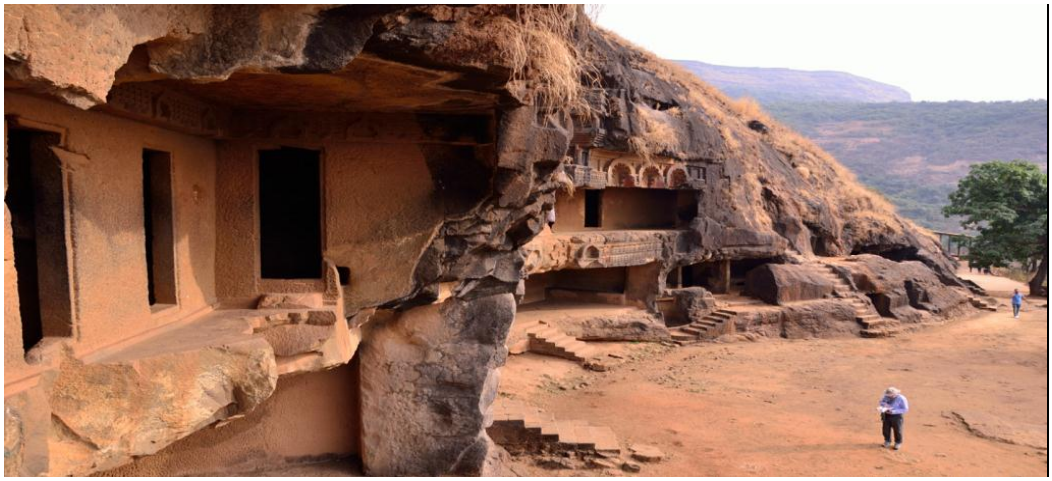
the review also government agency data, tourism online news has been collected.

***Keywords**: unexplored sites, diverse culture, planning, hill forest, meadows, secret places, GDP.*

Introduction:

The Indian tourism industry is one of the important contributors to the economy of the country. Maharashtra is brimming with an array of colorful shrines, a remarkable collection of caves, olden beaches lined with swaying historic hotspots with strong past connections, and hill stations under the canopy of lush Western Ghats. The state is primarily known for ancient Ellora and Ajanta caves and pilgrim destinations. Maharashtra enjoys 720km of coastline having beaches and shorelines Also Konkan coast mesmerizes the eyes with its white beaches. People of diverse cultures and religions live amicably in the state. Maharashtra States its tops in foreign tourist arrivals (20.8%) and counted among leading states for domestic tourists (7.2%).offers a variety of destinations for its tourists business, cultural-historical, geographical, and religious, etc. Ancient and medieval Maharashtra included empires of the satvahana dynasty,Rasttrakuta, Western Chalukyas Mughals, and Marathas.it has popular Hindu places of pilgrim such as Pandharpur,Dehu,Alandi,Hazur Sahib Gurudwara At Nandedsaibaba Shrine And Dikshabhumi at Nagpur. Maharashtra has ambitious plans to boost tourism as evident from the 2016 tourism policy. Aurangabad is the tourism capital of Maharashtra. These destinations in Maharashtra are very crowded tourists spots so there are a lot of less-known tourist places in Maharashtra that are not much popular but treamodus potential to become a very popular tourist destination in Maharashtra as well as India also in the whole world also so in that paper attempt to showing less known or unexplored tourist destination Maharashtra.

Peacock roaming freely in chincholi Morachi
https://www.india.com/g



Bhanja caves
www.lakshmisharath.con

Review of Literature Literature of review about the present work is very important because it helps to know what has been written about present study. Some important research work to present topic is given here. Maharashtra attracts tourist from different states and foreign countries it was the second most visited Indian state by foreigners and fourth most visited states by domestic tourists in 2014 .

Vandana M.Joshi(2014) development and marketing of tourism in maharastra,the present paper explain the status of MTDC and tourist arrival in India and Maharashtra, international journal of management & business studies, in Maharashtra tourism lack basic infrastructure.in the village and small towns of pune ,Mumbai and other big cities. Can tourism be promoted in Maharashtra today and cannot we provide such a good environment. Tourism is an important aspect of development of state and the locals will be able to create a new tool of income and will also help to preserve our culture. We must develop tourism to achieve this triple purpose.

Maharashtra vikas arakhada-there are many places where tourism can be developed. We should development of historic and natural beauty area. Local tourists should be made from tourism here, the locals should have run by the local people to give food ,the home stay should be made, local pharaoh ,arts, sports dance, music etc. This objectives can be achieved if the local people participate in it.if socio-economic benefits of tourism do not match the social level, then there is no use. Local people according to policies of united nations world tourism organization finicial,social and cultural benefited should be provided.

Objectives of the study

In this research paper attempt, assessing unexplored or less known tourist destinations could be developed as other tourism in Maharastrasta.. Also, some challenges that the unexplored tourism industry would face and suggest some steps to overcome this issue. The paper titled "unexplored or less known tourist destination of Maharashtra A review "seeks to address the following g objectives

1)to study unexplored sites in Maharashtra

2)to suggests some suggestions would be helpful in the development of unexplored tourist destinations in Maharashtra.

Research Methodology For this research paper data has been collected from secondary sources it includes online websites, Wikipedia, the ministry of tourism, world travel and tourism council report, journals and articles online published also electronic media from relevant literature.

Unexplored or less known tourist places in Maharashtra-almost every type of tourism exists in India because of the diversity of culture, festivals, religions, and social conditions.. Here are some offbeat places in Maharashtra

1 **Kundalika river** originating from the tiny hamlet of bhira, about 160 km from Mumbai,kundalika is a small yet pristine river that winds way through thick forests and rice fields nestled amidst the beautiful Sahyadri ranges. on its way to the Arabian sea where it eventually ends it is fed by overflowing waters of various dams and hydroelectric projects of the region that make it ideal for numerous adventure spots attracting hundreds of adventure freaks from nearby towns especially over weekends what further add to

the charm of whole rafting experience at kundalika is fun of camping on the shores of the river, with thick jungles around and sounds of birds and reptiles echoing in the air; just put the campfire on, cook a delicious bar –be-cue meal and spend a night partying with your friends under the moonlight sky and rest assured, you are certainly going to cherish these fun-filled memories of your rafting cum camping experience for the lifetime.

2-**Karla & Bhanja caves-a short rendezvous with early Buddhist temple art in India – for** those who love going off the beaten track, exploring the destinations that do not fall on a convectional travel map, the karla and bhaja caves located near the famous hill station of Lonavala, make for a perfect sightseeing destination, dating from 2 nd century BC, these caves boast of an excellent Buddhist rock-cut cave architecture in India. Housing massive prayer halls (chaitygraha) and several resting rooms (vihara) for monks complete with an outstanding sculpture of Buddha and bodhisattvas, a fine collection of stupas, and brilliant carving depicting scenes from daily lives of then men & women on the inner walls, facades and pillars these beautiful caves is the lush green surroundings and couple of enchanting waterfalls where one can take a refreshing dip deeply rejuvenating all his senses. Besides the caves the area around Karla and bhanja abounds in a number of ancient forts, a trk to which leaves all the trekkers and hikers with a fulfilling experience f you too are a trekking enthusiast pull up your socks and embark on a short trekking trip to nearby lohgad and visapur forts.

3-**Morachi chincholi –where peacocks enchant with you with their graceful moves**: by the name itself means a village of tamarind trees and a town of dancing peacocks all around.is is situated near Pune – Ahmednagar highway about 55km from Pune. even today one can find a lot of peafowls in village there are enormous activities at mrachi chincholi which include bullock cart rides, tractor rides,hurda parties, children parks, rural games, bird watching,kndil nights,nursery,outdoor games,camping and tent facilities. All activities revolve around population and noise-free environment.morach village show a true ideal Indian village with all traditional culture, peacocks at this place are somewhat used to locals living in village but are shy to tourists.morachi chincholi

4 Mhaismal, Aurangabad- An unexplored beauty tucked away in the lush greenery of Aurangabad district in Maharashtra,mhaismal is one of the few hill stations in the state which are equally popular is the home of several natural and religious sites which make perfect feel to the beauty of divinity. Apart from hills and lush vegetation, the major places here include Amne samne ki dargah, goddess girija temple and balaji temple .you can also visit several historical monuments such as Ellora caves and devgiri forts, on your way to mhaismal.

5 **Kaas pathar –where nature creates colorful painting with flowers**-one of the most offbeat tourism places in Maharashtra located near satara city the place is sprinkled over by hundreds of endemic species of wild flowers that bloom in the region.is referred to as the "Maharashtra own valley of flowers" it is place enlisted in the UNESCO world natural heritage sites in 2012 owing to its rich and unique biodiversity that creates to almost 70% of all flora found in the state. Post monsoon period i.e the period between end of August and October is the right time to visit it having pink, yellows,white spread all across the 1000 acre land.Kaas pathar is rich in its biodiversity .many species are observed on the plateau are new to botanical science. More than 850 species of flowering plants are reported on the plateau

6 **Purushwadi-a place to mesmerize you with its "glory"magic**-situated about 200 km from Mumbai and Pune enroot to Nashik,purushwadi is asmall tribal village inhabited by the "Koli tribes" known for cultivating rice and raising animal husbandry one of the most offbeat and least explored place in maharastra.besides rural area its near twinkling valleys that dazzle with lights from hundreds of thousands of fireflies that come alive here in the month of May and June. You can come here any time of year and enjoy a rustic stay with one of the local village families who are sure to leave you contented with warm hospitality, mingle with family members relish a home-cooked meal and if you wish join them doing their daily work of pounding rice, grinding spices, plowing and weeding fields and even collecting water from well.

7Nighij potholes- located about 90 km away from pune,nighoj potholes is famous for naturally crated potholes on the riverbed of kukadi river, experts from all over the world come here every yr. to study the phenomenon of their formation. Its spread over two to three kilometers. Look out for colonies of swifts the nest in these overhanging rocks, but hush the birds fly off at slightest sound. The best time to visit would be winter or summer when there is not much water in the river. It is 2 and half hour drive approx.,73 kms from Pune and a 5 hour drive,approx.,227 kms from Mumbai.

8 Sandhan valley – "the great Canyon **"**in Sahyadri ranges which is combination of a canyon and valley, located in Ahmednagar district near the famous fort ratangad known as the valley of suspense or the valley of shadows, this canyon is set against the backdrop of the Sahyadri range**. The water-carved** valley is

200ft deep and about 1.5 km long.sandhan valley is located on the western side of the beautiful bhandardara region,near samrad village.a naturally sculptured geological formation, the sides of the canyon are so narrow that even sunlight makes brief appearances,hence it name valley of shadows thrill-seekers who don't mind getting wet will enjoy wading in cool creek deep to chest deep. Navigating slippery boulders and narrow walled crevices is also a little tricky but definitely lots of fun ,its 5 and half hour drive approximately 200kms from Mumbai and Pune. The beating retreat ceremony has become a major tourist attraction in India which attracts foreign tourists as well as domestic tourists in large numbers.

9 Bhigwan-is town on the border of Ahmednagar Pune and Solapur districts on the backwaters of ujani dam in Maharashtra,bhigwan is famous for bird watching especially flamingo and wildlife photography, the place is also famous for Maharashtrian spicy fish food, special dish is kadak fish fry of chilapi. the best time to visit bhigwan is between December and March, flamingo birds love winter season and they need less water for fishing. Hats why they choose only the season to come in India. There are village homestays for tourists. A boat ride through waters of the dam will take you into the routine life of these winter visitors .mayureshwar wildlife sanctuary consists of dry deciduous scrub forest with grasslands, it is a favorite spot for migratory birds with more than 230 species found here.

10 kamshet-is a village in India, situated inmawal taluka of Pune district the travelers can experience a variety of adventure sports activities in kamshet including paragliding. The beauty of this place will leave anyone feeling relaxed and mud huts provide the unique ambiance to this hill station situated at a distance of just 16 km from Lonavala.the awesome paragliding opportune here makes this place the Paragliders paradise, the best time to visit October to may.

Challenges faced by less-known tourist places in Maharashtra-

1-main problem of less known sites in Maharashtra is the lack of publicity and low publicity level.

2 the less known destinations are inaccessible to the tourist due to less connectivity.

3 the government of tourism does not get enough support from the local's side to boost unexplored tourism and enhance the satisfaction level of tourists.

4 also lack funds for the expansion of the tourism industry is also among the major obstructions faced by less-known tourist destinations in Maharashtra..

5 lack of infrastructure it is major problem in less known tourist sites this include hotels, connectivity with other tourist sites health and transportation facilities.

6 safety and security of tourist is a most important factor which governs whether people will come to that tourist site or not.

Suggestions for the development of less-known sites in Maharashtra

1 first of all these less known sites should be noticed and their importance from a tourism point of view should be realized by tourism stakeholders.

2 The first step to promote less known sites in Maharashtra with the help of audio-video as well as print media.

3 proper cleanliness should be maintained around the sites.

4 amenities like sitting arrangements drinking water, signboards, do and don'ts boards, toilet, etc. Should be available for tourists at the premises of attractions.

5 these unexplored sites should be properly located on Google map.

6 few refreshments shops should be opened around the sites which are needful to increase the tourism flow to this area.

7 stakeholders and community awareness programs should be conducted by the government on time to time basis for the promotion of tourism destinations of Maharashtra.

8 the citizens travel organizations relating to tourism activities must approach the government to change the existing policies and create new ones also.

9 at well-known tourist sites of each district a list of well-known as well as less known sites should be displayed at noticeable places.

10 security guards should be appointed at the sites, so that sense of security could be maintained.

Conclusions

Tourism has become the biggest industry in the world and India.it is necessary to plan every activity.in Maharashtra has a huge potential to be developed less known places in Maharashtra. there is a need to do destinations planning of the region develop new tourism circuits. Increase facilities, develop good infrastructure , promote tourism destinations, which is necessary to the development of less-known tourist places in Maharashtra.in that research paper attempt to study the less known places in Maharashtra and some less known spots which have the potential to be developed and promoted as tourism destinations.

These places are less known due to the lack of tourism in that region. These less known or unexplored attractions if amalgamated with popular attractions properly then the tourist arrivals and length of stay of tourist will increase. This research paper is helpful for promoting less known or unexplored tourist sites in Maharashtra.

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Factors Affecting on Agricultural Marketing in Maharashtra, India

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Abstract :

Agricultural marketing includes the movement of agricultural product from the farmers to the consumer. Agricultural marketing covers the entire spectrum of supply chain operations and which includes production, planning, collection, evaluation and packaging. The objective of this study is to analyze the factors affecting the success of agricultural marketing in Maharashtra, India. The data has been collected from 182 respondents using a convenience sampling technique. The obtained data is analyzed by using descriptive statistics and Chi-square test was used for the testing of hypothesis. By using the Garret ranking table it was concluded that, the 'Agriculture should be treated as a priority sector' the one of the best option and Trade policies should be designed for sustainable agriculture growth and protection of agriculture markets' is the least option for success of the agricultural marketing.

Keywords: *Agricultural Marketing, Priority sector, Govt. Policies, APMC.*

Introduction :

Agriculture sector play a vital role in providing food grains to the human being. It also supports for the employment. This sector contributes about 20.19% of the total Gross Domestic Product (GDP). According to 2019 census estimates, approximately 66% population is living in rural areas and the major occupation is agriculture. Due to this situation there is a difference between per capita income of non-farming and farming sector. This is the issues that addressed the income level of the farmers. The process of growing agricultural product and selling it in the market is not a simple process. The various external variables act as a constraint and hinder the process. Major factors like climatic factors, market-related factors are effects on production and selling process (Mohanty and Singh, 2014). Agricultural marketing covers the services include the transfer of agricultural products from the farmer to the final consumer. These services also include planning, organizing, coordinating and treating agricultural products to satisfy the need of the consumer. In fact, the term agricultural marketing covers the entire spectrum of supply chain operations (Breimyer, 1973). Its main purpose is to coordinate these services by providing competent market intelligence and to combine other operations in an integrated service for targeted results (Asogwa and Okwoche, 2012). The agricultural marketing is to be focus on developing infrastructures, providing information to the farmers and training to the farmers about marketing. Strengthening the suitable environmental policies is also a part of agricultural marketing (Frick et al., 1995). Discounting, retailing and warehouses are essential for efficient marketing, minimizing post-harvest losses. Markets play a significant role in the making of national marketing links (Gupta, 1975). Agricultural Produce Market Committee (APMCs) is established by the State Government to protect the farmers from the exploitation of the farmers by the intermediaries. The APMC regulated market system have also been voiced on ground that it has not served the interests of the markers. The Model APMC Act 2003 proposed that the 'monopoly of Government regulated wholesale markets has prevented the development of a competitive marketing system'. The APMC model act allowed private sellers either through farmers' markets or through contract farming. But the agricultural is the state subject, hence the implementation of the model act has not been uniform across states. One of the debates about its implementation is whether the changes were beneficial to farmers or not (Syan, Kumar, Sandhu and Hudnal 2019). Rural development is one of the important factors which play a vital role in the development of any nation whose major population resides in rural area. Even though it is being the most important sector of the economy, it is facing lots of the problem. Due to worst condition the event of suicide of farmers are increasing in the nation (Black, 2018). Farmers still not have any idea about how to sale, how to get right price for their produce. Farmers don't know how to channelize their produce and they don't know about the latest technologies. Agriculture sector is a major part of the Indian economy and has several problems and out of these problems marketing is the most critical one. The producer (farmers) are scattered and unorganized the problem takes different dimensions. The agriculture market facilitates are inadequate. Therefore, farmers' markets were organized to benefit up the circumstances of Indian Agriculture Marketing (Kachulu, 2018). For the betterment of farmers and the rural development there is a need to know the importance of proper marketing of agriculture produce. As a result, the study aims to discover the various factors that affect success of Agricultural Marketing.

Hypothesis Formulation:

H_{01} : There is no association between experience and income of the farmer.

H_{11} : There is association between experience and income of the farmer.
H_{02} : There is no association between trade policies and agricultural marketing.
H_{12} : There is association between trade policies and agricultural marketing.

Objectives of the Study :

1. To analyze the factors affecting the success of agricultural marketing in Maharashtra, India.
2. To study the socio demographic characteristics of the farmers.
3. To draw some conclusion for improvement of agricultural marketing.

Material and Methods :

For the present study, a questionnaire was compiled for the farmers of villages included in Nilanga Tahasil of Latur district in 2021. Survey was conducted from January to May 2021. Convenience sampling technique was used for the selection of the respondents. In the study 182 respondents were included. The questionnaire was scored using structured 5 point Likert scale as strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5). The collected data were analyzed on the basis of each research question and hypothesis. Descriptive statistics including frequency and percentage was used to examine the research questions. Chi-square test was used to analyze the hypotheses. Microsoft excel was used to analyze the collected data.

Results and Discussions :

Table 2 shows that, only 14% of the respondents had completed college or university education, while 86% respondents had their education below high school level. 43% having only primary school education were working as a farmer. This table shows that, 54% of the farmers had their annual income below Rs. 2 lakh and 31% earned the annual income between Rs. 2 lakh to Rs. 4 lakh, while the remaining 15% of the farmers had their annual income above Rs. 4 lakh per annum. Table 1 also reveals that, 15% of the farmers had below 5 year experience, 57% between 5 to 10 year experience and the remaining 29% of the farmers had an experience of more than 10 years. According to the table, the largest group of the respondents of the study (51%) belongs to the age group 25-30 years. It indicates that middle aged farmers are to be equipped with marketing skills for greater experience in the near future.

Table 1 : Socio Demographic Characteristics of Respondents

Variables		Frequency	Percentage
Level of Education	Primary	78	42.86
	Secondary	42	23.08
	High school	36	19.78
	College or university	26	14.29
Income Group p.a. (In INR)	Below 200,000	98	53.85
	200,000-400,000	56	30.77
	Above 400,000	28	15.38
Experiences (In Years)	Below 5 years	26	14.29
	5-10 years	104	57.14
	Above 10 years	52	28.57
Age group of farmers (In Years)	Below 25	48	26.37
	25-30	92	50.55
	Above 30	42	23.08

Source : Compiled by the researcher.

Table 2 : Factors Affecting Success of Agricultural Marketing

Variables		Frequency	Percentage	Mean	SD
Non- farm rural employment should be increased.	Strongly Disagree	9	4.95	3.61	3.33
	Disagree	45	24.73		
	Neutral	15	8.24		
	Agree	52	28.57		
	Strongly Agree	61	33.52		
Agriculture should be treated as a priority sector	Strongly Disagree	79	43.41	2.18	2.12
	Disagree	54	29.67		
	Neutral	9	4.95		
	Agree	18	9.89		

	Strongly Agree	22	12.09		
Small and marginal farmers should be recognized as a special group	Strongly Disagree	16	8.79	3.86	3.58
	Disagree	21	11.54		
	Neutral	14	7.69		
	Agree	52	28.57		
	Strongly Agree	79	43.41		
Direct income support should be given to small farmers	Strongly Disagree	24	13.19	3.46	3.25
	Disagree	32	17.58		
	Neutral	19	10.44		
	Agree	50	27.47		
	Strongly Agree	57	31.32		
Efforts should be done for value enhancement of agro products	Strongly Disagree	22	12.09	3.35	3.14
	Disagree	41	22.53		
	Neutral	22	12.09		
	Agree	45	24.73		
	Strongly Agree	52	28.57		
Trade policies should be designed for sustainable agriculture growth and protection of agriculture markets	Strongly Disagree	8	4.40	3.96	3.62
	Disagree	22	12.09		
	Neutral	18	9.89		
	Agree	56	30.77		
	Strongly Agree	78	42.86		
The government should emphasize agriculture- oriented research and education	Strongly Disagree	15	8.24	3.59	3.31
	Disagree	35	19.23		
	Neutral	12	6.59		
	Agree	68	37.36		
	Strongly Agree	52	28.57		
Facilities should be given in one window system	Strongly Disagree	22	12.09	3.07	2.89
	Disagree	68	37.36		
	Neutral	14	7.69		
	Agree	32	17.58		
	Strongly Agree	46	25.27		

Source : Compiled by the researcher

Table 2 shows the success of agricultural marketing factors according to the responses given by the respondents. Descriptive statistics were used to analyze the data and the results for each variable were expressed as mean and standard deviation. Table 2 reveals that, approximately 5% of the farmers were strongly disagreed, 25% were disagreed, 29% were agreed and 34% were strongly agreed over 'Non-farm rural employment should be increased'. Whereas, 43% of the farmers selected strongly disagree, 30% selected as disagree and 12% were strongly agreed regarding 'Agriculture should be treated as a priority sector'. In terms of the item 'Small and marginal farmers should be recognized as a special group', 9% of the farmers were strongly disagreed, 12% farmers were disagreed, 29% farmers were agreed and 43% were strongly agreed. Table 2 also shows that, 18% of the farmers chose disagree, and 27% chose agree regarding 'Direct income support should be given to small farmers'.

Table 2 reveals that 23% of the farmers selected disagree and 29% selected strongly agree regarding 'Efforts should be done for value enhancement of agro products'. As the results presented in Table 2, only 4% of the farmers selected strongly disagree and 43% farmers were strongly agree with regard to the item 'Trade policies should be designed for sustainable agriculture growth and protection of agriculture markets'. Moreover, 8% of the respondents chose strongly disagree and 37% agree as well as 29% strongly agree regarding the item 'The government should emphasize agriculture- oriented research

and education'. Further, 8% farmers were strongly disagree and 37% farmers were agree as well 18% were agree and 25% strongly agree regarding 'Facilities should be given in one window system'.

Table 3 : Analysis of the Factors Affecting Success of Agricultural Marketing by using Likert Scale

Sr.No.	Variables	Mean	SD	Rank
1	Non- farm rural employment should be increased.	3.61	3.33	6
2	Agriculture should be treated as a priority sector	2.18	2.12	1
3	Small and marginal farmers should be recognized as a special group	3.86	3.58	7
4	Direct income support should be given to small farmers	3.46	3.25	4
5	Efforts should be done for value enhancement of agro products	3.35	3.14	3
6	Trade policies should be designed for sustainable agriculture growth and protection of agriculture markets	3.96	3.62	8
7	The government should emphasize agriculture-oriented research and education	3.59	3.31	5
8	Facilities should be given in one window system	3.07	2.89	2

Source : Compiled by the researcher.

Table 3 shows that, for the success of agricultural marketing the 'Agriculture should be treated as a priority sector' is to be the solution, whereas 'Trade policies should be designed for sustainable agriculture growth and protection of agriculture markets' may be the last option as the Garret ranking table.

Testing of Hypothesis :

Table 4 : Hypothesis Testing

No.	**Hypothesis**	**Table value of Chi-square**	**Calculated Value of Chi-square**	**Degree of Freedom (df)**	**Level of Significance**
1.	H1	0.71	12.056	4	5%
2.	H2	0.71	95.25	4	5%

Source : Compiled by the researcher.

Hypothesis 1 : There is no association between experience and income of the farmer.

At 5 percent level of significance and 4 degree of freedom the calculated value of Chi-square (X^2) is greater than the table value as shown in table 4. Therefore, it is revealed that there is association between experience and income of the farmer.

Hypothesis 2 : There is no association between trade policies and agricultural marketing.

Since the calculated value of Chi-square (X^2) is more than the table value at 5% level of significance and at 4 degree of freedom. Thus, the alternative hypothesis is accepted. It is revealed that there is association between trade policies and agricultural marketing.

Conclusions and Recommendations :

The research emphasized on various factors which influence on agricultural marketing. Non-farm rural employment, agriculture sector should be treated as priority sector, the farmers should be grouped as small and marginal, trade policies of the Government, etc. were affected on agricultural marketing. Marketing is a sequence of exercises associated with the transportation of goods from the place of production to the place of use. It covers all the activities related to the creation of time, place, form and benefits of ownership. It is necessary to carry out studies on the marketing system for agricultural products to understand the complexity. These studies provide efficient services for the transmission of agricultural products from producers to consumers. Statistical analyses were used for categorical variables to indicate frequencies and percentages. Chi square test was utilized to determine the association among categorical variables. The result shows that, there is association between experience of farming and income of the farmer.The result also shows that, declaration of agricultural sector as a priority sector play a vital role in agricultural marketing followed by establishing coordination of agricultural institutions will contribute positively to the success of agricultural marketing. Instead of this, direct income support, development of appropriate trade policies, implementation of agricultural oriented training and research, increasing non-agricultural rural employment also help the agricultural marketing.

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"Fish Diversity of Kava Lake Dist. Latur (M.S.) India"

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Abstract:

Kava Lake water resource for human consumption and also helpful for the agriculture and fisheries in Kava Lake, District Latur. Investigation was carried out during the study period from Jun 2020 to May 2021. The present paper deals with the variety and abundance of fresh water fishes in Kava Lake, District Latur (M.S) India. Fishes were collected from Kava Lake Dist. Latur (M.S.) India with the help of local fishermen using different type of nets namely gill nets, cast nets, dragnets. The Meristic and morphometric characters measured and fishes were identified up to the species level, with the help of standard keys and books (8, 11, & 16). The results of present investigation reveal the occurrence of 11 fish species belonging to 6 orders, 6 families and 11 genera. From present study, we concluded that Kava Lake is rich of fish diversity.

Keywords: *Fish diversity, Kava Lake, Fresh water fish.*

Introduction: Fisheries are an important sector in India contributing to about 6.3% to global fish production. Indian fisheries sector contributes around 1.1% of total GDP and 5.15% of agriculture GDP of country (Ayyappan, 2006). With third place among fish producing countries in the world, India recorded total fish production of 0.76 million metric tonne 2016 through involvement of 15 million people in different fishery activities for their livelihood and revenue generations.In India, Maharashtra is one of the important states for fish production and natural water resources and there is great scope for developing fisheries in this state. Fish diversity is declining rapidly each day due to unending human stress and pollution. Study of biodiversity is not only wealth of world but it is some serious issues in food chain also. Thus, there is an urgent need for proper investigation and documentation of this fish diversity in order to develop a freshwater fish diversity information systems regarding their habitat. India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of freshwater mega biodiversity [7]. India there are 2,500 species of fishes of which 930 live in freshwater and 1,570 are marine [9]. Ichthyodiversity refers to variety of fish species; depending on context and scale, it could refer to alleles or genotypes within fish population to species of life forms within a fish community and to species or life forms across aqua regimes [10]. Fish constitutes half of the total number of vertebrates in the world. They live in almost all conceivable aquatic habitats. 21,723 living species of fish have been recorded of and Commercial fishes of importance were found in vertebrates out of these 8,411 are freshwater species and 11,650 are marine. India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of freshwater mega biodiversity [2]. In Maharashtra**,** Latur district is endowed with substantial resources such as rivers, reservoirs, lakes, village lakes, etc. These resources produces substantial amount of fish catches which are mostly sold in local and domestic markets the entire district. Latur is situated on the Balaghat plateau, 540 to 638 meters from the mean sea level. Manjara is the main river which flows on the Balaghat plateau along with its tributaries: Terna, Tawarja and Gharni. The present study was carried out to know fish diversity of Kawa Lake (18.3651° N, 76.5792° E) which is situated near to Latur town

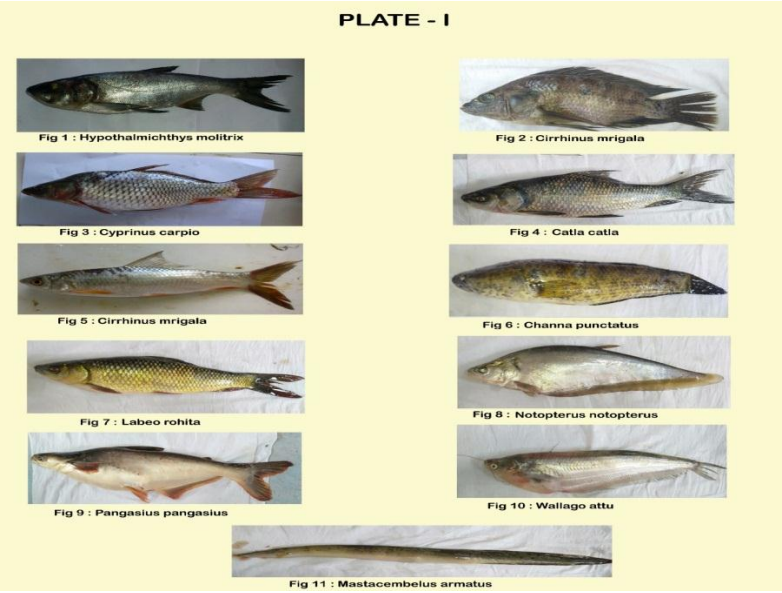
Materials and Methods:

Fishes were collected from Kava Lake Dist. Latur (M.S.) India with the help of local fishermen using different type of nets namely gill nets, cast nets, dragnets. Immediately photographs were taken with help of digital camera. Fishes brought to laboratory were preserved in 10% formalin solution in separate specimen jar according to the size of species. The Meristic and morphometric characters measured and fishes were identified up to the species level, with the help of standard keys and books (8, 11 & 16).

Observation:

Table: The Fresh Water Fish diversity of Kava Lake Dist. Latur (M.S.) India.

Order	Family	Scientific Name	Common Name	Groups of food fish
Cypriniformes	Cyprinidae	*Catla-catla* *Labeo-rohita* *Cyprinus carpio* *Cirrhinus mrigala* *Hypothalmichthys molitrix*	Catla Rohu Common carp Mrigala Silver carp	Carps Carps Carps Carps Food fish
Perciformes	Channidae	*Channa punctatus* *Oreochromis mossambica*	Spotted snake head Tilapia	Live fish Food fish
Osteoglossiformes	Notopteridae	*Notopterus notopterus*	Pholi or Pabda	Food fish
Synbranchiformes	Mastacembelidae	*Mastacembelus armatus*	Baam	Food fish
Siluriformes	Siluridae	*Wallago attu*	Pari, Parhin	Food fish
Siluriformes	Pangasiidae	*Pangasius pangasius*	Surmai	Food fish



Results and Discussion:

In the present fish diversity study, species of 11 different genera belonging to 06 families and 06 orders recorded from the Kava Lake Dist. Latur (M.S.) India. The members of Order Cypriniformes were dominated by 05 species followed by Perciformes with 02 species, Osteoglossiformes 01 Spices, Synbranchiformes 01 Species and Siluriformes 02 Species, with 11 species was dominant group in the assemblage composition in which *Catla-caltla*, *Lebeo rohita*, *Cyprinus carpio*, *Cirrhinus mrigala* and *Hypothalmichthys molitrix* were found most abundant. Fishing operations were carried out for nine months with low in monsoon compared to high in post monsoon. It is suggested that the fishery authorities should investigate and practice the proper exploitation and management of this spot fishery resources according to ecological principles [12]. It was concluded that further studies may be done to develop techniques for fish culturing. The use of illegal methods to catch fish should be banned in this area to prevent further depletion of freshwater fish resources. The fisherman's should make aware about fishing, scientific training and facilities should be made available to the fish farmers fishing of the spawn, larval fish [10]. The work will provide future strategies for development and fish fauna conservation at Kava Lake Dist. Latur (M.S.) India. The Identification of fishes is given Photoplate in that Fig 1 is Broad head spines are absent. Gill membrane broadly united and free from isthmus. Gill rakers are more or less fused, Fig 2 is Body fairly deep and laterally compress. Upper profile is convex, mouth large, maxillary nostril and eye. Fig 3 is Mouth terminal, dorsa fin arises opposite the ventral but much longer, scales are very large lateral line

incomplete, caudal forked. Fig 4 is Mouth is up turn. Dorsal fin commence in advance of ventrals, Lips are thick and unfringed, lower lip is not provided with tubercles, Barbles are not present. Fig 5 is Lips are thin and do not continuous at the angle of mouth is transvers and sub-terminal in position. Snout does not over hang the mouth. Fig 6 is Head broad and flat covered with large scales. Eyes are lateral single dorsal which is ling and spineless, anal fin is short. Ventral fin is with six rays. Fig 7 is Snout obtuse depressed and projected beyond the jaws, no lateral lobes present Lips thick and fringed but with distinct inner fold. The gill rakers are stiff not set closely. A short and fine pair of maxillary barbles are present, sometime dorsal pair may present. Fig 8 is Body oblong, compressed and keeled, caudal region is long and tapering, head scaled. Anal fin very long (100-135 rays) and is confluent with caudal fin (8). Fig 9 is Body is elongated and compressed, head is slightly granulated above, and eyes are situated in the anterior half of the head (11). Fig 10 is Cleft of the mouth is very wide and oblique extending posteriorly beyond the orbit. Caudal fin is forked with unequal lobes. Body transparent (necked). Barbles are,tremely long. And Fig 11 is Snout not transversely situated and striated on the ventral side. Distinct pre-orbital spine is present. No black ocellus along the soft dorsal fin (8).

Conclusion:

Kava Lake water resource for human consumption and also helpful for the agriculture and fisheries in Kava Lake, District Latur. Investigation was carried out during the study period from Jun 2020 to May 2021. The present paper deals with the variety and abundance of freshwater fishes in Kava Lake, District Latur (M.S) India. The results of present investigation reveal the occurrence of 11 fish species belonging to 3 orders, 4 families and 12 genera. So we concluded that Kava Lake is rich of fish diversity.

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Study of Symptoms of Covid-19 from the Maharashtra Region

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Abstract:

In order to deal with any infectious and non-infectious disease, is necessary to acquire knowledge of their symptoms. Many of the most common symptoms are shared with those of the common flu or cold. So it is also good to know which symptoms of the common flu or the common cold are not symptoms of COVID-19. COVID-19 infection seems to rarely cause a runny nose. For this present study Online ***Google Form Survey*** *has been adapted for the collection of data of symptoms of Covid-19. The results from the present study conclude that the respondents were diplomatic in their answers and only few were obvious to the fact. The focus of our finding include the views of symptoms of covid-19. From our study we have identified certain symptoms are common in covid-19. But, the some symptoms were seen varied in all the cases. Around 93.4% people are completely recovered from covid-19 and 6.6% people are not completely recovered and are suffering from continuation of different symptoms, such as cold, fever, skin infection, weakness, sensitivity in ear etc.*

Key Words*: Covid-19, Symptoms & Google Form*

Introduction:

In order to deal with any infectious and non-infectious disease, is necessary to acquire knowledge of their symptoms. After knowing the symptoms of infection and disease it will be easy task for treatment to patients. It is necessary to know the major and minor symptoms occurring in Covid-19. As there is a variation in symptoms all over the world. The common major symptoms all over the world. The common major symptoms seen is fever and a dry cough. As these symptoms are seen in common flu and cold accordingly how they differentiate in Covid-19 with other symptoms also is important to study for in the invention of vaccine. It is important to know how common the various symptoms of COVID-19 are, as it allows an assessment of whether one suffers from the disease or not. Knowing the frequency of symptoms means knowing virulence of it. Many of the most common symptoms are shared with those of the common flu or cold. So it is also good to know which symptoms of the common flu or the common cold are not symptoms of COVID-19. COVID-19 infection seems to rarely cause a runny nose. On 29 December 2019, Chinese authorities identified a group of similar cases of pneumonia in the Wuhan city. Wuhan is the capital of the Hubei Province with 11 million population. These cases were soon determined to be caused by a novel corona virus that was later named SARS-CoV-2. [5]. Coronaviruses are a group of viruses that are common in humans and are responsible for up to 30% of common colds [1]. Corona is Latin word for crown, 'The viruses of this group give this name because they showing crown like spikes on surface under microscope. Two outbreaks of new diseases in recent history were also caused by coronaviruses – SARS in 2003 that resulted in around 1,000 deaths [8] and MERS in 2012 that resulted in 862 deaths [7]. The first patient of COVID-19 outside of China were found on 13 January 2020 in Thailand and on 16 January 2020 in Japan. On January 23rd, the Chinese Government declared lockdown in the Wuhan and other cities in that region. Since then COVID-19 has spread to worldwide and cases have been reported in all regions. You can see the latest available data in the dashboards of cases and deaths which are kept up-to-date by Johns Hopkins University pandemic [9]

Material and Methods:

The present survey was conducted in Maharashtra, India. The symptoms of Covid-19 survey study were done from the populations of random sampling which included people from Maharashtra Region. In this symptoms survey of covid-19 method, 121 individuals of infected population were responded. For This **Online Google Form Survey** has been done for the collection of data of symptoms of Covid-19. Self-administered questionnaire was used to collect the data. Symptoms data has been tabulated and records are represented in the form of graphs. A Google Form questionnaire containing set of 30 questions. A Google Form was shared and data collected from January 2021 to April 2021. The responses of different types of symptoms were collected and counted based on the option specified for each question formed

Observations and Results:

Fig. 1: Distribution of people with respect to gender in our survey

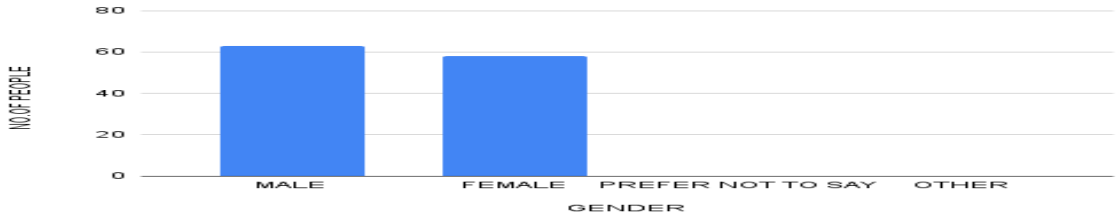


Table 1: Observed symptoms of Covid -19 from our survey from MH

SYMPTOMS	YES	NO	% YES	S.D
Headache	84	37	69.4	41.7695
Cough	78	43	64.5	17.65172
Cold	78	43	64.5	17.65172
Fever	81	40	66.9	20.83035
Difficulty in breathing	60	61	49.6	6.31295
Throat infection	77	44	63.7	16.60311
Taste disorder	89	32	73.6	29.48649
Nausea	60	61	49.6	6.31295
Vomiting	60	61	49.6	6.31295
Weakness	97	24	80.2	38.23105
Body pain	89	32	73.6	29.48649
Diarrhea	62	59	51.2	5.574944
Joint pain	74	47	61.2	13.50309
Skin infection	57	64	47.1	8.491368
Allergies	58	63	47.9	7.692204

Fig. 2: Graphical representation of table- 1: Observed symptoms of Covid -19 from our survey from survey of MH

Scale
On X axis- Types of symptoms
On Y axis- % of symptoms

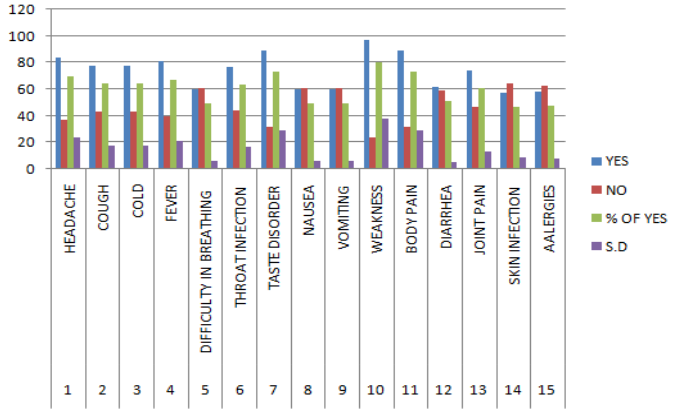


Fig. 3: The frequency of virulence of Covid-19 from survey of MH

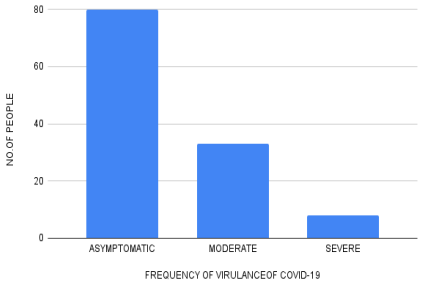


Fig. 4: The difficulty in breeding by Covid-19 from survey of MH

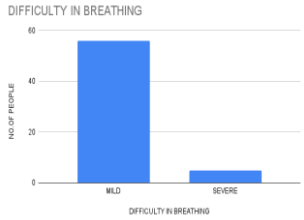


Fig. 5: % of affected of mental status / stress by Covid-19 from survey of MH

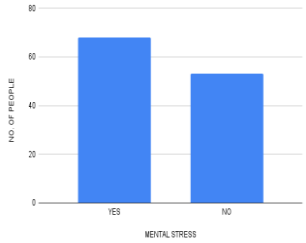
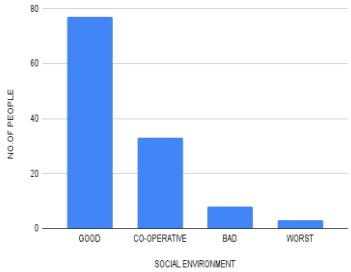


Fig. 6: % of affected Social status by Covid-19 from survey of MH



Result and Discussions:

Covid-19, a new and sometimes deadly respiratory syndrome that is believed to have originated in a live animal market in China, has spread rapidly throughout the world. The newly found corona virus was first identified in Wuhan, China in December 2019. Tens of thousands of people were infected in China, with the virus spreading easily from person-to-person in many parts of that country [15]. Health officials and the world are working to contain the spread of the virus through public health measures such as social distancing, testing, quarantines and travel restrictions. Novel corona virus outbreak was declared "A public health emergency of international concern" on January 30 by World Health Organization (WHO). On March 11, 2020 after sustained spread of the disease outside of China, the WHO declared the COVID-19 epidemic or pandemic [3].

Impact of Covid-19 on human life:

In the present survey 62 males and 59 females are infected by novel corona virus (Covid-19) [Figure 1]. According to our survey 69.4% people suffering from headache. Cough and cold these symptoms are seen in 64.5% of people. Fever is seen in 66.9% cases. 49.6% people shows difficulty in breathing. Throat infection seen in 63.7% people. Nausea and vomiting these symptoms are seen in 49.6% cases. Weakness is the major symptoms which is seen in 80.2% people. Body pain seen in 76.3% people. Diarrihea is seen in around 51.2% cases. Skin infection and Allergies are rarely seen symptoms in 47.1% and 47.9% people respectively [Table 1 & Fig. 2]. The blue color in graph shows individuals suffering from different types of Covid-19 symptoms. Red color in the graph represents respective symptoms not seen in an individuals. Green color bar indicate that percentage of people which are suffering from different symptoms. Purple color shows standard deviation of respective symptoms. A lowest standard deviation values indicate that the values are more or less equal in amount or close to each other. The highest standard deviation values indicates that the symptoms are spread in wide range. A lowest standard deviation values like 5.5749, 6.3129, 6.3129, 7.6922, and 8.4913 seen in diarrhea, nausea, vomiting, and allergies and in skin infection respectively. A highest standard deviation values like 41.7691, 20.8303, 29.4864, 38.2310, 29.4864 seen in headache, fever, body pain, weakness, taste disorder respectively [Figure 2].

The frequency of virulence of Covid-19: Asymptomatic condition is seen in 79 people. Moderate condition is seen in 36 people. Severe condition is seen in 5-6 people [Figure 3].

Difficulty in Breathing: 61 people suffered from difficulty in breathing problem. Out of them 56 people were in mild condition in breathing and 4-5 people were suffered from severely from this problem [Figure 4]. **Mental status during Covid-19:** According to the survey 53.7% people were suffering from mental stress during Covid-19 and 46.2% people not suffering from mental stress during Covid-19 [Figure 5]. **Social Status/ Social Environment during Covid-19:** It is observed that in 50% cases social environment was good. In 30% cases social environment was co-operative. In 10-15% social environment was bad and in 4-5% cases social environment was worst people were not co-operating with patients [Figure 6]. The analysis showed that fever, cold, headache & body pain are the common symptoms seen in people. Base on the study, it was found that 79 people shows asymptomatic 33 people shows moderate 15 people shows severe type covid-19 infection.In addition to this Agriculture and Food Processing, Capital Market, Tourism and educational Systems are adversely affected by impact of Covid-19 (WHO).

Conclusions

The results from the present study conclude that the respondents were diplomatic in their answers and only few were obvious to the fact. The focus of our finding include the views of symptoms of covid-19. From our study we have identified certain symptoms are common in covid-19. We can say that according to the result, Headache, Cold, Cough, Fever, Taste disorder, Joint pain, Weakness are the major symptoms observed in maximum number of people in normal condition. Age group above 50 years has been seen affected by severe symptoms. Age group 21-28 are maximum affected by covid-19, according to survey. Nausea, Body pain, Vomiting, Diarrhea, Skin infection, Difficulty in breathing are seen in mild condition and rare cases. The first symptoms is seen varied in all the cases .Around 93.4% people are completely recovered from covid-19. About 6.6% people are not completely recovered and are suffering from continuation of different symptoms, such as Cold, Fever, Skin infection, Weakness, Sensitivity in ear**.**

Recommendations: As from result and conclusion we come to know that Covid-19 shows different types of infections and to avoid that we recommends the people to avoid contact of infections, build up immunity by acquiring balanced diet and daily physical exercise. Also go for the vaccination of covid-19 and follows the slandered rules or government strategies to fight against it.

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" Utilization Of Fund In Academic Libraries "

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Abstract:

The purpose of this paper is to look into how academic libraries utilize their finances. The study first looks at the various sources of funding for libraries. After receiving funds, they must be organised in order to prepare a budget. Once budget is formed, the process of allocating funds for specifics ones. Allocation alone cannot do anything; thus, the structure of allocation must be followed their utilizations. Libraries faced plenty of issues when it came to utilization. Any problem, on the other hand, has its unique answer. The utilization process cannot be completed without an audit. Finally, the author expresses his personal views on academic library finance and budgetary management.

Key words:

Budget Allocation, Fund Utilization, Financial Management Of Academic Library.

Introduction:

An academic library is a library that is associated to higher education. Hence Academic libraries are those that are affiliated universities. It is difficult to overlook the importance of finance in providing high-quality library services. It binds the library's structure, collection, and employees together and helps it to achieve its objectives. Funds can also be called the library's soul. Any library's effectiveness is limited by the lack of funds. Essential resources, an attractive building, well-trained employees, and modern data storage and retrieval techniques can only be appreciated if users receive exceptional service. Without enough funding, these services cannot be given. The majority of library funding comes from state and central governments.

The information needs of the users can be fulfilled with sufficient funds. Generally, the library is a part of a larger organisation. As a result, the parent body is the proprietor and is entirely responsible for its finance. These funds are generally used to meet only financial requirements. The institute's libraries provide a basic service that impacts the entire institution and without which it would stop functioning as a resource centre. As a result, proper funding should be seen as a mandatory requirement for effective development.

Sources of funds:

Constant supply of customised, value-added services that meet the information needs of users. The funds appropriated to a library, as well as its expenses, are included in library financing. Libraries depend completely on a constant source of income to run its activities, programmes, and services. There are two kinds of financial support for libraries: recurring and nonrecurring. Recurring grants are typically used to funding the acquisition of books and magazines, the maintaining of regular services, and planned unexpected expenses. Non-recurring funds are provided for particular objectives such as library construction, furniture and equipment purchases, and occasionally special collections. The third sort of ad hoc funding is provided on rare occasions based on particular purchasing suggestions.

1. Regular grants from the parent organisation or the national/state government (a percentage of the budget and/or public funds earned through taxes) are the primary source of funding for any library.
2. Ad hoc donations from other departments/institutions (public fund), private national agencies, endowments, and non-profit organizations, as well as certain foreign or international assistance.
3. Fines and other sources: Some libraries charge late fees for books returned late, as well as for the loss or misuse of library cards and books. This is an extremely low-paying source of income.
4. Fee-based services (self-generated fund): Fees, subscriptions, service sales, and other revenue sources for the library are one-time, non-recurring, and often intended for specific uses with constraints on reallocation and use.
5. Gifts and donations (Mobilizing library funds): organising book exhibitions and other sales on the premises by the "Friends of the Library organisation." Donations and gifts are a great way to supplement money for special projects.

Preparation of Library budget:

The main librarian is in charge of budget preparation, as well as allocating and administering funding within the library's overall activities and services. Before the final consolidation, the librarian reviews the budget recommendations with the sectional and departmental leaders. The institution's budget requirements are filled out in a proforma that has been approved. There are two types of historical budget proformas typically used in academic libraries. i) A schedule of staff salary and allowances; ii) A schedule

of expenses on all other things. The following headings are included in the schedule of expenses for all other items: Salaries, Allowances, and Establishment Gratuity, contribution to the provident fund Additional recurring expenses, Binding, stationery, postage, and contingency are all things that need to be considered. Back issues of books, magazines, and back issues of back issues of back issues of back issues of back issues of Other out-of-pocket expenses, Construction or expansion of a library building, library building maintenance Purchase and repair of furniture, as well as other equipment Additional personnel are hired for a specific period of time and for a specific reason, such as processing books for special purposes, special collections, and so on.

Allocation of Fund:

The allocation of funding could have been based on previous practises and performance, differential publication rates and inflation nut, degree of demand, actual use, and the library or information centre's overall programme. Actual distribution could be based on departments/units, subjects, material type, consumers, language, or format. Such a distribution of funds allows for greater control and monitoring of funds, as well as the best chance of achieving a fair balance in the development of programmes and services. A strict allocation, especially for collection development, may make it difficult to shift funds from one account to another, resulting in underspending in some circumstances when other heads run out of cash. Furthermore, approval, blanket and standing order plans, as well as the construction of reference, general, and special collections, may not fit into any heads. Furthermore, combining the needs with the available funds becomes challenging, time-consuming, and even after significant efforts, it may be impossible to construct models. It should be noted, however, that in a small library, such specific funding arrangements may not be essential.

Utilization of Fund:

The distribution and use of funds at an organization's disposal on its many operations constitutes the use of funds based on perception. Varied Education Commissions, Committees, and Agencies have proposed various library spending criteria, ranging from 6.25 percent to 20 percent of overall university spending.The University Education Commission (1948-49) suggested that the university library get 6.25 percent of the entire university budget. For the time being, the UGC Library Committee (1957-65) proposed that library grants be set at Rs 15 per student and Rs 200 each teacher and research fellow. In its report, the Kothari Commission (1964-66) suggested that the library grant be set at Rs 25 per student and Rs 300 per teacher. The Karnataka State Universities Review Committee (1979-80), chaired by K.N. Raj, suggested that the library receive 20% of the university budget. The Ranganathan Committee (1957) recommended allocating funds "at the rate of Rs. 15 each enrolled student and Rs. 200 every instructor and research fellow." Under the chairmanship of Kothari, the Kothari Education Commission (1964-66) was established. Dr. D. S. Kothari was a recognized expert in India's university library history. This Commission has proposed allocating 6% of the overall budget to libraries. Depending on the stage of development of each university library, a university should spend roughly Rs.25 per registered student and Rs.300 each instructor [of the overall budget] each year.A special US fund known as the "Wheat Loan Programme" provided supplementary funding to several libraries. In 1951, the American Congress enacted a special act known as "Public Law 480" to provide India with a loan of $ 19,000,000 to purchase much-needed wheat (two million tons) from the United States. Under the terms of the loan, India was required to purchase $ 50,000 worth of American books, magazines, and scientific equipment for use in Indian libraries for research purposes. This was money India had to pay as loan interest. A portion of the funds would be used to fund scholarly exchanges between the two countries, including librarians.

Fund Audit:

The financial audit stage of the process allows for a thorough but limited examination of financial transactions in order to maintain sufficient control over irregular, unnecessary, and wasteful expenditures. Auditing is the examination of government and semi-government organisations' financial transactions. It allows you to keep track of your spending and prevent it from being irregular, improper, or wasteful. It is regarded required by the authorities in order for them to be satisfied. External/central/statutory auditors frequently conduct a post-audit of libraries and information centres, looking into the loss of reading materials, problems in supply chain, and unpaid advance payments and supplies. In our country, audit systems are common, and government offices and libraries frequently follow post-audit procedures. Random audit is another type of audit. It is sorted at the end of the financial year. Although not every item is verified, certain months are chosen at random. In autonomous entities when the audit is under the local fund account, the pre-audit system is commonly used. No item can be passed for payment unless it has been audited first in the event of pre-audit. The pre-audit system relieves the drawing/disbursing officer of some of his responsibilities. An internal audit team as well as an external audit team conduct audits.

Problems faced in fund utilization:

So many challenges presently facing libraries, challenges that are shared by all libraries, large or little, academic or research, private or public? Budget constraints, changing technologies, job training and professional promotion, communications, library management, decline users, the transition from print to digital, and keeping up with new innovations and policies are all possibilities. The following are some of the fund-related challenges:

1. Libraries have been limited by the lack of financing for several years and hence are unable to meet their goals.
2. Most academic libraries depend on government funding through their parent university, but the money they receive is a small percentage of what the parent institution receives from the government, which is insufficient to support library services.
3. Most academic libraries lack a fundraising strategy, thus they are unsure what to do to keep their services going. Academic libraries lack a documented advocacy strategy and hence are unable to effectively market their services to potential customers.
4. The display culture in academic libraries is new velocity. Because some libraries lack exhibition space, they are unable to promote themselves.
5. The library does not arrange public lectures.

Solutions for appropriate fund utilization:

Everyone would join in marketing to ensure that libraries fulfil their mission if there is a written plan that is included in the library's strategy objectives. Some of the ways libraries can advocate are through exhibitions that should focus on various activities within the library, what they have been able to achieve over time, to prove how important the library is and what they are currently doing to ensure that all users are satisfied, as well as selling the library's image rather than just focusing on current events. A public lecture serves to improve the library's image; thus, librarians should be concerned with more than just providing services.

Conclusion:

If budgets are properly implemented and maintained, they will result in a favourable change in the supply of library services to researchers. Funds allocated for libraries should be used to acquire library items and improve service delivery, as well as to increase the number of employees available to effectively provide critical services to the thronging library users As a strategy of marketing their libraries and services, librarians should start a positive report and harmonious working relationship with academic staff, the Rector, Bursar, and other main officers. This is an excellent method for gaining the most support for increased library funding.

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R. K. Laxman's Cartoons: Divulgement of the Flood Risk Mismanagement

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Abstract:-

The on-going debates, views and discussions regarding the second language teaching and learning suggest the pressing need of exploring the inventive strategies and materials. The theorists, practitioners, and teachers have been trying their best to look up for teaching and learning process and thereby materials for teaching. The conventional as well as traditional pedagogical set up has well defined roles for the teacher and the learner. However, it results into repetitiveness and monotony. A glance at the history of language teaching shows that some materials are given significance while others are marginalized from the mainstream. These materials have been categorised under two categories such as authentic and fabricated. In this regard Nunan (1999) defines, "authentic materials as spoken or written language data produced in the course of genuine communication and not specifically created for the purposes of language teaching" (Patil 2012: 20). It is interesting to note that cartoons can be used as authentic material for teaching and learning of English language. In general, a cartoon is defined as a drawing depicting humorous, amusing situations, often accompanied by a caption. It is also considered as a drawing representing current public figures or issues. The basic aim of a cartoon is to draw attention, consideration towards contradictions in social and political spheres of human life. Laxman's cartoons can be studied by applying various aspects of pragmatics, theoretical and grammatical aspects. Laxman's cartoons are pregnant and fully loaded with multiple dimensions such as syntactic, semantic, structural, etc. Laxman's cartoons divulge the multiple socio-political, economic, and geographical dimensions of the country as well as world. The present research paper is going to discuss one of the Laxman's cartoons focus on the flood mismanagement of the State as well as country and its impact on the common people.

Keywords: - *Cartooning, flood, risk, mismanagement.*

Objectives:-

1. To explore the socio-political ambiance through the language of cartoons.
2. To study narrative devices in the light of linguistic measures, like speech act theory, politeness & co-operative principles.

Hypothesis:-

1. Application of pragmatic theories to Laxman's cartoons can open up possibilities of developing teaching material can be explored.
2. R.K. Laxman's cartoons are effective for the teaching of Indian socio-political, economic culture very effectively.

Methodology: -

For the present research paper, the researcher has used explorative method. Laxman's cartoons will be read and selected cartoon will be studied by applying socio-political and economic dimensions.

Introduction:-

Every reader takes pleasure by reading cartoons because they make us smile and invite our cognizance to something that is unexpected, different, extraordinary, uncommon, unique, and out-of-the-way. Cartoonists consider every field on the planet and under the sky. Cartoonists foreground prominent personalities in the arena of socio-political, historical, geographical and economic conditions and events of day-today life. The basic value of the art of cartooning is to teach and correct wrongdoings and follies. Cartoonists twist the images of political personalities to point out their drawbacks without giving them trouble. Cartoonists endeavor to look and focus behind curtains. Cartoons pass satirical comments on everyday events. They are a regular feature of Indian newspapers. Cartoons and their captions pass pinching remarks and comments over the follies, recklessness, thoughtlessness and carelessness of society. However, in the twenty-first century the art of cartooning is threatened by orthodox fundamentalists. The so-called rabid and unwell mentality people have killed Charlie Hebdo. It is also observed that artists run a risk in the present century. However, it did not happen with the legendry cartoonist who passed away on twenty-sixth January 2015. His name is R. K. Laxman who has left behind a wealth of cartoons for readers to read and enjoy. Unfortunately, with his passing away the curtain comes down on an era of humour. He was playful, ironical, astute yet childlike, and razor-sharp but malice-free. According to a well-known Reporter Rajadhyaksha of Times of India, "Laxman as a cartoonist chronicled India's political journey for six decades, Laxman lampooned virtually every known politician, caricaturing both the emperors in Delhi and the regional satraps who appealed to his eyes for the ridiculous. His eloquent brushstrokes, which captured the quintessence of a personality so amazingly, rendered his caricatures legendary and made for

cartoons that could evoke a belly laugh even without the crutch of punch line (though his verbal lines were as his artistic ones). His greatest gift, of course, was the Common Man, that eternally bewildered symbol of millions of Indians, who looked on mutely as political charlatans and criminals took the country for a ride (TOI; 28th Jan, 2015:11)".Cartoon plays diverse functions as an art form. The cartoon keeps amused as well as plays didactic, educative and corrective roles in the society. Cartoons help to wash out the evils from the society in a democratic way. Cartoons laugh at the follies and the pretentious tendency of the political leaders. A cartoonist shows rational opposition against the irrational behavior of society. The cartoons generate the social awareness. An art of cartooning offers oblique or slanting messages to the society.

Luckily the situation doesn't seem that bad. So far no minister has shown up to do an aerial survey of the flood-hit areas.

The above cartoon is the best example, which talks about the mismanagement by the State as well as the Central government of India. This cartoon comments on the diehard reality of our State. After every five year government changes but the management of the water resource never becomes successful. The management of natural resources is the forbidden dream for the people. The funds allotted to the dams, lakes, and rivers conservation goes into the gutter. The political leaders and bureaucrats' never give a chance to understand where the funds are gone. R. K. Laxman as a one of the best cartoonists' who tatters the distorted curtain under which all these responsible people are trying to safeguard themselves. The visual aspect of this cartoon is diametrically divergent to the verbal content or the caption. Indian monsoon is known for its positive as well as negative impact. The positive dimension of the monsoon is that agricultural production is the outcome of sufficient rainfall. The negative aspect is that it causes destruction across the country. Every year numerous parts of the country are flooded. Many villages, fields and even towns get submerged under rainwater. There is massive loss of life and property. Domestic animals and even human beings are swept away. Harvests are flown away. There is incalculable agricultural and economic loss every year. It is the poor and deprived who are hit hard. Diplomats, bureaucrats, government officers, Members of Parliament and Member of Legislative Assembly and ministers are in the in safe hand's zone. The poor and downtrodden are the worst sufferers. Their lives and properties are not covered under the LIC policies. Their fowl and livestock are not recovered under any insurance policy. The caption says that the flood situation does not give the impression of badness. But the picture clearly depicts that huts, rough houses and mud-houses are already completely under water. We perceive people sitting on thatched roofs. We also observe a goat desperately and dreadfully clinging to the roof top. Torrential rain has resulted into a huge expanse of flood water. The situation strikes a chord us of Samuel Taylor Coleridge's *The Rime of Ancient Mariner* where the poet says that there is water, water everywhere, but not s single drop to drink. The villagers look as if to be desperate and helpless. We can notice that there is no rescue effort being undertaken. The irony is that the flood situation is not declared to be critical unless it is surveyed by corrupted bureaucrats and ministers. So, it is like putting the cart before the horse. Obliviously, ministers will undergo an aerial survey from helicopters. The farmers incongruously say that they are made to believe that unless some minister carries out a survey and declares the situation to be serious, the government does not take cognizance as well as the rescue funds won't be declared for the victims. It is interesting to scrutinize the cartoon with reference to denotation and connotation. The denotation is that the situation is serious irrespective of whether a survey is carried out or not. The connotation is that even if the situation is serious, it will not be described so unless some minister does a helicopter survey and announces that the circumstances is indeed very worrying. It is not the only condition of flood affected areas but in the current situation of the COVID-19 pandemic almost all the ministers, and bureaucrats have been undercover themselves. They are not even in their areas to ask the

people either they are alive or dead. The above cartoon is the best example of Indian socio-political and economic conditions. At the end of the discussion the researcher wants to say that the art of cartooning helps us to focus on the deadly conditions of the common people. In the pandemic conditions cartoonists have been disclosed the sufferings and heart-breaking conditions of the migrants who are migrating from their working place to hometowns. Very few ministers and NGO's helped them in these lethal situations. The poets, writers, authors, cartoonists, dramatists and all other artists try to correct the follies of the society and happening in the society. They are not the enemies of the society. But they are the whistleblowers of the society. In the 21st century all such whistleblowers are in danger. They are imprisoned for the same purposes. They are ill-treated in the jail. The court and the system don't even allow them basic facilities. Now it's a time to awake otherwise it will be too late. As the cartoonist pinches the responsible people through cartoons, we have to ask the questions to the system and government for the fundamental needs, health facilities, and basic amenities, which is the fundamental responsibility of the government. These are the some of the messages are given by the cartoonist R. K. Laxman.

Recommendations:-

Following are the major findings of the study:

1. It is noted down that R. K. Laxman's cartoons don't focus on the controversial and debatable issues like casteism, caste politics and religious matters deliberately.
2. It is observed that the application of politeness principle, cooperative principle and speech act theory in general and R. K. Laxman's selected cartoons in particular proved to be very effective.
3. By understanding the nature of the linguistic beauty of captions under the cartoons, readers can understand and comprehend the personality, approach, and ways of life, attitudes and conditions in the country.
4. By applying the main theories and principles of pragmatics to Laxman's cartoons readers will take pleasure in and understand the internal layers of the situations and the depth of the problems.
5. The study focuses that Laxman's cartoons exhibit thematic multidimensionality as well as linguisticexperiments.

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Environmental Laws

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Abstract

Word "Environment" is most commonly used describing 'Natural' environment and means the sum of all living and non-living things that enclose an human being, or group of organisms. This research paper deals with various aspects of environmental protection law and policy in India such as various legislation for protection of environment, Role of Indian Judiciary in Environmental Protection etc.

Introduction-

The 'Environment' is very important for us to understand because it constitutes our surroundings and affects our capability to live on the earth. It comprises of the air we breathe, the water that covers most of the earth's surface, the plants and animals around us, and much more. It is therefore, very important to understand and value the importance of 'environment' in our daily life. In recent years, scientists have been carefully examining the various ways by which people affect the 'Environment'. They have found that we are causing air pollution, deforestation, acid rain, and other problems that are dangerous both to the earth and to ourselves. You may have heard of laws, rules and regulations to deal with the above mentioned situations. The Government in the last few decades has shown keen interest in protecting and promoting the environment and consequently enacted various Environmental Laws. This article aims at discussing the details about the environment and its laws. The lesson further focuses on the laws pertaining to the protection of environment from pollution and other environmental issues.

Meaning of Environment-

"Environment" is a difficult word to define. Its normal meaning relates to the surroundings, but obviously, that is a concept which is relevant to whatever object it is, which is bounded. Environment is a polycentric and multifaceted problem affecting the human existence. Today protection of 'environment' is a global issue as it concerns all countries irrespective of their size, stage or development or ideology. Today, the Interaction between society and nature is so extensive that the question of environment has assumed large proportions, affecting humanity at large.

Environment Law-

'Environmental Law' is an implement to protect and improve the environment and to control or avoid any act or omission polluting or likely to pollute the environment. An environmental legal system is essentially a set of laws and administrative rules which regulate the relationships and conflicts between all the people concerned with the environment, as well as defining the relationships between people and the environment itself. The Honorable Supreme Court in K. M. Chinnappa v. Union of India defined "Environmental Law" as an instrument to protect and improve the environment and control or prevent any act or omission polluting or likely to pollute the environment. In the Constitution of India, it is clearly stated that it is the duty of the State to "protect and improve the environment and to safeguard the forests and wildlife of the country". It imposes a duty on every citizen "to protect and improve the natural environment including forests, lakes, rivers, and wildlife". Reference to the environment has also been made in the Directive Principles of State Policy (Part IV) as well as the Fundamental Rights (Part III). The Department of Environment was established in India in 1980 to ensure a healthy environment for the country. This later became the Ministry of Environment and Forests in 1985.

1. Ministry of Environment and Forests (MoEF)

The Ministry of Environment & Forests (MoEF) is the nodal agency in the administrative structure of the Central Government for planning, promotion, coordination and overseeing the performance of India's environmental and Forestry policies and programmers. The primary concerns of the Ministry are implementation of policies and programmers relating to management of the country's natural resources including its lakes, rivers, biodiversity, forests and Wildlife, ensuring the welfare of animals, and the prevention and abatement of pollution.

1. The broad objectives of the Ministry are:
2. Anticipation and control of pollution;
3. Protection of the environment; and
4. Ensuring the welfare of plants & animals

2. The Constitution of India

The 'Right to Life' contained in Article-21 of the Constitution of India includes the right to clean and human environment. It means you have the right to live in a clean and healthy environment. Article-38 of our Constitution requires State to ensure a social order for the welfare of people, which can be obtained by an unpolluted and clean environment only. Article-48A of the Constitution declares "The State shall endeavor to protect and improve the environment and safeguard forests and wildlife of the country." Article-51 A(g) of the Indian Constitution says: "It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures."

3. The Water (Prevention and Control of Pollution) Act, 1974

The Water (Prevention and Control of Pollution) Act was enacted in 1974 to provide for the prevention and control of water pollution, and for maintaining or restoring of respectability of water in the country. This is the first law passed in India whose objective was to ensure that the domestic and industrial pollutants are not discharged into rivers, and lakes without adequate treatment. The reason is that such a discharge renders the water unsuitable as a source of drinking water as well as for the purposes of irrigation and support marine life. In order to achieve its objectives, the Pollution Control Boards at Central and State levels were created to establish and enforce standards for factories discharging pollutants into water bodies.

4. The Air (Prevention and Control of Pollution) Act, 1981

The Air (Prevention and Control of Pollution) Act, 1981 was enacted to provide for the prevention, control and abatement of air pollution in India. It is a specialized piece of legislation which was enacted to take appropriate steps for the preservation of natural resources of the earth, which among other things include the preservation of the quality of air and control of air pollution.

1. The prime objectives of the Act are the following:
2. Impediment, control and abatement of air pollution;
3. Establishment of central and state pollution control boards to implement the aforesaid purpose; and
4. To maintain the quality of air.

5. The Environment Protection Act, 1986

It was the Bhopal Gas Tragedy which necessitated the Government of India to enact a comprehensive environmental legislation, including rules relating to storing, handling and use of hazardous waste. On the basis of these rules, the Indian Parliament enacted the Environment Protection Act, 1986. This is an umbrella legislation that consolidated the provisions of the Water (Prevention and Control of Pollution) Act of 1974 and the Air (Prevention and Control of Pollution) Act of 1981. Within this framework of the legislations, the government established Pollution Control Boards (PCBs) in order to prevent, control, and abate environmental pollution. The objective of the Environment Protection Act is to protect and improve the environment in the country.

6. The Noise Pollution (Regulation and Control) Rules, 2000

There was no direct provision for 'noise pollution' under the Environment Protection Act, 1986 or any other legislation. The increasing ambient noise levels in public places from various sources like industrial activity, generator sets, loud speakers, vehicular horns etc. have harmful effects on human health. It was the need of the hour to come with a law which would regulate and control noise producing sounds with the objective of maintaining the ambient air quality standards in respect of noise. Therefore, the Central Government framed 'The Noise Pollution (Regulation and Control) Rules, 2000'.These rules have been laid down by the government to reduce environmental noise pollution. Certain standards, such as the ambient air quality standards, have been set by the government. The permissible levels of noise are different for different areas, such as industrial, commercial, residential areas and silence zones (area within the vicinity of hospitals, educational institutions or courts).

7. The Public Liability Insurance Act, 1981

This Act aims to provide immediate relief to the persons affected by accident occurring while handling any hazardous substance. It provides that every owner shall take out, before he starts handling any hazardous substance, one or more insurance policies providing for contracts of insurance. The objective of taking insurance is that the compensation resulting from the possible future accident is guaranteed. The collector of the area has been empowered to verify the occurrence of any accident at any place within his jurisdiction and also cause publicity to be given for inviting applications from the victims for any compensation. Apart from the insurance contract, the funding for the purpose of compensation is also generated by the Central Government by the establishment of "Environment Relief Fund." This fund may be utilized by the collector for paying the compensation.

8. The National Environment Tribunal Act, 1995

This Act is aimed to provide for strict liability for damages arising out of any accident occurring while handling any hazardous substance and for the establishment of a National Environment Tribunal for effective and expedition disposal of cases arising from such accident, with a view to giving relief and compensation for damages to persons, property and the environment and for matters connected with it. The beauty of this Act lies in the fact that the liability of the owner of hazardous substance has been made strict in case of any accident and the resultant injury to public. In any claim for the compensation, the claimant is not required to plead and establish that the death, injury or damage in respect of which the claim has been made was due to any wrongful act, neglect or default of any person. So, the burden of proof does not rest upon the claimant of compensation which is a big relief for the victims.

9. The National Environment Appellate Authority (NEAA) Act, 1997

The National Environment Appellate Authority (NEAA) was set up by the Ministry of Environment and Forests to address cases in which environment

Clearance is required in certain restricted areas. It was established by the National Environment Appellate Authority Act 1997 to hear appeals with respect to restriction of areas in which any industries, operations, processes or class of industries, operations or processes shall or shall not be carried out, subject to certain safeguards under the Environment Protection Act, 1986.

10. The Ozone Depleting Substances (Regulation and Control) Rules, 2000

The Ozone Depleting Substances (Regulation and Control) Rules have been laid down for the regulation of production and consumption of ozone depleting substances. The main objective of this rule is protection of the Ozone layer. The rule restricts unauthorized sale, purchase, import, export and use of ozone depleting substance.

Conclusion-

Given the increasing importance that the world community gives to the environment and its protection, there will be an increasing need for a stable legal framework to facilitate any potential growth or change. This, of course, means the establishment of more conventions, legislation, and rules in the sphere of environmental law. To facilitate this demand we will need more law professionals that are well versed in the intricacies of environmental law and the various rules and principles that it has been built on. As a result, environmental law will be a good area for up and coming lawyers to look into, especially in countries such as ours where the more traditional disciplines are fast filling up.

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Highly Sustainable Electric Power Generation By Solar Pv's

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Abstract *:*

Major energy demand in India jumps from 6 % today to 11 % by 2040.207 % to 4781 TWh by 2040 , accounting for 61 % of primary energy demand growth. Solar based power generation is gaining attention worldwide as it is environment friendly , & highly sustainable . Polycrystalline crystal solar collectors (each of 320W) are used to generate an energy of 481.66 KWh / Year (3.69 KWh / day). Increasing the no. of collectors to three can generate 1445 KWh / Year and from 7- to – 9 collectors 3420 KWh / Year. Increasing the no. of collectors to nine protected 10.5 KWh / day resulting in 4733 KWh / Year of electrical energy & the average annual consumption of a house is about 15360 W. Electricity power supplied by the M.S.E.B. Mahavitran company , to the Nilanga Taluka , Latur District Maharashtra , India. And this supply from the MSEB is too low as compared to the requirement of each household. This deficiency of 50 % of electric power can be mitigated by adopting the Hybrid Renewable Energy System (HRES). This study proposes a viable approach for improving the quality of life and proposes an effective solution for improving continuous power availability and reducing peak load demand in the Nilanga Taluka by the additional generation of electric power with the solar collectors. Generation of highly sustainable and vast available solar energy should be the driving force to the Nilanga region peoples.

Key Words *: Photovoltaic,Renewable Energy, MSEB, TEPS, Energy Analysis, Voc, HRES, EDNS.*

Introduction :

Dakkhan part in India is one of the solar belt areas having extended hours of intense sunlight. The amount of solar energy received can be used to generate electricity by solar Photovoltaic , which could exceed local consumption. This makes Nilanga region peoples highly self sustained of electricity power consumption. The average intensity of solar radiation received on India is 200 MW/Km square with a geographical area of 3.287 million Km square , this amounts to 657.4 million Mw. Most parts of India receiving 4-to – 7 KWh per square meter per day. Solar photovoltaic power can effectively be harnessed providing huge scalability in India. In addition to electricity generation from Thermal Electric Power Station (TEPS) Parli (V) , solar energy can also be utilized as an energy supplement. Electricity consumption in the Nilanga Taluka is increased by over 60% -to-90% from 2012 –to – 2020. [1]. Consequently TEPS Parli (V) is one of the power plant with total spending on coal as a fossile fuel. Nilanga is town with a Municipal Council and Taluka place in Latur district in the Indian state of Maharashtra. The latitude of Nilanga is 18.125875 and the longitude is 76.7550969with the gps co-ordinates of 18^0 7' 33.1500" N and 76^0 45' 3.4884" E . According to the 2011 census 2,89,083 peoples with 63,841 households are living in this Nilanga Taluka. In the next coming i.e. 2021 census , it is expected that the population of Nilanga Taluka will be 3,58,463 with 66,000 householders. Parli (V) TEPS is the nearest electricity power generating power plant with 6 units working with a capacity of 1380 MW, which uses coal as a primary fossil fuel. The use of rooftop for solar Photovoltaic (PV) installation and power generation is very important for the future of energy conservation and sustainability[2]. It was estimated that around 30 % of the domestic electricity needs could be generated from the rooftop installation, however, necessary govt. policy changes and an increase in Nilanga region people's awareness have to be undertaken by the respective stakeholders. [3]. In order to improve the use of rooftop certain policy changes and awareness among the peoples are recommended by the author.

Electricity Power Analysis :

On an average every households now using 90 units (KWh/ month). Electricity power requirement by the Nilanga region households everyday is too high i.e. 3,19,205 KWh. Where as actual electricity power consumed by these peoples every day is 1,91,523 KWh. This shows deficiency of 1,27,682 KWh every day. So as to mitigate this deficiency of electricity power consumption , Author recommends to make aware these Nilanga region peoples about the renewable energy as an alternative one & en-force them to install rooftop solar panels and make use of solar energy as a supplement along with the MSEB (Mahavitran Coy's) supply of thermally produced electricity power. Currently the total share of renewable energy sources accounts for less than 2 % of the total electricity generation. However this share of renewable energy sources is expected to increase very significantly following the Govt. policy to force for the generation of electricity by installing solar panels on the rooftop of every house in Nilanga Taluka , so that renewable energy will be increased and sustainable future will be built up .

Table No. 1. Daily Consumption & Actual Requirement Of Electricity Power In Nilanga Region.

Daily Consumption of Electricity Power by Nilanga Region Peoples i.e. by the 63,841 households	Actual Requirement of Electricity Power by Nilanga Region Peoples	Electricity Power Deficiency Every Day of the Nilanga Region Peoples	Installation of PV with adequate No. of Rooftop Panels by a household can generate Ave.Electricity Power Every Day
1,91,523 KWh / Day	3,19,205 KWh / Day	1,27,682 KWh / Day	3.69 KWh / Day

Initiatives By The Govt. : Govt. of India has proposed to set up 25 solar parks and Ultra Mega Solar Power Projects by 2020-21 , targeting over 40,000 MW of solar power was rolled out by Ministry of New & Renewable Energy on 21st march-2017.

Methodology :

If we connect a 15 kw grid rooftop Solar system , mounted on a 1-BHK single floor house in Nilanga Taluka to offset the electricity demand for that resident. Polycrystalline solar modules are used with an efficiency of 16.40 % and 320 W , as maximum power. These solar PV modules have high performance at low irradiance approximately above 96 % and power tolerance upto 5W above the rated power. The PV system comprises 16 PV modules connected in series to increase the DC voltage output and from a string to ensure that the open circuit voltage (Voc) of a PV array is within the Maximum Power Point Tracking(MPPT) operational window of the paired inverter[4]. Then three strings are connected in parallel to increase the output current to the desired value. These strings are connected to a 3 phase Alternating current (AC) strings inverter. The inverter uses a MPPT technology to harvest the maximum energy from the solar array and convert the main panel. This project also includes a flush mount system and a 10 degree tilt racking system on a flat roof. The azimuth angle of the plant is 175^0C South-East following the orientation of the building. The layout of the PV plant was calculated carefully to install as many as possible panels in the available roof area, avoid inter row shading, and maximize the plants performance. This PV plant will feed its produced power into the existing house network. The grid connection point is the main switchboard located on the ground floor. An additional safety breaker of 40A was added to this distribution panel, which will act as the interconnection point. A monitoring system has also been installed to ensure the control of the system remotely and monitor system performance and power production. The system has produced a maximum power of 15,360 W in perfect weather conditions, which can rarely be the case in real life because of DC to AC conversion losses, temperature losses, mismatch losses other losses. A 15 KW solar array can produce approximately 33000 KWh per year. A pyranometer is used to measure solar irradiance as well as irradiance by the earth's surface due to reflection of sunlight. The radiation data is measured for last three years during all months.

Solar Energy Potential In Nilanga Region :

In the Nilanga region the annual average daily solar irradiation exceeds more than 200 MW/Km^2 which includes Direct Normal Irradiance (DNI), Diffuse Horizontal Irradiance (DHI), Global Horizontal Irradiance (GHI), ambient temperature , wind speed , wind direction ,humidity and atmospheric pressure [5,6]. On an annual basis Nilanga region receives an average of 3.69 KWh/ day. This varies from month to month , with lowest in the month of July i.e. 2.41 KWh/m^2 per day and highest in the month of May i.e. 5.06 KWh/m^2 per day. There are undeniable benefits of integration of solar energy. But still some challenges that should not be over looked such as variability, intermittency and uncertainty availability of the solar energy output. So , Nilanga region peoples are made aware to use the Hybrid Energy System i.e. Renewable Energy System in addition with Non-renewable Energy System. Hybrid Renewable Energy System (HRES) is effective to increase reliability along with its indexes such as Expected Demand Not Served (EDNS) and loss of load probability (LOLP). A battery is attached to this HRES which will absorb the excess of solar energy and will provide the energy back to the grid in the event of insufficiencies of solar energy[7].

Table No. 2. Solar Radiation And Temperature Data In The Last Three Years

MONTH	2017-18		2018-19		2019-20	
	TEMPERATURE ^{0}C	RADIATION KWh	TEMPERATURE ^{0}C	RADIATION KWh	TEMPERATURE ^{0}C	RADIATION KWh
1	28.72	3.47	30.64	3.40	26.77	3.24
2	32.41	3.92	35.72	4.32	34.37	4.17
3	37.78	4.56	41.27	4.98	39.85	4.82

4	42.83	5.17	44.37	5.08	41.32	4.99
5	44.32	5.18	45.23	5.08	44.58	5.06
6	40.84	4.96	41.17	5.0	35.26	4.29
7	24.18	2.93	22.70	2.75	19.87	2.41
8	17.78	2.15	18.29	2.21	20.64	2.50
9	28.83	3.49	29.32	3.55	25.92	3.14
10	31.46	3.81	33.97	4.11	34.39	4.17
11	14.73	1.8	18.39	2.24	20.64	2.52
12	20.74	2.51	19.78	2.39	22.08	2.67

Results And Discussions :

Nilanga Taluka peoples are made aware for adopting the solar PV for the residential sector. To mitigate the deficiency of the electric power supply from the MSEB , Latur and actual requirement of a household , Hybrid Renewable Energy System (HRES) with the attachment of battery has to be installed by each and every households in this region. In order to improve the rooftop certain Govt. policy changes and reduction in cost through subsidies , low interest loans for individuals to purchase the components are recommended by the Author. A PV plant installed with many possible panels in the available roof area can produce a maximum power of 15360 W in perfect weather conditions. The radiation data is measured for last three years in all months and the average irradiance per day recorded. The average irradiance energy is 3.69 KWh per day. The results from the figures 1,2,3, shows that solar irradiation in Nilanga region is disrupted in the month of 7,8 [i.e. in rainy season] & in the month of 11,12 [i.e. in winter season] which would affect solar electricity power generation performance. Due to large fluctuations , the amount of solar energy that can be harvested in the month of 7,8,11,12 is less than in the other months of the year.

Fig-1. Ave. Solar Radiation In All Months For The Year - 2017-18

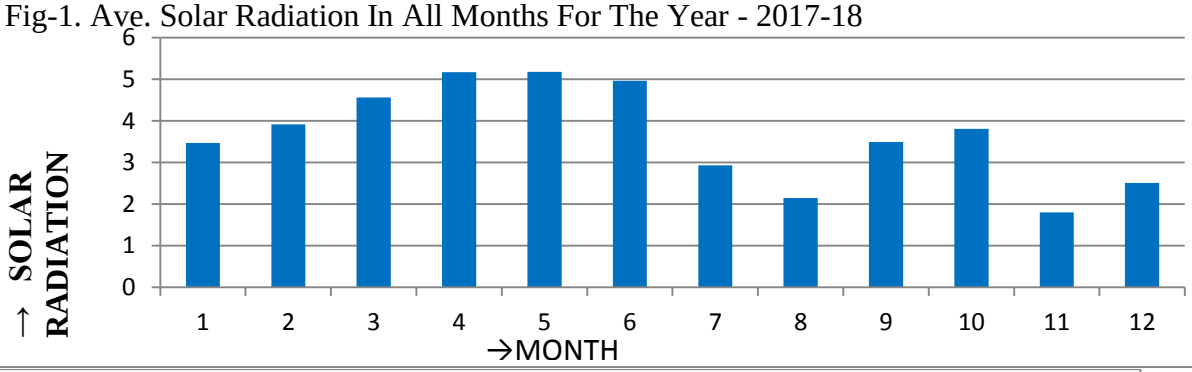
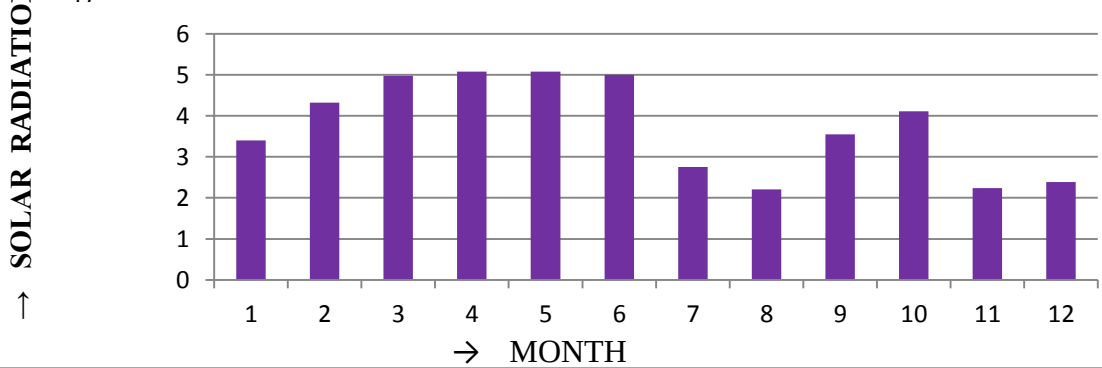
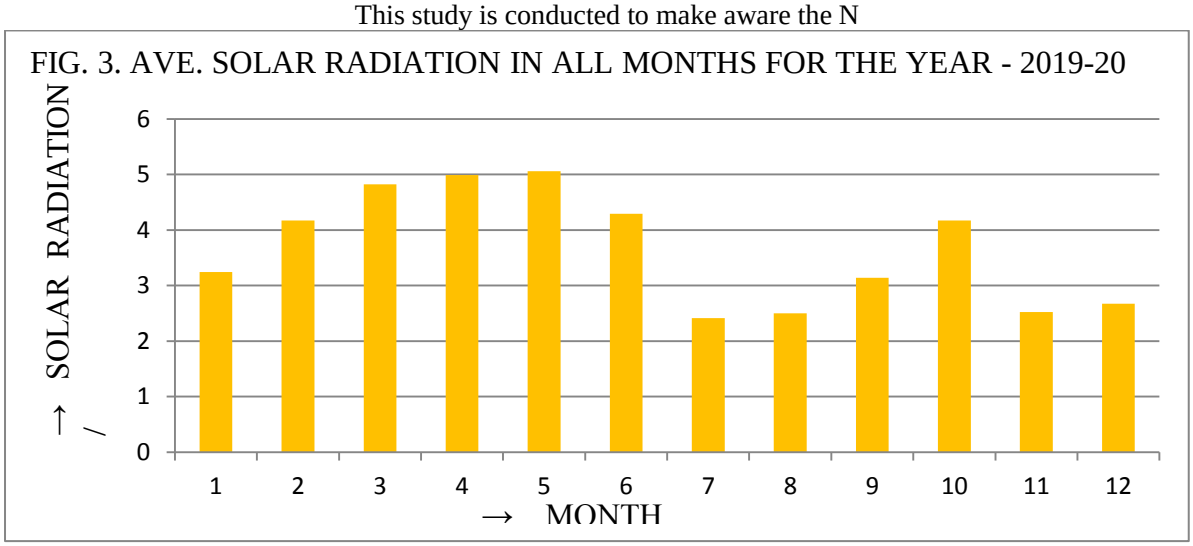


Fig.2. Ave. Solar Radiation In All Months For The Year - 2018-19



Conclusion :

This study is conducted to make aware the N



ilanga region peoples about the renewable energy as an alternative one & en-force them to install rooftop solar panels and make use of solar energy. Irradiation in all months was found to be significantly greater than in the month of 7,8,11,12. It is concluded that pairing of PV with battery to generate electricity is a highly sustainable and also cost effective solution to successfully meet the deficiency of electricity power demand by the Nilanga region peoples. Addition of battery reduces the losses and stores the excess of energy . The Hybrid Renewable Energy System with a battery has the potential to be adopted in the current system especially to upgrade and to mitigate the deficiency in electricity power requirement. Government has to establish free hand policies that can provide substantial financial benefits and can significantly boost the usage of solar roof top include establishing of net metering scheme which allows the solar owners to sell the excess electricity they generate from their rooftop solar systems to the grid. Harnessing the solar photovoltaic electricity power can effectively provide huge scalability in the Nilanga Taluka.

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A Study On Teenagers Behaviour Towards Online Buying In Kanyakumari District

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Abstract

The research study attempts to explore the teenagers' behaviour towards online buying. For the study a quantitative research method was used, and a sample of 50 respondents was selected through purposive sampling method. The primary data was used to fulfill the research objectives and self administrated structured interview schedule were used for the data collection. The research reveals that teenagers behaviour towards online buying in kanyakumari district. The researcher identified and investigate the factors of demographic profile of the teenagers, internet proficiency level, preference of online retailers, preference of product categories, amount spend for online buying and method of payment.

Keywords: *Buying Behaviour, Online Buying, Online Shopping, Teenagers.*

Introduction

Online shopping has become a trendy way for consumers. This new innovative pattern of shopping not only brings a great number and wide range of merchandise to consumers; it also offers a huge market and numerous business opportunities. In the past twenty years, we have witnessed the rapid development of the Internet and the geometric growth of the Internet users. Although the number of Asian Internet users was the highest in the world, the Internet penetration rate of Asia was lower than elsewhere. The penetration rate of Internet users in Asia was just higher than Africa, as at 30 June 2010, according to the Internet World Statistics (2010). The highest was North America with a penetration rate of 77.4%. We have been clearly feeling the tremendous change that was brought by the Internet, which has penetrated every corner of the world. From communication, education, and finance to entertainment, we can clearly see the application of the Internet. The Internet has resulted in a great revolution for every industry. The working efficiency, information transmission, and even cultural exchange have been unprecedentedly improved. Without doubt the Internet has influenced our lives deeply in which it plays an indispensable and irreplaceable role. This study helps to know their internet proficiency level, preference of online retailers, preference of product categories, amount spend for online buying and method of payment.

Statement Of The Problem

The online buying behaviour among consumer is growing every day. There are many benefits of online buying like time saving, access from everywhere, convenience, availability 24 hours a day, variety of products, various options available to compare products and brands. Beside the benefits of online shopping, consumer feel different type of perceived risk factors and psychological factors are involved in online shopping. The perceived risk could be financial loss, product performance risk, delivery risk and psychological factors like trust & security and website design. These perceived risk and psychological factors also determines the teenagers' behaviour towards online buying. The purpose of this study is to identify those risk and psychological factors which influences the buying behaviour of teenagers towards online shopping. Hence an attempt is made to study the teenagers' behaviour towards online buying in kanyakumari district.

Objectives

This study aims at analyzing the teenagers' behaviour towards online buying. The following are its specific objectives:

1. To study the demographic profile of the teenagers involved online buying.
2. To analyze the preference of online shopping retailers in the buying process.
3. To identify the expenditure pattern and method of payment for online buying.

Methodology

This study is based on collection of primary and secondary data. The primary data collected through questionnaire from 50 respondents of online users in kanyakumari. The researchers have selected the purposive sampling method to collect data from the respondents. In this study the teenagers behaviour towards online buying in kanyakumari district were described with the help of percentage analyses were made.

Analysis And Results

Table 1.1 Demographic Profiles Of The Respondents

Variable	No. of Respondents	Percentage (%)
Gender		
Male	12	24
Female	38	76
Age		
Upto 15	20	40
Above 15	30	60
Residential Status		
Rural	26	52
Urban	24	48
Family Monthly Income		
Below Rs. 5000	2	4
5000 – 10000	22	44
10000 – 20000	4	8
20000 – 30000	12	24
Above 30000	10	20

The demographic factors are such as gender, age, residential status and the family monthly income. Gender wise classification most of the respondent are female category (76%). The age wise classifications (60%) of the respondents are belong to under the age group of above 15. Most of the respondent belongs to rural area (52%) for their residents. The analysis of the family monthly income status of the respondents reveals that most of the respondents (44%) monthly income range Rs.5000 – Rs.10000 **Source: Primary Data** and many of them (24%) fall under the monthly income below up to Rs.5000. The respondents falling under less income group are less in number.

Table 1.2 Internet Proficiency Level Wise Classification

S. No	Proficiency on the Internet	No. of Respondents	Percentage (%)
1.	Novice	6	12
2.	Intermediate	28	56
3.	Advanced	16	32
TOTAL		**50**	**100**

The table 1.2 shows that the proficiency on the internet wise classification of the respondent out of 50 respondents (12%) of the respondents belonging to Novice. **Source: Primary Data** Most of the respondents belonging to Intermediate level (56%). (32%) of the respondents for their proficiency of usage of internet is advanced level.

Preference Of Online Retailers

There are numerous online retailers was available. The researcher identified online retailers such as amazon, ebay, sanpdeal, filpkart, and homeshop18. Inoder to find out highly preferred retailer by the respondents, the researcher applied percentile analysis. The table 1.3 shows that most of the respondents are preferred their online retailer is amazon (36%). (24%) of the respondents are preferred Snapdeal and flipkart. (8%) of the respondents are preferred ebay and homeshop18.

Table 1.3 Preferences Of Online Retailers

S. No	Online Retailers	No. of Respondents	Percentage (%)
1.	Amazon	18	36
2.	Ebay	4	8
3.	Snap deal	12	24
4.	Flipkart	12	24
5.	Homeshop 18	4	8
TOTAL		**50**	**100**

Source: Primary Data

Table 1.4 Product Preferences

S. No	Products	No. of Respondents	Percentage (%)
1.	CDs, Books & Magazine	6	12
2.	Mobiles & Electronics	12	24
3.	Home Appliances	2	4
4.	Computer Accessories	4	8
5.	Clothes	10	20
6.	Toys & Gift items	8	16
7.	Cosmetics	8	16
TOTAL		**50**	**100**

Source: Primary Data

The table 1.4 reveals product preference wise classification is (24%) most of the respondents are preferred to buy mobiles & electronics. (20%) of the respondents are preferred to buy clothes. (16%) of the

respondents are belonging to Toys &Gift items and Cosmetics products. (12%) of the respondents are belonging to CDs, Books & Magazine. (8%) of the respondents are preferred to buy Computer accessories, and (4%) of the respondents are preferred to buy home appliances

Table 1.5 Amounts Spend On Single Online Purchase

S. No	Amount Spend	No. of Respondents	Percentage (%)
1.	Less than Rs. 1000	16	32
2.	Rs. 1000 – Rs. 3000	14	28
3.	Rs. 3000 – Rs. 5000	10	20
4.	More than Rs. 5000	10	20
TOTAL		**50**	**100**

Source: Primary Data

It is inferred that most of the respondents are spend in single online purchase less than Rs. 1000 (32%). Rs. 1000 – Rs. 3000 spend only (28%) of the respondents. (20%) of the respondents are spend in single online purchase Rs. 3000 – Rs. 5000 and More than Rs.5000.

Table 1.6 Mode Of Payment

S.No	Mode of Payment	No. of Respondents	Percentage (%)
1.	Debit / Credit Card	4	8
2.	E-wallets	4	8
3.	Net Banking	12	24
4.	Cash on Delivery (COD)	30	60
TOTAL		**50**	**100**

Source: Primary Data

It is inferred that (60%) of the respondents are preferred cash on delivery method. (24%) of the respondents are using Net banking method. (8%) of the respondents are using their method of payment is Debit or Credit card and E-wallets mode.

Conclusion

Online buying is becoming more popular day by day with the increase in the usage of internet and social media. Understanding customer's need for online selling has become challenge for marketers. Specially understanding the consumer's behaviour towards online shopping, especially the teenagers, making improvement in the factors that influence consumers to shop online and working on factors that affect consumers to shop online will help marketers to gain the competitive edge over others. This study reveals the behaviour of the teenagers towards preference of online retailer Amazon, products is mobiles & electronics were high score and method of payment is Cash on Delivery (COD).

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Methods of Water Management

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Abstract

"Water is essential for living things without water no one can survive. Globally day by day water use are increasing but water resources are limited. Every country facing water challenge during the 4 to 6 month in an every year. Water management is a need of hour for safe our future. Domestic, industrial and agriculture sector generate a huge amount of waste water, most of the time these waste water are contaminated by various chemicals and this contaminated water directly pour into the river, ponds and oceans. This is a horrible situation for mankind, waste water need to treat and reuse it. There are so many methods of water management out of them water harvesting, groundwater recharge, waste water recycle, desalination, careful use of water, drip irrigation and aquifer storage and recovery are the most important methods".

Introduction:

Water is play an important role in our life, without water we cannot imagine life. Water is essential for every action in day today life. Water use has been increases in every sector. In the last century globally water uses increase more than twice the growth rate of population. Water use has been increasing due to the development of industry, agriculture and new constructions. Water resources are not increases but water demand is increasing. Water is essential for human consumption, agriculture, industry development and energy generation. Earth makes about 71% of earth surface and 29% consists of continents and islands. Of all the water that exists on our planet, roughly 97% is saltwater and less than 3% is freshwater. Most of Earth's freshwater is frozen in glaciers, ice caps, or is deep underground in aquifers. Less than 1% of Earth's water is freshwater that is easily accessible to us to meet our needs, and most of that water is replenished by precipitation a vital component of the water cycle, affecting every living thing on Earth[1]. Water is a precious natural resource we cannot make it, due to the climate change water security is a top priority of us. In every year each country facing water crisis, to change this scenario water management is required in each level. The planet is facing a 40% shortfall in water supply by 2030, unless we dramatically improve the management of this precious resource. This is the unavoidable conclusion reached in the 2015 United Nations World Water Development Report, "Water for a Sustainable World", to be launched on 20 March in New Delhi (India), in time for World Water Day on 22 March[2]. At world level 31 countries are facing shortage of water and by 2025 there will be 48 countries facing serious water shortages. The United Nations has estimated that by the year 2050, 4 billion people will be seriously affected by water shortages[3]. India is facing the water crisis in every year, currently 600 million people in the country are face high to extreme water stress and every year about two lakh people are die due to inadequate access of safe water. The crisis is only going to get worse By 2030, the country's water demand is projected to be twice the available supply, implying severe water scarcity for hundreds of millions of people and an eventual ~6% loss in the country's GDP*2*. As per the report of National Commission for Integrated Water Resource Development of ministry of water resources, the water requirement by 2050 in high use scenario is likely to be a milder 1,180 BCM, whereas the present-day availability is 695 BCM. The total availability of water possible in country is still lower than this projected demand at 1,137 BCM[4]. Thus, the water management is required for to meet this huge demand.

Global Scenario:

Water security is a top global priority today it has multiple dimensions, among which water availability has traditionally been the most in focus. Rapid population growth, coupled with unsustainable water withdrawals, poor infrastructure and governance is resulting in sub-optimal water supplied in many parts of the world. Approximately 700 million people in 43 countries are currently suffering from water stress and scarcity. Furthermore, about 4 billion people experience severe water scarcity during at least one month of the year[5]. Below table shows the trends of global risk ranking.

Top Global Risk Ranking

Risk Ranking	2014	2015	2016	2017	2018	2019	2020
1St	Fiscal Crisis	Water Crisis	Climate Action Failure	Weapons of Mass destruction	Weapons of Mass destruction	Weapons of Mass destruction	Climate Action Failure
2Nd	Climate Action Failure	Infectious Diseases	Weapons of Mass destruction	Extreme Weather	Extreme Weather	Climate Action Failure	Weapons of Mass destruction
3rd	Water Crisis	Weapons of Mass destruction	Water Crisis	Water Crisis	Natural Disasters	Extreme Weather	Biodiversity Loss
4th	Unemployment	Interstate Conflict	Involuntary Migration	Natural Disasters	Climate Action Failure	Water Crisis	Extreme Weather
5th	Infrastructure Breakdown	Climate Action Failure	Energy Price Shock	Climate Action Failure	Water Crisis	Natural Disasters	Water Crisis

Source: A Qualitative Framework to Evaluate the Extent of Integrated Urban Water Management in Indian Cities & Applying the Framework to Delhi. National Institute of Urban Affairs. New Delhi Above table reveals that the global top five risk ranking by various category. In this table water crisis is in top five in every year from 2104 to 2020. This situation is an alarm to the world for water use. Planning of scientific anagement is a need of hour to successfully defeat the water scarcity. Without water management we cannot overcome from water crisis.

Methods of Water Management:

Water is a need of life, day by day increasing the consumption of water by various sector. For safe future to be need a water management. There are so many types of water management but here are some important types are given.

1) Water Harvesting:

This is a simplest and easy method of water management, this is an oldest type rather than other types. The term water harvesting generally refer to collection of water from runoff from specific area or surface. Generally water harvesting is the activity of collection of rainwater from roof and surface from runoff water and this collective water store in tank, ponds etc. this stored water is useful for agriculture, domestic and industrial sector. Water harvesting is a very helpful to reduce water crisis in a region which is faces water scarcity[6]. Rainwater harvesting is an independent water supply during the water shortage. Rainwater can be used immediate or when is not easily accessible. Water harvesting is an essential for reducing the degradation of environment. Now a days water harvesting method is used in a various sectors due to this the availability of water is increased.

2) Groundwater Recharge:

Groundwater is an important resource of water, when surface water is not sufficient that time ground water is used for various purpose. Now a days uses of groundwater is increased due to the limited availability of surface water and meet the daily demands. There are two types of groundwater recharge, one is natural groundwater recharge and second artificial groundwater recharge. Naturally groundwater recharge by perception and water leakage from streams, lakes, rivers and wetland. Artificial recharge is a process to increase groundwater by human controlled means. In this process groundwater artificially recharged by redirecting water across the surface on land by canals, ponds, basins and directly inject water into the aquifer by the various scientific method. Groundwater recharge is an essential for maintain the ground water level. Groundwater recharge is a need of hour.

3) Waste Water Recycle:

Waste water is a major problem of most of countries in the world. The waste water has generated by the domestic use, industrial use and agriculture use. Waste water is a used water that has been contaminated by the domestic, agriculture and industrial sectors. Roughly 80 to 90% daily waste water has been generated by the total domestic water use. This huge amount of water need to treatment and again it use for various purpose, this is a way to manage waste water for daily use. To avoid water scarcity we must need waste water recycle and contaminated water into pure water via various scientific treatment and to stop the waste water.

4) Desalination:

The desalination of water is a serious issue in today's world, this has happen because of industrial west water and agricultural west water directly mixed into fresh water. The human beings cannot directly drink saline water because it contains various salts, these salts are harmful for human body. Saline water is also harmful for environment. Saline water need to desalinate and it use for daily purpose. Desalination is a technique in which excess of salts are remove from saline water and converted into safe potable water for various uses[7].

5) Careful Use of Water:

Water is a play an important role of daily life of human being as well as other living things. Many part of the world facing the water shortage hence it is very important to use water carefully. A huge amount of water daily waste from domestic, industrial and agriculture sector. Everyone has to maintain careful use of water in daily life. Careful use of water means by reduce the amount of waste water from daily use. It is very important to use water carefully for water management.

6) Drip Irrigation:

In water management drip irrigation play an important role to save waste water. Drip irrigation save more than 60 to 70 water of normal use. Drip irrigation system reduce consumption of water and more yield of crop. This system is beneficial for crops as well as human beings. There are number of advantages of drip irrigation, reduce evaporation of water, consumption of water and effort. According to the Ministry of Agriculture and Farmers Welfare, in 2015-2016 net irrigated area in the country has 67300 thousand hectares out of these area only 11.72 lakh hectare under the micro irrigation in the year 2019-2020[8]. This scenario seems that the micro irrigation is not sufficient with compared to net irrigation area.

7) Aquifer Storage and Recovery:

This is a water management techniques in which storing water underground during the rainy days. This methods of aquifer storage and recovery meets the water management objectives. In this method water inject into the aquifer and later reuse. This method is beneficial to maintain ground water level. This is also helpful to store huge amount of water in underground and it reuse when water availability is rare. There are many methods of recharge water out of them single well inject, multiple well inject, pond infiltration, soil aquifer treatment and induced infiltration are the most useful methods[9]. Aquifer storage and recharge is a most important and easy method to manage water and reduce the scarcity of water.

Above mentioned are the some major methods of water management. These are helpful water management methods which is reduce the water use, save the waste water and reuse of saved water at the time of scarcity.

Conclusion:

Water is a precious source on the earth, without water life doesn't be survive. Day today increasing the water use but water resources are limited. Water management is an only way to reduce scarcity of water and ensure the water availability for future. There are so many methods of water management but out of them water harvesting, groundwater recharge, waste water recycle, desalination, careful use of water, drip irrigation and aquifer storage and recovery are the most important methods of water management. These methods are reduce the amount of water waste and helpful for the water availability when its need.

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Biodiversity of Some Fern Species In Toranmal Hills, Nandurbar District, Maharashtra, India

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Abstract

Survey of pteridophytic fern was carried out from Toranmal hills of Nandurbar district, Maharashtra. It is a rich biodiversity area. The present attempt was undertaken to give a detailed account of non- flowering plants, especially ferns in these hills. It is a rich biodiversity area in Satpuda ranges. The present paper deals with the extension and distribution of 06 fern species. Belonging to 04 genera of fern which includes Adiantum, Cheliantus, Athyrium and Pityrogramma and their species, has been discussed and described here for the first time from the area.

Kye words: *Toranmal, Biodiversity, Fern, Genera.*

Introduction

Since no comprehensive account of Pteridophytes at Toranmal mountain ranges in Nandurbar, Dhule and Jalgaon districts of Maharashtra state, present survey was undertaken. Toranmal is a hill station of Akrani taluka in the Nandurbar district, Maharashtra state. Toranmal is located in the satpuda ranges and near Gujrat and Madhya Pradesh border. The Toranmal plateau has soccer like shape from which a stream flows across the plateau from south to north.Yashwant Lake, Lotus Lake, and sita khai these places are famous. Toranmal hills are very beautiful and rich in fern biodiversity. Yashwant Lake is a beautiful natural lake of this area. It is heavier in the hilly ranges of Sahyadri extended in the western part of the district and also in Satpuda ranges. Survey of fern was carried out from Toranmal and adjoining areas. Present communication includes detailed account of fern species. The taxonomic account and distribution of 06 fern species. Belonging to 04 genera of fern which includes *Adiantum, Cheliantus, Athyrium* and **Pityrogramma** and their species. collected from Satpuda hills, Toranmal. The present author is engaged in studies of the fern diversity of the Toranmal Hills of the north side in Maharashtra State. Various fern species are common in the Western Ghats of South India (Anamalais and Kerala Ghats, Ponmudi hills, Munnar hills, Sabarimalai, rare on the Tirunelveli Hills) (Beddome 1863, Manickam & Irudayaraj 1992, Nayar & Geevarghese 1993, Chandra 2000, (Neel et al, 2018). Mahabale and Kamble (1981), Manickam and Irudayaraj (1992) Rathod et al. (2009) Pardeshi (2009), Rathod and Pardeshi (2010), Neel et al, (2018) etc.

Materials And Methodology

The present study was undertaken to identify the pteridophytic flora of the adjoining area of the Toranmal hills.Area was visited several times during different seasons of the year 2016-2018 especially rainy season. Field notes and photography were taken at the time of collection to observe habits, habitats and localities. During the survey photographs of plants were taken and selected specimens were brought to the laboratory in sealed bags and pressed in the standard Herbarium sheets. **The specimens were deposited with the herbarium of the Department Botany, Z.B.Patil College, Dhule.** The species of fern were identified using the standard floras. The identification of the ferns was confirmed by experts.

Taxonomical Account

Adiantum edgeworthii Hook., Sp.Fil.2:14 t.81B,1851; Bedd. FBI t.17,1863 &Handb. Suppl.7,1892; Nayar & Kaur, Comp.Bedd., Handb.23,1974; Dixit, Census 75,1984; Chandra S.,,FI 68,2000. Plant erect, ca14-35cm tall. Rhizome cylindrical, erect, rooting at apex, scaly, scale dark brown, dark vertical band at the centre, lanceolate, 3 x 1 mm, paler margin, entire, acute. Fronds unipinnatly compound, erect; stipe dark brown, elongated slender and as well as the rachis glabrous, ca 4 - 6 cm, another stipes also longer, dark brownish colour; rachis is rooting at two apex and there base of pinnae nearly sessile, the upper base truncated and parallel with the rachis, ca 7-16cm; leaflets alternate, sessile, dimidiate- oblong, 0.7 - 1.3 x 0.3 - 0.6 cm, glabrous on both surface, superior margin obscurely lobed rather more sori the sterile pinnae, indistinct lobes truncated and bearing the sori one on each lobe, venation flaballately forked, reaching the margin, three to six veins converging. Sori marginal, indusia oblong elongated; sporangia 96.1 x 36.4 µ.

Distribution and Ecology: Locally ample, luxurious growth on exposed rocks.

Exsiccate-V.N. Rathod- Toranmal- 206, V.N. Rathod- Toranmal- 342.

Adiantum lunulatum Burm.f.Fl.Indica 235,1768; Bedd.,FSI t.01,1863 & Handb 82,1883; Manickam & Irudayaraj, Pterid. Fl.West, Ghats, 98, 1992; Bhuskute, Indian Fern J.7:126,1990; Khullar,Fern,Fl.W.Himal.1:296,1994; Chandra S., FI 71,2000. Plant erect, ca15 -38 cm tall. Rhizome erects, scaly, scales dark brown, ovate- lanceolate, 3 x 1 mm, entire, acute. Fronds simple or unipinnate, tufted, erect; stipe dark brown, adoxially grooved, tufted, wiry, ca 10-18 cm, glabrous; rachis dark brown,

ca 16-44 cm, glabrous; leaflet alternate, stalked, 8-11 pairs, basal pairs longer than the middle, dimidite-oblong, lanceolate, 2.1-4.3 x 1-1.6 cm, glabrous on both surface, pinnae fan- shaped, the lower edge nearly in line upper margin, lobed, base truncate, uppermost crenate, margin entire, venation forked, flaballately branched, reaching the margin. Sori marginal, continous along the edge of the lobe, crescent- shaped; sporangia 106.1 x 36.9 µ.

Distribution and Ecology: Common along shady road side.

Exsiccate-V.N. Rathod- Toranmal-17, V.N. Rathod- Toranmal- 27.

Cheilanthus bicolor (Roxb.) Griff.ex Fras_-Jenk., Pakistan Syst. 5:94 (1991); Nakaike& Malik, Crypt. Fl. Pakistan 2: 321 (1993); Khullar, Fern Fl. W. Himal. 1: 192 (1994); Fras.-Jenk., New. Sp. Syndr. Indian Ptrid. 73 (1997). *Pterisbicolor*Roxb. In Griff., J. Nat. Hist. 4:507 (1844). *Aleuritopterisbicolor*(Roxb.) Kholia&Punetha, J. Indian Bot. Soc. 74:184 (1995). *Aleuritopteriskathamaduensis*Ching& S.K. Wu, Acta Bot. Yunnan. 5 (2):167 (1983). *Aleuritopterislongipes*Ching& S.K. Wu, Acta Bot. Yunnan. 5:165 (1983); in Fras.-Jenk., New Sp. Synder. Indian Pterid 74 (1997). *Cheilantheslongipes* (Ching& S.K. Wu) Dixit &Balakr., Pl. Sci. Res. India 10: (1989); in Fras.-Jenk., New Sp. Synder. Indian Pterid. 81 (1997). Plant erect, ca 18-24cm tall. Rhizome cylindrical, erect, scaly, scales brown or reddish-brown, with dark vertical band at the centre, paler margin, lanceolate, 3 x 1 mm, entire, acute. Fronds bipinnatly compound, tufted, erect; stipes adoxially grooved, brown-black, cylindrical, ca 8-12 cm, sparsely scaly; rachis dark brown, grooved dorsally, ca 9-13cm, less scaly than stipe; leaflets subopposite-opposite, sessile, 9-11 pairs, ovate – lanceolate, 3-7 x 0.3 – 0.5cm, covered by silvery waxy powder in lower surface, glabrous on upper surface, acuminate, cordate, the apex deeply lobed to the costa, venation forked once or twice, reaching the margin. Soriindusiate, oblong, indusia attached to margin of leaflet, open toward midrib, submarginal; sporangia 98.6 x 42.6 µ.

Distribution and Ecology: Rare, along slopes of hills

Exsiccate-V.N. Rathod- Toranmal-39.

Cheilanthus dalhousiae Hook. Sp.Fil.2:80t.83, 1852; Bedd.,FSI t.193,1867; Nayar& Kaur, Comp. Bedd., Handb. 25,1974; Fras.-Jenk., New.Sp. Syndr. Indian Pterid. 67,79, 1997; Chandra S., FI 51,2000. *Cheilanthus farinose* Kaulf. Var. *dalhousiae* (Hook.) Clarke, Trans.Linn. Soc. London II Bot. 1: 1880; Bedd., Handb. 93,1883. *Cheilanthes albo- marginata* clarke, Trans. Linn. Soc. London II Bot. 1: 456, 1880; Bedd., Handb. 94, 1883; Nayar& Kaur, Comp. Bedd., Handb. 26,1974. Dixit, Census 63, 1884.

Plant erect, ca 20-35cm tall. Rhizome erect, scaly, scales dark brown, with dark vertical band at the centre, paler margin, lanceolate, 3x 1 mm, entire acute. Fronds bipinnately compound, tufted, erect; stipes brown-black, cylindrical, ca 10-20 cm glabrous; rachis dark brown, cylindrical, ca10-17 cm, glabrous; leaflets opposite, 12-20 pairs, basal pairs longer than the middle, ovate – lanceolate- deltoidly, 5-7 x 2.1-4.3 cm, covered by silvery waxy powder in lower surface, glabrous on upper surface, acuminate, cordate, the apex deeply pinnatifid and acuminate, pinnae upper once lanceolate pinnatifid; venation forked once or twice, reaching the margin. Sorisubmarginal, oblong, indusia attached to margin of leaflet, open toward midrib; sporangia 43.5 x 25.33 µ.

Distribution and Ecology: found on hill slope

Exsiccate-V.N. Rathod- Toranmal- 02, V.N. Rathod- Toranmal-140,

Pityrogramma calomelanos *var.**aureoflava*** (Hook) Weath. Ex Bailey, Man. Cult. 64 (1924); Lorenca, Bot.J. Linn. Soc. 76: 218 (1978); Seldge, Bot. J. Linn. Soc.84:11(1982); Manickum, Fern Fl. Palni Hills 33 (1986); Manickum & Irudayaraj, Pterid. Fl. West. Ghats 95(1992). *Gymnogramma calomelanos* var. *aureoflava* Hook., Gard. Ferns t. 50 (1882) quoadtypum sed. Excl. fig.3. *Acrostichum chrysophylla* Sw.in Schrad. J. Bot. 1800 (2): 14 (1801). *Pityrogramma chrysophylla*(Sw.) Link, Handb. Gew.3:19(1833); Holt., Fl. Malaya2: 592(1968); Nayar,J. Indian Bot. Soc.43: 203 (1962): Panigr, Kew Bill.30: 663 (1975); Dixit, Census 79(1984); Nayar & Geevarghese, Fern Fl. Malabar 100(1993). *Ceropteris chrysophylla*(Sw.) Link., Fl. Sp. 142(1841). *Pityrogamma chrysophylla* var. *tripinnate* Domin,Bull. Internat. Acad. Tech. Sci. 41: 3 (1942).

Plant erect, ca 30 - 38 cm tall. Rhizome erect, tufted, scaly, scales dark- brown, lanceolate, 3 x 1 mm, entire, acute. Fronds bipinnately compound, tufted; stipe dark brown- black, abaxially grooved, ca 8-15 cm, glabrous; rachis dark brown- black, adaxially grooved, ca 12 –18 cm, glabrous; leaflets subopposite - alternate, shortly stalked, 20 -22 pairs, basal pairs shorter than the middle, ovate – lanceolate, 7 – 8 x 1.7 – 2.3 cm, glabrous on upper surface, lower surface covered by yellow coloured waxy powder, acute, base broadly cuneate, margin entire, pinnules about 17 pairs, basal few pairs auricled at base, venation forked twice, reaching the margin. Sori along veins, covered by entire lower surface when mature; sporangia 64.1x 20.7 µ.

Distribution and Ecology: found along slopes of hills.

Exsiccate-V.N. Rathod- Toranmal-41, V.N. Rathod- Toranmal- 61.

Athyrium nigripes (Bl.)T.Moore, Index Fil.49,1857; Bedd.,FSI t.157,1864 &Handb 166, 1883;Nayar & Kaur, Comp.Bedd., Handb.41,1974;Dixit, Census 128, 1984; Manickam & Irudayaraj, Pterid.Fl West.Ghats,235,1992; Chandra S., FI 130,2000. *Aspidium nigripes* Bl., Enum.Pl.Jav.II:162,1828. *Athyrium soleno ptris*(Kze.) Moore in Handb.166,1883 *pro-partenon* T. Moore in Bedd., Handb. Suppl. 33,1892.

Plant erect, ca 30-50 cm. Rhizome erect, scaly, scales pale brown, lanceolate, 8 x 1 mm, acute, entire. Fronds bipinnately compound, tufted; stipes light green, abaxially grooved, ca 10-15 cm; rachis light green, abaxially grooved, cylindrical, ca 20 - 24 cm; leaflet alternate, shortly stalked, 24 pairs, basal two pairs shorter than middle, oblong - lanceolate, 2-3 x 0.8-1.5cm, glabrous on both surface, pinnae sub – decurrent, crenato – oblong, pinnatifid, apex acute, base broadly cuneate, margin sharply serrate lobes one-fourth to the costa, venation forked once or twice, reaching the margin. Soriindusiate, sori situated at two rows close to the costules, indusia usually hooked (J- shaped); sporangia 81.2 x 42 µ.

Distribution and Ecology:found in shady streams, deep in forests.

Exsiccate-V.N. Rathod- Toranmal-13, V.N. Rathod- Toranmal-17.

Results And Discussion

Six species of Pteridophytes were reported from Toranmal and its adjoining area from Nandurbar district of Maharashtra state. This is a first comprehensive report of the fern diversity and distribution with special prominence on habitat preference which will help the concrete conservation efforts in future if any.

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Industrial pollution and environment-Cause, effects and controlling measures of ambient pollution by chemical industry-A review.

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Abstract

In this paper, we would like to review the association of industrial pollution with environment. Factories established in the country have great varieties of improvements in addition to acknowledge themselves in enhancing the pollution due to loosely bound frame work of administration. Industrial pollution has associated negatively with health of human beings and nature. The destructions caused by industrial pollution are innumerable and beyond the limits. Many studies and experiments have done to reduce industrial pollution. But, still not succeeded.

Key words:-*Industrial pollution, particulate, pollutants, effluents, hazardous, global warming.*

Introduction:-

Industrial pollution is one of the most crucial crises which is considered as most relevant subject. As we know, the main basic amenities required for living organisms are water, land and air. Industrial pollution and its relation with environment is like two faces of a coin. Industrial pollution is having various impacts on quality of water, land and air causing widespread environmental problems. During olden days, these amenities were uncontaminated and pure. But today's situation is different. Many water reservoirs are contaminated by the pollutants released from varies industries intentionally or through spills which makes the lifesaving waterbodies contaminated. WHO data shows that 9 out of 10 people breathe air that exceeds WHO guideline limits containing high levels of pollutants, with low- and middle-income countries suffering from the highest exposures.

Causes:- The whole world is emphasizing the on the term Pollution which becomes a major agenda of all conferences and round table meetings. It is a term which is so common that every citizen acknowledges that pollution is increasing continuously. Due to industrialization, the air quality is constantly and continuously degrading year by year. As a result, the ample of natural resources are polluted by various pollutants. The major effluents of industries are soot, dust, fly ash, gases such as carbon dioxide, carbon monoxide, oxides of nitrogen, sulphur, hydrocarbons etc. These pollutants may be a solid, liquid or gaseous substance present in such concentration as it may tend to be injurious to the environment or interfere directly or indirectly with man's comfort, safety and health. The particulates and gaseous pollutants of organic and inorganic matter which originate from industrial sources are like several metals, metal salts, mineral particles, gases like methyl isocyanides, hydrogen sulphide, solvents like sulphuric acid, hydrochloric acid, acetone etc. These particulates and gaseous matter are entering into the atmosphere by manmade activities in the form of dust from many industries, fly ash from sugar industry, power plants, mining process and smoke from incomplete combustion processes. The many inorganic particulates originate from metallic oxides, sulphides, carbonates etc. during the burning of fuels and industrial effluents. The combustion of hydrocarbon fuels like coal, petroleum is common in industries. Hydrocarbons fuels on burning produce carbon di oxide and incomplete combustion of hydrocarbon fuels produce carbon monoxide and carbon. Some of these dissolve in rain water to produce hazardous acid rain which destroys vegetation, monuments, fertile soil, waterbodies, etc. When these pollutants mixed with river, completely destroys fisheries. Agricultured using river water involves utilization of these effluents for cultivation directly. Hence food grains obtained from is of poor quality, unhygienic and causes various health issues. Rapid growth of industrialization is essential for creating jobs or opportunities which in turn creates numerous options for solving unemployment and also supports economic growth of our country. But at the same time, many industries such as fertilizer factory, tyre factory, cement, aluminium, paints industry releases various gases such as ammonia, urea, carbon dioxide, metal fumes into the atmosphere causing more destruction to human being.

Effects:-

Health and global issues:-

There is a quantitative relationship between exposure to particulates and death mortality. The various pollutants released from the industry affects the health of human beings adversely. It causes a numerous health issues like heart diseases, lung cancer, and bronchitis, both chronic and acute respiratory diseases like asthma, high blood pressure, nervous debility, throat and eye irritation, head ache and cause even

death also. These industrial effluents also affect the weather adversely. It results in rise of temperature, reduces the humidity, reduces rainfall and also reduces visibility and causes global warming. Sometimes it may results acid rain also. The release of industrial effluents ie also responsible for ozone depletion.
In paints industry, the solvents like acetone, turpentine, and naphtha. Toluene, methyl ethyl ketone (MEK), dimethylformamide (DMF) and 2-butoxyethanol etc are used. Thus use of organic solvents in paints industry causes eye, nose and throat irritation, headache, light- headedness and unconsciousness. It totally affects central nervous system. Carbon monoxide is a poisonous gas. Carbon monoxide is absorbed by the lungs and binds with haemoglobin present in red blood cells to produce carboxy haemoglobin which reduces the capacity of the blood to carry oxygen and causes fatal death. So, because of this, complete combustion is preferred over incomplete combustion. Long-time exposure to carbon dioxide causes a variety of health related effects. It may cause giddiness, head ache, difficulty in breathing, sweating, increase in blood pressure, tiredness in human beings because carbon dioxide is an asphyxiant; it mostly affects activity of brain. Release of excess carbon dioxide to atmosphere causes enormous increase in greenhouse effect. Thermal energy of the atmosphere increases causing the planet to become warmer. Thus increases in the earth's atmosphere results in "global warming". Sulphur di oxide is a heavy, colourless, toxic gas having intense pungent irritating odour. It is generally produced from the burning of fossil fuels like coal and in smelting process of extraction of pyrites of metals like copper, lead, zinc etc. Large quantities of sulphur dioxide are formed in the combustion of sulphur-containing fuels. Sulphur di oxide causes irritation on skin and mucous membranes of nose, eyes, throat and lungs. High concentrations of SO_2 can cause inflammation and irritation of the respiratory system. Sulphur dioxide affects the environment also. It dissolves easily in water to form sulphuric acid which is a major component of acid rain can cause deforestation.Acidify water streams destroys an aquatic life systems and cause corrosion of metals used in building constructions. Oxides of nitrogen are produced by the combustion of fossil fuels. Exposure to high level of oxides of nitrogen is danger to lungs and human respiratory tracks and person loses his sensitivity. Oxides of nitrogen are harmful to vegetation, damaging foliage, decreasing growth or reducing crop yields. It fades the colour of the furnishings, fabrics and reduces visibility and reacts with surfaces.

Measure to prevent industrial pollution.

1. The following measures may be considered to prevent and control the industrial pollution.
2. The smoke and carcinogenic gases emitted by factories must be controlled by through strict and rigid factory law ie before releasing these poisonous gases into the atmosphere, it should be filtered or adsorbed through activated carbon or neutralize it or convert these hazardous gases by catalytic converters.
3. Separate board or committee or cell must be enforced to execute the above said process mandatorily. Industries should be held responsible and surrender under law and a huge amount of compensation to government and if unusual things happened. Their employee Penalty or imprisonment or compulsory compensation rules must be adopted using a separate judiciary cell for environment protection.
4. Proper planning for separate industrial zone with compulsorily preventive measures with basic amenities like fire brigade, mini and equipped industrial hospital, police station etc.
5. Compatible design for development of green belt around every industrial area makes the environment less polluted and more productive of oxygen so that it is less harmful to human beings. These industrial areas should be located at a certain distance away from residential areas or schools or religious centres or rivers to avoid any accidental explosions or leakages of gases.
6. Particulate matter produced by industries can be controlled by precipitator, absorbers, scrubbers and filters. Constructing a long chimneys in industries so that the smoke and gas should be released high up in the sky and do not pollute the lower level of the air. All these must be done compulsorily in the factory premises itself industries should adopt conversion of hazardous particulates or gaseous products into non-hazardous materials or gases.
7. Periodic inspection and well maintenance of machinery parts for their maximum efficiency must be set up by administration and training of their staff about all these must be mandatory. The industries must educate their employees regarding proper maintenance of machinery parts, handling technique, periodic greasing, knowledge of first aid box, current developments in industries, modern methods etc. We need clean technologies that reduce industrial smokestack emissions.
8. Care should be taken to check gas fires and boilers and they must be serviced regularly to ensure they do not produce carbon monoxide. We can reduce air pollution by industries by conserving energy by turning off fans, computers, laptops, air conditioners and other appliances when not in use.

9. Employees can reduce air pollution by pooling services or by availing public transport facilities. Biofuels productions should be encouraged to decrease the extent of pollution which might reduce the use of petrol and diesel causing pollution of the environment.

Conclusions.

In this review paper, we have thrown a light on industrial pollution and its relationship with environment. Industrial pollution and environment are related with each other directly. Our country is having strong back bone of revenue from various industries. Economy of India depends on profit of multiple sources of industries. So it is impossible to vanish all the industries causing pollution. It is inevitable that controlling of environmental pollution is a prime challenge for administrators of our government and human beings. As the population increases, the challenge of saving our planet from industrial pollution is also magnifying. In order to reduce the industrial population, ample of ideas, methods, suggestions are adopted, executed to control the pollution. In this regard, all the nations must be co-operative and join hands in making global laws with the association of judiciary department to control pollution caused by industries. Local government has to make mandatory to follow the rules and regulations to control the industrial pollution compulsorily. Proper implementations of conditions are periodically under inspection. Industries should be brought under legal platform if there is any violation of such regulations by them. There should be imprisonment or legal action on persons responsible for hazardous explosions. Compensations to those individual and the government for dangerous destructions occurred by industry. Many legal, financial and moral values must be enforced on factories during establishment. The factories must make their mind in produced best environmental performance. Finally we have summarised the cause, effects and preventive measures to reduce environmental pollution.

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COVID19 Stress, Psychological Wellbeing and Sleep Quality

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Abstract

The World Health Organization (WHO) had declared the outbreak of COVID 19 as a Public Health Emergency of International Concern on 30 January 2020, and a pandemic on 11 March 2020. This outbreak has inflicted medical, financial and psychological distress on people globally. The ongoing pandemic and the resurgence of the second wave in India, has led to much loss and grief. There are also concerns on lack of accessible vaccinations, the emergence of new diseases like 'Black Fungus' and the instability of the public health care infrastructure. Students have also suffered immensely due to this pandemic. Moving of education to online mode, inaccessibility to resources, uncertainty regarding the future has caused enormous psychological and physiological stress. This is reflected in poor sleep quality and psychological wellbeing.

The current paper aimed to study the relationship between COVID19 Stress and Sleep Quality and Psychological Wellbeing among college students. The study was conducted through an online survey method, using standardised questionnaires. The study used the COVID19 Stress Scale (Taylor et al, 2020), Pittsburgh Sleep Quality Index (Buysse et al, 1989) and Ryff's Psychological Wellbeing Scale (Ryff & Keyes, 1995). The data was collected from college students between the ages of 18 to 22 years. The collected data were analysed using Pearson Product Moment Correlation.

Introduction

The COVID 19 stress syndrome, rooted by the pandemic since March 2020 is majorly identified with the population being alarmed by the perilousness of the deadly virus for their near and dear ones; additionally being strained by pecuniary concerns for their basic needs. According to our preliminary research, more than 50% of the young population had a disturbed mindset. In other words, their mental wellbeing was affected negatively: happens when major aspects of a person's life are chaotic and unbalanced. Hence, the current distressing situation led to youngsters having poor mental state and sleep quality. By this route, poor sleep quality is indicated either by sleeping too much or too little plus not being satisfied with the experience.

Rationale of Study

The present study was conducted to understand the impact of COVID19 stress on the sleep quality and psychological well being of college students. The current ongoing lockdown in various parts of the country due to the second wave, and also the news about the upcoming third wave has caused emotional stress among the people. Students, especially, are concerned as their entire education has moved online and there is large uncertainty about their future. This has had a significant impact on their mental and physical health.

Aim and Objectives

Aim: To study the relationship between COVID19 Stress, Psychological Wellbeing and Sleep Quality among College Students.

Objectives:

1. To measure the COVID19 Stress among College students.
2. To measure the Psychological well-being of College students.
3. To measure the Sleep Quality of College students.
4. To find the relationship between COVID19 Stress and Sleep Quality.
5. To find the relationship between COVID19 Stress and Psychological Wellbeing.

Hypothesis

Alternative Hypothesis:

H_1 – There is a positive correlation between COVID19 Stress and Disturbed Sleep among College Students

H_2- There is a negative correlation between COVID19 Stress and Psychological Wellbeing.

Methodology

Sample:

The research was conducted on a sample population of young adults attending college between the age of 18-22 years. Data was collected from all genders across various states of India. The sampling used was Convenient Sampling and Snowball sampling, using the online mode of data collection.

Research Design:

The current study employed a quantitative correlational design. The research explored the nature of the relationship between COVID19 Stress and Sleep Quality and the relationship between COVID19 Stress and Psychological Wellbeing among college students.

Variables:

COVID19 Stress- It refers to the stress experienced by a person in the context of the ongoing pandemic related to COVID19. It was measured using the COVID19 Stress Scale (Taylor et al, 2020).

Sleep Quality- It refers to the quality of sleep experienced by a person. It was measured using Pittsburgh Sleep Quality Index (Buysse et al, 1989).

Psychological Wellbeing- It refers to the state of balance experienced by a person, positive life outcomes and contentment. It is a positive indicator of mental health. It was measured using Ryff's Psychological Wellbeing Scale (Ryff & Keyes, 1995).

Tools:

COVID19 Stress Scale- The COVID-19 Stress Scales (CSS) was developed to measure the aforementioned features as well as to better understand and assess COVID-19-related distress. It is a 58 item self-report scale with a 5-point Likert scale. In our present study, the component of Xenophobia was not included. So, the scale used had 52 items (Taylor et al., 2020). *Pittsburgh Sleep Quality Index*- this scale was developed by Buysse, Reynolds, Monk, Berman and Kupfer in 1989. It contains 19 self-rated questions. It yields one global score with a range of 0-21 with 0 indicating no sleep disturbance and 21 indicating severe sleep disturbance.

Ryff's 18 items Psychological Wellbeing Scale- It is a modified version of the original scale developed by Carol Ryff (1995) consisting of 6 dimensions i.e. autonomy, environmental, mastery, personal growth, positive relations with others, purpose in life, self-acceptance. It is a 7-point Likert Scale with 18 items. Higher scores indicate greater well-being.

Results

Table 1

Descriptive Statistics for COVID19 Stress, Sleep Quality, Psychological Wellbeing

	Mean	Standard Deviation	*N*
COVID19 Stress	58.24	22.64	99
Sleep Quality	8.82	3.69	99
Psychological Wellbeing	85.60	14.84	99

Table 2

Correlation for COVID19 Stress and Sleep Quality

R	0.4421
R^2	0.1955
P-Value	< .00001

The result is significant at $p < 0.05$

Table 3

Correlation for COVID19 Stress and Psychological Wellbeing

R	-0.2309
R^2	0.0533
P-Value	.02201

The result is significant at $p < 0.05$

Discussion

The mean age of students who answered the questionnaire was 19.9 years. From the data collected, 89% of participants were females and 10.10% of participants were males. The data included participants from the states of Maharashtra, Punjab, Tamil Nadu, Karnataka, Delhi, West Bengal. The Pearson Correlation was calculated between COVID19 Stress and Sleep Quality (Disturbance). The r-value calculated was 0.4421 which was found to be significant at 0.05 level. This indicates a moderate positive correlation between the two variables. This suggests that the higher the COVID19 stress experienced, the higher was the sleep disturbance reported by the students. Studies have shown that stress has biological symptoms which include disturbed sleep. In a study done in Bangladesh, a high prevalence of sleep disturbance was found during the COVID19 pandemic (Ara T, Rahman MM, et al, 2020). The changes in routine, lack of movements outside of homes, lack of social interaction and intellectual

stimulation caused young adults to seek sources of entertainment through online medium of social media and OTT platforms. This mindless scrolling of social media and online entertainment is one way of coping with the stress related to the pandemic. This is playing havoc with their sleep schedules, some reporting extremely disturbed sleep. The anxiety and stress regarding their prospects and career have caused young adults to panic and affected their sleep-wake cycle. he Pearson Correlation was calculated between COVID19 Stress and Psychological Wellbeing. The r-value calculated was -0.2309 which was found to be significant at 0.05 level. This indicates a mild negative correlation between the two variables. This suggests that the higher the COVID19 stress experienced, the lower was the psychological wellbeing reported by the students. Psychological wellbeing is a significant indicator of mental health. As the stress related to COVID19 increases, it impacts the psychological wellbeing of people, including young adults pursuing higher education. This was reflected in a study done on Chinese college students to understand the role of Psychological Well-being during the COVID19 pandemic. It was found that COVID19 stress did affect the well-being of college students. The resilience of the students played an important role in reducing the impact of stress (Tan, Y., Huang, C. et al, 2021). In a Turkish study conducted among college students in universities across various countries, it was found that the stressors of the pandemic and lockdown, including the social isolation, uncertainty about the future, unemployment and financial difficulties added to the stress experienced by the students. This affected their overall psychological well-being (Li H, Hafeez H and Zaheer MA, 2021).

Conclusions

The current paper found a moderate positive correlation between COVID19 Stress and Sleep Quality (Disturbance) and a moderate negative correlation between COVID19 Stress and Psychological Wellbeing.

Recommendations

It is recommended for Higher Educational Institutes to set up mental health care initiatives to address the concerns of students. It is also suggested to incorporate inclusive practices, to help students better cope with the stress of COVID19 and online education.

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Technology's Influence On Logistics And Supply Chain Management

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Abstract

The term logistics comes from the Greek word "logistike," which meaning "to calculate." The current definition of logistics, on the other hand, has its roots in the military, where it was first used to describe operations connected to the purchase of ammunition and other critical supplies for soldiers stationed at the front lines. Logistics include not just the actual transportation of products, but also the management of relationships between suppliers and consumers. However, logistic management is the process of integrating and coordinating the supply chain to meet the requirements of consumers. The paper's primary goal is to figure out which technologies are utilized in logistics and supply chain management, such as information technology, communication technology, and automated identification technology. The effect of technology on logistics and supply chain management is also discussed in the article. The author focuses mostly on secondary data in order to gather information on different technologies used in logistics and supply chain management. The author comes to the conclusion that technology may improve supply chain competitiveness and performance by improving the overall efficacy and efficiency of the logistics system. Furthermore, technological advancements have made the job simpler and quicker, as well as less tedious.

Introduction

According to the Council of Logistics Management "That part of the supply chain process that plans, implements, and controls the efficient, effective, forward and reverse flow and storage of goods, between the point of origin and the point of consumption, services and related information are exchanged in order to suit client needs". In layman's terms, this translates to "the right product, in the right location, at the right time, and in the appropriate condition." The supply chain, on the other hand, encompasses all steps necessary to fulfil the customer's request. It begins with the supplier and continues through the manufacturing, distribution, retailer, and ultimately the consumer. The supervision of materials, information, and money as they travel through the supply chain from supplier to manufacturer to wholesaler to retailer to consumer is known as supply chain management. Emerging new technologies are providing companies with strategic possibilities to gain competitive advantages in a variety of management functions, including logistics and supply chain management. The degree of success, however, is determined by the application's choice of technology, as well as the availability of appropriate organizational infrastructure, culture, and management policies. In logistics, information, communication, and automation technologies have significantly improved the speed with which data is identified, collected, processed, analyzed, and sent, all while maintaining a high degree of accuracy and dependability. Technology can help businesses improve their competitiveness and performance. It contributes significantly to the supply chain's success by improving the logistics system's overall efficacy and efficiency. Many modern technologies are utilized in logistics in industrialized countries, but acceptance in India is sluggish. However, as the Indian economy liberalizes, competitive pressure is increasing, and the only way to stay ahead of the competition is to invest in technology-enabled processes. The most recent logistics and supply chain management technologies are divided into categories.

1. Technology for Automatic Identification
2. Information and Communication Technology
3. Information and Communication Technolo

OBJECTIVES

To figure out which technologies are utilized in logistics and supply chain management.

To talk about how technology affects logistics and supply chain management.

Technology for Automatic Identification

The phrase "automated identification" refers to the direct input of data or information into a computer system, programmable logic controllers, or any microprocessor-controlled device without the use of a keyboard. Bar coding, Radio Frequency Identification (RFID), and Voice Recognition are examples of these technologies. Auto ID may be used to monitor containers, packages, cartons, or a truck transporting product to consumers on a timely basis. Accuracy, cost savings, speed, and ease of data storage and processing are all advantages of Auto ID.

The following are some of the most common Automatic Identification technologies in use:

Bar coding is a series of parallel lines of various thicknesses with gaps between them. These bars are just bits of information that have been codified and may be read with the aid of a scanner. At 1952, bar codes were first deployed in a supermarket in the United States. Country code, company name, product specifications, date of production, material composition, and other information are printed on bar codes. These data are needed for inventory management at the user's end. Bar codes are utilized in a wide range of sectors, including retail, pharmaceuticals, consumer products, electronics, and vehicles.

The following are some of the benefits of bar coding.

1. Identify inventory goods with ease throughout storage, retrieval, collection, inspection, and dispatch.
2. Reduce the amount of paper labor and processing time, resulting in faster results.
3. Reduce the possibility of human mistake.
4. Increases the efficiency of the logistics system by increasing speed, accuracy, and dependability.

The impact of bar code technology on logistics and supply chain management operations

Procurement operation - Bar codes are given to parts and components brought in from suppliers, which include information such as item name, batch number, date of production, order number, serial number, and so on. The information included in a bar code aids in the identification and tracking of a component. When products reach the warehouse through a conveyor, they are scanned again by a hand-held scanner or a scanner mounted beside the conveyor. The data decoded by the scanner is instantly recorded in the central computer, allowing inventory records to be updated in real time.

Order processing - The bar code will aid in the identification of goods depending on their date of arrival into the warehouse or shop during order processing. In a FIFO (First in, first out) inventory management system, this will simplify material storage, retrieval, and dispatch **Production operation** — Bar coding makes it simpler to identify in-process and completed products throughout the manufacturing process. It is simple to monitor the various bathes at various phases of manufacturing.

Distribution - During distribution, barcodes aid in the identification and monitoring of completed products on their way to consumers.

RFID (Radio Frequency Identification)

RFID (Automatic Identification and Data Capture) is a technology that uses radio waves to identify and capture data. During the 1980s, RFID was initially used in tracking and access applications. Non-contact scanning is possible with RFID-based devices, making them useful in manufacturing and other hostile environments where bar codes would fail. These are used to transmit inventory data to the reader using radio waves as an alternative to barcodes. RFID allows a tagged item and a reader to exchange data wirelessly.

The following components make up an RFID system:

1. one or more Radio Frequency Tags (RFTs), each of which has a semiconductor chip and an antenna.
2. A read/write device (also known as a reader) is a device that allows you to read and write data.
3. There are two or more antennae, one on the tag and the other on the reader.
4. The host computer system and the application programme.

RFTs

The central computer is linked to the reader. RFTs (Radio Frequency Tags) are a kind of silicon tag. In the microcircuit, a chip is used to store data. The RFTs have erasable memory and may be programmed. Data is stored in a ciphered format and sent to the reader through waves. The antenna emits radio waves, which is the fundamental basis of tag. RFTs are very helpful when shipping via vehicle. The tag will provide information about the consignor, consignee, inventory items, amount and value, the time the item passed through a certain zone, and even the temperature. With its antenna, the reader receives the tag signal, decodes it, and sends the data to the host computer system. RFTs may be attached to almost anything, including semi-tractors, pallets, and containers. RFTs will save time and money by eliminating paperwork and allowing for faster clearance at octroi and customs checkpoints. Barcodes may be attached to individual inventory items in the warehouse, whereas RFTs can be applied to pallets, containers, and other large objects. These will enable employees to interact directly with the warehouse computer.

RFID has a major effect on many industries' operations and supply chains.

1. RFID enables Indian exporters to multinational retailers such as WAL-MART to get a better understanding of their products' movement throughout the supply chain and therefore become more competitive.
2. Improve manufacturers' capacity to control inventory levels more effectively.
3. Improve the Defense operation's complicated distribution system.
4. Improve the Indian Postal Services' complicated tracking and distribution processes.

5. Improve Indian Railways' monitoring, logistics, and planning operations, as well as state public transportation agencies'
6. Implement automatic toll collecting over a large roadway network.

RFID Technology Case Study

Company Procter & Gamble (P&G)

P&G utilized bar codes to monitor shipments of products from the factory to retail outlets before, but it couldn't do much to prevent supply shortages on shop shelves.

Following that, P&G began using RFID to monitor shipments and, ultimately, individual goods, allowing them to be replenished on demand in shops. P&G aims to save $400 million per year in expenses.

Ford Motor Company is a car manufacturer

Previously, assembly-line employees who ran out of components had to pick up the phone and contact the replenishment department for new parts, then wait for them to arrive.

After that, Ford labels each component container with RFID tags. When supplies run short, warehouse operators are alerted in seconds, and components are immediately delivered to assembly line employees as required.

Voice Interactive System (Visual Interactive System) — This technology was created in 1980. It's utilized in a variety of fields, including medicine, manufacturing, and storage. It enables a warehouse worker or operator to transmit data to a central computer without having to utilize a keyboard. It allows warehouse employees to pick up, pack, and check items with their hands free. While operating the forklift or picking inventory, he may read the part/item number and go from one pallet to the next. Real-time data updating will be possible thanks to internet data transfer to a central computer.

III. TECHNOLOGY OF COMMUNICATION

Communication, whether oral or written, is critical to a company's success. The following are a few developing communications technologies that allow better customer service while also increasing competitiveness via communication speed and accuracy.

Electronic Data Interchange (EDI) is a technology that allows business papers to be sent from one computer to another. Business papers including invoices, checks, and challans are transmitted electronically from one company to another via EDI. EDI is, in reality, a push toward paperless document transmission and transactions. The difference between an email message and an EDI message is that an email message is written and interpreted by hand, while an EDI message is written using one programme and interpreted by another. While e-mail data is unstructured, EDI data or messages are. In a court of law, an EDI message has legal standing.

The advantages of EDI technology in logistics and supply chain management include the following:

1. Faster transactions—in the supply chain, real-time document transmission.
2. It is possible to use the Just-in-Time manufacturing method.
3. Transaction costs are reduced as a result of paperless operations.
4. Reduction in order cycle time and inventory, which will help clients become more competitive.
5. Improve corporate trade connections among supply chain partners while erecting obstacles to rivals.

VSAT (Very Small Aperture Terminal) - Satellite communication channels are critical for real-time data gathering and transmission, which is critical for customer service. A dish antenna is mounted on the truck to track and trace the goods transporter. This enables the driver, consignor, and consignee to communicate. The real-time engagement allows for the most up-to-date information on the truck's location and delivery location.

For example, Wal-Mart, the American retail behemoth, use this method to manage inventory movement.

Geographical positioning system (GPS) - The GPS is a more precise technology used in developed nations that allows a vehicle to be tracked to one meter precision in terms of latitude and longitude using Geo Stationary Satellites. Once the vehicle's location is known, it may be communicated to the consignor or consignee through the transmission network, such as mobile phones or the internet.

Geographical Information System (GIS) - GIS are software tools that allow you to see a specific position of any item on the planet that is recorded in databases related to geography.

This may be in the form of physical maps of the earth's surface, inner surface layouts, or street or road layouts.

In logistical operations, GIS is used in conjunction with GPS to monitor and trace consignment locations to the extent of a road or street in a certain city.

Web-based tracking of consignments –Logistics service companies in India are now offering web-based tracking of consignments to their customers. Clients may get a status report on their consignment from AFL, FedEx, Blue Dart, and others. Clients may access this report over the Internet and download it. This

information aids in the design of the dispatch schedule as well as the collection of payments from customers.

Automated Guided Vehicle System (AGVS) - A magnetic or optical guiding system is used in this system. For material handling equipment guidance, the magnetic system utilizes electrified wire placed on the warehouse floor. The operator is no longer used in AGVS. The latest generation of AVGS is video-guided and does not follow a set route. All material handling operations may be performed by AGVS without the need for human intervention. A robot is used in conjunction with AGVS to pick up the precise material requirements for a client order.

Information Directed System (IDS) - In this system, the material handling equipment is controlled by a centralized computer. Radio frequency is used to communicate between the device and the computer. The necessary movements are entered into a computer, which distributes tasks to specific machines based on their maximum loading capacity and handling speed. IDS can handle a range of complicated material handling tasks with the same material handling equipment, such as multiple order picking or multiple vehicle loading, resulting in increased warehouse efficiency and flexibility in handling a variety of activities.

IT (Information Technology) - IT is comprised of hardware and software that collects, analyses, and distributes data to wherever it is required. Because supply chain management is described as a network of companies, these organizations can't create a network unless they're linked through IT, resulting in supply chain transparency and aligning supply chain operations with customer needs.

DELL's supply chain success was attributed to IT, which utilized the internet to gather orders directly from customers and communicate the information with suppliers so that they could predict better and supply to the demand.

The following are some of the IT tools used in logistics and supply chain management:

Enterprise Resource Planning (ERP) - ERP is a piece of software that encompasses all aspects of a company's operations and allows for major changes in how employees operate. ERP stands for Enterprise Resource Planning, and it is a business solution that solves specific business problems. ERP is a costly and complicated undertaking that requires much preparation. SAP and Oracle, which were created by foreign corporations to fit the business climate in those countries, are the most widely used ERP in India. However, certain Indian firms, such as Ramco Systems, have built ERP specifically for the Indian market.

By providing the following benefits, ERP aids in the optimization of supply chain management and the development of competitiveness.

1. a faster response to a customer's request
2. Inventory expenses are reduced.
3. Internal and external service levels are being improved.
4. Inventory turnover rate has improved.
5. Cost-cutting in logistics.
6. Companies such as Hindustan Lever, Colgate, and Nestle, for example, have adopted ERP in their supply chain systems, resulting in lower raw material and finished products inventories and cost savings.

DRP (Distribution Requirement Planning) is another IT tool as well as a complex planning method that considers various distribution phases as well as the distribution system's features. DRP calculates the completed products inventory required based on customer demand at numerous distribution locations in various markets. DRP assists in the consolidation of shipments to numerous sites over a large geographical region, lowering freight costs. DRP increases inventory visibility across the supply chain, lowering inventory levels and reducing storage space requirements.

Automated Inventory Tracking System (AITS) - AITS is an IT solution that provides real-time inventory levels for all products in retail shops, feeder warehouses, and mother warehouses. After the item inventory level is verified at the feeder and mother warehouses, information is sent immediately to the supplier for replacement of sold goods. Depending on the item take-off rate at retail shops, its safety stock, inventory in transit, and other factors, the supplier takes action to refill the inventory item, thus optimizing inventory in the supply chain. With the assistance of AITS, Wal-Mart, a major US retail chain behemoth, is able to manage inventory investments across the supply chain. *The following are the effects of IT on logistics and supply chain management functions.*

Procurement- In the beginning, the procurement process was handled by a separate department and was based on the lowest price from the supplier. With the introduction of information technology in the next generation,

Long-term contracts and partnerships are used in e-procurement to conduct online auctions and form strategic connections with excellent suppliers.

Production and distribution planning were done on the basis of historical data in the early days before the introduction of IT. There was little connection with business strategy, and output varied in response to changing demand. However, with the introduction of IT, new approaches to planning have emerged, such as collaborative planning, forecasting, and replenishment (CPRF). It entails a long-term commitment to exchanging information for collaborative planning objectives such as cooperative business planning (SKUs, branding), as well as financial planning. (Sales, inventories, back-up supplies, price, and fill rate)

Web-based collaboration- To provide the greatest level of customer service and profitability, the web-based collaboration tool allows you to share and cooperate with supply chain partners on forecasts, replenishment, and promotional strategies.

Scheduling - In the beginning, scheduling was done to maximize asset usage while lowering production costs. However, with the introduction of IT, a strong connection between supply chain partners and customers has been created. As a result, scheduling is done to ensure that the client is served at the appropriate moment.

Inventory management - During the early stages, each department attempted to reduce inventory by moving it to the next level of the supply chain. As a result, the overall inventory cost in the supply chain was high since the inventory kept in the supply chain was not transparent. With the introduction of IT, however, methods such as collaborative replenishment and vendor managed inventory were used, in which the manufacturer assumed responsibility for replenishing the distributor's inventory, resulting in inventory management and access to demand data.

Logistics and warehouse management - In the beginning, logistics was more manual, and there was no sight of products movement. However, with the introduction of IT and technology such as RFID and GPS, full visibility of products movement is guaranteed, resulting in effective logistic and warehouse management.

Customer service - Customer service was just reactive in the beginning. It was difficult to contact the appropriate department with complaints or information, and the procedure was time consuming. Customer service has become more proactive as a result of the introduction of IT, since it now reaches out to customers through the internet and collects constant feedback.

Conclusion

Technology is a means of improving supply chain competitiveness and performance by improving the overall effectiveness and efficiency of the logistics system. As a result, selecting the appropriate technology for different logistical operations or sub-processes is critical for any company seeking a competitive edge in today's market.

For example, a cycle maker must consider how to integrate the smallest component provider, such as a brake shoe supplier, as well as the rural center dealer, in order to improve production and retain customers rather than losing them to a rival. Integration in the supply chain is now feasible thanks to accessible technology, but only if supply chain partners follow the correct strategy.

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Plankton Analysis from Girna Reservoir

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Abstract:

Plankton analysis study was done on Girna reservoir. Water samples were collected from different sites which include polluted, moderately polluted and clean water sites. 26 Species of Phytoplanktons and 7 species of zooplanktons were recorded from present investigation. It includes Zooplankton of the potamone zone (downstream area of a river where water flowing speed is slow) consists of members of protozoa, rotifera, cladocera and copepod. Many planktons species serve as important bio-indicators of water pollution.

Key words: Girna Reservoir, Zooplanktons, Phytoplanktons, Bio-indicators

Introduction:

Girna reservoir is located at latitude 20°28' and longitude 70°43' in the arid zone of Malegaon taluka in Nasik district. It is an earthen dam constructed in 1969-70 over Girna river which is a major tributory of Tapti river. It has an effective water spread of 2500 ha (Khalid and Siddiqui, 1990a). It is at the height of 1318 feet from mean sea level. It is 963.17 m long basically constructed for the purpose of irrigation but later it has been used for the cultivation of major carps. Plankton are a mixed group of tiny, living plants and animals that float, drift freely or feebly swim in water column independent of the shore and bottom (Sommer, 1994) and occupy the base level of food chains (autotrophs) that lead up to commercially important fisheries. They are also reliable bio-indicators of water quality (Keller et al., 2008). Additionally, plankton communities play a major role in the biogeochemical cycles of many important processes such as the carbon cycle, nitrification, denitrification, remineralization, and methanogenesis. Planktons are the source of life for most of aquatic organism especially in their larval stages. Many fish species depend on it as a food source after absorbance of yolk sac. It has been professed from long time back that Planktons are the main source of nutrition for fish larvae. Planktons are the main link in the energy transmission at secondary level, they play a considerable role in the production potency of any aquatic ecosystem.

Materials and Methods:

Collection and Sampling: For the present study, water samples were collected from three different sites of dam randomly. Surface water was collected directly from each selected site of dam. The water samples containing planktons were carefully transferred to the bottle and brought to the laboratory without disturbance. Samples were collected once in week from all four stations of dam, for period of four months from July 2019 to October 2019. The samples were collected during morning hours.

Preservation and Identification of Zooplanktons: Zooplankton were collected by filtering known quantity (500 ml) of sample water then these were filtered through the fine mesh plankton net and preserved in 4% formaldehyde solution. Planktons were observed under a light microscope and identified by using standard Key, other literature (Pennak, 1989; APHA, 1998; Dhanpati, 2000 and Segers, 2007).

Preparation of permanent slides: The preserved material of zooplanktons were washed with distilled water then dehydrated through different grades of alcohol. After dehydration they were stained in acetocarmine and differentiated them and then mounted in D.P.X for preparation of permanent slide.

Results and Discussion:

Table 1 Planktons recorded during study period:

Sr. No.	Type of Plankton	Site	Name of Genera
	Phytoplankton	Polluted water	*Chlorella, Vulgaris, Oscillatoria limosa, Microsystis aeruginosa, Stigeoclonium tenue, Ankistrodesmus falcatus, Scendesmus, Quardricauda, Synedraulna, Navicula viridula, Euglena viridis, Phacus caudatus* and *P. viridis*
		Moderately polluted or clean water sites	*Oscillatoria princes, Phormidium uncinatum, Gomphonema parvulum, Cymbella turgid, Navicula cuspidate* and *Synedra acus*
		Clean and clear water forms	*Merismopedia glauca, Oscillatoria subbrevis, Phormidium calciocola, Pediastrum simplex, Melosira ambiguans* and *Gamphonmea*
	Zooplankton	Clean and clear water forms	*filinia longiseta, B. forficula, B. quadridentata, keratella tropica* and *K. cochlearis*

		Polluted water sites	*Brachionus rubens,* and *Rotaria*

26 Species of Phytoplanktons and 7 species of zooplanktons were recorded from present investigation. Phytoplanktons like *Chlorella, Vulgaris, Oscillatoria limosa, Microsystis aeruginosa, Stigeoclonium tenue, Ankistrodesmus falcatus, Scendesmus, Quardricauda, Synedraulna, Navicula viridula, Euglena viridis, Phacus caudatus* and *P. viridis* were observed to confine to the sites of urban and industrial discharge where water is polluted. *Oscillatoria princes, Phormidium uncinatum, Gomphonema parvulum, Cymbella turgid, Navicula cuspidate* and *Synedra acus* were recorded from clean as well as moderately polluted zones. *Merismopedia glauca, Oscillatoria subbrevis, Phormidium calciocola, Pediastrum simplex, Melosira ambiguans* and *Gamphonmea* species are highly sensitive clear water forms of phytoplanktons. Zooplankton of the potamone zone (downstream area of a river where water flowing speed is slow) consists of members of protozoa, rotifera, cladocera and copepoda, forms like *filinia longiseta, B. forficula, B. quadridentata, keratella tropica* and *K. cochlearis.* These forms were recorded from clean as well as moderately polluted waters. But forms like Brachionus rubens, and Rotaria were found to be present in polluted parts of the potamone zone. These are important bio-indicators of water pollution.

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Environment : Most Significant Issues

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Abstract :-

Environmental issues were not a matter of concern in the years gone by people were not aware of the grave implications of environmental degradation. Lack of awareness leads to more damage to the environment with the rise of the internet, everyone is aware of environmental issues today. Not all of them understand the deeper meaning of each one of those issues. However given the state of the earth, people realize that all is not well. With the rise of pollution levels and depletion of the one layer. All the countries in the world are concerned about the environment. This is mainly because environmental degradation threaten the existence of human kind previously, no one even bothered to care about the environment people were careless about their surroundings. But now, rising awareness some of them have become more cautions. Every person should know most significant Environmental issues. It will help to save environment. At this moment Global warning has become an undisputed fact about our current livelihood, our planet is warming up and we are definitely part of the problem. However, this isn't the only environmental problem that we should be concerned about. All across the world, people are facing a wealth of new and challenging environmental problems every day. Some of them are small and only affect a few ecosystems, but others are drastically changing the landscape of what are already know. The Present article emphasizes on most significant Environmental issues.

Introduction –

Our environment is constantly changing there is no denying that fact. However, as our environment changes. So does the need to become increasingly aware of the problems that surround it with a massive influx of natural disasters, warming and cooling period, different types of weather patterns and much more people need to be aware of what types of environmental issues our planet is facing. Environmental issues are defined as problems with the planets systems (air, water, sail, etc.) that have developed as a result of human interference or mistreatment of the planet. Our planet is poised on the drink of a severe environmental crisis. Current environmental problems mate us vulnerable to disasters and tragedies now and in the future we are in a state of planetary emergency with environmental problems pilling up high around us. Unless we address the various issues prudently and seriously we are surely doomed for disaster. Current environmental problems also require argent attention.

Environmental issues are defined as harmful effects to Earth and its natural systems due to the action of humans. Although climate change can also occur for natural causes, human behavior has led to an increase in greenhouse emissions. While climate change is discussed frequently now, it has been occurring since the industrial Revolution.

An additional concern is pollution and its influence on public health. Research shows that black carbon is making dangerous bacteria harder to kill and resistant to antibiotics. Moreover, black carbon increases risks of heart attacks, strokes and even lung cancer.

The vast amount of untested chemicals released into the air and found in our foods and household items endanger general public welfare. One study tested children for the presence of lead, methylmercury and polychlorinated biphenyls and found traces in over 89 percent of the subjects. As the future of society, kids need a safe and healthy start to life.

Most Significant current Environmental Issues -

1) Pollution -

There are 7 key types of pollution – air, water, soil, noise, radioactive, light and thermal and these are primary causes that affect our environment in many ways. All these types of pollution are interlinked and influence each other. Therefore we need to tackle all of them together.

2) Soil Degradation -

Globally, food security depends on the factor whether or not soils are in good condition to produce crops. According to UN estimates, about 12 million hectares of farmland a year get seriously degraded. Soils get damaged due to many reasons. Such reasons include erosion, overgrazing, overexposure to pollutants, monoculture planting, soil compaction, land-use conversion and many more. Nowadays, a wide range of techniques of soil conservation and restoration exist, from no-till agriculture to crop rotation to water-retention through terrace-building.

3) Global Warming -

Climate changes like global warming are the result of human practices like the emission of greenhouse gases. Global warming leads to rising temperatures of the oceans and the earth' surface causing natural

disasters that include flooding, melting of polar ice caps, rise in sea levels and also unnatural patterns of precipitation such as flash floods, hurricanes, wildfires, drought, excessive snow or desertification.

4) Overpopulation -

The population of the planet is reaching unsustainable levels as it faces a shortage of resources like water, fuel and food. Population explosion in less developed and developing countries is straining the already scarce resources.

Intensive agriculture practiced to produce food damages the environment through the use of chemical fertilizer, pesticides and insecticides. Overpopulation is also one of the crucial current environmental problems.

5) Natural Resource Depletion -

Another crucial current environmental problem is the depletion of Natural resources. We, humans, use so many natural resources that it would need almost 1.5 Earths to cover all our needs.

6) Waste Disposal -

The overconsumption of resources and the creation of plastics are creating a global crisis of waste disposal. Developed countries are notorious for producing an excessive amount of waste or garbage and dumping their waste in the oceans and less developed countries.

7) Deforestation -

Our forests are natural sinks of carbon dioxide and produce fresh oxygen, as well as helps in regulating temperature and rainfall. At present, forests cover 30% of the land, but every year tree cover is lost, amounting to the country of Panama due to the growing population demand for more food, shelter and cloth. Deforestation simply means clearing of green cover and make that land available for residential, industrial or commercial purposes.

8) Climate Change -

Climate change is yet another environmental problem that has surfaced in the last couple of decades. It occurs due to the rise in global warming, which happens due to the increase in temperature of the atmosphere by burning fossil fuels and the release of harmful gases by industries.

9) Ocean Acidification -

It is a direct impact of excessive production of CO2. 25% of total atmospheric CO2 is produced by humans. The ocean acidity has increased by the last 250 years, but by 2100, it may shoot up by 150%. The main impact is on shellfish and plankton in the same way as human osteoporosis.

10) Ozone Layer Depletion -

The ozone layer is an invisible layer of protection around the planet that protects us from the sun's harmful rays. The depletion of the crucial Ozone layer of the atmosphere is attributed to pollution caused by Chlorine and Bromide found in Chloro-fluoro carbons (CFCs). Once these toxic gases reach the upper atmosphere, they create a hole in the ozone layer, the biggest of which is above the Antarctic.

CFCs are banned in many industries and consumer products. The ozone layer is valuable because it prevents harmful UV radiation from reaching the earth. This is one of the most important current environmental problems.

11) Acid Rain -

Acid rain occurs due to the presence of certain pollutants in the atmosphere. Acid rain can be caused due to combustion of fossil fuels or erupting volcanoes or rotting vegetation which releases sulfur dioxide and nitrogen oxide into the atmosphere.

12) Water Pollution -

Clean drinking water is becoming a rare commodity. Water is becoming an economic and political issue as the human population fights for this resource.

One of the options suggested is using the process of desalinization. Industrial development is filling our rivers, seas and oceans with toxic pollutants, which are a major threat to human health.

13) Overfishing -

Overfishing affects natural ecosystems severely and leads to an imbalance of ocean life. Around 63% of global fish stocks are estimated to be overfished. Overfishing caused fishing fleets to migrate to new waters that would further deplete the fish stocks. Moreover, it has negative effects on coastal communities that rely on fishing to support their living.

14) Public Health Issues -

The current environmental problems pose a lot of risk to the health of humans and animals. Dirty water is the biggest health risk in the world and poses a threat to the quality of life and public health.

Runoff to rivers carries with it toxins, chemicals and disease-carrying organisms. Pollutants cause respiratory diseases like Asthma and cardiac-vascular problems. High temperatures encourage the spread of infectious diseases like Dengue.

15) Genetic Engineering -

Genetic modification of food using biotechnology is called genetic engineering. Genetic modification of food results in increased toxins and diseases as genes from an allergic plant can transfer to the target plant. Genetically modified crops can cause serious environmental problems as an engineered gene may prove toxic to wildlife.

Efforts Addressing Environmental Issues –

Numerous approaches have been taken to target these issues :

Clean energy – To reduce pollution and our use of oil and fossil fuels, efforts have been made to find clean, renewable energy source. Some include biofuel, hydropower, solar energy, and wind power,

Environmental education programs – One of the most basic things contributing to sustainability is environmental education. Learning about the environment and what is happening is one of the easiest ways to make a difference and reduce your carbon footprint.

Wildlife conservation – Wildlife, including plants, animals and habitats, plays a large part in balancing natural systems. A number of different organization are involved in wildlife conservation around the world and express the importance of conservation and investing in biodiversity.

Ecological restoration- Not only does ecological restoration assist in the recovery of the environment, but it promotes a healthy relationship between humans and nature. By repairing the damage we cause, we promote a healthier ecosystem and improve living condition for humans, possibly with a profit.

Research for advocacy and policy change- Possibly one of the most important steps to achieving a healthy environment involves policy. But to gain government support, we need solid research and advocates to voice the facts.

Environmental Issues : How to Get involved –

Now that you know more about the pressing urgency of these environmental issues, here are a few simple ways you can make a difference.

Educate yourself – The first step to environmental advocacy is learning more about the subject an then helping educate others through civil discourse. After all, a recent Gallup poll found that more than half of Americans don't believe climate change will affect them in their lifetime.

Eat like It matters – The way you eat has many different effects on the environment. To make your contribution positive, you can start with a sustainable, plant-based diet. This, along with reducing portion size and food waste leads to a healthier life and reduces stress on the environment.

Reduce your carbon footprint – It may seem hard to do, but there are a few easy ways you can lessen your carbon emissions. As mentioned above, eating a plant-based diet is not only healthy, it reduces carbon emissions. You can also try carpooling, using public transportation or opt for a car-free life! These simple ideas can lead to big changes when implemented on a large scale. Give time or money – Support organizations that are making an impact on environmental issues.

Conclusion –

Many of these issues are linked to one another. The key is that they are all important challenges that need to be confronted climate change and the many factors that contribute to emissions could lead to catastrophic issues in the future. More needs to be done to remedy the major environmental issues that affect us today. It this doesn't happen, the possibility exists that great swathes of the planet will great swathes of the planet will become uninhabitable in the future. The good news is that many of these issues can be controlled. By making adjustments, humanity can have a direct and positive impact on the environment.

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Comparative Study Of Raw And Post Bio-Methanated Spent Wash Bio-Compost On The Quality And Yield Of Ratoon Sugarcane.

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Abstract
A field experiment was conducted on Ratoon sugarcane during the year 2016-17 at Research farm of Mula sugar factory Sonai, Dist. Ahmednagar (MS).The main objective was comparative study of raw and post biomethaneted spent wash along with bio-compost fromthe different organic sources such as press mud cake, bagasse, sugarcane trash, wheat straw etc. on the quality and yield of Ratoon Sugarcane.The field experiment was laid out in randomized block design with three replication and ten treatments. The result showed that among the different treatments maximum increase in juice quality i.e. CCS T/ ha was 12.18 t/ha-1 in treatment PBSW + PMC.Whereas maximum increase in cane yield was recorded 106.10 ton / ha-1 in treatment RSW + PMC.

Keywords: *biocampost, press mud cake, bagasse, raw spent wash, ratoon.*

Introduction

India contributes 579 sugar industries and produce 14.5 million tons ofsugar by crushing 145 million tons of sugarcane. The annual byproductproduction from these industries is 7 million tons of press mud and 7.5million tons of molasses. Molasses is utilized in the distillery for theproduction of alcohol. The aqueous distillery effluent stream known asspent wash. It is a dark brown highly organic effluent and is approximately 12-15 times by volume of product alcohol (Rath et.al, 2011).The disposal of distillery spent wash is of serious concern due to its large volume and high biological oxygen demand (BOD) and chemical oxygen demand (COD). Due to high concentration of organic load, distillery spent wash is a potential source of renewable energy. The effluent contains high amount of nutrients such as nitrogen,phosphorous, potassium, sulfur and a large amount of micronutrients. The soil application of distillery spent wash often benefits water pollution control and utilization for agricultural production (Suganya and Rajannan,2009). In order to archive improvement in juice quality and cane yield in Ratoon sugarcane crop present investigation was carried out.

Material And Methods

Field experiment was conducted in Research farm of Mula SugarFactory Sonai, Dist. Ahmednagar Experiment was performed on Ratoon sugarcane variety CO-86032.The field soil was medium black. Before conducting field experiment soil parameter such as pH, Electrical conductivity, Organic carbon and available N,P,K was studied. The experiment was laid out randomize block designs with three replications and ten different treatments. There were total ten treatments which consist of T1- Absolute control, T2- RSW + BC, T3- PBSW + BC , T4- RSW+STC, T5-PBSW + STC , T6- RSW +- PMC, T7- PBSW + PMC, T8- RSW + WSC, T9- PBSW + WSC, T10 – RDF. At harvesting stage Juice quality and yield parameterswas studied by using standard method.

Result And Dissucusion:

Table 1 – Comparative study of Raw and Post Biomethaneted spent wash along with bio compost on Ratoon sugarcane juice quality.

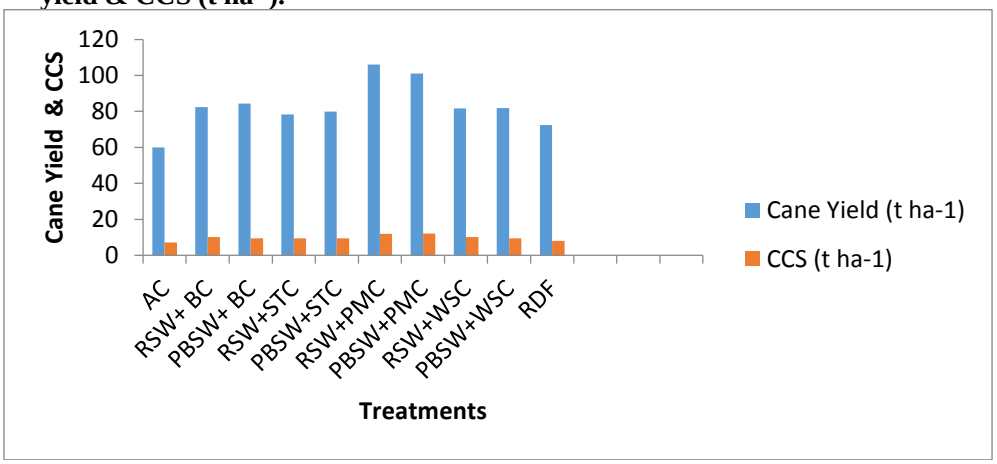
Sr. No.	Treatments	Brix %	Purity %	CCS %	Sucrose %	CCS (t ha^{-1})
1	**AC**	19.55	87.36	11.90	17.08	7.14
2	**RSW + BC**	19.34	90.58	12.42	17.52	10.23
3	**PBSW + BC**	19.40	83.86	11.11	16.27	9.37
4	**RSW + STC**	20.28	85.45	11.95	17.33	9.35
5	**PBSW + STC**	19.51	86.57	11.72	16.89	9.36
6	**RSW + PMC**	18.54	86.83	11.19	16.10	11.87

7	**PBSW + PMC**	19.77	87.45	12.06	17.29	12.18
8	**RSW + WSC**	19.61	89.95	12.47	17.64	10.18
9	**PBSW + WSC**	18.23	89.68	11.54	16.35	9.45
10	**RDF (AST)**	19.97	81.62	10.97	16.30	7.94

Table 2 - Comparative study of Raw and Post Biomethaneted spent wash along with bio compost on Ratoon sugarcane on cane and green top yield (t ha^{-1}).

Sr. No.	Treatment No.	Cane Yield (t ha^{-1})	Green top Yield (t ha^{-1})	Total Yield (t ha^{-1})
1	**AC**	60.00	6.80	66.8
2	**RSW + BC**	82.40	8.80	91.2
3	**PBSW + BC**	84.40	8.90	93.3
4	**RSW + STC**	78.27	8.60	86.87
5	**PBSW + STC**	79.90	8.60	88.5
6	**RSW + PMC**	106.10	11.10	117.2
7	**PBSW + PMC**	101.00	10.50	111.5
8	**RSW + WSC**	81.70	8.70	90.4
9	**PBSW + WSC**	81.90	8.80	90.7
10	**RDF (AST)**	72.40	7.90	80.3

Graph 1 –Comparison of Raw and Post Biomethaneted spent wash along with bio compost on Cane yield & CCS (t ha^{-1}).



The data on effect of application of Raw and Post Biomethaneted spent wash along with bio-compost on brix, purity, CCS, sucrose are shown in Table 1. The purity per cent ranged from 87.45 (PBSW +WSC) to 86.83 % (PBSW+STC). Whereas, CCS % ranged from 10.97% in RDF to 12.74% (RSW + WSC). The highest content of sucrose was noticed in treatment RSW + WSC (17.64 %). The CCS yield ranged from 7.14 (AC) to 12.18 t ha-1 (PBSW + PMC). These results are in conformity with the findings of M. R. Chauhan and A. L. Pharande (2017), Bhaleraoet *al.* (2006) and Ghugare (1994) The green top yield of sugarcane ranged from 6.80 to 11.10 t ha-1. The bio-compost prepared from RSW and PMC showed highest green top yield (11.10 t ha-1) followed by PBSW + PMC bio-compost (10.50 t ha-1) and PBSW + BC (8.90 t ha-1). The cane yield of sugarcane ranged from 60.00 to 106.10 t ha-1. The bio-

compost prepared from RSW and PMC showed highest cane yield (106.10 t ha-1) followed by PBSW + PMC bio-compost (101.00 t ha-1) and PBSW + BC (84.40 t ha-1).Thus, the yield parameters clearly indicate that the significant response for increase in yields due to application of bio-compost along with RSW and PMC. Among the treatments the use of RSW+PMC showed significantly highest cane yield.Pande and Sinha (1988), Jadhav and Savant (1975), Shinde*et al.* (1993) Chauhan and Pharande (2017).

Conclusion:

From the above results it is concluded that among the different treatments Post biomethenated spent wash and Press mud cake (T7) is most superior to other treatments. It shows highest increases in juice quality but cane yield was increased raw spent wash and Press mud cake of sugarcane.

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Study of Teaching Learning Needs and Library Collection in Kendriya Vidyalaya

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Abstract:

In recent years, dynamic method of teaching has been introduced in school curriculum. Once this resulted, teacher centered coaching followed in schools were changed to student centered learning programme. Under this pattern, the school follows resource-based curricula which will prepare students for life-long learning. Such curricula demand that teachers and students should have access to resources and programs that focus on the skills necessary to the effective use of those resources. So, there is an indispensable relationship between school library and school education. The aim of this study is to study of teaching learning needs and library collection in Kendriya Vidyalaya CRPF Mudkhed. A thorough study in the area of school library will help to find out demerits of the present school library and facilitates to improve resources and function of school library.

Keywords: Curriculum, Student Centered learning, Library Collection.

Introduction

A quality school education is a vital part of school education. A school without a library is like an organism without its core. For students, the school library is an essential source of information and ideas, a place for learning and enquiry and for generation of thoughts and creation of new knowledge. Reading habit among students cannot be created in the absence of a good library. Without the reading habit, students cannot delve in the world of knowledge. It will affect the students 'thinking and intellectual development. In the absence of the school library, there will be no possibility to develop children's ability to learn beyond classroom learning. The school functions without proper school library create an information illiterate society. The precious spare time of Teachers at school will be wasted if the school does not have a library. Lack of the library in school hinders lifelong liking and longing for new knowledge. The school library helps children to become good citizens. So, the library is essential to make an information literate knowledge society of tomorrow.

Review of Literature

Young (2010) studied work of the school librarians to align collection development in schools with instructional and learning needs. The study reported the changing priorities of school libraries, from students and teachers needs to students' performance goals. The stakeholders input is the source for collection development and the state and local standards with the expertise of the librarian.

Idiegbeyan-Ose and Okoedion (2012) examined the school libraries in Benin City. Study shown that all libraries where study was carried out are lacking adequate library resources. Most of the libraries had old books which are outdated and dusty. Study suggested that the resources in library must be updated to meet the needs of library users.

Shandu (2014) evaluated the problems in the provisions and use of school library services in secondary schools in Katlehong Township. Use of services provided by school library by students and teachers are not motivating. Most of the users use only internet as a library source. It is identified that most of reading material like magazines, journals and books were not updated which will aid in teaching learning process in the school and reason behind this was lack of fund availability

Research Methodology

The study is a descriptive study in nature. The purpose of this descriptive study is to collect detail and factual information that will describe the current phenomenon of Library Collection and whether it is meeting the user needs. Primary data were collected with the help of structured questionnaire administered to 50 respondents in Kendriya Vidyalaya CRPF Mudkhed and the type of Sampling is simple random sampling technique. The data obtained from the field questionnaire were classified; analysis, tabulated and logically interpreted in this Study.

Primary Data

Primary Data will be gather using survey as a mode of data collection. To conduct this survey, structured questionnaire will be prepared. The methods for Primary Data Collection will be

- Questionnaire & Personal interview

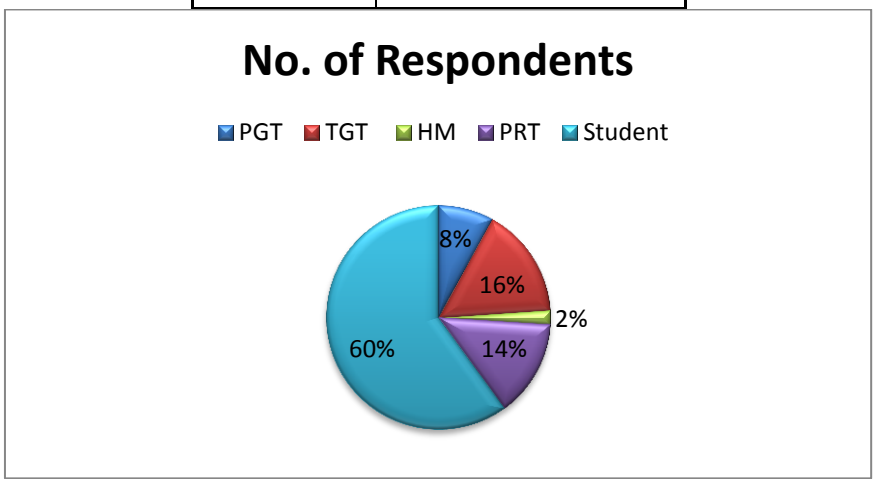
Secondary Data

The Secondary data will be gathered from different publications of library and information sciences associations of India, Annual reports of Kendriya Vidyalaya Sangathan, CBSC publication, NCERT publication.

Data Processing and Analysis

After the data collection, all the questionnaires were scrutinized to ensure accuracy and completeness in as systematic way according to the need of objective of the study.

Respondents of Study	
Particulars	**No. of Respondents**
PGT	4
TGT	8
HM	1
PRT	7
Student	**30**
Total	50



Conclusion

In the day-to-day life of a school, the library can serve many different kinds of purpose based on the vision and mission of the school. The primary function of the school library is to implement, enrich and support the educational programme of the school, and to cultivate a taste for reading among the young ones. The school library provides a range of learning opportunity to the individual as well as to groups to develop intellectual content and information literacy. Now library is not a collection of books. It is a media center, where students can work on computer and other Information Communication Technology tools which help to make children information literate.

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" Covid 19 And Its Impact On Education"

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.Abstract-

This article tries to explain how covid19 has been impact on education. As the second wave of corona disrupts public life, the education sector is also going through a transition. May-June every year is the month of examinations and the doors of higher education are opened. This year, however, the next admission will be made without the 10th-12th public examination. Although this is an achievement in terms of computer systems, is there a pre-preparation and mentality of the general public and educational institutions? Thoughts felt while doing research in this regard. 10 + 2 + 3 this education system is completing four decades, the new education policy, 2019 has been approved across the country. About 55 years after the policies of the Kothari Commission in 1966, the policy has been formulated with a holistic view of the education sector. The new 5 + 3 + 3 + 4 from the age of 3 to 18 years of age is being implemented as a one-stop education policy. At the same time, the impact of the Corona epidemic is adversely affecting family life in all areas of life, including trade, industry, banks, offices, the environment, the movement of individuals and groups. While the first wave of corona has subsided, the second wave in March-April 2021 has hit many states, including Maharashtra, especially rural and semi-urban areas

Key words *–-covid, pre-preparation, wave, fatal, blueprints, Unprecedented, connectivity, repercussions, explosion, online, reshape*

Introduction-

Going even further, the possibility of a third wave in August-September is also being speculated. In fact, May-June is a very important academic year every year. Secondary school exams are 10th and high school exams are 12th, big public exams! These are the gateways that open the doors of higher education! Twelfth is also the exam to cross the first threshold of those disciplines! In Maharashtra, more than three lakh students sit for these exams. Corona's outburst in the field of education has led to the adoption of computer systems, online education and exams; Deadly or fatal? Only time will tell Reviewing the current state of education, while welcoming government decisions in the given situation, computer systems should be adopted in the field of education. However, from the present article, we are trying to find out the next problem of education administration. In it, we are presenting our research, understanding the views of students and parents in the field of education, teachers and administrative staff, as well as responsible people in management, and presenting the blueprints for the impact of digital technology.

Current Situation in Maharashtra:

Excluding a handful of cities like Pune-Mumbai-Nagpur-Aurangabad Kolhapur-Nasik in Maharashtra, more than 60% students are spread in rural and semi-urban areas. Due to the tradition of giving importance to 10th and 12th standard in the life of students, education up to 9th standard and also 32nd July 2021.

The mindset of most students is to see the year of Commerce as the 'Year of Practice'. In fact, questions are being raised about the usefulness of the prevailing higher education. Apart from this, the dropout rate of students after schooling is also extraordinary. That is why the new education policy requires three levels of higher education, namely 'certificate' after the first year, diploma after the second year and degree after the third year. In order to reduce the unrealistic importance of X and XII, various disciplines are conducting their entrance examinations separately. Corona's repercussions in the education sector: Since April, the second wave of corona has spread all over Maharashtra, so policies have been formulated to prevent any group crowd. E.g. Local as well as bus travel, weddings, meetings - as well as day-to-day dealings, lockdown became inevitable!

Theme or idea- (Covid- 19 and its Impact on Education)

The social-economic-psychological consequences of all this have been seen everywhere. Along with other activities of life, it was natural for schools, colleges and universities to be disrupted. In fact, this entire academic year has been exceptional. With the exception of the big cities, the adoption of information technology in the Corona crisis paints a picture of total scarcity. As a result, lack of computers / smart phones, lack of internet connectivity, **1.3.1Power outages or unreliability**:

Especially in rural areas, have become daily occurrences. Due to all this, for the first time this year. Certificate Examination (X) in Secondary Schools on 28th May 2021 and CBSE at Central level. Following this, the policy of canceling the Higher Secondary Certificate Examination (XII) in

Maharashtra. Announced June 11, 2021. In all of this, social and political pressure groups have been feeling uneasy due to differences of opinion, interference in the judiciary, and to some extent government bureaucracy.

Unprecedented dissatisfaction:

Corona has caused unprecedented dissatisfaction in all sectors of education for the last one and a half years. Good students as well as teachers are deprived of the opportunity to come to class and exchange eyewitness education. From a very young age, the social convergence of all the students, the hunger for natural friendship, the desire to express it through face-to-face visits is constantly felt. In addition, due to the explosion and magic of the current information and broadcasting sector, it is raining misconceptions and misunderstandings along with the true events. It is uneducated for educational decisions to be made by knocking on the doors of the courts and the judicial process. In the present scenario, the academic year has somehow been completed with the inadequate support of computer systems. Especially considering the huge number of students in class X and XII, the option of online exams has also been left out Effect.

Education 2020:

Corona's big impact on education sector has become a year of mourning for the world. 2020 is the Corona epidemic that has left its mark on the Covid 19 virus this year. It is unknown at this time what he will do after leaving the post. The whole world faced this crisis. Millions of people were killed. But the biggest impact was on the education sector. Here is a brief overview of the impact of Corona on education in India in 2020 .The Corona virus crisis has had a devastating effect on the lives of people around the world. Corona has affected the lives of everyone, from school children to those who work. The Covid-19 virus has completely changed the work culture around the world, at the same time a new trend of online education has started to teach students during the Corona period.

Online classes

For college students were started from school. Even exams were taken online. Let's see how the corona virus affects education, exams and jobs online education

In March 2020, all schools, colleges and universities across the country were closed due to the lockdown. It was the time of children's exams. As the lockdown intensified over the course of a few days, the question of how the children would be educated came up before the parents. The closure of schools, colleges and educational institutions has severely damaged the education of students and the government has decided to provide online education to students. All schools and colleges started teaching students through digital platforms. However, students in villages far from cities still have to suffer a lot to take classes due to poor internet connectivity or open in App. Many state governments tried to educate students through television and radio. The videos were taught to the students by uploading them on YouTube. Still many states have not started schools x.

Internet connectivity:

Has become a major obstacle in online learning for students in rural as well as remote areas. Parents will buy a cheap Android phone once, but if the internet does not come in it properly, then there is no use. Students and teachers in many villages also faced this problem. Teachers and students also discovered some unique tricks in it. Someone marched on a tree, on the roof of a house; someone built a hut on the mountain.

Exams closed:

Results on exams when all the educational institutions were closed in Corona, taking exams became a big challenge for the students. Due to the Corona crisis, CBSE and CIS had to cancel several state board exams overnight. After this, the education boards of many states in the country, including CBSE and CISCE, announced the results of the 10th and 12th examinations according to the internal assessment without taking the examination. Twelfth standard examinations were held in Maharashtra x

Entrance Exams:

The Central Government has taken a bold decision to conduct the entrance exams of Engineering, Medical, NEET and JEE examinations, which are the largest in the country, at the actual examination center with due care. Many students, parents 'organizations, teachers' unions and political parties opposed it. Someone knocked directly on the door of the Supreme Court. But the central government did not accept the opposition. The examination of these vocational courses should be taken just as seriously, for which full health care will be taken, the Center assured.

New culture born:

These examinations were then passed in stages. Masks on the face, sanitizer in hand Open in App Un children appeared at the examination center By increasing the number of examination centers and reducing the number of students at each center, the examinations were passed following social distance.

The JEE exam was held from September 1 to 6 and the exam was held on September 13. Shit, X with Delhi University

conclusions-

This year's educational experience has been quite out of the ordinary. The sudden global pandemic has pushed nearly every industry to adjust, with the education industry being no exception. We've seen a move towards technology that will likely reshape our relationship and reliance on communication platforms, especially if some schools remain closed in the fall. Students around the world have been thrown for a loop, trying to not only adapt to the digital classroom but excel in an online environment. Although the switch to online courses was a bumpy one, both students and teachers have shown a great magnitude of resilience and perseverance as the education system navigates the new normal together.

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Role of Environmental Factors in Enhancing Financial Capability of Pradhan Mantri Jan Dhan Yojana (PMJDY).

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Abstract:

Financial capability is the various skills, recent financial knowledge, and dispositions that enable a person to make well-informed financial decisions throughout their lives. The concept of technical financial capability connotes both ability and opportunity. The key elements that determine modern financial capability are recent knowledge, various skills, positive confidence and right attitudes and responsible financial decision in Pradhan Mantri Jandhan Yojana (PMJDY). The recent financial capability factors are best understood as a combination of various characteristics that may act as barriers or limitation to financially capable behaviour. They split into internal capability of person, which is influenced by- personal factors of financial inclusion and external capability which is influenced by societal, economical, political factors and environmental factors. The main objective of this study is to examine the various environmental factors i.e. social, economical, political and technical, Geographical that influence financial capability building efforts of beneficiaries under Pradhan Mantri Jan Dhan Yojana (PMJDY). The paper is of descriptive and analytical in nature and based on primary and secondary data of Pradhan Mantri Jandhan Yojana (PMJDY).

Key Words:

Banking financial capability, Internal and external environmental factors, Technical financial decision capability.

Introduction:

In Pradhan Mantri Jandhan Yojana (PMJDY) financial capability is about having the technical financial knowledge, right understanding, positive confidence and motivation to make good financial decisions. Technical financial capability, defined by the World Bank as, "it is the technical financial capacity to act in one's best financial interest, given socio-economic and environmental conditions. It encompasses knowledge (literacy) of Pradhan Mantri Jandhan Yojana (PMJDY), positive attitudes, various skills and behaviour of customers with respect to right understanding, proper selecting, and using financial services, and the ability to access financial services that fit their needs of finance".[1] The recent financial behaviours of an individual are influenced by various factors of finance. The financial capability factors are best understood as a combination of various characteristics that may act as barriers or limitations to financially capable behaviour and these are- personal factors, social factors and various environmental factors. Among the three factors one of the most important factors in Pradhan Mantri Jandhan Yojana (PMJDY) which influence an individual's financial capability is various environmental factors. The various environmental factors are external to the individual and can have a positive or negative influence on a person's participation as a member of society, on performance of both activities, or on a person's body function or structure. Many factors can be included in the category of environment i.e. economical, political and technical factors and these factors can prevent an individual from demonstrating his/her true level of present financial capability. Such factors include barriers to access on the time of finance, various financial services provision, behaviour of financial firms and customer's protection legislation etc.

Statement of the Problem:

In India there are good numbers of financial institutions are operating and engaged in providing various kinds of financial services and needs to the different sections of the society, but financial capability enhancement is not known in making financial wealth of the Indian people and unable to build their financial capability. In India Pradhan Mantri Jan Dhan Yojana (PMJDY) is an enormous step taken by the Government of India on 28th August, 2014 which aims to give universal access to various recent banking facilities for all households across the country. Under the PMJDY scheme, as on 9th July, 2021, total 42.59 crore accounts have been opened in India and Rs. 144,156.46 core balance have been found to be deposited.[2] However though a significant number of accounts have been opened under Pradhan Mantri Jandhan Yojana (PMJDY); often it is alleged that sizeable number of the accounts are dormant or with low volume or minimum cash of transactions. In India rural and urban aria it is found that, most of the accounts opened at public sector banks under the PMJDY, only 42.59 % are active.[3] In India such state of affairs depicts a dismal picture on the move and spirit of PMJDY and achieving economic autonomy of the weaker and low income group population through the effort of enhancement of financial capability of people. Thus, there is an urgent need to examine the present fact which is responsible for such state of

affairs. Therefore to investigate into matter, the study is designed to focus on the recent financial capability building efforts through PMJDY in India.

Review of Literature:

Karuna Kushare (2006) The Reserve Bank of India has allowed banks to appoint entities and individuals as agents for providing basic banking services in rural and urban areas where they can't practically start a branch. Bank called this agents are business correspondents. Business Correspondents are considered as practical solutions to extend basic banking services to the country. Business Correspondents are hence instrumental in facilitating financial inclusion services in the country.

Business Correspondents are retail agents engaged by banks for providing financial inclusion services at locations other than a bank branch/ATM. Business Correspondents enable a bank to provide its limited range of banking financial services at low cost. They hence are instrumental in promoting financial inclusion in country. Business Correspondents have to do a variety of functions i.e. identification of borrowers, collection of small value deposit of people, disbursal of small value credit finance, recovery of principal / collection of interest of loan, sale of micro insurance, mutual fund products, pension products, other third party products and receipt and delivery of small value remittances/ other payment instruments, creating awareness about savings and other products of bank, education and advice on managing money and debt of rural and urban people .[4]

Mandira Sarma and Jesim Paise (2008) suggest that the issue of financial inclusion is a development policy priority in developable countries. Using the index of financial inclusion developed in levels of human development. Among socio-economic factors of environment, as expected, income is positively associated with the level of financial inclusion. Further physical environment and electronic environment connectivity and information availability, indicated by road network, telephone and internet usage in rural an urban, also play positive role in enhancing financial inclusion in present situation.[5]

Michael Chibba (2009) noted that Financial Inclusion is an inclusive development and Poverty Reduction part of the Century. The current global crises, the need to scale-up Financial Inclusion is now perhaps more important as a complementary and incremental development approach in recent history.[6]

Oya Pinar Ardic (2011) explained that using the financial access database .The number of unbanked adults around the world and country, analyses the state of access to deposit and loan services as well as the extent of retail networks, and discusses the state of financial inclusion mandates around the world. The findings indicate that there is yet much to be done in the financial inclusion. 56% percent of adults in the world do not have access to formal financial inclusion services.[7]

Singh Kesari and Gupta Nitin (2013) this paper explains the meaning and role of financial inclusion in India, benefits and challenges of financial inclusion faced in India. Financial Inclusion means providing finance to rural and urban people with reduced cost. The main objective of financial inclusion is to provide access to the financial services to people. In financial inclusion educated towards the financial services and financial technology to people.[8]

Shabna (2014) In financial inclusion there are certain problems like lower financial literacy, lack of awareness, the cost of transaction and customer acquisition is high and it is not at all cost- effective. Reserve Bank of India has taken various initiatives to strengthened financial inclusion in rural and urban aria locality. In India information and communication technology offers the opportunity for the banks to improve financial inclusion for the unbanked people.[9]

Barhate and Jagatap (2014) this paper concludes that Government should review financial inclusion in India with bank accounts. The Pradhan Mantri Jan Dhan Yojana is definitely a good fighting mechanism to check the poverty in India. The purpose of Pradhan Mantri Jandhan Yojana is to reduce the level of financial untouchability and develop the habit of saving, connect each and every person with banking facilities.[10]

Joshi & Rajpurohit (2016) the study stated that awareness level of rural and urban people and their approach toward banking service is still less. Pradhan Mantri Jan Dhan Yojana more effective and to achieve its goal more emphasis should be on financial literacy and awareness, delivering benefits of Pradhan Mantri Jan Dhan Yojana scheme and customer friendly technology is also required.[11]

Dipak Dokhale (2019) this study stated that the role of Pradhan Mantri Jandhan Yojana in Indian economy. Bank Mitra provides various types of services to rural and urban peoples. In Pradhan Mantri Jandhan Yojana provide Rupay card to all account holder. Bank Mitra play very important role in rural and urban aria as well as remote aria of country. In Pradhan Mantri Jan Dhan Yojana account holder are given credit and overdraft facilities. Goverment has given DBT benefits to Pradhan Mantri Jan Dhan Yojana account holder.[12]

Research Gap:

The matter of financial inclusion capability is most talked about and highly pertinent in the today's world. From the reviewed literature, it is evident that various studies have been conducted on financial inclusion literacy, financial education, financial capability and its relation with the individual's financial well-being. However, no specific study on environmental factors of financial capability have been accomplished particularly in geographical and segmental dimension in India beneficiaries under PMJDY and more so in the context of India under consideration, resulting a research gap.

Research Objective:

The primary objective of this paper is to analyse the role of environmental factors that influence financial inclusion capability enhancement of beneficiaries under Pradhan Mantri Jan Dhan Yojana (PMJDY) of Ban k of Maharashtra.

Research Methodology:

The study is descriptive and analytical in nature. For the purpose of the study 100 samples is drawn out by using convenient sampling. The study is based on both primary and secondary data of financial inclusion. Primary data is collected through structured schedule from different PMJDY beneficiaries of Bank of Maharashtra of India for the purpose and interaction and observation. The relevant secondary data is collected from the data bases of Reserve Bank of India (RBI) and the concern Report of Bank of Maharashtra, relevant reference books, financial inclusion and Pradhan Mantri Jan Dhan Yojana articles from journals and newspapers. Collected data are brought under applicable and very simple and meaningful statistical treatment in order to synthesize and to categorically conclude for the better justifications. The collected data are tabulated, analysed and presented using percentage and charts.

Analysis of Data:

The data collected are tabulated and analyzed as under

Table: 1: Demographic and Socio-economic status of respondents

Variable	Category	Frequency	%
Area of Residence	Rural	34	67
	Semi-urban	18	35
	Urban	0	0
Sex	Male	10	59
	Female	22	43
Age(Years)	20-30	9	17
	30-40	17	33
	40-50	18	35
	Above 50	10	19
Marital Status	Married	32	63
	Unmarried	20	39
Qualification	SSC	20	39
	HSC	16	31
	Graduate	11	21
	Others	9	17
Occupation	Daily wager	20	39
	Marginal farmer	16	31
	Business	12	23
	Households	6	11
	Others	0	0
Income per annum	Below Rs. 10000	9	17
	Rs. 10000-20000	31	61
	Rs. 20000-27000	13	25

Source: Compiled from primary data

The demographic characteristic of the respondents reveals in Table: 1, that majority of the respondents are i.e. 67% of the respondent belongs to rural area and 34% belongs to semi-rural area and there was no respondent from urban area.59% of respondents were male and 43% respondents were female, 17% belong to the age category of 20-30 years, 33% of the respondents belong to the age category of 30-40 years, 35% belong to the age category of 40-50 years, 19% belong to the age category of above 50 years. It has also observed that 63% of the sample household persons were married and 39% were unmarried. Out of 100, respondents surveyed 39% have completed their High School Leaving exam, 27% have completed their

Higher Secondary Level exam, 21% have completed their Graduation and 17% responded that they have left their studies in their early age. It has been found that 39% of the respondents were daily wage earner, 31% were marginal farmers, 23% were engaged in some business, 11% were households and there was no respondent with other occupation. It has been also identified that, 17% respondent's yearly earning is below Rs. 11000, 61% of the sample respondent's yearly earning ranges between Rs. 1001-20000, 25% of the sample respondent's yearly earning ranges between Rs. 21000-28000.

Table: 2: Nature of financial product/service purchased by sample respondents

Sr. No	Product/Service	No. of Responds	Total Respond	Proportionate %
1	Saving Accounts	100	100	100
2	Bank Fixed Deposits	24	100	24
3	National Saving Certificates	18	100	18
4	Post Office Savings	22	100	22
5	Loan/mortgage	38	100	38
6	Life Insurance	16	100	16
7	Others	0	100	0

Source: Compiled from primary data

From the proportionate percentage of Table:2, it is seen that all the respondents have savings bank accountant very less respondents have purchased bank fixed deposit, National Saving Certificates, Post Office Savings, Loan/mortgage, Life Insurance etc. The sample respondents have not purchased any other financial products/services yet. Accordingly the respondents were asked to give their opinion in the rank wise of the likely factors/challenges which may act as a barrier while accessing finance from any financial institutions. The summary of the table depicts the rank of the factors/challenges on the basis of the opinion of the respondents.

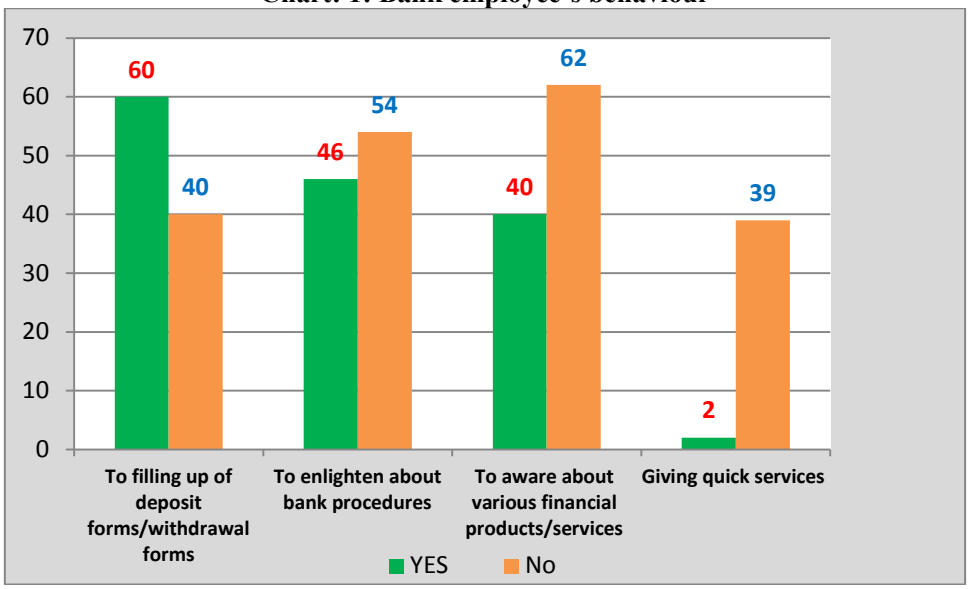
Table: 3: Factors/challenges which may act as barrier while accessing finance

Sr. No	Factors	No. of Respond	Proportionate %	Rank
1	Far distance to bank institutions	28	28	5
2	Time consuming banking procedure	58	58	2
3	Lack of proper documentation	74	74	1
4	Inadequate financial product/services	16	16	6
5	Non-availability of ATM services	6	6	7
6	Unavailability of bank mitras	32	32	4
7	Bank‟s poor attention towards customer	44	44	3
8	None of the above	0	0	8

Source: Compiled from primary data

The respondents were asked to give their opinion relating to the bank employees behaviour or services provided towards its customers like, filling up of deposit forms/withdrawal forms, enlighten about bank procedures, aware about various financial products/services and giving quick services and responses are analyzed using the below diagram-

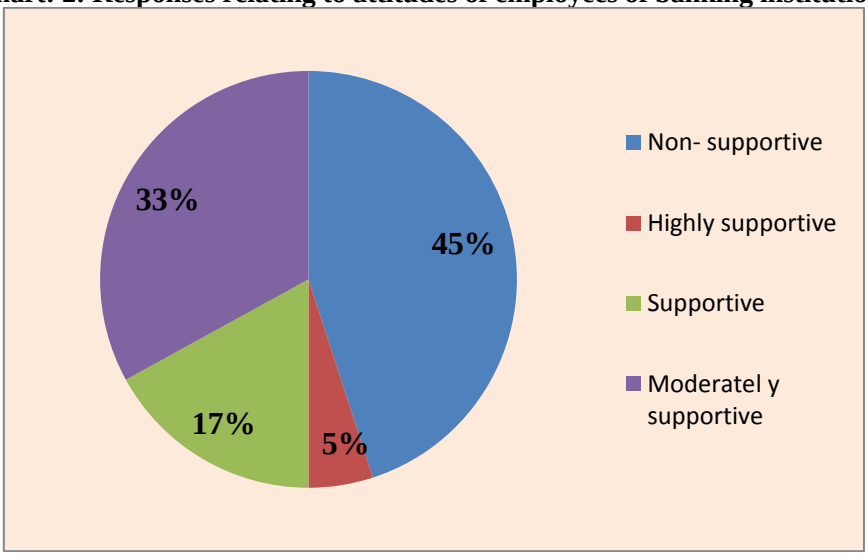
Chart: 1: Bank employee's behaviour



Source: Compiled from primary data

Out of the 100 respondents,5% opinioned that the attitude of bank employees are highly supportive, 17% opinioned the attitude of bank employees are supportive, 33% opinioned the attitude of bank employees are moderately supportive and 45% opinioned the attitude of bank employees are non-supportive. The collected data are presented with a pie chart below-

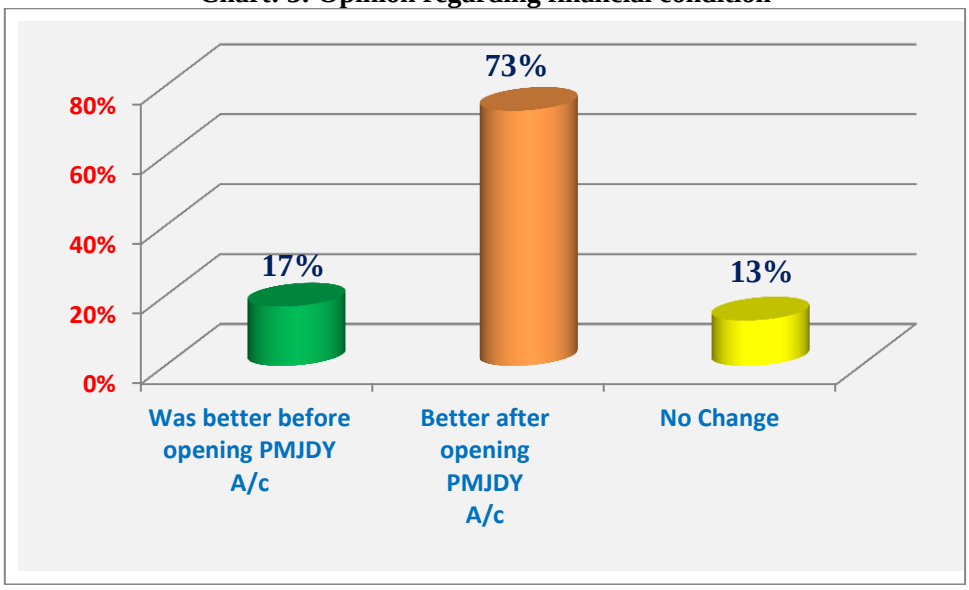
Chart: 2: Responses relating to attitudes of employees of banking institutions



Source: Compiled from primary data

When the samples were asked about the grievance redressal mechanism of banking institutions under Banking Ombudsman and Consumer Forum, it was found that no respondents were aware about these mechanisms. Among the 100 respondents 33% have faced various problems and lodged complaints regarding any financial products/services they are dealing with and their complaint has been settled within 1-2 months. The nature of complaint lodged were regarding incorrect bank balance, loan disbursement, updates relating to matured Fixed Deposits and various ATM issues. According to the 17% of the sample respondents, their financial condition was better before opening PMJDY account. Accordingly 73% responded that their financial condition become well after opening PMJDY account and 13% responded that there is no change in their financial condition. The data are presented using a chart below-

Chart: 3: Opinion regarding financial condition



Source: Compiled from primary data

Finally the respondents were examined whether their financial capability enhanced or not after coming under the Pradhan Mantri Jan Dhan Yojana scheme and for that purpose some financial capability determinants were identified and data were collected accordingly. It was inferred that the various financial capability determinants of sample respondents like, living within one's means, monitoring expenses of day to day, planning for unexpected expenses of life, saving capacity of person, planning for old age expenses life, responsible behaviour, choosing financial products/services and attitude towards the future have increased as the weighted mean 2.35, 2.39, 2.55, 2.13, 2.75, 2.03, 2.23 and 2.8 accordingly is found above par value i.e. 2. But the sample respondents were found to be lagging behind in controlled budgeting and using of financial information as the weighted mean was 1.95 and 1.93. It can be observed that the overall financial capability of the respondents have enhanced through the Pradhan Mantri Jan Dhan Yojana scheme.

Table: 4: Extent of enhancement of various financial capability determinants

Sr. No	Variable	Fully (3)	Partially (2)	Not at all (1)	Wg.hte d Mean
1	11	25	14	50	1.95
2	20	27	3	50	2.35
3	19	31	0	50	2.39
4	27	23	0	50	2.55
5	13	30	7	50	2.13
6	37	13	0	50	2.75
7	9	28	13	50	1.93
8	9	33	8	50	2.03
9	15	31	4	50	2.23
10	35	15	0	50	2.8

Conclusion:

This study empirically investigates a positive role of various financial environmental factors in enhancing financial capability of bank beneficiaries under Pradhan Mantri Jan Dhan Yojana (PMJDY). It is seen that it can act as barrier as well as enabler in building an individual's banking financial capability as environmental factors are the most vital factors among all the factors of banking financial capability. Banking financial capability not only includes banking financial concepts but also includes behavioural factors of customers, emotions of account holder, social influences and individual access to banking financial products and services. The policymakers should improve all the financial environmental factors so that they can play a positive and strong role in building one's banking financial capability.

Moreover they should give importance in spreading the awareness about the various banking financial product/services to make them more financially capable in day to day life. The Pradhan Mantri Jan Dhan Yojana banking procedures should be made easy and the banking customers need to make aware about the various grievance redressal mechanisms so that they can feel very secure in investing in banking

institutions. With the help of Pradhan Mantri Jan Dhan Yojana account people are getting the various benefits of Government schemes like Ujjala Yojana, Pradhan Mantri Kisan Pension Yojana, Suknya Samriddhi Yojana, Pradhan Mantri Jeevan Jyoti BimaYojana, Pradhan Mantri Surakshya Bima Yojana, Kisan Samman Nidhi, and Ayushman Bharat Yojana directly in their Pradhan Mantri Jan Dhan bank account. It is a great step towards making the people of the society financially stable confidant and strong. Though the possibility of the banking financial capability approach is quite vast, it considers all probable features personal, economic, social, political, or financial environmental that can possibly influence human capabilities which dictate the real wellbeing of people.

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Role and Applicability of Geoinformatics in Geography

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Abstract:

Geoinformatics technology comprises of multiple disciplines like GIS, Remote Sensing, GPS, Cartography, Photogrammetric and Geodesy. Geoinformatics is an important tool in various fields like in effective Urban planning and management, Agricultural meteorology, Regional planning, Solid waste management, Forestry monitoring, Geomorphic process like volcanism, mass wasting, hydrology, Transport & tourism development, Oceans & Coastal monitoring , Power resources exploring, Road network & traffic management, Soil moisture mapping, Flood delineation and its mapping etc and so on. Geographic information system (GIS) deals with spatial and non-spatial data, their methods of acquisition, management, analysis, display and dissemination. Remote sensing is the technique of deriving information about objects on the surface of the earth without physically coming into contact with them. Geography is the science which involves a combination of physical and cultural disciplines, which are used to describe, explain, and help to understand environment. Information system refers to a system containing electronic records, which involves input of source documents, records, on electronic media, and output records, along with related documentation. The present research paper tries to highlight the role and applicability of Geoinformatics in geography. This research paper is also helps for decision makers, developers, planners and geographers etc.

Keywords:- Geoinformatics, Geographical Informative system, Remote sensing, Cartography, Photogrammetric, Geodesy etc

Introduction:-

Geoinformatics is a science or technology dealing with the acquisition, storage, processing, production and dissemination of geoinformation. Geoinformatics has at its core the technologies supporting the processes of acquiring, analyzing and visualizing spatial data. Both geomatics and geoinformatics include and rely heavily upon the theory and practical implications of geodesy. Geoinformatics is an effective tool that helps in decision making for the developers and the planners. It is a technique which facilitates economic developers and planners to achieve their targets. Geography and earth science increasingly rely on digital spatial data acquired from remotely sensed images analyzed by geographical information systems (GIS) and visualized on paper or the computer screen. Geoinformatics combines geospatial analysis and modeling, development of geospatial databases, information systems design, human-computer interaction and both wired and wireless networking technologies. The main purpose of this research paper is to study and analyze role and applicability of geoinformatics in Geography.

Objectives:

For this research paper following objectives is considered by researcher.

1. To study the role of Geoinformatics in Geography.
2. To analyze the applicability of Geoinformatics in Geography.

Database And Methodology:-

This research paper is based on only secondary data. For this research paper researchers used various published and unpublished material from the various governmental and nongovernmental institutions. Data are also collected from various reports, journals, internet, website etc

Role And Applications Of Geoinformatics In Geography:-

Geoinformatics is used in various geographical fields as below:-

Geomorphology field: -

The study of size, shape, and origin of landforms formed by various agents of change is called as geomorphology. Different geomorphic processes bring changes on the earth surface that is precisely and accurately detected by geoinformatics technique and risk hazards may be minimized. A tsunami is introduced in ocean & seas alerting to coastal settlements, landslides, avalanches, plate tectonic movement causes tolls of human beings at mountain foot may be reduced by this technique. All damaging geomorphic processes may be detected by this technique and density of damaging and debasing may be minimized. Detection of siltation in check dams can be possible by these techniques.

Geology:-

Geologists use GIS in a various applications. The GIS is used to study geologic features, analyze soils and strata, assess seismic information, and or create three dimensional (3D) displays of geographic features. GIS can be also used to analyze rock information characteristics and identifying the best dam site location..

Hydrology: -

Hydrology is the study of water on the earth's surface. The GIS can also be used to study drainage systems, assess groundwater and visualize watersheds, and in many other hydrological applications such as:- i. Water quality is monitoring ii. Soil moisture estimation iii. Flood mapping and monitoring iv. Drainage basin mapping and watershed modeling v. Irrigation scheduling. Irrigation canal leakage detection

Climatology:-

Climatology is a science that deals the study of weather & climates related to other phenomena which are depends on climates. Its study is more important in various fields like of types of settlements, agricultural activities, military operations, animal husbandry, industrial activities & medicinal firms. Any change in climate condition may have brought an enormous change in that relevant field. eg. More rainfall causes floods, ozone depletion causes to global warming & drought, desertification etc. Thus this technique is very useful to find out whatever a minute changes of climate and its forecasting effect on various fields and give a change of proper management to mitigate it.

Soil geography:-

Pedologist usually defines soils as earth materials which have gives support to plant species and these plants are very useful for surviving of total animal and human beings on the earth. Soil studies includes recognition the types of soils and their mapping. The geographer gives the interrelationship between soil and human beings. These GIS technique is best tool for determination of soil moisture content that helpful proper growth of plants and specific crops in even dry months also or drought prone region. It is useful for watershed management model. Remote sensing offers a means of measuring soil moisture across a wide area instead of at discrete point locations that inherent with ground measurements.

Bio-geography:-

The photo- interpretation of vegetation cover is very important to the geographers in particular for recognition of condition of tress & vegetations. These different types & species of vegetation & tress can be recognized with the help of infra-red black & white photographs. The nature of vegetation covers depends on climatic condition & these plant communities are good indicators of environment. The density of vegetations can be recognized with images/ photographs. Zoo- geography is the study of distribution of different animals (excluding man) and reasons for their distribution. The animal beings are not visible in photographs and imageries but themselves required essential environment i.e. vegetation cover, food supply, water supply, climate, remote sensing technique can be applied in zoo- geography and growing number of animals.

Agricultural Geography: -

Agriculture plays a dominant role in the economics of both developed & developing countries. Remote sensing technique tools aids in understanding the health of the crop, extent of infestation or stress damage or potential yield and soil conditions. Satellite and airborne image are used as mapping tools to classify forming practices. Agricultural applications of remote sensing include the following: i) Classification of crop type ii Assessment of crop condition iii. Estimation of crop condition estimation or crop yield iv. Mapping of soil characteristics v. Compliance monitoring (farming practices)

Urban Geography & Management:-

In the 21th century the urbanization is growing at the very high rate and creating the problems to urban dwellers, such as uncontrolled immigration, industrialization, pollution: water, air, and noise; road traffic and increasing number of accident, deficit in the basic amenities, sewage problems, waste management, uncontrolled urban expansion, increasing crime rate, urban sprawl, shortage of pure drinking water supply, and slums. So it is needed to solve these problems and make the urban life comfortable and luxurious and problem free. Application of Geoinformatics in urban application of geoinformatics in urban Planning & Management as follows:-i. Road Network and Traffic Management ii. Slum Planning and mapping iii. Crime Analysis and mapping

Population geography:-

Population geography is concerned with the distribution of population which differs from place to place. With the help of remote sensing we can identify the areas of high density, vacant places & built up areas. We can identify the different types, raw houses, estate forms in terms of percentage. The population can be counted by no of houses by applying this technique

Economic geography:-

Economic geography is concerned with all economic activities of human being like of agricultural activities, industrialization, mineral excavation, trades & tourism etc. GIS is very useful for demarcate the high gaining economic area from the region. This technique can be applied easily in the regional planning for minimizing the disparities in between developed region and undeveloped region.

Mapping:-

Mapping constitutes an integral component of the process of managing land resources and mapped information is the common product of analysis of remotely sensed data. All geographical features can be represented spatially with respect to referenced coordinate systems, which may be combined thematic map. Baseline, thematic, and the topographic maps are essential for planning, evaluating and monitoring for military and landuse management. There is a growing demand for the utilization of remote sensing data in map production. Mapping is an essential function of a GIS. People in a variety of professions use GIS to help others understand geographic data. It is not necessary to be a skilled cartographer to make maps with a GIS.

Disaster Management:-

A GIS can help with risk management and analysis by showing us which areas are likely to be prone to natural or manmade disasters. When such forthcoming disasters are identified, preventive measures can be developed that deal with the different scenario. Risk in flooding, landslides, avalanches may be minimized by geoinformatics and GIS techniques.

Tourism & Transportation Planning:-

Tourism geography is the study of travel and tourism, as an industry and as a social and cultural activity. GPS system is most important tool for navigation to transporting vehicles. Some religion holy centers / tourist places gains more foreign currency from visitor & tourist and therefore it becomes necessary to provide them basic infrastructure just like of hotel accommodation, good transportation facilities etc. A GIS can be used to in managing transportation infrastructure or in managing logistical problems. They can help us in monitoring rail systems and road conditions or finding the best way to deliver the goods or services.

Regional Planning:-

Every day, planners use Geographic Information System (GIS) technology to research, develop, implement, and monitor the progress of their plans. GIS provides planners, surveyors, and engineers with the tools they need to design and map their neighborhoods and cities. Planners have the technical expertise, political savvy, and fiscal understanding to transform a vision of tomorrow into a strategic action plan for today, and they use GIS to facilitate the decision-making process. (ESRI, GIS Solutions for Urban and Regional Planning)

Environment Planning:-

The GIS is used every day to help protect the environment. The environmental professional uses GIS to produce maps, inventory species, measure environmental impact, or trace pollutants. The environmental applications for GIS are almost endless. It can be used to monitor the environment and analyze changes.

Irrigation water management:-

Water availability for irrigation purposes for any area is vital for crop production in that region. It needs to be properly and efficiently managed for the proper utilization of water. To evaluate the irrigation performance, integrated use of satellite remote sensing and GIS assisted by ground information has been found to be efficient technique in spatial and time domain for identification of major crops and their conditions, and determination of their areal extent and yield. Irrigation requirements of crop were determined by considering the factors such as evapotranspiration, Net Irrigation Requirement, Field irrigation Requirement, Gross Irrigation Requirement, and month total volume of water required, by organizing them in GIS environment.

Conclusion:

Geoinformatics as the powerful and effective tool for creating intelligent maps by using digital data which is gathered from remote sensing technique and this process is faster than the conventional maps by using aerial photography and satellite imageries. It is faster than manual methods of analysis, allowing the flexibility to try alternate variables in analysis. The GIS integrates spatial and other kinds of information within a single systems, it offers a consistent framework for analyzing geographical data by placing maps and other kinds of spatial information into digital form. GIS allows the overlying of data layers from different sources to produce user defined maps that contain features desired by the user. The GIS can be a very important tool in decision making for sustainable development, because GIS can provide decision makers with useful information by means of analysis and assessment of spatial database. Therefore, a

benefit of GIS applications is their ability to integrate and analyze all spatial data to support a decision making process The integration capability of GIS technology empowers organizations to make better and informed decision based on all relevant factors.

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The Concept of Micro financial through Self Help Groups in India

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Abstract

The article was study entitle "The Concept of Micro financial through Self Help Groups in India". Microfinance to the rural SHGs is a way to raise the income level and improve the living standard and economic independence of the human being. The impact on lasting achievement that forms the basis for social and economic improvements.

Keywords: *Self-Help Groups, Socio-economic, Rural development Micro finance, Poverty, Trainings and Skill development etc.,.*

Introduction

Financial inclusion is the process of ensuring access to appropriate financial products and services needs by vulnerable group such as weaker sections and low income groups at an affordable cost in a fair and transparent manner by mainstream institutional players. Financial inclusion and inclusive financing is delivery of financial services, at affordable costs, to sections of disadvantaged and low income segments of society. Unrestrained access to public goods and services is the sine qua none of an open and efficient society. It is argued that as banking services are in the nature of public good; the availability of banking and payment services to the entire population without discrimination is the prime objective of this public policy. The term 'financial inclusion' has gained importance since the early 2000s, and is a result of findings financial inclusion and its direct correlation to poverty. Financial inclusion is the process of ensuring faire, timely and adequate access to financial services. These services are savings, credit, payment and remittance facilities and insurance services at an affordable cost in a fair and transparent manner by the mainstream institutional players.

Review of literature:

Malcom Harper, Andreas, Berkhof and R.V. Ramakrishnan(2005) examined the spread of co-operative SHGs-Bank linkage across the country. For this study Kanpur Dehat District was selected. This study examaines the socio-economic conditions of members in pre and post SHGs situations. Compared to the pre-SHGs, have achieved more progress in increasing their assets, loan, income and loan repayments.

B. Pramod(2007) finds that in India SHG Bank linkages have passed through three main phases. Phase First(1992-98) called Pilot testing phase during which period a small number of SHGs were organized. Phasesecond (1998-2000) called the expansion phase or micro finance movement stage that propelled the linkage programme. Phase three stage called the SHGs- Bank linkage phase coverage 2000-2005. This phase witnesses massive expansion of SHGs-Bank linkage in India.

R. Ramanathan (2008) argues that despite vast expansion of banking system in India, banks have not been able to reach poor people in rural area. The SHGs –Bank linkage model was evolved as could be used by the banking system in India for increasing access of the poor to the formal system.

Objectives of the study

To understand about micro finance through self-Help groups.

To study the conceptual background of micro finance.

Statement of the problem

Micro finance is credit facilities for the poor, since most of the Banks and NBFIs attach collateral securities in leading credit. It constitutes a statement the borrowers need to save, have the inherent capacity to save small amounts regularly and are willing to save provided they are motivated and facilitated to do so the most prevalent method of providing microfinance in India through SHGs.

Significance of the study

Financial inclusion has now become the buzzword today in academic and policy circle due to its role in percolating the benefits of economic growth and development to the 'bottom of the pyramid'. Both government and rural banks are taking initiatives to promote financial inclusion so that any rural people can get access to the financial services. So there exist a number of gaps regarding the implementation of the financial inclusion drive at ground level. This study also helps to understand the disparities in various geographical categories of rural, semi urban, urban areas.

Methodology

The study is purely based on secondary data collected from internal sources. It will be collected on the basis microfinance, official records, and preserved information in the bank database and their official website. The annual reports of bank, reserve bank of India, SLBC, Ministry of finance and other trusted publications will be studied like Newspapers, research articles, research journals, E-journals, books and magazines, better understanding.

Concept of Microfinance and self-help groups:

Microfinance provides very poor families with very small loans to help them engage in productive activities or grow their tiny business. Overtime, microfinance has come to include a broader range of services (Credit, saving, insurance etc.). It came into prominence in the 1980's although early experiments date back 30 years in Bangladesh, Brazil and a few other countries Micro finance is the provision of microloans to poor entrepreneurs and small business lacking access to banking and related service, Microfinance is broad category of services, which includes microcredit. Over the last five years micro finance have focused on reaching the poorest poor, helping the women, aid small scale entrepreneurs, morally upliftment of poor communities to gain social recognition.

But today microfinance is growing and is acknowledged as important for number of reasons.

1. Provides credit facilities at low interest rate and easy availability for low income households.
2. Build up an environment for entrepreneurship development in relations to existing developmental scenario.
3. Formulation of programmes to raise their income and employment in their present as well as new occupation.
4. Microfinance strengthens not only the rural sector but also the functional system of the country as a whole. There is increased potentiality for profitability in rural areas for banks and financial institutions through higher deposit mobilization credit of take.

Micro finance is thus a potent method of rural credit delivery with tremendous potential for serving the rural peoples. The most prevalent method of providing microfinance in India is through Self Help Groups.

Concept of self-help groups

The SHGs is considered as a voluntary association of poor people. They are mostly having some socio-economic background. They are involved in solving their common problems through self-help and mutual help. It creates small savings among the members and the amount is kept with any back. The SHGs have membership of 15-20 members. The SHG movement in India has enabled social and economic inclusion of women. The SHG- bank linkage movement where SHGs are linked to banks in a gradual way initially through saving and later through loan products has been able to ensure financial inclusion to a certain extent. However, there is a need to increase their credit absorptive capacity as a large number of SHGs linked to the banking system are utilizing the credit only for consumption purposes. They have to migrate to employment generating activities so as to be able to fully reap the benefits of economic freedom Nevertheless, the SHGs and in many cases SHG federations have played a pivotal role in the creation of social capital and empowerment. There are hundreds of examples where the SHGs have worked with NGOs and Government agencies to bring drinking water to their villages, conduct regular health comps, organize adult literacy comps and generally improve the social status of members. For example, the SHG Federations, active in Tamil Nadu, have been able to provide life insurance products through an internally administered scheme. In Kerala, the kutumbashree model set up by the government covers a variety of financial services as also health insurance. The Friends of Women's World Banking (FWWB)have started a Social Security Project in association with micro finance agencies/NGO s and insurance companies to provide life insurance to lakhs of persons and non-life insurance products like livestock insurance and health insurance Therefore, Self Help Group are source for cross selling of the products. The SHG program has become quite widespread. As at31 March 2020, 12.4 million SHGs were linked and Rs 1,088000crore credits provided to them. There is need for up- scaling to cover productive loans while ensuring that the process of group formation and capacity building is given sufficient time to allow social capital and democratic processes to take rooting. Transparency in accounting and book keeping and financial education of members should be part of due diligence undertaken by banks.

Conclusion:

Self-help Group is an important tool which helps for the development of social-economic development of a nation. SHG Programmeres clearly plays a central role in the lives of the poor. Empowering human being is not just for meeting their economic needs but also more holistic social development. There is evidence of increased household income. Standard of living for the program

participants have increased and also the food security is much more for the program clients. Microfinance is playing a significant role in alleviate poverty and rural development.

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Study of Buccal Cavity *Catla catla.*

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Abstract:
The present study showed that the structure of mouth of Catla catla is wide and slightly upturned. The lips are soft and lower jaw is prominent. The buccal cavity and pharynx are not clearly marked of each other. The buccal cavity is bounded by upper and lower jaw. The upper and lower jaws are edentulous. Tongue is observed to be well developed triangular with thick mucus membrane, which is affixed along the mid dorsal line of the floor of buccal cavity. The gill rakers are thin and long.

Key Words*: Tongue, gill rakers, mouth, pharynx.*

Introduction:

Morphological data is key to understanding fish nutrition in ecology and aquaculture, and during development as well as mechanisms for physiological adaptations to a changing environment (18). The adaptations of the mouth of fishes to their food are particularly evident in the form of mouth size, shape and structure of the oropharynx, dentition, gill rakers. All these structures are subject to diverse and significant variations and modification in accordance with the feeding habits of different fishes (20).The buccal cavity of fish play a major role in suction ram (forward swimming) and manipulation of prey capture in fishes (17). Conversely, the importance of food in the daily life of fish is reflected in the form of mouth, jaws, dentition, the shape and size of the gill rakers etc. and therefore, the difference in their feeding habits (12). Mouth structures are specialized that cover the jaw bones, and border the anterior orifice of alimentary canal (16). In general, mouth structure associated in different fish species may be considered as mainly concerned with the selection, capture, deglutition and pre digestive preparation of food. The effectiveness of these structures is dependent on modifications in relation to food and feeding habits of the fishes and environmental niches inhabited by them (14).

Materials and methods:

For the study of jaws of *Catla catla* the fishes were collected randomly from local fish market, Aurangabad (M S) India. This study was carried out on fishes having weight about 150-1500 gm and measured 22-48 cm in length. They were washed and preserved in 10% formalin solution. The preserved fishes were cut and opened at each angle of the mouth. The roof and floor of the buccopharynx were properly washed and preserved in 70% alcohol and glycerin is used for stretching. The jaws, gills and gill rakers were properly observed for detailed studies. The photographs were taken by Nikon cool pic camera.

Result and Discussion:

Mouth:

During the present study it was observed that the mouth is wide and slightly upturned. The lips are soft and lower jaw is prominent. Upper lip is thin while lower is thick, broad and conspicuous. Snout is round. Few pores are observed on the snout. Barbels are absent.

Buccal cavity and Pharynx:

During the course of study it was observed that the buccal cavity and pharynx are not clearly marked of each other. The buccal cavity of *Catla catla* is bounded by upper jaw and lower jaws. Lower jaw has movable articulation. The upper and lower jaws are edentulous. The anterior palatal region is depressed and comb plates are absent, being represented by the muscular folds of the roof of buccal cavity.

Tongue:

Tongue of *Catla catla* is observed to be well developed triangular with thick mucus membrane, which is affixed along the mid dorsal line of the floor of buccal cavity.

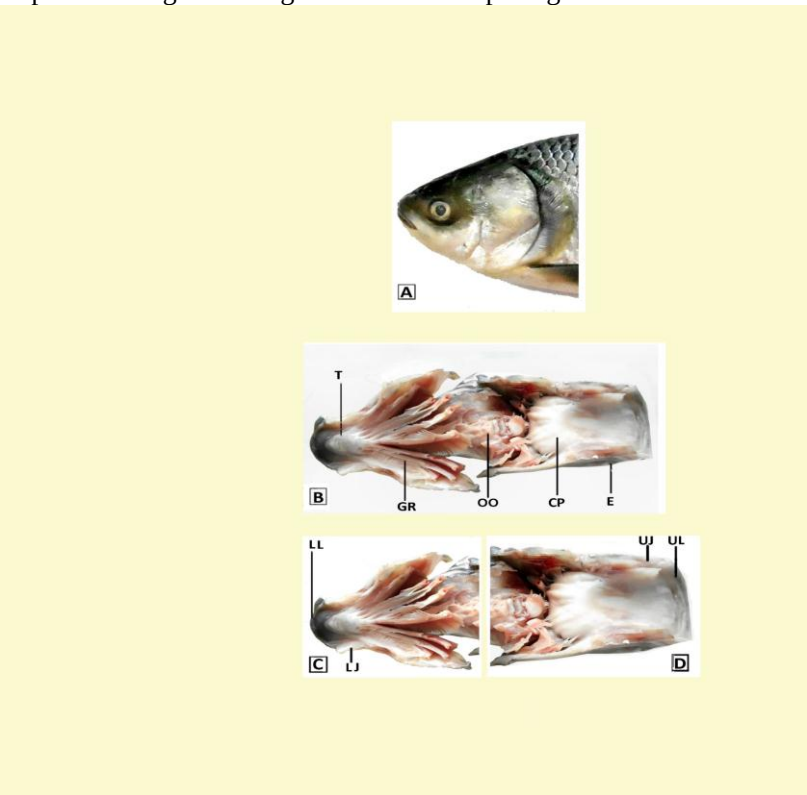
Gill rakers:

The gill rakers are thin and long. They project from the bronchial arch and involved with suspension feeding tiny prey.

Discussion:

During the present study it was observed that the mouth is wide and slightly upturned. The position of mouth indicates surface feeding habit of this fish. Similar observations by (16) when studied comparative anatomy of the alimentary canal of common freshwater fishes and their food and feeding habitats. It takes food from the surface level of water (19) mentioned this fish as surface feeder fish. Classify *Catla catla* as surface feeder as it feeds largely on zooplanktons and phytoplanktons (6).

In *Catla catla* upper lip is thin while lower is thick and conspicuous. This suggests that the lips in *Catla catla*, which feeds on micro-organisms, do not need extra lubrication for protection against abrasion during feeding. In the epithelium of the folds of skin, the voluminous mucous cells secrete mucus profusely and provide extra lubrication to their surface. This reduces the resistance to surface drag during stretching and enables the jaws to protrude with increasing efficiency and swiftness (1). Tongue of *Catla catla* is observed to be well developed triangular with thick mucus membrane. According to Kapoor (11) tongue of *Catla catla* is rudimentary The buccal cavity of *Catla catla* is bounded by upper jaw and lower jaws. The upper and lower jaws are edentulous. Similar observations were reported by (17) the buccal cavity of S. solea is asymmetrical, wide and slightly with anteriorly protrusible subterminal mouth bordered by the upper and the lower lips. The buccal cavity is divided into two regions, the dorsal roof and the ventral floor. The upper and the lower jaw are edentulous. The buccal cavity of fish plays an important role in the seizure and selection of food and rejection of undesirable items ingested by fish (10). The gill rakers of *Catla catla* are thin and long. Similar observations were reported by (16). The structures of the intermediate gill rakers show significant adaptive modifications associated with the food and feeding ecology of the fish, which serve as taste buds. This could increase the efficiency of the fish in selective, sorting of palatable food. Furthermore, (5) have assumed that gill rakers operate as passive sieves, retaining only those particles larger than a given inter-raker spacing.



A- Mouth of *Catla catla*,
B- T .Tongue, GR. Gill rakers, O.O Opening of Oesophahus, CP. Calous pad, E. Eye.
C- LL. Lower lip, LJ. Lower jaw.
D- UP. Upper jaw, UP. Upper lip.

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"A Study of Online Frauds in the Indian Banking Sector During Covid - 19 Periods".

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"An Analytical Study Of E-Banking Frauds In The Indian Banking Sector During Covid - 19 Period".

Abstract:

In December 2019 the Coronavirus (COVID- 19) was founded in the city of Wuhan, China. This virus spreads quickly in humans. The only way to stop the spread of the virus is for humans to avoid contact with each other. The virus has spread throughout the world and stopped the whole world. Lockdown ware announces in India on 25th March 2020. So automatically all-important educational, official, financial and banking, etc. lots of work done on electronic mode. This paper focuses on online fraud in the Indian banking sector during Covid – 19 pandemic period. During the Lockdown, many industries were shut down and many people became unemployed. But during this period, the Indian banking sector was running smoothly. The strong banking sector is the most important in developing countries like India, Bangladesh, Sri Lanka, etc. Finance and banking are very much directly interrelated and the banking sector is the life and blood of an economy. Trade and other commercial activities are not flexible without a free and fair banking industry. Ordinary people and business organizations earn hard money out of that spend some money and try to save some money. The saved money is usually invested in a bank. In the last few years, many types of fraud have been detected in the banking sector. we have to analyse that the relation between online banking frauds and the lockdown period due to Covid – 19.

Keyword*:*

Covid – 19, Lockdown, E-Banking, frauds, Banking sector.

Introduction:

In December 2019 the Coronavirus (COVID- 19) was founded within the city of Wuhan, China. This virus spreads quickly in humans. the sole way to stop the spread of the virus is for humans to avoid contact with one another. The virus has spread throughout the planet and stopped the full world. it had been the first time the globe had experienced such a rapid spread of the virus, so nobody imagines the intensity of losses of life. the World Health Organisation announced COVID-19 is a Pandemic situation on 11 March 2020. The primary case of COVID-19 in India was reported on 30 January 2020 within the towns of Thrissur, (Kerala). India has the biggest number of Covid – 19 cases in Asia and therefore the second-highest number of confirmed cases within the world. Lockdowns were announced in Kerala on 23 March, and within the rest of the country on 25 March. An extreme social distancing measure aimed toward slowing down the transmission of the virus. The Covid - 19 viruses have intensely impacted the globalized world's economy, environment, health, and social organization. Especially Developing and underdeveloped countries like India, Pakistan, Sri Lanka, etc highly adversely influence because of this Covid -19 pandemic. Even it's difficult to sustain for the wealthiest and developed countries. The COVID-19 pandemic has seriously affected the share market, gold, materials, and approximately all the international market sectors. It has been reported at this point (04-07-2021), over 3.5 Crores cases and 4 lakhs death in India because of COVID-19. within the initial period, there have been no vaccination and medicine developed for the treatment of the virus, therefore the government from most of the countries have already applied several methods to forestall the disease from spreading. it includes social distancing, no gathering of the people, educational institutes, gyms, shopping malls, airports, railways, etc. were fully closed. Only emergency services like security, health care, foodstuff providing services were allowed during the lockdown. because of this lockdown, most of the work has been done on the web platform. So internet activities and services on boost. Even banking transactions are done on a web basis. During the Lockdown, many industries were close up and plenty of people became unemployed. But during this era, the Indian banking sector was running smoothly. The strong banking sector is that the most significant in developing countries like India, Bangladesh, Sri Lanka, etc. Finance and banking are pretty much directly interrelated and therefore the banking sector is that the life and blood of an economy. Trade and other commercial activities don't seem to be flexible without a free and fair industry. Ordinary people and business organizations earn hard money out of that spend some money and take a look at to save lots of some money. The saved money is typically invested in an exceeding bank. Nowadays banking sector plays multiple roles. The banking industry is especially divided into Commercial banks, regional rural banks, cooperative banks, etc. India's industry has not been confined to only the metropolitans but has reached even to the rear corners of the country.

Now a days banking transactions are highly doling out on electronic modes just like the use of computers, mobile phones, and also the internet, etc. the utilization of electronic mode has made banking activities much easier to account holders. But even as there are two sides to each coin, there are advantages and drawbacks of this E-banking technology. within the previous few years, many sorts of fraud are detected within the banking sector. Fraudulent people use various methods for doing fraud within the bank like phishing fraud, Card skimming, bank hacking fraud, OTP frauds, etc. we are analyzing the impact of the Covid-19 pandemic on E-banking frauds during this research paper.

Review of literature:

Literature Review assist me to clarify the conceptual issues of research related areas. It helps me to prepare research design, familiarizing myself with existing knowledge on this research problem. Different author's knowledge aids us to fill the gap between previously available information and fact with new ideas and value-added information.

Mr. Sameer Ratolikar 2001, in the case of the study of internet banking frauds and defenses, has described in short, the different kinds of frauds in internet banking and various remedial measures that can be taken to prevent them. In 2001, a report of the Expert Committee on Legal Aspects of Bank Frauds headed by Dr. N. L. Mitra of Reserve Bank of India described various kinds of E-Banking frauds and risks in India and the losses incurred by RBI due to it. They have mentioned the steps taken by RBI to prevent as well as eradicate these frauds by applying various remedial measures. Despite remedial measures, E-banking frauds are not reduced.

Doiphode 2014, states that to have safe and secured E-Banking the bank staff handling and controlling E-Banking system must be adequately trained and properly selected. Thus, it is always advisable to select the person who is honest and dedicated to his work for the various posts in the E-Banking system operating, controlling, and handling department.

Raghavan and Parthiban, 2014, There are various frauds committed in the e-banking sector relating to Automatic Teller Machine, credit card frauds such as phishing attacks, identity theft; data stealing, hacking, cracking, malware attacks, and many more this is leading to huge financial losses to the country at large. victims are also badly affected by these kinds of frauds.

Fernandes, 2013Fraud in electronic payment transactions: threats and countermeasures:
This paper gives an overview of electronic payment frauds happening in the present era. It presents a clear detail about the actual payment frauds and revenue loss due to frauds. several measures for fraud detection and prevention are discussed in detail. The data has been collected from secondary sources. The scope of this research is to minimize fraud in E-payment transactions and also the revenue loss by taking detective and preventive measures.

Objectives:

1. To review the previous E-Banking frauds in the Indian banking sector especially in the last 10 years.
2. Comparison of E-banking frauds between pre and post Covid - 19 pandemic.
3. To find out any Impact of Covid – 19 pandemics on E-Banking frauds.
4. Policies adopted and implemented by RBI and the banking sector to reduce these E-Banking frauds.
5. Find out any precautionary measure can be taken by the bank account holders.

Hypothesis

H0: - There is an impact of Covid – 19 pandemics on E-banking frauds.
H1: - There is no impact of Covid – 19 pandemics on E-banking frauds.
H0: - RBI policies are sufficient to handle E-banking frauds in Indian banking sectors.
H1: - RBI policies are not sufficient to handle E-banking frauds in Indian banking sectors.

Methodology of the Study.

Data collection is an important step in the research process. To meet the above objectives of the study required data have been collected from secondary sources, such as the Internet, websites, and refereed journals, various books, and newspapers reports, etc. study help to create awareness amongst bank account holders and understand which precautions must be taken during transactions done by E-banking system.

Review of E-banking frauds

Internet banking is that the online way which uses communication gadgets like the pc, phones, cash machine (ATM), etc. It improves significantly on banking services to customers and makes transactions more convenient. Internet banking enables to da any transaction without physical cash, make deposits, transfer, pay bills, etc. with ease. Electronic banking is moving the globe toward cashless banking. Electronic banking though beneficial to the banking industry has introduced great security threats to banks and their customers. Electronic banking makes use of access codes, which are in the form

of a Personal Identification Number (PIN) before access is granted to the user of the bank services. This has not always saved the banks and Bank account holders from the outrageous of fraudsters, fraudsters use various methods to steal customer's secret access codes which they personalize and use the chance to impersonate and rob their victims of their valuables from the bank. Some robbers confiscate ATM cards from owners with their PINs, seize tokens, and other electronic banking applications access codes; which they use in defrauding their victims. Many banking customers oppose electronic banking for fear of being swindled. Some internet thieves use phishing and spooling to bait their victims. Bank customers who don't seek verification from their banks are easily victimized.

E-banking frauds before Covid-19 pandemic

Among Indian Banks- ICICI was the first bank to provide Internet Banking Services. This was followed by the State Bank of India and HDFC Bank and then followed by other banks. Citibank in the year 2000 was the first bank to provide Net Banking to a large number of customers in India. By 2002 all Foreign Banks had E-banking. It grows continuously. now a days every bank provides an E-Banking facility to account holders compulsorily. But at the same time misuse and fraud have been increased in these facilities. The occurrence of those frauds is spread over a decade. But the banking system is witnessing a major rise in the number of online banking frauds. Before Covid -19 pandemic i.e., Till December 2019 Government (RBI) has reported that

(Amt in Crores)

Years	2017-18		2018-19		2019-20	
	Cases	Amt Lost	Cases	Amt Lost	Cases	Amt Lost
	34,791	169	53,304	149.4	52006	230

The above data include ATM/ Debit cards, Credit cards, Net banking frauds. Especially in the year 2019 between September to December reported the largest number of cases, a total of 21,041 cases involving Rs 127.8 crores. Therefore, between April 2017 to December 2019 total of Rs 548.4 crores was stolen by E-Banking fraud in more than 1.1 lakhs cases. the foremost common method still utilized by criminals is card skimming where the fraudster affixes a bogus card reader on top of the real reader.

E-banking frauds during Covid-19 pandemic

According to a report by American consumer credit reporting agency TransUnion, the inflated percentage of suspected digital fraudulent transactions originated from Mumbai, Delhi, and Chennai. While the Covid-19 pandemic has led to a rise in digital payments, transactions, and dependence on the digital economy, there has also been an increase in fraudsters' digital schemes against businesses. in keeping with American consumer credit reporting agency TransUnion, the speed of digital fraud attempts originating from India was up by 28.3% compared to pre-pandemic levels. In its latest quarterly analysis of world online fraud trends, the agency also found that since the outbreak of the Covid-19 pandemic, incidents of identity fraud were also reported to be over 30% higher as compared to global levels. Fraudsters are always looking to take advantage of significant world events. The Covid-19 pandemic and its corresponding rapid digital acceleration caused by stay-at-home orders are a world event unrivalled in the online age," as mention by TransUnion in India. By analysing billions of transactions globally we screened for fraud indicators over the past year; it's become clear that the war against the virus has also led to a war against digital fraud. Trans union's report that the best percentage of cases found in metropolitan cities like Mumbai, Delhi, Kolkata, Chennai, with more people shopping online during the pandemic, more goods are being shipped During this Covid – 19, pandemic situation online banking frauds are increasing continuously but at same time, other cybercrime cases are increased like online harassment, fake profiles, fraud, proactive content on social media, dummy online shopping sites, etc. Despite the whole country being under lockdown, fraudsters perceived to have a field day because the number of cybercrime complaints tripled during this era. Data released by Delhi Police showed that 3,430 complaints were received in May 2020 compared with 1,260 in January. While 60% of the complaints were regarding financial fraud, 20% were of online harassment. As of now, over 1,000 cases are registered and inquiry is underway in many cases as various social media platforms haven't shared the relevant details. this kind of fraud is on the increase, especially when online transactions are rampant. At the beginning of the 2021 financial year, the number of frauds declined. a rise in securities on cybercrime helps to scale back online banking frauds. RBI set different policies to scale back E-Banking frauds even all banks maintain security. Indian banks follow the RBI guideline of reporting all frauds above 1 crore to their respective Audit Committee of the Board. other than this, banks also are putting up a close annual review of frauds to their Audit Committee of the Board. Banks are required to constitute a special committee for monitoring and follow-up of cases of frauds involving amounts of 1 crore and above exclusively, while the Audit

Committee of the Board (ACB) may still monitor all the cases of frauds normally. The Special Committee should specifically monitor and review the progress of the mitigating steps taken by the bank just in case of electronic frauds and therefore the efficacy of the Identical in containing fraud numbers and values at least every quarter. The activities of fraud prevention, monitoring, investigation, reporting, and awareness creation should be owned and disbursed by an independent group within the bank. The group should be adequately staffed and headed by a senior official of the Bank, not below the rank of head.

RBI's fraud risk management policies Categorized in Five-parts

Fraud prevention practices

i. Fraud vulnerability assessments
ii. Review of new products and processes
iii. Fraud loss limits
iv. Root cause analysis
v. Data/information/system security
vi. Know Your Customer (KYC) and know your employee/vendor procedures
vii. Physical security
viii. Creation of fraud awareness amongst staff and customers

Fraud detection

1. Detection of fraud
2. Transaction monitoring
3. Alert generation and redressal mechanisms
4. Dedicated email ID and phone number for reporting suspected frauds
5. Mystery shopping and reviews
6. Importance of early detection of frauds

Fraud investigation

The fraud risk management group should undergo continuous training to enhance its skills and competencies. The first step in an investigation process is gathering the entire transaction details, documents, and complete details of the customer/employee or vendor. To investigate suspected cases, the group would adopt various advanced techniques including computer forensics, forensic accounting, and tools to analyze large volumes of data.

The concerned group in a bank, in which the fraud has occurred, should make all-out efforts to recover the amount lost.

Customer awareness on frauds

1. Publications in leading newspapers
2. Detailed 'dos and don'ts' on the website of the bank
3. Messages along with the statement of accounts, either physical or online
4. Messages printed on bank's stationery such as envelopes, card covers, etc.
5. SMS alerts
6. Message on phone banking when the customer calls
7. As inserts or on the jackets of checkbooks
8. Posters in branches and ATM centers
9. Interstitials on television and radio

Employee awareness and training

1. Classroom training programs at the time of induction or during risk-related training sessions
2. Publication of newsletters on frauds covering various aspects of frauds and containing important messages on fraud prevention from senior functionaries of the Bank
3. E-learning module on fraud prevention
4. Online games based on fraud risks in specific products or processes
5. E-tests on prevention practices and controls
6. Detailed 'do's and don'ts' put up on the worksite of the employee
7. Emails sent by the respective business heads
8. Posters on various safety measures at the workplace
9. Messages/discussions during daily work huddles
10. Rewarding employees on fraud prevention

Challenges in the future

1. Security innovation must deliver more capable solutions to keep pace with threats.
2. Platforms and security standards must be open to promote collaboration and accelerate adoption.
3. Technology and security providers must be trustworthy in the creation and operation of their products.

4. Products and services must be hardened to resist compromise and make security transparent to users.
5. Security must protect data wherever it exists or is used, for all parties and devices across the computing landscape.
6. We have to create awareness amongst the senior citizen about E-Banking fraud. Because they are a very easy target.
7. implementing security measures for online banking is a task that's easier said than done.
8. Apart from having to provide a robust and secure channel for online banking, banks need to decide on a solution that not only suits their needs but also balances security, cost, and convenience for their customers.

Conclusion:

As per the above findings, we understand that as there are advantages of using electronic banking, there are also disadvantages to some extent. Electronic banking has helped greatly in providing banking services with ease and efficiency globally. It has reduced time waste and high charges associated with the traditional banking system. Our negligence can damage your finance. In this electronic banking, it is the responsibility of all the people who use this e-banking as much as it is the responsibility of the banks. The RBI and the banks that serve you are always alerting you. All safety guidelines are binding on you. There have been many cases of E-banking fraud found during the Covid 19 period. It is just as important to pay attention to the little ones when giving them a mobile. Senior citizens need to be informed about how to use this online banking carefully, how to keep their information confidential, how to take care of the debit and credit cards. There is a need to stay safe from many fake websites and mobile applications nowadays. Don't fall prey to any temptations. This will help us in the safe use of e-banking facilities.

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Teaching Analysis Of Mathematics During The Covid-19 Pandemic

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Abstract

One of the foremost significant events of the 21st century is that the birth of recent technologies, specifically the event of electronic digital computers. The COVID-19 pandemic is an unprecedented situation that influenced all aspects of society, including education. Millions of students found themselves adjusting to a replacement medium of mathematics instruction, to not mention the teachers who had to supply instruction through remote sources. Considering students' diverse social, economic, and academic background, this study sought to look at teachers' perspectives on factors that support or hinder how equity is attended to in mathematics during remote instruction and therefore the extent it differed from practices utilized when instruction was provided during a face-to-face setting. There were salient factors during this study that supported or hindered equitable mathematics instruction, like teachers' beliefs, expectations for college students, access to resources, students' socioeconomic status, and language barriers. Hence, it's recommended that policymakers, school administrators, and teachers got to collaborate to systematically decide to make sure that all students have access to quality mathematics. It is already affecting the tutorial enterprise in significant ways. Thus, the researcher conducted a study on teaching analysis using technology in mathematics teaching the COVID-19 pandemic.

Keywords: *Technology, Mathematics classroom, Analysis, COVID-19, Pandemic*

Introduction

In 2019, a global COVID-19 pandemic disrupted education across the globe, requiring a quick re-organization of instruction on a large scale. The COVID-19 pandemic is an unprecedented situation that influenced all aspects of society, including education. Millions of students found themselves adjusting to a new medium of mathematics instruction, not to mention the teachers who had to provide instruction through remote sources. Considering students' diverse social, economic, and academic background, this study sought to examine teachers' perspectives on factors that support or hinder how equity is attended to in mathematics during remote instruction and the extent it differed from practices utilized when instruction was provided in a face-to-face setting. The coronavirus disease 2019 (COVID-19) caused a pandemic that disrupted the normalcy of educational institutions (Bakker & Wagner, 2020). Many educational entities, in approximately 190 countries, transitioned from face-to-face to remote modes of instruction to prevent the spread of the disease (UNESCO, 2020). This paradigm shift placed a tremendous strain on educational communities and policymakers to utilize technology to support all aspects of the mathematics curriculum (Remillard & Heck, 2014) and to identify measures that could be utilized to assess learning. The demand to provide remote instruction also amplified access and equity issues relative to the availability of technological tools and infrastructure within local communities and factors that may impact teachers' adoption and integration of information and communication technologies (Buabeng-Andoh, 2012; Warschauer & Matuchniak, 2010). The present study emphasizes the various impacts of COVID-19 on teaching analysis of mathematics are as follows

Use of technologies:

To ensure the continuity of education despite the lockdown, higher education institutions have sought to use technology and offer online classes and learning experiences as a substitute for in-class time. However, many universities struggled and lacked the experience and time they needed to conceive new ways to deliver instruction and assignments. Examinations were also affected, causing disruption to students' learning trajectories and progression.

Large amounts of time and money to consume online content:

Perhaps most importantly, the crisis has exposed the value proposition of universities. Students are unlikely to commit large amounts of time and money to consume online content. Students go to universities to meet great people, have inspiring conversations with faculty, collaborate with researchers in the laboratory and experience the social life on campus. To remain relevant, universities will need to reinvent learning environments so that digitalization expands and complements, but does not replace, student- teacher and student-student relationships. Students are already demanding a partial refund of their tuition fees.

Virtual meeting platforms:

Web-based platforms are usually utilized by educational institutions as virtual classrooms. This way of learning creates better containment of students and helps teachers to periodically monitor them. Virtual

classes creates better understanding of a topic as it uses videos, modified study materials or assignment models which are rarely available in a real life classroom. Virtual classrooms are evolved versions of a normal classroom, so that they are more advance in teaching. In a real life classroom, single teaching staff teaches about a topic and not every student can understand it. But in case of online classrooms, videos are available with different teaching staffs having different teaching styles. This enables the students to have better understanding on that topic. But in the rural area due to connectivity errors with internet this is not up to the mark. These web based platforms are not only used by educational institutions as virtual classrooms, but also used as virtual meeting rooms by many organizations. These are

Google classroom

Zoom cloud meetings

Microsoft teams

Conclusion:

There are, however, challenges to overcome. Some students without reliable internet access and/or technology struggle to participate in digital learning. It is clear that this pandemic has utterly disrupted an education system that many asserts was already losing its relevance. Today, most college and educational institutions offer online classes for their students to help them continue their learning journey**.** Several steps can be taken to manage the risks and tradeoffs. First of all, it is important to develop clear protocols on physical distancing measures, including avoiding activities that require large gatherings, staggering the start and end of the school day, staggering meal times, moving classes to temporary spaces or outdoors, and having students attend in shifts to reduce class size. Equally important are protocols and practice on hygiene measures, including hand washing, respiratory etiquette, use of protective equipment, cleaning procedures for facilities and safe food preparation practices.

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Inhibitory effect of bioactive compounds from *Hippophae rhamnoides* L. against DENV protease 2FOM by *In-silico* method

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Abstract

Sea buckthorn (Hippophae rhamnoides L.) is a deciduous shrub belonging to the family Elaeagnaceae. It is native to Asia and Europe and cultivated in different countries like China, Russia and India. The seed oil of Sea buckthorn is used in treating ulcers, burns, mucosal injuries and other skin diseases in traditional medicine. Many research studies have reported the pharmacological effects of Sea buckthorn preparations namely antimicrobial, antiulcerogenic, antioxidative, anticarcinogenic, radioprotective, hepatoprotective, antihypertensive, anti-inflammatory and immunomodulatory properties. These medicinal properties are attributed to the presence of important bioactive compounds in different parts of the plant, mainly in berries, leaves and seeds. The present work aims to study the inhibitory effect of the isolated bioactive compounds of Hippophae rhamnoides L. against the dengue virus by molecular docking for its antiviral property. Dengue is one of the most infectious mosquito-transmitted diseases prevalent in tropical and subtropical countries causing serious health risks in humans. Till now there is no specific vaccine to treat the dengue infection. There is a need to design a potent antiviral vaccine against dengue fever. NS2B-NS3 is essential for viral replication and hence acts as a potent drug target in dengue fever. Our work was focused on studying the inhibitory effect of bioactive compounds against DENV protease, NS3/NS2B protease receptor (2FOM) using molecular docking studies. Our studies revealed that the lead molecule was Dulcioic acid which showed the best interaction with the binding energy of -13.8 kcal/mol and could serve as a potent inhibitor. Furthermore, chemical modification of this compound could act as a more effective potent inhibitor of dengue viral protease.

Keywords: *DENV, protease, molecular docking, PI.*

Introduction

Dengue virus (DENV), the causative agent of the disease dengue, is endemic in additional more than 110 countries, with approximately 390 million people infected yearly, leading to about 20,000 deaths [1-3]. Currently, no direct-acting antiviral drugs are available either in clinics or in development to combat dengue virus infections. Thus, a far better understanding of the causative virus and potential viral drug targets is needed to develop effective therapies. DENV, the member of the family *Flaviviridae* and is an enveloped virus with a positive single-stranded RNA genome. There are four different serotypes (DENV1 to DENV4), and every serotype shares 65 to 70% sequence identity of the genome [4]. The dengue virus RNA genome encodes one polyprotein, which needs to get processed at the cytoplasmic side of the host cell rough endoplasmic reticulum membrane by dengue virus NS2B/NS3 protease and at the luminal side by the host cell peptidase [5]. Dengue virus NS2B/NS3 protease belongs to the chymotrypsin family with a classic Ser-His-Asp catalytic triad [6]. *Hippophae rhamnoides* L. also known as Sea buckthorn is an ancient plant belonging to the family Elaeagnaceae with nutritional and medicinal value. The term and "hippophae" has been derived from Greek word 'hippo' which means horse and 'phaos' which means shine. It is a spiny bush with long and narrow leaves and orange-yellow berries, which are spherical in shape and have diameter between 3-8mm [7]. In ancient Greece, it has been used as animal feed, especially for horses because it made their coat shining [8]. For centuries, Hippophae has been utilized not only as animal feeding but also as a traditional medicine to prevent or treat various ailments [8], such as inflammation, gastric ulcers and dermatological disorders [9,10]. Thus, this work aimed to evaluate the anti-DENV effect of the isolated bioactive compounds of *Hippophae rhamnoides* L. against the active sites of the DENV protease, NS3/NS2B protease receptor (2FOM).

Materials and Methods

In the present study bioactive compounds of *Hippophae rhamnoides* L. were docked against Dengue virus NS2/NS3 protease receptor 2FOM.

Ligand preparation and Protein refinement

Chemical structures of bioactive compounds were downloaded from Pubchem and the 2D structure of each of them selected was drawn using Chem Draw Ultra version 6.0.1 software and was saved in .mol format. The

.mol format was converted into .pdbqt format using Open Babel in PYRX software, which was further used for docking.The 3D structure of Dengue virus NS2B/NS3 protease receptor was retrieved from Protein Data Bank(PDB) using PDB ID: 2FOM (http:/www.rcsb.org/pdb) in .pdb format. This was opened in Auto Dock and optimized by deleting the water molecule, removing the heteroatoms, etc. and was saved in .pdbqt format. This minimized structure was used as a receptor for docking studies.The grid box (having conformation: centre x = -3.8985, centre y = -9.7750, centre z = 15.9094) was chosen for the protein 2FOM on their active sites (His-51, Asp-75, Ser-135)

Molecular Docking

Molecular docking of the bioactive compounds with NS2B/NS3 protease was carried out by using AutoDock Tools and AutoDock vina. The best-ranked model with low binding energy was analyzed further and visualized using Ligplot software.

Results and Discussion

Bioactive compounds were selected which have been showing antiviral effects, and inhibit viral proteases. The 3D structure of the DENV proteases was retrieved from PDB. The PDB ID of the 3D-structure was 2FOM. Molecular docking was performed for isolated bioactive compounds with 2FOM. Bioactive compounds which showed the least binding energy with the highest stability were selected and subjected for ligplot analysis.

Sl no	Bioactive compounds
1	Cirsiumaldehyde
2	Dulcioic acid
3	Ellagic acid
4	Gallic acid
5	Isorhaomnetin
6	Kaempferol
7	Lutein
8	Octacosanoic acid
9	Quercetin
10	Violaxanthin

TableI: Bioactive compounds used in the study

Results of docking study with 2FOM

Sl no	Bioactive compounds	Binding affinity (-kcal/mol)
1	Cirsiumaldehyde	8.11
2	Dulcioic acid	13.8
3	Ellagic acid	10.5
4	Gallic acid	7.8
5	Isorhaomnetin	9.08
6	Kaempferol	11.0
7	Lutein	11.6
8	Octacosanoic acid	10.7
9	Quercetin	11.3
10	Violaxanthin	11.8

Table II : Bioactive compounds library with 2FOM

Ligplot analysis of lead molecule Dulcioic acid with 2FOM

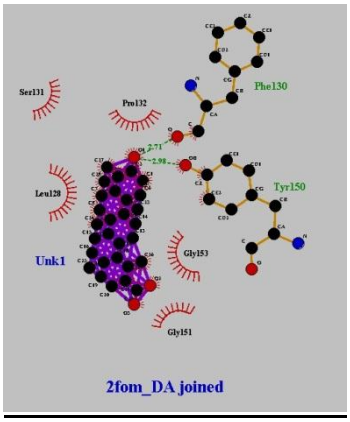

Figure-1

All the selected compounds when subjected to molecular docking revealed good interaction. The most potent interaction was with Dulcioic acid with the binding energy of -13.8kcal/mol forming the lead molecule. Dulcioic acid was found to interact with the protease 2FOM forming hydrophobic and hydrophilic interactions (Figure 1). Hydrophobic interactions were formed with Ser-131, Leu-128, Pro-132, Gly-153, and Gly-151 and Hydrophilic interactions with Phe-130 and Tyr-15 Dengue is an appalling disease and requires urgent attention to develop new inhibitory compounds that could work against it. The active residues are important in viral replication therefore, any disruption in it may block the replication of the virus. Thus, efforts directed to look for new therapeutic targets and molecules that inhibit virus infection are required. In this work, 10 compounds were examined for their potential against dengue viral protease 2FOM. Our results revealed potential and significant binding interactions of compounds with the active residues of the protease (Table I and Table II). The lead molecule, Dulcioic acid and other compounds can be extracted and subjected for modification to get potential inhibitory compounds to act against Dengue viral protease 2FOM.

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Increase in Area Irrigated By the Farm Pond of Aurangabad District

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Abstract:-

Farm pond is the most important and promising technology in the watershed management. Farm ponds would help the farmers for on farm water management by using stored water for tacking the drought or dry spells during the season which are common. Water farm ponds can serve domestic and livestock water supplies as well as irrigation for high-value crops and vegetables. Paper presents an innovative approach of watershed development using farm-pond. After the implementation of farm-pond based watershed development project during 2007-08 to May 2012 whole ecosystem and agriculture (cropping pattern, crop Production) scenario has been changed in the area. Availability of water for drinking and agriculture, establishment of orchards and agro forestry in farmlands, increase in overall agricultural production and creation of local self-employment are some visible impacts.

Key Word: *Farm pond, cropping pattern, productivity.*

Introduction:

Water is an essential resource for the development of agriculture and living organisms including human beings. The importance of water has been known since the existence of this Planet/ human beings. The importance and scarcity of water has been identified with an increase of human population who are responsible for industrialization, urbanization, exploitation of natural resources to the maximum advantage of human resources any resource will not yield till it is protected developed, conserved and utilized. In the process of development, industrialization, urbanization the quality and quantity of water and its accessibility tend to diminish leading to scarcity.

"Water is a life" development of any area is depending upon rain or water, that's why human being is living around water availability. Rainy water is natural resource and for this individual wells, tab water is become reason for quarrels. Due this water there are disputes arise between not only states but also countries, on the issues of dams, rivers, or clouds in modern period. During rainy season what water falls from rain is flown away by rivers, drains, canals etc. which results in scarcity water during summer. Agriculture is mostly depending upon rain. Now a days climate change and global warming found in irregularity and uncertainty of rain which results into famine, water scarcity and storms, to solve such problem and to raise the level of underground water there is need of water saving. Rain Watershed area development by different methods and conservation of it. If we save drop and drop of water rather than searching water on mars, it will help in avoiding water disaster.

Study Area:-

Aurangabad is capital of Marathwada. Aurangabad district of Maharashtra state is part of South-West India is selected for this research project. Aurangabad situated at $19^0 18'$ north to $20^0 36'$ north latitude and $74^0 40'$ east to $75^0 36'$ east longitude. Aurangabad total area is 10,107sq km. which is state's 3.28 per cent. With Aurangabad, Paithan, Gangapur, Vaijapur, Kannad, Khultabad, Sillod, Soygaon and Fulambri these are 9 tehsil and 1344 villages are there. 766 villages are water shortage affected there. In this regard till last year what watershed area development methods has been adopted and their statistic and collected water methods has been studied.

Objectives:-

While studying watershed area development methods of Aurangabad district following objectives has been drawn.

1. To study the impact through the growth in irrigation
2. To study the utility of Farm Ponds
3. To study the response of agriculture officers.
4. To take into conservation importance of water as natural resource.

Methodology:-

The present study is based on investigation, information, about various spot observations. Data will be collected from secondary sources. It was decided to collect maximum information through secondary sources. Secondary data collected from toposheet, Govt. Reports, WALMI yearly reports, socio – economic review, gazetteers, project of tourist, reference books, research articles etc. and numerical data information has been analysed. Internet information is also another popular source of information for data collection.

Primary data:

The primary data is collected from the Farm Pond beneficiary farmers of the selected Districts. Few Samples of non-beneficiary are also taken to know the difference between the economies of the both.

The data is extracted with the help of designed questionnaire/schedule and experts were appointed to collect the data.

Secondary Data

Secondary data is collected from the published sources like economic survey, statistical abstract etc. for the supporting the results of the present study. The secondary data figures provide the guideline and insight for planning and implementing the research work.

Sampling Techniques:

The population of Farm Pond Beneficiary Farmers in selected area is 3377 The sample size of 10 percent of the population i.e. 3062 Farm Pond Beneficiary Farmer to be covered, however during the study 3071 sample farm ponds actually covered. The few Non-Beneficiary farmers are taken for comparative purpose.

Tahsil	Aurangabad	Fulambri	Gangapur	Kannad	Khultabad	Paithan	Sillod	Soygaon	Vaijapur	Aurangabad
Sample	58	20	37	45	14	83	61	7	52	377

Period of Study:

The scheme of Farm Pond is initiated in year 2007 and continues till the year 2012. Therefore the yield and irrigation data is collected for three years before Farm Pond's construction and after Farm Pond's construction i.e. from 2005 to 2012.

Subject Interpretation:-

Aurangabad has historical background it appears that in different periods by taking into consideration importance of water, rainy water was collected by different modes. For an incomparable example Harsul lake, Panchakki and Jayakwadi dam is there. According to changing circumstances in 1995-56 Jayakwadi dam construction has been started with this huge project to solve water and sprinkling problem by government and peoples participation different kinds of rain watershed area development methods has been come into existence. In this district "Pani Adwa ni Pani Jirva" slogan has been observe and little percolated lakes. Has been constructed and continued. In Aurangabad district with help agriculture development groundwater survey and development social forestation small irrigation department, forest department and through people participation different rain watershed area development methods has been evolved.

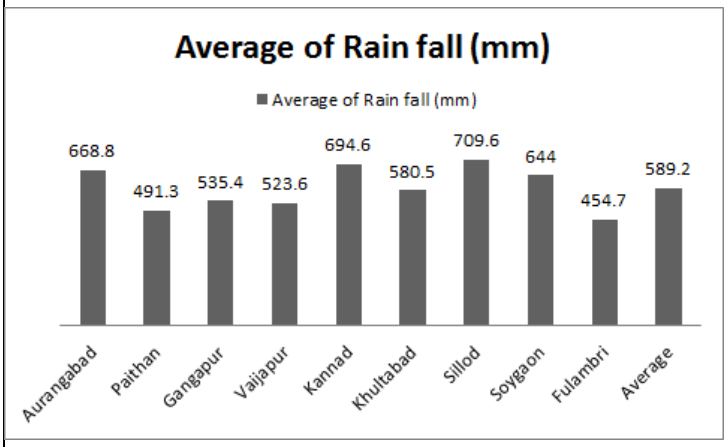
Rain Fall:

Aurangabad districts found different tehsil places not only different average of rain fall but also rain fall period. That's why rain watershed area development is most important.

In Aurangabad district Tehsil wise rain fall average and period.

Tehsil	Average of Rain fall (mm)	Rain fall period (Day's)
Aurangabad	668.8	51
Paithan	491.3	38
Gangapur	535.4	41
Vaijapur	523.6	46
Kannad	694.6	46
Khultabad	580.5	40
Sillod	709.6	47
Soygaon	644	46
Fulambri	454.7	27
Average	589.2	51

Source: Aurangabad district review 2012.



Aurangabad district Rain fall

Source of Irrigation of Farm Pound Beneficiaries

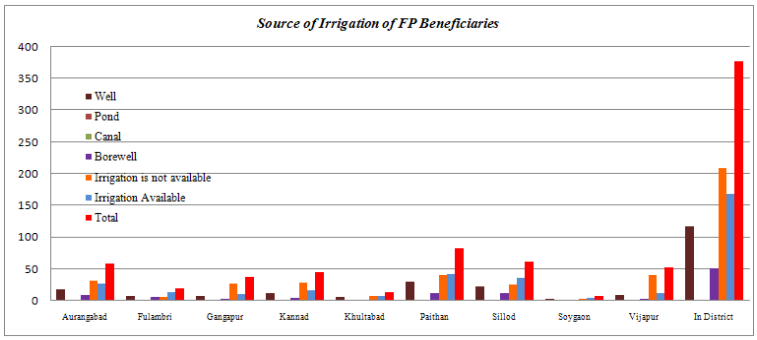
Tahsil		Well	Pond	Canal	Bore well	Irrigation is not available	Irrigation Available	Total
Aurangabad	**No.**	**18**	**0**	**0**	**9**	**31**	**27**	**58**
	%	31.03	0	0	15.5	53.46	46.55	100
Fulambri	**No.**	**8**	**0**	**0**	**6**	**6**	**14**	**20**
	%	40	0	0	30	30	70	100
Gangapur	**No.**	**8**	**0**	**0**	**2**	**27**	**10**	**37**
	%	21.62	0	0	5.41	72.97	27.03	100
Kannad	**No.**	**12**	**0**	**0**	**4**	**29**	**16**	**45**
	%	26.67	0	0	8.89	64.44	35.56	100
Khultabad	**No.**	**6**	**0**	**0**	**1**	**7**	**7**	**14**
	%	42.86	0	0	7.14	50	50	100
Paithan	**No.**	**30**	**0**	**0**	**12**	**41**	**42**	**83**
	%	36.14	0	0	14.5	49.4	50.6	100
Sillod	**No.**	**23**	**0**	**1**	**12**	**25**	**36**	**61**
	%	37.7	0	1.64	19.7	40.98	59.02	100
Soygaon	**No.**	**3**	**0**	**0**	**1**	**3**	**4**	**7**
	%	42.86	0	0	14.3	42.86	57.14	100
Vijapur	**No.**	**9**	**0**	**0**	**3**	**40**	**12**	**52**
	%	17.31	0	0	5.77	76.92	23.08	100
Aurangabad	**No.**	**117**	**0**	**1**	**50**	**209**	**168**	**377**
	%	31.03	0	0.27	13.3	55.44	44.56	100

Source of Irrigation before adoption of Farm Pond in Aurangabad Division

Increase in area irrigated by Farm Pond

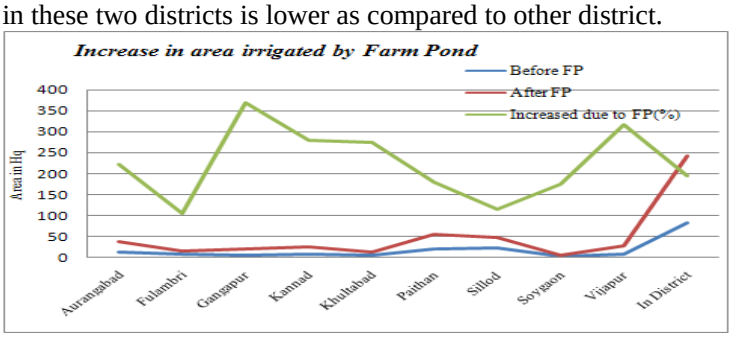
Tahsil	Before Farm Pound	After Farm Pound	Increased due to Farm Pound in (%)
Aurangabad	11.74	37.85	222.41
Fulambri	7.29	14.98	105.56
Gangapur	4.05	19.03	370
Kannad	6.48	24.7	281.25
Khultabad	3.24	12.15	275
Paithan	19.43	54.25	179.17
Sillod	21.86	47.37	116.67
Soygaon	1.62	4.45	175
Vijapur	6.48	27.13	318.75
In District	**82.19**	**241.9**	**194.33**

The results given in table no 132 indicates that Source of Irrigation before adoption of Farm Pond in Aurangabad Division. As per the results it found that the 29.21 per cent Farm Pond Beneficiaries were having well as source of irrigation; 12.57 per cent were having Bore-well as source of irrigation. The 57.52 percent Farm Pond Beneficiaries were not having irrigation source. Amongst the districts, the highest number of Farm Pond Beneficiaries were using well as source of irrigation are found in Jalna district (34.10 percent). The more use of bore well was observed in Jalna district (13.47 per cent). The use of Canal water and ponds were found in Negligible.



Increase in irrigated area by Farm Pond in Aurangabad Division

Increase in irrigated area by Farm Pond in Aurangabad Division is given in table 135. As per the information given by Farm Pond Beneficiaries, the irrigated area in the division is increased by 157 per cent after the adoption of farm pond over the area before adoption of farm pond. Amongst the districts, the highest increase in area is observed Aurangabad district (194 percent). It is followed Jalna District (190 per cent). The base year area in these two districts is lower as compared to other district.



Source: RKVY Report Oct 2013

The table focuses on the advantageous of the Farm Pond adoption at Overall Level. At overall level, the 100 per cent Farm Pond Beneficiaries responded that the Farm Pond water is used for protective irrigation. It is followed by the 86.25 per cent Farm Pond Beneficiaries uses water for Kharif crops during interruptions in rains. The 98.85 per cent Farm Pond Beneficiaries uses Farm Pond water as drinking water of livestock animals. It has also increased water level (36.68 per cent). Other secondary uses of water are increase in water filtration in salty land (1.43 per cent) further.

Conclusion:

1) In addition to the major advantages experienced, it is also resulted in creating additional supportive very small extent.
2) New activity is commenced and of which fisheries found cases.
3) Likewise advantages, the beneficiaries also expressed that there were disadvantages which noticed after the construction.
4) One of major such disadvantage expressed was loss of land for farming (93.98%). The others are insignificant as these will happen as special cases like overflow to farms, not in a position to use stored water, not in a position to store water due to break, repairs, wild animals entering into the fields and damaging the crops etc.

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Covid-19 and Educational Institutions in Rural Area of Latur District (M.S.) India

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Abstract

The disruptive effects of the Covid-19 pandemic are borne disproportionately by already disadvantaged social groups. When all educational institutions across India shifted to online and distance learning modes in March 2020 to comply with a nationwide complete lockdown, the already significant disadvantages encountered by rural Indian schoolchildren were exacerbated. Rural schoolchildren have historically been disadvantaged in terms of educational quality and opportunities compared to their urban counterparts. School closures due to COVID-19 have brought significant disruptions to education across Latur district. Emerging evidence from places indicate that the pandemic is giving rise to learning losses and increases in inequality. This study conducted to reduce and reverse the long-term negative effects.

Keywords: *COVID-19, Educational Institutions, Latur district*

Introduction:

Lockdown and social distancing measures due to the COVID-19 pandemic have led to closures of schools, training institutes and higher education facilities in most countries. There is a paradigm shift in the way educators deliver quality education—through various online platforms. The online learning, distance and continuing education have become a panacea for this unprecedented global pandemic, despite the challenges posed to both educators and the learners. Transitioning from traditional face-to-face learning to online learning can be an entirely different experience for the learners and the educators, which they must adapt to with little or no other alternatives available. The education system and the educators have adopted "Education in Emergency" through various online platforms and are compelled to adopt a system that they are not prepared for.

Methodology:

Data and information presented in current study are collected from various reports prepared by national agencies on COVID-19 pandemic. Information are collected from various authentic newspapers, websites, some journals and e-contents relating to impact of COVID-19 on educational system are referred. The present study emphasizes the various impacts of COVID-19 on higher education in rural parts of Latur district are as follows

E-learning tools:

E-learning tools have played a crucial role during this pandemic, helping schools and universities facilitate student learning during the closure of universities and schools. While adapting to the new changes, staff and student readiness needs to be gauged and supported accordingly. The learners with a fixed mindset find it difficult to adapt and adjust, whereas the learners with a growth mindset quickly adapt to a new learning environment. There is no one-size-fits-all pedagogy for online learning.

Android phones:

Most of the laborer's who work on fields in the village. The parents of students don't even have permanent homes and having an Android phone is out of question.

No textbooks:

The survey further noted that around twenty-five per cent of children in rural areas had no textbooks to study from home. While, online learning is revolutionary in many ways: it can take education modules to remote corners of the country and help supplement learning benchmarks for different age groups.

Costly online content:

Perhaps most importantly, the crisis has exposed the value proposition of universities. Students are unlikely to commit large amounts of time and money to consume online content. Students go to universities to meet great people, have inspiring conversations with faculty, collaborate with researchers in the laboratory and experience the social life on campus. To remain relevant, universities will need to reinvent learning environments so that digitalization expands and complements, but does not replace, student- teacher and student-student relationships. Students are already demanding a partial refund of their tuition fees.

Psychological and emotional distress:

As schools have been closed to cope with the global pandemic, students, parents and educators around the globe have felt the unexpected ripple effect of the COVID-19 pandemic. While governments, frontline workers and health officials are doing their best slowing down the outbreak, education systems are trying to continue imparting quality education for all during these difficult times. Many students at home/living space have undergone psychological and emotional distress and have been unable to engage productively.

Conclusion:

The study on the impact of the COVID-19 pandemic on teaching and learning across the world concludes that although various studies have been carried out, in the case of developing countries, suitable pedagogy and platform for different class levels of higher secondary, middle and primary education need to be explored further. Internet bandwidth is relatively low with lesser access points, and data packages are costly in comparison to the income of the people in many developing countries, thus making accessibility and affordability inadequate.

References:

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Psychological and Economical Impacts of Covid-19 among College Students

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Abstract

The world is currently witnessing a dramatic disruption of everyday life owing to the rapid progression of the coronavirus disease 2019 (COVID-19) pandemic. As the pandemic evolves, there is an urgent need to better understand its epidemiology, characterize its potential impact. There is a need for a tool to evaluate the extent to which students of degree students affected by COVID-19. The current study shows impact of COVID-19 on first, second- and third-year students of S.M.B. College, Latur.

Keywords: *S.M.B. College, Students, COVID-19*

Introduction:

Lockdown and social distancing measures due to the COVID-19 pandemic have led to closures of schools, training institutes and higher education facilities in most countries. There is a paradigm shift in the way educators deliver quality education through various online platforms. The online learning, distance and continuing education have become a panacea for this unprecedented global pandemic, despite the challenges posed to both educators and the learners. Transitioning from traditional face-to-face learning to online learning can be an entirely different experience for the learners and the educators, which they must adapt to with little or no other alternatives available. The education system and the educators have adopted "Education in Emergency" through various online platforms and are compelled to adopt a system that they are not prepared for.

Material and methods:

A total of 156 students were enrolled for the course in zoology out of which fifty students were selected. During present study 11 are boys and 39 girl students were selected. Zoom app is used for online teaching from android mobile. One month data is collected on psychological behavior their feedback and study are focused on impact of online teaching on students.

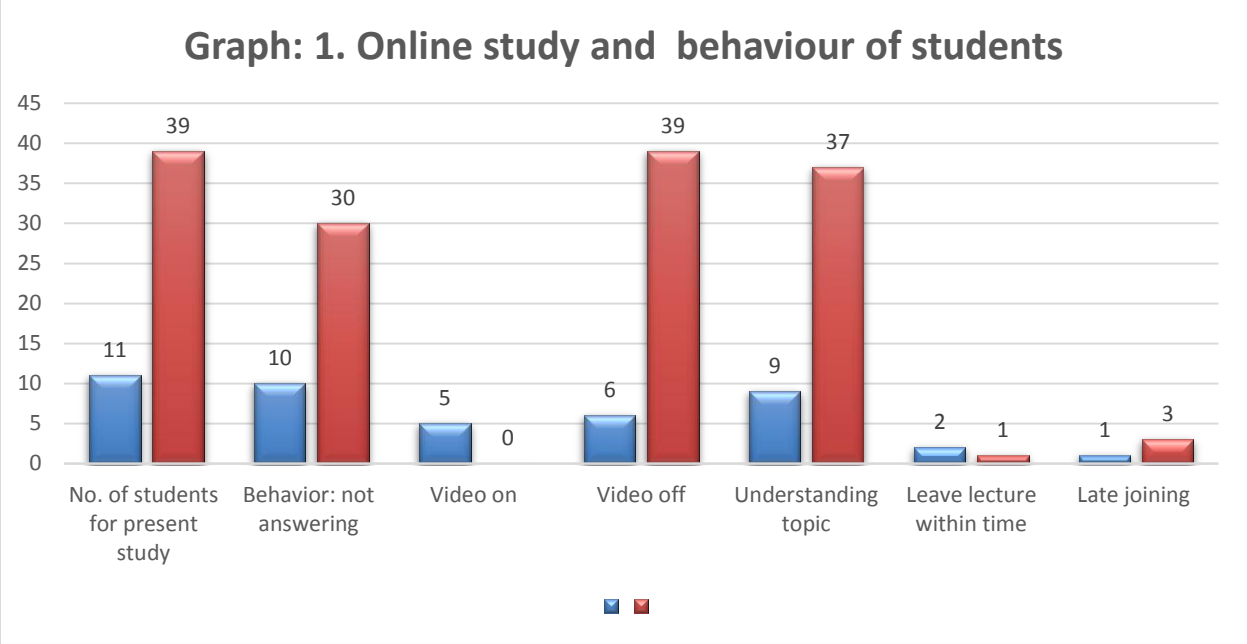
Observations:

The present investigation is carried out in May 15, 2021 to June 15,2021 and a total 50 students were observed and following results were found. Out of 50 students 11 boys and 39 girls were present on an average. After asking questions only nine girl students were interacting whereas only one boy is interacting. Five male students have put their screen on and all female students have put their screen off. Four students were facing problems to understand the topic and three students left the lecture before the stipulated time of lecture.

Results: The present study shows that the online classes are innovative and brain storming but without proper infrastructure, technological advancement, good android mobile, network connectivity and available internet data are the major problems for success of online teaching.

Table. 1. Study of online teaching on psychological aspects of students during one month

Sr. no.	Criteria	Gender		Results
		Male	Female	
1.	No. of students for present study	11	39	100%
2.	Behavior: not answering	10	30	80%
3.	Video on	05	00	10%
4.	Video off	06	39	90%
5.	Understanding topic	09	37	92%
6.	Leave lecture within time	02	01	06%
7.	Late joining	01	03	08%



Graphs.1. Study of online teaching on different psychological criteria of students average of one month

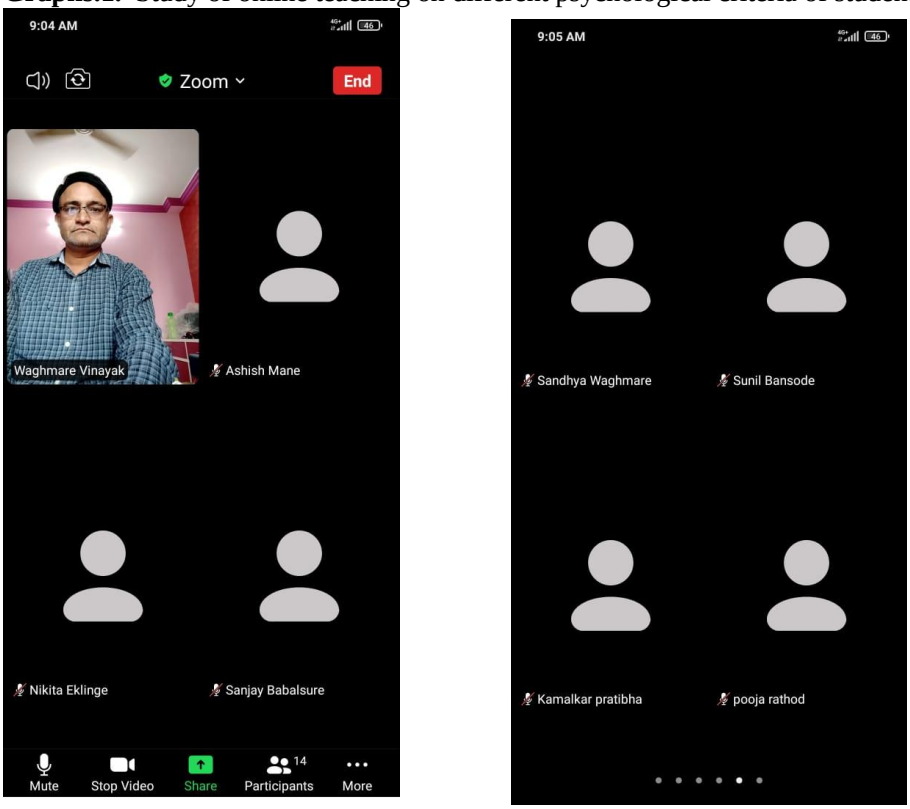


Fig.1. Showing Screenshot of Online Zoom Lecture

Psychological and emotional distress:

As colleges have been closed to cope with the global pandemic, students, parents and educators around the globe have felt the unexpected ripple effect of the COVID-19 pandemic. While governments, frontline workers and health officials are doing their best slowing down the outbreak, education systems are trying to continue imparting quality education for all during these difficult times. Many students at home/living space have undergone psychological and emotional distress and have been unable to engage productively.

Economic impact:

Most of the students don't even have permanent homes and having an Android phone is out of question. The survey further noted that most of students had no textbooks to study from home. Perhaps most importantly, the crisis has exposed the value proposition of universities. Students are unlikely to commit large amounts of time and money to consume online content.

Conclusion:

The study on the impact of the COVID-19 pandemic on teaching and learning across the world concludes that although various studies have been carried out, in the case of developing countries, suitable pedagogy and platform for degree college students need to be explored further. Internet bandwidth is relatively low with lesser access points, and data packages are costly in comparison to the income of the people in many developing countries, thus making accessibility and affordability inadequate. The psychological and economic impacts of COVID-19 among college students is clearly recognized and recommends government to take further actions to finance poor students and proper mental care of students.

Acknowledgements

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A Study of ABC Analysis for Inventory Control in Cooperative SugarFactory

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Abstract:

ABC analysis is a method in which inventory is divided into three categories i.e. A.B. and C in descending values. The items in the A category have the highest value, B category items are of lower value than category A and C category items have the lowest value. ***ABC analysis*** *of* ***inventory*** *helps to sugar factory to keep working capital costs at under control because it clearly identifies which items you should reorder more frequently and which items don't need to be stocked often reducing obsolete inventory and optimizing the rate of inventory turnover of sugar factory*

Introduction:

ABC analysis divides an overall inventory into three categories "A items" with very tight control and accurate records, "B items" with less tightly controlled and good records, and "C items" with the simplest controls possible and minimal records.The ABC analysis provides a mechanism for identifying items that will have a significant impact on overall inventory cost, while also providing a mechanism for identifying different categories of stock that will require different management and controls.The ABC analysis suggests that inventories of an organization are not of equal value. Thus, the inventory is grouped into three categories (**A**, **B**, and **C**) in order of their estimated importance.'A' items are very important for an organization. Because of the high value of these 'A' items, frequent value analysis is required. In addition to that, an organization needs to choose an appropriate order pattern (e.g. 'just-in-time') to avoid excess capacity. 'B' items are important, but of course less important than 'A' items and more important than 'C' items. Therefore, 'B' items are intergroup items. 'C' items are marginally important.Sugar industry is the process industry where ABC analysis for inventory control is very much essential for the purpose of effective material management, control of availablevarious materials. Minimization of inventory cost and maximization of productivity is required in cooperative sugar factories, where ABC is useful for sugar industry. The proper choice of costing and calculation of accurate inventory cost in processing industries have been widely discussed by academics and practitioners. At present the cooperative sugar factories have been facing the problems of qualitative raw material, sufficient raw material, harvesters, transporters, cost of material transport, skilled manpower, pricing of material, cost, performance etc. To solve the problems of inventory control sugar industry problems, routine checking of material, various stock levels, is not suitable is competitive era, where as ABC analysis is useful. In this research paper the researcher has tried to explain the concept of ABC analysis and steps to be taken for implementation of ABC in cooperative sugar factories in study area. The concept of ABC analysis has been considered a classy method of inventory cost calculation since the first 1980s. The ABC method was designed as a solution to overcome the problems in the traditional inventory valuation methods. This research paper has no ambitions to judge the concept of ABC but to apply in cooperative sugar factories. In fact, the aim of this paper is to explain the necessary steps to apply ABC, as well as to explain the procedures for identifying different categories of stock that will require different management and controls.Sugarcane is the main raw material for the producing of sugar in the sugar manufacturing process. Sugarcane is refined with various chemicals such as sulphur dioxide, phosphoric acid, calcium hydroxide etc. subordinate raw materials used in sugar production. All this material processes certain value and it should be kept in well structured store department under the supervision of store manager. Store department covers all aspect of materials, handling, storage, stock control and issue to concern department as per requisition.

Objective of the study:

To Study the existing material planning to secure economy in cooperative sugarfactories

To check the feasibility of implementation of ABC Analysis for inventory control incooperative sugar factories.

Hypothesis of the study:

ABC Analysis is useful for inventory management in cooperative sugar factory

ABC Analysis is not useful for inventory management in cooperative sugar factory

Research Methodology:

This is conceptual based paper and the researcher has collected secondary data with necessary primary data for this paper. The researcher has selected Pushphadanta Cooperative Sugar Factories from Nashik district where sugar factory have been working in loss. The researcher has discussed with a few sugar factory experts, industrial people, financial experts and cost accounting practitioners for practicability of implementation of ABC Analysis for inventory control in cooperative sugar factories.

Implementation of ABC Analysis for Inventory Control in Factory:

In ABC Analysis, annual consumption of various items is worked out in terms of rupee value, and it is divided in to three board categories i.e. A, B, and C category at descending value. The items in the A category have the highest value, B category items are lower value then A category value and C category items have the lowest value. Based on ABC analysis, an average perentage of items and percentage of their respective values may work out as follows. ABC analysis for inventory control in the store department can be explained at allocation of total items in percentage and its value. A category items - 10% of the items accounts for 70% of the annual consumption value of the items. B category items - 20% of the items accounts for 20% of the annual consumption value of the items. C category items - 70% of the items accounts for 10% of the annual consumption value of the items.

	Percentage of items	Percentage of rupee value
A	10% of the total inventory	70% of total inventory value
B	20% of the total inventory	20% of total inventory value
C	70% of the total inventory	10% of total inventory value

It is observed that A category items which are in large value but in small portion of total consumption in terms of value, these items are more important from the point of inventory control and focus for higher degree of control. C category items compare to A category items which are large in numbers but small value of the total consumption in terms of value. These are termed as C category items and there is no need for strict control. In between A and C the B items are of medium importance.

Policies for 'A' items

1. Items account for 70% of the value, they should be ordered frequently to reducethe capital locked up in inventories.
2. Such items should be estimated in advance and they should be procured on aplanned basis.
3. Purchase of A items should be looked up by the purchase manager to ensuredelivery.
4. Stock and issue records should be maintained carefully in the inventory control,so as to get the up to date position of stocks at any time.

Policies for 'B' items

1) The policies for B items in general are intermediate between those for A and Ccategory items
2) Order quantities, reorder points and safety stocks should be fixed for B categoryitems and revision once in a year is adequate for this items
3) Annual or six monthly contracts with scheduled deliveries can be used to anadvantage for B category items.
4) Stock and issue records must be maintained properlyPolicies for C category items
5) Annual or six monthly orders should be placed to reduce paper work in the purchase section and also to get the advantage of large purchase quantity discount.
6) Authority for the purchase of C category items could be delegated to the store keeper.
7) Stocks and issue records can be minimised to the extent that is possible.

Conclusion of the study:

Inventories constitute the significant part of current assets, and it involved major portion of working capital out of total capital invested in assets. Inventory management can effectively and efficiently avoid unnecessary investment. Inventory control is the

process of deciding what and how much of various items are to be kept in the store department. It is also determines quantity of finished goods, quantity of work in progress, quantity of closing stock of all raw materials specially in chemical material, spare parts and equipments. The basic aim of inventory control is to minimise cost in investment in inventories and ensure the continuous production process. For better inventory control there is need to undertake systematic analysis of all items in store rooms stored. On an average 1250 to 2500 TCD sugar factories carries items in inventory between 5000 to 6000 items. A high degree control on each item is possible only by applying the ABC Analysis Method for inventory control in selected sugar factories.

Recommendation/ Suggestions:

The **ABC analysis** is widely used in supply chain management and stock checking and inventory system and is implemented as a cycle counting system. It is most important to sugar factory seek to bring down their working capital and carrying costs. Hence Researcher strongly recommend to the sugar factory to introduce or implement **ABC analysis in his store department for better inventory control.**

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General Landuse Pattern in Nanded Taluka : A Case Study

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Abstract :

Landuse is an important aspect of geographical studies particularly relevant to Agricultural Geography. In the light of physio-socio-economic environment, man determines the uses of land. These are taken into consideration while classifying the land under different categories and subcategories. Utilization of Land is an important predicament for planning process because of the predictable of land resource. The layout or arrangement of the uses of the land is known as land use pattern. The land may be used for agriculture, forest, etc. Land use is determined by many factors like density of population, soil, climate, relief features, technical and socioeconomic factors, length of occupancy, etc which determine the extent to which the resource of the land is utilized. The present research work is an attempt to analyze the general landuse pattern in Nanded Taluka. The study region covers 15830.11 Km^2 and as per 2011 Census, Nanded district. For the administrative purpose, the taluka has been divided into four circles. There are 90 villages in the study region. The existing pattern of landuse is the result of land exploitation within the frame of physical and socio-economic complex and modified by the expansion of irrigation and growth of population. The aim of this paper is to study the General Landuse pattern in Nanded Taluka.

Key Words: *Land use Pattern, Forest, agricultural and Land Utilization.*

Introduction :

It is important to study the land use pattern to make wise use of resources that are available to us. Thus, this is part of resource planning. Land is a very important natural resource. Land use is an important aspect of geographical studies particularly relevant to agricultural geography (Nagarale and Jadhav, 2012; Shinde, 2012). There is an intimate relationship between land economics and land utilization. The study of land utilization is of immense value in tracing out the post use of land and its future trends (Husain, 1979 and Mohamod, 1977). Land utilization requires proper planning for being finite resource. In this paper, Our purpose is to study the changes in landuse pattern in Nanded district from 2001. There are five main different type of land use: **Residential, Agricultural, Recreation, Transportation and Commercial.**

Database and Research Methodology:

Secondary data has been used for the present research paper. It is collected for the period of 2000-2005. This data has been collected from various sources. i.e. District Census Handbook, District Gazetteers, District Socio-economic abstracts etc. Five major landuse categories have been considered for the study of the changes in general landuse pattern. In order to smooth but unusual fluctuation five yearly averages has been calculated for the year 2000-2005. The method used by Jasbir Singh (1974) has been employed for analyzing the changes in land utilization.

Objectives :

1. To examine the general landuse pattern in Nanded Taluka.
2. To analyses the Non-agricultural landuse, agricultural landuse and ect.
3. To study the Arial changes in general landuse pattern in Nanded Taluka.

Study Area :

The name Nanded is derived from its Sanskrit form Nanditat, which was so called probably because it comprised the territory on both the sides of the river nandi. There are several explanations offered from the origin of the name Nanded given to headquarters of the district. Nanded is one of the historical places in Marathwada region. It is popular for sikh Gurudwaras. Nanded Taluka is part of Nanded district in Maharashtra. The present study deals with the area in and around Nanded city. It lies in the Godavari basin in the south-eastern part of the state, in the Deccan plateau. The Taluka of Nanded has between 19° 00' and 19° 18' North latitude and 77° 9' to 77° 24' East longitudes. It has a geographical area of 412.70 Sq. Km. Nanded is one of the fastest growing city of Marathawada regions of Maharashtra. The climate of this Taluka is generally dry except during the southwest monsoon season.

General Land Utilization of Nanded Taluka:

The change of village wise landuse pattern in Nanded Taluka has been analyzed. Five major categories of land utilization have been considered for the study area.

Table No-1: General Landuse of Nanded Taluka

Sr. No.	Landuse Types	Area (Hect.)
1	Forest	4.98
2	Irrigated	1550.26

3	Un-irrigated	5531.03
4	Agricultural Land	7081.29
5	Culturable Waste	933.49
6	Area not available for Cultivation	729.06
7	**Total**	**15830.11**

(**Source:** Census handbook of Nanded District, 2011)

Area under Forest :

Area under forest is one of the basic or important land use categories. In 2011, 4.98 Hect Out of the total geographical area it covers 0.031 per cent area was found in Nanded Taluka (Table 1). Environmental studies shows that, it is very less area as per the ecological balance. Area under forest in Nanded Taluka is low. Physiographic, urbanization, and population these 3 factors are much responsible for the low area under forest.

Area not Available for Cultivation :

Area not available for cultivation can be divided into two sub categories i.e. the land put to Non-agricultural use, barren and uncultivable land. This shows that this area will no more be available for crop cultivation. In 2001, area under not available for cultivation in the study region was 729.06 hectares. Out of total geographical area, it covers 4.60% in study area (Table and Figure 1). Largest area under not available for cultivation was found in north-eastern site and Where as lowest area was observed in southern area in study region.

Irrigated Area :

In general, Nanded Taluka consist of 20% irrigated area present in the northern region of study area. While there is more than 50% irrigated area is present in three villages.

Un-irrigated Area :

The un-irrigated area in the study region was 5531.03 hectares. Out of total geographical area it covers, 34.93% in study region and 60% out of total are occurred in northern region of Nanded Taluka.

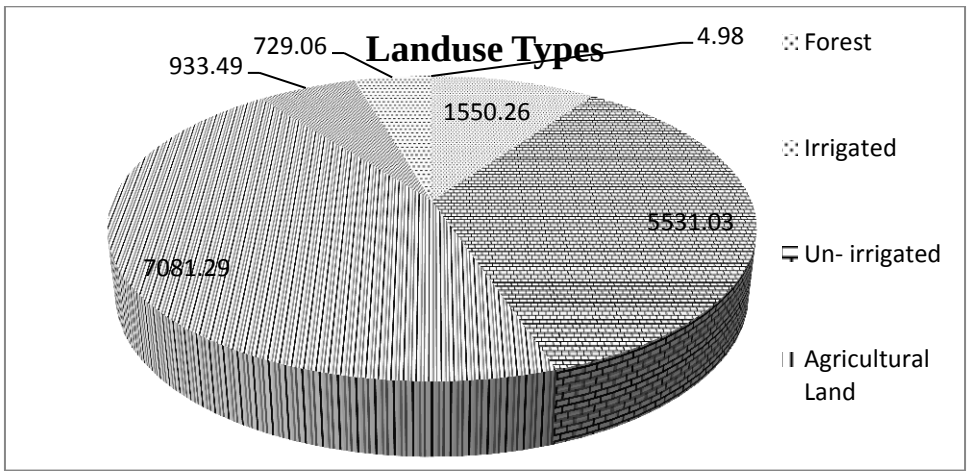
Agricultural Area :

In the present study region the occurrence to fertile land is 10 to 30% having maximum village area. While there are 12 villages having 75% of this area.

Culturable Waste :

Culturable land comprises land available for cultivation, either taken up or just not taken up once for harvesting, but not harvested over the last five years more than in sequence, including that of the current year. In present study there are maximum villages having 5 to 10% culturable waste. It includes nine villages. General Land use includes features Forest, irrigated**,** un-irrigated, agricultural land, culturable waste, Area not available for cultivation. The Maximum area covered by agricultural land (7081.29 Ha.) and Minimum area covered by forest (4.98 Ha.)

Figure No-1: General Landuse of Nanded Taluka



Conclusion:

The proportion of forest area is very low in Nanded Taluka, area under forest has decreased i.e. southern part in study region and it is found that area not available for cultivation is very low in northeast and southwestern part of Taluka. It is observed that with the help of the study made in this region fallow

land was increased in surrounding area of study region. It is also observed that irrigated area was very high in north site in Taluka. Agricultural land will be brought under cultivation. Per captained sown area is decreasing due to the explosion of population. It is possible through adopting new farm technology in the entire study region. To keep the environment balanced it is the need of the time to increase area under forest. It is also essential to bring more land that is fallow under cultivation within the short period and raise agricultural productivity.

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Geographical Structure and Potability of Cold-water spring -Taked, Nashik

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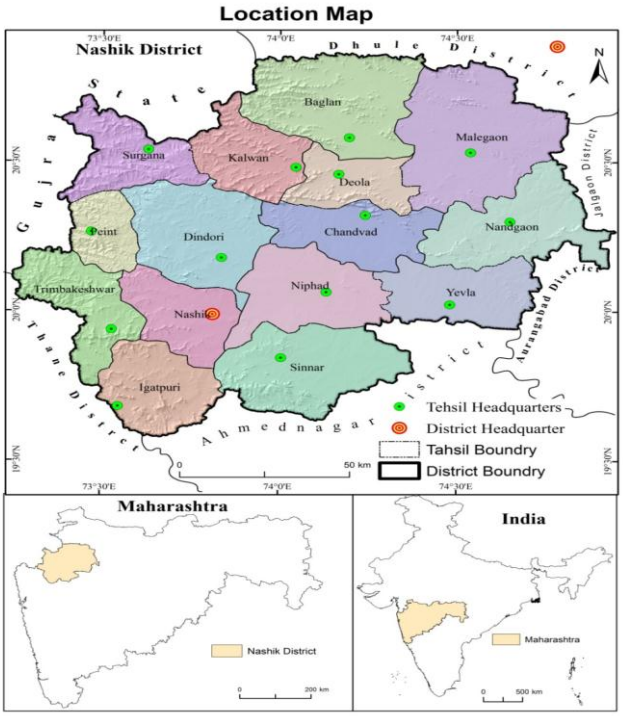
Introduction

In the study of the warm or cold springs, Geomorphology and geology has main influence on the occurrence, distribution, movement and storage of ground water in the earth surface. Geomorphologic processes are generally complex and it reflects in many ways on the surface. The geographical aspects of cold spring its discharge temperature and its locational aspect are also studied for this investigation. basically, in the study of the springs, the geographical location of spring is the place where small stream of ground water appears over the surface or where the groundwater reservoir is discharging on the land surface. Generally it is the result of existence of impermeable layer of surface rock and there is natural leakage of ground water on the surface. Springs are varying on their characteristic of temperature, flow and chemical properties of the water. Some springs are being seasonal and some are perennial, some springs have almost continuous and constant flow of clear water and even temperature while some springs cannot flow regularly. Spring water has usually metrological character that is, rain that has infiltrate in to the ground and emerged as a spring at some other point on a lower level. on the basis of chemical properties are available in the spring water the spring are classified in different types like Sulphur spring, salt springs and many other.

Study region

Taked cold water spring is located near to Taked budruk village in Igatpuri tehsil of Nashik district Maharashtra. It is around 38 km west to Nashik city. This place locally famously known as "Sarv Tirth Jatayu Mandir Taked" it is famous local religious tourist point for local and district tourist. Taked cold water spring is located near to Kadva Dam the small stream of kadva river disappear in to kadva dam. It is hilly terrain of western ghats or Sahyadri. The morphological setup of the terrain has significant role in the occurrence of taked cold water spring, the terrain is ideal site to undertake estimation of Cold Spring. It represents possible various geomorphic characteristics, the water characteristics also varies in nature throughout the area, the latitudinal and longitudinal extent of the taked cold spring is 19° 30'12" N to19° 45'14" N latitude and 73° 45'00" E
to 74° 00'03" longitude.



Objectives:

1. To study Geological aspects of cold-water spring.
2. To study the potability of cold-water spring.

Methods and Materials

The primary data regarding the geographical and geomorphological aspects are collected with the help of survey of India toposheet of the study region and field visit. Geological setup of the study region is collected from various sources like reference books of geology of Maharashtra. The morphology of the region is investigated with the help of google earth and satellite image of the study region. Arc GIS tool is used to form the location map of the study region. The water samples of the cold spring of taked are collected from actual spring location, the temperature of the water is calculated at the origin of the spring. The various characteristics of the cold-spring water are tested at chemistry laboratory of the college.

Result and Discussion:

Relief of the study region:

The study area has a rigid topography it is a part of western ghats or Sahyadri of state Maharashtra. Study region is the south west part of Igeatpuri tehsil of Nashik district. The region is characterized by hilly terrain and shows reared nature in terms of relief. It exhibits moderate to high relief. Thus, the elevation ranges is from 600 meters and highest peak of Sahyadri rage " Kalsubai" is situated near to study area in the Ahmednagar district.

Geology:

The western ghat or Sahyadri is mountain range which runs along with the western cost of Indian peninsula. Western ghat is one of the worlds important hotspot of natural biodiversity. In the Geology of the study region it has volcanic formation. whole study region is covered by deccan plateau. The Deccan plateau began forming 66.25 million years ago, at the end of the Cretaceous period. The maximum volcanic eruption occurred at the Western side of the deccan plateau around 66 million years ago. The mountain ranges of the study region are flat-topped and separated by valleys. The hill ranges of the region have alternate strata of different rock which represents considerable situation for springs.

Climate:

The study region is serving with tropical type of climate, where whole region of deccan trap is comes under the tropical type of climate which strongly influenced by southwest monsoon. The local variation of climate ranging from sub humid to arid. In some patches of the district humid tropical climate has been observed. The study area has the monsoon dominated characteristic; the area commonly varies the following weather conditions over the year.

1. Cold weather season during **December to February** months of the year, when the temperature on lowest point in the year. In coldest time of the region rainfall is completely absent where the temperature recorded between 26˚to 30 ˚c
2. Hot weather season during **March to May or starting weeks of the June** when the temperature reaches on it peaks these days are the hottest days of the year, where the temperature range found between 40˚to 45˚ C and at night it reaches on 15˚to 18˚c.
3. South West Monsoon period or Rainy season during the **June to September** it is the period of south west monsoon, when the study area receives the maximum rainfall of the year. The average range of the rainfall in the area is between 200cm to 250cm, where the temperature found between 30˚to 35˚ during this time of the year relative humidity remains very high around 80 %.
4. Post monsoon period which is also known as retreating monsoon period of the year between October to December when the temperature is showing increasing trend it founds around 30˚to 35˚C.

Drainage Pattern of the study Area:

The Taked cold spring located in the Igeatpuri tehsil of the Nashik district. Igeatpuri tehsil is the western most tehsil of the district which adjoin with western ghat. Sahyadri mountain ranges are prime source region of all the revers of the area, the region has eastward slope so maximum rivers of the region are east flowing rivers. Taked Cold Spring is located near to left bank of Kadva river basin. Which originates from hills of Sahyadri and flow towards the east according to slope, where the rainfall around 200 cm annually. Kadva river is seasonal river which receives large water supply during the monsoon season of the year. The surrounding area of the taked cold spring is covered by evergreen forest.

Properties of Cold Spring Water:

The quality of groundwater is equally important as its quantity. To recognize the quality of water, the measurement of quality criteria is important which include measures of chemical Physical, biological and radiological components are specified as well standard methods for reporting and comparing results of water analyses. Dissolve's gases in groundwater can pose hazard if their presence goes unrecognized. The uniformity of groundwater temperature is advantageous for water supply and industrial purpose. **Physical**

properties and Physical Analysis of Cold Spring water:

In physical properties of cold-water Spring contain various physical components such as temperature, colors of water, organism, testes, dissolved gasses, mineral matter, or phenols, etc. In a physical analyses of cold Spring water , Temperature is reported in degree Celsius and necessarily measured immediately after collecting the sample . Color of groundwater may be due to mineral or organic matter in solution and is reported in MG/2 by comparison with standard solutions. Turbidity is a measure of the suspended and colloidal matter in water, such as , silt organic matter and microscopic organism. Measurements are often based on the length light path through the water which just cases the image of a flame of standard candle to disappear, The natural filtration produced by unconsolidated aquifers largely eliminator turbidity, but odors may be divided from bacteria, dissolved gases, mineral matter or phenols

Following table shows the physical properties of study areas.

Sr. No	Physical parameters	Taked	Units
1)	Color	Clear	-
2)	Odour	Odour free	-
3)	Temperature	24.3	C
4)	Suspended solids	21	MG/L
5)	Dissolved solids	419	MG/L
6)	Total	440	MG/L
7)	Turbidity	1.1	N.T.U.
8)	Dissolve's oxygen	6.3	MG/L

Chemical Properties of Cold Springs Water:

Various chemical properties of water are varies with regional variation, cold Spring waters contain the chemical components such as alkalinity, carbonate, bi carbonate, sulfates fluoride chlorides, calcium, hardness, sodium, potassium, nitrate, ammonia, nitrogen, phosphorus, chlorophyll, biochemical oxygen demand, chemical oxygen demand, aluminum, iron, manganese, silica etc. a sample of Cold Spring water has been analyzed in a laboratory. Methods for reporting water analysis be considered from an understanding of expression and units for decreasing water quality, standard is been established so that analysis interpreted in term of the ultimate purpose of the water supply. In a chemical analysis of cold Spring water, concentration of different lone is expressed by weight or dry chemical equivalence. Total dissolved solids also been measured in term of electrical conductance. Total dissolved solids by electrical conductance. A rapid determination of total dissolved solids has been made by measuring electrical conductance of a Cold Spring water sample conductance is preferred rather than its reciprocal, resistance, because it increase with salt content. Specific electrical conductance defines the conductance of a cubic centimeter of water at a standard temperature of 25˚C; an increase of 1˚C increase conductance by about 2 percent. Further observations are found in spring water.

The following table shows chemical properties of Cold water spring of Taked.

Sr.no	Parameter	Results	Units
1	pH	8.0	-
2	Electrical conduct	470	Cm
3	Alkalinity	156	Mg/L
4	Carbonate	1.5	Mg/L
5	Bio carbonate	154.5	Mg/L
6	Chloride	14.89	Mg/L
7	Sulphate	4.40	Mg/L
8	Florid	0.28	Mg/L
9	Calcium	72.14	Mg/L
10	Total hardness	284	Mg/L
11	Sodium	30.9	Mg/L
12	Potassium	0.545	Mg/L
13	Nitrate (No2)	0.084	Mg/L
14	Nitrate (No3)	2.14	Mg/L
15	Ammonia (NH3)	0.037	Mg/L
16	Nitrogen (N)	0.27	Mg/L
17	Orthophosphorus (O-PO4-P)	0.25	Mg/L
18	Total Phosphorus	0.5	Mg/L
19	Chlorophyll. A	6.0	Mg/L

20	Biochemical Oxygen	1.6	Mg/L
21	Chemical Oxygen	8.22	Mg/L
22	Boron	ND	Mg/L
23	Aluminum (Al)	0.047	Mg/L
24	Iron (Fe)	0.7	Mg/L
25	Manganese (Mn)	0.28	Mg/L
26	Silica (Sio2)	3.8	Mg/L

Biological Analysis and Properties of Cold Spring Water:

In biological properties of Cold Spring water contain part of humus, microorganisms, bacteria etc. As mentioned before, bacteria logical analysis is important detecting biological pollutions of ground water. Most pathogenic bacteria found in water are indigenous to the intestinal tract of animal and humans, but isolating theme natural water is difficult in the laboratory. Because bacteria of the coli form group are relatively easy to isolating and identified. Standard test to determine their presence or absences in a water sample are taken as a direct indication of the safely of the water for drinking purpose. Coli form test result is reported as the Most Probable Number (MPN) of Coli form group organisms in a given volume of water. By analysis of a number of separate portions of water sample, Most Probable Number (MPN) is computed from probability table for this purpose.

Conclusions:

The complete investigation has been done in the study of the cold-water spring of the Taked, all the geographical aspect are considered for the study. The occurrence of the taked cold water spring is influenced by collective impact of geographical factors, which includes geology and geomorphology of the region, morphological slope of the area, climatic characteristic, annual rainfall and vegetation of the study area. In the occurrence of cold spring the geological set up of the area has played important role. In the analysis of potability of spring water the PH value of water is 8 so the quality of water is good for drinking purpose. Where the color of water is clear and odorless, temperature is 24.3° C. In the chemical properties of the water are as follows electrical conduct is 470 cm, Alkalinity is 156 Mg/L, Carbonate is 1.5 Mg/l, Bio carbonate 154.4 Mg/L, Calcium-72.14 Mg/L some others are shown in above table. In the biological analysis of spring water the part of humus microorganisms, bacteria have been found. The religious faith of the people on the spring water (Sarv Tirth) is associated with the chemical properties in the water.

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Pharmacist: As Frontline Defence Against Covid19

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Abstract

Covid-19 - The pandemic that brought down the Healthcare systemsaround the world in its difficult times this pandemic giving a massive challenge to the pharmaceuticals system of the world along with India, in this article we are highlighting a new approach of the pharmacists aroundthe world as well as the data that we had collected from Latur Dist. of Maharashtra state, the pharmacists providing services including TRIAGEservices like reducing the number of patient's burden from health care facilities such as hospitals and general physicians also providing home deliveries as well as dealing with an increased number of patients comingthrough pharmacies with other complications while working hand in handwith government civil hospitals and health workers to create awareness among the citizens on Covid-19. this kind of approach of pharmacist towards the healthcare system really helped to lower the load on health care system and satisfying patient's health in Latur.

Keyword: - *Covid-19, Pandemic, Pharmacist, Frontline Defense,Hospitals, Awareness, Saving Lives.*

Introduction

The Corona Virus (COVID-19) isan infection caused by the Severe Acute Respiratory Syndrome Coronavirus2(SARS-CoV-2) firstemerged in Wuhan (China) in December 2019, spreading rapidly across the world.1 On the 11th of March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic.2 At the time of writing there have been 10 million cases of COVID-19 reported globally, with more than 500 000 deaths reported across 216 countries. Currently, the COVID-19 pandemic is a major public health problem worldwide. The corona virus diseases 2019 (covid 19) is a public health emergency and during this unprecedentedsituation health care provide the globe are at frontline as the most accessible healthcare provide pharmacist play a critical role against this pandemic throughcommunity hospital and other health care setting Beside performing their routine duties pharmacist helps to reduce the load on physician and other healthprovider.

Metodhology As healthcare professionals, pharmacists can play key role during the pandemic, acting directly with the community.Continuing to care for patients with chronic diseases, working in hospital pharmacies and providing pharmaceutical care toCOVID-19 patients. Moreover, they may provide reliable information for preventing, detecting, treating and managing coronavirus infections. As a result, several challenges have emerged and innovative strategies are being adopted by pharmacists to overcome them.

Duties PerformedBy Pharmacists During Pandemic And Its Impact On Society Government

1. Disease Education and Counselling
2. Education on Hand and Respiratory Hygiene
3. Encouraging Social orPhysical Distancing
4. Provision of Facial Masks andEducating on
5. Donning/Doffing Techniques.
6. Busting the Myths and Neutralizing the Misleading Narratives
7. Tele pharmacy Services
8. Active Surveillance ofSuspicious Cases
9. Extemporaneous Preparation
10. of Sanitizers and Disinfectants
11. Ensuring AppropriateMedicine Inventory
12. Effective Medicine Supply System to Customers
13. Medication and Disease Management
14. Pharmacovigilance at the Community Level
15. **Pharmacists recommendImmunity Booster Diet for COVID-19**;
16. **06.30 am**: Hot Water + HalfLemon One Glass (Vit C) Half Tsp Jeera with Warm Water. Two Anjeer or Khajoor + Four Soaked Almonds (Vit E) Indoor Exercise For 40 Mins.
17. **07.30 am**: Green Tea (Pudina, Adrak, Elaichi, Lavang, Dalchini, Jaggery, With Lemon Drops One Big
18. Cup) Immunity Booster.
19. **09.00** am: Breakfast- Sproutswith Salad or Moong Dal Dosa or Upma or Oats or Vegetable Dalia or Dhokala or Boiled Eggs Two Pcs or Omelet (Protein Rich) 11.00 Am: Oranges Two / Water Melon / Pomegranate.

pm: Lunch Salad One Plate, Jawahar Roti One or Chapati Two, Any Vegetable One Cup, Dal One Cup, Rice(Optional), Jawas Chutney One Tbsp. Any Citrus Fruit One (Vit-C).

20. **Indoor Exercise** For 40 Mins05:00 pm: Green Tea as Above One Big Cup.
21. **08:00 pm**: Dinner Dal Khichadi with Kadi or Besan Bhakari or Vegetable Mis Daliya or Vegetable Thalipithor Subji Roti with Jawas Chutney.
22. **10.00 pm**: Sleeping Time 1/4 Tsp Turmeric + 1/4 Ginger + ONE Cup of Hot Water (Immunity Booster).

23. Tips: Drink 10 -12 Glass of Water Per Day. Avoid Sugarand Sweets, Fried Foods & Excess Salt.

Frontline WorkersIn Government Hospitals

These health workers working day and night to ensure and savelives of patients having covid.
Health workers working in government hospital in Latur indifferent shifts for 24 hours a day.

SR **HEALTH WORKERS**

01.0 Sisters 56
02.0 Pharmacist 7
03.0 Xray 2ECG 2
04.0 Ward Boy 805.

Hospitals Of LaturDist. *Task schedule of pharmacists in Latur's government hospital:* - Pharmacists keep record of patients every day and collect prescribed drugs for particular patients and supply them to the patients with proper instructions.

pharmacist having shifts ingovernment hospital

Pharmacist	Starts	Ends
1	8.00 AM	12.30 PM
2	12.30 PM	6.00 PM
3	6.00 PM	12.00 AM
4	12.00 AM	6.00 AM

The pharmacists were availablealmost 24 hours to provide
necessary drugs required by patients and necessary to treat.

Dedicated Covid Facilities For Patients Taking Treatment In LaturDist.

As soon as we realized the importance of developing the required infrastructure for dealingwith COVID-19 pandemic, we put in all the available resources
And created Two Dedicated COVID Hospital (DCH), One Dedicated COVID Health Center(DCHC) and Twenty-Three **Dedicated COVID Care Centers (DCCC): -**

Cat. I - Dedicated COVIDHospitals / DCH

Total Isolation beds – 643 Beds for Suspected cases – 316
Beds for Confirmed cases - 327

Cat. II - Dedicated COVIDHealth Center / DCHC

Total Isolation beds - 2444 Beds for Suspected cases - 1343
Beds for Confirmed cases – 1101

Cat. III - Dedicated COVIDHealth Center / DCHC

Total Isolation beds - 580 Beds for Suspected cases - 290
Beds for Confirmed cases – 290

Medication GivenTo The Covid 19 Patients -Two drugs can help manage COVID-19 in some people withsevere symptoms taking treatment in the hospital.

Veklury (remdesivir):

Veklury (remdesivir) is anantiviral drug that may slow the replication of the virus inthe body.

Dexamethasone: Corticosteroids, such asdexamethasone, may help managesymptoms in people with COVID-19 by reducing inflammation.
They also may reduce the risk of death in some people with severe symptoms.
Other medications are also used by government hospitals to covidpatients
Such as**:**

Paracetamol: For reducing fever and inflammation.

Vitamin C Tablets: For **boosting immunity.**
Zinc Tablets: For dietaryallowance for elemental zinc.
Cough Syrup: For sour throat and removing sputum.
Antibiotics: For treatinginfection**.**

The Future Role ofPharmacists amid Covid

Looking forward, pharmacist's medication expertise should be leveraged in vaccine development and clinical trials.When the vaccine against COVID-19 is available,

Pharmacists will be considered one of the frontline health workers that should be permitted to give immunizations.

Study Selection Submitted Study that describe services provide by pharmacist during covid 19 and involved graduate students were excludedAll titles and abstract were independently screened and selected by authors.

Conclusion

A total 147 frontline workers give their helping hand during
covid 19 pandemic situation inlatur dist.

Acknowledgement We studied and researched healthcare's nearby Latur dist. weappreciate health workers who helped us to study on this important issue by taking proper precautions while we were in hospital premises.

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