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CONTAMINATION OF SOIL AND WATER WITH ARSENIC, ITS EFFECT ON LIFE AND REMEDIAL STRATEGIES

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Introduction

With a rapid urbanization and uncontrolled growth of human population, the deterioration of environment is also taking place in an alarming way. Human population is being exposed to numerous pollutants and toxic chemicals in everyday walks of life. The food, drinking water, air every indispensable component of life is contaminated with toxic chemicals and metals making them exposed to several disease and disabilities. Contamination of heavy metals in water and crops is one of those major environmental concerns of present days.

Arsenic (As) is a naturally occurring metalloid abundantly found in earth's crust. It has potential hazardous effects on both environment and health. Presence of high concentration of arsenic in soil and water (to some extent in air) can exert miserable effects on human health and environment. Owing to its severe toxic effect, its presence in drinking and groundwater has become a global menace in several countries worldwide including different parts of India and our subcontinent (1).

The world is putting a great effort to understand the environmental source of arsenic and researches have been directed towards the remediation of this pollutant. In spite of this effort, the environmental route of exposure of arsenic in general population is yet to be fully understood. Till date, the major source of arsenic toxicity in human is thought to be through the routes of drinking water, food components, smoking, and cosmetics. In remediation aspect, the target is to keep a safe level of arsenic (0.01 mg/L) in drinking water in arsenic prone areas (2).

This review focus on the environmental sources of arsenic, potential health hazard imparted by arsenic and its possible remediation strategies.

Sources of arsenic in the environments

Arsenic (As) is already present as a natural element and in mineral form in earth's crust which is subsequently leached into soil and groundwater during natural weathering of rocks. The anthropogenic source of arsenic also contributes to the contamination of groundwater and soil. The major sources are mining activities, industrial wastes from metal processing, administration of pesticides and fertilizers in agriculture etc(3).

The effect of arsenic contamination is not limited to affected regions but is far-reaching in terms of its hazardous consequences to widespread ecological niche. The ingestion of arsenic through food chain may impact the socioeconomic pattern as it is largely related to exploitation of groundwater. In addition, the food crops grown with the arsenic contaminated groundwater accumulates the toxic metal in high concentration. These crops are sold to far-off places and consumed by people. Thus, it may also exert arsenic toxicity in the geographical region where the soil and groundwater are not contaminated with the toxic metal.

The permissible level of arsenic concentration in soil generally ranges from 1 mg/kg to 40 mg/kg with an average of 5 mg/kg. Any perturbation to this value is only possible due to a variation in the local composition of rocks and during other biogeochemical processes. Mining activity is one of the human activities that is proven to increase the soil arsenic content above the permissible level. A high arsenic

content in some part of the countries like England, China, Thailand, Ghana, Zimbabwe, Mexico, Canada, U.S.A., and Brazil have been found to be associated with mining activities (4).

Health hazards The toxic effect of any hazardous substance can be broadly categorized into acute and chronic toxicity. The toxic dose of arsenic for an adult human being is found to be 1-3 mg/kg (Hughes, 2002). The common acute toxicity arising from arsenic poisoning includes the following presentations

- Nausea
- Vomiting
- Severe abdominal pain
- Profuse watery diarrhea (often bloody)
- Excessive salivation

Chronic toxicity

The chronic clinical manifestation of arsenic poisoning in human is commonly known as arsenicosis. Arsenicosis includes myriads of disorders such as typical skin lesions characteristic of arsenic toxicity. Moreover, arsenic is known to affect both the respiratory system and nervous system to a great extent. Above all, chronic arsenic poisoning ultimately leads to different types of carcinomas of lung, skin, liver, prostate and urinary bladder (5). International Agency for Research on Cancer (IARC) has recognized arsenic as a potent carcinogen and probably the only one that can cause cancer through respiratory or gastrointestinal exposure. However, the exact mechanism of carcinogenesis by arsenic is yet to be fully understood and needs further investigations (6).

The chronic effect of arsenic is strongly correlated with the following factors:

- Exposure amount
- Length of exposure
- Frequency of exposure
- The biological species
- Age
- Sex
- Individual sensitivity and immunity
- Genetics
- Nutritional factors

The mechanism of arsenic toxicity in human is complex and involves impairment of several biological functions. Recent studies have shown that arsenic causes DNA impairment, inhibition of enzymatic activities produces harmful reactive oxygen species (ROS) and promotes tumor formation by inactivating the tumor-suppressor genes by DNA hypermethylation. Moreover, the extent of toxicity is highly dependent on the oxidation state and solubility of arsenic and also influenced by several other chemical and biological factors (7). Neurobehavioral abnormalities in puberty and adulthood due to arsenic poisoning can result from the exposure of arsenic in early childhood. Similarly, Arsenic accumulated in the body during childhood may induce neurobehavioral abnormalities during puberty, and neurobehavioral changes as an adult. Neuritis, the loss of sensory functions of the peripheral nerves, does also arise from arsenic toxicity (5).

Removal of arsenic contamination Arsenic can be removed from the contaminated soil or water by both physicochemical and biological processes. Considering the cost and associated hazards of physicochemical treatment, scientists have also come up with different biological tools to remediate excess arsenic from the environment (8). The biological methods include:

- Phytoremediation
- Biological filtration

- Microbial remediation, etc.

Summary of few physicochemical remediation techniques is given below.

1. Coagulation-precipitation and filtration

This process involves the transformation of soluble arsenic forms into insoluble solids by coagulants. Thus, the suspended and or colloidal arsenic are made to be precipitated by the action of coagulants and flocculants. Subsequently, the precipitate is filtered out by some suitable filtration technique to obtain arsenic-free water. Lime softening, precipitation using lime $[\text{Ca}(\text{OH})_2]$, is a common technique to precipitate out arsenic from water (9).

2. Adsorption

The technique exploits the property of arsenic to bind different solid or liquid adsorbent material by Van der Waals force. The adsorption process is strongly influenced by factors such as initial arsenic concentration, adsorbent dose, exposure time or contact time, the solubility of arsenic in water, acting pH, temperature, and presence of other chemical species (10).

3. Membrane filtration

A specialized membrane that can block undesired chemical except for the feed water, is used to filter arsenic from water (11).

4. Ion exchange

This physicochemical technique involves the exchange of ions of a solid phase bound to column with the equivalent number of ions from water fed to the column. Synthetic resins capable of exchanging arsenic ions from water are used for the decontamination of drinking water.

In addition, reverse osmosis (RO) is also used to remove arsenic from drinking water (4).

Conclusion

A continuous effort should be made to improve the remediation techniques of arsenic-polluted water to maintain the agricultural sustainability and food safety. Moreover, a better environment-friendly, cost-effective remediation technique should be innovated to easily implement in the rural regions.

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जंजिरा संस्थानातील पोलिस व तुरुंग व्यवस्था

प्रा.डॉ. एस.एल. म्हात्रे , वसंतराव नाईक महाविद्यालय, मुरुड-जंजिरा, जि.रायगड

प्रस्तावना :-

भारतीय इतिहासात दक्षिण महाराष्ट्राती संस्थांना अनन्य साधारण महत्त्व आहे. इ.स.न १८१८ मध्ये पेशवाईच्या आस्तानंतर मराठी साम्राज्यात ब्रिटांशांचा अंमल सुरु झाला. मात्र पेशवाईच्या आस्तानंतर काही जागिरदार अस्तित्वात होते. त्यांने इंग्रजी सत्तेची तह करून आपले जाहगीरीचे अस्तित्व टिकवून ठेवले होते. १९ व्या व २० व्या शतकात या जाहगीरदारांना संस्थांनीक असे संबोधण्यात येवू लागले. तत्कालीन मुंबई इलाख्यात कोल्हापुर, औंद, भोर, जत, फल्टन, मिरज, सांगली, कुरंद वाड इ. संस्थाने अस्तित्वात होती. या संस्थानाप्रमाणे कोकणच्या किनारपट्टीवर जंजिन्याचे स्वातंत्र संस्थान अस्तित्वात होते.

सन १८७० मध्ये ब्रिटिशांबरोबर केलेल्या करारानुसार संस्थानात पोलिस दलांची निर्मिती करण्यात आली होती. सुरवातीला ६० राज्य पोलिस व ३२ जेल पोलिस अशी रचना होती. सन १८८० मध्ये या दोन विभागांचे एकत्रिकरण करण्यात आले.^१ त्यानंतर पोलिसदलांत वाढ करण्यात आलेली होती. मान्यता प्राप्त पोलिस दलांची संख्या १५० होती.

१ इन्स्पेक्टर

४ चीफ कॉन्स्टेबल

२८ हेड कॉन्स्टेबल

११६ कॉन्स्टेबल

१ ड्रिल प्रिशिक्षक (हेड कॉन्स्टेबलचा दर्जा असलेला)

मुंबई पोलिस दलाच्या धर्तीवर या पोलिस दलाची क्षमता व अनुशासन योग्य ठेवण्याची संपूर्ण काळजी घेण्यात आलेली होती.संपूर्ण पोलिस दलापैकी १/३ पोलिस लिहिता व वाचता येणारे होते. ज्यांना लिहिता व वाचता येत नव्हते त्यांच्या शिक्षणाची व्यवस्था करण्यात येत असे.

सर्व पोलिसांना कवायतीचे निर्देश, पोलिस कार्यासंबंधी व ड्युटी संबंधी निर्देश ड्रिल शिक्षकाकडून दिले जात होते. संस्थानाचे सर्व पोलिसदल केंद्रिय पोलिस ट्रेनिंग स्कूल नाशिक या संस्थेच्या आधिकाऱ्याच्या देखरेखीखाली होते. पोलिस दलाचा एकूण खर्च २४,२६०/- रु. एवढा होता.^२

जाफराबादमध्ये देखिल नियमित पोलिसदल होते. जाफराबादचे २९ पोलिस होते.

१ चीफ कॉन्स्टेबल

४ हेड कॉन्स्टेबल

२४ कॉन्स्टेबल

जाफराबादमध्ये दरोडेखोरांपासुन संरक्षणासाठी विशेष पोलिस दलाची भरती करण्यात आली होती. त्यात २ हेड कॉन्स्टेबल आणि ५ कॉन्स्टेबल तालुक्यात वर्षभर तैनात होते. यामध्ये काही पोलिस जंजिन्याहून पाठविण्यात आले होते.

१९२२ च्या अहवालातील आकडेवारीनुसार संस्थानात चोरी झालेली मालमत्ता ८७०/- रु. होती तर जाफराबादमध्ये २२४७/- रु एवढी होती. जाफराबादमध्ये चोरीचे प्रमाण जास्त होते. दरोडेखोरांच्या टोळ्या खेड्यांवर आक्रमण करून खेडी लुटत असत. वधेरा आणि बाबरकोट खेड्यात १९२२ मध्ये दोन दरोडे पडले होते. एका धाडीत कॉन्स्टेबल दादा घाची एकटाच दरोडेखोरांशी प्रतिकार करत होता. त्या झटापटीत त्याने एका दरोडेखोराला जखमी केले होते. परंतू दादा घाचीला सर्व बाजूंनी घेरून गोळीबार केला. त्यात त्याचा मृत्यू झाला. त्या अगोदर दरोडेखोरांनी त्याला शस्त्र ठेवून शरण घेण्यास सांगितले होते. पण त्याने त्यास नकार दिला. त्याने

शरण जाण्यापेक्षा मरण पत्करले. वधेरा गावासाठी त्यानी आपले प्राण अर्पण केले होते. त्याच्या मागे त्याची आई होती. तिच्या देखभालीची व्यवस्था संस्थानाने केली होती. दरोडेखोरांनी कॉन्स्टेबलची बंदुक आणि फेटा पळवून नेला होता. त्याची किंमत २६ रु. होती. ज्या गावाच्या वेशीवर ही झटापट झाली होती. त्या गावावर दरोडेखोरांनी हल्ला केला नव्हता. तर त्या गावातील श्रीमंत व्यक्ती देवत गिगा मकवाना यांचा खून करून ५९९/- रु. ची चोरी केली होती.

पुर्वी झालेल्या दरोड्यांचा शोध घेतला तर, असे दरोडेखोर परत दरोडे टाकतील म्हणून पोलिसांनी त्यांचा शोध घेण्याचे कार्य सुरु केले होते. भगवान खिमा सोनी आणि लेखा बिचीया हे दोन अट्टल दरोडेखोर होते. या दोघांना अटक करण्यात आली होती. त्यामुळे काठेवाड मधील वातावरण शांत होते. लोधापुर भागात दरोडेखोरांचा शोध चालू असताना जिवा रामा याला जुनागढ येथे अटक करण्यात आली होती. त्याच्यावर इतर प्रांतात देखिल गुन्हे नोंदविलेले होते. जंजिरा संस्थानाने त्याला आपल्या ताब्यात घेण्यासाठी प्रक्रिया सुरु केली होती. आणखी एक कैदी होता ज्याची जुनागढ संस्थानाकडून मागणी केली होती. त्याचे नांव गिगा सुसेसर धकाडा. त्याने शरणागती पत्करली होती. त्याला जाफराबाद संस्थानाच्या ताब्यात देण्यात आले होते. त्याला दोषी ठरवून शिक्षा दिली गेली.^३

जाफराबाद मध्ये वारंवार दरोडे परत असल्यामुळे तेथे पोलिस दलाला सक्षमक रण्याचे प्रयत्न करण्यात आले होते. जुन १९२१ मध्ये संस्थानाचे पोलिस इन्स्पेक्टर स्वतः तिथे जाऊन दोन महिने मुक्कामी राहिले होते. सोबत जादा पोलिसही तैनात केले होते. तेथे रात्री गस्त घालण्याची पध्दती अवलंबण्यात आली होती. त्यामुळे दरोडेखोरांना काही दिवस दूर ठेवण्यास मदत झाली. एप्रिल १९२२ मध्ये राज्य पोलिस इन्स्पेक्टर पुन्हा जाफराबादमध्ये जाऊन पाहणी करून आले. तोपर्यंत दरोडेखोरीच्या घटना घडल्या नव्हत्या.

लोक संख्येच्या मानाने पोलिस व जनता यांचे प्रमाण १:५८३ आणि १:२.१ चौ.मैल तर जाफराबादमध्ये १:३७९ आणि १:१.८ चौ.मैल असे होते. संस्थानात गाव पोलिस अशी भरती केली जात नव्हती.

संस्थानातील पोलिस कार्यक्षम होते. जनतेचे संरक्षण करणे हे त्यांचे प्रमुख उद्दीष्ट होते. सेवा करत असताना एखाद्या पोलिसास मृत्यू आला तर त्याच्या कुटूंबाची जबाबदारी संस्थान घेत असे. तसेच पोलिसांकडून गुन्हेगारांना सहकार्य मिळत आहे असे आढळून आल्यास त्या पोलिसाला सेवेतून बडतर्फ करून त्याच्यावर खटला चालविण्यात येत असे.

कारागृह (जेल)

१९७६ पर्यंत मुरुड येथे तुरुंग होते. यात तीन खोल्या होत्या. प्रत्येक खोलीत सहा कैदी ठेवण्याची व्यवस्था होती. तुरुंग लहान असल्यामुळे तीन महिन्यांपेक्षा जास्त सजा झालेल्यांची रवानगी ठाणे किंवा येरवडा तुरुंगात होत असे. १८७६ नंतर मुरुड शहराच्या बाहेर समुद्र किनाऱ्या जवळ तुरुंगाची नवी इमारत बांधण्यात आली. त्यात एकूण १४ खोल्या आणि स्त्री कैद्यांसाठी दोन खोल्यांची व्यवस्था करण्यात आली होती. वरचा मजला कार्यालय म्हणून वापरण्यात येत असे. त्या शिवाय बोर्ली, मांडले, नांदगांव, मुरुड, म्हसळा, बोर्ली पंचतन व श्रीवर्धन येथे अटक कोठड्या होत्या.^४ कैद्यांकडून कारागृहातील बागेचे काम तसेच सार्वजनिक कामे करवून घेतली जात होती.

जाफराबादला एक कारागृह होते. स्थानिक वैद्यकीय अधिकारी त्याचे नियंत्रण करित असे. जशी कैद्यांची संख्या वाढू लागली तशी तुरुंगाची इमारत अपुरी पडू लागली. म्हणून १९२२ नंतर जाफराबादमध्ये नवीन इमारत बांधण्यात आली होती. या इमारतीत ट्रेझरी ऑफीस, तालुका ऑफीस आणि तुरुंग यांचा समावेश करण्यात आला होता.

सारांश :-

जंजिरा संस्थानात पोलिस प्रशासन व्यवस्था उत्तम होती १८८० ते १९४८ या काळातील जंजिरा संस्थानात पोलिस व्यवस्था इतर संस्थांनाच्या मनाने चांगली होती. गुन्हेगारांना पकडण्यात पोलिस जिवाची बाजी लावून काम करत होते. तसेच संस्थानात तुरुंग व्यवस्था चांगल्याप्रकारे होती.

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REVIEW ON APPLICATION OF ALOE VERA IN MEDICINAL FIELD AND ITS CHEMICAL COMPOSITION

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Abstract

Aloe vera is a perennial, drought-resisting and succulent plant belonging to the Liliaceal family, which historically has been used for a variety of medicinal purposes. Scientific investigations on Aloe vera have gained more attention the last several decades due to its reputable medicinal properties. After describing Aloe in a botanical point of view, the papers relating with the chemical composition of skin and gel of Aloe, particularly describes the gel of Aloe. The chemical analysis reveals that Aloe vera contains various carbohydrate polymers, notably glucomannans, along with a range of other organic and inorganic components. This paper reviews history, its chemical composition, medical usage and agronomy of Aloe vera.

INTRODUCTION:-The plant of Aloe vera and its usage as drug dates back to 6000 years B.C. Cleopatra said that her beauty is due to use of Aloe vera plant. One prescription that belongs to 1550 BC shows Aloe vera plant used for different illness. Jelatin that is extracted from this plant is continuously used to treat burns, cuts and inflamed scars since many years. It is also used in cosmetics sector, medical sector and beverage sectors. Because of high concentration of water and oil in this plant, it helps to protect skin from drieness and so the skin that is burnt or cut heals very quickly.



High concentration of glucose in gelatin, results in high osmotic pressure that protect skin from live bacteria. Aloe vera includes "Antrokinon" chemicals that are known as antivirus, anti bacteria and anti cancer. Researchers show that plant is very helpful for treatment of Psoriyazis. Aloe vera is very similar to Cactus but belongs to Lily family of Aloe barbadensis groups. Aloe vera has 400 species but just 2 species; *A.barbadensis* and *A.aborescens* are used for trade in the world.

Ancient Egyptian papyrus and Mesopotamian clay tablets describe aloe as useful in curing infections, treating skin problems and as a laxative [1]. Cleopatra was said to include aloe cream in her beauty regimen [2]. Aloe was used by Hippocrates and Arab physicians, and was carried to the Western Hemisphere by Spanish explorers. Legend has it that Alexander the Great captured the island of Socotra in the Indian Ocean to secure its aloe supplies to treat his wounded soldiers [3]. Aloe is also popular in both traditional Chinese and Ayurvedic medicine (India). The Chinese describe aloe's

skin and the inner lining of its leaves as a cold, bitter remedy which is downward draining and used to clear constipation due to accumulation of heat [4]; the gel is considered cool and moist. In Ayurvedic medicine, the traditional medicine of India, aloe is used internally as a laxative, antihelminthic, hemorrhoid remedy, and uterine stimulant (menstrual regulator); it is used topically, often in combination with licorice root, to treat eczema or psoriasis. In Arabian medicine, the fresh gel is rubbed on the forehead as a headache remedy or rubbed on the body to cool it in case of fever, as well as being used for wound healing, conjunctivitis, and as a disinfectant and laxative [5].

Today aloe vera gel is an active ingredient in hundreds of skin lotions, sun blocks and cosmetics [6]. The gel's use in cosmetics has been boosted by claims that it has similar anti-aging effects to vitamin A derivatives [7]. Aloe first gained popularity in the United States in the 1930's with reports of its success in treating X-ray burns [8,9,10]. Recently, aloe extracts have been used to treat canker sores, stomach ulcers and even AIDS. Some natural health enthusiasts promote aloe gel as a cleansing juice [11]. Some naturopaths promote aloe juice as a way to prevent and treat renal stones [12]. Many mothers keep a plant handy in the kitchen where it readily thrives in bright sunlight with little care [13]. When faced with a minor burn, a fresh leaf can be cut and the gel of the inner leaf applied directly to the burn immediately after the injury [14]. The inner leaf lining of the plant is used as a potent natural laxative. In a 1990 survey of members of a health maintenance organization, aloe vera was used by 64%; of these, 91% believed it had been helpful [15]. Aloe is also an ingredient in Compound Benzoin tincture [16]. This paper reviews history, its chemical composition, medical usage and agronomy of Aloe vera.

2. ABOUT ALOE VERA SPECIES :-

2.1 MEDICINAL SPECIES:

Aloe vera, *A. barbadensis* (Barbados aloe), *A. vulgaris*, *A. arborescens*, *A. ferox* (Cape aloe), *A. perryi* (Socotrine or Zanzibar aloe). There are over 300 species of aloe, most of which are native to South Africa, Madagascar and Arabia [5]. The different species have somewhat different concentrations of active ingredients [17,18].

2.2 PLANT DESCRIPTION:

The botanical name of Aloe vera is *Aloe barbadensis* miller. It belongs to Asphodelaceae (Liliaceae) family, and is a shrubby or arborescent, perennial, xerophytic, succulent, pea-green color plant. The aloe plant has long (up to 20 inches long and 5 inches wide), triangular, fleshy leaves that have spikes along the edges. The fresh parenchymal gel from the center of the leaf is clear; this part is sometimes dried to form aloe vera concentrate or diluted with water to create aloe juice products. The sticky latex liquid is derived from the yellowish green pericyclic tubules that line the leaf (rind); this is the part that yields laxative anthraquinones [21]. The flowers (not used medicinally) are yellow.

2.3 WHERE IT'S GROWN:

Aloes are indigenous to South Africa and South America, but are now cultivated worldwide except in tundra, deserts and rain forests. In the US aloe is commercially cultivated in southern Texas [22]. It takes approximately four years to reach maturity and has a life span of about 12 years.

3. ALOEVERA: POTENTIALLY ACTIVE CHEMICAL CONSTITUENTS:

3.1. FROM THE GEL:

1. Polysaccharides: glucomannan and acemannan
2. Other: carboxypeptidase, magnesium, zinc, calcium, glucose, cholesterol, salicylic acid, prostaglandin precursors (gammalinolenic acid [GLA]), vitamins A, C, E, lignins, saponins, plant sterols and amino acids [3].

3.2. FROM THE LATEX LEAF LINING:

1. Anthraquinone glycosides: aloin, aloe-emodin, barbaloin

Table 1: Summary of the chemicals composition of A. Vera [23, 24, 25, 26, 27, 28, 29].

Class	Compounds	Properties
Anthraquinones/ anthrones	Aloe-emodin, aloetic-acid, anthranol, barbaloin, isobarbaloin , emodin, ester of cinnamic acid.	Aloin and emodin acts as analgesics, antibacterials and antivirals.
Carbohydrates	Pure mannan, acetylated mannan, acetylated glucomannan, glucogalactomannan, galactan, galactogalacturan, arabinogalactan, galactoglucoarabinomannan, pectic substance, xylan, cellulose	A glycoprotein with antiallergic properties, called alprogen and novel anti- inflammatory compound.
Chromones	8-C-glucosyl-(2'-O-cinnamoly) -7-O-methylaloediol A, 8-C-glucosyl-(S)-aloesol, 8-C-glucosyl-7-O-methylaloediol A, 8-C-glucosyl-7-O-methylaloediol, 8-C-glucosyl-noreugenin, isoaloesin D, isorabaichromone, nealosin A	The novel anti-inflammatory commands .
Enzymes	Alkaline phosphatase, amylase,bradykinase, carboxypeptidase, catalase,cyclooxygenase, cyclooxygenase,lipase, oxidase, phosphoenolpyruvate, carboxylase, superoxide dismutase	Bradykinase helps to reduce excessive inflammation when applied to the skin topically, while others help in the breakdown of sugars and fats.
Inorganic compounds	Calcium,chlorine, chromium, copper,iron,magnesium, manganese,potassium,phosphorous, sodium,Zinc	They are essential for the proper functioning of various enzymes systems in different metabolic pathways and few are antioxidants
Miscellaneous including organic comounds and lipids	Arachidonic acid, Y-linolenic acid, steroids(campesterol, cholesterol, Bsitosterol), triglycerides, triterpenoid, gibberillin, lignins,potassium sorbate,salicylic acid, uric acid	
Proteins	Lectins, lectin-like substance	It also contains salicylic acid that possesses anti-inflammatory and antibacterial properties. Lignin, an inert substance, when included in topical preparations, enhances penetrative effect of the other ingredients into skin. Saponins that are the soapy substances from about 3% of the gel and have cleansing and antiseptic properties.
Saccharides	Mannose, glucose, L-rhamnose, aldopentose	

Vitamins	Vitamin A, B12,C, E,choline and folic acid	Vitamin A, C and E are antioxidants and antioxidant neutralizes free radicals.
Hormones	Auxins and gibberellins	That helps in wound healing and have antiinflammatory action.

4. REVIEW ON APPLICATION OF ALOE VERA IN MEDICINAL APPLICATION:-

4.1 Healing properties:

Various researchers reported that the effective components for wound healing may be tannic acid [37] and a type of polysaccharide [38]. Other researchers have also reported that glucomannan, a mannose-rich polysaccharide and gibberellin a growth hormone interacts with growth factor receptors on the fibroblast thereby stimulating its activity and proliferation which in turn significantly increase collagen synthesis after topical and oral Alov vera [39]. Aloe gel not only increased collagen content of the wound but also changed collagen composition and increased the degree of collagen cross linking. Due to this, it accelerated wound contrctation and incresed the breaking strength of resulting scar tissue [40]. An increased synthesis of hyaluronic acid and dermatan sulfate in the granulation tissue of a healing wound following oral or topical teratment has been reported [41].

4.2 Immune modulation:

Immune stimulant and anti-inflammatory (gel), in a case studies of 14 HIV-1+ patients who were prescribed 800 mg/day of acemannan, there was a significant increase in the number of circulating monocyte and macrophages which mirrored clinical improvements [42]. In a pilot study in HIV-infected persons acemannan increased the number of white blood cells and improved symptoms [43]. Aloe extracts also increased phagocytosis in asthmatic adults [44]. Alprogen inhibit calcium influx into mast cells, thereby inhibiting the antigen-antibody-mediated release of histamine and leukotriene from mast cells [45].In a study on mice that had previously been implanted with murine sarcoma cells, acemannan stimulates the synthesis and release of interleukin -1(IL-1) and tumor necrosis factor from macrophages in mice, which in turn inihitated an immune attack that resulted in necrosis and regression of the cancerous cells [46]. Several low-molecular weight compounds are also capable of inhibiting the release of reactive oxygen free radicals from activated human neutrophils [47].

4.3 Antimicrobial:

Aloe vera contains 6 antiseptic agents: Lupeol, salicyclic acid, urea nitrogen, cinnamonic acid, phenols and sulfur. They all have inhibitory action on fungi, bacteria and viruses. Acemannan acts alone and synergistically with azidothymidine (AZT)and acyclovir to block reproduction of Herpes and the AIDS virus [48], AntifungalAloe extract treatment of guinea pig feet that had been infected with Trichophyton mentagrophytes resulted in a 70% growth inhibition compared with untreated animals [49]. In recent, studies, a polysaccharide fraction has shown to inhibit the binding of benzopyrene to primary rat hepatocytes, thereby preventing the formation of potentially cancer-initiating benzopyrene-DNAadducts. An induction of glutathione Stransferase and an inhibition of the tumorproting effects of phorbol myristic acetae has also been reported which suggest a possible benefit of using aloe gel in cancer chemoprevention [50,51,52].

4.4 Skin and mucus membranes:

In humans, aloe has been reported to accelerate healing from deep scrapes, frostbite, flash burns of the conjunctiva, and even canker sores [53, 54,55]. Only one study has had an opposite effect; that is, aloe-treated surgical wounds healing by secondary intention took longer to heal than

comparison wounds [56]. Despite the conflicting research, some dentists and otolaryngologists use aloe gel to promote healing in injured tissues in the mouth, nose, sinuses and ear [57]. Aloe gel has most often been used as a topical treatment for burn wounds [58]. In a study of 27 adults with partial thickness burns, those treated with aloe healed an average of six days faster than those treated with Vaseline gauze [59]. Psoriasis remedy In a 1995 double-blind, placebo controlled study of aloe's effect on 60 patients with psoriasis vulgaris, an aloe vera extract (0.5%) in a hydrophilic cream resulted in a significant clearing of the psoriatic plaques in 83.3% of the aloe-treated patients versus 6.6% of the placebo group [60]. The aloe treatment was well tolerated with no adverse drug-related side effects. Its moisturizing effects has also been studied in treatment of dry skin associated with occupational exposure where aloe vera gel gloves improved the skin integrity, decreases appearance of fine wrinkle and decreases erythema [61]. It has also anti-acne effect.

4.5 Effects on skin exposure to UV and gamma radiation:

Aloe vera gel has been reported to have a protective effect against damage to skin [62, 63]. Exact role is not known, but following the administration of aloe vera gel, an antioxidant protein, metallothionein, is generated in the skin which scavenges hydroxyl radicals and prevents suppression of superoxide dismutase and glutathione peroxidase in the skin. It reduces the production and release of skin keratinocyte-derived immunosuppressive cytokines such as interleukin -10 and hence prevents UV-induced suppression of delayed type hypersensitivity [64].

4.6 Anti-diabetic effects:

Several pre-clinical (in animal) and clinical (in human) trials showed a blood glucose lowering effects for Aloe vera gel preparations in different forms (e.g. juice or as constituents in bread etc.). In a study on streptozotocin-induced diabetic rats oral administration of Aloe vera gel (alcohol insoluble residue extract) significantly reduced the fasting blood glucose, hepatic transaminases, plasma and tissue cholesterol, triglycerides, free fatty acids and phospholipids and in addition also significantly increased plasma insulin levels. The decreased plasma levels of high density lipoprotein cholesterol and increased levels of low density lipoprotein cholesterol in the streptozotocin-induced rats were restored to normal after treatment with gel extract [65]. From the findings of another study on streptozotocin-induced diabetic rats, it was suggested that the mechanism of action of Aloe vera extracts to reduce blood glucose levels is by enhancing glucose metabolism. It was further proposed that the glucose lowering effect could be explained by an antioxidant mechanism because it attenuated oxidative damage in the brains of streptozotocin-induced mice and reduced peroxidation levels in the kidneys of streptozotocin-induced diabetic rats [66].

5. Conclusions:

Aloe vera bulk and its extracts are widely used in cosmetic, healthcare, skincare and medical industry as active ingredients for extra therapeutic, hygienical, rejuvenating, health enhance effectives. Food and Drug Administration of USA has already approved the developmental study of Aloe vera in the treatment of Cancer and AIDS. In future, controlled studies are required to prove the effectiveness of Aloe vera under the various conditions.

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COMPONENTS AND SEARCH TECHNIQUES OF SELECTED WEB SEARCH ENGINES

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Abstract

Recent research showed that specifying search terms, search results, deciding source and information. Web that are design to help people find information stored on other sites. Present study of major World Wide Web search engine,. Each search engine was evaluated in terms of their search capabilities (e.g., Boolean logic, truncation, field search, word and phrase search) using sample queries drawn from real reference questions. The purpose of this paper is to discuss information search strategies, techniques and principles which today have increasing importance particularly in the context of e-learning.

Introduction:

During this study, Five Search Engines and ten keywords were studied base on Library & Information Science & Communication Technology. The data analysis for the present research was done with the help of types of searches allowed by Search Engine. In the last decade search engines have improved their performance to the point of becoming a tool of everyday use for most Internet users. Generally, search engines common goal is to make people of different background have easy access to information, which is far from their normal reach. Through the years from the days of Archie till this present time of Google, Yahoo and others, search engine have improve to a better standard as the technology improves globally.

The Components of Search Engines:

1. Robot
2. Database
- 3 .Agent

As search engines is a program that search through the internet data from primarily locating the information in the web and is most often used in association with searching through databases of HTML documents. The components of a search engine are :

The Robot: Robots are program that transverse the WWW looking for the information specified and move from one web document to the other by referring to the hyperlinks that are embedded in the web pages. Robots are also called as “ Web Wanderers”, “Web Crawlers” or “Spider”.

The Database: The search engine database is that component which records all the indexed information include web addresses, titles, headers, words, first lines, abstracts and sometime even full text in its lists. Databases can store anywhere from a thousand to millions of web pages.

The agent: The agent is software program that accepts queries from users and search them through the database consisting of index of millions of pages. It is that program which represents the user to search database and displays a sorted list of “hits” after user makes a search request. The results consisting of web links and brief descriptions are arranged in order of relevance and are presented to the users.

Objective of Study:

- This lesson is designed to impart knowledge Web search engines.
- Components of a search engine;
- Search techniques;
- To suggest some measures to develop search engines.

Research Methodology:**Selection of Search Engines**

General purpose of search engines use crawler mechanisms in order to scan as many web documents as possible. Usually, they focus on the general population of internet search engine users and they cover all types of information needs. For this study 5 Search Engines were selected.

Selection of queries

The queries from Library & Information Science are used in search engines. Evaluations were done from the database of each search engine in order to ensure the fact that the content of each query existed in the website's database. Thus, 5 queries were inserted in each website's search engine.

Boolean Search

Database searching is based on principles of Boolean logic. Boolean logic refers to the logical relationship among search terms and is named for the British-born Irish mathematician George Boole. On internet search engine, the option for constructing logical relationships among search terms extend beyond the traditional practice of Boolean searching. Boolean logic consist of three logical operators :

- 1) OR
- 2) AND
- 3) NOT
- 4) +
- 5) -

Advanced Search

Advanced searching is the use of techniques that help to define the information that is being searched. In advance searching, some filtering is done to reduce the amount of items retrieved. Filtering refines the search for relevancy. In advanced searching the user is able to apply multiple search fields that can help to broaden or narrow the search depending on the topic and the search strategy.

Search Capability:

A component Web search engine must include the fundamental search facilities that internet users are familiar with, which include Boolean logic, phrase searching, truncation, and limiting facilities (e.g. limit by field). Because the searching capabilities of a web search engine ultimately determine its performance, absence of these basic functions will severely handicap the search tool, as we have seen in the case of Excite and Lycos which do not support phrase searching.

Table No. 1 Types of Searches allowed by Search Engines

Sr. No.	Search Engine	Boolean Search	Advanced Search	Preferences Search	Expert Search
1	Google	Yes	Yes	Yes	No
2	Yahoo	Yes	Yes	No	No
3	Lycos	Yes	Yes	No	No
4	Aol	Yes	No	No	No
5	Excite	Yes	Yes	Yes	No

Table No.2 Percentages of Types of Searches

Sr. No.	Type of Search	No. of Search Engines having the Facility	Percentages
1	Boolean Search	5	100%
2	Advanced Search	4	40.00%
3	Preferences Search	2	20.00%
4	Expert Search	0	00%

Conclusion & findings : We are currently conducting Library Science quires using five major Web search engines, including Google Search, to determine additional dimensions of the Search coverage and Search allowed. Further studies are also needed that examine retrieved results beyond 20 First Hits. It is observed from table that advanced search, Boolean Search & preference search is common feature of search engines. Boolean searches are allowed in Highest 100.00% search engines & advanced searches are allowed by 40.00% search engines. 20.00% search engines allow preferences searches. Expert search facility is not allowed by all the search engines.

Area of Further Research:

- Evaluative study of Web Search Engines.
- Usage study of Web Search Engines.
- Effectiveness of Web Search Engines.
- Quires may be formed on different facet of various domain and study can be taken for further research.

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**DOES THE DRINKING WATER SOURCES AVAILABLE SATISFIES MINIMUM
REQUIRED STANDARDS IN NANDGAON VILLAGE OF MURUD TEHSIL
DISTRICT- RAIGAD, MAHARASHTRA, INDIA**

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Abstract

Water is one of the abundantly available substances in nature. It is regarded as a very vital necessity of life and is a part of every living cell. Water is vital for living processes. Animals and plants need it for survival. Villages and towns can only be constructed if there is enough water for their use. Apart from cooking and drinking, water is used for cleansing. Drinking water must be pure and not polluted. The present study deals with an acute awareness among the people about the quality of drinking water by taking water samples from different sources for analysis. The experiment analyses its various Physico-chemical and biological parameters such as Temperature, pH, Electrical conductivity, TDS, Alkalinity, Chloride, DO, BOD, Total hardness, Calcium hardness, Magnesium hardness and Salinity were analyzed in the month of December 2017. The results are compared with standards of WHO. From the obtained result it can be predicted that the parameters which were taken to study the water quality are below the pollution level for water which satisfies the requirement for the use of various purposes like domestic, agricultural etc.

Keywords: *Drinking water resources, water quality standard, Physico-chemical Parameter.*

INTRODUCTION: The quality of water used for drinking or any domestic purpose is an important factor in public health. Poor quality water can cause a disease outbreak and according to world health organization about 40% of the diseases in the world are due to consumption of polluted groundwater [1] and in developing countries about 75% of diseases are induced by polluted water WHO [2]. Water is most abundant occupying about 75% of the earth's surface, but access to potable water that is safe for drinking and sanitation is a global issue [3]. According to [4] about 1 billion people lacked access to adequate supply of potable water across the world and [5] observed that in most developing countries access to good quality water is lacking. Water quality provides current information about the concentration of various solutes at a given place and time. Its quality parameters provide the basis for judging the suitability of water for its designated uses and to improve existing conditions [6]. There is no single or simple measure for water quality. Water may be tested for a few characteristics or numerous natural substances and contaminants depending on their needs. The nature and extent of water pollution is characterized by several physical, chemical and biological parameters. The increased anthropogenic activities due to industrialization have contributed to decline in water quality including climate and precipitation, soil type, vegetation, groundwater and flow conditions. The water quality of rivers and lakes changes with the seasons and geographic areas, even when there is no pollution presents [7]. Manjusha Bohr, Prakash Kadave, Sheetal Bhor, Manisha Bhosale [8] has studied Water quality assessment of the River Godavari, at Ramkunda Nashik. Pratiksha Tambekar, pravin P. Morey, R.J. Batra and R.G. Weiginnwar [9] have studied physico-chemical parameter evaluation of water quality around Chandrapur (Maharashtra). Vijaya Kumar K.M. and Vijaya Kumara [10] has studied physico-chemical analysis water quality of Kundapurs Mangrove forest (Karnataka). J.G. Koliyar and N.S. Rokade [11] have studied in order to understand the water quality

in pond lake, Mumbai. Prabhakar R. Pawar and Balasaheb G. Kulkarni [12] has studied assessment of water quality in the karanja creek (Raigad). Budharatna Bhavare, Miguel A. Rodriguez, Anil Kurthe [13] has studied different physic chemical parameter and nutrients in water of Bhatye estuary, Ratnagiri central, West coast of India. Nidhi Jain et al [14] studied “Comparative Review of Physicochemical Assessment of Pavana River”. According to Census 2011 information the location code or village code of Usroli village is 554241. Usroli village is located in Murud Tehsil of Raigarh district in Maharashtra, India. It is situated 10km away from sub-district headquarter Murud and 42km away from district headquarter Alibag. As per 2009 stats, Usroli village is also a gram panchayat. The total geographical area of village is 653.11 hectares. Usroli has a total population of 1,099 peoples. There are about 239 houses in Usroli village. Murud is nearest town to Usroli which is approximately 10km away. The water sample such as Pipe water, bore well water and well water was collected early in the morning between 8.00 am to 10.00 am and was analyzed to compare the differences occurred in Physico-chemical parameters such as Temperature, pH, Electrical conductivity, TDS, Alkalinity, Chloride, DO, BOD, Total hardness, Ca-hardness, Magnesium hardness and Salinity.

The research work is carried out, keeping in mind the following objectives.

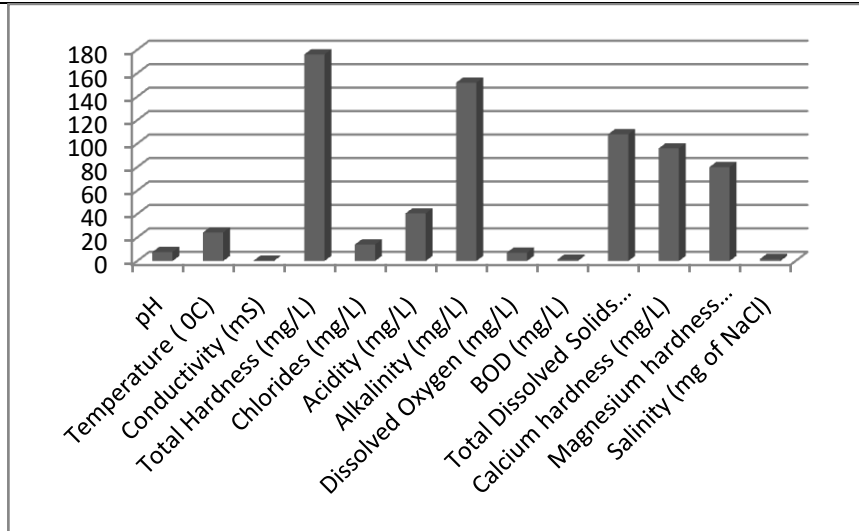
- To study the chemical composition and water quality parameters of different sources.
- To investigate the possible sources and Cause of pollution in the water if any.
- To study if these effects can be attributed to the change in the chemical composition of the different water sources.

MATERIAL & METHOD:- Sample of water was collected in sterile plastic bottle of 2 litre capacity from the dam. At the same time the temperature & pH were noted. The physico-chemical analysis was carried out within 24 hours of collection in a laboratory as per APHA (1989), (1992), AWWA & WPFA, Trivedy & Goel (1986) [15-16]. The chemicals were used of A. R. grade and are standardized as per Inorganic quantitative analysis by Vogel (1964) & (2006) [17-18]. The result is statistically analyzed by calculating mean & standard deviation.

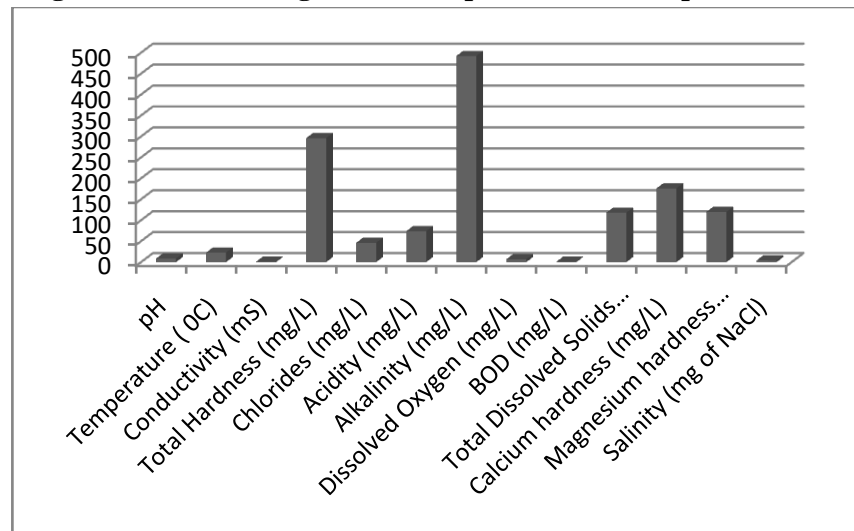
RESULTS & DISCUSSION:-

Table-1:- Values of different parameters of water sample of different drinking sources in Nandgaon village area. (Mean and Standard deviation is calculated)

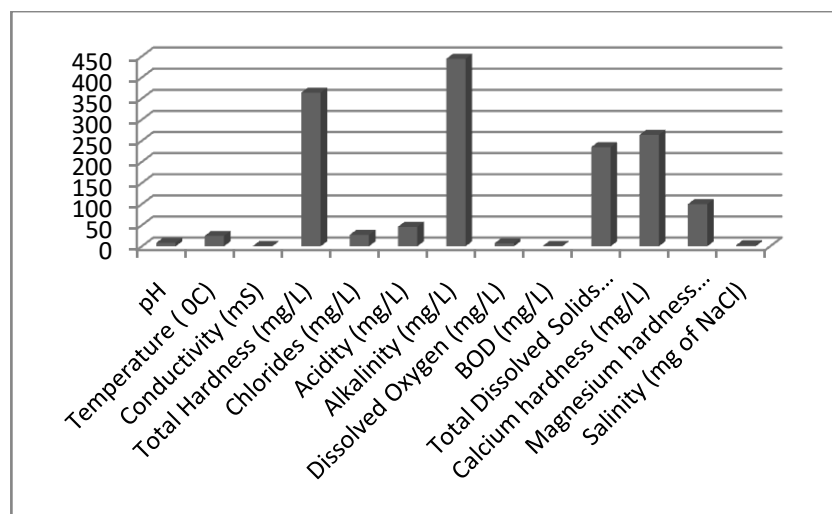
Parameters	Tap water Mean \pm S.D	Bore well water Mean \pm S.D	Well water Mean \pm S.D
pH	7.64 \pm 0.02	8.52 \pm 0.02	8.32 \pm 0.02
Temperature ($^{\circ}$ C)	24.3 \pm 0.3	22.8 \pm 0.3	24.7 \pm 0.3
Conductivity (mS)	0.314 \pm 0.002	1.174 \pm 0.002	0.904 \pm 0.002
Total Hardness (mg/L)	176 \pm 1.0	296 \pm 1.0	364 \pm 1.0
Chlorides (mg/L)	14.05 \pm 0.18	46.15 \pm 0.18	27.13 \pm 0.18
Acidity (mg/L)	40.6 \pm 0.3	73.9 \pm 0.3	46.3 \pm 0.3
Alkalinity (mg/L)	152 \pm 0.3	492 \pm 0.3	444 \pm 0.3
Dissolved Oxygen (mg/L)	7.126 \pm 0.015	6.896 \pm 0.015	7.266 \pm 0.015
BOD (mg/L)	1.231 \pm 0.03	0.993 \pm 0.03	1.127 \pm 0.03
Total Dissolved Solids (mg/L)	108 \pm 1.0	118 \pm 1.0	235 \pm 1.0
Calcium hardness (mg/L)	96 \pm 0.3	176 \pm 0.3	264 \pm 0.3
Magnesium hardness (mg/L)	80 \pm 0.3	120 \pm 0.3	100 \pm 0.3
Salinity (mg of NaCl)	1.758 \pm 0.003	4.102 \pm 0.003	2.930 \pm 0.003



a. Graph showing concentration range of various parameters of Tap water.



b. Graph showing concentration range of various parameters of bore well water.



c. Graph showing concentration range of various parameters of well water.

1. Temperature: Temperature is the most importance environment factor with effect on plants and animals. Water has several unique thermal properties which combine to minimize temperature

change. The Water temperature depends on the depth of the water column, climatic and topographic changes [19].

A rise in temperature of water leads to the speeding up of chemical reactions in water, reduces the solubility of gases and amplifies the tastes and odour. At higher temperature with less dissolved gases the water becomes tasteless and even does not quench the thirst and decreases the solubility of oxygen. Temperature also determines various other factors such as pH, Conductivity, saturation level of gases and various forms of alkalinity. The temperature of Tap water is 24.3 ± 0.3 °C, bore well water temperature is 22.8 ± 0.3 °C and temperature of well water is found to be 24.7 ± 0.3 °C.

2. pH: pH, one of the most common analyses in soil and water testing, is the standard measure of how acidic or alkaline a solution is. pH has no direct adverse effect on health. pH governs the distribution, transport and fate of heavy metals in aquatic ecosystem. It is measured a scale from 0 -14. pH of 7 is neutral, pH is less than 7 is acidic and pH greater than 7 is basic. Aquatic organisms need the pH of their water body to be a certain range optimal growth and survival. The pH of Tap water is 7.64 ± 0.02 , bore well water pH is 8.52 ± 0.02 and pH of well water is found to be 8.32 ± 0.02 . Amongst these three samples, water is comparatively alkaline in nature.

3. Electrical Conductance: Conductivity is the measure of a substance or solution to conduct electric current. Presence of salts and contamination with wastewater increases conductivity of water. It is a indication of pollution. Electrical conductivity used to quickly estimate the ionic or soluble salt concentration in soils, water supplies, fertilizer solution and chemical solution. It is highly depended upon temperature. Conductivity however is an important criterion in determining the suitability of water for irrigation. The conductance of Tap water is 0.314 ± 0.002 mS, bore well water conductance is 1.174 ± 0.002 mS and conductance of well water is found to be 0.904 ± 0.002 mS. Amongst these three samples, bore well water is comparatively high electrical conductance. The observed values of electrical conductance for others are quite low and less electrolyte.

4. Total Hardness: Total hardness is defined as the sum of calcium and magnesium hardness in mg/L as CaCO_3 . Total hardness of water an important factor that indicates toxic effect and poisonous elements [20]. There is no adverse effect of hardness on health. Hard water is also not suitable for domestic and irrigation purposes. Total hardness of Tap water is 176 ± 1.0 mg/L, bore well water is 196 ± 1.0 mg/L and the well water is 364 ± 1.0 mg/L. The degree of hardness of drinking water has been classified in terms of the equivalent CaCO_3 concentration as follows: Soft - 0-60mg/L, Medium - 60-120 mg/L, Hard - 120-180 mg/L, Very hard - >180 mg/L. The observed values were quiet less than the acceptable limit of 300 mg/L for tap water and bore well water samples. But for well water sample, total hardness values are high and near about less and more than 300 mg/L. It shows that water is very hard.

5. Chlorides: Chloride is mainly obtained from the dissolution of salts of hydrochloric acid as table salt (NaCl), NaCO_2 and added through industrial waste, sewage, sea water etc. Surface water bodies often have low concentration of chlorides as compare to ground water. It has key importance for metabolism activity in human body and other main physiological processes. High chloride concentration damage metallic pipes and structure as well as harms growing plants. According to WHO standards concentration of chloride should not exceed 250 mg/L.

The chloride content of the tap water sample is 14.05 ± 0.02 mg/L, bore well water is 46.15 ± 0.18 mg/L and Chlorides in well water sample is 27.13 ± 0.05 mg/L.

6. Acidity: Acidity of water is its capacity to neutralize a strong base and is mostly due to the presence of strong mineral acids, weak acids and the salt of strong acids and weak bases. Addition of wastewater having acidity producing substances increases the acidity of water. The observed acidity of tap water sample is 40.6 ± 0.015 mg/L of CaCO_3 , bore well water sample is 73.9 ± 0.3 mg/L. of

CaCO₃. While acidity of well water samples is 46.3± 0.3 mg/L of CaCO₃. The value is much less than threshold value i. e. 200 mg/L of CaCO₃. This indicates that sample of water are in safe range.

7. Alkalinity: Alkalinity is a chemical measurement of water's ability to neutralize acid. Alkalinity is also a measure of water buffering capacity or its ability to resist changes in pH upon the addition of acids or bases. Alkalinity of natural water is due to primarily to the presence of weak acid salts, although strong bases may also contribute (i.e. OH⁻) in the extreme environment. Bicarbonate represents the major form of alkalinity in natural water, so its source being the partitioning of CO₂ from the atmosphere and the weathering of carbonate minerals in rocks and soil. Other salts of weak acids, such as borate, silicates, ammonia, phosphate, and organic bases from natural organic matter may be present in small amounts.

The observed alkalinity of tap water sample is 152 ±0.3 mg/L of CaCO₃, bore well water sample is 492 ± 0.3 mg/L. of CaCO₃ while alkalinity of well water sample is 444 ± 0.3 mg/L of CaCO₃. The observed value of alkalinity of tap water is within permissible range i. e. below 200 mg/L of CaCO₃. The bore well water and well water is not in safe range i.e. higher than permissible range of 200 mg/L of CaCO₃.

8. Dissolved Oxygen: The amount of oxygen dissolved in water, such as a lake, river or stream. Dissolved oxygen is the most important indicator of the health of water bodies and its capacity to support a balanced aquatic ecosystem of plants and animals. Warm water released from industrial outlets, flowages or storm sewers can also reduce dissolved oxygen levels. Dissolved oxygen may play a large role in the survival of aquatic life in temperature lakes and reservoirs during summer months. Dissolved oxygen of tap water sample collected is 7.126 ± 0.015mg/L, bore well water sample is 6.896 ± 0.015mg/L, whereas well water sample is 7.266 ± 0.015mg/L. It may be due to high temperature and inorganic reluctance such as hydrogen sulfide, ammonia, nitrites, ferrous ions and other oxidizable substances also tend to decrease dissolved oxygen in water.

9. Biochemical Oxygen Demand (BOD): Biochemical oxygen measures the amount of oxygen that microorganisms consume while decomposing organic matter, it also measures the chemical oxidation of inorganic matter. BOD is a measure of organic material contamination in water, specified in mg/L. BOD is the amount of dissolved oxygen required for the biochemical decomposition of organic compounds and the oxidation of certain inorganic materials (e.g., iron, sulphites). The observed value of BOD for tap water is 1.231 ± 0.03 mg/L, for bore well water is 0.993 ± 0.03 mg/L and for well water sample is 1.127 ± 0.03 mg/L which is within the permissible range i. e. 0.75-1.5 mg/L.

10. Total Dissolved Solids (TDS): Total dissolved solids are the total amount of mobile charged ions, including minerals, salts or metal dissolved in a given volume of water in mg/L. TDS is directly related to the purity of water and the quality of water purification system and affects everything that consumes, lives in, or uses water, whether organic or inorganic, whether for better or for worse. Common inorganic salts that can be found in water include calcium, magnesium, potassium and sodium, which are cations and carbonates, nitrates, bicarbonates, chlorides and sulphates which are anions. They give a particular taste to water at higher concentration and also reduce its palatability. The total solid present in tap water sample collected is 108 ± 1.0 mg/L, for bore well water is 118 ± 1.0 mg/L, while that of for well water sample is 235 ± 1.0 mg/L which is lower than threshold value of total solid content i.e. 500 mg/L.

11. Calcium hardness: Calcium is naturally present in water. Calcium is a determinant of water hardness, because it can be found in water as Ca²⁺ ions. As per Indian Standards the calcium content of water should not be more than 75 mg/L. This has been specified in the IS 10500:- Drinking Water – Specifications. In the study the calcium content in water sample has been found to be for tap water sample is 96 ± 0.3 mg/L, for bore well water is 176 ± 0.3 mg/L and for well water is 264 ± 0.3 mg/L. The observed values for all water samples such as Tap water, bore well water and well water possess

values calcium hardness which is higher than the limit as per Specification. They have higher range of concentration of calcium.

12. Magnesium hardness: Magnesium is naturally present in water. Magnesium is a determinant of water hardness, because it can be found in water as Mg^{2+} ions. As per ISI the magnesium content of water should not be more than 50 mg/L. In the study the magnesium content in water sample has been found to be for tap water sample is 80 ± 0.3 mg/L, for bore well water is 120 ± 0.3 mg/L and for well water is 100 ± 0.3 mg/L. The observed values for Tap water, bore well water and well water shows higher concentration of magnesium as per Specification.

13. Salinity:-

Salinity which is defined as the total concentration of electrically charged ions in the water. These ions are the four major cations-calcium, magnesium, potassium and sodium, and the four common anions carbonates (CO_3), sulphates (SO_4), chlorides (Cl) and bicarbonates (HCO). Other components of salinity are charged nitrogenous compounds such as nitrates (NO_3), ammonium ions (NH_4) and phosphates (PO_4) [21]. In general the salinity of surface waters depends on the drainage area, the nature of its rock, precipitation, human activity in the area and its proximity to marine water [22]. Waters with salinity below 1% are fresh and waters with salinity higher than 1% are brackish/marine [23]. The observed value of salinity for tap water sample is 1.758 ± 0.003 mg of NaCl, for bore well water sample is 4.102 ± 0.003 mg of NaCl and for well water sample is 2.930 ± 0.003 mg of NaCl .

CONCLUSION: The present paper deals with analysis of water quality in different drinking water resources available in Nandgaon village region which was carried out by taking certain important parameters like Temperature, pH, Electrical conductivity, TDS, Alkalinity, Chloride, DO, BOD, Total hardness, Calcium hardness, Magnesium hardness and Salinity. The data of physico-chemical and biological parameters clearly shows that the drinking water of Nandgaon village region is within the permissible range as per APHA (1989), (1992), Trivedi and Goel (1986) except few limitations in one or two parameters. Such water is suitable for drinking purpose and can be used for domestic as well as irrigation purpose.

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तुम्हारी रोशनी में सुवर्णा, एक स्वतन्त्र नारी की अन्तःसंघर्ष

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प्रस्तावना : 'तुम्हारी रोशनी में' गोविन्द मिश्र जी का पाँचवा उपन्यास है। समकालीन उपन्यासकारों में मिश्र जी एक महत्वपूर्ण हस्ताक्षर हैं। 1965 से लेकर आज तक लगातार लेखन कार्य करते जा रहे हैं। इस उपन्यास की महत्वपूर्ण महिला पात्र सुवर्णा है। वह इस उपन्यास की कथानायिका भी है। इस उपन्यास की रचना 1985 ई. में की गई थी। आधुनिकता और परम्परा के बीच झूलती भारतीय नारी का एक ऐसा चित्र शायद पहली बार हिन्दी उपन्यास में आया है। इतना संलिप्त की कहना मुश्किल की सुवर्णा यह है—अपनी तरफ से साफ या सपाट करने की जरा भी कोशिश नहीं करते हुए चरित्र को उसके उलझावों के साथ वैसे का वैसे रख देना कि वह साहित्य का कम जीवन का ज्यादा लगे। मुक्ति और बंधन के बीच अपनी पहचान खोजती आधुनिक भारतीय नारी का संघर्ष है। मूल्यहीनता की संस्कृति के खोखलेपन को उजागर करते हुए उसे प्रेम तक वापस ले जाने का आग्रह है।

गोविन्द मिश्र के सभी उपन्यासों में सुवर्णा का चरित्र बेजोड़ है। सुवर्णा के रंग रूप का चित्रण करते हुये लेखक लिखता है कि सुवर्णा गोरे रंग की थी, कंधे तक कटेबाल रहते थे। उसका पुरुष मित्र अनंत उसके व्यक्तित्व से आतंकित रहता था। आधुनिक नाक—नक्शा—थोड़ा पैनापन लिये हुए आँखें — चंचल और गहरी। सबके ऊपर पंखा—सा झूलती हुई उम्र की ताजगी। यह वह खूबसूरती थी, जो आस—पास को धुंधलाती नहीं, बल्कि उसे एक नयी चमक में खड़ा करती है। उसका पूरा नाम श्रीमती सुवर्णा चौधरी थी। सुवर्णा के पति का नाम रमेश था। जो पहले एक ही कालेज में पढ़ते थे। दोनों का स्वभाव अलग—अलग था। जहाँ सुवर्णा एक तरफ खुलेपन में जीती थी, तो रमेश घुटा—घुटा जीता था। घर की पूरी जिम्मेदारी सुवर्णा के कंधों पर थी। रमेश एकदम तटस्थ रहता था। सुवर्णा सभी जिम्मेदारी को अकेले पूरा करती थी। वह खूब गहने भी पहनती थी। उसके अंगुलियों में मोती हीरे जड़े अंगुठियों होती थी। वह जैसे खुद सजती थी, वैसे ही घर के एक—एक कोने को सजाती थी। जबकि पति को इससे कुछ मतलब नहीं था। इसीलिए लेखक सुवर्णा को एक सुघर महिला कहता था। उसके घर में गर्मी ठंडी हर मौसम का खयाल रखा जाता था। जैसा सारा कुछ नाप—तौल और सोच—समझकर जमा किया गया हो। जो चीज जहाँ थी उसकी वह जगह थी, इसीतरह जो चीज जिस अनुपात या मात्रा में होना चाहिए उसी में था। हर तरफ अनुपात, सन्तुलन, सुरुचि उसके घर में देखने को मिलता था। सुवर्णा को गृहस्थि होना गर्व की बात थी। उसे घर का काम करने में उतना ही अच्छा लगता था, जितना की दफ्तर के काम में। वह जैसे दफ्तर में सफल होना चाहती थी, वैसे ही घर में। उसके पुरुष दोस्त ज्यादा थे, इसलिए कोशिश करती रहती थी कि उसके पति रमेश अपने को उपेक्षित महसूस न करे।

सुवर्णा अपने पति को अक्सर महत्वपूर्ण बातें बता देती थी। वह कोई काम पति से छिपकर नहीं करती थी। जैसे उसके दोस्त कौन—कौन हैं, वह कहाँ जा रही है, किसे बुलाया है इत्यादि। लेकिन उसका पति दिखाने के लिये आधुनिक है परन्तु अंदर से पुराने विचारों से भरा हुआ है। वह चाहता है कि सुवर्णा उसके इशारों पर नाचे, उससे पूछकर किसी से मिले। लेकिन सुवर्णा आधुनिक महिला होने के कारण यह स्वीकार नहीं कर सकती। वह पत्नी के फर्ज तो निभा सकती है लेकिन पति की गुलामी नहीं कर सकती। उसे तो मर्द का घूरकर देखना बहुत नापसन्द है। उसे यह बदतमीजी लगती है, जबकि लोग है कि उसे देखते रहते हैं। वह दफ्तर में सबसे घुल मिलकर रहती है। वह किसी से गॉठ नहीं

बोधती कि वह औरत है। अगर आदमी खुलकर बाते कर सकता है तो सुवर्णा क्यों नहीं। कोई गलत समझता है तो समझा करे, वह किसी की परवाह नहीं करती है। वह रमे'ग के प्रति ईमानदार रहती है। सुवर्णा अपने माँ बाप की इकलौती बेटी थी। उसके घर में किसी चीज की कोई कमी नहीं थी। वह बचपन से ही राजकुमारी की तरह जीती थी। वह दिमाग में तेज तर्रार थी तभी तो विज्ञान की पढाई की। वह अक्ल से सब कुछ हासिल करना चाहती थी। उसकी नजर में रोना बेवकूफी है। वह खूब पढ़ी-लिखी खूबसूरत महिला थी। वह आर्थिक दृष्टि से हमे'गा से आत्मनिर्भर रही है। कालेज के दिनों में भी उसे चाहने वालों की कमी नहीं थी। लेकिन वह किसको कितना समय दे, पास रखे, दूर रखे इसका इस्तेमाल बड़ी कु'ालतापूर्वक करती थी। जो बहकने लगता उसे उसकी सीमा तुरन्त बता देती। उसे एक सीमा तक सब कुछ जायद था। सीमा से आगे बढ़ने पर रि'ता तोड़ देने पर हिचकती नहीं थी। सभी उसके पैरो पर लोटने के लिए आतुर है तो, वह भी सभी को अपने ढंग से इस्तेमाल करती है।

सुवर्णा का स्वभाव सबसे अलग किस्म का था। कभी वह लड़कियों की तरह भावुक बन जाती और कभी आइसक्रीम खाने कि जिद करने लगती थी, तो कभी छोटे बच्चों की तरह दौड़ना पसन्द करती थी। कभी एकदम समझदार महिला बन जाती थी। वह जानती है कि जिस बात पर रमे'ग का हक है उसे वह कभी बॉट नहीं सकती। इस बात से उसके चरित्र की महानता, दृढ़ता, सिध्द होती है। उसकी भावुकता कभी कमजोरी नहीं बनती। वह प्रकृति प्रेमी है, प्रकृति के रंगों से उसका जी नहीं भरता। वह जिसे प्यार करती है तो दिल खोलकर प्यार करती है। उसके स्वभाव में छिपाव नहीं है। वह पति रमे'ग को कह देती है कि उसे अनंत अच्छा लगता है। उससे बाते करना, साथ बिताना, घूमना अच्छा लगता है। जो रमे'ग के साथ नहीं कर सकती तो अनंत के साथ करने में क्या बुराई है।

सुवर्णा के जीवन में कई पुरुष मित्र आये और गये। उसे एक स्वभाव के पुरुषों के साथ दोस्ती पसंद नहीं थी। वह अपने पुरुष मित्र अनंत को बताती है कि उसे सोम का पागलपन पसंद है। सोम की मदहो'गी उसे पागल कर देती है। लेकिन अपने आप पर नियन्त्रण रखी, कभी मर्यादा भंग होने नहीं दिया। सुवर्णा को दीपक की कविता, त्याग और इंतजार करने की आदत पसंद है। दीपक का जुनून उसे पसंद है। सुवर्णा को अनंत इसलिए पसंद था क्योंकि वह सोचती थी कि अनंत के साथ रहने से उसके जीवन में रो'गनी आयेगी। कोई कमी नहीं रह जायेगी, बाहर की किसी चीज की जरूरत नहीं होगी। अनंत के पास होने से उसके अंदर वि'वास भरता है। सुवर्णा को श्याममोहन भी पसंद था। सुवर्णा को जिस किसीके अंदर कोई अच्छी आदत पसंद आ गयी, तो सुवर्णा उससे दोस्ती कर लेती है। सुवर्णा को वि'वास है कि इससे जीवन का उद्दे'य पूरा हो जाता है। हालांकि यह सब दोस्ती करते हुए भी वह अपने पति के प्रति ईमानदार रहती है जो उसके चरित्र को महान बनाती है। ऐसे ही उसके चारों दोस्त अलग-अलग क्षेत्र के हैं जैसे कोई पत्रकार है, कोई खिलाड़ी है तो कोई कलाकार। लेकिन उसके पति को यह पसंद नहीं, वह घुट-घुटकर जीता है। रमे'ग चाहता था कि, सुवर्णा ऑफिस से सीधे घर आये, लेकिन सुवर्णा रमे'ग की गुलामी नहीं कर सकती। रमे'ग के मन में यह वि'वास भरा है कि औरत का मतलब घर की चहारदीवारी में रहनेवाली लेकिन उसे यह नहीं मालुम कि सुवर्णा एक ऑफिसर महिला है जिसे मर्दों से कैसे काम लेना है बखूबी से मालुम है। उसे पुरुष के झूठे दंभ संस्कार सब मालुम है। मित्र अनंत अक्सर उसके पुरुष मित्र के बारे में ज्यादा पूछता है तो वह इस बात को पसंद नहीं करती। वह अनंत से भी दूरी बना लेती है। वह नहीं चाहती कि कोई उसके पुरुष मित्र या दुसरे मित्र के बारे में ज्यादा पूछे या बोले। अनंत के माफी मांगने पर ही वह फिर उससे दोस्ती करती है। हालांकि अनंत उसका सबसे पंसदीदा दोस्त था। वह नहीं चाहती कि कोई उसका पीछा

करे। सुवर्णा अपने दिल की हर बात अनंत को बताती है। उसके जीवन में विनय, श्याम मोहन, सोम, दिपक से ज्यादा महत्व अनंत का है। सुनंदा अपनी तरफ से चाहती है कि सब सुखी रहे, उसके कारण कोई दुःखीत न रहे।

सुनंदा देने वाली महिला है, वह लेना कम, देना ज्यादा चाहती है। वह नहीं चाहती की उसके कारण कोई दुःखीत हो। अगर किसी को उसके कुछ पल से, बात से, सुख मिल रहा है तो क्यों वह वंचित रखे। इसी वजह से उसे कई बार दुःख भी मिलता है, मुसीबत भी झेलना पड़ता है। पति भी नाराज हो जाता है। जबकि वह अनंत से कहती है— “मैं रमे” या अपने घर की कीमत पर कुछ नहीं करती।” पेज 79 (तुम्हारी रो”नी में) सुवर्णा को कभी-कभी अनंत से डर भी लगता है। क्योंकि अनंत किसी छोटे-से फूल की तरह मासूम है। बहुत ईमानदार है। अनंत के साथ सुवर्णा को महसूस होता है कि अनंत एक वीणा है जिसमें अनंत तरह का संगीत निकलता है। सुवर्णा का पुरुष मित्र अनंत भी सोचता है। कि वह एक स्वतन्त्र किस्म की महिला है। जमाने से चला आ रहा पुरुषों का दम्भ की, वही स्त्री का जीवन चलाये, इसके खिलाफ आज की पढ़ी-लिखी औरत का विद्रोह है।

सुवर्णा सोचती है कि उसके पास देने को इतना कुछ है कि वह अकेले रमे” को नहीं दिया जा सकता इसीलिए वह अनेक लोगों से दोस्ती की है। लेकिन अनंत उसे बताता है कि यह तुम्हारा भ्रम है। तुम एक को देती हो तो दुसरा रिक्त हो जाता है। इस देने के चक्कर में तुम्हें मैनेज करना पड़ता है। कब कौन आ सकता है, कब कौन नहीं। इस पर सुवर्णा कहती है कि आज की दुनिया में ऐसा कोई संबंध नहीं है, जिसे आप सब कुछ सौंप सकते हैं। उसे कभी श्याम मोहन चाहिए तो कभी रमे” या, तो कभी अनंत। सुवर्णा अनंत से कहती है —“मेरी रो”नी तुम्हारे भीतर तभीतक होती है जब मैं तुम्हारे पास होती हूँ — थोड़ा उसके कुछ देर बाद तक, लेकिन तुम्हारी रो”नी मेरे भीतर लगातार होती रहती है।” पेज 89 (तुम्हारी रो”नी में)

सुवर्णा को किसी सुपर मैन की तला” है जिसके अंदर सब की आदते अच्छाइया भरी हो, जिसके अंदर हर तरह का भाव हो। जो सुवर्णा को हर स्थिति में सुख दे सके। उसे अपने पति रमे” का सरल व्यक्तित्व भी अच्छा लगता है लेकिन सुवर्णा के लिए प्यार ही सब कुछ नहीं है। उसे किसी पर ज्यादा निर्भर रहना भी अच्छा नहीं लगता। उसे जब लगता है कि आजकल अनंत पर ज्यादा दिल आ गया है तो अनंत से कह बैठी — “ज्यादा मिले तो फिर और कहीं मन नहीं लगता सब कुछ बेकार लगने लगता है। यह नहीं होना चाहिए — किसी एक चीज पर उतना निर्भर हो जाना, हम खतरे के नि”ान पर आ गये हैं। पेज 93 (तुम्हारी रो”नी में)

सुवर्णा को अपने पति तथा नौकरी से भी कभी-कभी नफरत हो जाती है, क्योंकि इससँ वह खुलकर जी नहीं पाती है। वह सोचती है कि नाचने का एक स्कूल खोल ले, क्योंकि उसे नाचने की बड़ी शौक है। सुवर्णा अपने बच्चे को भी बहुत प्यार करती है। अक्सर वह बच्चों के सामने पति से उलझने से बचती है। वह नहीं चाहती कि उसके झगड़ों पर बच्चों के मन में असुरक्षा का भाव जन्म ले। बच्चे भी मम्मी के चेहरे पर तनाव देखकर मासूम हो जाते हैं। छोटा बच्चा तो मम्मी के आँचल या पेट से ही चिपका रहता है। छोटे बेटे को बहुत प्यार करती है। सुवर्णा कितना ही आधुनिक क्यों न बन जाये बच्चों के बगैर नहीं जी सकती। सुवर्णा जानती है कि दो लोगों के अहं की लड़ाई में सबसे ज्यादा नुकसान बच्चों को उठाना पड़ता है। पति रमे” बच्चों को ढाल बनाकर सुवर्णा को ब्लैकमेल करना चाहता है। श्याम के बर्थडे में पति रमे” सबके सामने अपमानित करके लेकर चला जाता है, तो वह नि”चत कर लेती है कि अब पति के साथ जिंदगी नहीं कट सकेगी। सुवर्णा को रमे” सरेआम जलील किया था। रमे” उसे अपने ढंग से रखना चाहता है जो सुवर्णा को मंजूर नहीं है। सुवर्णा पति रमे” का घर हमे” के लिए

छोड़कर पिताजी के घर चली जाती है। सुवर्णा का ख्याल है कि जिन्दगी चहचहाने के लिए है, दुनिया की खूबसूरती अपने भीतर लो और उसे खु'गी-खु'गी दूसरों में बाँटो। सुवर्णा अनंत को सीधे-सीधे कह देती है कि वह गन्दी लड़की है लेकिन उसे छोड़ना मत। अनंत के साथ उसके वे संबंध हैं जिनका ख्याल वह देखा करती थी। सुवर्णा यह भी जानती है कि वह कोई जायदाद भी नहीं है। अब उसे अपने ढंग से जीना है। वह रमे'गी से कभी बेवफाई नहीं कि लेकिन जैसे ही उसे पता चल जाता है कि रमे'गी का उर्व'गी से अवैध संबंध है तो वह हमे'गी के लिए रमे'गी को छोड़ देती है। वह रमे'गी की पत्नी बनकर जी सकती है, लेकिन लौंडी बनकर नहीं जी सकती है। सुवर्णा स्वाभिमानी औरत है वह जीवन अपने ढंग से जीना चाहती है। वह किसी से मदद भी नहीं चाहती है। वह रमे'गी से अपनी लड़ाई खुद लड़ेगी। उसे उन औरतों से नफरत है जिन्हें अपने आप पर या पति पर भरोसा नहीं है। जब एक बार ऑफिस में श्याममोहन की पत्नी गिफ्ट वापस करती है तो सुवर्णा उसे खूब डाँटी, और कही – “कैसी कमजोर औरत है आप लोग... एक आदमी... आपका पति समझता है कि मेरा और उसका सम्बंध है क्योंकि एक-दूसरे आदमी- मेरे पति- को कोई आपत्ति नहीं है.....और आप मान लेती है।” पेज 145 (तुम्हारी रो'नी में) पति से सम्बंध तोड़कर वह आगे यह भी जानती है कि एक खूबसूरत औरत को जंगल में घूमना मेमना जैसा होता है। उसे किसी-न-किसी का साथ चाहिए इसीलिए वह फैसला कर लेती है कि वह अपने अकेलेपन का नया साथी अनंत को बनायेगी। और पति का साथ हमे'गी के लिए छोड़ देती है।

निष्कर्ष : 'तुम्हारी रो'नी में' उपन्यास में सुवर्णा शुरु से लेकर अंत तक छापी हुई है। वह पुरुष के दंभ के खिलाफ अकेली लड़ती है। एक साथ कई कोनों से उसके ऊपर आक्रमण होते रहे, वह सब को झेलती प्रत्युत्तर देती आगे बढ़ जाती है। सुवर्णा पुरुषवादी मनोवृत्ति से लड़ती है भारतीय नारी के अज्ञान से लड़ती है। जिन्दगी कैसे जिये उसका एक नया तरीका सिखाती है। डॉ. चन्द्रकान्त बांडिवडेकर लिखते हैं— “उसकी जरूरत है पुरुषों के साथ समान स्तर पर मैत्री या उसमें प्राप्त होने वाली अपने व्यक्तित्व के प्रभाव की गौरवगाथा।” सुवर्णा भारतीय नारी को एक नयी दि'गी दिखाने का काम करती है। वह इ'गीरा आज के समाज को करती है कि क्या औरत पुरुषों से दोस्ती नहीं कर सकती, पति के अधिकार से ज्यादा कर्तव्य, वि'वास को कीमत देती है। इस उपन्यास में जिस समस्या को ध्यान में रखकर गोविन्द मिश्र जी ने लिखा क्या वह आज के समाज की सबसे बड़ी आबादी की समस्या नहीं है। गोविन्द मिश्र जी इस उपन्यास में सुनन्दा के चरित्र को बड़े ही नायाब तरीके से प्रस्तुत कर आज सबको सोचने की बाध्य कर दिया है कि रो'नी किसमें है, सुनन्दा में या फिर रमे'गी में। बे'गीक सुवर्णा को रो'नी अनंत में जाकर समाप्त होती है बाकी सुवर्णाओं की क्या होती है, ये किसी को मालुम नहीं है।

सन्दर्भ :

1. तुम्हारी रो'नी में – गोविन्द मिश्र
2. मेरे साक्षात्कार – गोविन्द मिश्र
3. आकलन गोविन्द मिश्र – सं. रामजी तिवारी
4. गोविन्द मिश्र: सृजन के आयाम – डा. चन्द्रकान्त बांडिवडेकर
5. गोविन्द मिश्रा का औपन्यासिक संसार – डा. चन्द्रकान्त बांडिवडेकर
6. बयाबां में बहार, गोविन्द मिश्र की जीवनी – डा. उर्मिला ि'रीष

RESOURCE SHARING CONCEPT IN LIBRARY INFORMATION SCIENCE

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Abstract

Since libraries are non-profit institutions, there is lack of funds to purchase all the resources in the library, so resource sharing became essential. Because there is tremendous growth in published literature in the world, the cost of books, periodicals, E-books and Databases are reached at a high level, the demands of users are multi dimensional, to satisfy all the demands of the users is impossible to a single library, to overcome with all these cases resource sharing is very useful. This article states that what is resource sharing?, why resource sharing?, ways, means and methods, definition, objectives, advantages, disadvantages and types of resource sharing.

Keywords: Resource sharing, inter library loan, library networking

Introduction

Resource sharing basically Resource sharing is basically sharing of resources of participating libraries on the basis of the agreement of cooperation for the purpose of sharing the resources of each other's materials. This entails not only to share the document resources but also facilitates services, equipments and even the manpower among the participating libraries. The Libraries have started using the computers in large number and have automated their functions and services. After the introduction of internet in Libraries, the concept of on-line resources was introduced and the libraries started subscribing e-journals regularly. The traditional sources of information i.e. books, journals, magazines are supplemented by electronic forms of documents e-books, e-journals, e- newspaper etc. The automated libraries get connected to one or the other networks. A computer network allows the user of one computer to use the resources of another computer which may be space, database, programs or printer. The traditional libraries were facing barriers for interlibrary loan such as indifferences of lending library, conservative attitude, distance, language, cost time etc. The recent developments in Information science, Computer and Telecommunication technologies have changed these perceptions on account of multidimensional growth of published documents. The modern libraries with the advanced technology are forming library consortium for sharing electronic resources.

What is Resource Sharing

Resource sharing denotes “**a mode of operation whereby the functions are shared in common by a number of libraries**”.

The term “**Resource**” is used to designate any or all of the materials, functions, services and the expertise of the professional and non-professional staff.

Kent & Galwin (1977) defines a resource as a thing/ person/ action to which one turns for and in time of need.

“**Sharing**” on the other hand implies apportioning, allotting or contributing something that is owned to benefit others.

In short, resource sharing in the context of library is sharing of;

- Information
- All kinds of information
- Available in any format
- Personnel & Equipment
- Expertise & Services

Why Resource Sharing?

Allen Kent has suggested that “**the success and survival of big libraries will depend on how much and to what extent libraries co-operative with each other in future**”

- Increasing cost of document & Tremendous growth of literature
- Declining library budget & Reduce the operational cost of libraries
- Technological solutions & Users need satisfaction
- Optimum utilization of existing records

The goal of resource sharing is to provide convenient access to information, in whatever form and manner and wherever they located, at possible minimum cost. Resource sharing via network is planned to achieve these basic goals; they are,

- Computerized union service & Maximize user satisfaction
- Shared catalogue service & Shared circulation and interlibrary loan services
- Minimizing cost and time in reaching destination
- Links with other automated library systems and services
- Shared database services such as abstracting, indexing and full text services

Ways, Means & Methods:

- Inter library loan & Co-operative cataloguing
- Co-Operative storage & Reference, Reprographic service
- Documentation centre
- Union list of serials & Bibliographies

Definition of Resource Sharing:

- The activities that result from an agreement, formal or informal, among a group of libraries (usually a consortium or network) to share collections, data, facilities, personnel, etc., for the benefit of their users and to reduce the expense of collection development
- “A mode of operation whereby the functions are shared in common by a number of libraries”.

Objectives of the Resource Sharing:

Allen Kent, Bhargava (1986) stated the objectives of resource sharing networks as: “Library user should have access to more materials or services providing level service at less cost, increased service at level cost, or much more service at less cost.”

- Sharing of the burden of purchasing materials & processing the materials
- Sharing of services & Human expertise.
- To extend the accessibility of resources
- To diminish costs & To promote exploitation of resources
- To avoid duplication and save the finances
- Increase availability of resources & Promote full utilization of resources

Needs for Resource Sharing:

- Information Explosion & No library is self-sufficient
- Language barrier & Limitation in fund
- Diversity in users need
- Increase in user population & Quality of library service
- Inflation & Acquisition, Universal bibliographic control
- Growth of Knowledge in different subjects
- Rapid increase of literature and growth of publication, cost of publications
- Increasing trend of new born subjects and specialization
- Increase in the number of members of user community teachers, scholars and students in universities.

Lack of environment to make use of available computer and communication technology for efficient and production use in libraries.

ADVANTAGES OF RESOURCE SHARING

Following are the benefits and advantages of resources sharing network;

- _ Satisfies the large number of users
- _ Very cost effective and saves lot of library space
- _ Will set a standard among the pool library members in classification of resources
- _ Provides greater level of information's for research students
- _ Avoids duplication
- _ Ensures the quality of resources available among the libraries
- _ It resolve the end users' needs searching across bundle of libraries
- _ More professional approach to the resources

DISADVANTAGES/DRAW BACKS OF RESOURCE SHARING

There might be some possible disadvantages from resource sharing which are as follows;

- The dependency on other libraries may impact on the main purpose of collection development.
- The bigger libraries may have to share more and get less from small libraries.
- Possibility of Copyright violation
- Some libraries may not willing to share some resources
- Lack of technological tools/awareness to access resources
- Cost evolved in setting up the computer network for faster communication

1. Inter-Library Loan (ILL)

Inter-library loan is the one kind of resource sharing, **Interlibrary loan** is a service whereby a patron of one library can borrow books, DVDs, music, etc. and/or receive photocopies of documents that are owned by another library. The user makes a request with their home library, which acting as an intermediary, identifies libraries with the desired item, places the request, receives the item, makes it available to the user, as well as arranges for its return. The lending library usually sets a due date and overdue fees of the material borrowed. Although books and journal articles are the most frequently requested items, some libraries will lend audio recordings, video recordings, maps, sheet music, and microforms of all kinds. In some cases, nominal fees accompany the interlibrary loan services.

2. Library consortia: present concept for resource sharing

The concept of consortia is based on the basic principle of cooperation as it is a “cooperative arrangement among group or institutions”. The consortia enable libraries to meet the spiraling costs of printed journals and of online resources. The concept of sharing of resources was started with Inter Library Loan(ILL), Document Delivery system (DDS), Library Networking (via, LAN, WAN), etc. At present the more accepted system of resource sharing is Library consortia.

A library consortia can be considered as a formal association of libraries, not under the same institutional control, but usually restricted to a geographical area, number of libraries, types of materials, or subject interests, which is established to develop and implement resource sharing among members. The objective of Library consortia is:

- To control and reduce information costs
- To improve resource sharing, to develop a network information environment (via campus systems, campus networks, and the Internet.
- To share licensing issues with each other.

The basic premise of consortia is that its members can collectively achieve more than what they can achieve as individual institutions. It is an association of group of Libraries having formally agreed norms to coordinate cooperate or consolidate certain functions to achieve, mutually, the common objective.

In Indian scenario the concept of establishing digital libraries is coming up. The modern computerized libraries where all library operations are being carried out by the specialized library application software and suitable hardware for creating and using library databases. These libraries are also having traditional collections but they are procuring digital resources in the form of e-journal subscriptions, bibliographical and Full Text Databases in CD-ROM/ DVD-ROM format, Online databases of specialized subjects. These e-resources can be accessed over the Internet on IP based identification of users.

Due to the financial crunch and the rising cost of the journals, many Indian University and college libraries cannot subscribe to all the required journals and databases. To overcome this problem, libraries are forming consortia. The consortia phenomenon is based on the concept of buying e-information together which has become very important in these days. The purpose is to share the resources in better manner, to reduce the information costs, speedy delivery of documents, to keep abreast of new developments.

3. Library Networking:

Accessibility to information has crossed all the geographical boundaries. The access to the library resources has also transformed from “physical access”, to “online access”. Networking has integrated all the library activities e-mail, support reference service through search of databases, exploiting the catalogue of other institutions, participation in inter-library loan(ILL), ordering of books and journals, services by establishing home page, etc. Under these circumstances resource sharing and cooperative functioning of the libraries through internet has become vital. Utilization of these facilities depend largely on availability of internet connection and exploiting its services and resources for better access to global information. Therefore this present chapter focuses on the Networking related services provided by Management Libraries in University of Pune as well as IIM Libraries.

The National commission on Libraries and Information Science’s National Program for the year 1975 defines a Network as “Two or more libraries or other organizations engaged in a common pattern of information exchange through communication for some functional purpose. A network usually consists of a formal arrangement whereby materials, information and services provided by a variety of libraries and other organizations are available to all potential users. Libraries may be different jurisdictions but must agree to serve one another on the same basis as each serves its own constituents. Computers and telecommunication may be among tools for facilitating communication among them.”

Purpose of library network:

The purpose of library network is to promote resource sharing among member libraries by coordinate efforts for suitable collection development and reduce unnecessary duplication wherever possible. The purpose of the library network is to provide network based services to Users, document Delivery Services, bibliographic Information Services, and human Resource Development.

Major Library Networks in India

INFLIBNET Centre

Information and Library Network (INFLIBNET) 1 Centre is an Autonomous Inter-University Centre (IUC) of University Grants Commission (UGC) involved in creating infrastructure for sharing of library and information resources and services among Academic and Research Institutions. INFLIBNET works collaboratively with University Libraries in India to shape the future of the academic libraries in the evolving information environment. It promotes automation of libraries, develops standards, creates union catalogue of serials, thesis, books, monographs, and non book materials, provides access to bibliographic information sources, creates database of projects, institutions, specialists

DELNET

DELNET (Delhi Library Network) was started as a project of the India International centre in 1988 with initial financial support of National Information System in Science and Technology(NISSAT) and later officially registered as a society in June 1992. presently the DELNET activities are supported by the National Informatics centre (NIC) of the Planning commission, Government of India. The main objective of DELNET is to promote sharing of resources among the libraries located in Delhi and beyond. This is done by developing a network of libraries, by storing and disseminating information, offering computerized information services to users and by coordinating efforts for suitable collection development and reducing unnecessary duplication wherever possible. DELNET gives membership to various libraries including universities, colleges, government departments and provides technical assistance to them for creating and maintaining the bibliographic databases, serials control, union catalogue preparations, abstracting services, inter library loan, document transfer/ copying facilities and for accessing local, national and international databases. It has also created library software such as DELSEARCH, DEL-DOS etc for library networking database creation and database access using different platforms.

MANLIBNET

To promote, nurture and enhance the profession of management librarianship in the country through networking, conferences, workshops, seminars, research, consulting, mentoring and publishing- Management Libraries Network (MANLIBNET) was born in the year 2000 which is in operation for the past four years as a registered Society in Delhi under Societies Regulation Act of 1860. The network is not an on-line network like DELNET, INFLIBNET and so on. Its basic objective of the network is to provide a forum for all the management libraries to share information and ideas for development of libraries and business librarianship. The network organizes annual conventions and publication of a quarterly newsletter.

It is indeed a matter of great pride and satisfaction for the researcher to personally witness (since 1998, the year its establishment) and be part of Management Libraries Network's (MANLIBNET) as a life member of the network.

ADINET

ADINET is a network of libraries in and around Ahmedabad. ADINET was registered as a Society in October 1994. It was initially sponsored by National Information System for Science and Technology (NISSAT), Department of Scientific and Industrial Research, Government of India.

ADINET aims to bring about cooperative mode of working amongst the libraries and information centers in and around Ahmedabad. The main objective of ADINET is to promote sharing of resources and disseminate information among member libraries by networking them and creating a centralized Union catalogue of their holdings. It plans to coordinate efforts for suitable collection development and reduce unnecessary duplication wherever possible. ADINET will not only help library users but will be of help to individuals who practice different professions in getting specialized information of their interest.

Conclusion: Since libraries are non-profit institutions, there is lack of funds to purchase all the resources in the library, so resource sharing became essential. Because there is tremendous growth in published literature in the world, the cost of books, periodicals, E-books and Databases are reached at a high level, the demands of users are multi dimensional, to satisfy all the demands of the users is impossible to a single library, to overcome with all these cases resource sharing is very useful. This concept is very helpful for small and poor libraries, with resource sharing one library can satisfy their user's need at a optimum level.

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वैश्वीकरण और मीडिया

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वैश्वीकरण अर्थात् राष्ट्र की अर्थव्यवस्था को वि"व की अर्थव्यवस्था के साथ जोड़ना है। वै"वीकरण यह एक प्रक्रिया है, जिसके द्वारा संपूर्ण वि"व को एक महकाय बाजार में परिवर्तित किया जाता है। वै"वीकरण के चलते आज दे"ी में विदे"ी फर्म बहुत कुछ स्वतंत्र रूप से काम करने लगी है, लोग विदे"ी वस्तु खरीदने लगे हैं और स्थानीय बचत का काफी हिस्सा दे"ी के बाहर निवे"ी किया जाने लगा है। इसका आ"ीय यह नहीं है कि वै"वीकरण राजनैतिक अथवा सामाजिक एवं सांस्कृतिक प्रक्रिया होते हुये भी मूल रूप से एक आर्थिक प्रक्रिया है। एक आर्थिक प्रक्रिया के रूप में वै"वीकरण दे"ी के बीच श्रम, पूँजी, माल तथा ज्ञान एवं तकनीक के निर्बाध प्रवाह पर जोर देती है। इसकी आधारभूत मान्यता है कि आर्थिक गतिविधियों स्वातंत्र बाजारद्वारा संचालित कि जाये। जिससे भविष्य में एक वि"व अर्थव्यवस्था के विकास का मार्ग सुगम हो जाता है।

वै"वीकरण भौतिक व्यक्तिवाद का सामूहिक नाम है। इसकी वि"ीष्टता मनुष्य को समाज निरपेक्ष बनाना है। इसकी आधारभूत मान्यता है कि संप्रदाय, दे"ी, संस्कृति और यहां तक कि इतिहास से कटकर ही मनुष्य वि"व मानव बनेगा। वह स्थायी रूप से न किसी से जुड़ा रहेगा और नहीं किसी के प्रति वफादार रहेगा। वै"वीकरण धर्म एवं संस्कृति संबंधी संकुचित परंपराओं संबंधी प्रतिबंधों से व्यक्ति और व समाज को मुक्त करने हुये उन्हें विकास के बेहतर अवसर एवं व्यापक आयाम भी प्रदान करती है। वै"वीकरण वस्तुतः एक बहुआयामी प्रक्रिया है, जिसमें विभिन्न आयामों में बहुत कुछ परिवर्तन घटित होते हैं, जो बहुत कुछ एक-दूसरे के सहगामी होते हैं।

मीडिया एक व्यापक क्षेत्र, जो एक प्रदे"ी, दे"ी या संपूर्ण वि"व हो सकता है, रह रहे लगातक बहुत कुछ एक साथ और एक समय पर सूचना संप्रेषित किये जाने का माध्यम है। दरसल मीडिया जनता की सोच, इच्छा, विचार एवं व्यवहार की अभिव्यक्ती का माध्यम है। इसकी अंतर्वस्तु की सूची बहुत विस्तृत है। यह जहां व्यक्ति को व्यक्तित्व के सर्वोन्मुखी विकास एवं प्रगति के लिए स्वास्थ्य, ि"क्षा, ज्ञान, मनोरंजन तथा रोजगार, व्यापार एवं व्यवसाय आदि से संबंधित जानकारी उपलब्ध कराता है वही सामाजिक जीवन के विविध पक्षों को उजागर करता है जिससे यदि समाज का कोई भाग कमजोर हो गया हो तो वह लोगों की जानकारी में आये और उसके उपचार के लिए आव"यक फहल किंया जाना संभव हो सकें। इसप्रकार मीडिया वै"वीकरण के दौर में आज समाज, राजनीति, आर्थिकी, संस्कृति एवं पर्यावरण सहित मानव जीवन के प्रायः सभी पक्षों को अच्छादित करता है। वै"वीकरण को बढ़ावा देने में मीडिया एक उपयुक्त माध्यम है। कुलमिलाकर कहे तो आज समाज से जुड़ा हर क्षेत्र वै"वीकरण से प्रभावित हो रहा है और उसे गति देने का कार्य मीडिया कर रहा है। अतः आधुनिक जगत में वै"वीकरण और मीडिया एक दूसरे के लिए पुरक सिद्ध हो रहे हैं तथा मानव जीवन के महत्वपूर्ण एवं स"ीकृत अंग बनते जा रहे हैं।

वै"वीकरण और मीडिया का मूल स्रोत व्यक्ति है। इसीलिए दोनों अपने उद्भव से वर्तमान तक विकास कि सतत प्रक्रिया के दौरान एक-दूसरे के अभिन्न रूप में संबध रहे हैं। जहांतक वै"वीकरण का प्र"न है मीडिया और संचार के अभाव में इसका प्रभावी हो पाना असंभव है। मीडिया और वै"वीकरण दोनों के उद्गम का स्रोत एक होने के लावा एक अन्य उल्लेखनीय बात यह है कि दोनों का उद्भव

बहुत कुछ एक साथ हुआ है और दोनों ही विकास की लगातार प्रक्रिया से गुजरते हुये अपनी वर्तमान स्थिति तक पहुंचे है। साथ ही विकास के इस दौर में वे एक-दूसरे के साथ अभिन्न रूप से जुड़े हुये है। संक्षेप, मैं हम कह सकते है कि वै”वीकरण सूक्ष्म रूप से समाज के बीच सुचना, ज्ञान, अनुभव एवं तकनीकी कौ”ल का संप्रेषण एवं प्रसार है तथा मीडिया वह साधन है जिससे संचार एवं प्रसार संपन्न होता है। इस प्रकार वै”वीकरण और मीडिया दोनों एक-दूसरे से प्रभावित होते है और एक-दूसरे को प्रभावित करते है। वै”वीकरण में हमारी दिनचर्या, साहित्य और समाज नयी उपभोक्तावादी बाजार संस्कृति में बदल रहा है। पत्र-पत्रिकाह, समाचार पत्रों, साहित्यिक रचनाओं के साथ सूचनाओं का भंडार खुल गया है। वै”वीकरण के इस दौर में विज्ञापनो के द्वारा हिंदी अंग्रेजी मिश्रित नयी भाषा का प्रचार प्रसार तेजी से हो रहा है।

वै”वीकरण और मीडिया का संबंध इकतरफा नहीं है। वै”वीकरण मीडिया संप्रेषण एवं विस्तार में महत्वपूर्ण भूमिका अदा करता है तो मीडिया वै”वीकरण को तेज करता है। मीडिया वित्तीय लेन-देन तथा व्यापारिक सूचनाओं जानकारीयों व संदे”ों का तत्काल संप्रेषण संभव कर आर्थिक वै”वीकरण को मजबूत करता है। यह स्थानीय समाजों व संस्कृतियों को एक-दूसरे के निकट लाता है, जिससे उनमें एकरूपता का विकास होता है और सामाजिक, सांस्कृतिक वै”वीकरण के प्रक्रिया धनीभूत होती है। मीडिया कर्मियों के वै”वीक वर्ग के रूप में विकास के माध्यम से भी यह सामाजिक-सांस्कृतिक वै”वीकरण को मजबूत करता है। इस तथ्य से इंकार नहीं किया जा सकता है की आज मीडिया कर्मी अपनी भिन्न राष्ट्रीय पहचानो से परे एक वै”वीक मीडिया कर्मी वर्ग के सदस्य के रूप में अपनी एक नयी वै”वीक पहचान कायम कर रहे है। अपना स्वतंत्र अस्तित्व कायम रखने में वै”वीकरण बाजार के माध्यम से मीडिया को अपनी आर्थिक आवश्यकताओंकी संपूर्ति की व्यवस्था करने में मदद भी करता है। निष्कर्षतः कहा जा सकता है कि आज मीडिया एक नई वि”वक्रांति के रूप में उभर रहा है तथा उसने अपने प्रचार प्रसार के माध्यम से आज मनुष्य के सामाजिक परिवर्तन का एक क्रांतिकारी हथियार बन चुका है।

संदर्भ :-

1. वै”वीकरण, मीडिया और समाज-रामगोपाल सिंह
2. वै”वीकरण के परिप्रेक्ष्य में भाषा और साहित्य -संपादक, डॉ. माधव सोनटक्के, डॉ. अंबादास दे”मुख

COMPARATIVE STUDY ON ENERGY SAVING LAMP

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Abstract

Electric lighting is a major energy consumer. Enormous energy savings are possible using energy efficient equipment, effective controls, and careful design. Nowadays, lighting represents 20% of the global electricity consumption. Light can be produced using different technologies but three basic light bulb namely incandescent, compact fluorescent and LEDs are more efficient technologies nowadays used. The paper presents a life cycle assessment of different lighting technologies like incandescent lamps, compact fluorescent lamps (CFL) and Light Emitting Diode (LED) luminaries for the general lighting of the office or homes. More than 100 years after invention of light bulb, the incandescent bulb is still the most sold and one of the more used light sources. Compact Fluorescent Lamps use a different, more advanced technology than incandescent light bulbs and come in a range of styles and sizes based on brand and purpose. A new lighting technology has been evolved as light emitting diodes (LEDs) that can be over 10 times more efficient than conventional-old incandescent.

Introduction:

The Household lighting cost typically accounts for 10% of the electric bill. Changing the light bulbs effectively can reduce the long-term energy costs significantly. Thus, in the present energy scenario, in developing countries like India, an efficient lighting with proper techniques is used, major energy saving is possible. Also it has to be take comparison between light bulbs to get to know efficient and better lighting technology.

More than 100 years after invention of light bulb, incandescent bulb the most sold and one of the more used light sources but Compact Fluorescent Lamps use a different, more advanced technology than incandescent light bulbs and come in a range of styles and sizes based on brand and purpose. LEDs has several advantages such as low heat output, small size, long lamp life, energy savings and durability. Compact fluorescent lights (CFLs) and light emitting diodes (LEDs), convert most of their energy into light. Both CFLs and LEDs are designed to last longer than the average incandescent bulb, reducing both energy and replacement costs and increasing longevity.

This paper presents the design, working, operation, advantages and future use of the above technologies. It also compares the LED system with other technologies (Compact Fluorescent and incandescent lamps).

Incandescent light bulbs:

An incandescent light bulb, incandescent lamp or incandescent light globe is an electric light with a wire filament heated to such a high temperature that it glows with visible light (incandescence). Incandescent bulbs are manufactured in a wide range of sizes, light output, and voltage ratings, from 1.5 volts to about 300 volts. Robert Friedel and Paul Israel list 22 inventors of incandescent lamps prior to Joseph Swan and Thomas Edison.[2]

Incandescent lamps generate light by passing an electric current through a thin filament wire until the wire is white-hot. They are used mainly in residential applications because they emit a warmer light that contains less red and blue [3].

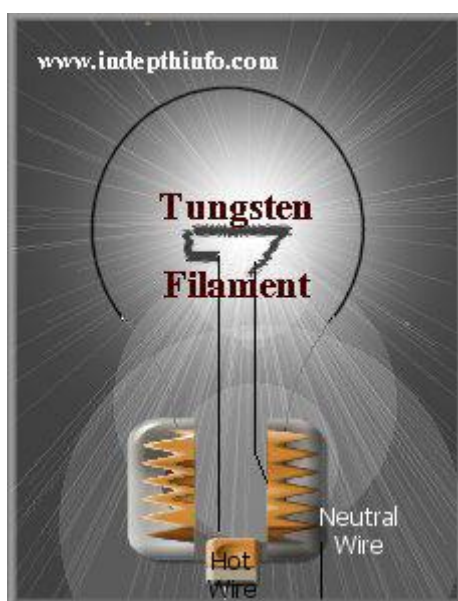
1-Construction:

Incandescent light bulbs consist of an air-tight glass enclosure (the envelope, or bulb) with a filament of tungsten wire inside the bulb, through which an electric current is passed. Contact wires and a base with two (or more) conductors provide electrical connections to the filament.

Base of the bulb has metal contacts and they are connected to the ends of the circuit. Metal contacts in turn are connected to wires attached to the filament. The tungsten filament lies in the center of the incandescent bulb with the help of a glass mount. Bulb of quartz or glass encloses the filaments, wires and inert gases like argon and nitrogen. When the incandescent bulb is given a power supply, current flows through the filaments and wires from contact to contact and the bulb glows. This is because of the excitation of atoms inside and zip of the tiny particles through the filament causing atoms to give energy in the form of heat and light

2-Working Principle:

Light bulbs work on a very simple principle. When metal is heated, it glows. Electricity comes into a light bulb via a hot wire connected to a tab on the base of the bulb. Inside the bulb the electricity goes through a wire leading to a piece of tungsten. The tungsten is very thin and coiled to maximize resistance in the wire. When electricity meets resistance, it heats up the resistor. The tungsten gets to a temperature of about 4500° Fahrenheit (2482° Celsius). This causes it to get white hot. It glows, and glows quite brightly.



3-Efficiency and Environmental impact:

Of the power consumed by typical incandescent light bulbs, 95% or more is converted into heat rather than visible light [6]. This is because incandescent light bulb to work, electrical energy has to pass through a filament for it to be converted to heat. It is when the filament becomes hot enough that light is produced. Since this process generates more heat—about 90 percent of its output—than light, a great deal of electrical energy is actually wasted. This makes incandescent light bulbs less efficient compared to compact fluorescent lamps and other devices, which require less electricity to give off the same (if not more) amount of light.

Incandescent light bulbs are harmful not only because of the electricity they waste in producing heat, but also because of the substantial amounts of carbon dioxide they emit. In addition, the heat they generate pushes cooling systems like air conditioners to work harder, especially during summer. These cooling systems are dependent on coal power plants, which are known for the greenhouse gases they emit [7].

4-The Future of Incandescent lamp:

The future of the incandescent light bulb is uncertain. While heating a filament until it glows is certainly a satisfactory way to produce light, it is extremely inefficient: about 95 percent of the electricity supplied to a typical light bulb is converted to heat, not light. In a world with dwindling

resources, where energy conservation is increasingly vital, this inefficiency may eventually make the incandescent light bulb impractical [8]

Compact Fluorescent Light Bulb:

A compact fluorescent lamp, is a fluorescent lamp designed to replace an incandescent light bulb. CFLs use one-fifth to one-third the electric power, and last eight to fifteen times longer. A CFL has a higher purchase price than an incandescent lamp, but can save over five times its purchase price in electricity costs over the lamp's lifetime [9]

CFLs radiate a spectral power distribution that is different from that of incandescent lamps but CFLs as subjectively similar in color to standard incandescent lamps.[10]

1-Construction:

Compact fluorescent lights (CFLs) are created by taking a traditional fluorescent tube and bending it into a compact design that fits easily into ordinary incandescent fixtures. There are two types of CFLs: integrated and non-integrated lamps. Integrated lamps combine the tube and ballast in a single unit. These lamps allow consumers to replace incandescent lamps easily with CFLs. Non-integrated CFLs have the ballast permanently installed in the luminaire, and usually only the fluorescent tube is changed at its end of life. Since the ballasts are placed in the light fixture, they are larger and last longer compared to the integrated ones. CFLs have two main components: a magnetic or electronic ballast and a gas-filled tube (also called bulb or burner). Replacement of magnetic ballasts with electronic ballasts has removed most of the flickering and slow starting traditionally associated with fluorescent lighting, and has allowed the development of smaller lamps directly interchangeable with more sizes of incandescent light bulb.

Electronic ballasts contain a small circuit board with a bridge rectifier, a filter capacitor and usually two switching transistors, which are often insulated-gate bipolar transistors. The incoming AC current is first rectified to DC, then converted to high frequency AC by the transistors, connected as a resonant series DC to AC inverter. The resulting high frequency is applied to the lamp tube.

2-Working Principle:

In fluorescent lamps, light is generated using a very different method without the need to heat anything. It consists of a sealed tube with a coating of fluorescent material on the insides and an electrode at each end. The tube contains mercury vapor.

When a voltage is applied across the electrodes, the gas inside the tube gets ionized, conducts electricity and in the process generates ultraviolet (UV) light. When the UV light hits the phosphor coating on the inside of the tube, the material glows to produce visible light.

When the lamp is switched on, a component called the ballast produces a high voltage between the electrodes, which is necessary for the initial ionization of the gas in the tube. Once the lamp starts operating, the current and light output can be maintained using a much lower voltage. Unlike incandescent lamps, the little heat produced in a fluorescent lamp is just a byproduct and most of the energy is converted into light.[14]

3-Efficiency and Environmental impact:

The luminous efficacy of lamps is the number of lumens produced for each watt of electrical power used [15]. The luminous efficacy of a typical CFL is 50–70 lumens per watt (lm/W). CFL lamps have lighting efficiency ranges of 7–10% [16]. Because of their higher efficacy, CFLs use between one-seventh and one-third of the power of equivalent incandescent lamps.[15]. Replacing all inefficient lighting with CFLs would save 409 terawatt-hours (1.47 exajoules) per year, 2.5% of the world's electricity consumption.

CFLs, like all fluorescent lamps, contain mercury.[18][19].The mercury released from powering an incandescent bulb over five years is 10 milligrams; however, only 2.4 milligrams of mercury is released over the same period of time to power a comparably luminous CFL. Thus, by using up to

75% less energy than incandescent lamps, CFLs decrease the amount of greenhouse gas emissions in our atmosphere and help off-set global warming [20].

CFLs may pose an added health risk due to the ultraviolet and blue light emitted. This radiation could aggravate symptoms in people who already suffer skin conditions that make them exceptionally sensitive to light.

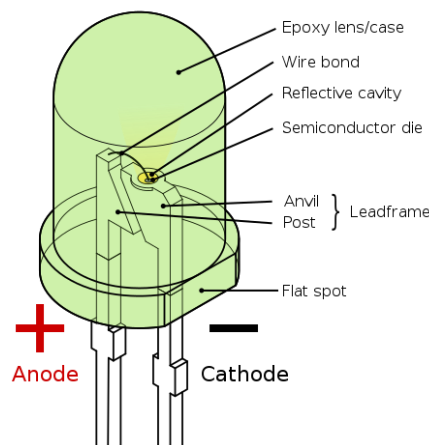
Light emitting Diode:

A LED lamp or LED light bulb is an electric light for use in light fixtures that produces light using light-emitting diode (LED). LED lamps have a lifespan and electrical efficiency which are several times greater than incandescent lamps, and are significantly more efficient than most fluorescent lamps [21][22][23]. LEDs, as their name suggests operate as diodes, run on direct current (DC), whereas mains current is alternating current (AC) and usually at much higher voltage than the LED can accept. An LED is made like electronics. It's a chip of semiconducting material. LED bulbs are more efficient and last much longer than either incandescent or fluorescent bulbs. Unlike fluorescent bulbs, LEDs do not use mercury, which is toxic.

It is a type of diode that makes one color of light when electricity is sent through it in the expected direction. This effect is a kind of electroluminescence [24]. The color of the light depends on the chemical composition of the semiconducting material used [25]. The color affects how much electricity is used by the LED [26].

1-Working principle:

It is a two-lead semiconductor light source. It is a p-n junction diode that emits light when activated [27]. When a suitable current is applied to the leads,^{[6][7]} electrons are able to recombine with electron holes within the device, releasing energy in the form of photons. This effect is called electroluminescence [28][29][30].



Electroluminescence (EL) is an optical phenomenon and electrical phenomenon in which a material emits light in response to the passage of an electric current or to a strong electric field. Electroluminescence is the result of radiative recombination of electrons & holes in a material, usually a semiconductor. The excited electrons release their energy as photons – light [31].

2-Efficiency and Environmental impact:

LED light bulbs use only 2-17 watts of electricity (1/3rd to 1/30th of Incandescent or CFL). Typical indicator LEDs are designed to operate with no more than 30–60 milliwatts (mW) of electrical power. Use of LED bulbs causes less damage to the environment than CFL and incandescent bulb. A 6-to-8-watt LED bulb, with a light output of 800 lumens, will last for 50,000 hours. In comparison, incandescent bulbs last 1,200 hours and consume 60 watts, while CFLs last for 8,000 hours and use

13-15 watts.LED bulbs consume less power per unit (lumen) of light emitted. This reduces greenhouse emissions from power plants. Carbon dioxide emissions for LEDs are also low. Roughly, one LED bulb will minimize greenhouse gas emissions by almost half a ton [32].

Conclusion:

Artificial lighting systems are transitioning from incandescent to compact fluorescent lamp (CFL) and light-emitting diode (LED) leads to energy savings and reduced greenhouse gas emissions. Although CFLs and LEDs are more energy-efficient than incandescent bulbs, they require more metal-containing components. Therefore, the objective of this study is to analyze the resource depletion and toxicity potentials from the metals in incandescent, CFL, and LED bulbs to complement the development of sustainable energy policy.

The comparative study of various parameters of light sources explains that incandescent lamps are the most inefficient with maximum power consumption and maximum life cycle cost. CFLs are good alternative for incandescent lamps with somewhat lesser power consumption and very less life cycle cost.LED lamps have very low life cycle cost as compared to other. advantage with LEDs is that they have maximum burning hours. It means once the LED lamps are installed, they do not need to be replaced again and again for years. The objective of this study is to analyze the resource depletion and toxicity potentials from the metals in incandescent, CFL, and LED bulbs to complement the development of sustainable energy policy.

Reference:

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आगरी बोली: इतिहास आणि उच्चारप्रक्रिया

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१. प्रस्तावना :-

भा ॥ ही मानवी समुहाने परस्पर विचारविनिमयासाठी संपर्कासाठी व अभिव्यक्तीसाठी हेतूपूर्वक निर्माण केलेली प्रक्रिया आहे. ध्वनीयुक्त संकेत हे त्याचे साधन असते. उच्चार व श्रवण हे माध्यम असते. समाजातील व्यक्तीचे व्यवहार भा ॥ च्या साहय्याने चाललेले असतात. म्हणून त्या त्या समाजातील भा ॥ भिन्न भिन्न असली तरी ती व्यवहाराचे साधन असते.

भा ॥ ही परिवर्तनशील असते. त्यात बोली हे दैनंदिन व्यवहाराचे साधन आहे. बोली या मौखिक पध्दतीने आलेली असल्यामुळे तिच्या अंगी एक जिवंतपणा असतो. तिची स्वाभाविकता हेच तिचे वैशि ॥ टये असते. बोलीना योग्य तो सन्मान मिळणे म्हणजे त्या समाजाचा, त्या भा ॥ बोली बोलणाऱ्या व्यक्ती, त्या राहत असलेल्या समाजाचा अन् संस्कृतीचाच तो सन्मान असतो. विविध बोली समजून घेणे म्हणजे विविध संस्कृतीत जगणाऱ्या वावरणाऱ्या माणसाला समजून घेणे आहे. बोलीमध्ये एक अंगभूत गोडवा असतो. तिला एक स्वाभाविक लय असते.

सहयाद्रीपासून अरबी समुद्रापर्यंतचा पश्चिमेकडील प्रदेश म्हणजे पूर्वीचा अपरान्त होय. कोकण त्याचे प्राकृत नांव आहे. ठाणे, मुंबई, कुलाबा, रत्नागिरी हे जिल्हे व गोवा हा पूर्वीचा प्रदेश कोकणामध्ये येत असे. आज ठाणे, मुंबई, नवी मुंबई, रायगड, रत्नागिरी व सिंधुदूर्ग हे जिल्हे हा कोकणचा भाग मानला जातो. या कोकणची पूर्वीची मानवी वसाहत भौगोलिकदृ ॥ टया पाहिली तर दर्यावर दर्यावदी कोळी, त्यानंतर पूर्वेकडे गेल्यावर आगरातला आगरी, माळावरचा माळी आणि वनातला म्हणजेच आदिवासी. या दरम्यान होती. हे सर्व मानवी समुह अनार्य म्हणजे द्रविड संस्कृतीमधील आहेत.^१ यातील दर्यावरचा कोळी आणि माळावरचा माळी या दोन्ही मधील आगर (नारळी, पोकळी, भाजीपाला, मीठ, मासे, भात वगैरे पिकविण्याचे ठिकाण) पिकविणारा तो आगरी समाज होय. आगरी समाज हा मुळतः कुणबी म्हणजे ॥ तीप्रधान आहे. व त्याला मदत करून बलुतेदार व इतर समाज जगत होते. हे सारे आगरातील समाज आगरी प्रमुख लोकांबरोबर त्याची आगरी बोली बोलत होते व बोलतात. म्हणून या बोलीस केवळ आगरी बोली जातीवाचक न म्हणता 'आगर बोली' आगरातील लोकांची म्हणणे संयुक्तिक ठरेल.^३

२. भौगोलिक वापरक्षेत्रे.

आगरी समाजाची मूळ वस्ती ठाणे, मुंबई, रायगड (पूर्वीचा कुलाबा) ह्या भागामध्ये मोठ्या प्रमाणात होती. आज ती ठाणे, मुंबई नवी मुंबई, रायगड व नाशिक या जिल्ह्यात बऱ्यापैकी आहे. त्यामुळे ठाणे जिल्ह्यातील पालघर ते मुंबई, नवी मुंबई, रायगड जिल्ह्याचे दक्षिणेचे ॥ वटचे टोक, नासिक जिल्हाचा काही भाग, धुळे, जळगांव जिल्ह्याचा थोडासा भाग यात आहे. तिथे आगरी बोली बोलली जाते.

आज अलिबाग कडील आगर बोली मुळस्वरूपात आहे. नवी मुंबईत ती कोळी बोली व आगर बोली अशी मिश्र स्वरूपाची दिसते. ठाणे जिल्हातील वसई, पालघर, विरार या भागात ती तेथील वाडवळ वगैरे बोलीत मिसळून गेली आहे. अलिबाग तालुक्यात 'अक्षी' या गावी मराठीतील पहिला शिलालेख सन १०१२ मध्ये सापडला आहे. परंतु या शिलालेखाची लिपी शिलालेखकारांनी आहे. त्याची भा ॥ संस्कृत मराठी मिश्रीत अशी आहे. त्या शिलालेखात आगर बोलीतील ॥ दिसत नाहीत. यावरून ही भा ॥ राजघराण्यातील असावी असे वाटते तर बहुजन कृ ॥ ण्यातील या आगर बोलीला १९६० नंतरच लिखित स्वरूप मिळाले. ही बोली १९७० नंतर ांकर सखाराम, परेन जांभळे, यांच्या लेखनातून मोठ्या प्रमाणात मराठीत आली. रूळली आणि ओळखीची झाली. या आगर बोलीत किती तरी लोककथा व लोकगीते आहेत. दृ ॥ तांतपाठात ॥ भाव्यात अशा कितीतरी आगर बोलीत लोककथा आहेत. तसेच अनेक ॥ द आहेत. उदा. चिंबोऱ्याची गो ॥ ट, काळ्या नि बाळ्याची गो ॥ ट. अका न मकाची गो ॥ ट इ. आगर बोलीत विवाह प्रसंगी धवळे

गाण्याची प्राचीन परंपरा आहे. ही परंपरा आजही तशीच टिकून आहे. याशिवाय एकवीरा देवीची लोकगीते, नागपंचमीची लोकगीते, गणपतीची लोकगीते, गौरीची लोकगीते, होळीची लोकगीते, अंगाईगीते, गोकूळअ टमीची लोकगीते,

३. आगर बोलीतील उच्चार प्रक्रिया स्वरूप वैशि टये—

१. 'ळ' बदल 'ल' येतो उदा. कंटाळा = कंटाला, नळ = नल, धुळ = धुल
२. 'ण' बदल न येतो उदा. आठवण — आठवन, पण — पन, गोण — गोन
३. ब्दात प्रथम येणारा 'ड' तसाच राहतो मात्र नंतरचा 'ड' चा 'र' होतो. उदा. कडू—करू, वेडा — यरा, डबडे — डबरा, तडांग — तरांग.
४. ब्दांती येणारा ओकार 'ऊ' कार होतो. उदा. गेलो — गेलु, आलो—आलु
५. ओकारान्त ब्द अकारान्त होऊन पुढे 'स' येतो. उदा. मारतो — मारतस, घेतो — घेतस, करतो — करतस, जातो — जातस
६. ब्दांती 'त' ऐवजी व येतो. उदा. घेतलास — घेतलाव, बधितलेत — बधितलाव, केलात — केलाव, खात — खाताव, तोललेत — तोलाव इ.
७. एकारान्त ब्द अनुखाना होतो. उदा. कुठे — कुठं, तिथे — तिथं
८. एकारान्त अनेकवचनात आकारान्त होते. उदा. झाडे — झारा, पोरे — पोरा
९. अनुस्वाराचा स्प ट उच्चार होत नाही. उदा. पिंपळ — पिपल, चिंच — चिच, खुंट — खुट
१०. छ चा सर्रास स होतो. उदा. छत्री — सत्री, छोटा — सोटा, छोकरा — सोकरा, छगन — सगन, छडी — सरी.
११. आगरी बोलीत व चा लोप होऊन पुढे महाप्राण येतो. उदा. जेवढा — जव्हरा, तेवढा — तेव्हरा, केवढा—कव्हरा, इत्यादी.
१२. ब्दाला सुरुवातीच्या र चा कधी कधी ल होतो. उदा. रडतोय — लरतय, रबर — लबर, राखडी — लाखरी
१३. जोडशब्दातील र चा वेगळा उच्चार होतो. उदा. प्रत्येक—परतेक, प्रकाश —परकाश, कात्री—कातरी, श्रीमंत — गीरीमंत
१४. ा चा स होतो. उदा. ारद — सरद, ाप—सराप, ाध—सोद
१५. सुरुवातीचा 'वि' जाऊन त्या जागी इ येतो. उदा. विमान— इमान, विरजण—इरजन, विमल—इमल, वि ाय—इ ाय
१६. पण ऐवजी पन किंवा 'बी' येतो. उदा. मीपण—मीपन—मीबी, तूपण—तूपन—तूबी, आम्हीपण— आम्हीपन—आमीबी,
१७. उन,हुन प्रत्यया ऐवजी 'शी' येतो. उदा. गर्दीतून — गर्दीशी, गावातून—गावाशी, लांबून—लांबशी, गावाहून—गावशी
१८. ला प्रत्यया ठिकाणी 'ल' महाप्राण होतो. उदा. तुला — तुल्हा, तिला — तिल्हा, कधी 'ला' चे ना होते उदा. मला — मना
१९. 'त' ऐवजी न येतो. उदा. फुलात — फुलान, रानात—रानान, मनात—मनान
२०. नो या संबोधना ऐवजी नू किंवा हू येतो. उदा. पोरानो—पोरानू—पोराहू, गाववाल्यानो — गाववाल्यांनू, गाववाल्यांहू
२१. होता, नव्हता ऐवजी व्हता, नता येते.
२२. आता चे ऐवजी आथा येते.
२३. अ चा सर्रास आ होतो. उदा. अंग — आंग, अभ्यास — आभ्यास, अंतर—आंतर, असा—आसा
२४. वे ऐवजी य येतो. उदा. वेडा — येडा, वेस—येस, वेगळा—यगळा
२५. 'म' चा म्ह होतो. उदा. महादेव — म्हादेव, मारोती—म्हारोती, महाराज—म्हाराज
२६. 'ढ' ऐवजी ऱ्ह येतो. उदा. गाढव—गाऱ्हव, पेढा—पेऱ्हा, कढी—कऱ्ही
२७. सुरुवातीच्या 'ओ' ऐवजी व येतो. उदा. ओटी—वटी, ओवा—वोवा
२८. ए ऐवजी 'य' येतो. उदा. एक —यक, एकदा—यकदा,
२९. ोवटच्या 'ई' ऐवजी य येतो उदा. सुई—सुय

३०. सुरवातीच्या 'ऐ' कार जाऊन मूळ अक्षरापुढे 'ई'कार येतो. उदा. बैल—बईल, म्हैस—म्हईस, वैद्य—वईद, मैल—मईल
३१. सुरवातीच्या 'औ' कार जाऊन मुळाक्षरापुढे 'ऊ' येतो. उदा. मौज—मऊज, गौरव—गऊरव, फौज—फऊज, हौद—हऊद, कौल—कऊल
३२. आगरी बोलीत ढ,ड,ण,ळ, हे ध्वनी फारसे वापरले जात नाहीत. सोपे उच्चार करून भा ण सहज, सुलभ करण्याकडे कल असतो तसेच त्र, ा,छ,ण,ळ ही व्यंजने बोलीत नाहीत.

संदर्भ ग्रंथ

1. भारतीय भा ांचे लोक सर्वेक्षण – संपा अरूण जाखडे पृ. ८२ पदमगंधा प्रकाशन पुणे
2. भारतीय भा ांचे लोक सर्वेक्षण – संपा अरूण जाखडे पृ. ८२ पदमगंधा प्रकाशन पुणे

ROADMAP FOR WEB DEVELOPMENT

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Abstract

Building a website requires that we obtain the right tools and resources. Standardization is one factor. When we use the right tools, we are assured that our pages would be standard and acceptable to every visitor. This research paper (ROADMAP FOR WEB DEVELOPMENT) discusses the various tools and techniques used in the development of website. We have mostly focused on the use of HTML and CSS in developing process of website and the phases that need to be accomplished while developing a website.

Keywords: *Navigation, Impressive, Effective, HTML, Development, Standardization.*

INTRODUCTION

Website Development is like house building, before house building process, we ask to an architect about plan, building permit, oversee a survey of geological and license from city. All things must have to see in the website development requirement, designing, documentation, appropriate server and programming language etc. Most necessary things for a website is selecting a programming language. Mostly web designers use HTML and CSS. For web designing, it is not necessary to have high level knowledge of HTML. We can say features like as webpage formatting, designing, page layout techniques, graphics, multimedia, images and functions of multipage website should be including. After programming language to see the layout of webpage one should use a test server. The reason behind this, developer is using programming language, either will be the expert of language but still running often these mistakes cannot be found, there is a need to execute server side coding to see the preview by a test server.

The Web Site Design and Development Process

There are numerous steps in the web site design and development process. From gathering initial information, to the creation of web site, and finally to maintenance to keep the web site up to date and current.

The exact process will vary slightly from designer to designer, but the basics are the same.

1. Information Gathering
2. Planning
3. Design
4. Development
5. Testing and Delivery
6. Maintenance

Phase One: Information Gathering



The first step in designing a successful web site is to gather information. Many things need to be taken into consideration when the look and feel of the site is created.

This first step is actually the most important one, as it involves a solid understanding of the company it is created for. It involves a good understanding of *the company* – what business goals and dreams are, and how the web can be utilized to help the company achieve those goals.

It is important that the web designer start off by asking a lot of questions to take help so as to understand the company business and the needs in a web site.

Certain things to consider are:

- **Purpose**
What is the purpose of the site? Do you want to provide information, promote a service, sell a product... ?
- **Goals**
What do you hope to accomplish by building this web site? Two of the more common goals are either to make money or share information.
- **Target Audience**
Is there a specific group of people that will help you reach your goals? It is helpful to picture the “ideal” person you want to visit your web site. Consider their age, sex or interests – this will later help determine the best design style for your site.
- **Content**
What kind of information will the target audience be looking for on your site? Are they looking for specific information, a particular product or service, online ordering..?

Phase Two: Planning



Using the information gathered from phase one, it is time to put together a plan for the web site. This is the point where a site map is developed.

The site map is a list of all main topic areas of the site, as well as sub-topics, if applicable. This serves as a guide as to what content will be on the site, and is essential to developing a consistent, easy to understand navigational system. The end-user of the web site – your website visitor – must be kept in mind when designing the site. These are, after all, the people who will be learning about the service or will be using the website. A good user interface creates an easy to navigate web site, and is the basis for this.

During the planning phase, web designer also helps to decide what technologies should be implemented. Elements such as what CMS (content management system) such as WordPress to incorporate, will any contact forms be needed, etc. are discussed when planning the web site.

Phase Three: Design



Drawing from the information gathered up to this point, it's time to determine the look and feel of your site. Target audience is one of the key factors taken into consideration. A site aimed at teenagers, for example, will look much different than one meant for a financial institution. As part of the design phase, it is also important to incorporate elements such as the company logo or colors to help strengthen the identity of the company on the web site.

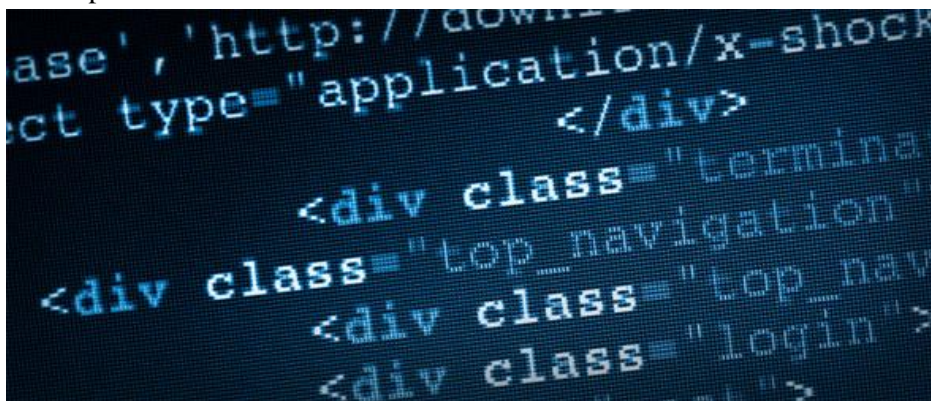
The web designer create one or more prototype designs for the web site. This is typically a .jpg image of what the final design will look like. Often times clients will be sent an email with the mock-ups for the web site, while other designers take it a step further by giving the clients access to a secure area of their web site meant for customers to view work in progress.

Either way, designer should allow their clients to view the project throughout the design and development stages. The most important reason for this is that it gives client the opportunity to express your likes and dislikes on the site design.

In this phase, communication between both client and the designer is crucial to ensure that the final web site will match clients needs and taste. It is important that client should work closely with the designer, exchanging ideas, until the final design for the web site.

Then development can begin...

Phase Four: Development



The developmental stage is the point where the web site itself is created. At this time, web designer will take all of the individual graphic elements from the prototype and use them to create the actual, functional site.

This is typically done by first developing the home page, followed by a "shell" for the interior pages. The shell serves as a template for the content pages of the site, as it contains the main navigational structure for the web site. Once the shell has been created, the designer will take the content and distribute it throughout the site, in the appropriate areas.

Elements such as the CMS (content management system) like WordPress, interactive contact forms, or ecommerce shopping carts are implemented and made functional during this phase, as well.

This entire time, designer should continue to make in-progress web site available for viewing, so that client can suggest any additional changes or corrections he/she would like to have done.

On the technical front, a successful web site requires an understanding of front-end web development. This involves writing valid HTML / CSScode that complies to current web standards, maximizing functionality, as well as accessibility for as large an audience as possible.

This is tested in the next phase...

Phase Five: Testing and Delivery



At this point, the web designer will attend to the final details and test the web site. They will test things such as the complete functionality of forms or other scripts, as well last testing for last minute compatibility issues (viewing differences between different web browsers), ensuring that the web site is optimized to be viewed properly in the most recent browser versions.

A good web designer is one who is well versed in current standards for web site design and development. The basic technologies currently used are HTML and CSS (Cascading Style Sheets). As part of testing, the designer should check to be sure that all of the code written for the web site validates. Valid code means that your site meets the current web development standards – this is helpful when checking for issues such as cross-browser compatibility as mentioned above.

Once the client give web designer the final approval, it is time to deliver the site. An FTP (File Transfer Protocol) program is used to upload the web site files to your server. Some web designers offer domain name registration and web hosting services as well, or have recommendations as to where the client can host their site. Once these accounts have been setup, and the web site is uploaded to the server, the site should be put on one last run-through. This is just precautionary, to confirm that allfiles have been uploaded correctly, and that the site continues to be fully functional.

Other final details include plugin installation (for WordPress or other CMS driven web sites and SEO (Search Engine Optimization). SEO is the optimization of the web site with elements such as title, description and keyword tags which helps the web site achieve higher rankings in the search engines. The previously mentioned code validation is somethingthat plays a vital role in SEO, as well. There are many WordPress plugins available that further enhance the default WordPress functionality – many of which directly relate to improving SEO, as well.

There are a lot of details involved in optimizing the web site for the search engines – enough to warrant its own post. This is a very important step, because even though web site now have been uploaded, one need to make sure that people can find it!

Phase Six: Maintenance



The development of web site is not necessarily over, though. One way to bring repeat visitors to the site is to offer new content or products on a regular basis. Most web designers will be more than happy to continue working together with their clients, to update the information on web site. Many designers offer maintenance packages at reduced rates, based on how often the client anticipate making changes or additions to web site.

If the client prefer to be more hands on, and update their own content, there is something called a CMS (Content Management System) such as WordPress can be implemented to the web site. This is something that would be decided upon during the Planning stage. With a CMS, the designer will utilize online software to develop a database driven site for the client.

A web site driven by a CMS gives the ability to edit the content areas of the web site. Clients are given access to a back-end administrative area, where he/she can use an online text editor (similar to a mini version of Microsoft Word). Client will be able to edit existing content this way, or if he/she feeling is more adventurous, the client can even add new pages and content itself. The possibilities are endless!

It's really up to you as far as how comfortable you feel with updating your own web site. Some people prefer to have all the control so that they can make updates to their own web site the minute they decide to do so. Others prefer to hand off the web site entirely, as they have enough tasks on-hand that are more important for them to handle directly.

That's where the help of your web designer comes in, once again, as they can take over the web site maintenance for you – one less thing for you to do is always a good thing in these busy times!

Other maintenance type items include regular site backups, WordPress upgrades, additional plugin installation, etc.

Are You Ready to Design (or Re-Design) Your Web Site?



Your web designer should work closely with you on a very similar process to this one. A good working relationship with your designer, including an open line of communication, is important to ensure they are creating a successful web site that will help your business grow.

I follow this same process myself – a process I’ve been using and refining over the last 15 years, through the web sites I’ve designed and developed for my own clients. If you are in the market of a new or updated web site, and like my design style, please don’t hesitate to contact me – I would love to hear from you!

ARTICLES

Traditional professions will be the next to see significant change – and competition – as digital technology introduces new ways of working

The work of doctors, lawyers, professors and accountants has been only moderately affected by IT so far. But the digital innovations of the 2020s – deep learning, expert systems, software agents, speech and image processing, algorithmic operations, shared ledgers, smart contracts, digital cash, neuro-imaging and the internet of things (IoT) – are aimed directly at knowledge, learning and trust, the very traits that have defined the professions for centuries.

One thing all four professions have in common is the growing need for change. Whether we are looking at healthcare, law, education or high-end accounting/auditing services, the pattern is the same – high costs, limited citizen access, often crushing workloads, the inability to keep up with their fields, and a priesthood-like culture that often leaves professionals blind to their biases and prone to error. In this sense, professional should be seen primarily as an important form of societal progress.

Traditionalists bemoan the declining finances of newspapers, but those old sources of revenue aren’t coming back – technology has changed everything

Economists tend to misunderstand quite how wrenching technological change is on the people subject to it. Those of us doing the technological change itself also often rather miss this point. For it isn’t only true that our new and whizzy way of doing something is better, fancier or more lovely. It’s also true that the old way is now going to die and all the people working in that old manner are going to find lives changed irretrievably.

A useful example of this is the closing down of the *Gothamist* and *DNAinfo* news sites. There is, of course, a certain irony here. The staff voted to unionise to get better benefits, higher pay and job security, and the next week they found there were no jobs at all. But it would be unkind to dwell upon that.

Rather, the important thing to understand is that this internet thing has entirely changed the business of newspapers and news. And it has changed the US world very much more than the UK in an interesting manner and tending to change India as well.

What We’ve learned

There’s been a lot to discuss on the subject of a web design and development project! I hope we have learned things that will help us both be successful and to help find and evaluate the web design and development agency that will be the best fit for you and your organization.

From the initial planning to what it takes to maintain a launched site, we hope we’ve gained some insights that will help us as to undertake some important next steps in the website

CONCLUSION

There are many reasons building a website requires that we obtain the right tools and resources. When we use the right tools, we are assured that our pages would be standard and acceptable to every visitor. By using standard resources and tools, our visitors are able to view our web pages no matter what browser they use. Our pages would load faster and we would also be able to maintain the pages we have created with ease.

Using the right resources for our web design jobs will make our websites contemporary. They can easily integrate into current technologies and software. Our users would derive added value from our websites and contribute to its growth.

The right resources also make it easy for surfers to use our site. The standard tools used for creating the website will ensure that things such as navigation, menus and layout conform to current practices with which every web user is familiar with.

Our pages become attractive if we use the right tools. They can display correctly in the browser and your visitors would be glad to visit again because you appealed to them.

Search engines would index your website if the pages conform to their rules. Standard tools like blogs will produce pages that understand how search engines index pages so you will have the added advantage of increase visibility o the web.

Web tools make your web design job easy. The WYSIWYG interface makes you work with icons and not raw code. Coding can take away a lot of time and produce fatal errors if you are not proficient. GUI interfaces take away all the incidences of errors and labor, and give you something manageable.

Speed of implementation comes with the right tools. You can create a website and launch it in an hour with the right resources. You save on time, effort and never miss important deadlines.

Now that you are equipped with the right knowledge you can go about your web design with the assurance that you are going to produce something appealing and acceptable to most browsers.

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डॉ. प्रकाश के. धुमाळ, शिवळे महाविद्यालय, शिवळे.

प्रस्तावना :

जीवनातील जटिल समस्यांचे निराकरण करणे आणि अनेक शिस्तभंगांमधील अंतर्दृष्टीस एकत्र करणे आवश्यक आहे. परस्परविरोधी घोषणेच्या पार्श्वभूमीवर पदानुक्रम आणि विषमता देखील कायम रहातात. पुढील विभागात, मी सध्याच्या धोरणात्मक आराखड्यात एसएसएच अंतःविषयशास्त्रीय सहकार्याने प्रमुख धोरणात्मक विचार करणार आहे. इंटरडिसीप्लिनरी प्रोजेक्टमध्ये एसएसएच संशोधनासाठी मुख्य आग्युमेंटस सादर केल्यानंतर, लेख अंतःविषयशैली संशोधनातील काही प्रमुख अडचणींवर विचार करण्यासाठी पुढे जातो. विविध मोड अंतःविषयशास्त्रीय सहकार्याबद्दल विशेष जोर देऊन केवळ एक विशिष्ट प्रकारचे संशोधन करण्याऐवजी इंटरडिसीप्लिनरीयटी एक सर्वसामान्य आणि व्यापक आकाराची संकल्पना आहे. जी विविध वैज्ञानिक पद्धती आणि दृष्टिकोणामध्ये विस्तृत आहे. ज्यामुळे एकाच फ्रेमवर्कमध्ये मूल्यांकन करणे कठीण होते. अंतःविषय संशोधनासाठी एसएसएच समाविष्ट करणे आवश्यक आहे. परंतु विविध वैज्ञानिक क्षेत्रात संरचना, हेतू आणि अंतःविषय संशोधनाचा प्रभाव समजण्यासाठी अधिक प्रयत्न आवश्यक आहेत.

“सॉफ्ट सायन्स अँड ॲप्लिकेशन” अंतःस्थापित करणे गेल्या दशकात विज्ञान धोरणामध्ये एक प्रमुख अग्रक्रम बनले आहे. संशोधन आणि नूतनीकरणाच्या वर्तमान युरोपियन फ्रेमवर्क प्रोग्रामच्या राजकीय वाटाघाटी आणि त्यानंतरच्या अंमलबजावणी “होरायझन 2020” मुख्य आंतरशास्त्रीय कार्यक्रमात एसएसएचचे समावेश करण्याच्या संदर्भात चर्चा व वाद-विवादांचे एक उपकारक उदाहरण सादर करते. युरोपियन कमिशनने होरायझन 2020 च्या प्रस्तवावर सहमती देण्यापूर्वी, बहु-अरब शोध कार्यक्रम साठी समर्थन सुनिश्चित करण्यासाठी युरोपमधील भागधारक गटांनी अनेक धोरणात्मक अहवाल, व्हाईट पेपर आणि घोषणा प्रकाशित केल्या. होरायझन 2020 चे मुख्य ट्रस्ट “ग्रँड चुनॅगेज” या शब्दाच्या शहानिशाद्वारे याचे उदाहरण आहे. भव्य आव्हान पद्धतीच्या अनुसार, संशोधनासाठी आणि नवोपक्रमांसाठी निधीतून त्यांनी भूतपूर्व आणि नोकरशाही संरचनेचा त्याग केला पाहिजे आणि त्याऐवजी समाजातील सर्वात आव्हानात्मक समस्यांचे निराकरण करण्यासाठी संसाधनांवर लक्ष केंद्रित करणे आवश्यक आहे.

इंटरडिसीप्लिनरी इंटिग्रेशन :

मोठ्या प्रमाणावरील आंतरशाखीय प्रकल्पांमध्ये सामाजिक विज्ञान व मानवतेची प्रभावी अंमलबजावणी रोखता येणारी राजकीय संरचना आणि नोकरशाही अवलंबन याबाबत चिंता व्यक्त करण्याची आवश्यकता आहे. हे क्षितिज 2020 आणि आशिया आणि अमेरिका यामधील इतर आंतरशास्त्रीय निधी कार्यक्रमांवर आधारित आहे. मूलभूतपणे, समस्या किंवा मिशन देणारे दृष्टिकोन ज्या अंतःविषय संशोधनासाठी बहुतेक कॉलवर अभिमान ठेवतात ते ज्ञानाच्या उत्पादनासाठी अनुकूल असतात जे एसएसएच च्या शोध शैलीशी जुळत नाहीत. विज्ञान आणि तंत्रज्ञानाच्या अभ्यासाचे बहुतेक विद्वान सहमत आहेत की अंतःविषय संशोधनामध्ये काही प्रकारचे एकीकरण, संश्लेषण यासारख्या फरकांचा समावेश आहे. सामान्यतः एकेक विषयांच्या पलीकडे जाऊन नवीन दृष्टिकोन, सिद्धांत, संकल्पना आणि पद्धतीमधील संशोधनात्मक विषयांवर आधारित पारंपारिक अनुशासनात्मक सीमापेक्षा ज्ञानाची संस्था तयार करण्याची क्षमता यावर जोर दिला जातो.

विषयांद्वारे घेतलेल्या दृष्टिकोनातून शास्त्रज्ञ त्यांचा दृष्टिकोन कसा अचूकपणे लावतात यामागील मुख्य कारण म्हणजे भिन्न शिस्त असलेल्या विविध सैद्धांतिक भाषांबरोबर काम करणारी वेगवेगळी तत्त्वे आणि धोरणे. साधारणपणे बोलता, विविध शिस्त वेगवेगळ्या स्पष्टीकरण शोधण्याच्या प्रश्नांची मागणी करतात आणि म्हणून वेगवेगळ्या अवतारनाची अंमलबजावणी करतात. दोन किंवा त्यापेक्षा जास्त शिस्तभंगांमधील विभाजनास पुल करण्यासाठी संशोधन प्रश्नांची आणि पद्धतींची रचना आणि

समन्वयासाठी सावधपणे लक्ष देणे आवश्यक आहे. एसएसएच समाविष्ट करताना हे विशेषतः समर्पक आहे. ज्यामध्ये नैसर्गिक व आरोग्यविज्ञान या परंपरा यांच्याशी तुलना करता येत नाही.

एसएसएच संशोधक सहसा संयुक्त प्रकल्पाची व्याख्या करणाऱ्या संशोधन समस्येच्या सुरुवातीच्या सूचनेमध्ये सहभाग घेत नाहीत. उलट त्यांना विशिष्ट कामाच्या पॅकेजेसमध्ये बोलाविले जाते. जसे की विज्ञान संवाद, सार्वजनिक भागीदारी किंवा बायोएथिक्स. या असंमत संबंधामुळे आंतरशास्त्रीय निधी कार्यक्रमात सतत धोका निर्माण होतो की सामाजिक विज्ञान आणि मानविकी केवळ टेक्नो-वैज्ञानिक विषयांचा परिशिष्ट बनतात. इंटरडिसीप्लीनरी इंटिग्रेशन अंतर्भूत असलेल्या राजकीय मर्यादांमुळे हा काही भाग दिसून येत आहे. जर एसएसएच संशोधकांना सुरुवातीच्या नियोजनात किंवा संशोधन डिझाईनमध्ये समाविष्ट केले गेले नाही तर सामान्य शोध समस्या ओळखणे अधिक अवघड जाईल आणि त्यामुळे एकीकरण कमी होईल.

अंतःविषय संशोधनाशी संबंधित अनेक आव्हाने, इतर गोष्टींबरोबर एक सामान्य सिद्धांत भाषा आणि पद्धतीचा विकास यांच्यासह विषयांच्या संज्ञानात्मक अंतराने वाढ. उदा विसाव्या शतकाच्या दुसऱ्या सहामाहीत वातावरणातील विज्ञान क्षेत्रातील वातावरणातील कार्बन डायॉक्साईड, नायट्रोजन व फॉस्फोरस चक्र, जैवविविधता, पाणी आणि जमिनीच्या वापराचे निरीक्षण यांमध्ये असलेल्या नैसर्गिक विज्ञानांमधील विविध विषयांचे संश्लेषण म्हणून उदयास आले. महासागर ऍसिडिनाइझेशन आणि ओझोन कमी होणे इत्यादी. या अनुषंगाने एकत्रितपणे व्यक्त केलेल्या गोष्टींची संख्या आणि पर्यावरणाशी संबंधित संख्यांच्या संख्येचा अर्थ सांगण्याची वचनबद्धता आणि या स्वरूपात, विविध तज्ञ संस्कृतींना एक संख्यात्मक बदल घडवून आणून सांगण्यात आले आहे. नंतर अर्थशास्त्र एकत्रीकरण आणि संसाधने आणि प्रक्रिया आर्थिक 'मूल्य' किंवा 'सेवा' गणना विशेष असाईनमेंट की, पर्यावरणातील पुरवठा होते. गेल्या दशकातील सर्वात प्रभावी एकत्रित ज्ञान समुदायांपैकी हे एक यशस्वी पाऊल आहे ते म्हणजे पर्यावरणीय अभ्यास होय.

Sorline द्वारा प्रत्यक्षरित्या विश्लेषित केल्याप्रमाणे परिणामवादात बदल करून घेतलेल्या धमक्यांच्या अंदाजपत्रक अधिकारानुसार नैसर्गिक विज्ञान आणि अर्थशास्त्र या क्षेत्रातील पर्यावरणीय बदलांचे उत्पादन आणि अर्थ हे विशेषतः राहिले. त्याचबरोबर वातावरणाशी संबंधित असलेल्या माणसांचे गुणत्मक अन्वयार्थ आणि वातावरणातील बदल घडवून आणणे हे खूपच कठीण आहे. पारंपारिक पर्यावरणीय शिस्तभंगांमधील संज्ञानात्मक निकटता धोरण संबंधित हवामानाच्या मॉडेलवर एक मजबूत सार्वभौम समानता निर्माण करत होती आणि म्हणूनच हवामान बदलांच्या प्रभावशाली सामाजिक व्याप्तीची रचना केली गेली. परंतु एसएसएच सारख्या दूरगामी शाखांमध्ये मोठ्या प्रमाणात अनुपस्थित होते. परिणामस्वरूप मूल्य-आधारित प्रणाली आणि पर्यावरणविषयक बदलांच्या सामाजिक व मानवी पैलूंवर जास्तीत जास्त अंतर ठेवले गेले आहे. केवळ गेल्या दशकातच या गटांच्या शाखांमधील दरी भरून काढण्यासाठी आणि वातावरणातील विज्ञानाच्या क्षेत्रातील एसएसएच कौशल्याला एकत्रित करण्यासाठी गंभीर पावले उचलली गेली आहेत. पर्यावरणविषयक मानवीय संस्थांची स्थापना तांत्रिक-वैज्ञानिक कौशल्याचा निःसंशयपणे वापर करणे आवश्यक आहे. परंतु समाजाच्या आणि अर्थव्यवस्थांच्या अंतर्गत संचालक यंत्रणेतील मूलभूत बदलांविषयी ज्ञान वाढते आहे. यात पर्यावरणीय गोष्टींवर लोक, नागरीक आणि कंपन्या कशी प्रतिक्रिया देतात याचा अभ्यास करतात.

पर्यावरणात्मक अभ्यासाच्या उदाहरणावरून हे स्पष्ट होते की एका एकीकृत ज्ञान क्षेत्राची स्थापना करण्यासाठी किती वेळ लागतो. अर्धशतकांपूर्वी अंतःविषय संशोधन केंद्रे, संशोधन करिअर आणि अंतःविषयकवषयक नियतकालिकांची स्थापना झाली. आंतरशास्त्रीय सहयोगास अडथळांवर मात करणे, जसे की विशेष क्षेत्रांमधील संज्ञानात्मक अंतर किंवा स्पष्ट प्रकाशनाची योजना निवडणे कठिण, संशोधकांच्या वेळी - वेळ आणि संसाधनांची लक्षणीय गुंतवणूक करणे आवश्यक आहे. त्याचबरोबर त्यास विविध प्रोत्साहन रचनांचे काळजीपूर्वक लक्ष देणे आवश्यक आहे आणि सहयोगी शिस्त. संशोधकांना केवळ एकमेकांशी सहयोग करण्याचीच गरज नाही तर बाह्य भागधारकांशी संवाद साधण्याचीही गरज आहे. शेवटी, अंतःविषयशास्त्रीय सहकार्य जटिल वैज्ञानिक समस्यांचे निराकरण करण्यासाठी विविध वैज्ञानिक विषयातील दृष्टिकोण, पद्धती, आणि सिद्धांतकाला समाकलित करण्यासाठी विचारात घेतले जाते.

ज्यामुळे जैवरासायन, न्युरोसायन्स किंवा पर्यावरणीय मानविकीसारख्या नवीन वैज्ञानिक क्षेत्रांची निर्मिती होण्यास वेळ लागतो.

चांगले, काय चांगले किंवा यशस्वी आंतरक्रियाशीलतेचे गणित हे कशा प्रकारचे सहकार्य एक विशेषाधिकारांवर अवलंबून असते. अनेक शैक्षणिक दृष्टिकोन एकत्रित करण्याच्या प्रयत्नांसह, शैक्षणिक आणि गैर-शैक्षणिक भागधारकांना समाकलित करण्याचा प्रयत्न किंवा विविध विषयात नवीन वैज्ञानिक मॉडेल विकसित करण्याचा प्रयत्न करणे आवश्यक आहे. पुन्हा एकदा असे सांगितले आहे की आंतरशास्त्रीय एकीकरण आणि समन्वय या आचारसंहितांना अनुसरण्यात अपयश हे अधिक खोल असलेले आर्थिक आणि राजकीय स्वभाव यांचे परिणाम होण्याची शक्यता आहे. उदाहरणादाखल, संशोधनाचे जास्तीत जास्त ध्येय म्हणजे ज्ञान निर्माण करणे हे आहे. जे शिक्षण क्षेत्राबाहेरील कलावंतांना लागू आहे, संयुक्त प्रकल्पांमध्ये एसएसएच संशोधन समाविष्ट करण्यासाठी धोरणातील आणि भागधारकांनाकडून एक स्पष्ट पूल असणे आवश्यक आहे.

एकीकृत वातावरण :

आंतरशास्त्रीय सहकार्यासाठी संशोधन धोरण डिझाइन करण्यासाठी दीर्घकालीन दृष्टीकोनाची आवश्यकता आहे. एकात्मतेचा व्यापक विचार सहसा स्वीकारला जातो. तांत्रिक आणि आरोग्य विज्ञानाच्या आधारे अस्तित्वातील संशोधन आणि नवोपक्रम दृष्टीने मानक धोरणे परिभाषित आणि अभ्यासल्या जातात.

आजच्या समस्येचे जटिल स्वरूप, विशेषतः मानवी पर्यावरणाशी संवाद साधणारे, ज्या पद्धतीने विज्ञानाने पाठपुरावा केला जातो त्यात अनेक आव्हाने उभी आहेत. यातील सर्वात प्रमुख आव्हान म्हणजे एकट्या शिस्तीचा मार्ग. फक्त जटिल समस्या समजून घेण्याच्या सर्वात मूलभूत गरजेचे आहे. अनेक अनुशासनात्मक दृष्टीकोनातून एकत्रितपणे स्पष्टीकरण मिळवण्यापासून मिळवलेली अंतर्दृष्टी देखील पूरक असणे आवश्यक आहे.

जगाच्या एका पैलूवर लक्ष केंद्रीत करण्याऐवजी अंतःविषयविषयक प्रोजेक्ट समस्येचा अनेक स्तरांवर संशोधनासाठी अनुकूल अनुपालनाचा संच तयार करणे आवश्यक आहे. या घटकांना एकसंध पद्धतीने समजावून सांगणे, तथापि एक सामान्य मेटा-सैद्धांतिक भाषा विकसित करण्याची शक्यता जरूरी आहे. ज्यामध्ये कृत्रिम दृश्य निर्माण करण्यासाठी विविध संस्था, डेटा, पद्धती, साधने आणि संकल्पना समाकलित होतात. हे काही अंतःविषय उपक्रमांचे ध्येय असू शकते, परंतु एकत्रिकरणाची ही कल्पना संशोधनात्मक सहभागाच्या वास्तविक प्रखरतेला पुरेसे संवेदनशील नाही. याउलट, एकत्रिकरणाची मजबूत कल्पना, संस्थात्मक संसाधने, वेळ आणि बांधिलकी दीर्घकालीन आंतरविभागीय समुदायांच्या विकासासाठी आवश्यक असलेली लक्षणे दर्शविण्याचा धोका आहे.

आंतरशास्त्रीय कार्यक्रमात मानवीय आणि सामाजिक विज्ञान एकत्रित करण्याचा आणखी एक आव्हान म्हणजे हे कार्यक्रम विषम नसलेले आहेत. **Viseu** म्हणून एसएसएच – सहसा एक सामाजिक शास्त्रज्ञ किंवा मानवतावादी विशेषतः प्रकल्प रचना आणि प्रमुख संशोधन प्रश्न ओळखले गेले आहेत नंतर आणले जाते आहे. ही असमतोलता एकात्मतेच्या वेगवेगळ्या टप्प्यांवर आहे. नेतृत्व ते निधी, ज्ञान निर्मिती आणि प्रसार आणि अखेरीस शोध मूल्यमापन आणि मूल्यांकन. तरीही हा संबंध बऱ्याचशा संशोधन निधी कार्यक्रमात लपलेला किंवा अबाधित असतो.

आंतरशास्त्रीय प्रकल्पांत सामाजिक विज्ञान आणि मानवता एकत्रित करण्याच्या अधिक उपयुक्त पद्धती असू शकतात **Viseu** नुसार काही उपाय सहजपणे लागू करता येऊ शकतात: “एकात्मतेसाठी लक्ष्य देण्याकरता एक किंवा दोन व्यक्तींच्या जागी सामाजिक शास्त्रज्ञांचे गट असणे आवश्यक आहेत. या संघांना परिभाषित आणि अंमलात आणण्यासाठी आर्थिक आणि कार्यरत स्वायत्तता द्यावी. त्यांच्या क्रियाकलाप” शिवाय एसएसएचने अर्थपूर्ण योगदाने करण्यासाठी योग्य प्रोत्सहनांना स्थान दिले पाहिजे. इतर गोष्टींबरोबरच यामध्ये प्रकल्प निधीसाठी धडपडणे समाविष्ट आहे. नंतर प्रकल्पामध्ये एसएसएच

संशोधकांमधील ब्रिंंग करण्याऐवजी एसएसएच घटकांसाठी प्रारंभ-वाटप संसाधने. संशोधन प्रश्नांचे मूल्यमापन करणे आणि सर्व सहभागींच्या पुरवलेल्या माहितीसह निश्चित करणे आवश्यक आहे.

एकत्रीकरण (म्हणजेच, समस्येच्या निराकरणीची क्षमता) म्हणजे एकात्मता वातावरणात (म्हणजे, समस्येच्या समस्येचे अभिप्राय निर्माण करण्याची क्षमतेस निर्माण करण्याची) एक पूर्णपणे इंस्ट्रुमेंटल कल्पना पासून लक्ष ठेवणे आवश्यक आहे. केवळ समस्या निर्दिष्ट करून आणि निदान विकसित करून केवळ समाधान मिळवणे शक्य नाही. अंतःविषयविषयक समस्या जसे की हवामानातील बदल, अन्नसुरक्षा किंवा स्थलांतर हे ओपन एंडेड आहेत आणि समस्या कशा प्रकारचा आहे आणि कशा प्रकारे त्यावर उपाययोजना करावयाची हे कोणत्याही अंतःविषयविषयक प्रयत्नांचा अविभाज्य भाग असणे आवश्यक आहे. फलदायी होण्याचे एकत्रीकरण करण्यासाठी आपण त्याचा अर्थ अल्टर-टर्म प्रोजेक्ट निधीपासून दीर्घकालीन सहयोग आणि आंतरशास्त्रीय पर्यावरणीय रचनांचे बांधिलकीवर बदलावा. असे केल्याने वैज्ञानिक अभ्यासांमध्ये बदल करणे आवश्यक आहे. तसेच निधी एजन्सीज, विद्यापीठे आणि शैक्षणिक समुदायांमधील संरेखन.

संरेखन आणि दीर्घकालीन सहकार्य प्रयत्नांचे हे महत्वाकांक्षी उद्दीष्टे असेल तर शिक्षण, संशोधन आणि सार्वजनिक आवाक्यांसह आंतरशास्त्रीय वातावरणास चालना देण्यासाठी अधिक लक्ष द्यावे. एकत्रित संशोधन कशा प्रकारे आयोजित केले जावे किंवा उत्तेजित केले जावे या प्रश्नाचे एकही साधे उत्तर नसून एकत्रित पर्यावरणाची स्थापना करणाऱ्या विद्यापीठ आणि समुदायांचे अनेक उदाहरण अस्तित्वात आहेत. ज्या वेळी अंतःविषय संशोधनासाठी आर्थिक मदत वाढते आहे त्या वेळी धोरणकर्त्यांना आणि निधी संस्था सध्याच्या शैक्षणिक विषमता पुनरुत्पादीत करण्याची शक्यता असलेल्या अल्पकालीन प्रकल्पासाठी निधी उपलब्ध करून देण्याऐवजी शाश्वत आंतरसंस्कृतीत्मक वातावरण तयार करण्यासाठी कटिबद्ध आहे. आंतरशास्त्रीय प्रकल्पाच्या विविधतेमुळे, एकत्रित संशोधन एक अधिक प्रगत, संदर्भ आणि बहुआयामी प्रतिकृती स्वीकारणे आवश्यक आहे. ज्यात एसएसएच मधील योगदानांचा समावेश आहे. विविध अनुशासनास पार्श्वभूमीतून संशोधकांना एकत्र आणणे किंवा नवीन अत्यावश्यक उपक्षेत्रे तयार करणे, अपरिहार्यपणे ज्ञान निर्माण आणि प्रसारीत करण्याच्या विद्यमान संस्कृतींच्या पलीकडे आहे.

अंतःविषय संशोधनासाठी धोरणात्मक निधीसाठी धोरणकर्त्यांना आणि वैज्ञानिक समुदायातील सदस्यांना आंतरशास्त्रीय सहकार्याच्या साध्या शब्दांच्या संकल्पनांपेक्षा पुढे जाण्याची आवश्यकता आहे. प्रायोगिक समृद्धी आणि भिन्न तराजू समजून घेण्याच्या आणि अंतःविषय संशोधनाची असमर्थता समजून घेण्यामुळे अग्रगण्य वित्त पुरवठा संस्थांनी अवलंबलेल्या एकापेक्षा एकत्रित पर्यावरणास उत्तेजन देणारे अधिक मॉडेल तयार केले जाईल. वेगवेगळ्या समुदायांमध्ये परस्पर संघटन कसे कार्य करते हे शिकणे, विविध आंतरविषयक संटिंग्जमध्ये संशोधनाचा परिणाम कसा साध्य केला जातो हे समजून घेण्यास मदत करेल. चांगले किंवा सत्य अंतःविषयविषयक संशोधन संदर्भ आणि दृष्टीकोनानुसार वेगळे असण्याची शक्यता असलेल्या मानवीय विद्वानांच्या डॅनिश सर्वेक्षणाचे सर्वेक्षण करणे आवश्यक आहे.

DATA MINING AND WAREHOUSING

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Abstract

Data warehouse provides an effective way for analysis and statistic to the mass data, and helps to do the decision-making. The paper introduces the data warehouse and the online analysis process. According to the power management information system, the paper analyzes the power-oriented multidimensional database modeling and the presentation of multidimensional views. The system also builds power-oriented data warehouse using DB2 database, Warehouse Manager, Cube View and Alphablox of IBM. Then, this paper discusses the concrete applications of data warehouse in completing the extract, transform and load (ETL) of power data. The discussion includes the optimization of the system after creating the MQT tables using Cube View and the presentation of the analysis system. The system can help the power corporations to do decision-making.

INTRODUCTION

The huge data is created by integrating current and historical data from different sources and store them centrally in a special repository called Data Warehousing(DW). Have you ever think about the recommendations you get when you shop online. If you purchase for example a TV online, the website recommends you another products that you really need to get. Also have ever think about the alerts you get from your bank when you do a sudden use of your credit card in a different city. Actually these are examples of data mining which is the process of discovering useful patterns in a huge data set.

DW is a very important repository especially for the historical data and non-every-day transactions. For example, the old data about the purchase transactions made by customers at a modern supermarkets. Keeping this kind of data in a regular database will make it very huge and then slower performance. For those reasons the historical data and nonevery-day transactions should be archived in a data warehouse for data mining purposes.

The ways of designing data warehousing and regular databases are different. Data warehousing design depends on a dimensional modeling techniques and a regular database design depends on an Entity Relationship model. Data Mining (DM) is a combination of Database and Artificial Intelligent used to provide useful information to both technical and non-technical users which will help them to make better decisions. It is usually used as a decision support system.

Data Mining (DM) is not an easy process. It has several feedback and sometimes the whole process needs to be repeated. For that reason the data mining process is considered as an iterative process.

It involves six phases:

- 1) problem definition, 2) data preparation, 3) data exploration 4) modeling
- 5) evaluation 6) deployment

DATA, INFORMATION AND KNOWLEDGE

- **Data:** facts or description. Numbers and texts are considered data. Computers take data as an input. There are different formats of data which can be processed by computers: operational, non-operational and Meta data.
- **Information:** It can be provided by having relationship or association among data. Computers process data into information

- Knowledge: useful patterns or relationship between historical and future information. For example, historical sales information with information about customers can provide knowledge of customer's buying behavior.

DATA WAREHOUSING

To get accurate results from data mining process, current and historical data should be available for the process but keeping the historical data in a regular database would cause a negative effect on the database itself. Usually old data is not used for everyday transactions but it is used for the data mining and reporting issues. Storing historical data in everyday database will cause a huge increase of its size which leads to a slower performance. A good practice is to move the old data from different sources and integrate the whole in another repository called data warehouse [12]. Moving the data from operational databases to a data warehouse involves three steps: 1) cleaning, 2) transformation, and 3) integration.

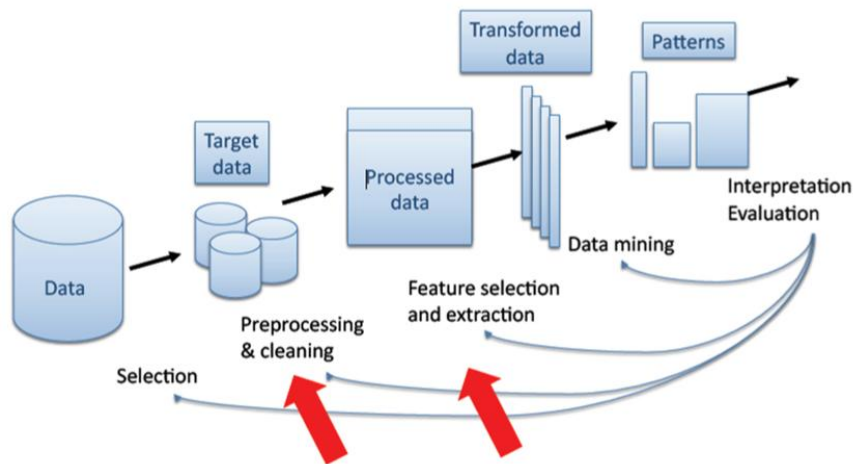
Data warehouse has more than one definitions. The most common one is defined by Bill Inmon who defined it as the following : “A data warehouse is a subject-oriented, integrated, time-variant and non-volatile collection of data in support of management's decision making process” [1]. As defined , any data warehouse (DW) should have the following characteristics

- subject-oriented: DW can be used to analyze any subject.
- integrated: DW integrates current and historical data from different sources.
- time-variant: DW keeps historical data of different time.
- non-volatile collection of data: content of DW should not be changed. It is historical data.

DATA MINING

Data Mining (DM) is a combination of Database and Artificial Intelligent used to extract useful information from huge amount of datasets to help the users to make better decisions. It is usually used as a decision support system.

- A. Data Mining Usage Having enormous volume of data, makes it very difficult for human to analyze and get useful information. This causes the importance of using Data Mining techniques. DM is used in different areas to help to extract useful information then make better decisions. For example, DM can be used for marketing purposes. It can help by giving useful information about the best media and time to publish an advertisement which would help to increase the sales of a product. DM techniques (e.g. association analysis) check all the historical related marketing data and compare the sales to provide informative reports to be used by the decision makers then increase the future sales [The most common use of data mining is the web mining As terabytes of data added every day in the internet , makes it necessary to find a better way to analyze the web sites and to extract useful information.
- B. Data Mining Process Data mining process is not an easy process. It is complicated and has feedback loops which make it an iterative process. Figure 1 [7] shows the steps of data mining process. It also shows that the steps might be repeated and sometimes it is possible to restart the entire process from the beginning. Actually , the data mining process involves six steps: (1) Problem definition, (2) Data Preparation, (3) Data Exploration, (4) Modeling, (5) Evaluation, and (6) Deployment.



C) Explanation/Discussion of Model

1) Data Mining Process - Goal “The Data Mining process is not a simple function, as it often involves a variety of feedback loops since while applying a particular technique, the user may determine that the selected data is of poor quality or that the applied techniques did not produce the results of the expected quality. In such cases, the user has to repeat and refine earlier steps, possibly even restarting the entire process from the beginning.

2) Problem Definition “A data-mining project starts with the understanding of the business problem. Data mining experts, business experts, and domain experts work closely together to define the project objectives and the requirements from a business perspective. The project objective is then translated into a data mining problem definition. In the problem definition phase, data mining tools are not yet required

3) Data Exploration “Domain experts understand the meaning of the metadata. They collect, describe, and explore the data. They also identify quality problems of the data. A frequent exchange with the data mining experts and the business experts from the problem definition phase is vital. In the data exploration phase, traditional data analysis tools, for example, statistics are used to explore the data.

4) Data Preparation “Domain experts build the data model for the modeling process. They collect, cleanse, and format the data because some of the mining functions accept data only in a certain format. They also create new derived attributes, for example, an average value. In the data preparation phase, data is tweaked multiple times in no prescribed order.

5) Modeling “Data mining experts select and apply various mining functions because you can use different mining functions for the same type of data mining problem. Some of the mining functions require specific data types. The data mining experts must assess each model. In the modeling phase, a frequent exchange with the domain experts from the data preparation phase is required. [7] p. 3” After completing the data exploration and preparation phases, data mining experts can start the modeling phase by selecting modeling techniques and defining the columns of data needed to build a mining structure and then the mining models [10]. The developed model should meet the expectation.

6) Deployment “Deployment : Data mining experts use the mining results by exporting the results into database tables or into other applications, for example, spreadsheets. The Intelligent

Miner™ products assist you to follow this process. You can apply the functions of the Intelligent Miner products independently, iteratively, or in combination.

A. Operational Database

1) Functions of the System

The main functions that are done by this system are :

- Students can make requests in order to get their items repaired.
- The requests given by the students will go to an employee who is responsible to receive the requests
- Student can know the price for the repair work done and the status of his/her repair request.
- Employees can list all the new requests .
- Employees can show the status of the repairing process.
- Employees can update the repairing information.

2) Brief

As the data of a university housing has to be maintained in a finite order, it is better to take a help provided by a database, due to which the dealing with the information becomes very simple. Also having a database for the Housing Department helps to make the work more efficient. One of the most important things that the Housing Department should provide in a timely manner is to fix any problem or damage that may happen. So, having the database can speed up the process. Students can make requests by filling an electronic form with some necessary information to store in the database. Then the employee who is responsible to receive the repairing requests from the students will receive the requested information. When the workers are done from the work, the database should be updated by providing all the information which is related to repairing process.

CONCLUSION Nowadays we have enormous volume of data which lead to the necessity of using data warehousing and data mining. Data warehouse is used as a central store of a subjectoriented, integrated, time-variant and non-volatile collection of data from different sources (operational databases) . For faster performance, data warehousing organizes data in a different architecture – fact table and dimension tables For that reason modeling the data warehouse is unlike modeling the operational database. A dimensional modeling is used to model the data warehouse (star schema, snowflake schema, or galaxy schema) but the operational database uses entity relationships diagram Data mining has become an important tool which can extract useful information from the huge amount of data we have nowadays. It also may help to extract information from the Internet which becomes part of our life. It is a complicated process. It involves six phases:

- (1) Problem definition,
- (2) Data Preparation,
- (3) Data Exploration,
- (4) Modeling,
- (5) Evaluation,
- (6) Deployment

It is an iterative process which includes feedbacks between the phases and sometimes needs to repeat the entire process from the beginning. The iterations are needed in the mining process in order to provide better answers which will be used by the users to make better decisions.

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SYNTHESIS AND CHARACTERIZATION OF GaInSb SUBSTRATES FOR FABRICATION OF BORON IMPLANTED P-N JUNCTION DIODE: GROWTH BY VERTICAL DIRECTIONAL SOLIDIFICATION TECHNIQUE

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Abstract

A bulk semiconductor crystal of Gallium Indium Antimonide ($Ga_{0.7}In_{0.3}Sb$) have grown using vertical directional solidification (VDS) technique and polished wafer was characterized by X ray analysis, EDAX, FTIR and Hall effect measurements. The substrate was found n-type with carrier concentration of $6.8 \times 10^{16} \text{ cm}^{-3}$, mobility of $4410 \text{ cm}^2/\text{Volt sec}$, and band gap of 0.539 eV at 27°C . The p-n junction has formed on this substrate by implanting boron ions with energy of 100 KeV and dose of 10^{17} cm^{-3} . The dark I-V characteristics of p-n junction at 273°K , and 173°K have been presented in this paper. The diodes fabricated on $Ga_{0.7}In_{0.3}Sb$ substrate exhibits large leakage current and low reverse breakdown voltage.

Keywords: GaInSb, Bulk crystal growth, Indium segregation, Boron implantation, VDS technique.

Introduction:

GaInSb is well known III-V ternary semiconductor material useful for thermo photovoltaic (TPV) device, infrared laser and sensors in infrared region, since the band gap can be varied from wide range by varying Indium content [1]. However, the growth of GaInSb bulk single crystal using conventional growth techniques is more difficult due to large separation of liquids and solidus lines in phase diagram, which leads to segregation and constitutional supercooling. The continuous segregation Indium results in multi phasing and micro cracks in crystals [2, 3]. The bulk crystal growth of binary and ternary substrate using vertical directional solidification (VDS) technique and fabrication of p-n junction diode using different techniques have been reported in literature [4,6,7]. For p-n junction diode fabricated on GaInSb ternary semiconductor substrate exhibits large leakage current and low reverse breakdown voltage.

Experimental:

Synthesis of $Ga_{0.7}In_{0.3}Sb$ substrate:

The bulk crystals of $Ga_{0.7}In_{0.3}Sb$ have been grown using indigently designed vertical directional solidification (VDS) technique [5]. The granules of 4N grade Gallium (Ga) Indium (In) and Antimony (Sb) were taken in stoichiometric proportion and sealed in a quartz ampoule, with cone angle 30° , under Argon atmosphere at pressure of 150 Torr. To achieve homogenous mixing, sealed ampoule was kept at 850°C for 15 hours. To avoid the segregation and constitutional super cooling, coupled mechanical vibrations with frequency from 50 Hz and amplitude of 0.05 mm were applied during the growth. The ampoule lowering rate was kept 5mm/hour. The as grown ingot (Fig.1) was sliced by using low speed diamond coated cutter and wafers of thickness 0.5 mm were formed. For the characterization purpose, wafers were mirror polished by Alumina powder of size $0.05 \mu\text{m}$ and diamond paste. Before implantation, the polished wafers were etched by selective CP_4 chemical etchant and cleaned by deionized water.

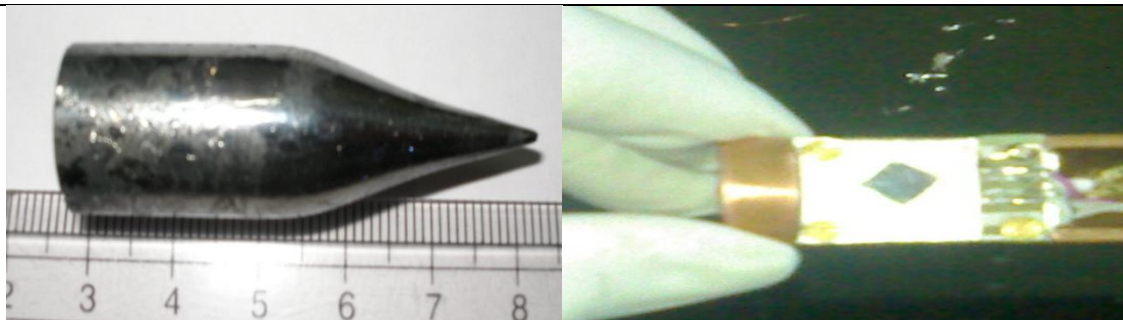


Fig.1. As grown Ingot of Ga_{0.7}In_{0.3}Sb Fig.2 Substrate mounted on cold tip for low temperature Hall measurement

Fabrication of diode and ohmic contacts: The p-n junction was formed on etched wafer by implanting boron ions with energy of 100 KeV, dose of 10^{17} cm⁻³ and beam diameter of 3 mm. The ion implantation was carried out at the IUAC New Delhi, India. The ohmic contacts were made by depositing thin film of aluminum on implanted and non-implanted area of substrate. The deposition of aluminum is done using HINDHIVAC BC-300 vacuum evaporation system at 10^{-5} Torr pressure. The diameter of aluminum film was 1mm and thickness of 2 μ m. To remove the mechanical stresses at aluminum contact and implanted region, sample was annealed at 200 °C for 20 minutes under Argon atmosphere. For connection purpose, copper wires of 10 μ m diameter were soldered on aluminum layer on p and n region of substrate using indium. The schematic diagram of substrate and ohmic contact is shown in fig.3.

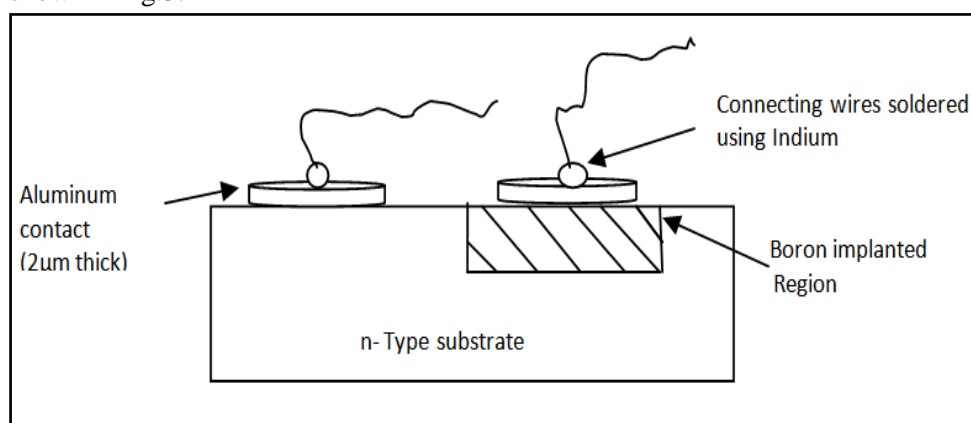
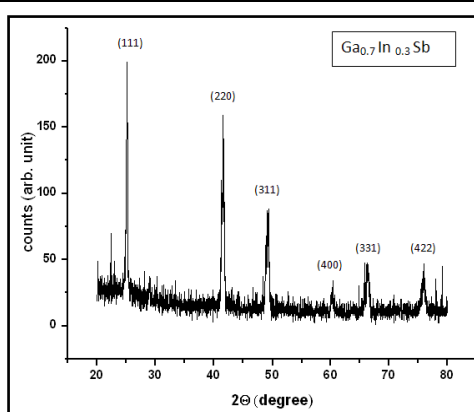
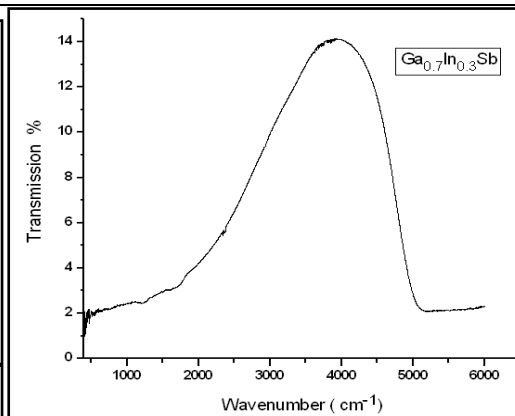


Fig.3. Schematic diagram of substrate and ohmic contact.

Results and discussion:

The composition analysis of substrate using EDAX (Model: FEI Quanta 200 ESEM system) confirmed relative atomic percentage of Ga_{0.7}In_{0.3}Sb. The powder X-ray spectra (fig.4) revealed cubic zinc blende structure with lattice constant of 6.213Å⁰. The FTIR study using Perkin Elmer Spectrum-2 model showed the band edge with band gap of 0.549 eV (fig. 5).

Fig.4. Powder X-Ray of $\text{Ga}_{0.7}\text{In}_{0.3}\text{Sb}$ Fig.5 FTIR spectra of $\text{Ga}_{0.7}\text{In}_{0.3}\text{Sb}$

The electric measurements of $\text{Ga}_{0.7}\text{In}_{0.3}\text{Sb}$ substrate using Hall and four probe measurement at 27 °C shown n -type conductivity with carrier concentration of $6.8 \times 10^{17} \text{ cm}^{-3}$, sheet resistivity of 0.0026 ohm- cm and mobility of 4410 $\text{cm}^2/\text{V sec}$. The measurement of I-V characteristics (fig.6) of p-n junction at 273°K, and 173°K was carried out in dark conduction. The current and voltage was measured using Testronix -8 digital meter. The low temperature measurements were carried out using indigenously designed liquid nitrogen immersed cold tip (fig.2). From forward bias I-V measurement at 273 °K, it is found that turn-on voltage is around 0.24 V and breakdown voltage of junction is around 3.5 volts with large reverse leakage current. This large reverse current might be due to large defect levels present in band gap. From forward bias I-V measurement at 173 °K, the forward turn-on voltage increases to 0.35V and reverse break down voltage of increases to 4.5 V with significant decrease in reverse leakage current. The increase in reverse saturation current with temperature shows the generation of thermally excited carriers in depletion region. The low value of reverse break down voltage is due to low resistivity and high doping concentration of n and p regions, which may lead to tunneling of carriers across the junction.

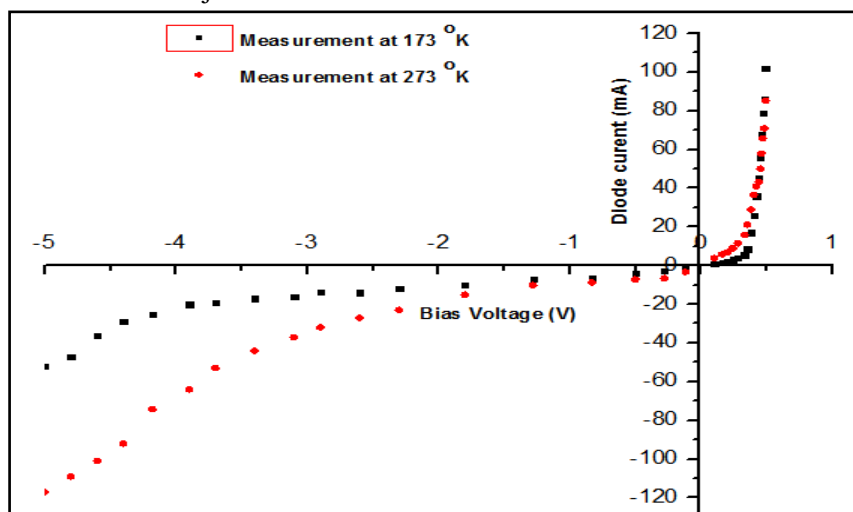


Fig.6. I-V characteristics of p-n junction under dark condition.

Conclusions:

In conclusion, we have demonstrated the applicability of VDS technique for crystal growth of ternary $\text{Ga}_{0.7}\text{In}_{0.3}\text{Sb}$ semiconductor substrates. The diodes fabricated on $\text{Ga}_{0.7}\text{In}_{0.3}\text{Sb}$ substrate exhibits large value of reverse leakage current and low reverse breakdown voltage in the range of 3 to 4.5 volt. The synthesis of defect free substrate of GaInSb material having high resistivity and low doping

concentration essential for high value of reverse break down voltage with less leakage current at room temperature is still remains technological challenge.

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TO STUDY THE IMPACT OF CERTAIN EXTERNAL CONDITIONS ON SEED GERMINATION IN CICER ARIETINUM. (CHICKPEAS SEEDS)

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Abstract

Aqueous extract of spinach leaves and prawns of 1%, 5%, 10% and 20% (w/v) was treated to Cicer arietinum seeds was studied. Treated seeds show late germination, decreased rate of germination percentage, less radicle length and no plumule formation. Beginning of germination delayed more by prawn extract treatment than spinach leaves extract treatment. Prawn extract treatment is more adverse in terms of radicle growth during germination than spinach leaves extract treatment to seeds of Cicer arietinum. There is no plumule formation takes place in both treated seeds during germination. The adverse effect of spinach leaves extract treatment and prawn extract goes on increasing with the concentration extracts.

INTRODUCTION-

Cicer arietinum (Chickpeas) of family fabaceae commonly called as chickpea, gram, Bengal gram, garbanzo, chana, Herbjar, Egyptian pea.

Cited from [http:// en.wikipedia.org/wiki/Cicer arietinum](http://en.wikipedia.org/wiki/Cicer_arietinum), Chick pea is originated in south-East Asia. It is widely utilized in Indian cuisine. Chickpeas are also popular in the Iberian Peninsula. It serves as an energy and protein source as animal feed. Chickpeas are a nutrient-dense food, providing rich content of protein, dietary fiber, folate and certain dietary minerals such as iron and phosphorus.

It has higher protein Digestibility corrected Amino acid score than many other legume and cereals.

Compared to reference levels established by the United Nations food and Agricultural organization and world Health organization, proteins in cooked and germinated chickpeas are rich in essential amino acids such as lysine, isoleucine, tryptophan and total aromatic amino acid. Therefore, the Cicer arietinum is selected for present study.

The germination is one of vital process in plant physiology. According to Raven et.al (2005), seed germination depends upon internal and external conditions. In present study an attempt is made to study the impact of certain external conditions on seed germination in Cicer arietinum (chickpea). Vegetable extract of spinach leaves and non vegetable extract of prawn extract are used as external factors to observe effect on seed germination of Cicer arietinum.

MATERIAL AND METHODS-

Cicer arietinum (Chick pea) seeds are selected for present study. Two sets of petri plates with blotting filter paper at base are taken. 10 seeds of Cicer arietinum are placed in each petridish. Adequate distilled water is applied to first petridish as control. Treated petridishes are applied quantity of 1% (wt/volume) 5%, 10%, and 20% aqueous extract of spinach leaves. The experiment is repeated as it is for second time. The observations of both experiments are considered as average.

Similarly, apply 1%, 5%, 10% and 20% aqueous extract of dried prawns to 2 replicas of 4 petridishes with 10 seeds of Chick peas each. The control reference kept common.

The germination of seeds is treated as one of the important criteria to study the impact of vegetable extract and non vegetable extract on black gram. From day one of experiment up to 10th day, the number of seeds (out of 10) underwent germination were observed. Similarly the radicle length is also treated as another parameter for study of treated and control seeds germination. Average plumule length formation on 10th day of germination is considered as another mean to find impact of vegetable extract and non-vegetable extract on seed germination process in Chickpeas.

RESULTS AND CONCLUSION-

Table I-A Effect of spinach leaves extract on emergence of seeds of Cicer arietinum.

Treatment (spinach leaves extract)	Number of seed Germination Per day/s.									
	1 st day	2 nd day	3 rd day	4 th day	5 th day	6 th day	7 th day	8 th day	9 th day	10 th day
Control	0	1	3	3	3	4	4	6	6	8
1%	0	0	5	5	6	7	7	7	7	7
5%	0	0	5	5	5	5	5	6	6	6
10%	0	0	2	3	4	5	5	5	5	5
20%	0	0	2	3	3	3	3	3	3	3

Table I-B-Effect of spinach leaves (vegetable) extract on germination percentage in seeds of Cicer arietinum.

Treatment (spinach leaves extract)	Germination percentage Per day/s.									
	1 st day	2 nd day	3 rd day	4 th day	5 th day	6 th day	7 th day	8 th day	9 th day	10 th day
Control	0	10	30	30	30	40	40	60	60	80
1%	0	0	50	50	60	70	70	70	70	70
5%	0	0	50	50	50	50	50	60	60	60
10%	0	0	20	30	40	50	50	50	50	50
20%	0	0	20	30	30	30	30	30	30	30

Table I-C Effect of spinach leaves extract on radicle (root) length in Cicer arietinum.

Treatment (Spinach Leaves Extract)	Average radicle length in cm on 10 th day of treatment.
Control	1.20 cm
1%	0.80 cm
5%	0.3 cm
10%	0.1 cm
20%	0 cm

Table I-D Effect of vegetable extract (Spinach leaves extract) on plumule (shoot) length during seed germination of Cicer arietinum.

Treatment (spinach Leaves Extract)	Average plumule (shoot) length in cm on 10 th day of germination
Control	1.10
1%	-
5%	-
10%	-
20%	-

Table I-A, I-B, I-C and I-D shows germination of Chickpea seeds from day one to day 10 in control and spinach extract treated seed germination at 1%, 5%, 10%, and 20% concentration, average radicle length and average plumule length on 10th day of experiment.

From table I-A it is clear that the germination started on second day in control and in 1%, 5%, 10% and 20% spinach extract treatment, the germination started on third day. It means the spinach extract treatment shows late germination. It delays the seed germination in *Cicer arietinum*.

The seed germination percentage from first day to tenth day is also seen in Table I-B in Chickpea seeds under controlled and treated conditions. It is observed that seed germination is 60% in control eight day of germination. In 1% spinach treatment, it is 70% of germination while in 5% spinach treatment and 10% spinach treatment and in 20% spinach treatment it is 60%, 50%, and 30% percent in eight day of germination. The 20% spinach treated seed of *Cicer arietinum* shows very less percentage of germination. It shows the rate of germination is more in control while rate of germination % is less in spinach leaves extract treated seeds in *Cicer arietinum*. The rate of germination percentage goes on decreasing as the concentration of spinach leaves extract treatment goes on increasing.

The Table I-B shows the 80% seed germination in control seeds of chickpeas on tenth day while 70%, 60%, 50% and 30% seed germination rate in 1%, 5%, 10% and 20% spinach leaves extract treated seeds respectively. It means the rate of seed germination is less in spinach leaves extract treated leaves as compared to control.

From the Table I-C it is clear that average radicle length is 1.20 cm in 1% spinach leaves treated seeds it is 0.80 cm, and it is 0.3 cm, 0.1 cm and 0 cm in 5%, 10% and 20% spinach leaves extract treated seeds of *Cicer arietinum* respectively. It is clear from these observations that average radicle length is affected due to spinach leaves extract treatment. The effect goes on increasing as the concentration of spinach leaves extract also goes on increasing.

The shoot length i.e. plumule length of control and treated seeds during germination on 10th day of treatment is shown in Table I-D. It is observed that the plumule formation is only seen in control seeds of *Cicer arietinum* as compared to Spinach leaves extract treated seeds. It means the treatment of spinach leaves extract shows adverse effect on the plumule formation during germination in *Cicer arietinum*.

Table II-A Effect of prawn extract on emergence of seeds of *Cicer arietinum*.

Treatment (Prawn Extract)	Number of seed/s Germination Per day.									
	1 st day	2 nd day	3 rd day	4 th day	5 th day	6 th day	7 th day	8 th day	9 th day	10 th day
Control	0	3	5	6	6	7	8	10	10	10
1%	0	0	2	2	3	3	4	4	5	5
5%	0	0	2	2	2	3	3	3	3	3
10%	0	0	0	0	1	1	1	1	1	1
20%	0	0	0	0	0	0	1	1	1	1

The Table II-A shows the effect of prawn extract on seed germination in *Cicer arietinum*. It is seen from observation that the seed germination started in control seeds on second day of experiment. The seed germination started on 3rd day of treatment in 1% prawn extract treatment. In 5% extract treated seeds, the seed germination started on 5th day of treatment. In 20% prawn extract treated seeds, the seed germination is affected due to the treatment of prawn extract and it is delayed and started on 7th day of treatment. It means the beginning of seed germination is affected due to the treatment of prawn extract. It is further added that the delay in beginning of seed goes on decreasing as the

concentration of prawn extract treatment goes on decreasing as the concentration of prawn extract treatment goes increasing.

Table II-B Effect of prawn Extract on germination percentage of seeds of Cicer arietinum.

Treatment (Prawn Extract)	Number of seed/s Germination Per day.									
	1 st day	2 nd day	3 rd day	4 th day	5 th day	6 th day	7 th day	8 th day	9 th day	10 th day
Control	0	30	50	60	60	70	80	10	100	100
1%	0	0	20	20	30	30	40	40	50	50
5%	0	0	20	20	20	30	30	30	30	30
10%	0	0	0	0	10	10	10	10	10	10
20%	0	0	0	0	0	0	10	10	10	10

Table II-B Shows the effect of percentage of concentration of prawn extract on seed germination in Cicer arietinum. From these observations, it is clear that the seed germination percentage goes on increasing from 1st to 10th day of germination in control seeds. It is 100% rate of germination on 8th day of treatment. The rate of germination only 50% in 1% prawn extract treated seeds on 10th day. It is 30%, 10% and 10% rate of seeds germination in 5%, 10% and 20% prawn extract treated seeds on 10th day of treatment. 20% prawn extract treatment shows very less percentage of germination. It means the rate of seed germination is affected by prawn extract treatment in Cicer arietinum. The effect goes on adverse as the concentration of prawn extract goes on increasing.

Table II-C Effect of prawn extract on radicle (root) length in Cicer arietinum.

Treatment (Prawn Extract)	Average radicle (root) length in cm on 10 th day of treatment.
Control	1.10 cm
1%	0.8 cm
5%	0.5 cm
10%	0.3 cm
20%	-

Table-II-C shows the average radicle length of seeds in Cicer arietinum on 10th day of germination in control and prawn extract treated seeds. It is clear from Table II-C that the average root length (radicle) is 1.10 cm in control seeds as on 10th day of germination. It is 0.8 cm, 0.5cm and 0.3 cm in 1%, 5%, 10% prawn extract treated seeds while there is no radicle formation in 20% prawn extract seeds. It indicates the prawn extract treatment has adverse effect on radicle length in seeds of Cicer arietinum. The adverse effect of prawn extract treatment goes on increasing as the concentration of prawn extract treatment goes on increasing from 1% to 20%.

Table II-D Effect of prawn extract on plumule (shoot) length during seed germination of Cicer arietinum.

Treatment (Prawn Extract)	Average radicle (shoot) length in cm on 10 th day of treatment.
Control	1.09 cm
1%	-
5%	-
10%	-
20%	-

Table II-D Shows effect of prawn extract treatment on plumule (shoot) formation in seeds of Cicer arietinum. It is clear from Table II-D that the length of plumule is 1.09 cm in control seeds. There is no plumule formation in 1%, 5%, 10% and 20% prawn extract treated seeds. It means there is inhibiting effect of prawn extract treatment on plumule formation in Cicer arietinum. When observation of Table I-A and Table II-A are compared, it is found that seed germination begin on 2nd

day in control of *Cicer arietinum*. The 1% spinach leaves extract treated seed shows beginning of germination on 2nd day while 1% prawn extract treated seeds shows beginning of germination on 3rd day of treatment. However in 1%, 5%, 10% and 20% prawn extract treated seeds of *Cicer arietinum* show beginning of germination on 3rd, 3rd, 5th and 7th day respectively. It means beginning of germination delayed more by prawn extract treatment than the spinach leaves extract treatment on seeds of *Cicer arietinum*.

Comparative account of Table I-B and Table II-B Shows that germination percentage of control seeds of *Cicer arietinum* is about 100% on 10th day of treatment. While it is 70%, 60%, 50% and 30% in 1%, 5%, 10% and 20% spinach extract treated seeds. It is 100% in control seeds of *Cicer arietinum* and 50%, 30%, 10% and 10% in prawn extract treated seeds. It means seed germination percentage is more affected by prawn extract treatment than spinach leaves extract treatment.

From Table I-C and Table II-C, it is observed that the radicle length is maximum i.e. 1.20 cm in control seeds of *Cicer arietinum*. The length of radicle is 0.80cm, 0.3cm, 0.1 cm and zero cm in 1%, 5%, 10% and 20% Spinach leaves extract treated seeds during germination on 10th day of treatment. The length of radicle is 0.8cm, 0.5cm, 0.3cm and zero cm in 1%, 5%, 10%, 20% prawn extract treatment. It means prawn extract treatment is more adverse in terms of radicle growth during germination than spinach leaves extract in seeds of *Cicer arietinum*.

Table I-D and Table II-D comparative account shows that shoot formation in control, however, there is no shoot (plumule) formation in either spinach leaves extract treatment affect the plumule (shoot) formation.

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An experiment was conducted to determine the effect of some indigenous plant extracts on the germination of wheat seeds. This study showed that the seeds treated with plant materials did not adversely affect the seed germination.

Asian Journal of plant Sciences

E.A.Grant, W.G.Sallans

In this paper the effect of aqueous extracts of different herbal plant leaves on the germination of selected vegetables are studied. A significant effect of aqueous extracts was found on the germination of vegetables throughout the growing period. In Turnip and Ladies finger it found to be maximum.

In this paper the effect of Banana plant extracts revealed a significant inhibition on seed germination and seedling growth of lettuce and the degree of inhibition increases with the increase of extract concentration.

In this research, the percent reduction in seed borne infection of target pathogenic fungi recorded in mungbean seeds were treated with five different treatments. All treatments were found to significantly reduce the occurrences of seed borne fungi but did not completely control them. Plant extracts have played a significant role in the inhibition of seed borne pathogens such as *fusarium oxysporum* and in the improvement of seed quality and emergence of seed embryo.

Izzet Kadioglu and Yusuf Yanar

June 1964, contribution No.129, Reaserch station Canada

Rhizome extract strongly delayed and inhibited the germination of lettuce.

Rishi P. Singh, K. Raja Reddy, in *Advances in Agronomy*, 2015.

Seeds of four legumes and four grasses were germinated in the presence of aqueous extracts of the same species, using distilled water as a check. Based on the number of significant reaction to the extracts, the species may be classified in the following order of decreasing inhibition-Alfalfa and timothy were the species least affected by the extracts while reed canary grass was the most susceptible.

The effect of vermicompost of *Salvinia*, *Eichhornia*, *Chromolaena* and *Parthenium* on percentage of seed germination, shoot and root length and wet and dry weight of wheat are measured. Regarding that it has concluded that, the lower concentration of vermicompost extract enhances the root length, shoot length, number of roots and wet and dry weights of seedlings in all the wheat seeds tested.

The paper gives an overview of approaches that have been taken to utilize the non-chemical methods for control of important seed borne pathogens of vegetables and small grain cereals. The treated plants include bacterial fungal diseases and viral diseases, which can be controlled in seeds.

The result of the present investigation showed that, seed treatment with different physical, chemicals, biological and botanical agents especially Biofungicide, allamonda leaf extracts, neem leaf extracts and Chitosan solution is useful to prevent germination failure to produce healthy, disease free and morphologically strong seedling and to promote production of vigorous seedling

This research shows the treatment technology in which it revealed that by using specific products and specific techniques can improve the growth environment for the seed, seedling and young plant. The seed is dressed with either a dry formulation of the seed treatment chemicals

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With the exception of alfalfa, extracts of aerial portions of the plants had greater inhibitory effects than root extracts.

Similarly, an attempt is made to study the impact of certain external conditions on seed germination of *Cicer arietinum*

CONCLUSION-

Aqueous extract of spinach leaves and prawns of 1%,5%,10% and 20%(w/v) was treated to *Cicer arietinum* seeds was studied. Treated seeds show late germination, decreased rate of germination percentage, less radicle length and no plumule formation. Beginning of germination delayed more by prawn extract treatment than spinach leaves extract treatment. Seed germination percentage is more affected by prawn extract treatment than spinach leaves extract treatment. Prawn extract treatment is more adverse in terms of radicle growth during germination than spinach leaves extract treatment to seeds of *Cicer arietinum*. There is no plumule formation takes place in both treated seeds during germination. The adverse effect of spinach leaves extract treatment and prawn extract goes on increasing with increasing the concentration extracts.

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TO STUDY VEGETABLE EXTRACT TREATMENT AND NON VEGETABLE EXTRACT TREATMENT ON INITIAL LIVING PROCESS OF PISUM SATIVUM (GREEN SEEDS)

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Abstract

To study the seed germination of *Pisum sativum* (green pea) under the aqueous extract of plant and animal origin of 1%, 5%, 10% 20% Concentration are used. The germination of seeds per day percentage of germination, average radical length and average plumule length in cm are parameters under study. The germination is more in control than treated seeds. Either plant extract or animal extract treatment is non stimulating and harmful to germination process in general. The effect of animal extract is very harmful than the plant extract treatment. Seed germination percentage is more in control than treatment. The seed germination percentage is more affected in aqueous extract of animal origin than plant origin. In both the treatment as the concentration increases, the maximum adverse effect is seen at 20% concentration of aqueous extract of animal origin average radical length is affected due to the treatment. The treatment of aqueous extract of prawn is more destructive than the aqueous extract of spinach. There is adverse effect of aqueous extract of plant origin (spinach) and prawn on average plumule growth of *Pisum sativum* seeds. Amongst the both treatment, aqueous extract of plant origin (spinach) shows less harmful.

INTRODUCTION-

Pisum sativum belongs to family fabaceae. It is annual plant. It is most common vegetable plant. It bears seed pods. The seeds are either yellow or green.

Pisum sativum seed are having great nutritional values. According to Jegtvig (2007), peas contain high fibers, proteins, vitamins A, vit B₆, Vit C, Vitamin k; Phosphorous, Magnesium, Copper, Iron, Zinc and Pea dry weight contain about one quarter Protein and one quarter sugar.

Pisum sativum seeds are having great medicinal values according to Pownall et. al (2010) amino acid composition and antioxidants properties of pea seed are noteworthy [2]. Pea seed peptide fractions have less ability to scavenge free radicals than glutathione. But greater ability to chelate metals and inhibits Linoleic acid oxidation. Slanc et.al (2009) screened selected food and medicinal plant extracts for pancreatic Lipase inhibition. They observed the vital role of pea for pancreatic lipase inhibition [3].

Pisum sativum seeds are having role in overcoming certain allergy. Sanchez et.al (2004) found that Visilin and Convicilin are potentially major allergens extracted from pea [4].

Pisum sativum plant has root nodules of *Rhizobium* Nitrogen fixing bacteria. Postage (1998), mentioned significant role of pea plants in biological nitrogen fixation [5]. Oelke (1991), Kalka (2005) [10] and Sonil (2000) [6] also learned the significance role of pulses, especially *Pisum sativum* plant in symbiotic nitrogen fixation as well, as in nutritional vegetable.

Pisum sativum seed can be preserved for longer duration to make it available at any season. The frozen seeds of *Pisum sativum* are great source of vegetable in any corner of life. Er. el also learned and proven with scientific methodology by Sivasankar (2002) [7].

Being nutrition source as vegetable, major part as food, better nutritional values in seeds, medicinal values and better preservation shelf life of pea i.e *Pisum sativum* leads to study the seeds

germination of *Pisum Sativum* under the aqueous solution of plant and animal origin.

The extracts of *Pisum sativum* have been investigated and found to be pharmacologically active inducing anticancer activity. Clemente et al.[25,33] compared the effect of Bowman-Birk trypsin-chymotrypsin inhibitor, a potential cancer chemopreventive agent.

Peas, like many legumes contain symbiotic bacteria called *Rhizobium* within 2001 nodules of their root system. Bacteria have special ability of fixing nitrogen from atmospheric molecular nitrogen (Biological Science [26]).

According to Marinangeli et. Al in pea's high content of sugar present due to this it may mediate the glycaemic response and affects diabetic patients Dr advise not to use [27]. The effect of pea intake human gastrointestinal function symptom studied show that it increase the bowel movement frequency [28].

However, there are no scientific studies on the influence of aqueous extract of plant origin and animal origin of varying concentration on seed germination in Gram seed. Miransari and Smith (2014) said that seed germination is an important process affecting crop production, and is influence by range of factors, including enzymes and hormones [13]. Seed germination is simple and non destructive technique for measuring plant biochemical growth and development (Wood and Roper 2000). Therefore seed germination, germination percentage, radical length and plumule length are consider for understudy .

In Green pea the number of seed germinate per day, germination percentage of seed, radical length and plumule length on 10th day are the parameters consider to study

The treated petri dishes (6th, 7th, 8th and 9th) with 10 seeds of Pea each treated with adequate amount of aqueous extract of prawn of 1%, 5%, 10% and 20% for 10 days to study the seed germination of Green pea .The germinate per day, germination percentage of seed and plumule length on 10th day of treatment are parameters consider for study.

The entire process repeated for next 10 days. The observation is taken as an average of both the replicas.

MATERIAL AND METHOD

Green pea are collected, place ten each set of 9 Petri dishes. Each Petri dish is placed with normal blotting paper at bottom. First Petri dish is treated as control. It is poured with adequate distill water daily. Next four petri dish are treated with adequate amount of aqueous extract of plant (spinach leaves) remaining four petri dish are poured and treated with adequate amount of aqueous extract of animal origin (dried prawn). The control and treated petri dishes with 10 each Gram seed are under 10 day's observation. It was to study the seed germination of Gram seed under the aqueous extract of plant and animal origin.

For aqueous extract of plant origin preparation weight to volume ratio is consider for 1% aqueous extract of plant origin, 1gm fresh spinach leaves homogenized with 100 ml distill water. The content is filter through the normal filter paper. The filtrate is used as 1% aqueous extract of plant origin, similarly 5%, 10% and 20% aqueous extract of plant origin is prepared daily freshly. Thus 1%, 5%, 10% and (w/v) concentrated aqueous extract of plant origin is prepared.

For aqueous extract of animal origin preparation, weight to volume ratio is considered for 1% aqueous extract of animal origin, 1 gm of dried prawn homogenized with 100 ml distill water. The content is filter through normal filter paper. The filtrate is used as 1% aqueous extract of animal origin. Similarly 5%, 10% and 20% aqueous extract of animal origin prepared daily freshly. Thus 1%, 5%, 10% and 20% (w/v) concentrated aqueous extract of plant origin is prepared

The treated petri dish of Green pea treaded with aqueous extract plant origin and of 1%, 5%, 10% and 20% for 10 days to observe seed germination of Gram seed.

RESULT AND DISCUSSION:

Table 1. Number of seed germination 1 day of Pisum sativum (green seeds) due to treatment of aqueous extract of plant and animal origin.

Petri dish Number	Treatment		Number of seed germination/ day.									
			Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
1	Control	1	0	0	3	3	5	6	6	7	6	6
2.	Spinach Extract	1%	0	0	0	3	3	5	4	4	5	5
3.		5%	0	0	0	0	2	3	3	2	2	2
4.		10%	0	0	0	0	0	0	0	0	0	0
5.		20%	0	0	0	0	0	0	0	0	0	0
6.	Control	2	0	0	1	1	2	5	4	5	4	4
7.	Prawn Extract	1%	0	1	1	2	2	0	0	0	0	0
8.		5%	0	0	1	1	1	1	0	0	0	0
9.		10%	0	2	1	1	1	1	0	0	0	0
10.		20%	0	2	1	1	1	1	0	0	0	0

From Table-1, it is clear that the germination of seeds of P. sativum (green seeds) starts on second day in control. There is no germination in 1% of plant extract and there is germination on animal extract. Germination of seed increases on day to 10th day. Maximum germination of nine seeds on 10th day in control as well as 1%, 15% and 10% respectively the 20% animal extract (prawn extract) treated seeds not shows any germination even on 10th day. In 5%, 10%, 20% plant extract treated seed germination is less as compare to the control. Similarly in 5%, 10% prawn extract treated seeds the germination of seeds is very less. It is almost non-significance.

From Table-1 it is clear that the number of seeds germination third to nine days in control and 1% plant extract treated seeds that 1% plant extract shows more germination than control seed. It may conclude that 1% plant extract stimulates the germination in Pisum Sativum seed.

The overall conclusion from discussion is to draw as the germination of seed of Pisum sativum (green pea) is more in control than treated seed. It means either plant extract treatment or animal extract treatment is non stimulating and harmful to germination process, except the 1% plant extract. The effect of animal extract is very harmful than the plant extract treatment.

Table-2. Seed germination percentage of Pisum sativum after treatment of.

Petridish no	Treatment		No of seed germination percentage/day									
			Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
1	Control	1	0	0	30	30	50	60	60	70	60	60
2	Spinach Extract	1%	0	0	0	30	30	50	40	40	50	50
3		5%	0	0	0	0	20	30	30	20	20	20
4		1%	0	0	0	0	0	0	0	0	0	0
5		20%	0	0	0	0	0	0	0	0	0	0
6	Control	2	0	0	10	10	20	50	40	50	40	40
7	Prawn Extract	1%	0	10	10	20	20	0	0	0	0	0
8		5%	0	0	10	10	10	10	0	0	0	0
9		10%	0	20	10	10	10	10	0	0	0	0
10		20%	0	20	20	20	20	10	0	0	0	0

Seed germination percentage of *P. sativum* (green) after treatment of aqueous extract of plant and animal source origin is seen in Table 2. It shows the seed germination percentage per day up to ten days of experiment for control and treated conditions from the table. It is clear that seed germination percentage maximum on 10th day of treatment in control aq plant extract treated as well as animal extract treated seed in control. The seed germination percentage is 20 on 2nd day. However it is interested to note that it is zero percentage in both treatment. It 50% in control while 90% and 80% in 1% and 5% plant extract treatment seeds. It seems to stimulating effect of plant extract on germination percentage. The seed germination percentage is 60% each on 10th day in 10% and 20% plant extract treatment. In aqueous extract of plant origin it is hardly 40%, 30%, 10% and 0% in 1%, 5%, 10% and 20% treatment respectively. It is to conclude that seed germination percentage is more in control than treatment amongst the treatment unclear study; the seed germination percentage is more effect in aqueous extract of animal origin than plant origin. In both the treatments the concentration increases the adverse effect on seed germination increases. The maximum adverse effect is seen at 20% concentration of aqueous extract of animal origin.

Table- 3. Average radical length on 10th day of treatment in *Pisum sativum* after treatment of aqueous extract of plant and animal origin.

Treatment	Concentration	Average radical length on 10 th day of treatment
Control	-	1.37
Aqueous extract of plant Origin (spinach extract control)	1%	0.58
	5%	0.95
	10%	0
	20%	0
Control	-	1.35
Aqueous extract of Prawn	1%	0.0
	5%	0
	10%	0
	20%	0

From Table 3, it is clear that control seeds of *P. sativum* show average radical length which is maximum (1.35 cm) than 0.58, 0.95cm of aqueous extract of plant origin treated seeds with 1%, 5%, 10% and 20% concentration. It means the average radical length is less in plant extracts treated seeds. It is decreasing as the concentration of spinach extract goes on increasing similarly from the table. It is also seen that the average radical length 0cm at 1% aqueous extract of animal origin (prawn) treated seeds. It is 0cm for 5%, 10%, and 20% treated seeds. Above observation are arrived at conclusion that the average radical length is affected due to the treatment with aqueous extract of spinach and prawn. The treatment of aqueous extract of animal origin is more destructive than aqueous extract of spinach.

Table-4- Average plumule length on 10th day of treatment of aqueous extract of spinach and prawn.

Treatment	concentration	Average plumule length on 10 th day of treatment(cm)
Control	-	1.22
Aqueous extract of spinach	1%	0.5
	5%	0
	10%	0
	20%	0
Control	-	0.85
Aqueous extract of Prawn	1%	0
	5%	0
	10%	0
	20%	0

Table-4. Depicts the average plumule length on 10th day of treatment in control and treated seeds of *Pisum Sativum*. It is noted that 1.22 cm is maximum average plumule length seen in control seed . 0.58 cm, 0 cm, 0 cm, 0 cm is average growth of plumule in aqueous extract of spinach treated seeds at 1 %, 5%, 10% and 20% concentration respectively. The aqueous extract of prawn treated seeds of *Pisum Sativum* are showing the average plumule length as zero for 1%, 5%, 10% and 20% means no plumule growth at all for 1%, 5%, 10% and 20% concentration of aqueous extract of prawn. This discussion conclude that there is adverse effect of aqueous extract of plant (spinach) on plumule growth of *Pisum Sativum* seeds. Amongst the both treatment, aqueous extract of plant origin shows less harmful than prawn extract [11,12,13].

C. Beasse (2000) studied effect of epidermics of *mycopharella pinocles* on crop growth radiation interception efficiency (PIE) and radiation use efficiency by dispersion on ground of pea. Which decrease the photosynthesis in leaves [29].

Shortage of water at any stage of plant growth usually results in a reduction in vegetative growth but many annual crop plants are sensitive changes in soil moisture condition during the period from flower initiation to the development of full flower [30-33].

CONCLUSION:

To study the seed germination of *pisum sativum* (green pea) under the aqueous extract of plant and animal origin of 1%, 5%, 10% 20% Concentration are used. The germination of seeds per day percentage of germination, average radical length and average plumule length in cm are parameters under study. The germination is more in control than treated seeds. Either plant extract or animal extract treatment is non stimulating and harmful to germination process in general. The effect of animal extract is very harmful than the plant extract treatment. Seed germination percentage is more in control than treatment. The seed germination percentage is more affected in aqueous extract of animal origin than plant origin. In both the treatment as the concentration increases the maximum adverse effect is seen at 20% concentration of aqueous extract of animal origin average radical length is affected due to the treatment. The treatment of aqueous extract of prawn is more is destructive than the aqueous extract of spinach. There is adverse effect of aqueous extract of plant origin (spinach) and prawn on average plumule growth of *Pisum sativum* seeds. Amongst the both treatment, aqueous extract of plant origin (spinach) shows less harmful.

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DUST MONITORING IN ALIBAG USING CALOPTROPIS GIGANTEA

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Abstract

*That plants can be used to monitor dust is a well-known fact .The current work is aimed at understanding the level of dust pollution in Alibag using **Calotropis gigantea**. Ten sites were selected and foliar dust was monitored throughout the dry season of 2017. The dust fall showed seasonal variations at different sites and co- related well with the ecological urban conditiations prevalent at the site. The work throws light on the levels of dust pollution in the region and that **Calotropis gigantea** can effectively be used to monitor dust. High values of dust fall was observed in the summer months.*

INTRODUCTION :

Atmospheric particulate matter consists of a mixture of dust soot ,various elements, etc. Dust may affect the rate of photosynthesis , chlorophyll content , stomata , transpiration.

The use of vegetation to filter out dust , soot and particulates from atmosphere has been extensively used as a common practice by many developed countries. The dust interception capacity of plants depends upon its surface geometry , phyllotaxy and external characteristics such as hair cuticle , length of petioles , height and the weather conditions such as speed of wind. (Prajapati and Tripathi 2008)

Plant leaves has been regarded as biofilter as they absorb large quantities of particles from the environment (CPCB 2007). In order to ensure the conditions of local surroundings , monitoring with the help of biological indicators is simple , economical and convenient method (Wagh et al. 2006)

Some leaves have greater surface roughness than other leaves. Sticky leaves have more dust capture. Leaves with trichoms and hair also prove beneficial.

The current work aims at understanding the dust holding capacity a roadside plants in Alibag. Alibag is the most favourite travel destination for people near Mumbai and Pune.

MATERIAL AND METHODS :

Calotropis gigantea is a common weed frequenting the region of alibag . It has opposite and decussate phylotaxy and the foliar surface is dense with hairs . leaves form this plant were selected from 10 sites and dustfall estimated.

ESTIMATION OF DUST FALL

Ten dustiest sites were selected and 7 days washing analysis was carried out for **Calotropis gigantea**. The foliar surface of plant was cleared of dust spraying with water on initial day and dust was collected on 7th day as shown by soha and padhy (2011).The leaves were washed with water and filter through whatmann paper no.1.once washed leaves were traced on graph paper to determine leaf area in m²

Dust fall was calculated in gms/m² by method given by chaphekar et al (1980).

Dust fall(gm/m²) = foliar dust (gms)

Total leaf area.

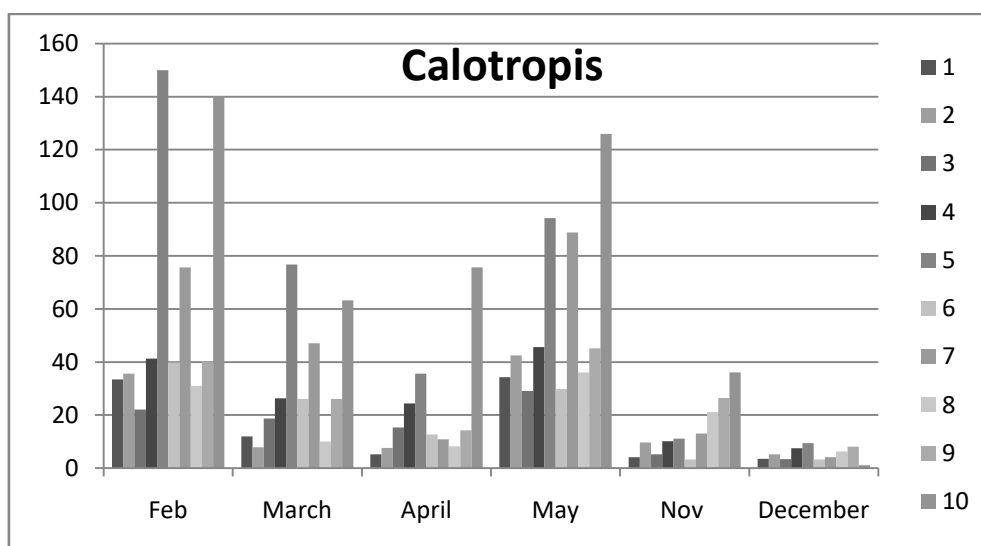
DESCRIPTION OF SITE:-**Table 1.1 :-**

SR NO	NAME OF THE SITE	SITE DESSCRPTION
1	Anand nagar	Residential area with moderate traffic.
2	Revas Road	Very heavy traffic
3	Rautwadi Road	Heavy traffic
4	Versoli Road	Moderate traffic
5	Revdanda Bypass Road	Heavy vehicular traffic consisting of all types of vehicles.
6	Gondhalpada road	Near residential area so less traffic.
7	Pimpalbhat Road	Heavy continuous traffic.
8	Khandala Road	Moderate traffic with heavy vehicles
9	Chendhre bypass Road	Connecting road to highway,less traffic.
10	Karle Khind Road	Heavy traffic with all types of vehicles.

Dust fall in gm/m² on 7th day on the leaves

Table 1.2

Plant	Site	Dust fall in gm/m ²					
		Feb	March	April	May	Nov	December
Calotropis	1	33.38	11.96	5.212	34.28	4.129	3.5
	2	35.57	7.808	7.581	42.52	9.604	5.14
	3	22.11	18.695	15.296	29.10	5.239	3.33
	4	41.28	26.25	24.41	45.60	10.116	7.51
	5	150.0	76.80	35.581	94.24	11.101	9.4
	6	39.86	26.007	12.681	29.85	3.286	3.2
	7	75.68	47.08	10.921	88.76	12.98	4.12
	8	31.034	10.010	8.235	36.11	21.128	6.23
	9	40.16	26.007	14.285	45.10	26.401	8.04
	10	140.20	63.20	75.681	126.00	36.112	1.11



Dustfall on the leaves of *calotropis gigantea* in dry season

Results and Discussions :

The dust fall at ten sites in the dry season is shown in table 1.2

SITE 1: From the table it can be seen that maximum dust was observed 34.28 gms/m² in the month of May and minimum 3.5 gm/m² in December.

SITE 2: The maximum dust was observed 42.52 gms/m² in the month of May and minimum 5.14 gms/m² in December

SITE 3: The maximum dust was observed 29.10 gms/m² in the month of May and minimum 3.33 gms/m² in December

SITE 4: The maximum dust was observed 45.60 gms/m² in the month of May and minimum 7.51 gms/m² in December

SITE 5: The maximum dust was observed 150.00 gms/m² in the month of February and minimum 9.4 gms/m² in December

SITE 6: The maximum dust was observed 39.86 gms/m² in the month of February and minimum 3.2 gms/m² in December

SITE 7: The maximum dust was observed 88.76gms/m² in the month of February and minimum 4.12gms/m² in December

SITE 8: The maximum dust was observed 36.11gms/m² in the month of May and minimum 6.23gms/m² in December

SITE 9: The dust was observed 45.10gms/m² in the month of May and minimum 8.04gms/m² in December

SITE 10: The maximum dust was observed 140.20gms/m² in the month of February and minimum 1.11gms/m² in December.

Conclusion:

This study concludes that *Calotropis gigantea* recorded maximum dust fall at site 5 in the month of February with the value being 150 gms as well as in site 10 in same month with dust fall being 140.20gms/m². Minimum dust fall is in month of December at site 10 is 1.11gms/m²

The plant species has opposite phyllotaxy and with dense hairs which proves effective as a dust capturer.

Using plants as monitors of dust has advantage over highly expensive and sophisticated instruments as they easily available have low maintenance can be cost effective substituent can be placed at specific sites and also do not risk pilferage.

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POLITICAL CONDITION OF THE CARNATIC ON THE EVE OF ANGLO-FRENCH CONFLICT

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The disintegration of the Mughal empire started from the early part of the 18th century after the death of the last great Mughal emperor, Aurangzeb in 1707 A.D. The Mughal empire began to totter and fall into ruin. Taking advantage of this situation, Nizam-ul-mulk, the viceroy of Deccan, declared independence, defying the suzerainty of the Mughal power. But his supremacy in the Deccan was challenged by the Marathas under Bajji Rao, and a long duel ensued between the two powers. The Carnatic (Coastal region) was a province under the subedar (viceroy) of the Deccan and was ruled by a governor called the Nawab, with his capital at Arcot. He was nominally subordinate to the Nizam of Hyderabad but really exercised sovereign powers. But the internal condition of Carnatic gradually deteriorated due to internal feuds and external aggression of the Marathas. According to Tara Chand, "the placid backwaters of Carnatic, amidst the petty intrigues of the princess, the sudden appearance of the Maratha army led by Raghuji Bhonsale and his lieutenant Narain Rao was a bombshell. Dost Ali, who tried to stop them, fell in battle. Safdar Ali, his heir and chanda sahib (son-in-law of Dost Ali) took their families to Pondicherry for safety. Raghuji besieged Trichinopoly. He captured the fort and took chanda sahib prisoner. Safdar Ali, the son of Dost Ali, had saved his life and kingdom by promising to pay the Marathas a crore of Rupees. But he was soon murdered and his young son was proclaimed the new Nawab. This created a feeling of panic and uncertainty in the Carnatic. The Nizam now got an opportune moment to revive his lost power in the Carnatic. But the appointment of the new Nawab made things worse as he was sure to be regarded as an intruder and rival of Nawab Dost Ali's relative who still held many forts and enjoyed extensive power. Thus the Carnatic region was embroiled in fratricidal wars of succession. These conditions gave the foreigners an opportunity to expand their political influence and control over the affairs of the South Indian states."¹

At this time that Austria won the war and broke out Europe and ranged the England and France in India on opposite sides. The outbreak of the war between England and France also placed the two mercantile companies in India technically in a state of war during the period. Madras and Pondicherry in the Carnatic coast were the commercial bases of the English and the French. At first they tried hard to maintain neutrality. Even Dupleix, the Governor of Pondicherry, opened direct negotiations with English authorities in India. But it was a failure and hostilities broke out between the two companies. The English set the ball rolling by capturing some French ships. As the French had no fleet in Indian waters, Dupleix sent an urgent appeal to La Bourbonnais, the Governor of Mauritius, to come to his rescue. The latter reached the English troops, and they fought for some time. The English squadron failed to resist the French attack and left for Ceylon. The French then signed Madras which fell into the French hands. Dupleix now prepared to besiege the second English settlement of Fort St. David.

2) Role of the Nawab :

The English appealed to Anwar-ud-din, the Nawab of Carnatic, for protection and assistance, and the latter requested Dupleix, the French Governor, to raise the siege of Madras. But the French were in no mood to accede to the request, just as the English had ignored him in the past, since the Nawab had no naval fleet, he was not in a position to intervene effectively. It was quite different in the case of warfare on land. As here the Nawab was willing and seemed able to back up his demand by force. Dupleix knew this and sought to pacify him by diplomacy. But the Nawab got terribly angry at this behavior of Dupleix and sent a huge army to snatch away Madras from the French. But most

surprisingly a handful of French troops inflicted a crushing defeat upon a huge army of the Nawab in the battle of Adyar st. Thomas (near) madras. It is otherwise known's as the battle of Adyar, as melleon has appointed out with pride "It may well be asserted that of all the decisive actions that have been fought in India. There is not one more memorable than this. The circumstances which stamps this action as so memorable is that it was the very first of it's kind, that it proved to the surprise of Both parties, the absolute and over whelming superiority of the disciplined European soldier to this Asiastic rival Duplex occupied madras and draw the English from almost the entire coromandal coast.

In spite French didn't gain much in the end. La Bourbonnais had promised to restore madras to the English for a large ransom. But Dupleix opposed the move and this led to a quarrel between the two French captain after a prolonged quarrel, Dupleix seemed ready to submit, when a hurricane caused serve damage to the French fleet and forced La Bourbonnais to retire with his ships from the Indian seas. Dupleix was now free to assume the initiative vis-à-vis the English he made a fresh attack on madras which surrendered as early as in the first instance.

Dupleix couldn't rest contented with his present victory. He turned his covetous attention to fort St. David which was some twelve miles south of Pondicherry However, the English succeeded in repelling the French attack through their brave officer, Boscawen. Thereafter the English laid siege of Pondicherry but were not successful because of the fierce resistance of the French. In the mean time the Austrian war of succession came to a close in Europe in 1748 with signing of the Treaty of Aix-La-chapelle between france and England. Under the terms of the treaty. Madras was restored to the English and Boscawen sailed back to Europe. Thus the first Carnatic war was drawn games yet it proved to be a significant event in the history of the growth of European power in India. According to malleon, " It brought into view silently but surely the possibility of the conquest of India by one or other of the two European powers on the coromandal coast."

3) Important Role of Dupleix :

Dupleix valiant efforts to relieve the French position were not much appreciated by Home government. The French government was tried of this unauthorized war Dupleix was now recalled by the authorities of the French company in paris. Who couldn't appreciate his ambitious schemes on 1st August 1754 Godeheu succeeded Dupleix as Governor General in India. In a complete reversal of Dupleix's policy. He reopened negotiations with the British and concluded a treaty. Both the English and French agreed not to interfere in the quarrels of the native princess. And each ponty was left in possession of the territories that it actually occupied at the time of this treaty. The peace was provisional and was to be implemented only after it's ratification by both the companies in Europe. It may be mentioned that the ratification never come and mean while there broke out in Europe a long war known as "Seven years war" any how

4) An Estimate Dupleix:

Dupleix was the first European statesman. Who took advantage of the weakness of the mughal empire for the advancement of the french-cawe-the French- supremacy leading to the building of an empire. According to Michel Edward' Because of Dupleix there was nearly a French empire in India and certainly because of him there was an English one," He was the first European politician who quitted the ports on the sea coast and marched into the continent for establishing imperial power. He formed a Brilliant project of a French dominion in India. His political conception were during and imaginative. According to Rubert, He raised the prestige of France in the East for some years to an amazing height he won a reputation among Indian princess and leaders that has never been surprised, and he aroused a deud in his English contemporaries which is at once a tribute to his personal power and a testimony to their sagacity" one can Admit that he was one of the most striking personalities in Indian History. But According to R.C. majumdar" He was engaged in are of those risky undertakings

where success elevates a man to the rank of a Hero but failure denounces. Him as an abstinate and perverse adventure” According to Lowerence “Like all able men, he loved power both from policy’ and in clination was not averse to a certain the optical pomp and display- He neither values men nor money, nor anything but what can gratify his own ambition” But he was a great administrator and diplomat with a wonderful capacity for organization and great persistence and tenacity of purpose.

Alfred Lyall has aptly remarked “Dupleix was a man of original and energetic political instincts. An imperious and morally in repid disposition who embarked upon wide and some what audacious schemes of oriental dominion.

5) Dupleix as an appointed as Governor of Pondicherry:

Dupleix was an appointed as Governor of Pondicherry finally He was be came Director General of all French possession in India. As director of Chandra nagar factory. He developed in to a most flourishing European settlement. As his mother country was not in good relation with England. He excepted war at any time. So he constructed a strong fort in Pondicherry. He tried to maintain neutrality in India insteul of a war between England and france in Europe. He made friendship with the Nawab of Carnatic and checked the ambition of the English during the first Carnatic war he captured madras the very much soul of the English made in Carnatic, to the surprise of all he also defeated Nawab’s huge army with help of a handful of well disciplined French troops at st. Thome hateron, he supported chanda sahib to the throne of Carnatic. The combined armies of Dupleix and chanda sahib defeated and killed Nawab Anwar-u-din in the battle of Ambur’ He supported muzaffer Jung to the Throne of the Nizam of Hyderabad But soon the new Nizam was murdered and in 1751 salabat Jang the Third son of Nizam-w-mulk, was raised to the throne by the French from then onwards the ride turned against Dupleix. The French siege of Trichiopoly didn’t yield results. Arcot was captured by clive and mahamad Ali, the English nominee became the Nawab of carnatic mean while Dupleix was recalled and thus the grand design of Dupleix ended abruptly⁵, According to Roberts, “The plain truth is that the schemes of Dupleix, both ingenious and for-reaching as they were, had broken down. It was Godeheus (the French Governor-General in India) task to save what he could from the wreck. He succeeded to a greater extent than might have been expected and afforded his countrymen an opportunity which they were unable to avail themselves to the full because a European war occurred before they had consolidated their strength. Besides the French Government was too anxious to keep peace in India as the conflict broken out between the French and the English in America seemed more reasonable than hypothetical congquest in india. The Ambition of the French Government to build a colonial empire in America was more unreal than Dupleix’s design in India. He was always motivated by desire to build a French empire in India.

6) Dupleix as a great Diplomat:

Dupleix was only a diplomat and not a commander. He had to depend upon his subordinate Generals and none of them had the wisdom to understand his strategy and put it into operation. Dupleix way also over confident and his schemes of conquest were misunderstood by home Government. He was not enthusiastically supported by the home Government. The home Government also showed an indifferent attitude to the Company in the management of Indian settlements⁷.

Dupleix vanity hot temper and love for intrigues made him unpopular. He treated the home government in a cavalier fashion. Intimating victories but not defeats Dupleix was over confident. He did not give proper estimate of the struggle to the home Government Ultimately, the personal factor also went against the plan of Dupleix. In the words of R.C. Mujumdar, “It is idle to deny the fact that the subsequent ourself events in the Carnatic war. Determined to a large extent by personalities rather than circumstances. The Brilliant genius and bold dosh of clive on the one hand and Lally and his colleagues on the other hands determined the issues⁸.

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COMPUTER NETWORKING

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Abstract: Computernetworksareasystemofinterconnectedcomputersforthepurposeofsharingdigitalinformation. Theconceptofanetworkbeganin1962whenaserverattheMassachusettsInstituteofTechnologywasconnectedtoaserverinSantaMonica,California. Sincethattimetheproliferationofcomputersandcomputernetworkshasincreasedsignificantly. Oneofthemostsignificantchallengestonetetworksisattacksonteirresourcescausedbyinadequatenetworksecurity. Inthisresearchpaperwehighlightandoverviewconceptofcomputernetworks.

I.INTRODUCTION

Acomputernetworkordatanetworkisatelecommunicationsnetworkthatallowscomputerstoexchange data. Incomputernetworks, networkedcomputingdevicespassdatotoeachotheralongdataconnections. Theconnections(networklinks)betweennodesareestablishedusingeithercablemediaorwirelessmedia. Thebest-

knowncomputernetworkistheInternet. Networkcomputerdevicesthatoriginate, routeandterminatethedata arecallednetworknodes. Nodescanincludehostssuchaspersonalcomputers, phones, serversaswellasnetworkinghardware. Twosuchdevicesaresaidtobenetworkedtogetherwhenonedeviceisabletoexchangeinformationwiththeotherdevice, whetherornottheyhaveadirectconnectiontoeachother. ComputernetworkssupportapplicationssuchasaccesstotheWorldWideWeb, shareduseofapplicationandstorageservers, printers, andfaxmachines, anduseofemailandinstantmessagingapplications. Computernetworksdifferinthephysicalmediausedtotransmittheirsignals, thecommunicationsprotocolstoorganizenetworktraffic, thenetwork's size, topologyandorganizationalintent.

II.HISTORY

Makingdevicestalktoeachotherforthepurposesofcommunicationisnothingnew. Earlyforaysintotelephonysuchasthe telegraphandtelephonehave sinceevolvedintomorecomplicateddevices, andnowacomputercannbenetworkedtotheInternet, anotherPC, orevenahomestereo. Intheearly1960s, individualcomputershadtobephysicallyshared, makingthesharingofdataandotherinformationdifficult. Seeingthiswasimpractical, researchersdevelopedawayto“connect”thecomputerssotheycouldsharetheirresourcesmoreefficiently. Hence, theearlycomputernetworkwasborn.

Throughthethen-newcommunicationprotocolknownaspacketswitching, a numberofapplications, suchassecurevoice transmissioninmilitarychannelsbecamepossible. Thesenewcircuitsprovidedthebasisforthe communicationtechnologiesoftherestofthe20thcentury, andwithfurtherrefinementthesewereappliedtocomputernetworks. ThesenetworksprovidedthebasisfortheearlyARPANET, whichwastheforerunnerofthemodernInternet. TheAdvancedResearchProjectsAgency(ARPA)submittedtheproposalfortheprojectonJune3, 1968whichwasapprovedafewweekslater. Thisproposalentitled“ResourceSharingComputerNetworks”wouldallowARPAnotonlythefurthersharingoftheirdata, butwouldallowthemtofurtheirresearchinawidevarietyofmilitaryandscientificfields. Afterbeingtestedinfourlocations, thenetworkspreadandthenewprotocolscreatedforitsuseevolvedintoday'sWorldWideNetwork.

In1977, earlyPCbasedLocalAreaNetworks, orLANs(LocalAreaNetworks)werespreading, andwhileinitiallyrestrictedtoacademicsandhobbyists, theyeventuallyfoundtheirwayintotheworkplaceandinhomes, althoughtheexplosionintothe lattertwoarenasisarelativelyrecentphenomenon. LANvariantsalsodeveloped, includingMetropolitanAreaNetworks(MANs)tocoverlargeareassuchasacollegecampus, andWideAreaNetworks(WANs)foruniversity-to

university communication. With the widespread use of computers in the corporate world, the speed and convenience of using them to communicate and transfer data has forever altered the landscape of how people conduct business. Networks have become an integral part of the corporate world. Ubiquitous computing and Internet-capable cellular phones have allowed people to remain connected, even if the individual is away from a fully wired office environment.

III. PROPERTIES OF COMPUTER NETWORKS

Facilitate communications: Using a network, people can communicate efficiently and easily via email, instant messaging, chatrooms, telephone, video telephone calls, and video conferencing. Permits sharing of files, data, and other types of information. In a network environment, authorized users may access data and information stored on other computers on the network.

Facilitates interpersonal communications

People can communicate efficiently and easily via email, instant messaging, chatrooms, telephone, video telephone calls, and video conferencing.

Allow sharing of files, data, and other types of information

Authorized users may access information stored on other computers on the network. Providing access to information on shared storage devices is an important feature of many networks.

Allow sharing of network and computing resources

Users may access and use resources provided by devices on the network, such as printing a document on a shared network printer. Distributed computing uses computing resources across a network to accomplish tasks.

Maybe insecure

A computer network may be used by computer crackers to deploy computer viruses or computer worms on devices connected to the network, or to prevent these devices from accessing the network (denial of service).

May interfere with other technologies

Powerline communication strongly disturbs certain forms of radiocommunication, e.g., amateur radio. It may also interfere with last-mile access technologies such as ADSL and VDSL. A complex computer network may be difficult to set up. It may be costly to set up an effective computer network in a large organization.

IV. PROTOCOLS IN NETWORKING

Ethernet: The Ethernet protocol is by far the most widely used one. Ethernet uses an access method called CSMA/CD (Carrier Sense Multiple Access/Collision Detection). This is a system where each computer listens to the cable before sending anything through the network. If the network is clear, the computer will transmit it. If some other nodes have already transmitted on the cable, the computer will wait and try again when the line is clear. Sometimes, two computers attempt to transmit at the same instant.

Fast Ethernet: To allow for an increased speed of transmission, the Ethernet protocol has developed a new standard that supports 100 Mbps.

LocalTalk: LocalTalk is a network protocol that was developed by Apple Computer, Inc. for Macintosh computers. The method used by LocalTalk is called CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance).

ance). It is similar to CSMA/CD except that a computer's signals intent to transmit before it actually does so. LocalTalk adapters and special twisted pair cable can be used to connect a series of computers through the serial port.

Token Ring: The Token Ring protocol was developed by IBM in the mid-1980s. The access method used involves token-passing. In Token Ring, the computers are connected so that the signal travels around the network from one computer to another in a logical ring. A single electronic token moves around the ring from one computer to the next.

FDDI: Fiber Distributed Data Interface (FDDI) is a network protocol that is used primarily to interconnect two or more local area networks, often over large distances. The access method used by FDDI involves token-passing. FDDI uses a dual ring physical topology.

ATM: Asynchronous Transfer Mode (ATM) is a network protocol that transmits data at a speed of 155 Mbps and higher. ATM works by transmitting all data in small packets of a fixed size; whereas, other protocols transfer variable length packets. ATM supports a variety of media such as video, CD-quality audio, and imaging. ATM employs a star topology, which can work with fiber optics as well as twisted pair cable.

Gigabit Ethernet: The most latest development in the Ethernet standard is a protocol that has a transmission speed of 1 Gbps. Gigabit Ethernet is primarily used for backbones on a network at this time. In the future, it will probably also be used for workstation and server connections.

V. APPLICATIONS

Applications of wireless technology:

Mobile telephones

One of the best-known examples of wireless technology is the mobile phone, also known as a cellular phone, with more than 4.6 billion mobile cellular subscriptions worldwide as of the end of 2010.

Wireless data communications

Wireless data communications are an essential component of mobile computing. The various available technologies differ in local availability, coverage range and performance, and in some circumstances, users must be able to employ multiple connection types and switch between them.

Wi-

Fi is a wireless local area network that enables portable computing devices to connect easily to the Internet. Standardized as IEEE 802.11a, b, g, n, Wi-Fi approaches speeds of some types of wired Ethernet. Wi-Fi has become the de facto standard for access in private homes.

Cellular data service offers coverage within a range of 10-15 miles from the nearest cell site. Speeds have increased as technologies have evolved, from earlier technologies such as GSM, CDMA and GPRS, to 3G networks such as W-CDMA, EDGE or CDMA2000.

Mobile Satellite Communications may be used where other wireless connections are unavailable, such as in largely rural areas or remote locations. Satellite communications are especially important for transportation, aviation, maritime and military use.

Wireless Sensor Networks are responsible for sensing noise, interference, and activity in data collection networks. This allows us to detect relevant quantities, monitor and collect data, formulate meaningful user displays, and to perform decision-making functions

Wireless energy transfer

Wireless energy transfer is a process whereby electrical energy is transmitted from a power source to an electrical load that does not have a built-in power source, without the use of interconnecting wires. There are two different fundamental methods for wireless energy transfer. They can be transferred using either far-field methods that involve beam power/lasers, radio or microwave transmissions or near-field using induction. Both methods utilize electromagnetism and magnetic fields

Wireless Medical Technologies

New technologies such as mobile body area networks (MBAN) the capability to monitor blood pressure, heart rate, oxygen level and body temperature, all with wireless technologies. The MBAN works by sending low powered wireless signal to receiver stations that feed into nursing stations or monitoring sites. This technology helps with the intentional and unintentional risk of infection or disconnection that arise from wired connections.

Computer interface devices

Answering the call of customers frustrated with cord clutter, many manufacturers of computer peripheral turned to wireless technology to satisfy their consumer base. Originally these units used bulky, highly limited transceiver to mediate between a computer and a keyboard and mouse; however, more recent generations have used small, high-quality devices, some even incorporating Bluetooth. These systems have become so ubiquitous that some users have begun complaining about a lack of wired peripherals. Wireless devices tend to have a slightly slower response time than their wired counterparts; however, the gap is decreasing.

Computer interface devices such as a keyboard or mouse are powered by a battery and send signals to a receiver through a USB port by way of a radio frequency (RF) receiver. The RF design makes it possible for signals to be transmitted wirelessly and expands the range of effective use, usually up to 10 feet. Distance, physical obstacles, competing signals, and even human bodies can all degrade the signal quality. Concerns about the security of wireless keyboards arose at the end of 2007, when it was revealed that Microsoft's implementation of encryption in some of its 27 MHz models was highly insecure.

V.NETWORK SECURITY

What Is Network Security?

Network security refers to any activities designed to protect your network. Specifically, these activities protect the usability, reliability, integrity, and safety of your network and data. Effective network security targets a variety of threats and stops them from entering or spreading on your network. What Is Network Security and How Does It Protect Your Network? Many network security threats today are spread over the Internet. The most common include:

1. Viruses, worms, and Trojan horses
2. Spyware and adware
3. Zero-day attacks, also called zero-hour attacks
4. Hacker attacks
5. Denial of service attacks
6. Data interception and theft
7. Identity theft

V.CONCLUSION

While the old concept of the network is foundational in virtually all areas of society, Computer Networks and Protocol have forever changed the way humans will work, play, and communicate. Forging powerfully into areas of our lives that no one had expected, digital networking is further empowering us for the future. New protocols and standards will emerge, new applications will be conceived, and our lives will be further changed and enhanced. While the new will only be better, the majority of digital networking's current technologies are not cutting-edge, but rather are protocols and standards conceived at the dawn of the digital networking age that have stood solid for over thirty years.

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جواب نہیں ہندوستان کے ساحل کا

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ڈاکٹر سیمانناہید

شعبہ اردو

وسنت راء ناٹک کالج،

مروڈ، رائے گڑھ، ۴۰۲۱۰۵

زمین کے ۷۰ فیصد حصے پر سمندر ہے جس میں سے ۱۴ فیصد پر بحر ہند واقع ہے۔ ہندوستان ۳ طرف سے سمندر سے گھرا ہوا ہے اور اس کے ۱۳۱ ریاستوں کی سرحدیں سمندر سے ملی ہوئی ہیں۔ مندرجہ ذیل اہم ساحلوں سے سمندر کا نظارہ کرنا بڑا ہی دلچسپ تجربہ ہوتا ہے۔ یہ ریاست درج ذیل ہیں۔ (۱) آندھرا پردیش (۲) مغربی بنگال (۳) کیرالا (۴) کرناٹک (۵) اڑیسہ (۶) تمل ناڈو (۷) مہاراشٹر (۸) گوا (۹) گجرات (۱۰) پانڈیچری (۱۱) دمن دیو (۱۲) کیش دیپ (۱۳) انڈمان نکوبار

(۱) آندھرا پردیش: آندھرا پردیش جنوبی ہند کی ایک ریاست ہے جس کا دارالخلافہ حیدرآباد ہے۔ اس ریاست کی سرکاری زبان تیلگو اور دوسری سرکاری زبان اردو ہے۔ آندھرا پردیش جغرافیائی اعتبار سے ۳ حصوں (۱) ساحلی آندھرا (۲) رائل سیما اور (۳) تلنگانہ پر مشتمل ہے۔ یہاں تاریخی مقامات کی کمی نہیں جو سیاحوں کو راغب کرتے ہیں۔ یہاں کے ساحلوں کی مناسبت سے ۳ مقامات خاص طور پر مشہور ہیں جن کے نام ہیں (۱) بھیمونی پٹنم (۲) رام کرشاشن اور (۳) سوریا لنگا۔

مغربی بنگال: ہندوستان کے صوبہ بنگال کی تقسیم کے بعد ایک تو بننا بنگلہ دیش اور دوسرا حصہ جو چلا گیا جو ہندوستان میں رہا اس کا نام پر مغربی بنگال۔ بنگال کا زیادہ تر سمندری علاقہ بنگلہ دیش میں چلا گیا۔ مغربی بنگال میں اب ۱۲ اہم مقامات سے سمندر کو دیکھا جاسکتا ہے۔ جنوبی ۲۴ پرگند میں واقع لکاتہ کے پاس (۱) گنگا ساگر ڈیلٹائی علاقہ (۲) سنڈرپن علاقہ۔ گنگا ساگر کو سمندری جزیرہ یا گنگا ساگر سنگم بھی کہتے ہیں۔ گنگا ساگر خلیج بنگال کا 'نہینغل شلف' میں کولکاتا سے ۱۵۰ کلومیٹر (۸۰ میل) جنوب میں ایک جزیرہ ہے۔ مغربی بنگال کے بھالی، مندارنی اور تاج پور ساحل مشہور ہیں۔

(۳) کیرالا: کیرالا ہندوستان کے علاقے دکن کے جنوبی حصہ میں واقع ایک ریاست ہے۔ اس کا دارالحکومت تریویندرم ہے۔ اس ریاست کی زبان ملیالم ہے۔ یہاں کے باشندوں کو ملیالی کہتے ہیں۔ اس ریاست کے مسلم آبادی میں بیشتر موپلا قوم کے لوگ ہیں۔ کیرالا کا بحرہ عرب سے متصل ساحلی علاقہ ۵۵۰ کلومیٹر پھیلا ہوا ہے۔ یہ ہندوستان کا جنوب مغربی کنارہ ہے۔ جہاں کے مشہور ساحلوں کے نام ہیں۔ الاپوزا، کوچی کا قلعہ، کبڑہ کٹیا، کٹراؤ، کوہلم، مرانی، مرانیلنگر، پیلم، موگھوم، ورکالا اور ویلی۔

(۴) کرناٹک کے ساحل : کرناٹک کے جنوبی ہند کی اہم ریاست ہے۔ اسے ہندوستان میں 'آئی ٹی' ٹیکنالوجی کے دارالخلافہ کا خطاب بھی حاصل ہے۔ شہر بنگلور کرناٹک کا دارالخلافہ ہے۔ اسے 'عروس البلاد' اور گارڈن سنی آف انڈیا کے نام سے بھی جانا جاتا ہے۔ 'آئی ٹی سیکٹر' میں یہ ریاست 'سلیکون آف انڈیا' کے نام سے مشہور ہے۔ اپنے وسیع جغرافیائی قدرتی حسن اور قدیم تاریخ کی وجہ سے یہ ریاست کرناٹک سیاحوں کی دلکشی کا مرکز رہی ہے۔ ریاست میں جہاں ایک طرف قدیم تاریخی عمارتیں ہیں وہی جدید شہر بھی ہیں۔ تاریخی عمارتوں سے اور سنہرے ریتلے اور پرسکون ساحلوں کے سبب کرناٹک کو ملک میں سیاحوں کے لیے چوتھی سب سے مقبول ریاست کا شرف حاصل ہے۔ یہاں کے مشہور ساحلوں کے نام ہیں۔ گوکنا، کاروا، کوپ، کنڈلے، کروم گڑھ، مروڈیشور، سومینشور، سورتھگل، تیر بادوی الاساحل وغیرہ۔

(۵) اڑیسہ : اڑیسہ کے ریاست ہندوستان کے مشرقی سمندری ساحلی پر واقع ہے۔ جہاں سے خلیج بنگال نظر آتی ہیں۔ تقریباً ۵۵۰ کلومیٹر کی اس ساحلی پٹی پر کئی خوبصورت ساحل ہیں۔ اس ریاست کا دارالحکومت بھونیشور ہے۔ جنوبی ہند کی اس غریب ریاست میں عیسائیوں کی منسریوں کی جانب سے تبدیلی مذہب کے مشن اور نکھلی سرگرمیوں کی وجہ اب بھی یہاں کے کندھال ضلع میں کشیدگی رہتی ہیں۔ اڑیسہ کے جنگلوں میں جانوروں اور پرندوں کی نایاب قسمیں دیکھنے کو ملتی ہیں۔ یہاں کے اہم ساحل میں پوری گوپال پور، کومارک، باگیشور، آریہ پٹی اور پارادیپ وغیرہ کو کافی شہرت حاصل ہے۔

(۶) تمل ناڈو : ہند کی اہم ریاست تمل ناڈو کا دارالحکومت چنئی ہے۔ جسے پہلے مدراس کے نام سے جانا جاتا تھا۔ یہاں کی اہم ندی کاویری ہے۔ اس ریاست میں ہندوؤں کے بڑے ۴۷ مٹھوں سے ایک مٹھی ہے۔ کانچی پورم میں واقع کانچی کام کوئی پیٹھ، تمل ناڈو کی ایک ساحلی پٹی ہے۔ جو تقریباً ایک ہزار کلومیٹر تک پھیلی ہوئی ہے۔ جہاں سیکڑوں دلکش ساحلی مقامات ہیں۔ اس کے کنارے پر جہاں ایک طرف رامیشورم ہے تو دوسری طرف کنیا کماری۔ تمل ناڈو کی تاریخ بیت ہی پرانی ہے۔ تمل ناڈو کے ساحلوں کے نام ہیں۔ ایویٹ، مہالی پورم، کنیا کماری، پومیور اور رامیشورم۔

(۷) مہاراشٹر : مہاراشٹر کے ساحلی رقبہ کے لحاظ سے ملک کی تیسری اور آبادی کے لحاظ سے دوسری بڑی ریاست ہے۔ اس کی سرحدیں مدھیہ پردیش، چھتیس گڑھ، آندھرا پردیش، کرناٹک اور گوا سے ملتی ہیں۔ ریاست کے مغربی ساحلی بحرہ عرب واقع ہے۔ ہندوستان کا گنجان ترین شہر ممبئی ریاست کا دارالحکومت ہے۔ مہاراشٹر کے مشہور ساحل ہیں۔ لیسیمیا، دھانو، پورڈی، گنپتی، بھلے، پرنائی، حولبو، مانڈوا، میرین ڈرائیو، ماروے منوری گورائی، مروڈ جھیرہ، شری وردھن، وینگورالامالون، وجے دوگ، سندھو درگ وغیرہ۔

(۸) گجرات کے ساحل : مغربی ہندوستان کی اس ریاست کی اس ریاست کی سرحد میں الاقوامی سرحد بھی ہے، پاکستان سے لگی ہوئی ہے۔ اس ریاست کا دارالحکومت گاندھی نگر ہے جو ریاست کے اہم تجارتی مرکز احمد آباد کے قریب واقع ہے۔ بڑے سمندر کے کنارے والی ریاست میں تاریخ کے دور کے شروع ہونے سے پہلے ہی متعدد غیر ملکی اقوام بری اور بحری راستے سے آ کر ملتے ہیں اور یہ

مستقل طور سے بسی ہوئی ہیں۔ ریاست گجرات کے ۵ ساحل بہت مشہور ہیں جن کے نام ہیں۔ احمد پور ماٹو وی ساحل، کیتھال، گوینا تھا اور عمر گاؤں۔

(۹) گوا : ہندوستان کی قدیم تاریخ میں گوا کا ذکر ملتا ہے۔ گوا تقریباً ۵۵۰ سال تک پرتگالیوں کے تسلط میں رہا۔ دنیا بھر کے سیاح یہاں چھٹیاں گزارنے آتے ہیں۔ گوا پہنچنے کے لیے دو اہم راستے ہیں۔ ممبئی سے گوا کا راستہ اور کرناٹک کے بیلگام کا راستہ۔ گوا کا دارالحکومت پنجمی ہے۔ گوا کے اہم ساحل ہیں۔ مسیرامار، سکرین، ورکا، کولوا، مینا ولم، بومگولو، پالولیم، ہرل دریائے فاندوی وغیرہ۔

(۱۰) پانڈیچری : ہندوستان کی مرکزی حکمرانی والی اس ریاست کا نام پانڈیچری یا پانڈیچری ہے۔ پانڈیچری کے مغرب طویل ساحل سمندر ہے۔ پانڈیچری پرفرانسیسوں اور انگریزوں کا قبضہ تھا۔ پانڈیچری کی متحدہ ریاست ۴ دستوار گزار علاقہ (۱) پڈوچیری (۲) کرایکال (۳) مالپے (۴) نیم سے مل کر بنی ہے۔ چنئی سے پانڈیچری کی دوری ۱۶۰ کلومیٹر ہے۔ یہاں کے مشہور ساحل ہیں۔ کرائیکال پرومینڈ مالپے، پلگ بیرا دار اور دے وریہ پٹی۔

(۱۱) انڈومان اور کوبار : تقریباً ۳ سو چھوٹے بڑے جزیروں سے مل کر بنے انڈومان اور کوبار جزائر مراکز کے زیر انتظام علاقے ہیں جو خلیج بنگال کے جنوب میں بحر ہند میں واقع ہیں۔ یہاں کا دارالحکومت پورٹ بلیئر ہے۔ انڈومان ملائی زبان کے لفظ 'ہاندومن' سے آیا ہے۔ جو ہندو دیوتا ہنومان کے نام کا متبادل ہے۔ کوبار لفظ بھی اسی زبان سے لیا گیا ہے۔ یہاں کے بڑے ساحل کورین کو اور چرایا جزیرہ پر مندرے، کرمتنگ، رادھا اور وجے نگر، رام نگر اور اس کے علاوہ ایک سمندری پارک بھی ہے جس کا نام انڈر نیشنل پارک۔

(۱۲) دمن دیو : دمن دیو اور گجرات کے جو ناگڑھ اور مہاراشٹر کے ممبئی کے قریب بحیرہ عرب میں واقع جزائر ہیں۔ یہ علاقہ مرکزی حکمران کے تحت آتا ہے۔ یہاں کا دارالحکومت 'سلواسا' ہے۔ یہاں سیاحوں کے لیے سہانے موسم کے ساتھ خوبصورت اور محفوظ تفریحی پارک ہے اور ایک وسیع 'دمن گنگا' ندی بھی ہے۔ یہ ندی دمن کو ۲ حصوں میں تقسیم کرتی ہے۔ ایک 'نانی دمن' اور دوسرا 'موتی دمن'۔ یہاں پر ۱۲ اہم ساحل ہیں ایک کا نام دیو کا ساحل اور دوسرے کا نام 'جیم پورے ساحل' ہے۔

(۱۳) لکش دیپ : لکش دیپ کی زمین ۳۲ کلومیٹر طویل اور ۳۹ چھوٹے چھوٹے جزیروں میں بنی ہوئی ہے۔ یہ دنیا کے سب سے زیادہ پرسکون جزیروں میں سے ایک ہے۔ یہاں کے سمندر کا پانی انتہائی شفاف ہے۔ ان تمام جزیروں پر مونگے کے ریف، ریتیلے کنارے اور خوبصورت قدرتی املاک دیکھنے کے قابل ہیں۔ یہ آلودگی سے پاک ہوا۔ صاف پانی اور مہمان نوازی اور آسانی سہولیات کے لیے مشہور جگہ ہے۔ یہاں آب 'سی ڈرائیونگ' کر سکتے ہیں یا چاہیں تو قدرتی لطف آمد آرام کا بھر پور مزہ لوٹ سکتے ہیں۔ یہاں کے اہم ساحل ہیں۔ کورتی، کلپتی، قدامت، اگاتی اور یگانگ رام وغیرہ۔

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